Profile Template

Please write all text in the third person (i.e., Professor Bate is an expert in…" rather than "I am an expert in….")

	Add your information to this column. If you don't have research/teaching roles or publications, please add "n/a" in those fields.
Photograph	
Full name including title	Dr. Herbert Talwana Associate Professor
Staff ORCID ID	n/a
Staff ID Number	9231.20.312
Unit under DAP	Crop Sciences
Contact Telephone number	+256 (0) 772521685
Email address	herbert.talwana@mak.ac.ug
Social media accounts	https://www.linkedin.com/in/herbert-talwana-42868a71/ @Htalwana
Address	College of Agricultural and Environmental Sciences School of Agricultural Sciences Department of Agricultural Production 32 University Way (Opposite Main Library) Makerere University Main Campus
About/Introductory statement	I am an Associate Professor – conducting research, outreach

	and teaching broadly in the area of Crop Protection spanning the fields of Nematology, Entomology and Plant Pathology. I also contribute to other courses in the Department of Agricultural Production, such as Scholarly writing and Biosafety of Agricultural Biotechnology
Qualifications	• PhD in Applied Biological Sciences, Catholic University of Leuven (Belgium) 2002 • MSc in Crop Science, Makerere University, 1996. • BSc Agric. (Hons), Makerere University, 1994
Biography	I am a citizen of Uganda (born on 2nd November 1970 at Kaberai (Butebo sub-county, Butebo District), Married to Anne, and between us we have 5 children: 2 sons (born Feb 1999 and 2013) and three daughters (born July 2000, June 2004 and December 2005). As a Plant Nematologist at a national/public university, I have the mandate to conduct research and extension activities on all crops grown in Uganda. My research interest is broadly in the area of crop protection, spanning the fields of Nematology, Entomology, and Plant Pathology, comprising systematics, ecology, biodiversity and evolution, and the development of control strategies. My emphasis is a multidisciplinary approach maintaining an active collaboration in the areas of entomology, plant pathology, and soil/plant nutrition – pest/pathogen interactions. My current research interests are: 1. Biodiversity of nematodes and their role in ecosystem function, and nematode diagnostics. I am actively involved in nematode surveys and inventories in different crops in Uganda. This will allow me to make significant contributions toward biological conservation and restoration efforts. 2. Insect pathology and the use of entomopathogenic nematodes as biological control agents. The overall objective of this research interest is to develop entomopathogens as effective biocontrol agents against major agricultural pests and to develop a basic understanding of the ecology and behavior of insect parasitic nematodes. 3. Development of sustainable insect management strategies. I am actively involved in research on banana nematode management using organic amendments such as chicken and green manure; development of biological control of nematodes in vegetables using *Pasteuria penetrans* and *Pochonia chlamydosporia*; screening for resistance to pests in sweet potato and dry beans; and evaluating the possibility of using RNAi technology in engineering resistance to nematodes in bananas 4. Nematode – soil nutrient interactions My other professional interests include Research and Development of Integrated Pest Management (IPM) concepts, including competency development and training; Monitoring, Evaluation, and Impact Assessment of Research and Development Investments in Agriculture, and Change Management and Personal Mastery – as a soft skills tool to enhance teaching, research and consultancy. I strive to improve my competence in these areas. I am also a Process Facilitation consultant in learning, strategy development, team building and large group meetings
Other Activities	**Member**, Technical committee meeting on Agriculture, Forestry and Biotechnology (Uganda National Bureau of Standards/TC 221) **Member,** National Variety Release Committee (2016 – Present) Department of Crop Protection, Ministry of

	Agriculture, Animal Industry and Fisheries **Member,** National Variety Protection Committee (2016 – Present) Department of Crop Inspection and Certification, Ministry of Agriculture, Animal Industry and Fisheries **Biological efficacy evaluator of Agrochemicals** (2006 – present): Registered by the Department of Crop Protection, Ministry of Agriculture, Animal Industry and Fisheries **Agricultural Risk Management Capacity Development Trainer** (Uganda) - Platform for Agricultural Risk Management/International Fund for Agricultural Development (IFAD)/New Partnership for Africa Development (NEPAD)
Teaching	• Entomology • Plant Nematology • Biosafety of Agricultural Biotechnology • Scholarly writing
Research	• Innovating on-farm agronomic practices and postharvest technologies to increase finger millet [Eleusine corocana (l.) Gaertn.] Production and productivity for a climate resilient food production in Uganda. Makerere University Research Innovation Fund/ Government of Uganda. July 2020 – June 2021. UgX 157,428,450. • These worms are snaring the potato – DRAWING UP STRATEGIES TO TACKLE POTATO CYST NEMATODES IN UGANDA. National Agricultural Research Organization Competitive Grant Scheme/ Government of Uganda. July 2022 – June 2025. Ref. CCGS/6/00/21. • Nematology Education in Sub-Sahara Africa (NEMEDUSSA). Partnership Agreement No. 618814 Erasmus+ Programme Capacity-Building projects in the field of Higher Education (E+CBHE) European Commission. 2021 (January) – 2023 (December) • Potatoes under threat; Need for surveillance of the Potato Cyst Nematodes, a deadly pest of potato. Makerere University Research Innovation Fund/ Government of Uganda. July 2020 – June 2021. • Improved Resilience Through Sustainable Production of Grafted Tomatoes in Uganda (Project – IRESO) NWO – WOTRO Science for Global Development in the Science for Global Development Food & Business Applied Research Fund (ARF) through SOLIDARIDAD Eastern & Central Africa Expertise Centre (S.E.C.A.E.C) • Healthy seedling systems for safer, more productive vegetables in East Africa Austrian Development Agency (ADA). 2015 – 2017 • Building Research and Training capacities to develop innovations in ecological intensification of cereal – based

