PUBLICATIONS FROM THE NATIONAL CROPS RESEARCH RESOURCES INSITUTE (NaCRRI) for FY 2023/24

1. Nakitto, M., Ssali, R.T., Johanningsmeier, S.D., Moyo, M., de Kock, H., Berget, I., Okello, J.J., Mayanja, S., Tinyiro, S.E., Mendes, T., **Benard, Y., Chelengat, D., Osaru, F**. and Bugaud, C. (2023), Decision tree scoring system to guide selection for consumer preference in sweetpotato breeding trials. J Sci Food Agric. https://doi.org/10.1002/jsfa.12883

2. Lahcen I. Campbell, Joachim Nwezeobi, Sharon L. van Brunschot, Tadeo Kaweesi, Susan E. Seal, Rekha A. R. Swamy, Annet Namuddu, Gareth L. Maslen, Habibu Mugerwa, Irina M. Armean, Leanne Haggerty, Fergal J. Martin, Osnat Malka, Diego Santos-Garcia, Ksenia Juravel, Shai Morin, Michael E. Stephens, Paul Visendi Muhindira, Paul J. Kersey, M. N. Maruthi, **Christopher A. Omongo**, Jesús Navas-Castillo, Elvira Fiallo-Olivé, Ibrahim Umar Mohammed, Hua-Ling Wang, Joseph Onyeka, **Titus Alicai** & John Colvin, (2023). Comparative evolutionary analyses of eight whitefly Bemisia tabaci sensu lato genomes: cryptic species, agricultural pests and plant-virus vectors. BMC Genomics 24, 408 (2023). https://doi.org/10.1186/s12864-023-09474-3

3. Godding, D., Stutt, R.O.J.H., **Alicai, T. et al**. 2023. Developing a predictive model for an emerging epidemic on cassava in sub-Saharan Africa. Sci Rep 13, 12603 (2023). https://doi.org/10.1038/s41598-023-38819-x

4. **Mugisa, I.,** Karungi, J., Musana, P. et al. Heterotic gains, transgressive segregation and fitness cost of sweetpotato weevil resistance expression in a partial diallel cross of sweetpotato. Euphytica 219, 110 (2023). https://doi.org/10.1007/s10681-023-03225-x

5. **Ephraim Nuwamanya,** Wembabazi Enoch, Michael Kanaabi, Fatumah Babirye Namakula, Arnold Katungisa, Ivan Lyatumi, Esuma Williams, Emmanuel Oladeji Alamu, Dominique Dufour, Robert Kawuki, Fabrice Devrieux, (2023). Development and validation of near-infrared spectroscopy procedures for prediction of cassava root dry matter and amylose contents in Ugandan cassava germplasm. J Sci Food Agric. https://onlinelibrary.wiley.com/doi/epdf/10.1002/jsfa.12966

6. Mestres, C., Taylor, M., McDougall, G., Arufe, S., Tran, T., **Nuwamanya, E.,** Dufour, D., Nakitto, M., Meghar, K., Rinaldo, D., Ollier, L., Domingo, R., Moreno, J.L., Delgado, L.F., Kouassi, H.A., Diby, N.A.S., Mbeguie-A-Mbeguie, D., Akissoe, N., Adinsi, L. and Rolland-Sabate, A. (2023), Contrasting effects of polysaccharide components on the

cooking properties of roots, tubers and bananas. J Sci Food Agric. https://doi.org/10.1002/jsfa.12914

7. Ssali RT, Mayanja S, Nakitto M, Mwende J, Tinyiro SE, **Bayiyana I,** Okello J, Forsythe L, Magala D, **Yada B,** Mwanga ROM and Polar V (2023) Gender mainstreaming in sweetpotato breeding in Uganda: a case study. Front. Sociol. 8:1233102. doi: 10.3389/fsoc.2023.1233102

8. **Yada, B.;** Musana, P.; Chelangat, D.M.; Osaru, F.; Anyanga, M.O.; Katungisa, A.; Oloka, B.M.; Ssali, R.T.; Mugisa, I. Breeding Cultivars for Resistance to the African Sweetpotato Weevils, Cylas puncticollis and Cylas brunneus, in Uganda: A Review of the Current Progress. Insects 2023, 14, 837. https://doi.org/10.3390/ insects14110837

