

# Vote: 142 National Agricultural Research Organisation

## QUARTER 4: Highlights of Vote Performance

### V1: Summary of Issues in Budget Execution

This section provides an overview of Vote expenditure

#### (i) Snapshot of Vote Releases and Expenditures

Table V1.1 below summarises cumulative releases and expenditures by the end of the quarter:

**Table V1.1: Overview of Vote Expenditures (UShs Billion)**

(i) Excluding Arrears, Taxes	Approved Budget	Cashlimits by End	Released by End	Spent by End Jun	% Budget Released	% Budget Spent	% Releases Spent
Recurrent							
Wage	18.972	18.972	18.972	18.972	100.0%	100.0%	100.0%
Non Wage	8.765	8.242	7.499	7.499	85.6%	85.6%	100.0%
Development							
GoU	9.130	9.130	9.192	9.192	100.7%	100.7%	100.0%
Donor*	54.364	N/A	33.538	30.257	61.7%	55.7%	90.2%
<b>GoU Total</b>	<b>36.868</b>	<b>36.345</b>	<b>35.663</b>	<b>35.663</b>	<b>96.7%</b>	<b>96.7%</b>	<b>100.0%</b>
<b>Total GoU+Donor (MTEF)</b>	<b>91.231</b>	<b>N/A</b>	<b>69.200</b>	<b>65.920</b>	<b>75.9%</b>	<b>72.3%</b>	<b>95.3%</b>
(ii) Arrears and Taxes							
Arrears	0.743	N/A	0.743	0.743	100.0%	100.0%	100.0%
Taxes**	0.000	N/A	0.000	0.000	N/A	N/A	N/A
<b>Total Budget</b>	<b>91.975</b>	<b>36.345</b>	<b>69.944</b>	<b>66.663</b>	<b>76.0%</b>	<b>72.5%</b>	<b>95.3%</b>
(iii) Non Tax Revenue	7.009	N/A	1.828	1.828	26.1%	26.1%	100.0%
<b>Grand Total</b>	<b>98.983</b>	<b>36.345</b>	<b>71.772</b>	<b>68.491</b>	<b>72.5%</b>	<b>69.2%</b>	<b>95.4%</b>
Excluding Taxes, Arrears	98.240	36.345	71.029	67.748	72.3%	69.0%	95.4%

\* Donor expenditure information available

\*\* Non VAT taxes on capital expenditure

The table below shows cumulative releases and expenditures to the Vote by Vote Function :

**Table V1.2: Releases and Expenditure by Vote Function\***

Billion Uganda Shillings	Approved Budget	Released	Spent	% Budget Released	% Budget Spent	% Releases Spent
VF:0151 Agricultural Research	98.24	71.03	67.75	72.3%	69.0%	95.4%
<b>Total For Vote</b>	<b>98.24</b>	<b>71.03</b>	<b>67.75</b>	<b>72.3%</b>	<b>69.0%</b>	<b>95.4%</b>

\* Excluding Taxes and Arrears

#### (ii) Matters to note in budget execution

The ATAAS release of October-December 2015 was delayed due to adjustments in ATAAS project execution. This hampered on-going activities and their corresponding deliverables. It is envisioned that the mishaps experienced will not be adverse but their effects were felt in the achievables and performance in the first two quarters of the financial year FY 2015-2016.

**Table V1.3: High Unspent Balances and Over-Expenditure in the Domestic Budget (Ushs Bn)**

(i) Major unspent balances
(ii) Expenditures in excess of the original approved budget
* Excluding Taxes and Arrears

## V2: Performance Highlights

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This section provides highlights of output performance, focusing on key outputs and actions implemented to improve section performance.

**Table V2.1: Key Vote Output Indicators and Expenditures\***

<i>Vote, Vote Function Key Output</i>	<b>Approved Budget and Planned outputs</b>	<b>Cumulative Expenditure and Performance</b>	<b>Status and Reasons for any Variation from Plans</b>
<b>Vote Function: 0151 Agricultural Research</b>			
<b>Output: 015101</b>	<b>Generation of agricultural technologies</b>		
<i>Description of Performance:</i>	<ul style="list-style-type: none"> <li>- Technologies for enhancing production and productivity of crops (new, intermediate), Livestock (new and intermediate), Forestry (new and intermediate) and natural resource management</li> <li>- New varieties of priority commodities submitted for release;</li> <li>- 41 New CGS studies conducted.</li> </ul>	<p>Improved productivity technologies generated</p> <p>(1) F1 generation of elite indigenous chicken with superior egg and meat production attributes; 2) 5 entomo-pathogenic fungal isolates with acaricidal properties against ticks; (a) 2 foliar fertilizers and 1 cover crop (<i>Tithonia diversifolia</i>) for cotton, (b) 2 effective natural enemies (Parasitic wasps, Assassin bugs for control of cotton boll worm larva © 2 cotton seed-dressing chemicals (Extreme Cruiser and Maxim) for control of wilt disease in (d) 4 synthetic pesticide (Emamectin benzoate, Lambada cyhalothrin, Profenophos 80% ) were recommended to MAAIF cotton, € 1 appropriate intercropping patterns (2 rows of sorghum to 2 rows of greengram), 1 optimum spacing (45 x 20cm) for improved greengram genotype (f) 1 optimum spacing (60 x 20cm) for improved sorghum varieties (SES01, SES03) (g) 1 - Appropriate sorghum/legume intercropping patterns (2 rows of sorghum to 1 row of cowpea (h) 1 - appropriate intergrated striga management option (sorghum intercropped with Celocia) (i) 1 - Effective drought management option (use of tie ridges for water conservation. (j) 2 - suitable fungicides (Mancozeb and Rindomil) against scab identified (k) 2 - effective cowpea/sorghum intercropping patterns against scab identified (2 rows of cowpea to 3 rows of sorghum, 3 rows of cowpea to 3 rows of sorghum) 1 - synthetic chemical for control of insect pests and diseases of groundnuts (1), Cultural control</p>	None

