

VOTE: 142 National Agricultural Research Organization (NARO)

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V1: Summary of Issues in Budget Execution**Table V1.1: Overview of Vote Expenditures (US\$ Billion)**

	Approved Budget	Revised Budget	Released by End Q4	Spent by End Q4	% Budget Released	% Budget Spent	% Releases Spent	
Recurrent	Wage	43.462	43.462	43.462	43.462	100.0 %	100.0 %	100.0 %
	Non-Wage	42.055	42.055	42.055	42.011	100.0 %	99.9 %	99.9 %
Dev.	GoU	80.970	80.970	78.970	78.967	97.5 %	97.5 %	100.0 %
	Ext Fin.	0.000	0.000	0.000	0.000	0.0 %	0.0 %	0.0 %
GoU Total		166.487	166.487	164.487	164.440	98.8 %	98.8 %	100.0 %
Total GoU+Ext Fin (MTEF)		166.487	166.487	164.487	164.440	98.8 %	98.8 %	100.0 %
Arrears		0.000	0.000	0.000	0.000	0.0 %	0.0 %	0.0 %
Total Budget		166.487	166.487	164.487	164.440	98.8 %	98.8 %	100.0 %
<i>A.I.A Total</i>		0.000	0.000	0.000	0.000	0.0 %	0.0 %	0.0 %
Grand Total		166.487	166.487	164.487	164.440	98.8 %	98.8 %	100.0 %
Total Vote Budget Excluding Arrears		166.487	166.487	164.487	164.440	98.8 %	98.8 %	100.0 %

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Table V1.2: Releases and Expenditure by Programme and Sub-SubProgramme*

<i>Billion Uganda Shillings</i>	Approved Budget	Revised Budget	Released by End Q4	Spent by End Q4	% Budget Released	% Budget Spent	%Releases Spent
Programme:01 Agro-Industrialization	166.387	166.387	164.387	164.340	98.8 %	98.8 %	100.0%
Sub SubProgramme:01 Agricultural Research	166.387	166.387	164.387	164.340	98.8 %	98.8 %	100.0%
Programme:17 Regional Balanced Development	0.100	0.100	0.100	0.100	100.0 %	100.0 %	100.0%
Sub SubProgramme:01 Agricultural Research	0.100	0.100	0.100	0.100	100.0 %	100.0 %	100.0%
Total for the Vote	166.487	166.487	164.487	164.440	98.8 %	98.8 %	100.0 %

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Table V1.3: High Unspent Balances and Over-Expenditure in the Approved Budget (Ushs Bn)*(i) Major unspent balances***Departments , Projects****Programme:01 Agro-Industrialization****Sub SubProgramme:01 Agricultural Research****Sub Programme: 02 Agricultural Production and Productivity**

0.005	Bn Shs	Department : 013 Mukono Zonal Agriculture Research Institute (ZARDI)
		Reason: This unspent balance due to delayed submission of invoices for repair of a Mukono ZARDI Institute vehicle which got stuck in Masaka kamenyamiggo.

Items

0.004	UShs	228002 Maintenance-Transport Equipment
		Reason: This due to delayed submission of invoices for repair of Institute vehichle which got stuck in Masaka kamenyamiggo.Service provider was a good distance from station. There are no pre-qualified service providers in the area

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V2: Performance Highlights**Table V2.1: PIAP outputs and output Indicators**

Programme:01 Agro-Industrialization			
SubProgramme:01 Institutional Strengthening and Coordination			
Sub SubProgramme:01 Agricultural Research			
Department:007 NARO-SECRETARIATE			
Budget Output: 000001 Audit and Risk Management			
PIAP Output: 01040701 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of market-oriented products generated	Number	4	4
PIAP Output: 01910101 Audit and Risk Management coordinated			
Programme Intervention: 019101 Strengthen government institutions for effective and efficient service delivery.			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
No. of audit reports produced and submitted	Number	4	4
Budget Output: 000013 HIV/AIDS Mainstreaming			
PIAP Output: 01040701 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of improved technologies and innovations adopted	Number	1	1
Number of research products and services for food and nutrition security generated	Number	2	2
Budget Output: 000014 Administrative and Support Services			
PIAP Output: 01040701 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of functional public-private partnerships established for technology development and promotion	Number	4	4

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Programme:01 Agro-Industrialization			
SubProgramme:01 Institutional Strengthening and Coordination			
Sub SubProgramme:01 Agricultural Research			
Department:007 NARO-SECRETARIATE			
Budget Output: 000089 Climate Change Mitigation			
PIAP Output: 01040701 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of market-oriented products generated	Number	6	6
Number of improved technologies and innovations adopted	Number	6	6
Budget Output: 000090 Climate Change Adaptation			
PIAP Output: 01040701 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of improved technologies and innovations adopted	Number	6	6
SubProgramme:02 Agricultural Production and Productivity			
Sub SubProgramme:01 Agricultural Research			
Department:001 Abi Zonal Agriculture Research Institute(ZARDI)			
Budget Output: 010010 Technology Generation			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of research products and services for food and nutrition security generated	Number	2	2
Number of research products and services suitable for industry developed	Number	1	1
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of technologies adopted	Number	6	6

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Programme:01 Agro-Industrialization			
SubProgramme:02 Agricultural Production and Productivity			
Sub SubProgramme:01 Agricultural Research			
Department:001 Abi Zonal Agriculture Research Institute(ZARDI)			
Budget Output: 010011 Technology Promotion			
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of technologies adopted	Number	8	8
Department:002 Buginyaya Zonal Agriculture Research Institute(ZARDI)			
Budget Output: 010010 Technology Generation			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of improved technologies and innovations adopted	Number	15	15
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of District Adaptive Research Support Teams (DARSTs) developed	Number	15	0
Department:003 Bulindi Zonal Agriculture Research Institute(ZARDI)			
Budget Output: 010010 Technology Generation			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of improved technologies and innovations adopted	Number	4	4
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of technologies adopted	Number	2	2

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Programme:01 Agro-Industrialization			
SubProgramme:02 Agricultural Production and Productivity			
Sub SubProgramme:01 Agricultural Research			
Department:004 Kachwekano Zonal Agriculture Research Institute(ZARDI)			
Budget Output: 010010 Technology Generation			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of improved technologies and innovations adopted	Number	4	4
Number of research products and services suitable for industry developed	Number	8	8
Budget Output: 010011 Technology Promotion			
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of technologies adopted	Number	4	4
Department:005 Mbarara Zonal Agriculture Research Institute(ZARDI)			
Budget Output: 010010 Technology Generation			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of markets created along product lines	Number	4	4
Number of research products and services for food and nutrition security generated	Number	13	13
Budget Output: 010011 Technology Promotion			
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of technologies adopted	Number	13	13

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Programme:01 Agro-Industrialization			
SubProgramme:02 Agricultural Production and Productivity			
Sub SubProgramme:01 Agricultural Research			
Department:008 National Agricultural Research Laboratories			
Budget Output: 010010 Technology Generation			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of research products and services suitable for industry developed	Number	10	10
Budget Output: 010011 Technology promotion			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of market-oriented products generated	Number	4	4
Department:009 National Coffee Research Institute			
Budget Output: 010010 Technology Generation			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of functional public-private partnerships established for technology development and promotion	Number	2	2
Number of improved technologies and innovations adopted	Number	2	2
Number of research products and services for food and nutrition security generated	Number	5	5
Budget Output: 010011 Technology Promotion			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of functional public-private partnerships established for technology development and promotion	Number	2	2
Number of improved technologies and innovations adopted	Number	2	2
Number of research products and services for food and nutrition security generated	Number	5	5

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Programme:01 Agro-Industrialization			
SubProgramme:02 Agricultural Production and Productivity			
Sub SubProgramme:01 Agricultural Research			
Department:010 National Crops Resources Research Institute			
Budget Output: 010010 Technology Generation			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of research products and services for food and nutrition security generated	Number	4	4
Department:011 National Fisheries Resources Research Institute			
Budget Output: 010010 Technology Generation			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of market-oriented products generated	Number	4	4
Number of research products and services for food and nutrition security generated	Number	8	8
Number of research products and services suitable for industry developed	Number	2	2
Department:012 National Forestry Resources Research Institute			
Budget Output: 010011 Technology Promotion			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of research products and services suitable for industry developed	Number	2	2
Department:013 Mukono Zonal Agriculture Research Institute (ZARDI)			
Budget Output: 010011 Technology Promotion			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of market-oriented products generated	Number	4	4

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Programme:01 Agro-Industrialization			
SubProgramme:02 Agricultural Production and Productivity			
Sub SubProgramme:01 Agricultural Research			
Department:014 National Livestock Resources Research Institute (NaLIRRI)			
Budget Output: 010010 Technology Generation			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of improved technologies and innovations adopted	Number	6	6
Budget Output: 010011 Technology Promotion			
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of technologies adopted	Number	6	6
Department:016 Ngetta ZARDI			
Budget Output: 010011 Technology Promotion			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of market-oriented products generated	Number	4	4
Number of research products and services suitable for industry developed	Number	1	1
Project:1560 Relocation and Operationalisation of the National Livestock Resources Research Institute(NALIRRI)			
Budget Output: 000017 Infrastructure Development and Management			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of research products and services for food and nutrition security generated	Number	15	15
Number of research products and services suitable for industry developed	Number	3	3

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Programme:01 Agro-Industrialization			
SubProgramme:02 Agricultural Production and Productivity			
Sub SubProgramme:01 Agricultural Research			
Project:1560 Relocation and Operationalisation of the National Livestock Resources Research Institute(NALIRRI)			
Budget Output: 010010 Technology Generation			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of research products and services suitable for industry developed	Number	5	5
Project:1619 Retooling of National Agricultural Research Organization			
Budget Output: 000003 Facilities and Equipment Management			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of research products and services suitable for industry developed	Number	8	8
Budget Output: 000017 Infrastructure Development and Management			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of research products and services suitable for industry developed	Number	8	8
Budget Output: 010008 Capacity Strengthening			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of research products and services for food and nutrition security generated	Number	4	4

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Programme:01 Agro-Industrialization			
SubProgramme:02 Agricultural Production and Productivity			
Sub SubProgramme:01 Agricultural Research			
Project:1619 Retooling of National Agricultural Research Organization			
Budget Output: 010009 Research Partnerships			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of functional public-private partnerships established for technology development and promotion	Number	5	5
Budget Output: 010010 Technology Generation			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of research products and services for food and nutrition security generated	Number	15	15
Budget Output: 010011 Technology Promotion			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
PIAP Output Indicators	Indicator Measure	Planned 2023/24	Actuals By END Q 4
Number of improved technologies and innovations adopted	Number	68	68
Number of research products and services for food and nutrition security generated	Number	8	8

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Performance highlights for the Quarter

During the implementation of FY 2023/24 workplan and budget, the Organisation received UGX 164.487 billion (98.79 out of the annual budgeted UGX 166.487 billion and spent 99.97% of the released budget indicating a continuous positive absorption capacity. This release was UGX 164.487, greater than UGX 108.196 billion received in FY2022/23, indicating a positive trend in budget release allocations to NARO. Given this financial support, NARO was able to implement 99% of the FY2023/24 workplan and most of the achievements arose from previously implemented research activities under the CGS mode. The CGS mode targets specific products with inbuilt mechanisms for tracking progress that inform management decisions. Other successes came as a result of support from funding off-budget project. In physical performance, the Key highlights included twelve (12) NARO crop varieties were released by Varieties Release Committee under the MAAIF. The released varieties included two (02) maize varieties, two (02) rice varieties, two (02) sweet potato varieties, One (01) lablab forage, two (02) bean varieties and three (03) groundnuts varieties. During FY 2023-2024, NARO developed 29 new candidate crop lines which have been submitted to VRC-MAAIF. NARO completed anti-tick vaccines on farm trials successfully. The vaccine was true-to-form (did kill the ticks on cattle in the farms). NARO is also set to complete the vaccine production facility and provide Ugandan farmers with a solution to using commercial acaricides against ticks, and Uganda cattle with no tick burden. NARO expended efforts to support seed and seed systems in Uganda. NARO generated 175 metric tons of seed to be accessed by the farming communities in Uganda. The seed sector in Uganda was strengthened. NARO has expended efforts to promote improved TIMPs cultural institutions as technology uptake pathways.

Variations and Challenges

During the implementation however, there were a number of challenges faced that included Inadequacies in funding, human resource, research infrastructure, and stakeholder engagement. Other challenges were limited information dissemination, dynamic change in technology, Inadequate provision of NTR ceilings and competing land use interests. This resulted into implementation gaps in capacity to handle biotic (emerging pests and diseases) and abiotic (climate change and declining soil fertility) factors. Additionally, gaps also appeared in sustainable use and conservation of plant and animal genetic, limited linkages with markets and Industry, limited effective partnerships and technology transfer, among others. This was coupled with limited capacity for postharvest processing, storage and packaging of seed produced by PARIs and inadequate ICT integration in agricultural research as a support tool for decision making and real time data management.

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V3: Details of Releases and Expenditure**Table V3.1: GoU Releases and Expenditure by Budget Output***

<i>Billion Uganda Shillings</i>	Approved Budget	Revised Budget	Released by End Q4	Spent by End Q4	% GoU Budget Released	% GoU Budget Spent	% GoU Releases Spent
Programme:01 Agro-Industrialization	166.387	166.387	164.387	164.340	98.8 %	98.8 %	100.0 %
Sub SubProgramme:01 Agricultural Research	166.387	166.387	164.387	164.340	98.8 %	98.8 %	100.0 %
000001 Audit and Risk Management	0.130	0.130	0.130	0.130	100.0 %	100.0 %	100.0 %
000003 Facilities and Equipment Management	31.000	31.000	31.000	31.000	100.0 %	100.0 %	100.0 %
000013 HIV/AIDS Mainstreaming	0.049	0.049	0.049	0.049	100.0 %	100.0 %	100.0 %
000014 Administrative and Support Services	66.543	66.543	66.543	66.543	100.0 %	100.0 %	100.0 %
000017 Infrastructure Development and Management	29.000	28.100	28.100	28.097	96.9 %	96.9 %	100.0 %
000089 Climate Change Mitigation	0.050	0.050	0.050	0.050	100.0 %	100.0 %	100.0 %
000090 Climate Change Adaptation	0.050	0.050	0.050	0.050	100.0 %	100.0 %	100.0 %
010008 Capacity Strengthening	7.570	7.770	7.770	7.770	102.6 %	102.6 %	100.0 %
010009 Research Partnerships	3.000	3.000	1.000	1.000	33.3 %	33.3 %	100.0 %
010010 Technology Generation	24.820	25.220	25.220	25.176	101.6 %	101.4 %	99.8 %
010011 Technology promotion	4.175	4.475	4.475	4.475	107.2 %	107.2 %	100.0 %
Programme:17 Regional Balanced Development	0.100	0.100	0.100	0.100	100.0 %	100.0 %	100.0 %
Sub SubProgramme:01 Agricultural Research	0.100	0.100	0.100	0.100	100.0 %	100.0 %	100.0 %
010011 Technology Promotion	0.100	0.100	0.100	0.100	100.0 %	100.0 %	100.0 %
Total for the Vote	166.487	166.487	164.487	164.440	98.8 %	98.8 %	100.0 %

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Table V3.2: GoU Expenditure by Item 2023/24 GoU Expenditure by Item

<i>Billion Uganda Shillings</i>	Approved Budget	Revised Budget	Released by End Q4	Spent by End Q4	% GoU Budget Released	% GoU Budget Spent	% GoU Releases Spent
211102 Contract Staff Salaries	43.462	43.462	43.462	43.462	100.0 %	100.0 %	100.0 %
211104 Employee Gratuity	10.866	10.866	10.866	10.866	100.0 %	100.0 %	100.0 %
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	1.465	1.465	1.465	1.465	100.0 %	100.0 %	100.0 %
211107 Boards, Committees and Council Allowances	0.096	0.096	0.096	0.096	100.0 %	100.0 %	100.0 %
212101 Social Security Contributions	4.592	4.346	4.346	4.346	94.6 %	94.6 %	100.0 %
212102 Medical expenses (Employees)	0.350	0.596	0.596	0.596	170.3 %	170.3 %	100.0 %
212103 Incapacity benefits (Employees)	0.235	0.235	0.235	0.235	100.0 %	100.0 %	100.0 %
221001 Advertising and Public Relations	0.581	0.581	0.581	0.581	100.0 %	100.0 %	100.0 %
221002 Workshops, Meetings and Seminars	0.010	0.010	0.010	0.010	100.0 %	100.0 %	100.0 %
221003 Staff Training	0.053	0.053	0.053	0.053	100.0 %	100.0 %	100.0 %
221004 Recruitment Expenses	0.060	0.160	0.160	0.160	266.7 %	266.7 %	100.0 %
221007 Books, Periodicals & Newspapers	0.022	0.022	0.022	0.022	100.0 %	98.2 %	98.2 %
221008 Information and Communication Technology Supplies.	0.372	0.372	0.372	0.372	100.0 %	100.0 %	100.0 %
221009 Welfare and Entertainment	0.281	0.281	0.281	0.281	100.0 %	100.0 %	100.0 %
221011 Printing, Stationery, Photocopying and Binding	0.371	0.371	0.371	0.370	100.0 %	99.7 %	99.7 %
221012 Small Office Equipment	0.010	0.010	0.010	0.010	100.0 %	100.0 %	100.0 %
221016 Systems Recurrent costs	0.060	0.060	0.060	0.060	100.0 %	100.0 %	100.0 %
221017 Membership dues and Subscription fees.	0.063	0.063	0.063	0.063	100.0 %	100.0 %	100.0 %
222001 Information and Communication Technology Services.	0.611	0.611	0.611	0.611	100.0 %	100.0 %	100.0 %
222002 Postage and Courier	0.008	0.008	0.008	0.008	100.0 %	100.0 %	100.0 %
223001 Property Management Expenses	0.207	0.207	0.207	0.207	100.0 %	100.0 %	100.0 %
223004 Guard and Security services	0.185	0.185	0.185	0.185	100.0 %	100.0 %	100.0 %
223005 Electricity	0.944	0.944	0.944	0.944	100.0 %	100.0 %	100.0 %
223006 Water	0.223	0.223	0.223	0.223	100.0 %	100.0 %	100.0 %
224002 Veterinary supplies and services	0.806	0.806	0.806	0.806	100.0 %	100.0 %	100.0 %
224003 Agricultural Supplies and Services	4.146	4.146	4.146	4.146	100.0 %	100.0 %	100.0 %

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<i>Billion Uganda Shillings</i>	Approved Budget	Revised Budget	Released by End Q4	Spent by End Q4	% GoU Budget Released	% GoU Budget Spent	% GoU Releases Spent
224004 Beddings, Clothing, Footwear and related Services	0.025	0.025	0.025	0.025	100.0 %	100.0 %	100.0 %
224005 Laboratory supplies and services	0.125	0.125	0.125	0.125	100.0 %	100.0 %	100.0 %
224010 Protective Gear	0.019	0.019	0.019	0.019	100.0 %	100.0 %	100.0 %
224011 Research Expenses	29.348	30.048	30.048	30.009	102.4 %	102.3 %	99.9 %
225101 Consultancy Services	0.366	0.366	0.366	0.366	100.0 %	100.0 %	100.0 %
225201 Consultancy Services-Capital	0.520	0.520	0.520	0.520	100.0 %	100.0 %	100.0 %
225204 Monitoring and Supervision of capital work	0.448	0.448	0.448	0.448	100.0 %	100.0 %	100.0 %
226001 Insurances	0.017	0.017	0.017	0.017	100.0 %	100.0 %	100.0 %
226002 Licenses	0.119	0.119	0.119	0.119	100.0 %	100.0 %	100.0 %
227001 Travel inland	0.335	0.335	0.335	0.335	100.0 %	100.0 %	100.0 %
227003 Carriage, Haulage, Freight and transport hire	0.019	0.019	0.019	0.019	100.0 %	100.0 %	100.0 %
227004 Fuel, Lubricants and Oils	1.065	1.165	1.165	1.165	109.4 %	109.4 %	100.0 %
228001 Maintenance-Buildings and Structures	1.058	1.058	1.058	1.058	100.0 %	100.0 %	100.0 %
228002 Maintenance-Transport Equipment	0.517	0.517	0.517	0.513	100.0 %	99.2 %	99.2 %
228003 Maintenance-Machinery & Equipment Other than Transport Equipment	0.202	0.202	0.202	0.202	100.0 %	100.0 %	100.0 %
228004 Maintenance-Other Fixed Assets	0.137	0.137	0.137	0.137	100.0 %	100.0 %	100.0 %
262201 Contributions to International Organisations-Capital	1.950	1.950	0.000	0.000	0.0 %	0.0 %	0.0 %
273102 Incapacity, death benefits and funeral expenses	0.010	0.010	0.010	0.010	100.0 %	100.0 %	100.0 %
282107 Contributions to Non-Government institutions	0.050	0.050	0.000	0.000	0.0 %	0.0 %	0.0 %
312121 Non-Residential Buildings - Acquisition	19.000	19.000	19.000	18.998	100.0 %	100.0 %	100.0 %
312233 Medical, Laboratory and Research & appliances - Acquisition	31.000	31.000	31.000	31.000	100.0 %	100.0 %	100.0 %
313121 Non-Residential Buildings - Improvement	9.355	8.455	8.455	8.454	90.4 %	90.4 %	100.0 %
313233 Medical, Laboratory and Research & appliances - Improvement	0.574	0.574	0.574	0.574	100.0 %	100.0 %	100.0 %
313235 Furniture and Fittings - Improvement	0.150	0.150	0.150	0.150	100.0 %	100.0 %	100.0 %
Total for the Vote	166.487	166.487	164.487	164.440	98.8 %	98.8 %	100.0 %

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Table V3.3: Releases and Expenditure by Department and Project*

<i>Billion Uganda Shillings</i>	Approved Budget	Revised Budget	Released by End Q4	Spent by End Q4	% GoU Budget Released	% GoU Budget Spent	% GoU Releases Spent
Programme:01 Agro-Industrialization	166.387	166.387	164.387	164.340	98.80 %	98.77 %	99.97 %
Sub SubProgramme:01 Agricultural Research	166.387	166.387	164.387	164.340	98.80 %	98.77 %	100.0 %
Departments							
001 Abi Zonal Agriculture Research Institute(ZARDI)	0.100	0.100	0.100	0.100	100.0 %	100.0 %	100.0 %
002 Buginyaya Zonal Agriculture Research Institute(ZARDI)	0.250	0.250	0.250	0.250	100.0 %	100.0 %	100.0 %
003 Bulindi Zonal Agriculture Research Institute(ZARDI)	0.100	0.100	0.100	0.100	100.0 %	100.0 %	100.0 %
004 Kachwekano Zonal Agriculture Research Institute(ZARDI)	0.175	0.175	0.175	0.175	100.0 %	100.0 %	100.0 %
005 Mbarara Zonal Agriculture Research Institute(ZARDI)	0.100	0.100	0.100	0.100	100.0 %	100.0 %	100.0 %
006 Nabuin Zonal Agriculture Research Institute(ZARDI)	0.100	0.100	0.100	0.100	100.0 %	100.0 %	100.0 %
007 NARO-SECRETARIATE	66.822	66.822	66.822	66.822	100.0 %	100.0 %	100.0 %
008 National Agricultural Research Laboratories	0.250	0.250	0.250	0.249	100.0 %	99.6 %	99.6 %
009 National Coffee Research Institute	0.175	0.175	0.175	0.175	100.0 %	100.0 %	100.0 %
010 National Crops Resources Research Institute	0.175	0.175	0.175	0.175	100.0 %	100.0 %	100.0 %
011 National Fisheries Resources Research Institute	0.175	0.175	0.175	0.175	100.0 %	100.0 %	100.0 %
012 National Forestry Resources Research Institute	0.100	0.100	0.100	0.100	100.0 %	100.0 %	100.0 %
013 Mukono Zonal Agriculture Research Institute (ZARDI)	0.175	0.175	0.175	0.170	100.0 %	97.1 %	97.1 %
014 National Livestock Resources Research Institute (NaLIRRI)	16.345	16.345	16.345	16.307	100.0 %	99.8 %	99.8 %
015 National Semi Arid Resources Research Institute (NaSARRI)	0.100	0.100	0.100	0.100	100.0 %	100.0 %	100.0 %
016 Ngetta ZARDI	0.100	0.100	0.100	0.100	100.0 %	100.0 %	100.0 %
017 Rwebitaba ZARDI	0.175	0.175	0.175	0.175	100.0 %	100.0 %	100.0 %
Development Projects							
1560 Relocation and Operationalisation of the National Livestock Resources Research Institute(NALIRRI)	21.000	21.000	21.000	20.998	100.0 %	100.0 %	100.0 %

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

<i>Billion Uganda Shillings</i>	Approved Budget	Revised Budget	Released by End Q4	Spent by End Q4	% GoU Budget Released	% GoU Budget Spent	% GoU Releases Spent
Programme:01 Agro-Industrialization	166.387	166.387	164.387	164.340	98.80 %	98.77 %	99.97 %
1619 Retooling of National Agricultural Research Organization	59.970	59.970	57.970	57.969	96.7 %	96.7 %	100.0 %
Programme:17 Regional Balanced Development	0.100	0.100	0.100	0.100	100.00 %	100.00 %	100.00 %
Sub SubProgramme:01 Agricultural Research	0.100	0.100	0.100	0.100	100.00 %	100.00 %	100.0 %
Departments							
002 Buginyaya Zonal Agriculture Research Institute(ZARDI)	0.100	0.100	0.100	0.100	100.0 %	100.0 %	100.0 %
Development Projects							
N/A							
Total for the Vote	166.487	166.487	164.487	164.440	98.8 %	98.8 %	100.0 %

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Table V3.4: External Financing Releases and Expenditure by Sub-SubProgramme and Project

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Quarter 4: Outputs and Expenditure in the Quarter

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Programme:01 Agro-Industrialization		
SubProgramme:01 Institutional Strengthening and Coordination		
Sub SubProgramme:01 Agricultural Research		
<i>Departments</i>		
Department:007 NARO-SECRETARIATE		
Budget Output:000001 Audit and Risk Management		
PIAP Output: 01040701 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
PIAP Output: 01910101 Audit and Risk Management coordinated		
Programme Intervention: 019101 Strengthen government institutions for effective and efficient service delivery.		
2 Audit assessments conducted to inform management of possible risks and solutions.	2 Audit assessments conducted to inform management of possible risks and solutions. Implementation status reviewed and corrective actions ascertained, verified status report submitted to Permanent Secretary, Secretary to Treasury (PSST), Internal Auditor General (IAG), 1 and Auditor General.	Achieved.
2 Audit assessments conducted to inform management of possible risks and solutions.	2 Audit assessments conducted to inform management of possible risks and solutions. Implementation status reviewed and corrective actions ascertained, verified status report submitted to Permanent Secretary, Secretary to Treasury (PSST), Internal Auditor General (IAG), 1 and Auditor General. (Duplicate)	(Duplicate)
2 Audit assessments conducted to inform management of possible risks and solutions.	2 Audit assessments conducted to inform management of possible risks and solutions. Implementation status reviewed and corrective actions ascertained, verified status report submitted to Permanent Secretary, Secretary to Treasury (PSST), Internal Auditor General (IAG), 1 and Auditor General. (Duplicate)	(Duplicate)
2 Audit assessments conducted to inform management of possible risks and solutions.	2 Audit assessments conducted to inform management of possible risks and solutions. Implementation status reviewed and corrective actions ascertained, verified status report submitted to Permanent Secretary, Secretary to Treasury (PSST), Internal Auditor General (IAG), 1 and Auditor General. (Duplicate)	(Duplicate).