9. **Kanaabi, M.,** Namakula, F.B., Nuwamanya, E., Kayondo, I. S., Muhumuza, N., Wembabazi, E., Iragaba, P., Nandudu, L., Nanyonjo,A. R., Baguma, J., Esuma, W., Ozimati, A., Settumba,M., Alicai, T., Ibanda, A., & Kawuki, R. S. (2023). Rapid analysis of hydrogen cyanide in fresh cassavaroots using NIRS and machine learning algorithms: Meeting end user demand for low cyanogenic cassava. The Plant Genome, e20403. https://doi.org/10.1002/tpg2.20403

10. **Namakula, Babirye Fatumah**, Ephraim Nuwamanya, Michael Kanaabi, Enoch Wembambazi, and Robert Sezi Kawuki. "Predicting starch content of cassava with near infrared spectroscopy in Ugandan cassava germplasm." Journal of Near Infrared Spectroscopy 31, no. 5 (2023): 256-262. doi:10.1177/09670335231194739

11. Chalmers K. Mulwa, Hugo Campos, **Irene Bayiyana**, Srinivasulu Rajendran, Reuben Ssali, Margaret McEwan, Simon Heck, 2023. Gendered sweetpotato trait preferences and implications for improved variety acceptance in Uganda. 03 October 2023. https://doi.org/10.1002/csc2.21112

12. Lora Forsythe, Deborah Olamide Olaosebikan, Béla Teeken, Gérard Ngoh Newilah, Sarah Mayanja, **Ann Ritah Nanyonjo, Paula Iragaba**, Benjamin Okoye, Pricilla Marimo, Akankwasa Kenneth, Laurent Adinsi, Cedric Kendine, Adetonah Sounkoura, Samuel Edgar Tinyiro, Alexandre Bouniol, Dominique Dufour, Noel Akissoé, Tessy Madu, 2024. A case of transdisciplinarity and collaborative decision making: the co-construction of Gendered Food Product Profiles.First published: 14 March 2024. https://doi.org/10.1002/jsfa.13460

13. de Sousa, K., van Etten, J., Manners, R. **Iragaba P.,** et al. The tricot approach: an agile framework for decentralized on-farm testing supported by citizen science. A retrospective. Agron. Sustain. Dev. 44, 8 (2024). https://doi.org/10.1007/s13593-023-00937-1

14. Hajar El Hamss, M.N. Maruthi, **Christopher A. Omongo,** Hua-Ling Wang, Sharon van Brunschot, John Colvin, Hélène Delatte, 2024.Microbiome diversity and composition in Bemisia tabaci SSA1-SG1 whitefly are influenced by their host's life stage, Microbiological Research, Volume 278, 2024. **https://doi.org/10.1016/j.micres.2023.127538.**

15. **Magambo, Stephen,** Alice Nabatanzi, Titus Alicai, Enoch Wembabazi, Ketra Oketcho, Immaculate Nakalembe, and Henry Wagaba. "Somatic embryo production and GFP genetic transformation in elite Ugandan cassava genotypes." Scientific African 23 (2024): e02039.

16. **Kaweesi T,** Colvin J, Campbell L, Visendi P, Maslen G, **Alicai T,** Seal S. 2024. In silico prediction of candidate gene targets for the management of African cassava whitefly (Bemisia tabaci, SSA1-SG1), a key vector of viruses causing cassava brown streak disease. PeerJ 12:e16949 https://doi.org/10.7717/peerj.16949

17. **Iragaba, P.,** Adinsi, L., Delgado, L.F., Nanyonjo, A.R., Nuwamanya, E., Wembabazi, E., Kanaabi, M., Honfozo, L., Hotegni, F., Djibril-Moussa, I., Londoño, L.F., Bugaud, C., Dufour, D., Kawuki, R.S., Akissoé, N. and Tran, T. (2024), Definition of sensory and instrumental thresholds of acceptability for selection of cassava genotypes with improved boiling properties. J Sci Food Agric. https://doi.org/10.1002/jsfa.13363