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		<p>practices for sorghum midge (1)Weevil and sigatoka resistant banana (2); Fertilizer rates for Soybean (1); Maize bean food product (1); Improved soil maps for kasese and Mbarara (2); Cropping callender for bean, millet and maize (3); imprevd power tillers (1); waxed cassava preservation (1); Solar powered fish pond areator and pump (2); 1 Drought tolerant pasture, 1 optimum plant density for maize, 1 fertilizer application rate in maize, 1 Optimum stocking density of fish reared in cages on Lake Albert. One management protocol for fish hatcheries developed awaiting review by stakeholders; One pasture production and forage conservation protocol produced).Confirmed occurrence of acaricide failure in tick control in 6 of the 13 districts in the zone; The 10 factors influencing acaricide failure established; Draft protocol for mitigating the acaricide failure in the affected districts developed and is in place; Still at preliminary stages of nutrient analysis of industrial by-products; A toxin binder (Toxinbin®)that sequesters about 60% of aflatoxins in moldy fish diets developed and is available for commercial production; A larval weaning diet for improving survival and growth rate of catfish (Clarias gariepinus) developed and ready for commercial production. Potential community-based feed distributors already selected in Ntungamo and Bushenyi districts ; Among the 10 upland rice varieties evaluated, NAMCHE4 and NERICA6 are best and farmer-preferred with the average grain yield of &gt;37.3% higher than others; Yield response of tea to different soil fertility applications determined; dry season leaf yields were 1.29, 1.47, 1.79 and 1.80 tonnes/ha/month in dry seasons for farmers' practices, nitrogen alone, biochar alone and</p>	

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		<p>integrated nitrogen/biochar application, respectively. Community based-feed distributors for Mbazardi made fish feed identified in the districts of Bushenyi and Ntungamo. Fungicide spray regimes for CBD in Arabica coffee, Nutrient use efficiency for 3 released Ug99 resistant wheat varieties, 1 goat community goat breeding program, Technology for branch initiation in apples, Staggered potato planting for effective commercial potato production. Bee swarm catching technology. 1. Draft report developed on banana market chain performance in Kabarole and Bundibugyo. Information on banana market chain performance validated and disseminated in Kyegegwa and Kyenjojo district. 2. Draft tea fact sheet developed. 3. Draft Rwebitaba strategic plan developed.</p> <p>4. Draft Tea research strategic plan developed. 5. A study was conducted on pests and disease prevalence in tea growing districts. Preliminary findings indicate that; mean prevalence rate for yellow tea mites is 15% in 3 districts, Hoima (27%), Kibaale (11%) and Mityana (7%). Preliminary findings from survey on disease incidence indicate that; mean incidence rate for Xyllaria is at 12%; Hoima (18%), Kibaale (9%) and Mityana (9%). Preliminary findings from survey on disease prevalence indicate that; mean prevalence rate for Xyllaria is at 2.6%; Mukono (3.1%) and Buikwe (2.1%). Preliminary findings from survey on pests prevalence indicate that; mean prevalence rate for yellow tea mites is 3.65% in 2 districts; Mukono (5.2%) and Buikwe (2.1%). 6. A Survey was conducted on Livestock diseases in the zone. Preliminary findings from Kabarole and Kyegegwa on prevalence indicate; tick borne diseases</p>	

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		<p>from Kabarole and Kamwenge: (45%), helminths (35%), mastitis (12%), common tick species; Rhipicephalus appendiculatus (61%), Rhipicephalus evertsi evertsi (6.5%) and Amblyomma variegatum (31.8%).</p> <p>Preliminary findings from Kasese, Bundibugyo and Kyenjojo on prevalence indicate; tick borne diseases (61.4%), helminths (22.6%), mastitis (15.8%) common tick species; Rhipicephalus appendiculatus (42.5%), Rhipicephalus evertsi evertsi (4.4%), Beophilus decolatus (34.3%) and Amblyomma variegatum (18.65%).</p> <p>7. Preliminary findings from a study on socio economic and biophysical factors influencing aquaculture production were documented in Kasese and Kamwenge districts.</p> <p>Preliminary findings indicated;</p> <p>a) Dissolved Oxygen (4.5 &amp; 3.0 mg/L), temperature (24.2 &amp; 26.5°C), pH (7.4 &amp; 7.3) and Turbidity (28.9cm &amp; 25.6cm) in Kasese and Kamwenge.</p> <p>B) Average pond size; Kasese (524m<sup>2</sup>), Kamwenge (6188m<sup>2</sup>). Tilapia average yield; Kasese (1.4 Kg/m<sup>2</sup>) and Kamwenge (3 Kg/m<sup>2</sup>). Major challenges were cost &amp; quality of feed (58.6%) and fish fingerlings (26.7%). Nile tilapia (56.9%) preferred fish for farming.</p> <p>8. Fruit tree inventory and land use diagnostic was conducted in Kasese and Bundibugyo.</p> <p>Preliminary findings in Kasese indicate: Home steads (12.2%), Forests (2%), Crop land (65%), woodlots (5%), boundary (7.8%), others (8%)</p> <p>Bundibugyo: Home steads (38.8%), Forests (10%), Crop land (40%), woodlots (3%), boundary (3.2%), others (5%)</p> <p>2) Species preference &amp; uses Kasese: Fruits and beverages; Mangoes (44%), Citrus oranges (4%), Avocado (6%) Coffee (46%), Fuel wood; Eucalyptus (33%),</p>	