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
221003 Staff Training		5,310.400
224011 Research Expenses		41,343.247
	Total For Budget Output	46,653.647
	Wage Recurrent	0.000
	Non Wage Recurrent	46,653.647
	Arrears	0.000
	<i>AIA</i>	0.000
Budget Output:000013 HIV/AIDS Mainstreaming		
PIAP Output: 01040701 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
1 sensitization strategic meetings for prevention and positive living conducted	1 sensitization strategic meetings for prevention and positive living conducted at NASARRI	Achieved.
	No plan	No plan
1 sensitization strategic meetings for prevention and positive living conducted	Two sensitization strategic meetings for prevention and positive living conducted at NASARRI (Duplicate)	Duplicate
PIAP Output: 10412026 Leadership and Management coordinated		
Programme Intervention: 010601 Strengthen coordination of public institutions in design and implementation of policies including access to quality food and food security		
1 market led demand driven technologies promoted to engage the youth in business.1 sensitization strategic meetings for prevention and positive living conducted.	1 sensitization strategic meetings for prevention and positive living conducted at Bulindi	Achieved.
	-	No planned.
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
224011 Research Expenses		36,630.000
	Total For Budget Output	36,630.000
	Wage Recurrent	0.000
	Non Wage Recurrent	36,630.000
	Arrears	0.000
	<i>AIA</i>	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Budget Output:000014 Administrative and Support Services		
PIAP Output: 10412026 Leadership and Management coordinated		
Programme Intervention: 010601 Strengthen coordination of public institutions in design and implementation of policies including access to quality food and food security		
<p>9 Agricultural research projects supported through technical back stopping across 16 Public research Institutes (PARI) One social economic impact assessment for two technologies conducted. Research enabling environment for 16 PARIs created</p>	<p>(1) NARO invested and is conducting 34 research studies towards: (a)resilient food systems and enhanced nutrition (b), products for industry and market (c), resilience to environmental and pandemic phenomena. The resultant products of these studies will contribute to food and nutrition security, support of vertical industry to support industrialization and provide solutions towards mitigation and adaptation of climate change. In quarter four Nine (9) CGS Agricultural research projects supported through technical back stopping across 16 Public research Institutes (PARI). Projects were refocus in their deliverables, MOUs were reviewed for leveled understanding. This created a refocused their new modus operandi enabling environment . (2) NARO conducted one social economic impact assessment for sorghum technologies conducted. Data collected, report writing underway.</p>	<p>Achieved.</p>
<p>10 Agricultural research projects supported through technical back stopping across 16 Public research Institutes (PARI) Research enabling environment for 16 PARIs created & maintained</p>	<p>(Duplicate).(1) NARO invested and is conducting 34 research studies towards: (a)resilient food systems and enhanced nutrition (b), products for industry and market (c), resilience to environmental and pandemic phenomena. The resultant products of these studies will contribute to food and nutrition security, support of vertical industry to support industrialization and provide solutions towards mitigation and adaptation of climate change. In quarter four Nine (9) CGS Agricultural research projects supported through technical back stopping across 16 Public research Institutes (PARI). Projects were refocus in their deliverables, MOUs were reviewed for leveled understanding. This created a refocused their new modus operandi enabling environment . (2) NARO conducted one social economic impact assessment for sorghum technologies. Preliminary results show that 59% of the farmers (sorghum-growing households) in the surveyed areas adopted the NARO sorghum varieties.</p>	<p>(Duplicate).</p>

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 10412026 Leadership and Management coordinated

Programme Intervention: 010601 Strengthen coordination of public institutions in design and implementation of policies including access to quality food and food security

	NARO conducted one social economic impact assessment for sorghum technologies. Preliminary results show that 59% of the farmers (sorghum-growing households) in the surveyed areas adopted the NARO sorghum varieties. The most popular varieties are NAROSORG-1, NAROSORG-2, and NAROSORG-3. Other include NAROSORG-4, SESO-1, and SESO-2. Farmers reported that they prefer these varieties because they offer higher yields, have better taste, early maturity, and availability of the seed.	Achieved. (only on impact study)
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Expenditures incurred in the Quarter to deliver outputs	US\$ Thousand
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Item	Spent
211102 Contract Staff Salaries	11,013,694.629
211104 Employee Gratuity	2,716,381.830
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	280,420.339
211107 Boards, Committees and Council Allowances	20,954.250
212101 Social Security Contributions	1,109,497.216
212102 Medical expenses (Employees)	0.001
212103 Incapacity benefits (Employees)	94,578.543
221007 Books, Periodicals & Newspapers	1,000.000
221009 Welfare and Entertainment	50,304.425
221011 Printing, Stationery, Photocopying and Binding	16,243.558
221016 Systems Recurrent costs	10,300.000
222001 Information and Communication Technology Services.	167,178.400
222002 Postage and Courier	1,648.741
223001 Property Management Expenses	48,901.004
223004 Guard and Security services	11,513.315
223005 Electricity	191,497.500
223006 Water	48,771.000
224002 Veterinary supplies and services	360,450.110
224003 Agricultural Supplies and Services	299,585.623
224004 Beddings, Clothing, Footwear and related Services	9,181.869

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
224011 Research Expenses		305,167.463
225101 Consultancy Services		31,250.001
226001 Insurances		10,000.000
227001 Travel inland		75,309.527
227004 Fuel, Lubricants and Oils		10,560.000
228001 Maintenance-Buildings and Structures		3,000.001
228002 Maintenance-Transport Equipment		31,327.701
228003 Maintenance-Machinery & Equipment Other than Transport Equipment		4,140.262
228004 Maintenance-Other Fixed Assets		4,151.958
	Total For Budget Output	16,927,009.266
	Wage Recurrent	11,013,694.629
	Non Wage Recurrent	5,913,314.637
	Arrears	0.000
	<i>AIA</i>	0.000
Budget Output:000089 Climate Change Mitigation		
PIAP Output: 01040701 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 10412026 Leadership and Management coordinated		
Programme Intervention: 010601 Strengthen coordination of public institutions in design and implementation of policies including access to quality food and food security		
technological solutions for emerging and environmental concerns developed	NARO ESS undertook compliance assessments from which 14 Environment and social management plans (ESMPs) for the 14 agro research facilities in 4 institutes were developed. The ESMPs details the probable implications associated with development facilities and outlines the intrinsic mitigation options while justifying corrective actions relevant to minimize and offset magnitude of the impacts. NARO (ESS) undertook 4 technical support visits at NaFORRI, NARL, NaCRRRI and NaLIRRI aiming at equipping and supporting scientists and laboratory personnels on hazardous waste management approaches following clusters of waste categorization & containment (C&C); and safety practices at generation level. In addition, progress to develop waste management guidelines and acquisition of registered hazardous waste handlers for safe disposal of hazardous wastes from all the 16 PARIs to central disposal sites is underway.	Achieved.
1 technological solution for emerging and environmental concerns developed	(Duplicate). NARO (ESS) undertook 4 technical support visits at NaFORRI, NARL, NaCRRRI and NaLIRRI aiming at equipping and supporting scientists and laboratory personnels on hazardous waste management approaches following clusters of waste categorization & containment (C&C); and safety practices at generation level. In addition, progress to develop waste management guidelines and acquisition of registered hazardous waste handlers for safe disposal of hazardous wastes from all the 16 PARIs to central disposal sites is underway.	(Duplicate).

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 10412026 Leadership and Management coordinated

Programme Intervention: 010601 Strengthen coordination of public institutions in design and implementation of policies including access to quality food and food security

1 technological solution for emerging and environmental concerns developed	(Duplicate) (Duplicate) NARO (ESS) undertook 4 technical support visits at NaFORRI, NARL, NaCRRRI and NaLIRRI aiming at equipping and supporting scientists and laboratory personnels on hazardous waste management approaches following clusters of waste categorization & containment (C&C); and safety practices at generation level. In addition, progress to develop waste management guidelines and acquisition of registered hazardous waste handlers for safe disposal of hazardous wastes from all the 16 PARIs to central disposal sites is underway. In addition, progress to develop waste management guidelines and acquisition of registered hazardous waste handlers for safe disposal of hazardous wastes from all the 16 PARIs to central disposal sites is underway.	(Duplicate)
	(Duplicate) NARO ESS undertook compliance assessments from which 14 Environment and social management plans (ESMPs) for the 14 agro research facilities in 4 institutes were developed. The ESMPs details the probable implications associated with development facilities and outlines the intrinsic mitigation options while justifying corrective actions relevant to minimize and offset magnitude of the impacts.	(Duplicate)

Expenditures incurred in the Quarter to deliver outputs*US\$ Thousand*

Item	Spent
224011 Research Expenses	50,000.000
Total For Budget Output	50,000.000
Wage Recurrent	0.000
Non Wage Recurrent	50,000.000
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:000090 Climate Change Adaptation

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01040701 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Promote 1-climate smart adaptation strategies amongst all Ugandans Promote 1-climate resilient technologies amongst all Ugandans.	NARO designed and is implementing a tree planting program “NARO go green”. The NARO go green is a tree planting program designed to engage all the 16 Public Agricultural Research institutes (PARIs) in systematic tree planting on NARO land to improve the productivity and security of the available land through tree planting activities. (duplicate)	duplicate
PIAP Output: 10412026 Leadership and Management coordinated		
Programme Intervention: 010601 Strengthen coordination of public institutions in design and implementation of policies including access to quality food and food security		
Promote 1-climate smart adaptation strategies amongst all Ugandans Promote 1-climate resilient technologies amongst all Ugandans.	NARO designed and is implementing a tree planting program “NARO go green”. The NARO go green is a tree planting program designed to engage all the 16 Public Agricultural Research institutes (PARIs) in systematic tree planting on NARO land to improve the productivity and security of the available land through tree planting activities.	Achieved
Promote 1-climate smart adaptation strategies amongst all Ugandans Promote 1-climate resilient technologies amongst all Ugandans.	NARO designed and is implementing a tree planting program “NARO go green”. The NARO go green is a tree planting program designed to engage all the 16 Public Agricultural Research institutes (PARIs) in systematic tree planting on NARO land to improve the productivity and security of the available land through tree planting activities.	(Duplicate).
Expenditures incurred in the Quarter to deliver outputs		<i>UShs Thousand</i>
Item		Spent
224011 Research Expenses		47,200.000
	Total For Budget Output	47,200.000
	Wage Recurrent	0.000
	Non Wage Recurrent	47,200.000
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	17,107,492.913

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
	Wage Recurrent	11,013,694.629
	Non Wage Recurrent	6,093,798.284
	Arrears	0.000
	AIA	0.000

Development Projects

N/A

SubProgramme:02 Agricultural Production and Productivity**Sub SubProgramme:01 Agricultural Research***Departments***Department:001 Abi Zonal Agriculture Research Institute(ZARDI)****Budget Output:010010 Technology Generation****PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

Improved yields for 1 Bean variety (NARO-bean 1, and 1 G-nut variety Serenut 8, 1 efficacious compost manure recommended for promotion. 1 small-scale bee processing unit established 5 Mubende goat genotype promoted in West Nile	(1) In partnership with Muni University, the Institute has set up two trials on nutrient enhanced beans ((NARO-bean 1, 2 and 3) climbing and bush beans). The breeding experiment is on advanced yield trial set to select the best performing candidate lines. (2) One manure processing plant was established to undertake studies in efficacious compost manure. (3) machines were source for establishing a demo small-scale bee processing unit (4) Five pure Mubende were promoted to uptake pathways	Achieved.
One value added product commercialized.	The institute supported One technology on post-harvest management and value addition of farmed fish.	Achieved.

PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened**Programme Intervention: 010407 Strengthen agricultural research and technology development**

One technology for food and nutrition security promoted in the zone to address matters of hidden hunger	(NARO-bean 1, 2 and 3) promoted in the zone.	Achieved.
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Expenditures incurred in the Quarter to deliver outputs*UShs Thousand*

Item	Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	1,600.000
221008 Information and Communication Technology Supplies.	480.000
221011 Printing, Stationery, Photocopying and Binding	640.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
224011 Research Expenses		3,360.000
227004 Fuel, Lubricants and Oils		1,920.000
	Total For Budget Output	8,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	8,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
Budget Output:010011 Technology Promotion		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
7 technologies (3 casaava, 2 bio fortified beans, 2 bean climbers) promoted in the West Nile region	7 technologies were promoted in the West Nile region. 1 maize, 1 pasture , 1 sorghum, Cassava for value addition , 2 climbing bean, 27 mubende goats climbers),	achieved.
1 farmer centered bait demonstration site established for commercialization 4 Mubende goat genotype promoted Improved fish yields through cage farming in West Nile region Market information generated on sorghum and rice in West Nile region	One bee bait demonstration site established for commercialization of honey. 27 Mubende goat promoted. Improved fish yields demonstrated through cage farming in West Nile region. Studies on market information on sorghum and rice were initiated in West Nile region.	Achieved.
Four technology with IP potential promoted in the zone	Four technology with IP potential promoted in the zone	Achieved.
	One bee bait demonstration site established for commercialization of honey. 27 Mubende goat promoted. Improved fish yields demonstrated through cage farming in West Nile region. Studies on market information on sorghum and rice were initiated in West Nile region. (Duplicate)	Achieved.
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
1 farmer centered bait demonstration site established for commercialization 4 Mubende goat genotype promoted Improved fish yields through cage farming in West Nile region Market information generated on sorghum and rice in West Nile region	(1) Four farmer centred apiary bait demonstrations were established. (2) Three fish cage sets procured, installed and stocked. five Mubende goat genotype promoted. Cage performance monitored and evaluated. (3) Data collection tools were pre-tested for Market information on sorghum and rice in West Nile region.	Achieved.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)		768.000
212103 Incapacity benefits (Employees)		240.000
221001 Advertising and Public Relations		192.000
223001 Property Management Expenses		320.000
223004 Guard and Security services		240.000
224004 Beddings, Clothing, Footwear and related Services		80.000
224011 Research Expenses		2,611.200
226001 Insurances		108.800
227001 Travel inland		1,440.000
228002 Maintenance-Transport Equipment		1,920.000
228004 Maintenance-Other Fixed Assets		80.000
	Total For Budget Output	8,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	8,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	16,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	16,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
Department:002 Buginyaya Zonal Agriculture Research Institute(ZARDI)		
Budget Output:010010 Technology Generation		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
One (1) technology development partnership developed to support technologies generation	one technology development partnership developed and maintained to support technologies generation. CIMMYT on maize for the highland areas of Uganda.	Achieved.
100,000 Coffee and tree seedlings produced 1 apiculture unit established	100000 coffee seedlings of SL 14, , KP 162, KP423 (2 223), SL 28 (2 212).	Achieved.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
1 biofortified variety of maize developed 2 disease management packages for wheat, coffee, and potato developed 2 climate-smart agronomic packages are generated 1 industrial products for commercialization 10 tons of quality seeds produced	Three high yielding wheat candidate lines adapted to the highland areas that offer enhanced levels of zinc and iron through biofortification. The candidate lines are ready for variety verification for distinctiveness, uniformity, and stability. In collaboration with NARO Holdings Ltd, a total of 2.4 tonnes of maize Longe 5D and 1 tonne of Beans (0.5 tons of NARO bean 1, and 0.5 tons of NABE 15) were produced.	
PIAP Output: 0103020112 Agricultural Research platforms established		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
3 climate-smart technologies (agronomic package) generated and 1 industrial product for commercialization developed	3 climate-smart technologies identified duuring 10 farmer field schools identified and sensitized in importance of agro-biodiversity in enhancing resilience to climate change in the districts of Buyende, Kamuli, Amuria, Katakwi, and Kaberamaido. Farmers preferred priority crops, pastures and tree species for restoration of biodiversity identified. 0.4 ha gardens for establishment of functional community seed banks and tree nurseries in Amuria, Buyende and Kamuli ready for planting. 123 farmers (73 female and 50 male) from Buyende and Kamuli, Amuria, Katakwi and Kaberamaido districts participated in the trainings	Achieved.
One (1) technology development partnership developed to support technologies generation	In partnership with CIMMYT Ethiopia, Buginyanya ZARDI is in the process of developing highland maize varieties adapted to the highland agro-ecologies of Uganda	

Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item	Spent	
211107 Boards, Committees and Council Allowances	832.000	
221001 Advertising and Public Relations	800.000	
221008 Information and Communication Technology Supplies.	1,568.000	
221011 Printing, Stationery, Photocopying and Binding	1,094.400	
223001 Property Management Expenses	624.000	
223004 Guard and Security services	2,400.000	
224011 Research Expenses	3,865.600	

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
227004 Fuel, Lubricants and Oils		1,040.000
228001 Maintenance-Buildings and Structures		320.000
228002 Maintenance-Transport Equipment		2,560.000
228003 Maintenance-Machinery & Equipment Other than Transport Equipment		640.000
273102 Incapacity, death benefits and funeral expenses		256.000
	Total For Budget Output	16,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	16,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
Budget Output:010011 Technology Promotion		
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
5 tons of quality seeds produced to support the seed system and subsequent increase in production and productivity	In collaboration with NARO Holdings Ltd, a total of 2.4 tonnes of maize Longe 5D and 1 tonne of Beans (0.5 tons of NARO bean 1, and 0.5 tons of NABE 15) were produced. (Duplicate)	Duplicate
5 tons of quality seeds produced to support the seed system and subsequent increase in production and productivity	In collaboration with NARO Holdings Ltd, a total of 2.4 tonnes of maize Longe 5D and 1 tonne of Beans (0.5 tons of NARO bean 1, and 0.5 tons of NABE 15) were produced. (Duplicate)	
PIAP Output: 0103020112 Agricultural Research platforms established		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
One (1) technology adaptive partnership developed to promote 8 farmer preferred technologies	Two (2) technology development partnership developed to support technologies generation and promotion. Circle of Friends in Action (COFIA Uganda) and Destiny Community Development Initiative (DECODI) on on-farm trials.	Development partners developing more interest with the institute work.
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
211107 Boards, Committees and Council Allowances		192.000
221001 Advertising and Public Relations		960.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
221008 Information and Communication Technology Supplies.		1,152.000
223001 Property Management Expenses		1,216.000
224011 Research Expenses		12,864.000
227004 Fuel, Lubricants and Oils		1,632.000
228001 Maintenance-Buildings and Structures		1,760.000
228002 Maintenance-Transport Equipment		3,840.000
273102 Incapacity, death benefits and funeral expenses		384.000
	Total For Budget Output	24,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	24,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	40,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	40,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
Department:003 Bulindi Zonal Agriculture Research Institute(ZARDI)		
Budget Output:010010 Technology Generation		

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
1 multi-stakeholder innovation platform (MSIPs) established for goat, High yielding & resistant seed of soybean and bean varieties disseminated and supported	(1) Two MSIP for LACZ were initiated (goats and coffee), with the mapping of key actors along the commodity value chain. (2) Three bean varieties adapted to the three sub-agroecologies of LACZ preliminarily identified. (3) Five released bean varieties were screened for adaptability in the three sub agro-ecological zones (semi-arid, tropical rain forest and woodland savannah) of the LACZ, and preliminary results indicate that NABE 15 and NAROBAN 6 and 7 are more adapted (in terms of growth vigor, number of pods, and pod weight) to the environmental condition of the three sub-zones. Two legume-maize cropping systems for increased maize and legume yield, soil fertility and soil carbon sequestration were also evaluated within the LACZ. (4) 5,600 kg of Longe 5; 13800 kgs of Bazooka; 250 kgs of NAROBan 1; 340 kgs of NAROBan 2; were produced and availed to farmers in LACZ.	
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Adaptive trial on Mubende and Kalahari goat breeds established 1 bee adaptive trials established 3 adaptive trials (maize, Soybean, beans) established	(1) Adaptive trial on Mubende and Kalahari goat breeds established and promoted. One video on improved goat housing and feeding produced and uploaded on BuZARDI YouTube channel. (2) Five released bean varieties were screened for adaptability in the three sub agro-ecological zones (semi-arid, tropical rain forest and woodland savannah) of the LACZ, and preliminary results indicate that NABE 15 and NAROBAN 6 and 7 are more adapted (in terms of growth vigor, number of pods, and pod weight) to the environmental condition of the three sub-zones. (3) Two legume-maize cropping systems for increased maize and legume yield, soil fertility and soil carbon sequestration were also evaluated within the LACZ. 3) Established 1200 forage resources (1000 Kai Apple, 180 Osmium and 20 Macademia nuts) for Apiary	Achieved.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Adaptive trial on Mubende and Kalahari goat breeds established 1 bee adaptive trials established 3 adaptive trials (maize, Soybean, beans) established	(1) Adaptive trial on Mubende and Kalahari goat breeds established and promoted. One video on improved goat housing and feeding produced and uploaded on BuZARDI YouTube channel. (2) Five released bean varieties were screened for adaptability in the three sub agro-ecological zones (semi-arid, tropical rain forest and woodland savannah) of the LACZ, and preliminary results indicate that NABE 15 and NAROBAN 6 and 7 are more adapted (in terms of growth vigor, number of pods, and pod weight) to the environmental condition of the three sub-zones. (3) Two legume-maize cropping systems for increased maize and legume yield, soil fertility and soil carbon sequestration were also evaluated within the LACZ. 3) Established 1200 forage resources (1000 Kai Apple, 180 Osmium and 20 Macademia nuts) for Apiary. (Duplicate)	Duplicate.
Adaptive trial on Mubende and Kalahari goat breeds established 1 bee adaptive trials established 3 adaptive trials (maize, Soybean, beans) established	(1) Adaptive trial on Mubende and Kalahari goat breeds established and promoted. One video on improved goat housing and feeding produced and uploaded on BuZARDI YouTube channel. (2) Five released bean varieties were screened for adaptability in the three sub agro-ecological zones (semi-arid, tropical rain forest and woodland savannah) of the LACZ, and preliminary results indicate that NABE 15 and NAROBAN 6 and 7 are more adapted (in terms of growth vigor, number of pods, and pod weight) to the environmental condition of the three sub-zones. (3) Two legume-maize cropping systems for increased maize and legume yield, soil fertility and soil carbon sequestration were also evaluated within the LACZ. 3) Established 1200 forage resources (1000 Kai Apple, 180 Osmium and 20 Macademia nuts) for Apiary (Duplicate)	Duplicate

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 0103020113 Agricultural research staff recruited and trained

Programme Intervention: 010407 Strengthen agricultural research and technology development

22500 seedlings (clonal coffee, Hass avocado, and 5,000 Grafted Mangoes) , 5 tons of soybean, 1 tons of beans, and, 100 bags of cassava cuttings were produced	22,500 Coffee KR seedlings were delivered to farmers. Established 1200 forage resources (1000 Kai Apple, 180 Osmium and 20 Macademia nuts) for Apiary. vii) Nine (9) technologies. i) 450 bags of NARONAP I Napier cuttings.5 tons of soybean, 1 tons of beans, and, 100 bags of cassava cuttings were produced.	Achieved.
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Expenditures incurred in the Quarter to deliver outputs *US\$ Thousand*

Item	Spent
221008 Information and Communication Technology Supplies.	2,770.000
221017 Membership dues and Subscription fees.	1,143.000
223004 Guard and Security services	4,010.000
224011 Research Expenses	10,374.100
227004 Fuel, Lubricants and Oils	3,842.500
228001 Maintenance-Buildings and Structures	836.000
228002 Maintenance-Transport Equipment	5,079.412
273102 Incapacity, death benefits and funeral expenses	500.000
Total For Budget Output	28,555.012
Wage Recurrent	0.000
Non Wage Recurrent	28,555.012
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	28,555.012
Wage Recurrent	0.000
Non Wage Recurrent	28,555.012
Arrears	0.000
<i>AIA</i>	0.000

Department:004 Kachwekano Zonal Agriculture Research Institute(ZARDI)

Budget Output:010010 Technology Generation

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
2 adaption trials for improved beans tested for high altitude adaptation 8 Improved meat goats promoted 250 farmers capacity to uptake NARO technologies enhanced through demonstrations 1 demonstration sites for arabica coffee and Hass Avacado establish	Nyamigogo station in Kisoro was used for adaptation, demonstration and multiplication of 8 climbing beans in collaboration with Bugara Women Bean Seed Produce Group. The station supplied bean seed to communities of Kisoro and surrounding Districts. Improved planting materials were assembled for arabica coffee an hass avocado.	
3 technology (beans) evaluated for high altitude adaptation and 250 farmers' capacity to uptake NARO technologies enhanced through demonstrations	Nyamigogo station in Kisoro was used for adaptation, demonstration and multiplication of 8 climbing beans in collaboration with Bugara Women Bean Seed Produce Group. The station supplied bean seed to communities of Kisoro and surrounding Districts. Improved planting materials were assembled for arabica coffee an hass avocado. capacity of 300 farmers built through demonstrations with Kigezi church of Uganda. (Duplicate).	
Researchers profiled along 1 technology (beans) evaluated for high altitude adaptation in the zone.		Insufficient funds to conduct this activity
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
3 technology (beans) evaluated for high altitude adaptation and 250 farmers' capacity to uptake NARO technologies enhanced through demonstrations		Insufficient funds to conduct this activity
3 technology (beans) evaluated for high altitude adaptation and 250 farmers' capacity to uptake NARO technologies enhanced through demonstrations		Insufficient funds to conduct this activity
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item	Spent	
224003 Agricultural Supplies and Services	4,768.000	
224011 Research Expenses	11,232.000	
Total For Budget Output		16,000.000
Wage Recurrent		0.000
Non Wage Recurrent		16,000.000
Arrears		0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
	<i>AIA</i>	0.000

Budget Output:010011 Technology Promotion**PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened****Programme Intervention: 010407 Strengthen agricultural research and technology development**

3 farmer field schools conducted 6 Improved meat goat breeds promoted and 265 farmers capacity strengthened.	5 farmer field schools conducted with NAROPOT, 1 NAROPOT 2 and NAROPOT (3)demonstrations for new potato varieties and showcasing good agronomy for potato growing were established at Bucundura Catholic Parish (Plate 6), Bucundura COU Parish both in Rukiga District and Rugarama, the HQRs of Kigezi Diocese Church of Uganda in Kabale District, Bukimbiri COU in Rubanda District. 250 farmers capacity enhanced.	Rene interest in improve planting materials by stakeholders.
3 farmer field schools conducted 6 Improved meat goat breeds promoted and 265 farmers capacity strengthened.	5 farmer field schools conducted with NAROPOT, 1 NAROPOT 2 and NAROPOT (3)demonstrations for new potato varieties and showcasing good agronomy for potato growing were established at Bucundura Catholic Parish (Plate 6), Bucundura COU Parish both in Rukiga District and Rugarama, the HQRs of Kigezi Diocese Church of Uganda in Kabale District, Bukimbiri COU in Rubanda District. 250 farmers capacity enhanced. (Duplicate)	Renewed interest in improved planting materials by stakeholders.

Expenditures incurred in the Quarter to deliver outputs *UShs Thousand*

Item	Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	1,594.400
211107 Boards, Committees and Council Allowances	256.000
221007 Books, Periodicals & Newspapers	76.800
221011 Printing, Stationery, Photocopying and Binding	1,408.000
223001 Property Management Expenses	2,112.000
227001 Travel inland	852.960
228001 Maintenance-Buildings and Structures	4,163.840
228002 Maintenance-Transport Equipment	1,536.000
Total For Budget Output	12,000.000
Wage Recurrent	0.000
Non Wage Recurrent	12,000.000
Arrears	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
	<i>AIA</i>	0.000
	Total For Department	28,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	28,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
Department:005 Mbarara Zonal Agriculture Research Institute(ZARDI)		
Budget Output:010010 Technology Generation		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
17 improved genetic calves and 25 piglets produced; 5 Tons of new bean varieties produced 25000 banana suckers produced 2500 coffee and 2500 orchard fruit seedlings generated 200 bags of cassava and 100 bags of sweet potatoes 2000 fish fry produced	17 improved genetic calves and 14 piglets produced. 2000 grafted mango and 1000 grafted orange seedlings raised, and 200 root mango rootstocks prepared for continued grafting. 42.5 bags of stem cuttings of improved cassava varieties (Nase 3, 16, Narocase 1, F10-20-30) disseminated to farmers. Five acres planted on-station with 15 selected well-adapted and high performance cassava varieties for dissemination. Raised 14 piglet of pure camborough breed, and 19 goats (crosses) availed to farmers.	Dry season disrupted research activities
5 quality Jersey calves produced 1 low-cost nutritious dairy, calf and fish feeds produced 2500 seedlings, 2550 bags of cuttings, 42 cattle, goats, and piglets produced 100 bags of animal feeds and 1,000 fish fry produced 3 periodic engagements conducted to inform farmers on improved technologies	41 acres of grazing land maintained with good pastures and old jersey herd monitored. 17 improved genetic calves and 14 piglets produced. 2000 grafted mango and 1000 grafted orange seedlings raised, and 200 root mango rootstocks prepared for continued grafting. 42.5 bags of stem cuttings of improved cassava varieties (Nase 3, 16, Narocase 1, F10-20-30) disseminated to farmers. Five acres planted on-station with 15 selected well-adapted and high performance cassava varieties for dissemination. Raised 14 piglet of pure camborough breed, and 19 goats (crosses) availed to farmers.	Planned activity affected by drought.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened**Programme Intervention: 010407 Strengthen agricultural research and technology development**

2 farmer preferred technologies (cattle, bananas, pigs and pasture) promoted in the zone	One established preliminary yield trial (PYT) of 7 improved banana hybrids (NARITA 4, NARITA 17, NARITA 18, NARITA 22, NARITA 24, NAROBAN 4, NAROBAN 5) versus local Enzirabahima maintained and monitored on-station. 75% data on the agronomic performance of 7 banana hybrids versus one local variety under natural fungi disease infection collected and partially analysed. Four promising highly disease (Sigayoka, thrip-rust and cordana) resistant hybrids (Narita 4, 17 22, 24) selected for further on-farm trial and palatability analysis in the SWAEZ. 75% data on effect of 2 IDM combinations on fungi disease severity on EAHCB and desert types collected. One demonstration comprising of 12 high performing improved banana varieties well managed and monitored on station. Eight improved bean varieties (NAROBAN 1, 2, 4C, 5C, 6, 7, NABE12C and NABE 16) test and multiplied on station for further research activities. 41 acres of grazing land maintained with good pastures and old jersey herd monito	Achieved.
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PIAP Output: 01030201 Animal and Crop genetic resources conserved**Programme Intervention: 010407 Strengthen agricultural research and technology development**

Two animal genetic resources evaluated for possible conservation	Two (one jersey and ankole) animal genetic resources evaluated for conservation	-
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Expenditures incurred in the Quarter to deliver outputs *US\$ Thousands*

Item	Spent
224002 Veterinary supplies and services	3,000.000
224003 Agricultural Supplies and Services	6,150.000
224011 Research Expenses	8,167.200
Total For Budget Output	17,317.200
Wage Recurrent	0.000
Non Wage Recurrent	17,317.200
Arrears	0.000
<i>AIA</i>	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Budget Output:010011 Technology Promotion		
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
5 tons of biofortified NARO bean varieties produced 250 kgs of chloris guyana seed produced and availed to farmer for improved livestock productivity 25,000 macro-propagated hybrid banana produced 3 Local Seed Businesses (LSBs) established for communities	1.325 tones of improved bean varieties onstation (NAROBAN = 169 kgs, NAROBAN 2 = 760 kgs, NAROBAN =240 kgs, and NABE 4= 160 kgs and are ready for sale to farmers. 100 kgs of Chloris have also been harvested and more are being harvested. One acre of banana demonstration field has been established demonstrating 10 adaptable varieties for SWAEZ.Five acres of beans were established onstation (NARO 1, NABE 4, NARO BEAN 6, NARO 2) each on one acre except NARO BEAN 2 on 2 acres. One acre banana demonstration field, demonstrating NARITAs, 22, 4 and 17, NAROBAN 4, NARITA 12, RED Banana, NAKITEMBE, MPOLOGOMA, KIVUVU, NAKITEMBE and LUMENYA MAGALI was established on station. Ten acre chloris Guyana demonstration and seed production was established on station and will be ready for seed production next quarter	Planned activity affected by drought.
2 improved technologies for banana, beans, and dairy produced, 4 exhibitions and 1 plant doctor clinics conducted 1IPDM technology packages developed 2 research facilities maintained	Seed of improved technologies for banana, beans, and dairy produced, .One functional regional MSIP on animal feeds (poultry, dairy, fish and piggery); One exhibition in Bushenyi Agricultural show completed for the following technologies: improved mangoes, citrus, livestock feeds, pasrure seeds, fish fry, fish feeds, bio fertilizers and African cat fish. 6 research facilities maintained (4 Fish ponds, 2 dairy stands).	Achieved.