18. **Baguma, J.K.;** Mukasa, S.B.; Nuwamanya, E.; Alicai, T.; Omongo, C.A.; Ochwo-Ssemakula, M.; Ozimati, A.; Esuma, W.; Kanaabi, M.; Wembabazi, E.; et al. Identification of Genomic Regions for Traits Associated with Flowering in Cassava (Manihot esculenta Crantz). Plants 2024, 13, 796. https://doi.org/10.3390/plants13060796

19. **Nandudu L,** Sheat S, Winter S, Ogbonna A, Kawuki R and Jannink J-L (2024) Genetic complexity of cassava brown streak disease: insights from qPCR-based viral titer analysis and genome-wide association studies. Front. Plant Sci. 15:1365132. doi: 10.3389/fpls.2024.1365132

20. **Nandudu L,** Strock C, Ogbonna A, Kawuki R and Jannink J-L (2024) Genetic analysis of cassava brown streak disease root necrosis using image analysis and genome-wide association studies. Front. Plant Sci. 15:1360729. doi: 10.3389/fpls.2024.1360729

21. Mwebaze, Paul, Sarina Macfadyen, Paul De Barro, **Anton Bua,** Andrew Kalyebi, **Irene Bayiyana,** Fred Tairo, and John Colvin. 2024. "Adoption Determinants of Improved Cassava Varieties and Intercropping among East and Central African Smallholder Farmers." Journal of the Agricultural and Applied Economics Association. 1–19. https://doi.org/10.1002/jaa2.112

22. **Sam, W.;** Morris, O.S.; Tom, O.; Patrick, O.; Colvin, J.; Abu, O.C. Resistance to Cassava Whitefly (Bemisia tabaci) among Eastern and Southern African Elite Cassava Genotypes. Insects 2024, 15, 258. https://doi.org/10.3390/insects15040258

23. Hua-Ling Wang, Teng Lei, Xiao-Wei Wang, Stephen Cameron, Jesús Navas-Castillo, Yin-Quan Liu, M. N. Maruthi, **Christopher A. Omongo,** Hélène Delatte, Kyeong-Yeoll Lee, Renate Krause-Sakate, James Ng, Susan Seal, Elvira Fiallo-Olivé, Kathryn Bushley, John Colvin, Shu-Sheng Liu, 2014 A comprehensive framework for the delimitation of species within the Bemisia tabaci cryptic complex, a global pest-species group. *Insect Science Journal. First published: 01 April 2024.* ***https://doi.org/10.1111/1744-7917.13361***

24. **Bayiyana I**, Okello JJ, Mayanja SL, Nakitto M, Namazzi S, Osaru F, Ojwang S, Shikuku KM and Lagerkvist C-J (2024) Barriers and enablers of crop varietal replacement and adoption among smallholder farmers as influenced by gender: the case of sweetpotato in Katakwi district, Uganda. Front. Sustain. Food Syst. 8:1333056. doi: 10.3389/fsufs.2024.1333056

25. Egesi C, Mbanjo EGN, **Kawuki R,** Teeken B, Rabbi IY, Prempeh R, Jiwuba L, Njoku D, Kulembeka H, Gwandu F, Woyengo V, Parkes E, Ofei R, Banda VR, Ntawuruhunga P, Derera J, Weber S and Kulakow P (2024) Development of portfolio management tools in crop breeding programs: a case study of cassava in sub-Saharan Africa. Front. Sustain. Food Syst. 8:1322562. doi: 10.3389/fsufs.2024.1322562

26. **Kanaabi, M.;** Settumba, M.B.; Nuwamanya, E.; Muhumuza, N.; Iragaba, P.; Ozimati, A.; Namakula, F.B.; Kayondo, I.S.; Baguma, J.K.; Nanyonjo, A.R.; et al. Genetic Variation and Heritability for Hydrogen Cyanide in Fresh Cassava Roots: Implications for Low-Cyanide Cassava Breeding. *Plants* **2024**, *13*, 1186. https://doi.org/10.3390/plants13091186

27. Erima, S., Edema, R., Nyine, M., Nkuboye, A., Nakibuule, J. and Paparu, P. 2024. Morphological, pathogenic and molecular characterization of Fusarium species causing Common bean root rot in Uganda. *Journal of Scientific Agriculture* 8: 7-14. doi: 10.25081/jsa. 2024.v8.8849.