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		<p>Albizia spp (2%), Senna siamea (54%), other spp (11%) Bundibugyo: Fruits &amp; beverages: Mangoes (20%), Citrus oranges (5%), Avocado (5%), Coffee (20%), Cocoa (48%), others (6%), Fuel wood; Eucalyptus (43%), Albizia spp (18%), Senna siamea (12%), other spp (27%). 9. Draft report on technical efficiency in tea production in Kabarole district developed</p>	
		<p>10. Draft report on banana market chain performance in Kabarole and Ntoroko district developed1. A Base line survey on current cocoa production, production challenges, opportunities and recommendation for policy guidelines has established that: mean land allocation to cocoa stands at 2.30, with mean land for expansion at 1.14acres. Cocoa is a male dominated enterprise ( Males 82.24%,Female 17.76%), and dominated by those aged above 50 years (92. 7%).verticillium wilt, black pod rot, witches broom, armillaria root/collar crack and swollen shoot virus (83.2%, 69%, 25.2%, 7.6% and 6.5% incidence respectively) are key diseases;4. 36 Arabica genotypes variously useful traits such as higher yields, shorter height, resistance to CLR and tolerance to BCTB identified.5. 12 CLR resistant farm Robusta accessions with 1st year growth estimate yield range of 2777 to 6258 kgcc/ha as compared to average clonal yields of 2500 kgcc/ha may constitute test lines for further evaluation of CWD and BCTB.6. Cirad lines, 1393/3-42, 1380/3-43, 1386/1-55, 1792-42, 1805-43, 1806-44, 1786-45 are best parents in terms of berries;7. 3 cocoa lines yielding above 1.5 tons/ha have been identified for further</p>	

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		<p>development.8. Yield potential in Kgs/ha 5531.5 for 245/21/5, 6874.2 for 3/15/1, 3960.6 for 286/1, and 3930 for 286/2 Kgs/ha. BCTB infestation on 245/21/5 was at 33.3 % at Kamuli while 7.2% on 3/15/1 at Nakanyonyi. Lines selected for submission are 245/21/5 and 3/15/1.9. 10,000 Robusta cuttings and 5,000 TC plants under nursery; 40,388 cloned cuttings between Jan – April 2016 maintained in tunnels; 10. 395 CWD-r Robusta coffee clones at on-farm were evaluated for resistance against diseases and pests, yield, vegetative growth and quality. For yield, the lines J124.9/1/4, KAMULI/1, 2/22/18 and KAMENGO 2/1 had the highest yields of 2857, 2422, 2266 and 2075 kg cc/ha respectively. An increase in BP with a rate between 8-20 BP / yr in the order J72.01/10/1, J24/13/20/1, 3/71/1, 227/54/2 at Bukomansimbi. 11. Severity of leaf rust and CBD and vegetative growth, at pinhead stage of 17 Elgon A and 2 Colombian lines in multi-location on-farm and on-station trials was determined. Line D/12/6, D/11/7, E/13/9 at Kituza were tolerant to CLR, had large cherry size and higher estimated yields (kg cc/ha) of 1261, 1084, 1056 respectively compared to SL14 (45) and KP423 (117). Significantly higher estimated yield ranges of 1044 to 3112 kgcc/ha for 13 of 50 Elgon CB lines compared to SL14 (223 kgcc/ha) and KP423 (207 kgcc/ha) at Kituza.12. Morphological characteristics, yield indicators and quality of coffee under different shade tree management treatments for Western zone were described. Ficus ovata, Cordia Africana and Albizia coriaria shade-trees in Elgon Arabica zone increased out-turn (3.2%, 6.0% and 6.5% respectively), and resulted in bigger bean size (3.1%, 15.8% and 11.4% respectively); 13. A survey was conducted on</p>	

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		<p>level of fertilizer usage in central Uganda. The preliminary results show that 41.8% of the respondents have adopted fertilizer usage in coffee in Central Uganda. Types of fertilizers include cowdung, pig manure, poultry manure, compost manure, NPK (17:17:17), NPK (25:5:5), Urea and Supergrow (foliar fertilizer). Farmers adopting fertilizer usage in coffee reported increment in vegetative growth longer bearing primaries with many clusters and bigger sized cherries, dark green leaves, 2 – 3 times increased flowering intensity. They also reported desirable “khaki” colour for hulled kiboko. Use of fertilizers was determined by costs, labour requirement, knowledge on fertilizers, accessibility, and long term effects on soil.<sup>14</sup></p> <p>Fusarium sp. Has been isolated from a beetle but yet to be identified to species level This Fusarium sp. Has been able to sporulate on beetles exposed to it and killing the insects; thus, it might be entomopathogenic</p> <p>15. 28 CWD isolates; 21 from the Central region ( Nakaseke, Luwero and Nakasongola), 7 from the Western region; Luwero district has the highest CWD incidence (14%). While Nakasongola has the highest CLR incidence (3%); 2 validated CWD specific primers. Their codes are:</p> <p>OPPF01 and OPPF12. Two isolates of Trichoderma 16. The nutrient composition of coffee pulp and husks has been determined (for possible development of human and livestock food). Starch, reducing sugars, fibers, carbohydrates, and proteins are present in cocoa and coffee husks by-products. Current cocoa varieties; Trinitarios, Upper amazone and Amelanados as most cultivated as composite. Psyllids, Capsids, Pod borers, Scales 20.1%, and twig borer</p>	