Expenditures incurred in the Quarter to deliver outputs	<i>US\$ Thousand</i>
Item	Spent
211107 Boards, Committees and Council Allowances	640.000
222001 Information and Communication Technology Services.	640.000
224011 Research Expenses	7,544.000
227004 Fuel, Lubricants and Oils	2,930.000
228001 Maintenance-Buildings and Structures	1,700.000
228002 Maintenance-Transport Equipment	2,534.600

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
	Total For Budget Output	15,988.600
	Wage Recurrent	0.000
	Non Wage Recurrent	15,988.600
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	33,305.800
	Wage Recurrent	0.000
	Non Wage Recurrent	33,305.800
	Arrears	0.000
	<i>AIA</i>	0.000

Department:006 Nabuin Zonal Agriculture Research Institute(ZARDI)

Budget Output:010011 Technology Promotion

PIAP Output: 01040705 Demand driven agriculture technologies developed

Programme Intervention: 010407 Strengthen agricultural research and technology development

2 New pasture fields for hay and seed production established on station	One garden of Bracharia mulato (0.5 acres) maintained on station for pasture seed production.	Achieved.
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened

Programme Intervention: 010407 Strengthen agricultural research and technology development

25 cattle and 20 goats multiplied through AI for improved livestock performance 2 sorghum varieties for malting and brewing 4500 horticultural seedlings produced	Maintained 25 cattle for multiplication thru AI. 20 goats multiplied on station for improved livestock performance in the zone. 2 sorghum varieties for malting and brewing demonstrated. 4500 horticultural seedlings produced.	Achieved.
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25 heads of cattle e and 20 goats multiplied through AI for improved productivity 1 sorghum varieties for malting and brewing evaluated 4500 horticultural seedlings produced to support horticulture business among the youth and women	Maintained 25 cattle for multiplication thru AI. 20 goats multiplied on station for improved livestock performance in the zone. 2 sorghum varieties for malting and brewing demonstrated. 4500 horticultural seedlings produced.	(Duplicate).
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Expenditures incurred in the Quarter to deliver outputs

UShs Thousand

Item	Spent
211107 Boards, Committees and Council Allowances	800.000
212103 Incapacity benefits (Employees)	240.000
221001 Advertising and Public Relations	320.000
221011 Printing, Stationery, Photocopying and Binding	640.000
223001 Property Management Expenses	640.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
223004 Guard and Security services		960.000
223005 Electricity		720.000
224011 Research Expenses		4,960.000
227004 Fuel, Lubricants and Oils		2,400.000
228001 Maintenance-Buildings and Structures		960.000
228002 Maintenance-Transport Equipment		2,400.000
228003 Maintenance-Machinery & Equipment Other than Transport Equipment		960.000
	Total For Budget Output	16,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	16,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	16,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	16,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
Department:008 National Agricultural Research Laboratories		
Budget Output:010010 Technology Generation		

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 01040705 Demand driven agriculture technologies developed

Programme Intervention: 010407 Strengthen agricultural research and technology development

4 research products for food nutrition and industry generated including soil sheets update to guide agricultural investments in the country	Four research products for food nutrition and industry generated. (1) Kampala soil sheet update to guide agricultural investments in the country. The sheet comprises the following districts Mityana, Kakiri, Kampala, Lugazi, Mitala Maria, Entebbe, Kajansi, Kibanga sub-county. (2) Land capability Maps for Kampala generated. (3) Market Information on tomato products for greater Kampala has been generated. (4) Investment opportunities for research and development in tomato product identified were: Tomato powder based enterprises, tomato juice based enterprises and import substitution of tomato paste.	Achieved.
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Expenditures incurred in the Quarter to deliver outputs *US\$ Thousand*

Item	Spent
221003 Staff Training	3,000.000
221008 Information and Communication Technology Supplies.	3,753.455
222001 Information and Communication Technology Services.	4,500.000
224003 Agricultural Supplies and Services	6,108.500
224011 Research Expenses	36,919.000
227004 Fuel, Lubricants and Oils	4,600.000
228001 Maintenance-Buildings and Structures	14,513.000
228002 Maintenance-Transport Equipment	13,600.000
228003 Maintenance-Machinery & Equipment Other than Transport Equipment	6,855.000
Total For Budget Output	93,848.955
Wage Recurrent	0.000
Non Wage Recurrent	93,848.955
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:010011 Technology promotion

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
2 research products for food nutrition and industry promoted for accelerated transformation. 1 secondary products for soil sheets of Uganda developed and promoted	Research products for food nutrition and industry promoted for accelerated transformation (1) Competencies enhanced in 30 women entrepreneurs processing quality and PAH-safe smoked fish using NARO Fish smoking Kiln. (2) Backstopped 5 SMEs using the NARO Fish Kiln to process and market quality smoked fish. (3) Two Main soil sheets [Fort portat, Mbarara] of 1:250,000 digitized to generated soil base units at a scale of 1:50,000	Achieved.
2 research products for food nutrition and industry promoted for accelerated transformation. 1 secondary products for soil sheets of Uganda developed and promoted	(1) Competencies enhanced in 30 women entrepreneurs processing quality and PAH-safe smoked fish using NARO Fish smoking Kiln. (2) Backstopped 5 SMEs using the NARO Fish Kiln to process and market quality smoked fish. (2) Two Main soil sheets [Fort portat, Mbarara] of 1:250,000 digitized to generated soil base units at a scale of 1:50,000	
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
	Research products for food nutrition and industry promoted for accelerated transformation (1) Competencies enhanced in 30 women entrepreneurs processing quality and PAH-safe smoked fish using NARO Fish smoking Kiln. (2) Backstopped 5 SMEs using the NARO Fish Kiln to process and market quality smoked fish. (3) Two Main soil sheets [Fort portat, Mbarara] of 1:250,000 digitized to generated soil base units at a scale of 1:50,000	(Duplicate).
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item	Spent	
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	33,760.000	
211107 Boards, Committees and Council Allowances	4,412.000	
221007 Books, Periodicals & Newspapers	1,881.000	
222002 Postage and Courier	187.500	
223001 Property Management Expenses	3,431.500	
223004 Guard and Security services	5,236.000	
226001 Insurances	1,128.000	

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
227004 Fuel, Lubricants and Oils		4,000.000
	Total For Budget Output	54,036.000
	Wage Recurrent	0.000
	Non Wage Recurrent	54,036.000
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	147,884.955
	Wage Recurrent	0.000
	Non Wage Recurrent	147,884.955
	Arrears	0.000
	<i>AIA</i>	0.000
Department:009 National Coffee Research Institute		
Budget Output:010010 Technology Generation		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
5 single cross-Arabica coffee hybrids constituted and nurtured 1 anti-ulcer yoghurt prototypes produced 20,500 clonal coffee cuttings produced 65 acres of coffee production fields rehabilitated and maintained 50 litres of honey harvested 1 Mother gardens established for future coffee seed research and production	(1) 37 Arabica coffee single cross hybrids (22 developed by WCR and 15 locally developed), with contrasting traits. (2) Three prototypes produced. one an anti-fungal skin cream prototype was formulated using extracts from a unique Robusta coffee genotype; sweet red wine prototype ; One prototype of cocoa fermentation device; New designs of prototypes for the NARO BCTB traps. (3) Generated 223,656 commercial KR1-KR10 varieties, distributed 110,119 cuttings to farmers and private nurseries, 384,471 macro-cuttings currently under rooting. (4) Planted and maintained a demonstration trials, two mother gardens 1,000 mother bush plants of KR1 to KR7 in Abim district and Mbarara ZARDI. Established a 1.5-acre mother garden of KR8-10 coffee lines and maintained 10 acres of KR1-KR7 and 1 acre of KR8-KR10 coffee mother gardens at NaCORI.	Achieved.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 01040705 Demand driven agriculture technologies developed

Programme Intervention: 010407 Strengthen agricultural research and technology development

5 single cross-Arabica coffee hybrids constituted and nurtured 1 anti-ulcer yoghurt prototypes produced 20,500 clonal coffee cuttings produced 65 acres of coffee production fields rehabilitated and maintained 50 litres of honey harvested 1 Mother gardens established for future coffee seed research and production	(1) 37 Arabica coffee single cross hybrids (22 developed by WCR and 15 locally developed), with contrasting traits. (2) Three prototypes produced. one an anti-fungal skin cream prototype was formulated using extracts from a unique Robusta coffee genotype; sweet red wine prototype ; One prototype of cocoa fermentation device; New designs of prototypes for the NARO BCTB traps. (3) Generated 223,656 commercial KR1-KR10 varieties, distributed 110,119 cuttings to farmers and private nurseries, 384,471 macro-cuttings currently under rooting. (4) Planted and maintained a demonstration trials, two mother gardens 1,000 mother bush plants of KR1 to KR7 in Abim district and Mbarara ZARDI. Established a 1.5-acre mother garden of KR8-10 coffee lines and maintained 10 acres of KR1-KR7 and 1 acre of KR8-KR10 coffee mother gardens at NaCORI. (Duplicate)	(Duplicate)
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Expenditures incurred in the Quarter to deliver outputs *US\$ Thousand*

Item	Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	2,624.000
224003 Agricultural Supplies and Services	2,792.800
224011 Research Expenses	2,720.000
227004 Fuel, Lubricants and Oils	2,663.200
228003 Maintenance-Machinery & Equipment Other than Transport Equipment	1,200.000
Total For Budget Output	12,000.000
Wage Recurrent	0.000
Non Wage Recurrent	12,000.000
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:010011 Technology Promotion

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
4 coffee varieties resistant to common coffee diseases (wilt) promoted along value chains for improved production and productivity of farmers across the country.	4 coffee technologies were promoted along value chains for improved production and productivity of farmers across the country. (1) training on managing coffee pests and diseases (185 farmers trained (160 males, 18 females, 6 youth males, 1 youth female) in Rakai district. Trained 35 Makerere University students (5 females, 29 males).), (2) Training for extension staff and stakeholders, (3) training of nursery operators: and Training and retooling farmers on coffee postharvest handling. Retooling of youth on coffee GAPs. Trained 2,761 farmers (2,116 males, 587 females, 176 youth) in Luwero, Nakaseke, and Bushenyi on GAPs and pest management. (4) Trained 145 farmers in youths and women on soil fertiliser (vermicomposting)	Achieved.
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
4 coffee varieties resistant to common coffee diseases (wilt) promoted along value chains for improved production and productivity of farmers across the country.	Avail coffee planting materials and temporary shade to coffee stakeholders. Distributed 27,071 CWD-r of four KR series robusta seedlings, Weaned and hardened 31,604 coffee plantlets. Cloned and initiated rooting of 77,361 coffee plantlets.	
Four highly productive coffee lines developed delivered to uptake pathways along the value chain	Avail coffee planting materials and temporary shade to coffee stakeholders. Distributed 27,071 CWD-r of four KR series robusta seedlings, Weaned and hardened 31,604 coffee plantlets. Cloned and initiated rooting of 77,361 coffee plantlets.	Duplicate
PIAP Output: 0103020116 Functional public-private partnerships established for technology development and promotion		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
One functional coffee development partnership developed and maintained	Participation three National Level engagements with other key stakeholders in the coffee sector. National Coffee Steering Committee: and technical Working Groups.	
One functional coffee development partnership developed and maintained	Participation three National Level engagements with other key stakeholders in the coffee sector. National Coffee Steering Committee: and technical Working Groups	Duplicate

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
212103 Incapacity benefits (Employees)		592.000
221007 Books, Periodicals & Newspapers		512.000
221008 Information and Communication Technology Supplies.		6,400.000
221011 Printing, Stationery, Photocopying and Binding		640.000
222001 Information and Communication Technology Services.		960.000
222002 Postage and Courier		320.000
223001 Property Management Expenses		1,424.000
223004 Guard and Security services		1,280.000
224010 Protective Gear		1,120.000
228001 Maintenance-Buildings and Structures		1,600.000
228002 Maintenance-Transport Equipment		1,152.000
	Total For Budget Output	16,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	16,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	28,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	28,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
Department:010 National Crops Resources Research Institute		
Budget Output:010010 Technology Generation		

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 01040705 Demand driven agriculture technologies developed

Programme Intervention: 010407 Strengthen agricultural research and technology development

Performance of 8 high iron/zinc bean lines evaluated for possible release 1 Distinct Uniform stability test conducted for high iron/zinc bean promising lines	(1) Performance of 8 high iron/zinc bean lines evaluated for possible release for high iron/zinc bean promising lines. 5 bio fortified beans identified. , two varieties developed were released as replacements for NABE 14 and NABE 12C that have been found to succumb widely to bean root rot disease. Authorisation for submission of promising lines for DUS solicited from NARO. Promising lines submitted to MAAIF for DUS test. Conducted multi-location on-station (NaCRRI, Nakabango, NaSARRI, Ngetta ZARDI and Rwebitaba ZARDI) trials for 5 bio fortified beans with reduced cooking time. work still on-going.	Achieved.
Performance of 8 high iron/zinc bean lines evaluated for possible release 1 Distinct Uniform stability test conducted for high iron/zinc bean promising lines	The two varieties were developed were released as replacements for NABE 14 and NABE 12C that have been found to succumb widely to bean root rot disease. Authorisation for submission of promising lines for DUS solicited from NARO. Promising lines submitted to MAAIF for DUS test. Conducted multi-location on-station (NaCRRI, Nakabango, NaSARRI, Ngetta ZARDI and RwebitabaZARDI) trials for 5 biofortified beans with reduced cooking time. work still on-going.	Duplicate

Expenditures incurred in the Quarter to deliver outputs *US\$ Thousand*

Item	Spent
221008 Information and Communication Technology Supplies.	7,334.000
222001 Information and Communication Technology Services.	18,000.000
223004 Guard and Security services	4,330.000
227004 Fuel, Lubricants and Oils	15,000.000
228003 Maintenance-Machinery & Equipment Other than Transport Equipment	3,266.000
Total For Budget Output	47,930.000
Wage Recurrent	0.000
Non Wage Recurrent	47,930.000
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:010011 Technology Promotion

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
2 nutrient dense research products delivered to uptake pathways for increased production and address hidden hunger challenges in the country	(1)To increase production, productivity and consumption of biofortified beans in Karamoja, 40 (18M, 22F) farmers and 9 schools involved in the school feeding program, were trained in general bean production practices and post-harvest handling. (2) Germ plasm of high carotene pumpkin varieties assembled. (3) 10 clones of purple-fleshed sweetpotato population (rich in anthocyanins for fighting cancer, high blood pressure and cardiovascular diseases) were planted for evaluation.	Achieved.
4 technologies for high carotene pumpkin varieties evaluated for possible release to support food processing industry and improved food and nutrition security across the country. 2 New pro-vitamins A hybrids formed and tested in the effort to minimize hidden hunger 750 kgs of breeder and foundation seed produced and supplied to various uptake pathways to improve productivity	(1) Germ plasm of high carotene pumpkin varieties assembled. (2) Two New pro-vitamins A maize hybrids formed and tested in the effort to minimize hidden hunger. Worj still on-going. (3) Produced and disseminated 4.22 MT of bean breeder seed and 99.75 MT of foundation bean seed. Total of 33 parental inbred maize lines of commercial and pre-commercial hybrids established for purity analysis. Produced 22 MT of UKAFACI-39 and 6.6MT of NARORICE-1 certified seed in Doho Irrigation and Olweny Irrigation Scheme. Distributed 2,440 kg of UKAFACI-39, 4,880 kg of NARORICE-1, and 12,200 kg of fertilizer to a total of 243 farmers in Butaleja District.	Achieved.
2 nutrient dense research products delivered to uptake pathways for increased production and address hidden hunger challenges in the country	(1)To increase production, productivity and consumption of biofortified beans in Karamoja, 40 (18M, 22F) farmers and 9 schools involved in the school feeding program, were trained in general bean production practices and post-harvest handling. (2) Germ plasm of high carotene pumpkin varieties assembled. (3) 10 clones of purple-fleshed sweetpotato population (rich in anthocyanins for fighting cancer, high blood pressure and cardiovascular diseases) were planted for evaluation.	Duplicate

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened

Programme Intervention: 010407 Strengthen agricultural research and technology development

4 technologies for high carotene pumpkin varieties evaluated for possible release to support food processing industry and improved food and nutrition security across the country. 2 New pro-vitamins A hybrids formed and tested in the effort to minimize hidden hunger 750 kgs of breeder and foundation seed produced and supplied to various uptake pathways to improve productivity	(1) Germ plasm of high carotene pumpkin varieties assembled. (2) Two New pro-vitamins A maize hybrids formed and tested in the effort to minimize hidden hunger. Worj still on-going. (3) Produced and disseminated 4.22 MT of bean breeder seed and 99.75 MT of foundation bean seed. Total of 33 parental inbred maize lines of commercial and pre-commercial hybrids established for purity analysis. Produced 22 MT of UKAFACI-39 and 6.6MT of NARORICE-1 certified seed in Doho Irrigation and Olweny Irrigation Scheme. Distributed 2,440 kg of UKAFACI-39, 4,880 kg of NARORICE-1, and 12,200 kg of fertilizer to a total of 243 farmers in Butaleja District.	Achieved.
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Expenditures incurred in the Quarter to deliver outputs *US\$ Thousand*

Item	Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	9,206.000
221009 Welfare and Entertainment	1,830.000
221011 Printing, Stationery, Photocopying and Binding	4,850.000
223001 Property Management Expenses	1,884.000
228002 Maintenance-Transport Equipment	5,129.500
Total For Budget Output	22,899.500
Wage Recurrent	0.000
Non Wage Recurrent	22,899.500
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	70,829.500
Wage Recurrent	0.000
Non Wage Recurrent	70,829.500
Arrears	0.000
<i>AIA</i>	0.000

Department:011 National Fisheries Resources Research Institute

Budget Output:010010 Technology Generation

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
25 tons of quality fish feed; 100,000 tilapia seed; 25,000 catfish seed produced and availed to famers in across Uganda for increased production and productivity of aquaculture industry. 1700 Kgs of table-size fish produced and availed to population for improved nutrition	3000 Kg of quality fish feed; 40,526 Nile tilapia seed; and 816 African catfish seed and 500 mirror carp seed produced.	Fish mill under rehabilitation. working under capacity. Fish ponds under rehabilitation
4 fisheries technologies promoted for nutrition and industry 1 routine maintenance of research facilities conducted to avail research enabling environment	(1) Final report on Nile tilapia populations in the Lake Victoria basin of East Africa submitted. Disseminated results to 150 stakeholders, including fishermen and fisheries officers in project implementation areas. Developed and printed 1000 brochures for dissemination of project workshops. (2) Preparation of farmers in the districts of Rwengo, Masaka, Wakiso, Mukono and Nakaseke to participate in Randomised control trials. Shelf life studies for smoked fish and fish fillet coated with biodegraded cassava materials.	Achieved.
One (01) research strategic guidance meetings held to guide fisheries research One (01) research facility routine maintenance conducted to create enabling environment for fisheries research	(1) Advisory committee facilitated. to guidance research. (2) Four fish laboratories & two aquarium facilities maintained and operationalised. (2) One Feed mill, two Hatcheries, forty ponds, office Premises and hostel facilities well managed and maintained	Achieved.
25 tons of quality fish feed; 100,000 tilapia seed; 25,000 catfish seed produced and availed to famers in across Uganda for increased production and productivity of aquaculture industry. 1700 Kgs of table-size fish produced and availed to population for improved nutrition	3000 Kg of quality fish feed; 40,526 Nile tilapia seed; and 816 African catfish seed and 500 mirror carp seed produced.	Fish mill under rehabilitation. working under capacity. Fish ponds under rehabilitation
4 fisheries technologies promoted for nutrition and industry 1 routine maintenance of research facilities conducted to avail research enabling environment	(1) Final report on Nile tilapia populations in the Lake Victoria basin of East Africa submitted. Disseminated results to 150 stakeholders, including fishermen and fisheries officers in project implementation areas. Developed and printed 1000 brochures for dissemination of project workshops. (2) Preparation of farmers in the districts of Rwengo, Masaka, Wakiso, Mukono and Nakaseke to participate in Randomised control trials. Shelf life studies for smoked fish and fish fillet coated with biodegraded cassava materials.	Achieved.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened

Programme Intervention: 010407 Strengthen agricultural research and technology development

Expenditures incurred in the Quarter to deliver outputs *US\$ Thousand*

Item	Spent
221011 Printing, Stationery, Photocopying and Binding	1,875.000
222001 Information and Communication Technology Services.	9,000.000
223004 Guard and Security services	1,572.500
224003 Agricultural Supplies and Services	10,403.500
224011 Research Expenses	23,747.500
227004 Fuel, Lubricants and Oils	3,800.552
228002 Maintenance-Transport Equipment	2,250.000
228003 Maintenance-Machinery & Equipment Other than Transport Equipment	1,125.000
Total For Budget Output	53,774.052
Wage Recurrent	0.000
Non Wage Recurrent	53,774.052
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:010011 Technology Promotion

PIAP Output: 01040705 Demand driven agriculture technologies developed

Programme Intervention: 010407 Strengthen agricultural research and technology development

1 fish laboratory and 1 aquarium facilities maintained to create research enabling environment in fisheries sub-sector . 1 cage research facility & vivarium maintained.	(1) One fish health laboratory maintained (2) One administration facility maintained and operationalised. (3) Institute fleet (1 Marine Vessel & 5 vehicles) maintained.	
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened

Programme Intervention: 010407 Strengthen agricultural research and technology development

1 fish laboratory and 1 aquarium facilities maintained to create research enabling environment in fisheries sub-sector . 1 cage research facility & vivarium maintained.		
4 fish laboratories & 2 aquarium facilities maintained and capacity enhanced. 2 cage research facility & vivarium maintained		

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
211107 Boards, Committees and Council Allowances		6,000.000
221011 Printing, Stationery, Photocopying and Binding		2,550.000
222001 Information and Communication Technology Services.		6,600.000
223004 Guard and Security services		3,600.000
224011 Research Expenses		14,605.500
228001 Maintenance-Buildings and Structures		6,493.000
228002 Maintenance-Transport Equipment		3,300.000
228003 Maintenance-Machinery & Equipment Other than Transport Equipment		3,995.000
	Total For Budget Output	47,143.500
	Wage Recurrent	0.000
	Non Wage Recurrent	47,143.500
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	100,917.552
	Wage Recurrent	0.000
	Non Wage Recurrent	100,917.552
	Arrears	0.000
	<i>AIA</i>	0.000
Department:012 National Forestry Resources Research Institute		
Budget Output:010010 Technology Generation		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
1 Functional Solar Timber Kiln established at NaFORRI Selected 1 Breeding Seed Orchard for food security	Designs and artistic impressions of the solar timber kiln were completed and presented to NaFORRI for consideration. Jackfruit and avocado breeding seed orchard for food security was maintained. 2,500 seedlings raised for planting out.	Achieved.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 01040705 Demand driven agriculture technologies developed

Programme Intervention: 010407 Strengthen agricultural research and technology development

1 Functional Solar Timber Kiln established at NaFORRI Selected 1 Breeding Seed Orchard for food security	Designs and artistic impressions of the solar timber kiln were completed and presented to NaFORRI for consideration. Jackfruit and avocado breeding seed orchard for food security was maintained. 2,500 seedlings raised for planting out.	Achieved. Duplicate
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Expenditures incurred in the Quarter to deliver outputs *US\$ Thousand*

Item	Spent
224011 Research Expenses	6,720.000
228002 Maintenance-Transport Equipment	1,280.000
Total For Budget Output	8,000.000
Wage Recurrent	0.000
Non Wage Recurrent	8,000.000
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:010011 Technology Promotion

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
62,500 quality seedlings of forestry resources produced to support Agro Forestry farming across Uganda 1 mother gardens of forestry planting materials expanded 1 Viability study conducted to support forest and Best-bet options for designing on-farm management regimes developed	(1) 1650 jackfruit seedlings under management in the nursery, pending grafting. 250,000 quality seedlings of forestry resources produced. (2)72,000 high quality Hass Avocado Plantlets raised from clean roots stocks and scions ii)One Avocado mother garden and One germplasm mother garden regularly maintained through weeding,slashing and spraying (3) 11,000 plants of Bamboo raised from the greenhouses (4)15,000 seedlings of various plantation species and trees for other use values produced under nursery conditions. (5) Materials for expansion of two mother garden of forestry planting materials assembled. 880 seedlings of jackfruit from 4 (Kayunga, Pallisa, Mayuge and Bugiri) provenances grafted for development of propagation protocol. 1650 jackfruit seedlings under management in the nursery, pending grafting. 250,000 quality seedlings of forestry resources produced. (1) 60,000 seedlings raised in the off-station nurseries; 300 households supplied with priority tree seedlings for agrofor	Achieved.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened

Programme Intervention: 010407 Strengthen agricultural research and technology development

62,500 quality seedlings of forestry resources produced to support Agro Forestry farming across Uganda 1 mother gardens of forestry planting materials expanded 1 Viability study conducted to support forest and Best-bet options for designing on-farm management regimes developed	(1) 1650 jackfruit seedlings under management in the nursery, pending grafting. 250,000 quality seedlings of forestry resources produced. (2)72,000 high quality Hass Avocado Plantlets raised from clean roots stocks and scions ii)One Avocado mother garden and One germplasm mother garden regularly maintained through weeding,slashing and spraying (3) 11,000 plants of Bamboo raised from the greenhouses (4)15,000 seedlings of various plantation species and trees for other use values produced under nursery conditions. (5) Materials for expansion of two mother garden of forestry planting materials assembled. 880 seedlings of jackfruit from 4 (Kayunga, Pallisa, Mayuge and Bugiri) provenances grafted for development of propagation protocol. 1650 jackfruit seedlings under management in the nursery, pending grafting. 250,000 quality seedlings of forestry resources produced. (6) 60,000 seedlings raised in the off-station nurseries; 300 households supplied with priority tree seedlings for agrofor	Achieved. Duplicate
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Expenditures incurred in the Quarter to deliver outputs*UShs Thousand*

Item	Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	1,737.600
221001 Advertising and Public Relations	480.000
221007 Books, Periodicals & Newspapers	320.000
221011 Printing, Stationery, Photocopying and Binding	1,280.000
222001 Information and Communication Technology Services.	320.000
222002 Postage and Courier	160.000
223001 Property Management Expenses	800.000
223004 Guard and Security services	533.760
224010 Protective Gear	160.000
224011 Research Expenses	640.000
228001 Maintenance-Buildings and Structures	640.000
228003 Maintenance-Machinery & Equipment Other than Transport Equipment	928.640
Total For Budget Output	8,000.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
	Wage Recurrent	0.000
	Non Wage Recurrent	8,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	16,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	16,000.000
	Arrears	0.000
	<i>AIA</i>	0.000

Department:013 Mukono Zonal Agriculture Research Institute (ZARDI)**Budget Output:010010 Technology Generation****PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

2 technologies evaluated for adoption for food nutrition security and industry evaluated and delivered to uptake pathways for improved production and productivity in lake Victoria crescent agro-ecological zone.	Technologies were evaluated for adoption. 12 adaptive trials and demos were maintained including; 3 adaptive for cabbage, 1 Nakati trial, 1 shallot trial, 1 Cherry tomato , 1 trial on exotic tomato (ANJA F1 variety), 1 Sweet pepper Gallant F1; and 1 spice.	Achieved.
Two (02) technologies for both food, nutrition and industry promoted in the zone to improve production and productivity	Produced 252.5 kgs of indigenous vegetables 4,280 Kg of maize produced. A total of 1034 grafted seedlings, 100 seedlings of jack fruit produced.	Achieved.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 01040705 Demand driven agriculture technologies developed**Programme Intervention: 010407 Strengthen agricultural research and technology development**

Two (02) technologies for both food, nutrition and industry promoted in the zone to improve production and productivity	Produced 252.5 kgs of indigenous vegetables: 155.5 kg of Nakati seed 35kg amaranths and 52 kg of Bugga seed, 10 kg of bitter berries, 4,280 Kg of maize produced. A total of 1034 grafted seedlings, 100 seedlings of jack fruit produced; 854 were availed to uptake pathways, 10 were used for gap filling and 170 still available in the nursery. 43 piglets produced, maintained and distributed. Out of these 18 have been maintained for as replacement stock and 45 distributed. 4,819 chicks were produced. About 50% of these were distributed/sold to farmers. There is a total of 127 pullets and cockrells, 296 mature females and 44 mature male birds on station. 187,650 fry hatched, 68,640 fingerlings disseminated to farmers countrywide in districts of Buikwe, Mukono Luweero, Kamwenge Nakasekke Isingiro, Wakiso, Kiryandongo, Yumbe, Mayuge. Two product prototypes made from Nakati and blended developed and evaluated. Value addition was done on selected spices, herbs and aromatic crops.	Achieved.
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened**Programme Intervention: 010407 Strengthen agricultural research and technology development**

Expenditures incurred in the Quarter to deliver outputs	US\$ Thousand
Item	Spent
221001 Advertising and Public Relations	5,997.500
221011 Printing, Stationery, Photocopying and Binding	2,374.800
223004 Guard and Security services	8,060.500
224011 Research Expenses	8,889.450
227004 Fuel, Lubricants and Oils	2,038.900
228002 Maintenance-Transport Equipment	5,225.745
273102 Incapacity, death benefits and funeral expenses	504.300
Total For Budget Output	33,091.195
Wage Recurrent	0.000
Non Wage Recurrent	33,091.195
Arrears	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
	<i>AIA</i>	0.000

Budget Output:010011 Technology Promotion**PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened****Programme Intervention: 010407 Strengthen agricultural research and technology development**

<p>8 Demand driven technologies promoted to enhance production with in lake Victoria crescent agro ecological zone</p>	<p>Ten (10) spot messages about the available NARO technologies shared over radio Buddu, One radio talk show held on CBS 88.8 FM on urban farming, One (1) newspaper article written and shared in theNew vision papers on the availabe technologies</p> <p>Exhibited in nine (9) Agricultural expos; the KISOBOKA-ZUKUKA, PEWOSA, Greater Mpigi districts expo , World Food Day at NACORI, Katikiro visit to NARO, the Bulange expo and the greater Masaka Coffee-Agroforestry exhibition and Kasana-Luwero agricultural exhibition where fish and urban farming technologies were exhibited to the public.</p> <p>Sixteen (16) pasture demonstration plots established for pastures such as; brachiaria cyman and mulato, Napier grass, Guiney grass. Lablab, Jackbean, Chloris gayana, Sugar Napier, Alfalfa, Greenleaf desmodium, maize (MM3), maize Josheka, Sugar graze, Nutrifeed, sunnhemp. 4 acres of lablab for fodder and seed production for distribution were established at Kamenyamigo .30 bags of Napier (packchong and sugar napier)</p>	
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VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened

Programme Intervention: 010407 Strengthen agricultural research and technology development

8 Demand driven technologies promoted to enhance production with in lake Victoria crescent agro ecological zone	<p>Ten (10) spot messages about the available NARO technologies shared over radio Buddu, One radio talk show held on CBS 88.8 FM on urban farming, One (1) newspaper article written and shared in theNew vision papers on the available technologies</p> <p>Exhibited in nine (9) Agricultural expos; the KISOBOKA-ZUKUKA, PEWOSA, Greater Mpigi districts expo , World Food Day at NACORI, Katikiro visit to NARO, the Bulange expo and the greater Masaka Coffee-Agroforestry exhibition and Kasana-Luwero agricultural exhibition where fish and urban farming technologies were exhibited to the public.</p> <p>Sixteen (16) pasture demonstration plots established for pastures such as; brachiaria cyman and mulato, Napier grass, Guiney grass. Lablab, Jackbean, Chloris gayana, Sugar Napier, Alfalfa, Greenleaf desmodium, maize (MM3), maize Josheka, Sugar graze, Nutrifeed, sunnhemp. 4 acres of lablab for fodder and seed production for distribution were established at Kamenyamigo .30 bags of Napier (packchong and sugar napier)</p>	Duplicate
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Expenditures incurred in the Quarter to deliver outputs *US\$ Thousand*

Item	Spent
222001 Information and Communication Technology Services.	4,040.000
223001 Property Management Expenses	6,324.000
224011 Research Expenses	11,710.000
228001 Maintenance-Buildings and Structures	14,617.400
228003 Maintenance-Machinery & Equipment Other than Transport Equipment	1,923.000
228004 Maintenance-Other Fixed Assets	1,050.000
Total For Budget Output	39,664.400
Wage Recurrent	0.000
Non Wage Recurrent	39,664.400
Arrears	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
	<i>AIA</i>	0.000
	Total For Department	72,755.595
	Wage Recurrent	0.000
	Non Wage Recurrent	72,755.595
	Arrears	0.000
	<i>AIA</i>	0.000