28. Babirye, I., Otim, H.M. and Paparu, P. 2024. Quality and Price of Beans at the Market Node in Five Districts in Uganda. *Uganda Journal of Agricultural Sciences* 22(1): 15-34. DOI: http://dx.doi.org/10.4314/ujas.v22i1.2

29. Ariong, R.A., Okello, D.M., Otim, M.H. and Paparu, P. 2023. The cost of inadequate post-harvest management of pulse grain: Assessing farmer losses due to grain handling and storage practices in Uganda. *Agriculture and Food Security* 12:20. https://doi.org/10.1186/s40066-023-00423-7

30. Stanley T. Nkalubo, Annet Namayanja, Annet Namusoke, Jane Mukabaranga, Nampijja Shakirah, Allan Nkuboye, Paul Gepts and Wakjira Tesfahun Jebesa. 2024. Agronomic Performance, Stability Analysis and Evaluation of Anthracnose Disease Resistance of Common Bean Lines Derived by Marker-Assisted Backcrossing in Uganda. Agricultural Sciences, 15:376-397. https://www.scirp.org/journal/as.

31. E.V. Kesiime, S.T. Nkalubo, M. Ochwo-Ssemakula, I.O. Dramadri, C. Mukankusi, D. Nakimbugwe, R. Edema, P. Gibson and A. Badji. 2024. African Crop Science Journal, Vol. 32, No. 1, pp. 63 – 75.

32. Eunice Vasiter Kesiime, Stanley Tamusange Nkalubo, Mildred Ochwo Ssemakula, Isaac Onziga Dramadri, Clare Mukankusi, Dorothy Nakimbugwe, Richard Edema, Paul Gibson and Arfang Badji1. 2024. Assessment of genotypic variability and genome-wide association analysis of cooking time and canning quality traits in common bean (Phaseolus vulgaris L.). Plant Preeading. DOI: 10.1111/pbr.13172

33. Winnyfred Amongi, Stanley Tamusange Nkalubo, Mildred Ochwo-Ssemakula, Arfang Badji, Isaac Onziga Dramadri, Thomas Lapaka Odongo, Ephraim Nuwamanya, Phineas Tukamuhabwe, Paulo Izquierdo, Karen Cichy, James Kelly, Clare Mukankusi. 2023. Genetic clustering, and diversity of African panel of released common bean genotypes and breeding lines. *Genetic Resource Crop Evolution. https://doi.org/10.1007/s10722-023-01559-y*.

34. Babirye, I., Nakazi, F., Bonabana, J., Elepu, G., Nkalubo, S. and Ugen, M. 2023. Consumer perceptions of processed bean products: Insights from the precooked beans project in Nairobi, Kenya. *Makerere University Journal of Agricultural and Environmental Sciences*. Vol. 12 (2). pp. 197 – 213.

35. Kevin V. Pixley, Jill E. Cairns, Santiago Lopez-Ridaura, Chris O. Ojiewo, Maryam Abba Dawud, Inoussa Drabo, Taye Pixley K.V., Cairns J.E., Lopez-Ridaura S., Ojiewo C.O., Dawud M.A., Drabo I., Mindaye T., Nebie B., Asea G., Das B., Daudi H., Desmae H., Batieno B.J., Boukar O., Mukankusi C.T.M., Nkalubo S.T., Hearne S.J., Dhugga K.S., Gandhi H., Snapp S., and Zepeda-Villarreal E.A. (2023). Redesigning crop varieties to win the race between climate change and food security. Mol. Plant. 16, 1590–1611. https://doi.org/10.1016/j.molp.2023.09.003.