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		<p>(46.55%, 34.9%, 28.7% and 5.25% incidence respectively). Only 9.75% farmers use fermenting boxes. Inventory of potential pathogens generated; Indicative pathogenicity levels of potential pathogens were determined. Leaf spot is a key pathogen in CWD-r Robusta cuttings at hardening stage under nursery: Incidence KR5 85%; KR7 80% at KR1 at 75%; KR4 at 70%, KR2 at 50%; KR6 at 30%, KR3 at 05%; lower pair of leaves most affected; 85% survival of CWD-r cutting recorded with Sandy-loam rooting media (PH.6.0, Organic matter 7.1, N 0.34, P 76.6, Ca.1106.4, Mg.698.2, K 306.8). Formerly, saw dust rooting media yielded 40% survival of the cuttings. 3. Factors affecting nurseries in Robusta growing districts of south western were determined. Also an inventory of factor affecting multiplication across the entire spectrum was generated. The major factors affecting nurseries identified as limited knowledge on best rooting medium with known soil texture and right shade net for propagation process; Low Success rates for KR1 and KR4 and lacking these materials for further multiplication, and low rooting in KR2; Limited Knowledge on harvesting suckers from mother bushes and making cuttings and nursery management; Counterfeit nursery inputs such as pesticides are the key factors affecting multiplication across the entire spectrum generated in Central and Mid-western Uganda. ")</p>	
		<p>(2)New varieties/Prototypes submitted to Variety Release Committee for release:</p>	
		<p>Four drought tolerant maize varieties submitted for release and Five high iron bean varieties submitted for release; Pelleting machine prototype; Labour saving motorized forage chopper prototype; Labour</p>	

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		saving motorized feed mixer prototype; Two cotton line identified for DUS testing; Three greengram genotypes submitted for DUS; Six high yielding and disease tolerant cowpea lines submitted for DUS; Five drought and striga tolerant sorghum lines submitted for DUS; Six high yielding and blast tolerant finger millet lines submitted for release; Two high yielding and rosette and leaf minor resistant groundnut lines submitted for DUS; One improved power tillers; One solar powered fish pond areator and one pump; Three sorghum varieties for release.	
<i>Performance Indicators:</i>			
No. of research studies under competitive grants scheme	25	24	
No. of new varieties submitted to Variety Release Committee for release	20	49	
No. of improved productivity technologies generated	60	97	
<i>Output Cost:</i>	US\$ Bn: 8.306	US\$ Bn: 5.455	% Budget Spent: 65.7%
<b>Output: 015102</b>	<b>Research extension interface promoted and strengthened</b>		
<i>Description of Performance:</i>	<ul style="list-style-type: none"> <li>- Multistakeholder innovation platforms established or supported;</li> <li>- Foundation and basic seed provided to farmers, farmer groups and seed companies;</li> <li>- Clean/Improved planting materials multiplied and availed to uptake pathways;</li> <li>- On-farm trials conducted;</li> <li>- Technology demonstrations held on station and technology parks;</li> <li>- Dissemination and Training workshops held for subject matter specialists and other service providers;</li> <li>- Scientific conferences, dissemination workshops and seminars for scientists, extension agents and policy makers conducted;</li> <li>- Scientific &amp; extension dissemination materials developed and published;</li> <li>- Design and development of Farming manuals;</li> </ul>	<ul style="list-style-type: none"> <li>(i) Technological innovation established/supported: 5 farmer platforms created/supported including: 2 Indigenous goat breeding schemes in Hoima and Nakapiripiti supported, 5 field farmer schools in central cattle corridor and Karamoja supported, 2 dairy farmers' associations in Gulu and Lira supported (a) One production and marketing platform for cowpea in Katakwi (c) Four platforms for sorghum production and marketing established 1 Nakaseke Model village, 1 Banana bacterial wilt control platform western Uganda, 1 Agribusiness incubation platform, 1 Bean Innovation Platform supported in Masaka, and 3 Innovation platforms on Agricultural Water Management and Climate Smart Agriculture formed in Kwapa, Ongino and Bungokho SC, in</li> </ul>	None