Department:014 National Livestock Resources Research Institute (NaLIRRI)**Budget Output:010010 Technology Generation****PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

14-acre research apiary with 250 beehives established	1) Established a fifty (50) acre research apiary with 1,000 bee hives at Maruzi. 2) Maintained one apiary at Maruzi with 35 colonies; carried out apiary management; Sourced 05 starter bee colonies; Procured 87 bee hives (70 KTB and 17 Langstroth) with their stands, 10 catcher boxes and 27 nucs; carried out hive inspection and there is good prospect of honey production.	Achieved.
Evaluation report for 2 candidate multi-strain Foot and Mouth Disease vaccines (SAT1 and SAT2) evaluated 1 African swine fever diagnostic kit produced 2 high-yielding brachiria pasture lines submitted to the variety release committee for release. 1 candidate bio-acaricide for tick control evaluated	1) Formulated two candidate vaccine for Foot and Mouth Disease (FMD) vaccines (O and A). Evaluation to be initiated. (2) Ten (10) Forage inbred lines and 2 F1 single cross hybrid with excellent silage production attributes, and stress tolerance identified as breeding starts based on twelve database on agronomic, nutritional/sugar biochemical, digestibility, nutrition data. (3) 5 best bet brachiria pasture varieties submitted to variety release committee for consideration.	Achieved.
One anti-tick vaccine rolled out along the value chain to manage the National tick burden in Uganda for enhanced livestock production and productivity. This will enable farmers to brake even at a lower cost.	Finalized anti-tick vaccine trials on farm to manage the National tick burden in Uganda. The anti-tick vaccine trials were successful. And the anti-tick vaccine was true-to-form.	Achieved

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 0103020117 Soil, crop suitability and fertilizer blend maps developed

Programme Intervention: 010407 Strengthen agricultural research and technology development

The suitability of livestock pastures and forages for 4 varieties determined One (01) routine maintenance of research facilities conducted	(1) suitability of livestock pastures and forages for rangelands was determined. 10 Forage inbred lines and 2 F1 singlecross hybrid with excellent sillage production attributes, and stress tolerance were identified as breeding starts based on twelve database on agronomic, nutritional/sugar biochemical, digestibility, nutrition data. (2) Conducted One routine maintenance of heifer barn.	Achieved.
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Expenditures incurred in the Quarter to deliver outputs *US\$ Thousand*

Item	Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	39,825.200
222001 Information and Communication Technology Services.	9,158.620
223001 Property Management Expenses	9,705.743
223004 Guard and Security services	5,558.620
224003 Agricultural Supplies and Services	146,537.920
224005 Laboratory supplies and services	14,653.792
224011 Research Expenses	8,777,176.907
225101 Consultancy Services	22,586.201
227004 Fuel, Lubricants and Oils	52,503.662
Total For Budget Output	9,077,706.665
Wage Recurrent	0.000
Non Wage Recurrent	9,077,706.665
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:010011 Technology Promotion

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Suitability of Two livestock related technologies evaluated for possible promotion and delivery to stakeholders along the value chain in Uganda for increased production and productivity	(Duplicate) Assorted livestock related technologies were evaluated for promotion and delivery to stakeholders. These included 1) 1250 tons of silage produced (Maize and Napier). 2) 18 tons of hay produced. 3) 40 acres of silage maize established. 4) 42 acres of Napier established and maintained. 5) 500kgs of calliandra hay produced and 40 acres of calliandra fields maintained. 6) 5 acres of alfalfa introduced to provide quality hay for the calves. 7) Conservation forage bank (herbarium) maintained.	(Duplicate)
1,300 tons of napier silage and cuttings produced 75,00 bales of hay produced 1,250 kg of Chloris seed produced 1,250 elite embryos for beef and dairy cattle produced	1,300 tons of napier silage and cuttings produced 75,00 bales of hay produced 1,250 kg of Chloris seed produced . Progress in breeding included the following: 1) Maintenance of 596 embryos and 3000 semen straws at Nakyesasa IVF lab cryo unit. 2) Aailed and undertook embryo transfer of 14 embryos, awaiting pregnancy diagnosis. 3) Popularization of embryo transfer technology in media. 4) Assembly of 120 surrogates in Nakyesasa, Maruzi and Mbazardi. 5) Embryo supply and distribution centres established at Mbarara ZARDI awaiting embryo supply.	Achieved.
1,300 tons of napier silage and cuttings produced 75,00 bales of hay produced 1,250 kg of Chloris seed produced 1,250 elite embryos for beef and dairy cattle produced	(Duplicate). 1,300 tons of napier silage and cuttings produced 75,00 bales of hay produced 1,250 kg of Chloris seed produced . Progress in breeding included the following: 1) Maintenance of 596 embryos and 3000 semen straws at Nakyesasa IVF lab cryo unit. 2) Aailed and undertook embryo transfer of 14 embryos, awaiting pregnancy diagnosis. 3) Popularization of embryo transfer technology in media. 4) Assembly of 120 surrogates in Nakyesasa, Maruzi and Mbazardi. 5) Embryo supply and distribution centres established at Mbarara ZARDI awaiting embryo supply.	(Duplicate).

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
1,300 tons of napier silage and cuttings produced 75,00 bales of hay produced 1,250 kg of Chloris seed produced 1,250 elite embryos for beef and dairy cattle produced	1,300 tons of napier silage and cuttings produced 75,00 bales of hay produced 1,250 kg of Chloris seed produced 1,250 elite embryos for beef and dairy cattle produced	Achieved.
1,300 tons of napier silage and cuttings produced 75,00 bales of hay produced 1,250 kg of Chloris seed produced 1,250 elite embryos for beef and dairy cattle produced	1,300 tons of napier silage and cuttings produced 75,00 bales of hay produced 1,250 kg of Chloris seed produced 1,250 elite embryos for beef and dairy cattle produced.	Achieved. Duplicate
PIAP Output: 0103020117 Soil, crop suitability and fertilizer blend maps developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Two livestock related technologies evaluated for possible promotion and delivery to stakeholders along the value chain in Uganda for increased production and productivity	Assorted livestock related technologies were evaluated for promotion and delivery to stakeholders. These included 1) 1250 tons of silage produced (Maize and Napier). 2) 18 tons of hay produced. 3) 40 acres of silage maize established. 4) 42 acres of Napier established and maintained. 5) 500kgs of calliandra hay produced and 40 acres of calliandra fields maintained. 6) 5 acres of alfalfa introduced to provide quality hay for the calves. 7) Conservation forage bank (herbarium) maintained.	Achieved.
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
224011 Research Expenses		456,343.474
	Total For Budget Output	456,343.474
	Wage Recurrent	0.000
	Non Wage Recurrent	456,343.474
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	9,534,050.139
	Wage Recurrent	0.000
	Non Wage Recurrent	9,534,050.139
	Arrears	0.000
	<i>AIA</i>	0.000
Department:015 National Semi Arid Resources Research Institute (NaSARRI)		

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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Budget Output:010010 Technology Generation**PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

2 High oleic and 1 nutrient-dense groundnuts lines developed and evaluated	2 High oleic and 1 nutrient-dense groundnuts lines that were developed and evaluated were released. The groundnuts are drought resistant lowering costs of production for women and youth• Rich in Iron and Zinc for children and elderly, High oil content (55-63%oleic, 8-26%linoleic, which are good at reducing heart-related diseases and lowering cholesterol), High yield (2.5-3.0t/ha), and Early maturity period (80-110 days)	Achieved.
1 Entomopathogenic Fungi (EPF) isolates evaluated against tick eggs and larvae in the lab	Initiated production of most entomopathogenic fungi on artificial media in the labs.	Work in progress.

Expenditures incurred in the Quarter to deliver outputs*US\$ Thousand*

Item	Spent
223001 Property Management Expenses	1,600.000
224011 Research Expenses	6,400.000
Total For Budget Output	8,000.000
Wage Recurrent	0.000
Non Wage Recurrent	8,000.000
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:010011 Technology Promotion**PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

10 Iron dense mung-bean lines identified evaluated under DUS testing 1 livestock feed formulations developed out of black soldier flies	10 Iron dense mung-bean lines identified evaluated under DUS testing 1 livestock feed formulations developed out of black soldier flies	
4 Iron dense mung-bean lines identified for DUS testing 1 livestock feed formulations developed out of black soldier flies	4 Iron dense mung-bean lines identified for DUS testing 1 livestock feed formulations developed out of black soldier flies	

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 01041103 Research-extension-farmer linkages developed and strengthened

Programme Intervention: 010411 Strengthen the agricultural extension system

10 Iron dense mung-bean lines identified evaluated under DUS testing 1 livestock feed formulations developed out of black soldier flies

Expenditures incurred in the Quarter to deliver outputs

US\$ Thousand

Item	Spent
212103 Incapacity benefits (Employees)	480.000
223004 Guard and Security services	1,600.000
224011 Research Expenses	4,800.000
228002 Maintenance-Transport Equipment	1,120.000
Total For Budget Output	8,000.000
Wage Recurrent	0.000
Non Wage Recurrent	8,000.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	16,000.000
Wage Recurrent	0.000
Non Wage Recurrent	16,000.000
Arrears	0.000
<i>AIA</i>	0.000

Department:016 Ngetta ZARDI

Budget Output:010010 Technology Generation

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Two (2) technologies for food, Nutrition security and industry evaluated for suitability in the zone to improve production and productivity.	Technologies for food, Nutrition security and industry evaluated for suitability in the zone to improve production and productivity.(1) Three crop technologies (rice, cassava and soyabean) were evaluated for yield performance and tolerance to biotic stresses common in NAEZ. (2) One adaptive trial (3 acres) of improved cassava varieties (UG120/193, NAROCASS1, NASE 14) established in season 2023 season B to evaluate tolerance in improved varieties to physiological deterioration and rotting of tubers at varying harvesting time. (3)Two adaptive IPM studies (2 acres) were established on station notably; (a) efficacy of biopesticides on major rice pests on selected rice varieties (NARO rice 1, NARO rice 2, Namche 5 and Local rice) in NAEZ (b) evaluation of the efficacy of biopesticides on major pests on two selected improved soyabean varieties (MAKSOY 3N and MAKSOY 6N).	Achieved.
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
10 high yielding technologies for new cassava, rice, Napier and pasture varieties evaluated for possible promotion in Ngetta region	10 high yielding technologies were evaluated for possible promotion in Ngetta region (1)Three crop technologies (rice, cassava and soyabean) were evaluated for yield performance and tolerance to biotic stresses common in NAEZ. (2) One adaptive trial (3 acres) of improved cassava varieties (UG120/193, NAROCASS1, NASE 14) established in season 2023 season B to evaluate tolerance in improved varieties to physiological deterioration and rotting of tubers at varying harvesting time. (3) Two adaptive IPM studies (2 acres) were established on station notably; (a) efficacy of biopesticides on major rice pests on selected rice varieties (NARO rice 1, NARO rice 2, Namche 5 and Local rice) in NAEZ (b) evaluation of the efficacy of biopesticides on major pests on two selected improved soyabean varieties (MAKSOY 3N and MAKSOY 6N).	Achieved.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
221008 Information and Communication Technology Supplies.		800.000
224003 Agricultural Supplies and Services		2,560.000
224011 Research Expenses		4,640.000
	Total For Budget Output	8,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	8,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
Budget Output:010011 Technology Promotion		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
4 high yielding crop technologies(cassava, rice, napier and pasture) promoted in Ngetta region	One cassava multiplication and demonstration garden (2 acres) of 3 improved cassava varieties (NAROCASS1, NASE 14 and UG 120/193) was established on station during second season 2023 and maintained on station. Growth performance data is being collected. On farm evaluations and multiplications are planned to be conducted next quarter using these materials when they reach optimum maturity from 8 months after planting for viable cuttings. Newly released yielding varieties of cassava ((NAROCASS1, NASE 14 and UG 120/193) were demonstrated to 1,338 farmers (1,074 Males and 264 Females).	Achieved. (Duplicate).

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened

Programme Intervention: 010407 Strengthen agricultural research and technology development

Capacity of 6 community seed producers in 4 districts of Ngetta region enhanced for increased supply of clean seed in the region for improved productivity.	The technical capacity of 7 community seed producers groups (Bedignen Women, Bedijo, Barr Rec Farmers group, Can-Onotowa, Oriem-Can Widows and Orphans, Acan Penyoye, Bala Women & Youth Groups) to produce quality declared seed (QDS) was enhanced through trainings and demonstrations. The trainings and demonstrations focused on production of Quality Declared Seed of soybean, simsim and groundnut. In total about 150 seed producers participated in these trainings.	Achieved.
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Expenditures incurred in the Quarter to deliver outputs *US\$ Thousand*

Item	Spent
222001 Information and Communication Technology Services.	320.000
223004 Guard and Security services	1,920.000
224011 Research Expenses	4,960.000
228001 Maintenance-Buildings and Structures	800.000
Total For Budget Output	8,000.000
Wage Recurrent	0.000
Non Wage Recurrent	8,000.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	16,000.000
Wage Recurrent	0.000
Non Wage Recurrent	16,000.000
Arrears	0.000
<i>AIA</i>	0.000

Department:017 Rwebitaba ZARDI

Budget Output:010010 Technology Generation

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Enhanced tea improvement through developing elite tea clones 2 tons of green leaf tea produced and sold	Multi-location trials for candidate tea clones established. (Data collected, preliminary report written and trials managed for proper establishment and evaluation. (2) There was no capacity to produce green tea. so 30 tea farmers under Uganda Tea Out Growers Association (UTOA) were trained in specialty tea processing and value addition with combined effort of Rwebitaba TRC and Solidaridad East Africa.	Achieved.
3,500 banana suckers produced for uptake pathways. 1 acres of seed mother gardens and forage banks for fruit trees maintained. Integrated Tea Crop Management packages generated.	(1) 3500 banana suckers produced for uptake pathways. 1500 for one acres of seed mother gardens. and forage banks for fruit trees maintained. Integrated Tea Crop Management packages generated. (2) Site for establishing 3 acres of mother gardens, trials for avocado and Citrus lemon characterized; site for 2 acres of seed and forage bank established and maintained	Achieved.
10,000 seedlings raised and 6 acres of fruits (mangoes, Citrus oranges, Avocado) maintained. 37,500 high quality tea seedlings raised 7 Boer cross breeds and 20 piglets multiplied.	3 acres permanent demonstration plot of Mangoes, Citrus oranges, Avocado, coffee and Macadamia maintained on station; 5,000 high quality tree seedlings for avocado, oranges, mangoes and passion fruits maintained and grafted; 800 avocado and mangoes maintained; potting media (forest soil, manure and river sand) acquired for potting 5000 rootstocks	Achieved.
5 tons of maize grain produced respectively. 2 tons of assorted animal feeds produced 1 seed multiplication ponds maintained with African catfish 250,000 Nile Tilapia fingerlings multiplied	250 kg of hay and 5 tonnes of silage produced, 3.3 acres of beans established and maintained, 3 acres of maize harvested and tons raised and to be sold	More grain to be harvested
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
3500 banana suckers produced for uptake pathways for increased banana productivity. 1 hot culture product (Citrus oranges,) promoted.	(1) 500 banana suckers produced for uptake pathways. 1500 for one acres of seed mother gardens. and forage banks for fruit trees maintained. Integrated Tea Crop Management packages generated. (2) Site for establishing 3 acres of mother gardens, trials for avocado and Citrus lemon characterized; site for 2 acres of seed and forage bank established and maintained	Achieved.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)		3,520.000
221003 Staff Training		1,280.000
221009 Welfare and Entertainment		1,344.000
223001 Property Management Expenses		960.000
223004 Guard and Security services		1,408.000
224004 Beddings, Clothing, Footwear and related Services		640.000
224011 Research Expenses		3,584.000
226001 Insurances		192.000
227004 Fuel, Lubricants and Oils		2,720.000
273102 Incapacity, death benefits and funeral expenses		352.000
	Total For Budget Output	16,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	16,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
Budget Output:010011 Technology Promotion		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Eight demand driven technologies promoted with in Rwebitaba zone to enhance production, food and nutrition security	(Duplicate) Eight demand driven technologies promoted with in Rwebitaba zone. (1) Tea-Agroforestry integration in plantations among tea farming communities in South Western Uganda promoted. (2) 4000 banana suckers produced and delivered to uptake pathways (3) Capacity building on 6 NARO agricultural technologies to 500 farmers in Kamwenge, Kitagwenda and enhanced	(Duplicate)

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
PIAP Output: 01041103 Research-extension-farmer linkages developed and strengthened		
Programme Intervention: 010411 Strengthen the agricultural extension system		
Eight demand driven technologies promoted with in Rwebitaba zone to enhance production, food and nutrition security	Eight demand driven technologies promoted with in Rwebitaba zone. (1)Tea-Agroforestry integration in plantations among tea farming communities in South Western Uganda promoted. (2) 4000 banana suckers produced and delivered to uptake pathways (3) Capacity building on 6 NARO agricultural technologies to 500 farmers in Kamwenge, Kitagwenda and enhanced	Achieved.

Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
211107 Boards, Committees and Council Allowances		1,600.000
221007 Books, Periodicals & Newspapers		480.000
221008 Information and Communication Technology Supplies.		1,776.000
221011 Printing, Stationery, Photocopying and Binding		800.000
223001 Property Management Expenses		1,040.000
224011 Research Expenses		1,600.000
228001 Maintenance-Buildings and Structures		800.000
228002 Maintenance-Transport Equipment		2,880.000
228004 Maintenance-Other Fixed Assets		1,024.000
	Total For Budget Output	12,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	12,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	28,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	28,000.000
	Arrears	0.000
	<i>AIA</i>	0.000

*Development Projects***Project:1560 Relocation and Operationalisation of the National Livestock Resources Research Institute(NALIRRI)****Budget Output:000017 Infrastructure Development and Management**

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Project:1560 Relocation and Operationalisation of the National Livestock Resources Research Institute(NALIRRI)		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Four (04) livestock research handling structures supported to strengthen livestock breeding research at Maruzi and Nakyesasa.	Four (04) livestock research handling structures supported to strengthen livestock breeding research at Maruzi and Nakyesasa which included (1). Remodeling the Vaccine production facility, progress at 80%. (2) Proposed Fit out & Remodeling for offices at NaLIRRI Nakyesasa. Project progress: 50%. (3) Construction of a Perimeter Wall & Incinerator at the Vaccine Facility. Project progress: 76%. (4) Construction of a Bio Security Gate at NaLIRRI Nakyesasa. Project progress: 75%.	Achieved.
One vaccine research and production facility redesigned, modified and certified based on vaccine research and production bio-systems standards to produce internationally acceptable vaccine	(1). Remodeling the Vaccine production facility, progress at 80%. (2) Proposed Fit out & Remodeling for offices at NaLIRRI Nakyesasa. Project progress: 50%. (2) Procured consultancy service for Intellectual property and technology transfer of anti-tick vaccine oral adjuvant acquired by NARO. Contract signed. 100% Payment made against all deliverables in the contract. File closed.	Achieved.
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item	Spent	
312121 Non-Residential Buildings - Acquisition	9,490,568.922	
Total For Budget Output	9,490,568.922	
GoU Development	9,490,568.922	
External Financing	0.000	
Arrears	0.000	
<i>AIA</i>	0.000	
Budget Output:010010 Technology Generation		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
One (1) livestock related research product developed and promoted across the country along livestock value chains for increased production and productivity	1250 tons of silage produced (Maize and Napier).	Achieved.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Project:1560 Relocation and Operationalisation of the National Livestock Resources Research Institute(NALIRRI)		
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
221002 Workshops, Meetings and Seminars		5,000.000
221003 Staff Training		10,000.000
221008 Information and Communication Technology Supplies.		20,000.000
221011 Printing, Stationery, Photocopying and Binding		9,500.000
223004 Guard and Security services		5,500.000
223005 Electricity		15,000.000
224003 Agricultural Supplies and Services		161,500.000
224004 Beddings, Clothing, Footwear and related Services		5,000.000
224005 Laboratory supplies and services		37,499.999
224011 Research Expenses		388,999.999
225201 Consultancy Services-Capital		60,000.000
227003 Carriage, Haulage, Freight and transport hire		5,000.000
227004 Fuel, Lubricants and Oils		100,000.000
228001 Maintenance-Buildings and Structures		25,000.000
228002 Maintenance-Transport Equipment		27,000.000
228003 Maintenance-Machinery & Equipment Other than Transport Equipment		50,000.001
313235 Furniture and Fittings - Improvement		114,145.700
	Total For Budget Output	1,039,145.699
	GoU Development	1,039,145.699
	External Financing	0.000
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Project	10,529,714.621
	GoU Development	10,529,714.621
	External Financing	0.000
	Arrears	0.000
	<i>AIA</i>	0.000
Project:1619 Retooling of National Agricultural Research Organization		
Budget Output:000003 Facilities and Equipment Management		

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Project:1619 Retooling of National Agricultural Research Organization		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
<p>Three research facilities equipped with assorted laboratory equipmen; incinerator to support international best practices of epidemiology and pathogens handling for improved bio-safety, laboratory equipment for fisheries health diagnostics at Aquaculture Research Development Centre (ARDC) at Kajansi and H-vac air and negative pressure system to fulfil international requirements of epidemiology at vaccines research and production facility at Nakyesasa</p>	<p>Three research facilities equipped. (1) Progress In the anti-tick vaccine production plant (a) Procurement underway for a platform for automated vaccine filling, caping and bottling line with capacity to fill 200 bottles of 1ml each per minute. Contract signed, items pre-inspected and shipped. Payment effected against Bank Guarantee. Awaiting for final delivery of items. (b) Procure and install vaccine seed/inoculum production line progress is: Contract signed. All Items delivered. Payment effected and file closed. (c) Awaiting for final delivery of items for construction of H-vac air purification system (d) Upgrade research facility power back Up system progress is contract signed. Equipment delivered and Installed. Payment effected and file closed. (2) Assorted Aflasafe Research Equipment,(a) Evidence Investigator/installation of fish feed completed. Contract signed. Items delivered and installed. (3) Electricity Installation for the fish floating feed equipment completed at Kajansi.</p>	<p>Achieved.</p>

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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Project:1619 Retooling of National Agricultural Research Organization

PIAP Output: 01040705 Demand driven agriculture technologies developed

Programme Intervention: 010407 Strengthen agricultural research and technology development

1 Vaccine production plant with capacity to produce 20million doses per annum established at NARO Nakyesasa & equipped with highly specialized assorted equipment (27), water injection system, depyronerators, sonicators, fermenters, HPLC machines, PCR etc	Establishment of vaccine production plant, equipped with highly specialized assorted equipment at Nakyesasa , (a) Contract signed, items pre-inspected and shipped. Payment effected against Bank Guarantee. Awaiting for final delivery of commercial vaccine production line with capacity to produce over 20 million of anti-tick vaccine doses annually. (b) establishment of a platform for automated vaccine filling, capping and bottling line with capacity to fill 200 bottles of 1ml each per minute progress is contract signed, items pre-inspected and shipped. Payment effected against Bank Guarantee. Awaiting for final delivery.(c) Vaccine research and production facility fitted with specialised laboratory fittings and furniture. (d) Bioreactors procured for anti-tick vaccine production Facility. (e) Procure and install vaccine seed/inoculum production line. Contract signed. All Items delivered. Payment effected. (f) Supply/Installation of Laboratory Equipment and reagents partial	Work still in progress.
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Expenditures incurred in the Quarter to deliver outputs *US\$ Thousand*

Item	Spent
312233 Medical, Laboratory and Research & appliances - Acquisition	20,033,085.022
Total For Budget Output	20,033,085.022
GoU Development	20,033,085.022
External Financing	0.000
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:000017 Infrastructure Development and Management

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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Project:1619 Retooling of National Agricultural Research Organization

PIAP Output: 01040705 Demand driven agriculture technologies developed

Programme Intervention: 010407 Strengthen agricultural research and technology development

The diverted Public road to vaccine facility maintained meet international standards.	7 research facilities maintained. (1) 3 research facilities maintained at 100% Works completed for (a)Bio-security gate strengthening, (b)Perimeter wall around vaccine research and production facility strengthened. (c) Water works & reticulation at Maruzi at 100% (2) Four research facilities maintained with works at various completion levels (a)Goat research facility at Maruzi at 90%, Queen bee rearing facility to support maruzi (Phase 1) at 80%, (b) Paddock system and (c) farm access roads to support Maruzi at 43%, Construction of Water Purification Unit, Building Management Systems and configuration of oral adjuvant production platform and diversion of the Access Road from the Vaccine Research Facility from NaCRRRI to NaLIRRI. Project Progress: 96%.	Works delayed by rainy season
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Expenditures incurred in the Quarter to deliver outputs *US\$ Thousand*

Item	Spent
225101 Consultancy Services	36,420.000
225201 Consultancy Services-Capital	150,000.000
228001 Maintenance-Buildings and Structures	370,000.000
313121 Non-Residential Buildings - Improvement	6,817,904.158
Total For Budget Output	7,374,324.158
GoU Development	7,374,324.158
External Financing	0.000
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:010008 Capacity Strengthening

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Project:1619 Retooling of National Agricultural Research Organization		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
15 hectares of NARO Agricultural research land fenced and visibility pillars installed 282 ha of land boundaries opened at Maruzi Apac and Lorengedwart, Nabuin ZARDI 1 pieces of land verified through Cad	15 hectares of NARO Agricultural research land titled at Aduku, Katakwi, Pallisa, and Serere. 282 ha of land boundaries opened at Maruzi Apac and Lorengedwart, Nabuin ZARDI 1 pieces of land verified. At Katakwi land fenced and visibility pillars installed.	Achieved.
	15 hectares of NARO Agricultural research land fenced and visibility pillars installed 282 ha of land boundaries opened at Maruzi Apac and Lorengedwart, Nabuin ZARDI 1 pieces of land verified through Cad	

Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)		149,693.900
211107 Boards, Committees and Council Allowances		15,000.000
221001 Advertising and Public Relations		296,328.687
221004 Recruitment Expenses		149,400.000
221008 Information and Communication Technology Supplies.		101,699.999
221011 Printing, Stationery, Photocopying and Binding		40,149.000
221012 Small Office Equipment		2,107.000
221016 Systems Recurrent costs		40,000.000
221017 Membership dues and Subscription fees.		37,785.055
222001 Information and Communication Technology Services.		16,770.000
224005 Laboratory supplies and services		16,079.000
224011 Research Expenses		1,579,586.524
225101 Consultancy Services		115,000.000
225201 Consultancy Services-Capital		200,000.000
225204 Monitoring and Supervision of capital work		318,461.400
226001 Insurances		804.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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Project:1619 Retooling of National Agricultural Research Organization**Expenditures incurred in the Quarter to deliver outputs** *US\$ Thousand*

Item	Spent
226002 Licenses	25,030.000
227001 Travel inland	42,670.000
227004 Fuel, Lubricants and Oils	212,500.000
228001 Maintenance-Buildings and Structures	326,000.000
228002 Maintenance-Transport Equipment	55,266.776
228003 Maintenance-Machinery & Equipment Other than Transport Equipment	19,700.000
228004 Maintenance-Other Fixed Assets	99,637.321
Total For Budget Output	3,859,668.662
GoU Development	3,859,668.662
External Financing	0.000
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:010009 Research Partnerships**PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

Agricultural research regional and international collaborations for research and technology transfer strengthened through four(4) partnerships with Biodiversity international, ASARECA,CABI and IRRI	Agricultural research research and technology transfer with national and with regional and international agencies was strengthened by setting up 43 on-station demonstrations and 40 on-farm demonstrations with the Biodiversity international, ASARECA,CABI and IRRI and DINU project sites.	Achieved.
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Expenditures incurred in the Quarter to deliver outputs *US\$ Thousand*

Item	Spent
Total For Budget Output	0.000
GoU Development	0.000
External Financing	0.000
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:010010 Technology Generation

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
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Project:1619 Retooling of National Agricultural Research Organization

PIAP Output: 01040705 Demand driven agriculture technologies developed

Programme Intervention: 010407 Strengthen agricultural research and technology development

8 research projects streams under the competitive grants scheme supported for products for resilient food, systems, Climate resilience, nutrition, industry and increased total factor productivity in Uganda	NARO invested in 34 research projects under the competitive grants scheme to support for products for resilient food, systems, Climate resilience, nutrition, industry and increased total factor productivity in Uganda.	Achieved
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Expenditures incurred in the Quarter to deliver outputs *US\$ Thousand*

Item	Spent
221001 Advertising and Public Relations	10,418.000
221008 Information and Communication Technology Supplies.	14,312.750
221009 Welfare and Entertainment	850.625
221011 Printing, Stationery, Photocopying and Binding	33,673.751
221012 Small Office Equipment	4,247.500
221017 Membership dues and Subscription fees.	1,160.308
222001 Information and Communication Technology Services.	2,635.100
223001 Property Management Expenses	1,722.999
223004 Guard and Security services	1,711.000
223005 Electricity	1,445.575
224002 Veterinary supplies and services	10,652.735
224003 Agricultural Supplies and Services	155,915.105
224011 Research Expenses	1,419,533.986
225101 Consultancy Services	36,179.000
227001 Travel inland	14,433.800
227004 Fuel, Lubricants and Oils	49,575.865
228001 Maintenance-Buildings and Structures	1,855.000
228002 Maintenance-Transport Equipment	2,894.595
313233 Medical, Laboratory and Research & appliances - Improvement	574,268.000
Total For Budget Output	2,337,485.694
GoU Development	2,337,485.694
External Financing	0.000
Arrears	0.000
<i>AIA</i>	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Project:1619 Retooling of National Agricultural Research Organization		
Budget Output:010011 Technology Promotion		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
3 agricultural research technologies, innovations, and information promoted for improved production and productivity across the country.	NARO promoted 3 technologies (3 bean varieties across the country.	Achieved.
Expenditures incurred in the Quarter to deliver outputs		<i>US\$ Thousand</i>
Item		Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)		94,279.806
221001 Advertising and Public Relations		93,200.000
221007 Books, Periodicals & Newspapers		625.000
221008 Information and Communication Technology Supplies.		13,487.140
221011 Printing, Stationery, Photocopying and Binding		18,643.666
222001 Information and Communication Technology Services.		5,485.000
224003 Agricultural Supplies and Services		83,980.765
224005 Laboratory supplies and services		1,779.250
224011 Research Expenses		628,527.670
226002 Licenses		66,000.000
227001 Travel inland		16,695.345
227004 Fuel, Lubricants and Oils		30,407.935
228002 Maintenance-Transport Equipment		20,239.403
	Total For Budget Output	1,073,350.980
	GoU Development	1,073,350.980
	External Financing	0.000
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Project	34,677,914.516
	GoU Development	34,677,914.516
	External Financing	0.000
	Arrears	0.000
	<i>AIA</i>	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
Programme:17 Regional Balanced Development		
SubProgramme:01 Production and productivity		
Sub SubProgramme:01 Agricultural Research		
<i>Departments</i>		
Department:002 Buginyaya Zonal Agriculture Research Institute(ZARDI)		
Budget Output:010011 Technology Promotion		
PIAP Output: 1702020506 Youth and Women cooperatives supported		
Programme Intervention: 170209 Organize farmers into cooperatives at district level		
5 local seed businesses supported affordable breeder and foundation seed for sustainable seed system. 1000 farmers (women and youth) supported with technologies, innovations & skill to increase production & productivity.	20 local seed businesses supported with affordable breeder and foundation seed for sustainable seed system.. 2.4 tons of maize Longe 5D, 500kgs of NARO bean 1, and 500kg of NABE 15 were produced and availed to uptake (LSBs). 1000 farmers visited the demos of good fish pond construction and management, Skills were enhanced of 100 fish farmers (70 men and 30 females) in Kapchorwa, Bugiri, Sironko, Bududa , Butaleja, Budaka and Soroti districts	Achieved.
Expenditures incurred in the Quarter to deliver outputs		<i>UShs Thousand</i>
Item		Spent
	Total For Budget Output	0.000
	Wage Recurrent	0.000
	Non Wage Recurrent	0.000
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	0.000
	Wage Recurrent	0.000
	Non Wage Recurrent	0.000
	Arrears	0.000
	<i>AIA</i>	0.000
<i>Develoment Projects</i>		
N/A		
	GRAND TOTAL	72,507,420.603
	Wage Recurrent	11,013,694.629

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Outputs Planned in Quarter	Actual Outputs Achieved in Quarter	Reasons for Variation in performance
	Non Wage Recurrent	16,286,096.837
	GoU Development	45,207,629.137
	External Financing	0.000
	Arrears	0.000
	<i>AIA</i>	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Quarter 4: Cumulative Outputs and Expenditure by End of Quarter

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Programme:01 Agro-Industrialization	
SubProgramme:01 Institutional Strengthening and Coordination	
Sub SubProgramme:01 Agricultural Research	
<i>Departments</i>	
Department:007 NARO-SECRETARIATE	
Budget Output:000001 Audit and Risk Management	
PIAP Output: 01040701 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
8 Audit assessments conducted to inform management of possible risks and solutions	NA
PIAP Output: 01910101 Audit and Risk Management coordinated	
Programme Intervention: 019101 Strengthen government institutions for effective and efficient service delivery.	
8 Audit assessments conducted to inform management of possible risks and solutions.	8 Audit assessments conducted to inform management of possible risks and solutions. Implementation status reviewed and corrective actions ascertained, verified status report submitted to Permanent Secretary, Secretary to Treasury (PSST), Internal Auditor General (IAG), Accountant General and Auditor General. Tracker of management actions for FY2022/2023 updated. There were other audit assessments which were conducted on Governance, procurement, Non-Tax Revenue management, on environmental and Social Safeguards, on progress of efficacy evaluation for the Anti Tick vaccine clinical trial conducted at Maruzi, Nabuin ZARDI, and Isimba Government prisons. The NARO internal audit was strengthened with the compilation of the final draft Audit Manual, audit charter, and Audit Committee charter produced. Draft awaiting review by the Audit and Risk.