36. Jouda Mediouni Ben Jemâa 1,* , Abir Soltani 1, Tasnim Djebbi 1, Ines Mejri 1, Dalton Kanyesigye 2 and Michael Hilary Otim 2 . The Maize Caterpillar Mythimna (= Leucania) loreyi (Duponchel, 1827) (Lepidoptera: Noctuidae): Identification,

Distribution, Population Density and Damage in Tunisia. Insects 2023, 14, 786. https://doi.org/10.3390/insects14100786. https://www.mdpi.com/journal/insects.

37. Gerard Oballim ,1,2 , Morish Obura,1,3 , Wilson Reuben Opile,1 and Julius Onyango Ochuodho1 . Published 16 October 2023. Changes in Seed Quality during Seed Development and Maturation of Bambara Nut (Vigna subterranea (L.) Verdc.) Landraces. Research article; Volume 2023, Article ID 5953877, https://doi.org/10.1155/2023/5953877.

38. Morish Obura and Jimmy Lamo, "Influence of Seed Development and Maturation on the Physiological and Biochemical Seed Quality", Book Chapter - DOI: http://dx.doi.org/10.5772/intechopen.1002321

39. Nkulu Rolly Kabange1*, Simon Alibu2, Youngho Kwon1, So-Myeong Lee1, Ki-Won Oh1 and Jong-Hee Lee1* Genome-wide association study (GWAS) with high-throughput SNP chip DNA markers identified novel genetic factors for mesocotyl elongation and seedling emergence in rice (Oryza sativa L.) using multiple GAPIT models. DOI 10.3389/fgene.2023.1282620, 20 November 2023.

40. Ocident Bongomin 1,2 , Jimmy Lamo1 , Joshua Mugeziaubwa Guina3 , Collins Okello4 , Gilbert Gilibrays Ocen5 , Morish Obura1 , Simon Alibu1 , Cynthia Awuor Owino6 , Agnes Akwero 1,7 , Samson Ojok1 . UAV image acquisition and processing for high-throughput phenotyping in agricultural research and breeding programs – The Plant Phenome journal. DOI: 10.1002/ppj2.20096, 12 January 2024.

41. Isaac Kiyingi 1, *, Damalie Akwango-Aliau1, George Lukwago1, Richard M. Ariong2, Isaac Obongo1, Stella Adur1, Stephen Angundubo1, Juma Ndhokero1, Harris Luzinda1, Damalie Magala1, Sarah Mutonyi1, Fred Kalanzi1, Bua Antony1, Godfrey Bwanika3 .Impact of Improved Maize and Bean Varieties on Household Income and Food Security in Uganda. Journal - https://www.ajol.info/index.php/ujas, Number 1 (2024) pp. 1 – 13 DOI: http://dx.doi.org/10.4314/ujas.v22i1.1 © 2024.

42. Angella Lowra Ajam 1,2,*, Jeninah Karungi 1, Geofrey Ogwal 3 , Stella Aropet Adumo 4, Pamela Paparu 2 and Michael Hilary Otim 2,* Article, "Population Dynamics of Fall Armyworm (Lepidoptera: Noctuidae) in Maize Fields in Uganda'. Insects 2024, 15, 301. https://doi.org/10.3390/insects15050301, April 23rd 2024

43. Adomas Liepa 1,*, Michael Thiel 1, Hannes Taubenb¨ock 2,3, Ingolf Steffan-Dewenter 4, Itohan-Osa Abu 1, Maninder Singh Dhillon 1, Insa Otte 1, Michael Hilary Otim 5, Moses Lutaakome 5, David Meinhof 4, Emily A. Martin 6, Tobias Ullmann 1 Harmonized NDVI time-series from Landsat and Sentinel-2 reveal phenological patterns of diverse, small-scale cropping systems in East Africa. journal: www.elsevier.com/locate/rsase, https: //doi.org/10.1016/j.rsase.2024.101230, 7 May 2024.