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	<p>- Publicity and News articles developed and published, - Audio Visuals in English and local languages developed and availed to uptake pathways; - Radio talk shows conducted; - Farmer field days held.</p>	<p>tororo, Kumi and Mbale districts, respectively. 2 potato and 1 sorghum innovation platforms formed. 6,000 catfish fry (produced) and 12,300 fast-growing, disease-free and mixed-sex tilapia fingerlings produced and distributed to 7 farmer groups in the districts of Mbarara, Ntungamo, Bushenyi and Rubirizi to initiate community-based seed production. This represents 4 times the target fish fry, but distributed to only 2.5% (47/2,000) of the target beneficiary farmers. Community based-feed distributors for Mbazardi made fish feed identified in the districts of Bushenyi and Ntungamo. 2 Potato MSIP formed and supported, 2 Community Goat breeding programmes supported, 1 Coffee MSIP initiated in Manafwa</p>	
		<p>(ii) Technological innovation Platforms delivered to uptake pathways: Legumes- 5 Demonstrations established in Moroto, Serere, Iira, Jinja, Nakasongola, Arua, Mbarara, Rakai, Kasease and Hoima. 50 farmer groups and individual farmers trained on the identification and use of new and improved bean varieties; 20 acres established for production of foundation seed for 6 market class bean varieties; Train 750 farmers in marketing skills; 6 metric tons of iron and zinc rich beans delivered to Harvest Plus, Chain Uganda, NPTs established for climber &amp; bush lines at NaCRRI. Cereals- Four acres of breeder and about 30 acres of foundation and 8 acres of certified seed were established at Sendusu. 100 Kgs delivered to Uganda Prisons.- 1 acre of breeder and 2 acres of foundation were established at NaCRRI. 100 Kgs delivered to Uganda Prisons. Horticulture- 100 kg of foundation seed for indigenous vegetables</p>	

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		<p>produced. Fish seed/broodstock, live foods for juvenile fish (artemia, moina and rotifers), fish feeds formulations (dry rations), new high value fish species, Agricultural shows, radio talk shows, Institute website, World food day, World Fisheries day, guided tours to visiting pupils/students/farmers 8 technologies/innovations have been delivered to the uptake pathway. These include 1. Milk enhancing feed ration, 2. labor saving forage chopper, 3. labor saving feed mixer, 4. over 5 MT of different varieties of forage seed/seedlings, 5. over 200 MT of conserved feed ( hay and silage) for dry season feeding, 6. water harvesting innovations, 7. feed storage innovations, and 8. pasture improvement technique(a) SESO1 and SESO3) promoted in Karamoja, Teso, Lango, Acholi, Bunyoro, West Nile, Western and Bukedi regions (50 tons of seed accessed by farmer groups, seed companies and NGOs) (b) SECOW-3B and SECOW-2W promoted in Teso, Northern, West Nile and Karamoja regions (7 tons of seed accessed by farmer groups, seed companies and NGOs) (c) SERENUTs (5 - 14 series) promoted in Lango, Acholi, Bunyoro, Bukedi, Busoga, Teso and West Nile regions (2000 bags of seed accessed by farmers). (d) Sunfola and Sunflower hybrid 1 and 2 promoted in Lango, Acholi, West Nile, Teso, Bunyoro, Bugishu regions (3 tons seed accessed by farmer groups, seed companies and NGOs) (e) SEREMI 2 and PESE1 promoted in Lango, Teso, Bugishu, Acholi regions (10 tons of seed accessed by farmer groups, seed companies and NGOs). (f) BPA 2002 promoted in Kasese, Bunyoro, Teso, Bukedi regions (5 tons of seed accessed by CDO) 1</p>	

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		<p>manure and mulch climate change technology for beans and maize; 1 fruit fly area wide control; 1 irrigation levels for citrus, 1 oxen operation technology; 1 post harvest handling of pelagic fish. 1 Soil and Water Conservation, 1 Integrated Soil Fertility Management and 1 Agricultural water Management in Kwapa, Ongion and Bungokho SC. 1 Citrus diseases identification guide; 1 citrus disease picture poster (2) Nine improved technologies (improved maize, coffee, Banana and cassava varieties, cage fish farming and Nile tilapia fish seed production, Drought tolerant pastures, Improved mango varieties and Improved forages for bees technologies available at Bulindi ZARDI delivered to uptake pathways through supplies and Farmer visits).3 potato varieties; 1 Apple management practices ( defoliation, pruning, fruit thinning, bird control ); 1 Enhanced farmer capacity to produce high quality seed potato through screen houses.1) 847 grafted apple seedlings generated,2) over 150,000 coffee seedlings generated, 3) 1.5 tones of coffee seed availed to UCDA, 4) 14 tons of seed potato availed to uptake pathways, 5) over 45 ToTs trained in MLN, 6) over 100 ToTs trained in Sweet potato management, 7) Over 1000 bags of cassava planting material availed to farmers, 8) Goat breeding stock availed to farmers in Ngenge Sub-county Kapchorwa Districts, 9) Napier grass planting material availed to farmers in the zone, 10) 400kg of wheat breeders seed availed to uptake pathways, 11) Apple IPM package, 12) 4 Farmer groups of up to 100 members trained on Coffee Pests and Disease management - 67,000 tea clones raised as foundation seed;- Draft dairy fact sheet developed and distributed; Tea production</p>	