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Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
PIAP Output: 01910101 Audit and Risk Management coordinated	
Programme Intervention: 019101 Strengthen government institutions for effective and efficient service delivery.	
8 Audit assessments conducted to inform management of possible risks and solutions	8 Audit assessments conducted to inform management of possible risks and solutions. Implementation status reviewed and corrective actions ascertained, verified status report submitted to Permanent Secretary, Secretary to Treasury (PSST), Internal Auditor General (IAG), Accountant General and Auditor General. Tracker of management actions for FY2022/2023 updated. There were other audit assessments which were conducted on Governance, procurement, Non-Tax Revenue management, on environmental and Social Safeguards, on progress of efficacy evaluation for the Anti Tick vaccine clinical trial conducted at Maruzi, Nabuin ZARDI, and Isimba Government prisons. The NARO internal audit was strengthened with the compilation of the final draft Audit Manual, audit charter, and Audit Committee charter produced. Draft awaiting review by the Audit and Risk.(Duplicate)
8 Audit assessments conducted to inform management of possible risks and solutions	8 Audit assessments conducted to inform management of possible risks and solutions. Implementation status reviewed and corrective actions ascertained, verified status report submitted to Permanent Secretary, Secretary to Treasury (PSST), Internal Auditor General (IAG), Accountant General and Auditor General. Tracker of management actions for FY2022/2023 updated. There were other audit assessments which were conducted on Governance, procurement, Non-Tax Revenue management, on environmental and Social Safeguards, on progress of efficacy evaluation for the Anti Tick vaccine clinical trial conducted at Maruzi, Nabuin ZARDI, and Isimba Government prisons. The NARO internal audit was strengthened with the compilation of the final draft Audit Manual, audit charter, and Audit Committee charter produced. Draft awaiting review by the Audit and Risk.(Duplicate)

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
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PIAP Output: 01910101 Audit and Risk Management coordinated

Programme Intervention: 019101 Strengthen government institutions for effective and efficient service delivery.

8 Audit assessments conducted to inform management of possible risks and solutions

8 Audit assessments conducted to inform management of possible risks and solutions. Implementation status reviewed and corrective actions ascertained, verified status report submitted to Permanent Secretary, Secretary to Treasury (PSST), Internal Auditor General (IAG), Accountant General and Auditor General. Tracker of management actions for FY2022/2023 updated. There were other audit assessments which were conducted on Governance, procurement, Non-Tax Revenue management, on environmental and Social Safeguards, on progress of efficacy evaluation for the Anti Tick vaccine clinical trial conducted at Maruzi, Nabuin ZARDI, and Isimba Government prisons. The NARO internal audit was strengthened with the compilation of the final draft Audit Manual, audit charter, and Audit Committee charter produced. Draft awaiting review by the Audit and Risk. (Duplicate).

Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs

US\$ Thousand

Item	Spent
221003 Staff Training	20,600.000
224011 Research Expenses	109,400.000
Total For Budget Output	130,000.000
Wage Recurrent	0.000
Non Wage Recurrent	130,000.000
Arrears	0.000
AIA	0.000

Budget Output:000013 HIV/AIDS Mainstreaming

PIAP Output: 01040701 Demand driven agriculture technologies developed

Programme Intervention: 010407 Strengthen agricultural research and technology development

Two (2) market led demand driven technologies promoted to engage the youth in business

Two sensitization strategic meetings for prevention and positive living conducted at NASARRI

Four (4) sensitization strategic meetings for prevention and positive living conducted.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
PIAP Output: 01040701 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
Two (2) market led demand driven technologies promoted to engage the youth in business	No plan
Four (4) sensitization strategic meetings for prevention and positive living conducted.	
Two (2) market led demand driven technologies promoted to engage the youth in business	Two sensitization strategic meetings for prevention and positive living conducted at NASARRI (Duplicate)
Four (4) sensitization strategic meetings for prevention and positive living conducted.	
PIAP Output: 10412026 Leadership and Management coordinated	
Programme Intervention: 010601 Strengthen coordination of public institutions in design and implementation of policies including access to quality food and food security	
Two (2) market led demand driven technologies promoted to engage the youth in business.	Four sensitization strategic meetings for prevention and positive living conducted at Bulindi. NARO pre-cooked technologies promoted to engage the youth in business.
Four (4) sensitization strategic meetings for prevention and positive living conducted.	
Two (2) market led demand driven technologies promoted to engage the youth in business	
Four (4) sensitization strategic meetings for prevention and positive living conducted.	
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	
	<i>US\$ Thousand</i>
Item	Spent
224011 Research Expenses	48,730.000
Total For Budget Output	48,730.000
Wage Recurrent	0.000
Non Wage Recurrent	48,730.000
Arrears	0.000
<i>AIA</i>	0.000
Budget Output:000014 Administrative and Support Services	

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
<p>PIAP Output: 10412026 Leadership and Management coordinated</p>	
<p>Programme Intervention: 010601 Strengthen coordination of public institutions in design and implementation of policies including access to quality food and food security</p>	
<p>34 Agricultural research projects supported through technical back stopping across 16 Public research Institutes (PARI) One social economic impact assessment for two technologies conducted. Research enabling environment for 16 PARIs created & ma</p>	<p>(1) NARO invested and is conducting 34 research studies towards: (a)resilient food systems and enhanced nutrition (b), products for industry and market (c), resilience to environmental and pandemic phenomena. The resultant products of these studies will contribute to food and nutrition security, support of vertical industry to support industrialization and provide solutions towards mitigation and adaptation of climate change. In quarter four Nine (9) CGS Agricultural research projects supported through technical back stopping across 16 Public research Institutes (PARI). Projects were refocus in their deliverables, MOUs were reviewed for leveled understanding. This created a refocused their new modus operandi enabling environment . (2) NARO conducted one social economic impact assessment for sorghum technologies conducted. Data collected, report writing underway.</p>
<p>34 Agricultural research projects supported through technical back stopping across 16 Public research Institutes (PARI) One social economic impact assessment for two technologies conducted. Research enabling environment for 16 PARIs created & maintained</p>	<p>(Duplicate).(1) NARO invested and is conducting 34 research studies towards: (a)resilient food systems and enhanced nutrition (b), products for industry and market (c), resilience to environmental and pandemic phenomena. The resultant products of these studies will contribute to food and nutrition security, support of vertical industry to support industrialization and provide solutions towards mitigation and adaptation of climate change. In quarter four Nine (9) CGS Agricultural research projects supported through technical back stopping across 16 Public research Institutes (PARI). Projects were refocus in their deliverables, MOUs were reviewed for leveled understanding. This created a refocused their new modus operandi enabling environment . (2) NARO conducted one social economic impact assessment for sorghum technologies. Preliminary results show that 59% of the farmers (sorghum-growing households) in the surveyed areas adopted the NARO sorghum varieties.</p>
<p>34 Agricultural research projects supported through technical back stopping across 16 Public research Institutes (PARI) One social economic impact assessment for two technologies conducted. Research enabling environment for 16 PARIs created & maintained</p>	<p>NARO conducted one social economic impact assessment for sorghum technologies. Preliminary results show that 59% of the farmers (sorghum-growing households) in the surveyed areas adopted the NARO sorghum varieties. The most popular varieties are NAROSORG-1, NAROSORG-2, and NAROSORG-3. Other include NAROSORG-4, SESO-1, and SESO-2. Farmers reported that they prefer these varieties because they offer higher yields, have better taste, early maturity, and availability of the seed.</p>

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Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
Item	Spent
211102 Contract Staff Salaries	43,462,109.265
211104 Employee Gratuity	10,865,527.320
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	690,773.000
211107 Boards, Committees and Council Allowances	35,095.000
212101 Social Security Contributions	4,346,322.680
212102 Medical expenses (Employees)	596,000.000
212103 Incapacity benefits (Employees)	225,000.000
221007 Books, Periodicals & Newspapers	1,600.000
221009 Welfare and Entertainment	267,130.000
221011 Printing, Stationery, Photocopying and Binding	30,000.000
221016 Systems Recurrent costs	20,000.000
222001 Information and Communication Technology Services.	443,120.000
222002 Postage and Courier	2,000.000
223001 Property Management Expenses	97,802.004
223004 Guard and Security services	20,800.000
223005 Electricity	904,232.000
223006 Water	222,648.000
224002 Veterinary supplies and services	659,747.000
224003 Agricultural Supplies and Services	1,006,000.000
224004 Beddings, Clothing, Footwear and related Services	10,000.000
224011 Research Expenses	2,281,703.000
225101 Consultancy Services	50,000.000
226001 Insurances	10,000.000
227001 Travel inland	146,200.000
227004 Fuel, Lubricants and Oils	72,000.000
228001 Maintenance-Buildings and Structures	6,000.000
228002 Maintenance-Transport Equipment	60,000.000
228003 Maintenance-Machinery & Equipment Other than Transport	4,800.000
228004 Maintenance-Other Fixed Assets	6,200.000
Total For Budget Output	66,542,809.269

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter	
	Wage Recurrent	43,462,109.265
	Non Wage Recurrent	23,080,700.004
	Arrears	0.000
	<i>AIA</i>	0.000

Budget Output:000089 Climate Change Mitigation**PIAP Output: 01040701 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

4 technological solutions for emerging and environmental concerns developed	NA
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PIAP Output: 10412026 Leadership and Management coordinated**Programme Intervention: 010601 Strengthen coordination of public institutions in design and implementation of policies including access to quality food and food security**

4 technological solutions for emerging and environmental concerns developed.	NARO ESS undertook compliance assessments from which 14 Environment and social management plans (ESMPs) for the 14 agro research facilities in 4 institutes were developed. The ESMPs details the probable implications associated with development facilities and outlines the intrinsic mitigation options while justifying corrective actions relevant to minimize and offset magnitude of the impacts. NARO (ESS) undertook 4 technical support visits at NaFORRI, NARL, NaCRRI and NaLIRRI aiming at equipping and supporting scientists and laboratory personnels on hazardous waste management approaches following clusters of waste categorization & containment (C&C); and safety practices at generation level. In addition, progress to develop waste management guidelines and acquisition of registered hazardous waste handlers for safe disposal of hazardous wastes from all the 16 PARIs to central disposal sites is underway.
4 technological solutions for emerging and environmental concerns developed	(Duplicate).NARO (ESS) undertook 4 technical support visits at NaFORRI, NARL, NaCRRI and NaLIRRI aiming at equipping and supporting scientists and laboratory personnels on hazardous waste management approaches following clusters of waste categorization & containment (C&C); and safety practices at generation level. In addition, progress to develop waste management guidelines and acquisition of registered hazardous waste handlers for safe disposal of hazardous wastes from all the 16 PARIs to central disposal sites is underway.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
PIAP Output: 10412026 Leadership and Management coordinated	
Programme Intervention: 010601 Strengthen coordination of public institutions in design and implementation of policies including access to quality food and food security	
4 technological solutions for emerging and environmental concerns developed	(Duplicate) (Duplicate) (Duplicate) NARO (ESS) undertook 4 technical support visits at NaFORRI, NARL, NaCRRRI and NaLIRRI aiming at equipping and supporting scientists and laboratory personnels on hazardous waste management approaches following clusters of waste categorization & containment (C&C); and safety practices at generation level. In addition, progress to develop waste management guidelines and acquisition of registered hazardous waste handlers for safe disposal of hazardous wastes from all the 16 PARIs to central disposal sites is underway. In addition, progress to develop waste management guidelines and acquisition of registered hazardous waste handlers for safe disposal of hazardous wastes from all the 16 PARIs to central disposal sites is underway.
4 technological solutions for emerging and environmental concerns developed	(Duplicate) NARO ESS undertook compliance assessments from which 14 Environment and social management plans (ESMPs) for the 14 agro research facilities in 4 institutes were developed. The ESMPs details the probable implications associated with development facilities and outlines the intrinsic mitigation options while justifying corrective actions relevant to minimize and offset magnitude of the impacts. NARO (ESS) undertook 4 technical support visits at NaFORRI, NARL, NaCRRRI and NaLIRRI aiming at equipping and supporting scientists and laboratory personnels on hazardous waste management approaches following clusters of waste categorization & containment (C&C); and safety practices at generation level. In addition, progress to develop waste management guidelines and acquisition of registered hazardous waste handlers for safe disposal of hazardous wastes from all the 16 PARIs to central disposal sites is underway.
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	

US\$ Thousand

Item	Spent
224011 Research Expenses	50,000.000
Total For Budget Output	50,000.000
Wage Recurrent	0.000
Non Wage Recurrent	50,000.000
Arrears	0.000
<i>AIA</i>	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Budget Output:000090 Climate Change Adaptation	
PIAP Output: 01040701 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
Promote 4 climate smart adaptation strategies amongst all Ugandans Promote 4 climate resilient technologies amongst all Ugandans.	NARO designed and is implementing a tree planting program “NARO go green”. The NARO go green is a tree planting program designed to engage all the 16 Public Agricultural Research institutes (PARIs) in systematic tree planting on NARO land to improve the productivity and security of the available land through tree planting activities. (duplicate)
PIAP Output: 10412026 Leadership and Management coordinated	
Programme Intervention: 010601 Strengthen coordination of public institutions in design and implementation of policies including access to quality food and food security	
Promote 4 climate smart adaptation strategies amongst all Ugandans. Promote 4 climate resilient technologies amongst all Ugandans.	NARO designed and is implementing a tree planting program “NARO go green”. The NARO go green is a tree planting program designed to engage all the 16 Public Agricultural Research institutes (PARIs) in systematic tree planting on NARO land to improve the productivity and security of the available land through tree planting activities.
Promote 4 climate smart adaptation strategies amongst all Ugandans Promote 4 climate resilient technologies amongst all Ugandans.	NARO designed and is implementing a tree planting program “NARO go green”. The NARO go green is a tree planting program designed to engage all the 16 Public Agricultural Research institutes (PARIs) in systematic tree planting on NARO land to improve the productivity and security of the available land through tree planting activities. (Duplicate).
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	
Item	<i>US\$ Thousand</i> Spent
224011 Research Expenses	50,000.000
Total For Budget Output	50,000.000
Wage Recurrent	0.000
Non Wage Recurrent	50,000.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	66,821,539.269
Wage Recurrent	43,462,109.265
Non Wage Recurrent	23,359,430.004
Arrears	0.000
<i>AIA</i>	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
<i>Development Projects</i>	
N/A	
SubProgramme:02 Agricultural Production and Productivity	
Sub SubProgramme:01 Agricultural Research	
<i>Departments</i>	
Department:001 Abi Zonal Agriculture Research Institute(ZARDI)	
Budget Output:010010 Technology Generation	
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
Improved yields for 3 Bean varieties(NARO-bean 1, 2 and 3) & 4 G-nut varieties(Serenut 8, 9,11 & 14). 1 efficacious compost manure recommended for promotion. 1 small-scale bee processing unit established 18 Mubende goat genotype promoted in West Nile.	(1) In partnership with Muni University, the Institute has set up two trials on nutrient enhanced beans ((NARO-bean 1, 2 and 3) climbing and bush beans). The breeding experiment is on advanced yield trial set to select the best performing candidate lines. (2) One manure processing plant was established to undertake studies in efficacious compost manure. (3) machines were source for establishing a demo small-scale bee processing unit (4) Five pure Mubende were promoted to uptake pathways
Two value added products commercialized.	Abi ZARDI engaged with Inter-link Inc., as a private limited liability company which has ventured USD 1,500,000 Value Addition Processing Factory for High Quality Cassava Flour and other value-added products in Arua. in addition, The institute supported One technology on post-harvest management and value addition of farmed fish.
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
Four technologies for food and nutrition security promoted in the zone to address matters of hidden hunger	(NARO-bean 1, 2 and 3) promoted in the zone.
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	
<i>US\$ Thousand</i>	
Item	Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	10,000.000
221008 Information and Communication Technology Supplies.	3,000.000
221011 Printing, Stationery, Photocopying and Binding	4,000.000
224011 Research Expenses	21,000.000
227004 Fuel, Lubricants and Oils	12,000.000
Total For Budget Output	50,000.000

VOTE: 142 National Agricultural Research Organization (NARO)

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Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
	Wage Recurrent 0.000
	Non Wage Recurrent 50,000.000
	Arrears 0.000
	<i>AIA</i> 0.000

Budget Output:010011 Technology Promotion**PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

7 technologies (3 casaava, 2 bio fortified beans, 2 bean climbers) promoted in the West Nile region	7 technologies were promoted in the West Nile region. 1 maize, 1 pasture , 1 sorghum, Cassava for value addition , 2 climbing bean, 27 mubende goats .
4 farmer centered bait demonstration sites established for commercialization 18 Mubende goat genotype promoted Improved fish yields through cage farming in West Nile region Market information generated on sorghum and rice in West Nile region	One bee bait demonstration site established for commercialization of honey. 27 Mubende goat promoted. Improved fish yields demonstrated through cage farming in West Nile region. Studies on market information on sorghum and rice were initiated in West Nile region.
Four technologies with IP promoted in the zone	Four technology with IP potential promoted in the zone
4 farmer centered bait demonstration sites established for commercialization 18 Mubende goat genotype promoted Improved fish yields through cage farming in West Nile region Market information generated on sorghum and rice in West Nile region	One bee bait demonstration site established for commercialization of honey. 27 Mubende goat promoted. Improved fish yields demonstrated through cage farming in West Nile region. Studies on market information on sorghum and rice were initiated in West Nile region.(Duplicate)

PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened**Programme Intervention: 010407 Strengthen agricultural research and technology development**

4 farmer centered bait demonstration sites established for commercialization 18 Mubende goat genotype promoted Improved fish yields through cage farming in West Nile region Market information generated on sorghum and rice in West Nile region	(1) Four farmer centred apiary bait demonstrations were established. (2) Three fish cage sets procured, installed and stocked. five Mubende goat genotype promoted. Cage performance monitored and evaluated. (3) Data collection tools were pre-tested for Market information on sorghum and rice in West Nile region.
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Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs*US\$ Thousand*

Item	Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	4,800.000
212103 Incapacity benefits (Employees)	1,500.000
221001 Advertising and Public Relations	1,200.000
223001 Property Management Expenses	2,000.000

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Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
Item	Spent
223004 Guard and Security services	1,500.000
224004 Beddings, Clothing, Footwear and related Services	500.000
224011 Research Expenses	16,320.000
226001 Insurances	680.000
227001 Travel inland	9,000.000
228002 Maintenance-Transport Equipment	12,000.000
228004 Maintenance-Other Fixed Assets	500.000
Total For Budget Output	50,000.000
Wage Recurrent	0.000
Non Wage Recurrent	50,000.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	100,000.000
Wage Recurrent	0.000
Non Wage Recurrent	100,000.000
Arrears	0.000
<i>AIA</i>	0.000
Department:002 Buginyaya Zonal Agriculture Research Institute(ZARDI)	
Budget Output:010010 Technology Generation	
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
Four technology development partnership developed to promote 8 farmer preferred technologies	Four (4) technology development partnership developed to support technologies generation. ICIPE on black soldier fly farming; CIMMYT on maize for the highland areas of Uganda; Kilimo Trust on a climate Smart Agricultural project promoting recycling of rice waste products; ICARDA on on access to elite wheat and barley germplasm; Circle of Friends in Action (COFIA Uganda) and Destiny Community Development Initiative (DECODI) on on-farm trials.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
<p>2 sustainable pest & disease management packages for crop and livestock developed</p> <p>4 innovative products for yield improvement developed</p> <p>200,000 Coffee and tree seedlings produced</p> <p>An apiculture unit established</p>	<p>200,000 coffee seedlings of SL 14, , KP 162, KP423 (2 223), SL 28 (2 212). Two maize hybrids CEH20038 and CEH20020 were evaluated as candidate lines for highland maize hybrid. The two had outstanding performance. Farming information materials om fall army worm (FAW), the latest devastating pest of maize and other crops in Uganda developed and distributed to farmers.</p>
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
<p>Developed 4 biofortified wheat and maize varieties</p> <p>2 disease management packages for wheat, coffee, and potato developed</p> <p>6 climate-smart agronomic packages are generated</p> <p>4 industrial products for commercialization</p> <p>20 tons of quality seeds developed</p>	<p>Three high yielding wheat candidate lines adapted to the highland areas that offer enhanced levels of zinc and iron through biofortification. The candidate lines are ready for variety verification for distinctiveness, uniformity, and stability. In collaboration with NARO Holdings Ltd, a total of 2.4 tonnes of maize Longe 5D and 1 tonne of Beans (0.5 tons of NARO bean 1, and 0.5 tons of NABE 15) were produced.</p>
PIAP Output: 0103020112 Agricultural Research platforms established	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
<p>6 climate-smart technologies (agronomic packages) generated and 4 industrial product for commercialization developed</p>	<p>3 climate-smart technologies identified duuring 10 farmer field schools identified and sensitized in importance of agro-biodiversity in enhancing resilience to climate change in the districts of Buyende, Kamuli, Amuria, Katakwi, and Kaberamaido. Farmers preferred priority crops, pastures and tree species for restoration of biodiversity identified. 0.4 ha gardens for establishment of functional community seed banks and tree nurseries in Amuria, Buyende and Kamuli ready for planting.123 farmers (73 female and 50 male) from Buyende and Kamuli, Amuria, Katakwi and Kaberamaido districts participated in the trainings</p>
<p>Four technology development partnership developed to promote 8 farmer preferred technologies</p>	<p>In partnership with CIMMYT Ethiopia, Buginyanya ZARDI is in the process of developing highland maize varieties adapted to the highland agro-ecologies of Uganda</p>
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	
<i>US\$ Thousand</i>	
Item	Spent
211107 Boards, Committees and Council Allowances	5,200.000
221001 Advertising and Public Relations	5,000.000
221008 Information and Communication Technology Supplies.	9,800.000

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Annual Planned Outputs		Cumulative Outputs Achieved by End of Quarter
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs		US\$ Thousand
Item		Spent
221011 Printing, Stationery, Photocopying and Binding		6,840.000
223001 Property Management Expenses		3,900.000
223004 Guard and Security services		15,000.000
224011 Research Expenses		24,160.000
227004 Fuel, Lubricants and Oils		6,500.000
228001 Maintenance-Buildings and Structures		2,000.000
228002 Maintenance-Transport Equipment		16,000.000
228003 Maintenance-Machinery & Equipment Other than Transport		4,000.000
273102 Incapacity, death benefits and funeral expenses		1,600.000
	Total For Budget Output	100,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	100,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
Budget Output:010011 Technology Promotion		
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
20 tons of quality seeds developed to support the seed system 2 functional Multi stakeholder innovations platforms (MSIPs) in the zone supported 15 adaptive trialls, demos and carried out	In collaboration with NARO Holdings Ltd, a total of 2.4 tonnes of maize Longe 5D and 1 tonne of Beans (0.5 tons of NARO bean 1, and 0.5 tons of NABE 15) were produced. (Duplicate) 2 functional Multi stakeholder innovations platforms (MSIPs) in the zone supported. 15 adaptive trialls, demos and carried out.	
20 tons of quality seeds developed to support the seed system 2 functional Multi stakeholder innovations platforms (MSIPs) in the zone supported 15 adaptive trialls, demos and carried out	In collaboration with NARO Holdings Ltd, a total of 2.4 tonnes of maize Longe 5D and 1 tonne of Beans (0.5 tons of NARO bean 1, and 0.5 tons of NABE 15) were produced. (Duplicate)	
PIAP Output: 0103020112 Agricultural Research platforms established		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Four (4) technology adaptive partnerships developed to promote 8 farmer preferred technologies	Four (4) technology adaptive partnerships developed to promote 8 farmer preferred technologies	

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>UShs Thousand</i>
Item	Spent
211107 Boards, Committees and Council Allowances	1,200.000
221001 Advertising and Public Relations	6,000.000
221008 Information and Communication Technology Supplies.	7,200.000
223001 Property Management Expenses	7,600.000
224011 Research Expenses	80,400.000
227004 Fuel, Lubricants and Oils	10,200.000
228001 Maintenance-Buildings and Structures	11,000.000
228002 Maintenance-Transport Equipment	24,000.000
273102 Incapacity, death benefits and funeral expenses	2,400.000
Total For Budget Output	150,000.000
Wage Recurrent	0.000
Non Wage Recurrent	150,000.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	250,000.000
Wage Recurrent	0.000
Non Wage Recurrent	250,000.000
Arrears	0.000
<i>AIA</i>	0.000
Department:003 Bulindi Zonal Agriculture Research Institute(ZARDI)	
Budget Output:010010 Technology Generation	

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
<p>High yielding & resistant seed of soybean and bean varieties disseminated and supported</p> <p>2 multi-stakeholder innovation platforms (MSIPs) were established for 1 goat and 1 coffee</p>	<p>(1) Two MSIP for LACZ were initiated (goats and coffee), with the mapping of key actors along the commodity value chain. (2) Three bean varieties adapted to the three sub-agroecologies of LACZ preliminarily identified. (3) Five released bean varieties were screened for adaptability in the three sub agro-ecological zones (semi-arid, tropical rain forest and woodland savannah) of the LACZ, and preliminary results indicate that NABE 15 and NAROBAN 6 and 7 are more adapted (in terms of growth vigor, number of pods, and pod weight) to the environmental condition of the three sub-zones. Two legume-maize cropping systems for increased maize and legume yield, soil fertility and soil carbon sequestration were also evaluated within the LACZ. (4) 5,600 kg of Longe 5; 13800 kgs of Bazooka; 250 kgs of NAROBan 1; 340 kgs of NAROBan 2; were produced and availed to farmers in LACZ.</p>
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
<p>2 livestock feeds and nutritional technologies (450 and 350 bags of bracharia and napier) promoted.</p> <p>Adaptive trial on Mubende and Kalahari goat breeds established</p> <p>3 bee adaptive trials established</p> <p>12 adaptive trials (maize, Soybean, beans) established</p>	<p>(1) Adaptive trial on Mubende and Kalahari goat breeds established and promoted. One video on improved goat housing and feeding produced and uploaded on BuZARDI YouTube channel. (2) Five released bean varieties were screened for adaptability in the three sub agro-ecological zones (semi-arid, tropical rain forest and woodland savannah) of the LACZ, and preliminary results indicate that NABE 15 and NAROBAN 6 and 7 are more adapted (in terms of growth vigor, number of pods, and pod weight) to the environmental condition of the three sub-zones. (3) Two legume-maize cropping systems for increased maize and legume yield, soil fertility and soil carbon sequestration were also evaluated within the LACZ. (3) Established 1200 forage resources (1000 Kai Apple, 180 Osmium and 20 Macademia nuts) for Apiary</p>

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
<p>2 livestock feeds and nutritional technologies (450 and 350 bags of bracharia and napier) promoted. Adaptive trial on Mubende and Kalahari goat breeds established 3 bee adaptive trials established 12 adaptive trials (maize, Soybean, beans) established</p>	<p>(1) Adaptive trial on Mubende and Kalahari goat breeds established and promoted. One video on improved goat housing and feeding produced and uploaded on BuZARDI YouTube channel. (2) Five released bean varieties were screened for adaptability in the three sub agro-ecological zones (semi-arid, tropical rain forest and woodland savannah) of the LACZ, and preliminary results indicate that NABE 15 and NAROBAN 6 and 7 are more adapted (in terms of growth vigor, number of pods, and pod weight) to the environmental condition of the three sub-zones. (3) Two legume-maize cropping systems for increased maize and legume yield, soil fertility and soil carbon sequestration were also evaluated within the LACZ. 3) Established 1200 forage resources (1000 Kai Apple, 180 Osmium and 20 Macademia nuts) for Apiary (Duplicate)</p>
<p>2 livestock feeds and nutritional technologies (450 and 350 bags of bracharia and napier) promoted. Adaptive trial on Mubende and Kalahari goat breeds established 3 bee adaptive trials established 12 adaptive trials (maize, Soybean, beans) established</p>	<p>(1) Adaptive trial on Mubende and Kalahari goat breeds established and promoted. One video on improved goat housing and feeding produced and uploaded on BuZARDI YouTube channel. (2) Five released bean varieties were screened for adaptability in the three sub agro-ecological zones (semi-arid, tropical rain forest and woodland savannah) of the LACZ, and preliminary results indicate that NABE 15 and NAROBAN 6 and 7 are more adapted (in terms of growth vigor, number of pods, and pod weight) to the environmental condition of the three sub-zones. (3) Two legume-maize cropping systems for increased maize and legume yield, soil fertility and soil carbon sequestration were also evaluated within the LACZ. 3) Established 1200 forage resources (1000 Kai Apple, 180 Osmium and 20 Macademia nuts) for Apiary (Duplicate)</p>
PIAP Output: 0103020113 Agricultural research staff recruited and trained	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
<p>Staff capacity strengthened -90,000 seedlings (clonal coffee, Hass avocado, and 20,000 Mango) 30 tons of maize, 15 tons of soybean, 3 tons of beans, and, 400 bags of cassava cuttings were produced 150,000 high quality sex-reversed fish seed multiplied</p>	<p>22,500 Coffee KR seedlings were delivered to farmers. Established 1200 forage resources (1000 Kai Apple, 180 Osmium and 20 Macademia nuts) for Apiary. vii) Nine (9) technologies. i) 450 bags of NARONAP I Napier cuttings. 5 tons of soybean, 1 tons of beans, and, 100 bags of cassava cuttings were produced.</p>

Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs

US\$ Thousand

Item	Spent
221008 Information and Communication Technology Supplies.	5,900.000
221017 Membership dues and Subscription fees.	2,000.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
Item	Spent
223004 Guard and Security services	9,000.000
224011 Research Expenses	64,444.000
227004 Fuel, Lubricants and Oils	7,000.000
228001 Maintenance-Buildings and Structures	2,656.000
228002 Maintenance-Transport Equipment	8,000.000
273102 Incapacity, death benefits and funeral expenses	1,000.000
Total For Budget Output	100,000.000
Wage Recurrent	0.000
Non Wage Recurrent	100,000.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	100,000.000
Wage Recurrent	0.000
Non Wage Recurrent	100,000.000
Arrears	0.000
<i>AIA</i>	0.000
Department:004 Kachwekano Zonal Agriculture Research Institute(ZARDI)	
Budget Output:010010 Technology Generation	
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
6 adaption trials for improved beans tested for high altitude adaptation 30 Improved meat goats promoted 1000 farmers capacity to uptake NARO technologies enhanced through demonstrations 3 demonstration sites for arabica coffee and Hass Avacado establish	Nyamigogo station in Kisoro was used for adaptation, demonstration and multiplication of 8 climbing beans in collaboration with Bugara Women Bean Seed Produce Group. The station supplied bean seed to communities of Kisoro and surrounding Districts. Improved planting materials were assembled for arabica coffee an hass avocado. capacity of 300 farmers built through demonstrations with Kigezi church of Uganda.
6 technologies (beans) evaluated for high altitude adaptation and 1000 farmers capacity to uptake NARO technologies enhanced through demonstrations	Nyamigogo station in Kisoro was used for adaptation, demonstration and multiplication of 8 climbing beans in collaboration with Bugara Women Bean Seed Produce Group. The station supplied bean seed to communities of Kisoro and surrounding Districts. Improved planting materials were assembled for arabica coffee an hass avocado. capacity of 300 farmers built through demonstrations with Kigezi church of Uganda. (Duplicate).