44. Thomas Lapaka Odong1, Isaac Obongo2, Richard Ariong 2,3, Stella E. Adur2, Stella A. Adumo4, Denish Oyaro Onen1, Bob I. Rwotonen 1,2 and Michael H. Otim 2* Farmer perceptions, knowledge, and management of fall armyworm in maize production in Uganda. Front. Insect Sci. 4:1345139. doi: 10.3389/finsc.2024.1345139.

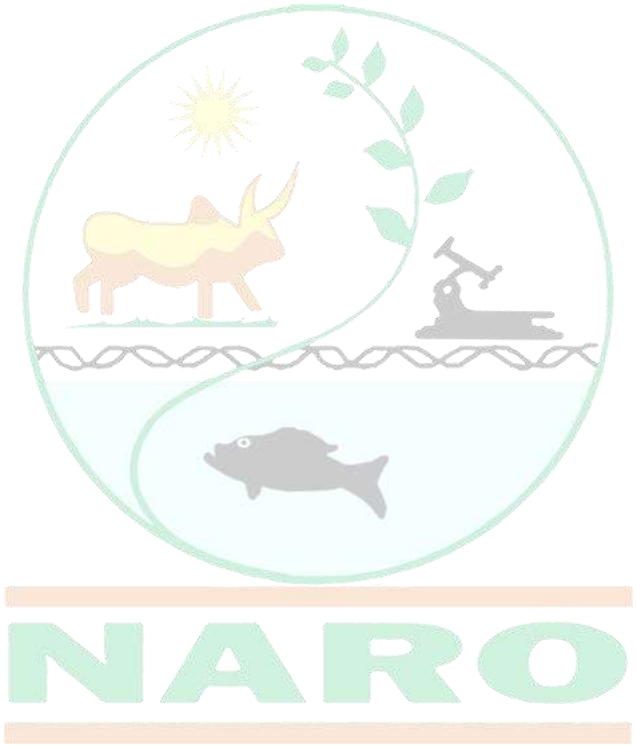
45. Gabriel Ddamulira , Alex Asiimwe, Fred Masika, Moses Amugoli, Gerald Ddumba & Mcebisi Maphosa (2024). Agronomic Suitability for Oil Palm Growing in Uganda, Journal of Agricultural Science; 16, 4; 1916-9752 -1916-9760 doi.org/10.5539/jas.v16n4p14

46. Bruhan Kaggwa , Maria Gloria Nakayita, Edson Ireeta Munanura , Henry Kyeyune , Clement Olusoji Ajayi , Raphael Wangalwa , Daniel Pillah Walakira, Godwin Anywar , Lynn K. Bagoloire , Teddy Kakazi, Gabriel Ddamulira , Fadhiru Pakoyo Kamba , and Patrick Engeu Ogwang (2023). Chemometric Classification of Mangifera indica L. Leaf Cultivars, Based on Selected Phytochemical Parameters; Implications for Standardization of the Pharmaceutical Raw Materials, Evidence-Based Complementary and Alternative Medicine 2023: 2023-7245876, 17 doi.org/10.1155/2023/7245876

47. G. mukamanasasira, E.A. Adjei P. Rubaihayo, G. Ddamulira and R. Edema (2024). Genetic diversity and heritability of tomato parental lines assembled for ralstonia solanacearum resistance. African Crop Science Journal, 32: (1) 29 – 50. dx.doi.org/10.4314/acsj.v32i1.3

48. Nampeera EL, O'Neal ME, Nonnecke GR, Murungi LK, Abukutsa-Onyango MO, Wesonga JM. Effects of seed treatments and storage duration on Myzus persicae (Hemiptera: Aphididae) and amaranth fresh leaf yield. Environ Entomol. 2023 Jun 16; 52(3):360-370. doi: 10.1093/ee/nvad020. PMID: 36939151

49. Masika Fred Bwayo, * Obongo Isaac, Idd Ramathani, Ddamulira Garbriel, Baguma Brigedtte, Godfrey Asea, and Muhoozi Emmanuel,2024. Investigating the key actors, market dynamics and opportunities in tomato and onion trading in Uganda's major watersheds (Doho II, Ngenge, Tochi, Wadelai, and Mubuku II). Accepted in Journal of Agricultural Sciences


NARO