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		<p>manual and Tea farmer manual were developed; Produced and distributed 2000 fact sheets on tea and dairy, 2 posters pvc banners, 3000 Brochures, 2 pull up banners, 2 Tear drop banners, 200 manuals - 25 bags of Victoria and Rwangume potato seed varieties distributed to 5 districts i.e. Kabarole (9 bags), Kamwenge (4 bags), Kyenjojo (4 bags), Kyegegwa (4 bags) and Kasese (4 bags)- 25,000 tea plantlets maintained in nursery shade. 500,000 tea clones supplied to nursery operators in the zone. - 300,000 tea seedlings availed to farmers in Kyenjojo- 48,000 plantlets raised in the nursery- 280,000 cuttings supplied to nursery operators - 649,850 plantlets availed to farmers under Operation Wealth Creation in Kyenjojo and Kabarole Districts1. 50,000 cocoa seedlings and availed to nursery operators.2. 100 cocoa seedlings availed to a farmer Mukono.3. Visited and offered technical guidance to 35 nursery operators in the districts of Ntungamo, Mbarara, Masaka Rakai, Lwengo, Kalungu, Gomba, mukono, Buikwe and Kayunga. 4. 20,000 Arabica seedlings given out to farmers through OWC (10,000 potted SL14 seedlings and 10,000 seedlings of KP423).5. 18500 coffee brochures printed (BCTB-2000, Robusta coffee diseases-2000, Research mandate-500, Arabica insect pests-2000, clonal nursery management-2000, post harvest handling-2000, seedling management and nursery-2000, Field mgt Arabica-2000, Field mgt 2000.6000-Coffee mgt seasonal calendars (2000 for each region)6. Five FFS sessions conducted and for 176 coffee farmers in 5 FFSs in Kapchorwa, Manafwa and Sironko districts. Training implements supplied to the 5 FFSs"Precooked bean innovation platform supported, 6 platforms established. These</p>	

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<i>Vote, Vote Function Key Output</i>	<b>Approved Budget and Planned outputs</b>	<b>Cumulative Expenditure and Performance</b>	<b>Status and Reasons for any Variation from Plans</b>
		include: Production of quality seed for AIVs, Off-season mango production, Control of post-harvest losses in mangoes, tomatoes and oranges, Characterisation of AIVs, 1- Establishment of plant health clinics, Collection and characterization of Bambara nuts), Successfully grafted shea plants flowered after two years of grafting ; Ficus ficomolus- neglected trees have been recommended to timber the market; calisa ediris (fruit & medicine)- its propagation protocol has been a success1)	
<i>Performance Indicators:</i>			
No. of technological innovations delivered to uptake pathways	5	100	
No. of technological innovation platforms established/supported	5	37	
<i>Output Cost:</i>	US\$ Bn: 7.914	US\$ Bn: 5.944	% Budget Spent: 75.1%
<b>Output: 015105</b>	<b>Generation of technologies for priority commodities</b>		
<i>Description of Performance:</i>	- Technologies for enhancing productivity of Crops (cassava, maize, Rice, Horticultural crops, bananas)(new, intermediate), Livestock (dairy cattle, meats(new and intermediate), and fisheries - New varieties of submitted for release - Foundation and basic seed provided to farmers, farmer groups and seed companies; - Breeder seed provided to seed companies; - Clean/Improved planting materials multiplied and availed to uptake pathways; - On-farm trials conducted; - Technology demonstrations held on station and technology parks; - Capacity of farmers and farmer groups to make choices and implement decisions that affect their livelihoods enhanced;	NA	NA
<i>Output Cost:</i>	US\$ Bn: 9.813	US\$ Bn: 8.530	% Budget Spent: 86.9%
<b>Vote Function Cost</b>	<b>US\$ Bn: 98.240</b>	<b>US\$ Bn: 67.748</b>	<b>% Budget Spent: 69.0%</b>
<b>Cost of Vote Services:</b>	<b>US\$ Bn: 98.240</b>	<b>US\$ Bn: 67.748</b>	<b>% Budget Spent: 69.0%</b>

\* Excluding Taxes and Arrears

None

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**Table V2.2: Implementing Actions to Improve Vote Performance**

Planned Actions:	Actual Actions:	Reasons for Variation
Vote: 142 National Agricultural Research Organisation		
Vote Function: 01 51 Agricultural Research		
Enhance outreach capacity NARO wide, including establishment and support of Multi Stakeholder Innovation Platforms (MSIPs).	<b>Renewed Research and development efforts to establish new Innovation platforms engaging various actors and partners in Local Government, CSO and GOU MDAs.</b>	None
Vote: 142 National Agricultural Research Organisation		
Vote Function: 01 51 Agricultural Research		
Plan for recruitment of more staff according to HRD plan. Long term training of staff ongoing.	<b>34 scientist sponsored for PhD and MSc Degrees; 5 staff PhD students supported to undertake Research to complete PhD; 42 new staff inducted, 8 staff facilitated to undertake short courses in various Universities.</b>	None

### V3: Details of Releases and Expenditure

This section provides a comprehensive summary of the outputs delivered by the Vote and further details of Vote expenditures by Vote Function and Expenditure Item.