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Quarter 4

Annual Planned Outputs		Cumulative Outputs Achieved by End of Quarter
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Researchers profiled along 6 technologies (beans) evaluated for high altitude adaptation..	NA	
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
6 technologies (beans) evaluated for high altitude adaptation and 1000 farmers capacity to uptake NARO technologies enhanced through demonstrations	NA	
Researchers profiled under 6 technologies (beans) evaluation for high altitude adaptation and 1000 farmers capacity to uptake NARO technologies enhanced through demonstrations	NA	
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs		<i>US\$ Thousand</i>
Item		Spent
224003 Agricultural Supplies and Services		29,800.000
224011 Research Expenses		70,200.000
	Total For Budget Output	100,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	100,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
Budget Output:010011 Technology Promotion		
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Three new potato varieties of NAROPOT 1 NAROPOT 2 and NAROPOT 3 promoted for food and nutrition security 12 farmer field schools conducted 30 Improved meat goat breeds promoted and 1060 farmers capacity strengthened.	5 farmer field schools conducted with NAROPOT, 1 NAROPOT 2 and NAROPOT (3) demonstrations for new potato varieties and showcasing good agronomy for potato growing were established at Bucundura Catholic Parish (Plate 6), Bucundura COU Parish both in Rukiga District and Rugarama, the HQRs of Kigezi Diocese Church of Uganda in Kabale District, Bukimbiri COU in Rubanda District. 250 farmers capacity enhanced.	

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened

Programme Intervention: 010407 Strengthen agricultural research and technology development

<p>Three new potato varieties of NAROPOT 1 NAROPOT 2 and NAROPOT 3 promoted for food and nutrition security 12 farmer field schools conducted 30 Improved meat goat breeds promoted and 1060 farmers capacity strengthened.</p>	<p>5 farmer field schools conducted with NAROPOT, 1 NAROPOT 2 and NAROPOT (3) demonstrations for new potato varieties and showcasing good agronomy for potato growing were established at Bucundura Catholic Parish (Plate 6), Bucundura COU Parish both in Rukiga District and Rugarama, the HQRs of Kigezi Diocese Church of Uganda in Kabale District, Bukimbiri COU in Rubanda District. 250 farmers capacity enhanced. (Duplicate)</p>
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Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	US\$ Thousand
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Item	Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	9,965.000
211107 Boards, Committees and Council Allowances	1,600.000
221007 Books, Periodicals & Newspapers	480.000
221011 Printing, Stationery, Photocopying and Binding	8,800.000
223001 Property Management Expenses	13,200.000
227001 Travel inland	5,331.000
228001 Maintenance-Buildings and Structures	26,024.000
228002 Maintenance-Transport Equipment	9,600.000
Total For Budget Output	75,000.000
Wage Recurrent	0.000
Non Wage Recurrent	75,000.000
Arrears	0.000
AIA	0.000
Total For Department	175,000.000
Wage Recurrent	0.000
Non Wage Recurrent	175,000.000
Arrears	0.000
AIA	0.000

Department:005 Mbarara Zonal Agriculture Research Institute(ZARDI)

Budget Output:010010 Technology Generation

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
<p>70 improved genetic calves and 100 piglets produced; 20 Tons of new bean varieties produced 10000 banana suckers produced 10,000 coffee and 10000 orchard fruit seedlings generated 500 bags of cassava and 300 bags of sweet potatoes 5000 fish fry produced</p>	<p>17 improved genetic calves and 14 piglets produced. 2000 grafted mango and 1000 grafted orange seedlings raised, and 200 root mango rootstocks prepared for continued grafting. 42.5 bags of stem cuttings of improved cassava varieties (Nase 3, 16, Narocase 1, F10-20-30) disseminated to farmers. Five acres planted on-station with 15 selected well-adapted and high performance cassava varieties for dissemination. Raised 14 piglet of pure camborough breed, and 19 goats (crosses) availed to farmers.</p>
<p>20 quality Jersey calves produced 4 low-cost nutritious dairy, calf and fish feeds produced 10,000 seedlings, 10,200 bags of cutting, 170 cattle, goats, and piglets produced 401 bags of animal feeds and 4,000 fish fry produced 12 periodic engagements</p>	<p>17 improved genetic calves and 14 piglets produced. 2000 grafted mango and 1000 grafted orange seedlings raised, and 200 root mango rootstocks prepared for continued grafting. 42.5 bags of stem cuttings of improved cassava varieties (Nase 3, 16, Narocase 1, F10-20-30) disseminated to farmers. Five acres planted on-station with 15 selected well-adapted and high performance cassava varieties for dissemination. Raised 14 piglet of pure camborough breed, and 19 goats (crosses) availed to farmers. .41 acres of grazing land maintained with good pastures and old jersey herd monitored.</p>
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
<p>8 farmer preferred technologies (cattle, bananas, pigs and pasture)promoted in the zone</p>	<p>One established preliminary yield trial (PYT) of 7 improved banana hybrids (NARITA 4, NARITA 17, NARITA 18, NARITA 22, NARITA 24, NAROBAN 4, NAROBAN 5) versus local Enzirabahima maintained and monitored on-station. 75% data on the agronomic performance of 7 banana hybrids versus one local variety under natural fungi disease infection collected and partially analysed. Four promising highly disease (Sigayoka, thrip-rust and cordana) resistant hybrids (Narita 4, 17 22, 24) selected for further on-farm trial and palatability analysis in the SWAEZ. 75% data on effect of 2 IDM combinations on fungi disease severity on EAHCB and desert types collected. One demonstration comprising of 12 high performing improved banana varieties well managed and monitored on station. Eight improved bean varieties (NAROBAN 1, 2, 4C, 5C, 6, 7, NABE12C and NABE 16) test and multiplied on station for further research activities. 41 acres of grazing land maintained with good pastures and old jersey herd monit</p>

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
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PIAP Output: 01030201 Animal and Crop genetic resources conserved

Programme Intervention: 010407 Strengthen agricultural research and technology development

Two animal genetic resources evaluated for possible conservation

Two (one jersey and ankole) animal genetic resources evaluated for conservation

Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
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Item	Spent
224002 Veterinary supplies and services	6,000.000
224003 Agricultural Supplies and Services	15,000.000
224011 Research Expenses	29,000.000
Total For Budget Output	50,000.000
Wage Recurrent	0.000
Non Wage Recurrent	50,000.000
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:010011 Technology Promotion

PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened

Programme Intervention: 010407 Strengthen agricultural research and technology development

20 tons of biofortified NARO bean varieties produced

1,000kgs of chloris guyana seed produced

10,000 macro-propagated hybrid banana produced

10 Local Seed Businesses (LSBs) established for communities

2 farmer market linkages established

1.325 tones of improved bean varieties onstation (NAROBAN = 169 kgs, NAROBAN 2 = 760 kgs, NAROBAN =240 kgs, and NABE 4= 160 kgs and are ready for sale to farmers. 100 kgs of Chloris have also been harvested and more are being harvested. One acre of banana demonstration field has been established demonstrating 10 adaptable varieties for SWAEZ. Five acres of beans were established onstation (NARO 1, NABE 4, NARO BEAN 6, NARO 2) each on one acre except NARO BEAN 2 on 2 acres. One acre banana demonstration field, demonstrating NARITAs, 22, 4 and 17, NAROBAN 4, NARITA 12, RED Banana, NAKITEMBE, MPOLOGOMA, KIVUVU, NAKITEMBE and LUMENYA MAGALI was established on station. Ten acre chloris Guyana demonstration and seed production was established on station and will be ready for seed production next quarter

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
3 Regional Multi-stakeholder innovations platforms (MSIPs) developed 10 improved technologies for banana, beans, and dairy produced 4 exhibitions and 2 plant doctor clinics conducted 2 IPDM technology packages developed 6 research facilities maintained	Seed of improved technologies for banana, beans, and dairy produced, .One functional regional MSIP on animal feeds (poultry, dairy, fish and piggery); One exhibition in Bushenyi Agricultural show completed for the following technologies: improved mangoes, citrus, livestock feeds, pasrure seeds, fish fry, fish feeds, bio fertilizers and African cat fish . 6 research facilities maintained (4 Fish ponds, 2 dairy stands).

Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>UShs Thousand</i>
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Item	Spent
211107 Boards, Committees and Council Allowances	4,000.000
222001 Information and Communication Technology Services.	4,000.000
224011 Research Expenses	28,000.000
227004 Fuel, Lubricants and Oils	5,000.000
228001 Maintenance-Buildings and Structures	4,000.000
228002 Maintenance-Transport Equipment	5,000.000
Total For Budget Output	50,000.000
Wage Recurrent	0.000
Non Wage Recurrent	50,000.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	100,000.000
Wage Recurrent	0.000
Non Wage Recurrent	100,000.000
Arrears	0.000
<i>AIA</i>	0.000

Department:006 Nabuin Zonal Agriculture Research Institute(ZARDI)

Budget Output:010011 Technology Promotion

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs **Cumulative Outputs Achieved by End of Quarter****PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

3 vegetable crops (onions, amaranthus, & green pepper) Promoted
 Innovated technologies for soil and water improvement
 Genotypes and cultivars of pearl millet and chickpeas identified
 New pasture fields for hay and seed production established on station

3 vegetable crops (onions, amaranthus, & green pepper) promoted through demonstrations. One technology for soil and water improvement promoted. Genotypes and cultivars of pearl millet and chickpeas identified. One garden of Bracharia mulato (0.5 acres) maintained on station for pasture seed production..

PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened**Programme Intervention: 010407 Strengthen agricultural research and technology development**

100 cattle and 80 goats multiplied through AI
 2 fish feed formulations developed
 5 sorghum varieties for malting and brewing
 2 eucalyptus clones for the zone produced
 18000 horticultural seedlings produced
 2 bio-pesticides developed

Maintained 25 cattle for multiplication thru AI. 20 goats multiplied on station for improved livestock performance in the zone. 2 sorghum varieties for malting and brewing demonstrated. 4500 horticultural seedlings produced.

100 cattle and 80 goats multiplied through AI
 2 fish feed formulations developed
 5 sorghum varieties for malting and brewing
 2 eucalyptus clones for the zone produced
 18000 horticultural seedlings produced
 2 bio-pesticides developed

Maintained 25 cattle for multiplication thru AI. 20 goats multiplied on station for improved livestock performance in the zone. 2 sorghum varieties for malting and brewing demonstrated. 4500 horticultural seedlings produced.. (Duplicate).

Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs*UShs Thousand*

Item	Spent
211107 Boards, Committees and Council Allowances	5,000.000
212103 Incapacity benefits (Employees)	1,500.000
221001 Advertising and Public Relations	2,000.000
221011 Printing, Stationery, Photocopying and Binding	4,000.000
223001 Property Management Expenses	4,000.000
223004 Guard and Security services	6,000.000
223005 Electricity	4,500.000
224011 Research Expenses	31,000.000
227004 Fuel, Lubricants and Oils	15,000.000
228001 Maintenance-Buildings and Structures	6,000.000
228002 Maintenance-Transport Equipment	15,000.000
228003 Maintenance-Machinery & Equipment Other than Transport	6,000.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter	
	Total For Budget Output	100,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	100,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	100,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	100,000.000
	Arrears	0.000
	<i>AIA</i>	0.000

Department:008 National Agricultural Research Laboratories**Budget Output:010010 Technology Generation****PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

10 research products for food nutrition and industry generated to support industry and improve nutrition across the country

(1) Kampala soil sheet update. The sheet comprises the following districts Mityana, Kakiri, Kampala, Lugazi, Mitala Maria, Entebbe, Kajansi, Kibanga sub-county. (2) Land capability Maps for Kampala generated. (3) 2 Main soil sheets [Fort portat, Mbarara] of 1:250,000 digitized to generated soil base units at a scale of 1:50,000 (5) Market Information on tomato products for greater Kampala has been generated. (6) Investment opportunities for research and development in tomato product identified were: Tomato powder based enterprises, tomato juice based enterprises and import substitution of tomato paste. (9) Two prototypes developed and one evaluated. Partial information on performance of 2nd prototype of animal drawn weeder for legumes was developed and evaluated. Results indicated a weeding efficiency of 81.2% against expected efficiency of 92% and field capacity of 0.25ha/hr against expected value of 0.25ha/hr. 1st prototype of low horsepower multi-crop motorized weeder developed.

Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs

US\$ Thousand

Item	Spent
221003 Staff Training	4,000.000
221008 Information and Communication Technology Supplies.	7,000.000
222001 Information and Communication Technology Services.	6,000.000
224003 Agricultural Supplies and Services	10,000.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	US\$ Thousand
Item	Spent
224011 Research Expenses	59,800.000
227004 Fuel, Lubricants and Oils	8,000.000
228001 Maintenance-Buildings and Structures	24,650.000
228002 Maintenance-Transport Equipment	20,000.000
228003 Maintenance-Machinery & Equipment Other than Transport	10,000.000
Total For Budget Output	149,450.000
Wage Recurrent	0.000
Non Wage Recurrent	149,450.000
Arrears	0.000
<i>AIA</i>	0.000
Budget Output:010011 Technology promotion	
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
<p>8 research products for food nutrition and industry promoted for accelerated transformation.</p> <p>4 secondary products for soil sheets of Uganda developed and promoted</p>	<p>(1) Competencies enhanced in 30 women entrepreneurs processing quality and PAH-safe smoked fish using NARO Fish smoking Kiln. (2) Backstopped 5 SMEs using the NARO Fish Kiln to process and market quality smoked fish. (3) Two Main soil sheets [Fort portat, Mbarara] of 1:250,000 digitized to generated soil base units at a scale of 1:50,000. (4) Competencies enhanced in 30 women entrepreneurs processing quality and PAH-safe smoked fish using NARO Fish smoking Kiln. (5) Backstopped 5 SMEs using the NARO Fish Kiln to process and market quality smoked fish. (6) Information on soil suitability and SWM technologies disseminated during the Buganda kingdom agricultural show in Luwero. (7) Soil suitability maps and SWM technologies upscaled through farmer training, onfarm demos. (8) Efficacy of the extracts from the 8 plants tested against fall armyworm larvae. Only the essential oils were instantly effective, The neem oil was slow responding. Multiplication protocol for warbugia developed.</p>

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
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PIAP Output: 01040705 Demand driven agriculture technologies developed**Programme Intervention: 010407 Strengthen agricultural research and technology development**

8 research products for food nutrition and industry promoted for accelerated transformation.

4 secondary products for soil sheets of Uganda developed and promoted

(1) Competencies enhanced in 30 women entrepreneurs processing quality and PAH-safe smoked fish using NARO Fish smoking Kiln. (2) Backstopped 5 SMEs using the NARO Fish Kiln to process and market quality smoked fish. (3) Two Main soil sheets [Fort portat, Mbarara] of 1:250,000 digitized to generated soil base units at a scale of 1:50,000. (4) Competencies enhanced in 30 women entrepreneurs processing quality and PAH-safe smoked fish using NARO Fish smoking Kiln. (5) Backstopped 5 SMEs using the NARO Fish Kiln to process and market quality smoked fish. (6) Information on soil suitability and SWM technologies disseminated during the Buganda kingdom agricultural show in Luwero. (7) Soil suitability maps and SWM technologies upscaled through farmer training, onfarm demos. (8) Efficacy of the extracts from the 8 plants tested against fall armyworm larvae. Only the essential oils were instantly effective, The neem oil was slow responding. Multiplication protocol for warbugia developed.

PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened**Programme Intervention: 010407 Strengthen agricultural research and technology development**

8 research products for food nutrition and industry promoted for accelerated transformation.

4 secondary products for soil sheets of Uganda developed and promoted

(1) Competencies enhanced in 30 women entrepreneurs processing quality and PAH-safe smoked fish using NARO Fish smoking Kiln. (2) Backstopped 5 SMEs using the NARO Fish Kiln to process and market quality smoked fish. (3) Two Main soil sheets [Fort portat, Mbarara] of 1:250,000 digitized to generated soil base units at a scale of 1:50,000. (4) Competencies enhanced in 30 women entrepreneurs processing quality and PAH-safe smoked fish using NARO Fish smoking Kiln. (5) Backstopped 5 SMEs using the NARO Fish Kiln to process and market quality smoked fish. (6) Information on soil suitability and SWM technologies disseminated during the Buganda kingdom agricultural show in Luwero. (7) Soil suitability maps and SWM technologies upscaled through farmer training, onfarm demos. (8) Efficacy of the extracts from the 8 plants tested against fall armyworm larvae. Only the essential oils were instantly effective, The neem oil was slow responding. Multiplication protocol for warbugia developed.

Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	US\$ Thousand
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Item**Spent**

211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	65,650.000
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VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>UShs Thousand</i>
Item	Spent
211107 Boards, Committees and Council Allowances	6,000.000
221007 Books, Periodicals & Newspapers	3,500.000
222002 Postage and Courier	250.000
223001 Property Management Expenses	6,000.000
223004 Guard and Security services	9,000.000
226001 Insurances	1,600.000
227004 Fuel, Lubricants and Oils	8,000.000
Total For Budget Output	100,000.000
Wage Recurrent	0.000
Non Wage Recurrent	100,000.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	249,450.000
Wage Recurrent	0.000
Non Wage Recurrent	249,450.000
Arrears	0.000
<i>AIA</i>	0.000
Department:009 National Coffee Research Institute	
Budget Output:010010 Technology Generation	

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
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PIAP Output: 01040705 Demand driven agriculture technologies developed

Programme Intervention: 010407 Strengthen agricultural research and technology development

<p>30 single cross-Arabica coffee hybrids constituted and nurtured 3 anti-ulcer yoghurt prototypes produced 82,000 clonal coffee cuttings produced 65 acres of coffee production fields rehabilitated 250 litres of honey harvested Mother gardens established</p>	<p>(1) 37 Arabica coffee single cross hybrids (22 developed by WCR and 15 locally developed), with contrasting traits. (2) Three prototypes produced. one an anti-fungal skin cream prototype was formulated using extracts from a unique Robusta coffee genotype; sweet red wine prototype ; One prototype of cocoa fermentation device; New designs of prototypes for the NARO BCTB traps. (3) Generated 223,656 commercial KR1-KR10 varieties, distributed 110,119 cuttings to farmers and private nurseries, 384,471 macro-cuttings currently under rooting. (4) Planted and maintained a demonstration trials, two mother gardens 1,000 mother bush plants of KR1 to KR7 in Abim district and Mbarara ZARDI. Established a 1.5-acre mother garden of KR8-10 coffee lines and maintained 10 acres of KR1-KR7 and 1 acre of KR8-KR10 coffee mother gardens at NaCORI.</p>
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<p>30 single cross-Arabica coffee hybrids constituted and nurtured 3 anti-ulcer yoghurt prototypes produced 82,000 clonal coffee cuttings produced 65 acres of coffee production fields rehabilitated 250 litres of honey harvested Mother gardens established</p>	<p>(1) 37 Arabica coffee single cross hybrids (22 developed by WCR and 15 locally developed), with contrasting traits. (2) Three prototypes produced. one an anti-fungal skin cream prototype was formulated using extracts from a unique Robusta coffee genotype; sweet red wine prototype ; One prototype of cocoa fermentation device; New designs of prototypes for the NARO BCTB traps. (3) Generated 223,656 commercial KR1-KR10 varieties, distributed 110,119 cuttings to farmers and private nurseries, 384,471 macro-cuttings currently under rooting. (4) Planted and maintained a demonstration trials, two mother gardens 1,000 mother bush plants of KR1 to KR7 in Abim district and Mbarara ZARDI. Established a 1.5-acre mother garden of KR8-10 coffee lines and maintained 10 acres of KR1-KR7 and 1 acre of KR8-KR10 coffee mother gardens at NaCORI. (Duplicate)</p>
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Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs

US\$ Thousand

Item	Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	16,400.000
224003 Agricultural Supplies and Services	17,455.000
224011 Research Expenses	17,000.000
227004 Fuel, Lubricants and Oils	16,645.000
228003 Maintenance-Machinery & Equipment Other than Transport	7,500.000
Total For Budget Output	75,000.000
Wage Recurrent	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter	
	Non Wage Recurrent	75,000.000
	Arrears	0.000
	<i>AIA</i>	0.000

Budget Output:010011 Technology Promotion**PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

<p>Four coffee varieties resistant to coffee wilt promoted along value chains for improved production and productivity of farmers across the country.</p>	<p>NACORI promoted coffee technologies by empowering coffee stakeholders (Groups) on Improved Coffee Technologies, Innovation, Information, Management Practices (CIMPS) chains for improved production and productivity of farmers across the country. This was through (1) exhibition of NaCORI coffee and cocoa technologies and innovations, (2) training on managing coffee pests and diseases (185 farmers trained (160 males, 18 females, 6 youth males, 1 youth female) in Rakai district. Trained 35 Makerere University students (5 females, 29 males).), (3) Training for extension staff and stakeholders, (4) training of nursery operators: and Training and retooling farmers on coffee postharvest handling. Retooling of youth on coffee GAPs. Trained 2,761 farmers (2,116 males, 587 females, 176 youth) in Luwero, Nakaseke, and Bushenyi on GAPs and pest management. (5) Trained 145 farmers in youths and women on soil fertiliser (vermicomposting) and establishing demonstration sites in the Elgon region</p>
<p>Four functional coffee development partnerships developed and maintained</p>	<p>NACORI promoted coffee technologies by empowering coffee stakeholders (Groups) on Improved Coffee Technologies, Innovation, Information, Management Practices (CIMPS) chains for improved production and productivity of farmers across the country. This was through (1) exhibition of NaCORI coffee and cocoa technologies and innovations, (2) training on managing coffee pests and diseases (185 farmers trained (160 males, 18 females, 6 youth males, 1 youth female) in Rakai district. Trained 35 Makerere University students (5 females, 29 males).), (3) Training for extension staff and stakeholders, (4) training of nursery operators: and Training and retooling farmers on coffee postharvest handling. Retooling of youth on coffee GAPs. Trained 2,761 farmers (2,116 males, 587 females, 176 youth) in Luwero, Nakaseke, and Bushenyi on GAPs and pest management. (5) Trained 145 farmers in youths and women on soil fertiliser (vermicomposting) and establishing demonstration sites in the Elgon region</p>

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened**Programme Intervention: 010407 Strengthen agricultural research and technology development**

Four coffee varieties resistant to coffee wilt promoted along value chains with partners for improved production and productivity of farmers across the country.

Avail coffee planting materials and temporary shade to coffee stakeholders. Distributed 27,071 CWD-r of four KR series robusta seedlings, Weaned and hardened 31,604 coffee plantlets. Cloned and initiated rooting of 77,361 coffee plantlets.

Four highly productive coffee lines developed delivered to uptake pathways along the value chain

Avail coffee planting materials and temporary shade to coffee stakeholders. Distributed 27,071 CWD-r of four KR series robusta seedlings, Weaned and hardened 31,604 coffee plantlets. Cloned and initiated rooting of 77,361 coffee plantlets.

PIAP Output: 0103020116 Functional public-private partnerships established for technology development and promotion**Programme Intervention: 010407 Strengthen agricultural research and technology development**

Four functional coffee development partnerships developed and maintained

Four functional coffee development partnership developed and maintained. (1) Participated in five coffee platforms which included African fine coffee conference, world food day, national science week, Makerere University entrepreneurship congress, Nansana festival. (2) Two exchange visits (one farmer-to-farmer, one nursery operators-to-nursery operators). (3) Participation three National Level engagements with other key stakeholders in the coffee sector. National Coffee Steering Committee: and technical Working Groups

Four functional coffee development partnerships developed and maintained

Four functional coffee development partnership developed and maintained. (1) Participated in five coffee platforms which included African fine coffee conference, world food day, national science week, Makerere University entrepreneurship congress, Nansana festival. (2) Two exchange visits (one farmer-to-farmer, one nursery operators-to-nursery operators). (3) Participation three National Level engagements with other key stakeholders in the coffee sector. National Coffee Steering Committee: and technical Working Groups

Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
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Item	Spent
212103 Incapacity benefits (Employees)	3,700.000
221007 Books, Periodicals & Newspapers	3,200.000
221008 Information and Communication Technology Supplies.	40,000.000
221011 Printing, Stationery, Photocopying and Binding	4,000.000
222001 Information and Communication Technology Services.	6,000.000
222002 Postage and Courier	2,000.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	US\$ Thousand
Item	Spent
223001 Property Management Expenses	8,900.000
223004 Guard and Security services	8,000.000
224010 Protective Gear	7,000.000
228001 Maintenance-Buildings and Structures	10,000.000
228002 Maintenance-Transport Equipment	7,200.000
Total For Budget Output	100,000.000
Wage Recurrent	0.000
Non Wage Recurrent	100,000.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	175,000.000
Wage Recurrent	0.000
Non Wage Recurrent	175,000.000
Arrears	0.000
<i>AIA</i>	0.000
Department:010 National Crops Resources Research Institute	
Budget Output:010010 Technology Generation	
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
Performance of 8 high iron/zinc bean lines conducted 5 Distinct Uniform stability tests conducted for high iron/zinc bean promising lines 2 Pro vitamin A maize candidates varieties submitted to the national variety release committee	(1) The two varieties were developed were released as replacements for NABE 14 and NABE 12C that have been found to succumb widely to bean root rot disease. Authorisation for submission of promising lines for DUS solicited from NARO. Promising lines submitted to MAAIF for DUS test. Conducted multi-location on-station (NaCRRI, Nakabango, NaSARRI, Ngetta ZARDI and Rwebitaba ZARDI) trials for 5 bio fortified beans with reduced cooking time. work still on-going. (2) Five maize under evaluation. 2 fall army worm -tolerant maize, 2 nutritious vitamin A-rich maize.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
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PIAP Output: 01040705 Demand driven agriculture technologies developed

Programme Intervention: 010407 Strengthen agricultural research and technology development

Performance of 8 high iron/zinc bean lines conducted
 5 Distinct Uniform stability tests conducted for high iron/zinc bean promising lines
 2 Pro vitamin A maize candidates varieties submitted to the national variety release committee

(1) The two varieties were developed were released as replacements for NABE 14 and NABE 12C that have been found to succumb widely to bean root rot disease. Authorisation for submission of promising lines for DUS solicited from NARO. Promising lines submitted to MAAIF for DUS test. Conducted multi-location on-station (NaCRRI, Nakabango, NaSARRI, Ngetta ZARDI and RwebitabaZARDI) trials for 5 biofortified beans with reduced cooking time. work still on-going. (2) Five maize under evaluation. 2 fall army worm -tolerant maize, 2 nutritious vitamin A-rich maize.

Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
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Item	Spent
221008 Information and Communication Technology Supplies.	12,000.000
222001 Information and Communication Technology Services.	36,000.000
223004 Guard and Security services	12,000.000
227004 Fuel, Lubricants and Oils	30,000.000
228003 Maintenance-Machinery & Equipment Other than Transport	10,000.000
Total For Budget Output	100,000.000
Wage Recurrent	0.000
Non Wage Recurrent	100,000.000
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:010011 Technology Promotion

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
8 nutrient dense research products delivered to uptake pathways for increased production and address hidden hunger challenges in the country	(1)To increase productivity and consumption of biofortified beans in Karamoja, 40 (18M, 22F) farmers and 9 schools involved in the school feeding program, were trained in general bean production practices and post-harvest handling. (2) 75 farmers were trained at harvest on agronomic practices for maintaining sweet potato in the during the dry spell and on pest and disease management. (3) JP Management Holdings to popularize orange fleshed sweetpotato bread in Jinja Source of the Nile trade show, World Food Day celebrations and other exhibitions. Super Kawomera a composite nutritious porridge designed for fighting malnutrition in children and mothers at the base of the Pyramid (one of the most vulnerable groups in the society) is now ready for scaling with Nutreal limited. (4) Germ plasm of high carotene pumpkin varieties assembled. 10 clones of purple-fleshed sweetpotato rich in anthocyanins for fighting cancer, high blood pressure and cardiovascular diseases are under evaluation.
16 technologies for high carotene pumpkin varieties evaluated 10 New pro-vitamin A hybrids formed and tested 3 tons of breeder and foundation seed produced and supplied	(1) Germ plasm of high carotene pumpkin varieties assembled. (2) Two New pro-vitamins A maize hybrids formed and tested in the effort to minimize hidden hunger. Worj still on-going. (3) Produced and disseminated 4.22 MT of bean breeder seed and 99.75 MT of foundation bean seed. Total of 33 parental inbred maize lines of commercial and pre-commercial hybrids established for purity analysis. Produced 22 MT of UKAFACI-39 and 6.6MT of NARORICE-1 certified seed in Doho Irrigation and Olweny Irrigation Scheme. Distributed 2,440 kg of UKAFACI-39, 4,880 kg of NARORICE-1, and 12,200 kg of fertilizer to a total of 243 farmers in Butaleja District.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
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PIAP Output: 01040705 Demand driven agriculture technologies developed**Programme Intervention: 010407 Strengthen agricultural research and technology development**

<p>8 nutrient dense research products delivered to uptake pathways for increased production and address hidden hunger challenges in the country</p>	<p>(1) To increase productivity and consumption of biofortified beans in Karamoja, 40 (18M, 22F) farmers and 9 schools involved in the school feeding program, were trained in general bean production practices and post-harvest handling. (2) 75 farmers were trained at harvest on agronomic practices for maintaining sweet potato in the during the dry spell and on pest and disease management. (3) JP Management Holdings to popularize orange fleshed sweetpotato bread in Jinja Source of the Nile trade show, World Food Day celebrations and other exhibitions. Super Kawomera a composite nutritious porridge designed for fighting malnutrition in children and mothers at the base of the Pyramid (one of the most vulnerable groups in the society) is now ready for scaling with Nutreal limited. (4) Germ plasm of high carotene pumpkin varieties assembled. 10 clones of purple-fleshed sweetpotato rich in anthocyanins for fighting cancer, high blood pressure and cardiovascular diseases are under evaluation.</p>
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened**Programme Intervention: 010407 Strengthen agricultural research and technology development**

<p>16 technologies for high carotene pumpkin varieties evaluated 10 New pro-vitamin A hybrids formed and tested 3 tons of breeder and foundation seed produced and supplied</p>	<p>(1) Germ plasm of high carotene pumpkin varieties assembled. (2) Two New pro-vitamins A maize hybrids formed and tested in the effort to minimize hidden hunger. Worj still on-going. (3) Produced and disseminated 4.22 MT of bean breeder seed and 99.75 MT of foundation bean seed. Total of 33 parental inbred maize lines of commercial and pre-commercial hybrids established for purity analysis. Produced 22 MT of UKAFACI-39 and 6.6MT of NARORICE-1 certified seed in Doho Irrigation and Olweny Irrigation Scheme. Distributed 2,440 kg of UKAFACI-39, 4,880 kg of NARORICE-1, and 12,200 kg of fertilizer to a total of 243 farmers in Butaleja District.</p>
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Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	US\$ Thousand
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Item	Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	45,000.000
221009 Welfare and Entertainment	4,000.000
221011 Printing, Stationery, Photocopying and Binding	8,000.000
223001 Property Management Expenses	8,000.000
228002 Maintenance-Transport Equipment	10,000.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter	
	Total For Budget Output	75,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	75,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	175,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	175,000.000
	Arrears	0.000
	<i>AIA</i>	0.000

Department:011 National Fisheries Resources Research Institute**Budget Output:010010 Technology Generation****PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

<p>At least 100 tons of quality fish feed; 400,000 tilapia seed; 100,000 catfish seed produced</p> <p>At least 6,800Kg of table-size fish produced</p>	<p>8.607 tons of quality fish feed; 113,905 Nile tilapia seed; 13,550 mirror carp seed and 5,966 African catfish seed produced.</p>
<p>4 fisheries technologies promoted for nutrition and industry</p> <p>4 routine maintenance of research facilities conducted</p>	<p>(1) Final report on Nile tilapia populations in the Lake Victoria basin of East Africa compiled. Disseminated results to 150 stakeholders, including fishermen and fisheries officers in project implementation areas. Developed and printed 1000 brochures for dissemination of project workshops. (2) Preparation of farmers in the districts of Rwengo, Masaka, Wakiso, Mukono and Nakaseke to participate in Randomised control trials. Shelf life studies for smoked fish and fish fillet coated with biodegraded cassava materials. (3) Disseminated Lake Nyagou status information to CAOs and DFOs from riparian districts of Lake Nyagou (i.e. Pallisa, Kumi and Ngora). (4) A report on promoting uptake and implementation of knowledge, innovations and best practices in the EAC and AU regions compiled while closely work with other organizations and regional bodies such as the REC, LVBC and LVFO and AU-IBAR. The report highlighted effective recommendations and policy reforms that will in utilization an</p>

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
<p>Four research strategic guidance meetings held Four facilities routine maintenance conducted</p>	<p>(1) Advisory committee facilitated. to guidance research. (1) One fish laboratory maintained (2) One administration facility maintained and operationalised. (3) Institute fleet (1 Marine Vessel & 5 vehicles) maintained. (4) Four fish laboratories & two aquarium facilities maintained and operationalised quarterly. (5) One Feed mill, two Hatcheries, forty ponds, office Premises and hostel facilities well managed and maintained</p>
<p>At least 100 tons of quality fish feed; 400,000 tilapia seed; 100,000 catfish seed produced At least 6,800Kg of table-size fish produced</p>	<p>At 8.607 tons of quality fish feed; 113905 Nile tilapia seed; 13550 mirror carp seed and 5,966 African catfish seed produced.</p>
<p>4 fisheries technologies promoted for nutrition and industry 4 routine maintenance of research facilities conducted</p>	<p>(4) A report on promoting uptake and implementation of knowledge, innovations and best practices in the EAC and AU regions compiled while closely work with other organizations and regional bodies such as the REC, LVBC and LVFO and AU-IBAR. The report highlighted effective recommendations and policy reforms that will help in utilization and also boast the fish and aquaculture trade in the region. (5) Report compiled from a fish expedition in rivers and streams covering Lake Victoria basin, Lake Kyoga basin and River Aswa basin. Includes observations of fish species to create the first draft of the inventory of the fishes in the Lake Albert basin. (6) Developed a policy brief on the status of fish stocks on lakes Edward and George. (7) Facilitated a workshop in September 2023 to engage District Fisheries Officers from riparian districts of lakes Edward and George to disseminate information on the status of the two lakes. (8) A draft manuscript on spatial-temporal variations of daggaa biomass</p>
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
<p>Four research strategic guidance meetings held Four facilities routine maintenance conducted</p>	<p>(1) Advisory committee facilitated. to guidance research. (1) One fish laboratory maintained (2) One administration facility maintained and operationalised. (3) Institute fleet (1 Marine Vessel & 5 vehicles) maintained. (4) Four fish laboratories & two aquarium facilities maintained and operationalised quarterly. (5) One Feed mill, two Hatcheries, forty ponds, office Premises and hostel facilities well managed and maintained</p>

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs		Cumulative Outputs Achieved by End of Quarter	
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs		US\$ Thousand	
Item			Spent
221011 Printing, Stationery, Photocopying and Binding			2,500.000
222001 Information and Communication Technology Services.			12,000.000
223004 Guard and Security services			2,550.000
224003 Agricultural Supplies and Services			16,000.000
224011 Research Expenses			56,550.000
227004 Fuel, Lubricants and Oils			5,900.000
228002 Maintenance-Transport Equipment			3,000.000
228003 Maintenance-Machinery & Equipment Other than Transport			1,500.000
	Total For Budget Output		100,000.000
	Wage Recurrent		0.000
	Non Wage Recurrent		100,000.000
	Arrears		0.000
	<i>AIA</i>		0.000
Budget Output:010011 Technology Promotion			
PIAP Output: 01040705 Demand driven agriculture technologies developed			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
4 fish laboratories & 2 aquarium facilities maintained and capacity enhanced. 2 cage research facility & vivarium maintained		(1) One fish health laboratory maintained (2) One administration facility maintained and operationalised. (3) Institute fleet (1 Marine Vessel & 5 vehicles) maintained. (4) Four fish laboratories & two aquarium facilities maintained and operationalised quarterly. (5) One Feed mill, two Hatcheries, forty ponds, office Premises and hostel facilities well managed and maintained	
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened			
Programme Intervention: 010407 Strengthen agricultural research and technology development			
4 fish laboratories & 2 aquarium facilities maintained and capacity enhanced. 2 cage research facility & vivarium maintained		NA	
4 fish laboratories & 2 aquarium facilities maintained and capacity enhanced. 2 cage research facility & vivarium maintained		NA	

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
Item	Spent
211107 Boards, Committees and Council Allowances	8,000.000
221011 Printing, Stationery, Photocopying and Binding	3,400.000
222001 Information and Communication Technology Services.	8,800.000
223004 Guard and Security services	6,000.000
224011 Research Expenses	27,800.000
228001 Maintenance-Buildings and Structures	10,200.000
228002 Maintenance-Transport Equipment	5,000.000
228003 Maintenance-Machinery & Equipment Other than Transport	5,800.000
Total For Budget Output	75,000.000
Wage Recurrent	0.000
Non Wage Recurrent	75,000.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	175,000.000
Wage Recurrent	0.000
Non Wage Recurrent	175,000.000
Arrears	0.000
<i>AIA</i>	0.000
Department:012 National Forestry Resources Research Institute	
Budget Output:010010 Technology Generation	
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
1 Functional Solar Timber Kiln established at NaFORRI Selected and established 1 Breeding Seed Orchard for food security	Designs and artistic impressions of the solar timber kiln were completed and presented to NaFORRI for consideration. Jackfruit and avocado breeding seed orchard for food security was maintained. 2,500 seedlings raised for planting out.
1 Functional Solar Timber Kiln established at NaFORRI Selected and established 1 Breeding Seed Orchard for food security	Designs and artistic impressions of the solar timber kiln were completed and presented to NaFORRI for consideration. Jackfruit and avocado breeding seed orchard for food security was maintained. 2,500 seedlings raised for planting out.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
Item	Spent
224011 Research Expenses	42,000.000
228002 Maintenance-Transport Equipment	8,000.000
Total For Budget Output	50,000.000
Wage Recurrent	0.000
Non Wage Recurrent	50,000.000
Arrears	0.000
<i>AIA</i>	0.000
Budget Output:010011 Technology Promotion	
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
250,000 quality seedlings of forestry resources produced	(1) 1650 jackfruit seedlings under management in the nursery, pending grafting. 250,000 quality seedlings of forestry resources produced.
2 mother garden of forestry planting materials expanded	(2)72,000 high quality Hass Avocado Plantlets raised from clean roots stocks and scions ii)One Avocado mother garden and One germplasm mother garden regularly maintained through weeding,slashing and spraying (3) 11,000 plants of Bamboo raised from the greenhouses
1 Viability study conducted	(4)15,000 seedlings of various plantation species and trees for other use values produced under nursery conditions. (5) Materials for expansion of two mother garden of forestry planting materials assembled. 880 seedlings of jackfruit from 4 (Kayunga, Pallisa, Mayuge and Bugiri) provenances grafted for development of propagation protocol. 1650 jackfruit seedlings under management in the nursery, pending grafting. 250,000 quality seedlings of forestry resources produced. (6) 60,000 seedlings raised in the off-station nurseries; 300 households supplied with priority tree seedlings for agrofor
Best-bet options for designing on-farm management regimes developed	

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened

Programme Intervention: 010407 Strengthen agricultural research and technology development

<p>250,000 quality seedlings of forestry resources produced 2 mother gardens of forestry planting materials expanded 1 Viability study conducted</p>	<p>(1) 1650 jackfruit seedlings under management in the nursery, pending grafting. 250,000 quality seedlings of forestry resources produced. (2)72,000 high quality Hass Avocado Plantlets raised from clean roots stocks and scions ii)One Avocado mother garden and One germplasm mother garden regularly maintained through weeding,slashing and spraying (3) 11,000 plants of Bamboo raised from the greenhouses (4)15,000 seedlings of various plantation species and trees for other use values produced under nursery conditions. (5) Materials for expansion of two mother garden of forestry planting materials assembled. 880 seedlings of jackfruit from 4 (Kayunga, Pallisa, Mayuge and Bugiri) provenances grafted for development of propagation protocol. 1650 jackfruit seedlings under management in the nursery, pending grafting. 250,000 quality seedlings of forestry resources produced. (6) 60,000 seedlings raised in the off-station nurseries; 300 households supplied with priority tree seedlings for agrofor</p>
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Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
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Item	Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	10,860.000
221001 Advertising and Public Relations	3,000.000
221007 Books, Periodicals & Newspapers	2,000.000
221011 Printing, Stationery, Photocopying and Binding	8,000.000
222001 Information and Communication Technology Services.	2,000.000
222002 Postage and Courier	1,000.000
223001 Property Management Expenses	5,000.000
223004 Guard and Security services	3,336.000
224010 Protective Gear	1,000.000
224011 Research Expenses	4,000.000
228001 Maintenance-Buildings and Structures	4,000.000
228003 Maintenance-Machinery & Equipment Other than Transport	5,804.000
Total For Budget Output	50,000.000
Wage Recurrent	0.000
Non Wage Recurrent	50,000.000
Arrears	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter	
	<i>AIA</i>	0.000
	Total For Department	100,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	100,000.000
	Arrears	0.000
	<i>AIA</i>	0.000

Department:013 Mukono Zonal Agriculture Research Institute (ZARDI)**Budget Output:010010 Technology Generation****PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

8 technologies evaluated for adoption in the zone 4 routine maintenance of research facilities conducted	Technologies were evaluated for adoption. 12 adaptive trials and demos were maintained including; 3 adaptive for cabbage, 1 Nakati trial, 1 shallot trial, 1 Cherry tomato , 1 trial on exotic tomato (ANJA F1 variety), 1 Sweet pepper Gallant F1; and 1 spice.
Eight (08) technologies for both food , nutrition and industry promoted in the zone to improve production and productivity	Produced 252.5 kgs of indigenous vegetables: 155.5 kg of Nakati seed 35kg amaranths and 52 kg of Bugga seed, 10 kg of bitter berries, 4,280 Kg of maize produced. A total of 1034 grafted seedlings, 100 seedlings of jack fruit produced; 854 were availed to uptake pathways, 10 were used for gap filling and 170 still available in the nursery. 43 piglets produced, maintained and distributed. Out of these 18 have been maintained for as replacement stock and 45 distributed. 4,819 chicks were produced. About 50% of these were distributed/sold to farmers. There is a total of 127 pullets and cockrells, 296 mature females and 44 mature male birds on station. 187,650 fry hatched, 68,640 fingerlings disseminated to farmers countrywide in districts of Buikwe,Mukono Luweero,Kamwenge Nakasekke Isingiro, Wakiso, Kiryandongo, Yumbe, Mayuge. Two product prototypes made from Nakati and blended developed and evaluated. Value addition was done on selected spices, herbs and aromatic crops.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
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PIAP Output: 01040705 Demand driven agriculture technologies developed**Programme Intervention: 010407 Strengthen agricultural research and technology development**

<p>Eight (08) technologies for both food , nutrition and industry promoted in the zone to improve production and productivity</p>	<p>Produced 252.5 kgs of indigenous vegetables: 155.5 kg of Nakati seed 35kg amaranths and 52 kg of Bugga seed, 10 kg of bitter berries, 4,280 Kg of maize produced. A total of 1034 grafted seedlings, 100 seedlings of jack fruit produced; 854 were availed to uptake pathways, 10 were used for gap filling and 170 still available in the nursery. 43 piglets produced, maintained and distributed. Out of these 18 have been maintained for as replacement stock and 45 distributed. 4,819 chicks were produced. About 50% of these were distributed/sold to farmers. There is a total of 127 pullets and cockrells, 296 mature females and 44 mature male birds on station. 187,650 fry hatched, 68,640 fingerlings disseminated to farmers countrywide in districts of Buikwe, Mukono Luweero, Kamwenge Nakasekke Isingiro, Wakiso, Kiryandongo, Yumbe, Mayuge. Two product prototypes made from Nakati and blended developed and evaluated. Value addition was done on selected spices, herbs and aromatic crops.</p>
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened**Programme Intervention: 010407 Strengthen agricultural research and technology development**

<p>Eight (08) technologies for both food , nutrition and industry promoted in the zone to improve production and productivity</p>	<p>NA</p>
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Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
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Item	Spent
221001 Advertising and Public Relations	12,750.000
221011 Printing, Stationery, Photocopying and Binding	5,690.000
223004 Guard and Security services	36,000.000
224011 Research Expenses	23,450.000
227004 Fuel, Lubricants and Oils	4,066.300
228002 Maintenance-Transport Equipment	10,075.600
273102 Incapacity, death benefits and funeral expenses	3,000.000
Total For Budget Output	95,031.900
Wage Recurrent	0.000
Non Wage Recurrent	95,031.900
Arrears	0.000
<i>AIA</i>	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Budget Output: 010011 Technology Promotion	
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
<p>8 Demand driven technologies promoted to enhance production with in lake Victoria crescent agro ecological zone</p>	<p>Ten (10) spot messages about the available NARO technologies shared over radio Buddu, One radio talk show held on CBS 88.8 FM on urban farming, One (1) newspaper article written and shared in theNew vision papers on the availabe technologies</p> <p>Exhibited in nine (9) Agricultural expos; the KISOBOKA-ZUKUKA, PEWOSA, Greater Mpigi districts expo , World Food Day at NACORI, Katikiro visit to NARO, the Bulange expo and the greater Masaka Coffee-Agroforestry exhibition and Kasana-Luwero agricultural exhibition where fish and urban farming technologies were exhibited to the public.</p> <p>Sixteen (16) pasture demonstration plots established for pastures such as; brachiaria cyman and mulato, Napier grass, Guiney grass. Lablab, Jackbean, Chloris gayana, Sugar Napier, Alfalfa, Greenleaf desmodium, maize (MM3), maize Josheka, Sugar graze, Nutrifeed, sunnhemp. 4 acres of lablab for fodder and seed production for distribution were established at Kamenyamigo .30 bags of Napier (packchong and sugar napier)</p>
<p>8 Demand driven technologies promoted to enhance production with in lake Victoria crescent agro ecological zone</p>	<p>Ten (10) spot messages about the available NARO technologies shared over radio Buddu, One radio talk show held on CBS 88.8 FM on urban farming, One (1) newspaper article written and shared in theNew vision papers on the availabe technologies</p> <p>Exhibited in nine (9) Agricultural expos; the KISOBOKA-ZUKUKA, PEWOSA, Greater Mpigi districts expo , World Food Day at NACORI, Katikiro visit to NARO, the Bulange expo and the greater Masaka Coffee-Agroforestry exhibition and Kasana-Luwero agricultural exhibition where fish and urban farming technologies were exhibited to the public.</p> <p>Sixteen (16) pasture demonstration plots established for pastures such as; brachiaria cyman and mulato, Napier grass, Guiney grass. Lablab, Jackbean, Chloris gayana, Sugar Napier, Alfalfa, Greenleaf desmodium, maize (MM3), maize Josheka, Sugar graze, Nutrifeed, sunnhemp. 4 acres of lablab for fodder and seed production for distribution were established at Kamenyamigo .30 bags of Napier (packchong and sugar napier)</p>

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
Item	Spent
222001 Information and Communication Technology Services.	6,000.000
223001 Property Management Expenses	10,912.000
224011 Research Expenses	24,088.000
228001 Maintenance-Buildings and Structures	27,997.400
228003 Maintenance-Machinery & Equipment Other than Transport	3,993.000
228004 Maintenance-Other Fixed Assets	2,000.000
Total For Budget Output	74,990.400
Wage Recurrent	0.000
Non Wage Recurrent	74,990.400
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	170,022.300
Wage Recurrent	0.000
Non Wage Recurrent	170,022.300
Arrears	0.000
<i>AIA</i>	0.000
Department:014 National Livestock Resources Research Institute (NaLIRRI)	
Budget Output:010010 Technology Generation	
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
1 anti-tick vaccine registered and commercialized 50-acre research apiary with 1000 beehives established Pasture-legume wards (30 ha) for breeding stock established A localized Trait Matrix for the development of Ugandan Jersey developed	1) Established a fifty (50) acre research apiary with 1,000 bee hives at Maruzi 2) Maintained one apiary at Maruzi with 35 colonies; carried out apiary management; Sourced 05 starter bee colonies; Procured 87 bee hives (70 KTB and 17 Langstroth) with their stands, 10 catcher boxes and 27 nucs; carried out hive inspection and there is good prospect of honey production.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
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PIAP Output: 01040705 Demand driven agriculture technologies developed**Programme Intervention: 010407 Strengthen agricultural research and technology development**

<p>2 candidate multi-strain Foot and Mouth Disease vaccines (SAT1 and SAT2) evaluated 1 African swine fever diagnostic 2 high-yielding brachiria lines were submitted to the variety release committee. 1 candidate bioacaricide for tick control evaluated</p>	<p>1) Formulated two candidate vaccine for Foot and Mouth Disease (FMD) vaccines (O and A). Evaluation to be initiated. (2) Ten (10) Forage inbred lines and 2 F1 single cross hybrid with excellent silage production attributes, and stress tolerance identified as breeding starts based on twelve database on agronomic, nutritional/sugar biochemical, digestibility, nutrition data. (3) 5 best bet brachiria pasture varieties submitted to variety release committee for consideration.</p>
<p>One anti-tick vaccine rolled out along the value chain to manage the National tick burden in Uganda for enhanced livestock production and productivity. This will enable farmers to brake even at a lower cost.</p>	<p>Finalized anti-tick vaccine trials on farm to manage the National tick burden in Uganda. The anti-tick vaccine trials were successful. And the anti-tick vaccine was true-to-form.</p>

PIAP Output: 0103020117 Soil, crop suitability and fertilizer blend maps developed**Programme Intervention: 010407 Strengthen agricultural research and technology development**

<p>The suitability of livestock pastures and forages for 4 varieties determined for rangelands Four (04) routine maintenance of research facilities conducted</p>	<p>(1) suitability of livestock pastures and forages for rangelands was determined. 10 Forage inbred lines and 2 F1 singlecross hybrid with excellent sillage production attributes, and stress tolerance were identified as breeding starts based on twelve database on agronomic, nutritional/sugar biochemical, digestibility, nutrition data. (2) Conducted One routine maintenance of heifer barn.</p>
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Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
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Item	Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	100,000.000
222001 Information and Communication Technology Services.	10,000.000
223001 Property Management Expenses	15,751.001
223004 Guard and Security services	10,000.000
224003 Agricultural Supplies and Services	160,000.000
224005 Laboratory supplies and services	16,000.000
224011 Research Expenses	15,194,046.260
225101 Consultancy Services	100,000.001
227004 Fuel, Lubricants and Oils	101,000.000
Total For Budget Output	15,706,797.262
Wage Recurrent	0.000
Non Wage Recurrent	15,706,797.262

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Arrears	0.000
AIA	0.000

Budget Output:010011 Technology Promotion**PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

Eight livestock related technologies evaluated for possible promotion	(Duplicate) Assorted livestock related technologies were evaluated for promotion and delivery to stakeholders. These included 1) 1250 tons of silage produced (Maize and Napier). 2) 18 tons of hay produced. 3) 40 acres of silage maize established. 4) 42 acres of Napier established and maintained. 5) 500kgs of calliandra hay produced and 40 acres of calliandra fields maintained. 6) 5 acres of alfalfa introduced to provide quality hay for the calves. 7) Conservation forage bank (herbarium) maintained.
3 zonal embryo distribution centers established 5200 tons of napier silage and cuttings produced 30,000 bales of hay produced 5,000 kg of Chloris seed produced 5000 elite embryos for beef and dairy cattle produced 3MT tons of forage seed produced	1,300 tons of napier silage and cuttings produced 75,00 bales of hay produced 1,250 kg of Chloris seed produced . Progress in breeding included the following: 1) Maintenance of 596 embryos and 3000 semen straws at Nakyesasa IVF lab cryo unit. 2) Aailed and undertook embryo transfer of 14 embryos, awaiting pregnancy diagnosis. 3) Popularization of embryo transfer technology in media. 4) Assembly of 120 surrogates in Nakyesasa, Maruzi and Mbazardi. 5) Embryo supply and distribution centres established at Mbarara ZARDI awaiting embryo supply.
3 zonal embryo distribution centers established 5200 tons of napier silage and cuttings produced 30,000 bales of hay produced 5,000 kg of Chloris seed produced 5000 elite embryos for beef and dairy cattle produced 3MT tons of forage seed produced	(Duplicate). 1,300 tons of napier silage and cuttings produced 75,00 bales of hay produced 1,250 kg of Chloris seed produced . Progress in breeding included the following: 1) Maintenance of 596 embryos and 3000 semen straws at Nakyesasa IVF lab cryo unit. 2) Aailed and undertook embryo transfer of 14 embryos, awaiting pregnancy diagnosis. 3) Popularization of embryo transfer technology in media. 4) Assembly of 120 surrogates in Nakyesasa, Maruzi and Mbazardi. 5) Embryo supply and distribution centres established at Mbarara ZARDI awaiting embryo supply.
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
3 zonal embryo distribution centers established 5200 tons of napier silage and cuttings produced 30,000 bales of hay produced 5,000 kg of Chloris seed produced 5000 elite embryos for beef and dairy cattle produced 3MT tons of forage seed produced	30,000 bales of hay produced. 5,000 kg of Chloris seed produced. 5000 elite embryos for beef and dairy cattle produced. 3MT tons of forage seed produced.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened**Programme Intervention: 010407 Strengthen agricultural research and technology development**

3 zonal embryo distribution centers established 5200 tons of napier silage and cuttings produced 30,000 bales of hay produced 5,000 kg of Chloris seed produced 5000 elite embryos for beef and dairy cattle produced 3MT tons of forage seed produced	30,000 bales of hay produced. 5,000 kg of Chloris seed produced. 5000 elite embryos for beef and dairy cattle produced. 3MT tons of forage seed produced.. (Duplicate).
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PIAP Output: 0103020117 Soil, crop suitability and fertilizer blend maps developed**Programme Intervention: 010407 Strengthen agricultural research and technology development**

Eight livestock related technologies evaluated for possible promotion	Assorted livestock related technologies were evaluated for promotion and delivery to stakeholders. These included 1) 1250 tons of silage produced (Maize and Napier). 2) 18 tons of hay produced. 3) 40 acres of silage maize established. 4) 42 acres of Napier established and maintained. 5) 500kgs of calliandra hay produced and 40 acres of calliandra fields maintained. 6) 5 acres of alfalfa introduced to provide quality hay for the calves. 7) Conservation forage bank (herbarium) maintained.
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Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
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Item	Spent
224011 Research Expenses	600,000.000
Total For Budget Output	600,000.000
Wage Recurrent	0.000
Non Wage Recurrent	600,000.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	16,306,797.262
Wage Recurrent	0.000
Non Wage Recurrent	16,306,797.262
Arrears	0.000
<i>AIA</i>	0.000

Department:015 National Semi Arid Resources Research Institute (NaSARRI)**Budget Output:010010 Technology Generation**

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs		Cumulative Outputs Achieved by End of Quarter
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
6 High oleic and 4 nutrient-dense groundnuts lines developed and evaluated 2 millet and 2 Sorghum nutrient-dense varieties submitted for release	2 High oleic and 1 nutrient-dense groundnuts lines that were developed and evaluated were released. The groundnuts are drought resistant lowering costs of production for women and youth• Rich in Iron and Zinc for children and elderly, High oil content (55-63%oleic, 8-26%linoleic, which are good at reducing heart-related diseases and lowering cholesterol), High yield (2.5-3.0t/ha), and Early maturity period (80-110 days)	
4 Entomopathogenic Fungi (EPF) isolates evaluated against tick eggs and larvae in the lab	Initiated production of most entomopathogenic fungi on artificial media in the labs.	
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs		<i>UShs Thousand</i>
Item	Spent	
223001 Property Management Expenses	10,000.000	
224011 Research Expenses	40,000.000	
	Total For Budget Output	50,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	50,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
Budget Output:010011 Technology Promotion		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
10 Iron dense mung-bean lines identified for DUS testing 3 livestock feed formulations developed out of black soldier flies	10 Iron dense mung-bean lines identified evaluated under DUS testing 1 livestock feed formulations developed out of black soldier flies	
10 Iron dense mung-bean lines identified for DUS testing 3 livestock feed formulations developed out of black soldier flies	4 Iron dense mung-bean lines identified for DUS testing 1 livestock feed formulations developed out of black soldier flies	
PIAP Output: 01041103 Research-extension-farmer linkages developed and strengthened		
Programme Intervention: 010411 Strengthen the agricultural extension system		
10 Iron dense mung-bean lines identified for DUS testing 3 livestock feed formulations developed out of black soldier flies	NA	

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
Item	Spent
212103 Incapacity benefits (Employees)	3,000.000
223004 Guard and Security services	10,000.000
224011 Research Expenses	30,000.000
228002 Maintenance-Transport Equipment	7,000.000
Total For Budget Output	50,000.000
Wage Recurrent	0.000
Non Wage Recurrent	50,000.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	100,000.000
Wage Recurrent	0.000
Non Wage Recurrent	100,000.000
Arrears	0.000
<i>AIA</i>	0.000
Department:016 Ngetta ZARDI	
Budget Output:010010 Technology Generation	
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
Four (4) technologies for food, Nutrition security and industry evaluated for suitability in the zone to improve production and productivity.	Technologies for food, Nutrition security and industry evaluated for suitability in the zone to improve production and productivity.(1) Three crop technologies (rice, cassava and soyabean) were evaluated for yield performance and tolerance to biotic stresses common in NAEZ. (2) One adaptive trial (3 acres) of improved cassava varieties (UG120/193, NAROCASS1, NASE 14) established in season 2023 season B to evaluate tolerance in improved varieties to physiological deterioration and rotting of tubers at varying harvesting time. (3)Two adaptive IPM studies (2 acres) were established onstation notably; (a) efficacy of biopesticides on major rice pests on selected rice varieties (NARO rice 1, NARO rice 2, Namche 5 and Local rice) in NAEZ (b) evaluation of the efficacy of biopesticides on major pests on two selected improved soyabean varieties (MAKSOY 3N and MAKSOY 6N).