**Table V3.1: GoU Releases and Expenditure by Output\***

Billion Uganda Shillings	Approved Budget	Released	Spent	% GoU Budget Released	% GoU Budget Spent	% GoU Releases Spent
<b>VF:0151 Agricultural Research</b>	<b>36.87</b>	<b>35.66</b>	<b>35.66</b>	<b>96.7%</b>	<b>96.7%</b>	<b>100.0%</b>
<i>Class: Outputs Provided</i>	33.43	32.43	32.43	97.0%	97.0%	100.0%
015101 Generation of agricultural technologies	2.07	2.09	2.09	101.1%	101.1%	100.0%
015102 Research extension interface promoted and strengthened	1.40	1.31	1.31	93.7%	93.7%	100.0%
015103 Internal Audit	0.08	0.08	0.08	91.1%	91.1%	100.0%
015104 Agricultural research capacity strengthened	28.31	27.45	27.45	97.0%	97.0%	100.0%
015105 Generation of technologies for priority commodities	1.57	1.51	1.51	95.8%	95.8%	100.0%
<i>Class: Outputs Funded</i>	1.91	1.70	1.70	89.0%	89.0%	100.0%
015151 Payments to International Organisations (CGIAR, ASARECA, WARDA)	1.91	1.70	1.70	89.0%	89.0%	100.0%
<i>Class: Capital Purchases</i>	1.53	1.53	1.53	100.0%	100.0%	100.0%
015172 Government Buildings and Administrative Infrastructure	1.50	1.50	1.50	100.0%	100.0%	100.0%
015176 Purchase of Office and ICT Equipment, including Software	0.03	0.03	0.03	100.0%	100.0%	100.0%
<b>Total For Vote</b>	<b>36.87</b>	<b>35.66</b>	<b>35.66</b>	<b>96.7%</b>	<b>96.7%</b>	<b>100.0%</b>

\* Excluding Taxes and Arrears

**Table V3.2: 2015/16 GoU Expenditure by Item**

Billion Uganda Shillings	Approved Budget	Releases	Expenditure	% Budget Released	% Budget Spent	% Releases Spent
<i>Output Class: Outputs Provided</i>	33.43	32.43	32.43	97.0%	97.0%	100.0%
211102 Contract Staff Salaries (Incl. Casuals, Temporary)	18.97	18.97	18.97	100.0%	100.0%	100.0%
211103 Allowances	0.00	0.02	0.02	N/A	N/A	100.0%
212201 Social Security Contributions	3.06	2.70	2.70	88.1%	88.1%	100.0%
213001 Medical expenses (To employees)	0.10	0.08	0.08	80.0%	80.0%	100.0%
213002 Incapacity, death benefits and funeral expenses	0.18	0.12	0.12	70.8%	70.8%	100.0%
213004 Gratuity Expenses	1.69	1.58	1.58	93.8%	93.8%	100.0%
221001 Advertising and Public Relations	0.35	0.35	0.35	100.0%	100.0%	100.0%
221002 Workshops and Seminars	0.21	0.19	0.19	90.8%	90.8%	100.0%
221003 Staff Training	0.35	0.34	0.34	99.3%	99.3%	100.0%
221004 Recruitment Expenses	0.07	0.07	0.07	99.2%	99.2%	100.0%

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## QUARTER 4: Highlights of Vote Performance

Billion Uganda Shillings	Approved Budget	Releases	Expenditure	% Budget Released	% Budget Spent	% Releases Spent
221005 Hire of Venue (chairs, projector, etc)	0.01	0.00	0.00	49.0%	49.0%	100.0%
221006 Commissions and related charges	0.62	0.57	0.57	91.7%	91.7%	100.0%
221007 Books, Periodicals & Newspapers	0.05	0.04	0.04	85.7%	85.7%	100.0%
221008 Computer supplies and Information Technology (IT	0.14	0.13	0.13	98.3%	98.3%	100.0%
221009 Welfare and Entertainment	0.75	0.75	0.75	99.8%	99.8%	100.0%
221011 Printing, Stationery, Photocopying and Binding	0.42	0.42	0.42	98.3%	98.3%	100.0%
221012 Small Office Equipment	0.08	0.08	0.08	96.5%	96.5%	100.0%
221016 IFMS Recurrent costs	0.29	0.29	0.29	99.5%	99.5%	100.0%
221017 Subscriptions	0.09	0.09	0.09	100.0%	100.0%	100.0%
222001 Telecommunications	0.13	0.13	0.13	93.4%	93.4%	100.0%
222002 Postage and Courier	0.04	0.04	0.04	98.7%	98.7%	100.0%
222003 Information and communications technology (ICT)	0.24	0.24	0.24	99.0%	99.0%	100.0%
223004 Guard and Security services	0.14	0.12	0.12	81.9%	81.9%	100.0%
223005 Electricity	0.22	0.17	0.17	79.7%	79.7%	100.0%
223006 Water	0.06	0.06	0.06	92.1%	92.1%	100.0%
223901 Rent – (Produced Assets) to other govt. units	0.00	0.01	0.01	N/A	N/A	100.0%
224001 Medical and Agricultural supplies	0.01	0.07	0.07	459.6%	459.6%	100.0%
224004 Cleaning and Sanitation	0.09	0.06	0.06	69.8%	69.8%	100.0%
224005 Uniforms, Beddings and Protective Gear	0.05	0.05	0.05	100.0%	100.0%	100.0%
224006 Agricultural Supplies	1.51	1.21	1.21	80.6%	80.6%	100.0%
225001 Consultancy Services- Short term	0.02	0.02	0.02	95.0%	95.0%	100.0%
226001 Insurances	0.04	0.03	0.03	78.0%	78.0%	100.0%
227001 Travel inland	1.93	2.00	2.00	103.3%	103.3%	100.0%
227002 Travel abroad	0.08	0.06	0.06	83.6%	83.6%	100.0%
227004 Fuel, Lubricants and Oils	1.03	1.00	1.00	97.6%	97.6%	100.0%
228001 Maintenance - Civil	0.12	0.11	0.11	97.2%	97.2%	100.0%
228002 Maintenance - Vehicles	0.23	0.20	0.20	87.6%	87.6%	100.0%
228003 Maintenance – Machinery, Equipment & Furniture	0.00	0.00	0.00	47.6%	47.6%	100.0%
228004 Maintenance – Other	0.07	0.06	0.06	81.8%	81.8%	100.0%
<b>Output Class: Outputs Funded</b>	<b>1.91</b>	<b>1.70</b>	<b>1.70</b>	<b>89.0%</b>	<b>89.0%</b>	<b>100.0%</b>
262101 Contributions to International Organisations (Curre	1.81	1.62	1.62	90.0%	90.0%	100.0%
264101 Contributions to Autonomous Institutions	0.10	0.07	0.07	71.4%	71.4%	100.0%
<b>Output Class: Capital Purchases</b>	<b>1.53</b>	<b>1.53</b>	<b>1.53</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
312101 Non-Residential Buildings	1.50	1.50	1.50	100.0%	100.0%	100.0%
312202 Machinery and Equipment	0.03	0.03	0.03	100.0%	100.0%	100.0%
<b>Output Class: Arrears</b>	<b>0.74</b>	<b>0.74</b>	<b>0.74</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
321605 Domestic arrears (Budgeting)	0.74	0.74	0.74	100.0%	100.0%	100.0%
<b>Grand Total:</b>	<b>37.61</b>	<b>36.41</b>	<b>36.41</b>	<b>96.8%</b>	<b>96.8%</b>	<b>100.0%</b>
<b>Total Excluding Taxes and Arrears:</b>	<b>36.87</b>	<b>35.66</b>	<b>35.66</b>	<b>96.7%</b>	<b>96.7%</b>	<b>100.0%</b>

**Table V3.3: GoU Releases and Expenditure by Project and Programme\***

Billion Uganda Shillings	Approved Budget	Released	Spent	% GoU Budget Released	% GoU Budget Spent	% GoU Releases Spent
<b>VF:0151 Agricultural Research</b>	<b>36.87</b>	<b>35.66</b>	<b>35.66</b>	<b>96.7%</b>	<b>96.7%</b>	<b>100.0%</b>
<i>Recurrent Programmes</i>						
01 Headquarters	25.00	24.22	24.22	96.9%	96.9%	100.0%
07 National Crops Research	0.36	0.33	0.33	90.6%	90.6%	100.0%
08 National Fisheries Research	0.20	0.16	0.16	79.6%	79.6%	100.0%
09 National Forestry Research	0.21	0.16	0.16	78.3%	78.3%	100.0%
10 National Livestock Research	0.21	0.16	0.16	76.8%	76.8%	100.0%
11 National Semi arid Research	0.21	0.16	0.16	76.8%	76.8%	100.0%
12 National Laboratories Research	0.36	0.27	0.27	75.6%	75.6%	100.0%
13 Abi ZARDI	0.10	0.09	0.09	86.0%	86.0%	100.0%

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## QUARTER 4: Highlights of Vote Performance

Billion Uganda Shillings		Approved Budget	Released	Spent	% GoU Budget Released	% GoU Budget Spent	% GoU Releases Spent
14	Bulindi ZARDI	0.10	0.09	0.09	86.0%	86.0%	100.0%
15	Kacwekano	0.10	0.09	0.09	92.4%	92.4%	100.0%
16	Mukono ZARDI	0.10	0.08	0.08	78.9%	78.9%	100.0%
17	Ngetta ZARDI	0.10	0.09	0.09	94.3%	94.3%	100.0%
18	Nabium ZARDI	0.10	0.09	0.09	88.8%	88.8%	100.0%
19	Mbarara ZARDI	0.10	0.09	0.09	86.5%	86.5%	100.0%
20	Buginyaya ZARDI	0.10	0.09	0.09	94.4%	94.4%	100.0%
21	Rwebitaba ZARDI	0.10	0.09	0.09	94.6%	94.6%	100.0%
26	NARO Internal Audit	0.08	0.08	0.08	91.1%	91.1%	100.0%
27	National Coffee Research Institute	0.21	0.13	0.13	65.1%	65.1%	100.0%
<i>Development Projects</i>							
0382	Support for NARO	9.13	9.19	9.19	100.7%	100.7%	100.0%
<b>Total For Vote</b>		<b>36.87</b>	<b>35.66</b>	<b>35.66</b>	<b>96.7%</b>	<b>96.7%</b>	<b>100.0%</b>

\* Excluding Taxes and Arrears

**Table V3.4: Donor Releases and Expenditure by Project and Programme\***

Billion Uganda Shillings		Approved Budget	Released	Spent	% GoU Budget Released	% GoU Budget Spent	% GoU Releases Spent
<b>VF:0151</b>	<b>Agricultural Research</b>	<b>54.36</b>	<b>33.54</b>	<b>30.26</b>	<b>61.7%</b>	<b>55.7%</b>	<b>90.2%</b>
<i>Development Projects</i>							
1139	ATAAS (Grant) EU, WB and DANIDA Funded	54.36	33.54	30.26	61.7%	55.7%	90.2%
<b>Total For Vote</b>		<b>54.36</b>	<b>33.54</b>	<b>30.26</b>	<b>61.7%</b>	<b>55.7%</b>	<b>90.2%</b>