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
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PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened

Programme Intervention: 010407 Strengthen agricultural research and technology development

10 high yielding technologies for new cassava, rice, Napier and pasture varieties evaluated for possible promotion in Ngetta region

10 high yielding technologies were evaluated for possible promotion in Ngetta region (1)Three crop technologies (rice, cassava and soyabean) were evaluated for yield performance and tolerance to biotic stresses common in NAEZ. (2) One adaptive trial (3 acres) of improved cassava varieties (UG120/193, NAROCASS1, NASE 14) established in season 2023 season B to evaluate tolerance in improved varieties to physiological deterioration and rotting of tubers at varying harvesting time. (3) Two adaptive IPM studies (2 acres) were established on station notably; (a) efficacy of biopesticides on major rice pests on selected rice varieties (NARO rice 1, NARO rice 2, Namche 5 and Local rice) in NAEZ (b) evaluation of the efficacy of biopesticides on major pests on two selected improved soyabean varieties (MAKSOY 3N and MAKSOY 6N).

Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>UShs Thousand</i>
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Item	Spent
221008 Information and Communication Technology Supplies.	5,000.000
224003 Agricultural Supplies and Services	16,000.000
224011 Research Expenses	29,000.000
Total For Budget Output	50,000.000
Wage Recurrent	0.000
Non Wage Recurrent	50,000.000
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:010011 Technology Promotion

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
10 high yielding crop technologies(cassava, rice, napier and pasture) promoted in Ngetta region 2 improved catfish and tilapia technologies demonstrated to stakeholders in Ngetta region	One cassava multiplication and demonstration garden (2 acres) of 3 improved cassava varieties (NAROCASS1, NASE 14 and UG 120/193) was established onstation during second season 2023 and maintained onstation. Growth performance data is being collected. Onfarm evaluations and multiplications are planned to be conducted next quarter using these materials when they reach optimum maturity from 8 months after planting for viable cuttings. Newly releaed yeilding varieties of cassava ((NAROCASS1, NASE 14 and UG 120/193) were demonstrated to 1,338 farmers (1,074 Males and 264 Females). (Duplicate).
PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
Capacity of 6 community seed producers in 4 districts of Ngetta region enhanced	The technical capacity of 7 community seed producers groups (Bedignen Women, Bedijo, Barr Rec Farmers group, Can-Onotowa, Oriem-Can Widows and Orphans, Acan Penyoye, Bala Women & Youth Groups) to produce quality declared seed (QDS) was enhanced through trainings and demonstrations. The trainings and demonstrations focused on production of Quality Declared Seed of soybean, simsim and groundnut. In total about 150 seed producers participated in these trainings.
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	
	<i>US\$ Thousand</i>
Item	Spent
222001 Information and Communication Technology Services.	2,000.000
223004 Guard and Security services	12,000.000
224011 Research Expenses	31,000.000
228001 Maintenance-Buildings and Structures	5,000.000
Total For Budget Output	50,000.000
Wage Recurrent	0.000
Non Wage Recurrent	50,000.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	100,000.000
Wage Recurrent	0.000
Non Wage Recurrent	100,000.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Arrears	0.000
<i>AIA</i>	0.000

Department:017 Rwebitaba ZARDI**Budget Output:010010 Technology Generation****PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

Enhanced tea improvement through developing elite tea clones 3 appropriate biopesticides in neem leaf extract (Azadirachtin, Nimbin and Salanin) determined 2 tea value added products developed. 5 tons of green leaf tea produced and sold	Multi-location trials for candidate tea clones (purple tea genotype and clone UTR 54/40) initiated in three locations. Clonal evaluation trial comprised of 60 clones maintained at Rwebitaba TRC, 4 identified for advancement from multilocation trials..
14,000 banana suckers produced for uptake pathways. 7 acres of seed mother gardens and forage banks for fruit trees maintained. Integrated Tea Crop Management packages generated.	(1) 14000 banana suckers produced for uptake pathways. 1500 for one acres of seed mother gardens. and forage banks for fruit trees maintained. Integrated Tea Crop Management packages generated. (2) Site for establishing 3 acres of mother gardens, trials for avocado and Citrus lemon characterized; site for 2 acres of seed and forage bank established and maintained
40,000 seedlings raised and 6 acres of fruits (mangoes, Citrus oranges, Avocado) maintained. 1 Apiary and 1 Meliponary units maintained with 3 bee forage plants 150,000 high quality tea seedlings raised 25 Boer cross breeds and 50 piglets multiplied.	3 acres permanent demonstration plot of Mangoes, Citrus oranges, Avocado, coffee and Macadamia maintained on station; 5,000 high quality tree seedlings for avocado, oranges, mangoes and passion fruits maintained and grafted; 800 avocado and mangoes maintained; potting media (forest soil, manure and river sand) acquired for potting 5000 rootstocks.
20 and 1.5 tons of maize grain and beans produced respectively. 8 tons of assorted animal feeds produced 7 seed multiplication ponds maintained with African catfish 100,000 Nile Tilapia fingerlings multiplied	250 kg of hay and 5 tonnes of silage produced, 3.3 acres of beans established and maintained, 3 acres of maize harvested and tons raised and to be sold

PIAP Output: 01040706 Research-extension farmer linkages developed and strengthened**Programme Intervention: 010407 Strengthen agricultural research and technology development**

14,000 banana suckers produced for uptake pathways for increased banana productivity. Four hot culture products products (mangoes, Citrus oranges, Avocado) promoted.	(1) 14000 banana suckers produced for uptake pathways. 1500 for one acres of seed mother gardens. and forage banks for fruit trees maintained. Integrated Tea Crop Management packages generated. (2) Site for establishing 3 acres of mother gardens, trials for avocado and Citrus lemon characterized; site for 2 acres of seed and forage bank established and maintained
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VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	UShs Thousand
Item	Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)	22,000.000
221003 Staff Training	8,000.000
221009 Welfare and Entertainment	8,400.000
223001 Property Management Expenses	6,000.000
223004 Guard and Security services	8,800.000
224004 Beddings, Clothing, Footwear and related Services	4,000.000
224011 Research Expenses	22,400.000
226001 Insurances	1,200.000
227004 Fuel, Lubricants and Oils	17,000.000
273102 Incapacity, death benefits and funeral expenses	2,200.000
Total For Budget Output	100,000.000
Wage Recurrent	0.000
Non Wage Recurrent	100,000.000
Arrears	0.000
<i>AIA</i>	0.000
Budget Output:010011 Technology Promotion	
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
Eight demand driven technologies promoted with in Rwebitaba zone to enhance production, food and nutrition security.	(Duplicate). Eight demand driven technologies promoted with in Rwebitaba zone. (1)Tea-Agroforestry integration in plantations among tea farming communities in South Western Uganda promoted. (2) 4000 banana suckers produced and delivered to uptake pathways (3) Capacity building on 6 NARO agricultural technologies to 500 farmers in Kamwenge, Kitagwenda and enhanced
PIAP Output: 01041103 Research-extension-farmer linkages developed and strengthened	
Programme Intervention: 010411 Strengthen the agricultural extension system	
Eight demand driven technologies promoted with in Rwebitaba zone to enhance production, food and nutrition security	Eight demand driven technologies promoted with in Rwebitaba zone. (1)Tea-Agroforestry integration in plantations among tea farming communities in South Western Uganda promoted. (2) 4000 banana suckers produced and delivered to uptake pathways (3) Capacity building on 6 NARO agricultural technologies to 500 farmers in Kamwenge, Kitagwenda and enhanced

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
Item	Spent
211107 Boards, Committees and Council Allowances	10,000.000
221007 Books, Periodicals & Newspapers	3,000.000
221008 Information and Communication Technology Supplies.	11,100.000
221011 Printing, Stationery, Photocopying and Binding	5,000.000
223001 Property Management Expenses	6,500.000
224011 Research Expenses	10,000.000
228001 Maintenance-Buildings and Structures	5,000.000
228002 Maintenance-Transport Equipment	18,000.000
228004 Maintenance-Other Fixed Assets	6,400.000
Total For Budget Output	75,000.000
Wage Recurrent	0.000
Non Wage Recurrent	75,000.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Department	175,000.000
Wage Recurrent	0.000
Non Wage Recurrent	175,000.000
Arrears	0.000
<i>AIA</i>	0.000
<i>Development Projects</i>	
Project:1560 Relocation and Operationalisation of the National Livestock Resources Research Institute(NALIRRI)	
Budget Output:000017 Infrastructure Development and Management	
PIAP Output: 01040705 Demand driven agriculture technologies developed	
Programme Intervention: 010407 Strengthen agricultural research and technology development	
Four (04) livestock research handling structures established to strengthen livestock breeding research at Maruzi and Nakyesasa.	Four (04) livestock research handling structures supported to strengthen livestock breeding research at Maruzi and Nakyesasa which included (1). Remodeling the Vaccine production facility, progress at 80%. (2) Proposed Fit out & Remodeling for offices at NaLIRRI Nakyesasa. Project progress: 50%. (3) Construction of a Perimeter Wall & Incinerator at the Vaccine Facility. Project progress: 76%. (4) Construction of a Bio Security Gate at NaLIRRI Nakyesasa. Project progress: 75%.

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs **Cumulative Outputs Achieved by End of Quarter****Project:1560 Relocation and Operationalisation of the National Livestock Resources Research Institute(NALIRRI)****PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

One vaccine research and production facility redesigned, modified and certified based on vaccine research and production bio-systems standards to produce internationally acceptable vaccine
One intellectual right secured

(1). Remodeling the Vaccine production facility, progress at 80%. (2) Proposed Fit out & Remodeling for offices at NaLIRRI Nakyesasa. Project progress: 50%. (2) Procured consultancy service for Intellectual property and technology transfer of anti-tick vaccine oral adjuvant acquired by NARO. Contract signed. 100% Payment made against all deliverables in the contract. File closed.

Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs*US\$ Thousand*

Item	Spent
312121 Non-Residential Buildings - Acquisition	18,997,715.661
Total For Budget Output	18,997,715.661
GoU Development	18,997,715.661
External Financing	0.000
Arrears	0.000
<i>AIA</i>	0.000

Budget Output:010010 Technology Generation**PIAP Output: 01040705 Demand driven agriculture technologies developed****Programme Intervention: 010407 Strengthen agricultural research and technology development**

Six (6) livestock related research products developed and promoted across the country along livestock value chains for increased production and productivity

Six (6) livestock related research products developed and promoted across the country included: (1) 1250 tons of silage produced (Maize and Napier). 2) 18 tons of hay produced. 3) 40 acres of silage maize established. 4) 42 acres of Napier established and maintained. 5) 500kgs of calliandra hay produced and 40 acres of calliandra fields maintained
6) 5 acres of alfalfa introduced to provide quality hay for the calves.

Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs*US\$ Thousand*

Item	Spent
221002 Workshops, Meetings and Seminars	10,000.000
221003 Staff Training	20,000.000
221008 Information and Communication Technology Supplies.	40,000.000
221011 Printing, Stationery, Photocopying and Binding	19,000.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Project:1560 Relocation and Operationalisation of the National Livestock Resources Research Institute(NALIRRI)	
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
Item	Spent
223004 Guard and Security services	11,000.000
223005 Electricity	30,000.000
224003 Agricultural Supplies and Services	323,000.000
224004 Beddings, Clothing, Footwear and related Services	10,000.000
224005 Laboratory supplies and services	74,999.999
224011 Research Expenses	777,999.999
225201 Consultancy Services-Capital	120,000.000
227003 Carriage, Haulage, Freight and transport hire	10,000.000
227004 Fuel, Lubricants and Oils	200,000.000
228001 Maintenance-Buildings and Structures	50,000.000
228002 Maintenance-Transport Equipment	54,000.000
228003 Maintenance-Machinery & Equipment Other than Transport Equipment	100,000.001
313235 Furniture and Fittings - Improvement	150,000.000
Total For Budget Output	1,999,999.999
GoU Development	1,999,999.999
External Financing	0.000
Arrears	0.000
<i>AIA</i>	0.000
Total For Project	20,997,715.660
GoU Development	20,997,715.660
External Financing	0.000
Arrears	0.000
<i>AIA</i>	0.000
Project:1619 Retooling of National Agricultural Research Organization	
Budget Output:000003 Facilities and Equipment Management	

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
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Project:1619 Retooling of National Agricultural Research Organization

PIAP Output: 01040705 Demand driven agriculture technologies developed

Programme Intervention: 010407 Strengthen agricultural research and technology development

Three research facilities equipped with assorted laboratory equipment; H-vac air and negative pressure system, incinerator and general fisheries health diagnostics equipment .

Three research facilities equipped. (1) Progress In the anti-tick vaccine production plant (a) Procurement underway for a platform for automated vaccine filling, capping and bottling line with capacity to fill 200 bottles of 1ml each per minute. Contract signed, items pre-inspected and shipped. Payment effected against Bank Guarantee. Awaiting for final delivery of items. (b) Procure and install vaccine seed/inoculum production line progress is: Contract signed. All Items delivered. Payment effected and file closed. (c) Awaiting for final delivery of items for construction of H-vac air purification system (d) Upgrade research facility power back Up system progress is contract signed. Equipment delivered and Installed. Payment effected and file closed. (2) Assorted Aflasafe Research Equipment,(a) Evidence Investigator/installation of fish feed completed. Contract signed. Items delivered and installed. (3) Electricity Installation for the fish floating feed equipment completed at Kajansi.

1 Vaccine production plant with capacity to produce 20million doses per annum established at NARO Nakyesasa & equipped with highly specialized assorted equipment (27), water injection system, depyrognenerators, sonicators, fermenters, HPLC , PCR etc

Establishment of vaccine production plant, equipped with highly specialized assorted equipment at Nakyesasa , (a) Contract signed, items pre-inspected and shipped. Payment effected against Bank Guarantee. Awaiting for final delivery of commercial vaccine production line with capacity to produce over 20 million of anti-tick vaccine doses annually. (b) establishment of a platform for automated vaccine filling, capping and bottling line with capacity to fill 200 bottles of 1ml each per minute, progress is contract signed, items pre-inspected and shipped. Payment effected against Bank Guarantee. Awaiting for final delivery.(c) Vaccine research and production facility fitted with specialised laboratory fittings and furniture. (d) Bioreactors procured for anti-tick vaccine production Facility. (e) Procure and install vaccine seed/inoculum production line. Contract signed. All Items delivered. Payment effected. (f) Supply/Installation of Laboratory Equipment and reagents partial

Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>US\$ Thousand</i>
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Item	Spent
312233 Medical, Laboratory and Research & appliances - Acquisition	31,000,000.000
Total For Budget Output	31,000,000.000
GoU Development	31,000,000.000
External Financing	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter	
Project:1619 Retooling of National Agricultural Research Organization		
	Arrears	0.000
	<i>AIA</i>	0.000
Budget Output:000017 Infrastructure Development and Management		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
<p>7 research facilities maintained; Vaccine research & production facility, Bio-security gate strengthening, Perimeter wall around vaccine research and production facility strengthened the diverted Public road to vaccine facility maintained as per UNCST</p>	<p>7 research facilities maintained. (1) 3 research facilities maintained at 100% Works completed for (a)Bio-security gate strengthening, (b)Perimeter wall around vaccine research and production facility strengthened. (c) Water works & reticulation at Maruzi at 100% (2) Four research facilities maintained with works at various completion levels (a)Goat research facility at Maruzi at 90%, Queen bee rearing facility to support maruzi (Phase 1) at 80%, (b) Paddocking system and (c) farm access roads to support Maruzi at 43%, Construction of Water Purification Unit, Building Management Systems and configuration of oral adjuvant production platform and diversion of the Access Road from the Vaccine Research Facility from NaCRRI to NaLIRRI. Project Progress: 96%.</p>	
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs		<i>UShs Thousand</i>
Item		Spent
225101 Consultancy Services		45,000.000
225201 Consultancy Services-Capital		200,000.000
228001 Maintenance-Buildings and Structures		400,000.000
313121 Non-Residential Buildings - Improvement		8,454,394.723
	Total For Budget Output	9,099,394.723
	GoU Development	9,099,394.723
	External Financing	0.000
	Arrears	0.000
	<i>AIA</i>	0.000
Budget Output:010008 Capacity Strengthening		

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs		Cumulative Outputs Achieved by End of Quarter
Project:1619 Retooling of National Agricultural Research Organization		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Sixty 60 hectares of NARO Agricultural research Land fenced and visibility pillars installed around sixty hectares 60ha 1128 ha of land boundaries opened at Maruzi Apac and Lorengedwart, Nabuin ZARDI Four (4) pieces of land verified through Cad	15 hectares of NARO Agricultural research land titled at Aduku, Katakwi, Pallisa, and Serere. 282 ha of land boundaries opened at Maruzi Apac and Lorengedwart, Nabuin ZARDI 1 pieces of land verified. At Katakwi land fenced and visibility pillars installed.	
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs		<i>UShs Thousand</i>
Item		Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)		310,000.000
211107 Boards, Committees and Council Allowances		20,000.000
221001 Advertising and Public Relations		392,000.000
221004 Recruitment Expenses		160,000.000
221008 Information and Communication Technology Supplies.		135,599.999
221011 Printing, Stationery, Photocopying and Binding		140,000.000
221012 Small Office Equipment		2,605.000
221016 Systems Recurrent costs		40,000.000
221017 Membership dues and Subscription fees.		60,000.000
222001 Information and Communication Technology Services.		22,360.000
224002 Veterinary supplies and services		100,000.000
224003 Agricultural Supplies and Services		765,248.000
224005 Laboratory supplies and services		16,079.000
224011 Research Expenses		3,633,469.001
225101 Consultancy Services		135,000.000
225201 Consultancy Services-Capital		200,000.000
225204 Monitoring and Supervision of capital work		448,000.000
226001 Insurances		804.000
226002 Licenses		29,230.000
227001 Travel inland		60,000.000
227004 Fuel, Lubricants and Oils		400,000.000
228001 Maintenance-Buildings and Structures		439,840.000
228002 Maintenance-Transport Equipment		100,000.000
228003 Maintenance-Machinery & Equipment Other than Transport Equipment		39,400.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs		Cumulative Outputs Achieved by End of Quarter
Project:1619 Retooling of National Agricultural Research Organization		
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs		<i>UShs Thousand</i>
Item		Spent
228004 Maintenance-Other Fixed Assets		120,000.001
	Total For Budget Output	7,769,635.001
	GoU Development	7,769,635.001
	External Financing	0.000
	Arrears	0.000
	<i>AIA</i>	0.000
Budget Output:010009 Research Partnerships		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Agricultural research regional and international collaborations for research and technology transfer strengthened through four(4) partnerships with Biodiversity international, ASARECA,CABI and IRRI	Agricultural research research and technology transfer with national and with regional and international agencies was strengthened by setting up 43 on-station demonstrations and 40 on-farm demonstrations with the Biodiversity international, ASARECA,CABI and IRRI and DINU project sites.	
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs		<i>UShs Thousand</i>
Item		Spent
224011 Research Expenses		1,000,000.000
	Total For Budget Output	1,000,000.000
	GoU Development	1,000,000.000
	External Financing	0.000
	Arrears	0.000
	<i>AIA</i>	0.000
Budget Output:010010 Technology Generation		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
34 research projects streams under the competitive grants scheme supported for products for resilient food, systems, Climate resilience, nutrition, industry and increased total factor productivity in Uganda	NARO invested in 34 research projects under the competitive grants scheme to support for products for resilient food, systems, Climate resilience, nutrition, industry and increased total factor productivity in Uganda.	

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter
Project:1619 Retooling of National Agricultural Research Organization	
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs	<i>UShs Thousand</i>
Item	Spent
221001 Advertising and Public Relations	18,710.000
221008 Information and Communication Technology Supplies.	44,003.750
221009 Welfare and Entertainment	1,361.000
221011 Printing, Stationery, Photocopying and Binding	48,215.000
221012 Small Office Equipment	7,396.000
221017 Membership dues and Subscription fees.	1,441.000
222001 Information and Communication Technology Services.	8,040.000
222002 Postage and Courier	3,135.000
223001 Property Management Expenses	1,722.999
223004 Guard and Security services	1,711.000
223005 Electricity	5,455.000
224002 Veterinary supplies and services	40,199.000
224003 Agricultural Supplies and Services	1,209,126.000
224004 Beddings, Clothing, Footwear and related Services	459.000
224010 Protective Gear	11,485.000
224011 Research Expenses	4,009,269.250
225101 Consultancy Services	36,179.000
226001 Insurances	2,871.000
226002 Licenses	1,952.000
227001 Travel inland	74,144.000
227003 Carriage, Haulage, Freight and transport hire	8,964.000
227004 Fuel, Lubricants and Oils	124,409.000
228001 Maintenance-Buildings and Structures	23,373.000
228002 Maintenance-Transport Equipment	41,336.000
228003 Maintenance-Machinery & Equipment Other than Transport Equipment	775.000
313233 Medical, Laboratory and Research & appliances - Improvement	574,268.000
Total For Budget Output	6,299,999.999
GoU Development	6,299,999.999
External Financing	0.000

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Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter	
Project:1619 Retooling of National Agricultural Research Organization		
Arrears		0.000
AIA		0.000
Budget Output:010011 Technology Promotion		
PIAP Output: 01040705 Demand driven agriculture technologies developed		
Programme Intervention: 010407 Strengthen agricultural research and technology development		
Fifteen (15) agricultural research technologies, innovations, and information promoted for improved production and productivity across the country.	NARO promoted fifteen (15) technologies (9 varieties, 2 breeds, 3 protocols, 4 prototypes, 1 strains, 2 innovations, knowledge and information) to farmers. These were promoted thru various uptake pathways such as exhibitions, farm clinics, on farm demonstrations, on station demonstrations, farmer platforms, farmer organizations, extension systems, education institutions and media platforms.	
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs		<i>US\$ Thousand</i>
Item		Spent
211106 Allowances (Incl. Casuals, Temporary, sitting allowances)		180,000.000
221001 Advertising and Public Relations		140,000.001
221007 Books, Periodicals & Newspapers		7,753.000
221008 Information and Communication Technology Supplies.		51,436.000
221011 Printing, Stationery, Photocopying and Binding		72,160.000
222001 Information and Communication Technology Services.		44,457.000
223004 Guard and Security services		2,182.000
224003 Agricultural Supplies and Services		528,097.000
224005 Laboratory supplies and services		17,917.000
224011 Research Expenses		1,422,668.000
226002 Licenses		88,000.000
227001 Travel inland		40,000.000
227004 Fuel, Lubricants and Oils		121,862.000
228002 Maintenance-Transport Equipment		79,800.000
228003 Maintenance-Machinery & Equipment Other than Transport Equipment		1,945.000
228004 Maintenance-Other Fixed Assets		1,723.000
	Total For Budget Output	2,800,000.001
	GoU Development	2,800,000.001
	External Financing	0.000

VOTE: 142 National Agricultural Research Organization (NARO)

Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter	
Project:1619 Retooling of National Agricultural Research Organization		
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Project	57,969,029.724
	GoU Development	57,969,029.724
	External Financing	0.000
	Arrears	0.000
	<i>AIA</i>	0.000
Programme:17 Regional Balanced Development		
SubProgramme:01 Production and productivity		
Sub SubProgramme:01 Agricultural Research		
<i>Departments</i>		
Department:002 Buginyaya Zonal Agriculture Research Institute(ZARDI)		
Budget Output:010011 Technology Promotion		
PIAP Output: 1702020506 Youth and Women cooperatives supported		
Programme Intervention: 170209 Organize farmers into cooperatives at district level		
20 local seed businesses supported affordable breeder and foundation seed for sustainable seed system. 3000 farmers (women and youth) supported with technologies, innovations & skill to increase production & productivity.	20 local seed businesses supported with affordable breeder and foundation seed for sustainable seed system.. 2.4 tons of maize Longe 5D, 500kgs of NARO bean 1, and 500kg of NABE 15 were produced and availed to uptake (LSBs). 3000 farmers supported thru training and demos of good fish pond construction and management, Skills were enhanced of 100 fish farmers (70 men and 30 females) in Kapchorwa, Bugiri, Sironko, Bududa , Butaleja, Budaka and Soroti districts	
Cumulative Expenditures made by the End of the Quarter to Deliver Cumulative Outputs		<i>UShs Thousand</i>
Item		Spent
224003 Agricultural Supplies and Services		50,000.000
224011 Research Expenses		50,000.000
	Total For Budget Output	100,000.000
	Wage Recurrent	0.000
	Non Wage Recurrent	100,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
	Total For Department	100,000.000

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Quarter 4

Annual Planned Outputs	Cumulative Outputs Achieved by End of Quarter	
	Wage Recurrent	0.000
	Non Wage Recurrent	100,000.000
	Arrears	0.000
	<i>AIA</i>	0.000
<hr/>		
<i>Development Projects</i>		
<hr/>		
N/A		
<hr/>		
	GRAND TOTAL	164,439,554.215
	Wage Recurrent	43,462,109.265
	Non Wage Recurrent	42,010,699.566
	GoU Development	78,966,745.384
	External Financing	0.000
	Arrears	0.000
	<i>AIA</i>	0.000
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V4: NTR Collections, Off Budget Expenditure and Vote Cross Cutting Issues**Table 4.1: NTR Collections (Billions)**

Revenue Code	Revenue Name	Planned Collection FY2023/24	Actuals By End Q4
141131	Interest from other government units	0.010	0.016
141501	Rent & Rates - Non-Produced Assets – from private entities	0.786	2.233
142159	Sale of bid documents-From Government Units	0.000	0.147
142160	Sale of Agricultural products and services-From Government Units	2.769	1.609
142225	Other Licence fees	0.085	0.000
144149	Miscellaneous receipts/income	0.000	0.030
142217	Market /Gate Charges	0.000	0.259
142302	Sale of non-produced Government Properties/assets	0.000	0.155
142301	Sale of (Produced) Government Properties/Assets	0.000	0.113
Total		3.650	4.562

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Table 4.2: Off-Budget Expenditure By Department and Project

<i>Billion Uganda Shillings</i>	2023/24 Approved Budget	Actuals By End Q4
Programme : 01 Agro-Industrialization	32,422,000.000	67,744,048.350
SubProgramme : 02 Agricultural Production and Productivity	32,422,000.000	67,744,048.350
Sub-SubProgramme : 01 Agricultural Research	32,422,000.000	67,744,048.350
<i>Department Budget Estimates</i>		
Department: 001 Abi Zonal Agriculture Research Institute(ZARDI)	294,000.000	355,002.843
Department: 002 Buginyaya Zonal Agriculture Research Institute(ZARDI)	294,000.000	290,623.048
Department: 003 Bulindi Zonal Agriculture Research Institute(ZARDI)	131,000.000	92,825.789
Department: 004 Kachwekano Zonal Agriculture Research Institute(ZARDI)	196,000.000	907,491.846
Department: 005 Mbarara Zonal Agriculture Research Institute(ZARDI)	673,000.000	213,915.600
Department: 006 Nabuin Zonal Agriculture Research Institute(ZARDI)	2,582,000.000	2,504,442.635
Department: 007 NARO-SECRETARIATE	0.000	585,784.696
Department: 008 National Agricultural Research Laboratories	11,638,000.000	13,100,608.320
Department: 009 National Coffee Research Institute	2,715,000.000	2,594,174.723
Department: 010 National Crops Resources Research Institute	7,082,000.000	34,570,602.122
Department: 011 National Fisheries Resources Research Institute	2,459,000.000	4,128,826.943
Department: 012 National Forestry Resources Research Institute	1,278,000.000	956,891.968
Department: 013 Mukono Zonal Agriculture Research Institute (ZARDI)	0.000	346,905.274
Department: 014 National Livestock Resources Research Institute (NaLIRRI)	922,000.000	1,666,732.081
Department: 015 National Semi Arid Resources Research Institute (NaSARRI)	1,283,000.000	4,954,329.627
Department: 016 Ngetta ZARDI	0.000	240,283.193
Department: 017 Rwebitaba ZARDI	875,000.000	234,607.642
<i>Project budget Estimates</i>		
Total for Vote	32,422,000.000	67,744,048.350

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Table 4.3: Vote Crosscutting Issues

i) Gender and Equity

Objective:	To develop and disseminate technologies which promote equity among Ugandans across all regions.
Issue of Concern:	Low levels of adoption for improved technologies among the regions for food, nutrition security, and industry
Planned Interventions:	Establish demonstrations for various technologies in different Agro ecological zones to increase adoption levels for impact
Budget Allocation (Billion):	3.100
Performance Indicators:	Number of technologies to support regional development developed and disseminated
Actual Expenditure By End Q4	0.022110000
Performance as of End of Q4	Established two gender responsive demonstrations per ZARDI to establish gender dimensions in agricultural research and development in the 12 agroecological zones
Reasons for Variations	Achieved.

ii) HIV/AIDS

Objective:	To minimize levels of new infections among the youth and the married
Issue of Concern:	Increasing number of new HI/AIDs infections among the youth
Planned Interventions:	Develop market led technologies to create business enterprises for the youth through incubation.
Budget Allocation (Billion):	0.149
Performance Indicators:	Number of Market led technologies adopted among the youth
Actual Expenditure By End Q4	0.031986000
Performance as of End of Q4	NARO developed and is promoting super kawomera flour, a composite nutritious porridge designed for fighting malnutrition in children and mothers at the base of the Pyramid (one of the most vulnerable groups in the society) is now ready for scaling with Nutreal limited. Super Kawomera is porridge flour with enriched beans, maize, millet, amaranth and soybeans
Reasons for Variations	Achieved.

iii) Environment

Objective:	Develop technological solutions for emerging environmental concerns
Issue of Concern:	High level of hidden hunger among the children, elderly and expecting mothers.
Planned Interventions:	Develop technologies for management of deficiencies in trace mineral elements such as zinc, iron, vitamin A and Proteins
Budget Allocation (Billion):	0.100
Performance Indicators:	Number of biofortified products developed and delivered to uptake pathways
Actual Expenditure By End Q4	0.076247500

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Performance as of End of Q4	NARO developed and promoted resilient food systems that offers quantity and quality where food crop varieties of Potato, maize, bananas, wheat, cassava beans, ground nuts will be enriched with micro nutrients (zinc, iron and Vitamine A) to address the nutritional needs of special gender categories.
Reasons for Variations	Achieved.

iv) Covid

Objective:	Develop Sustainable solutions that respond to emerging and re-emerging pandemics in Uganda.
Issue of Concern:	High level of emerging and reemerging pests and diseases which has resulted into interceptions of Ugandan products from local, regional, and international markets
Planned Interventions:	Develop Bio-control solutions for management of pests and diseases; and engineering solutions for post harvest handling for food and feed safety to minimizes the levels of dangerous chemical residues in Agricultural products.
Budget Allocation (Billion):	1.000
Performance Indicators:	Number of Bio-control and engineering products developed for food and feed safety.
Actual Expenditure By End Q4	
Performance as of End of Q4	On-farm participatory demonstration of the effectiveness of different biopesticides for control of pest against food crops conducted with 1,192 beneficiaries of whom 1,120 are females and 822 were male.
Reasons for Variations	Achieved.