	cropping systems for improving productivity, food security and resilience to climate change in Uganda. Swedish International Development Agency (Sida) Swedish Research Training Partnership Program for new research collaboration agreement with Uganda 2015 – 2020. **SEK8,000,000** • Improving Mungbean (*Vigna radiata*) productivity for nutritional diversification, income and food security in Uganda. RUFORUM Graduate Research Grants 2010 – 2016. **$130,000** • Understanding *Pratylenchus goodeyi* variability for improving banana nematode management in east African highlands IFAR 2010 Fellowship **$10,000** • "Pathogenicity and species shifts in plant parasitic nematodes affecting banana production in the East African Highlands: what is the influence of climate change?" Global System for Analysis, Research and Training (START) 2009 – 2010. **$15000** • Diversity of Entomopathogenic nematodes and their potential for the control of insect pests in Uganda. Carnegie Foundation/School of Graduate studies Makerere University 2006 – 2010. **$25,000** • Potential of organic amendments in the management of nematodes on bananas. NORAD/SIDA/Faculty of Agriculture small research grants scheme 2004 – 2005. **$3,000** • Nematodes as production constraints in cereal based cropping systems in eastern Uganda. International Foundation of Science (IFS) grant C3504-1, 2003 – 2005. **$12,000**
Research groups and Centres	n/a
Community based work	**Managing Director,** Africa Great Lakes Agribusiness and Farm Management Consulting Limited [**AGAFAM Consult**] - Agricultural inputs trading and technical Services, Agribusiness Advisory services, Agronomy and IPM Training and Advisory services
Awards or special recognitions received	n/a
Publications	1. Mugisa Immaculate, Karungi Jeninah, Musana Paul, Odama Roy, Alajo Agnes, Chelangat Doreen M., Anyanga Milton O., Oloka Bonny M., Gonçalves dos Santos Iara**, Talwana Herbert,** Ochwo-Ssemakula Mildred, Edema Richard, Gibson Paul, Ssali Reuben, Campos Hugo, Olukolu Bode A., da Silva Pereira Guilherme, Yencho Craig, Yada Benard. 2022. Combining ability and heritability analysis of sweetpotato weevil resistance, root yield, and dry matter content in sweetpotato. Frontiers in Plant Science VOLUME 13 (2022) www.frontiersin.org/articles/10.3389/fpls.2022.956936. DOI=10.3389/fpls.2022.956936 ISSN=1664-462X 2. Badji, A., Machida, L., Kwemoi, D.B., Kumi, F., Okii, D., Mwila, N., Agbahoungba, S., Ibanda, A., Bararyenya, A., Nghituwamhata, S.N., Odong, T., Wasswa, P., Otim, M., Ochwo-Ssemakula, M., **Talwana, H**., Asea, G., Kyamanywa, S. and Rubaihayo, P. 2021. Factors Influencing Genomic Prediction Accuracies of Tropical Maize Resistance to Fall Armyworm and Weevils. Plants 10: 29. DOI: https://dx.doi.org/10.3390/ plants10010029

3. Badji, A., Kwemoi, D.B., Machida, L., Okii, D., Mwila, N., Agbahoungba, S., Kumi, F., Ibanda, A., Bararyenya, A., Solemanegy, M., Odong T., Wasswa, P., Otim, M., Asea, G., Ochwo-Ssemakula, M., **Talwana, H**., Kyamanywa, S. and Rubaihayo, P. 2020. Genetic Basis of Maize Resistance to Multiple Insect Pests: Integrated Genome-Wide Comparative Mapping and Candidate Gene Prioritization. Genes 689-761

4. Charles Andiku, Phinehas Tukamuhabwa, James Mukasa Ssebuliba, **Hebert Talwana**, Silver Tumwegamire and Wolfgang J. Grüneberg. 2019. Evaluation of the American Yam Bean (*Pachyrhizus* spp.) for storage root yield across varying eco-geographic conditions in Uganda. Journal of Agricultural Science; Vol. 11 (8): 100 – 112. doi:10.5539/jas.v11n8p100

5. Danny L. Coyne, Laura Cortada, Johnathan J. Dalzell, Abiodun O. Claudius-Cole, Solveig Haukeland, Nessie Luambano, and **Herbert Talwana**. 2018. Plant-Parasitic Nematodes and Food Security in Sub-Saharan Africa. Annual Review of Phytopathology, 56: 381-403. https://doi.org/10.1146/annurev-phyto-080417-045833

6. Okii, D., Mukankusi, C., Sebuliba, S., Tukamuhabwa, P., Tusiime, G., **Talwana, H.,** Odong, T., Namayanja, A., Paparu, P., Nkalubo, S., Otim, M., Ugen, M., Buah, S. and Gepts, P. (2018). Genetic variation, Heritability estimates and GXE effects on yield traits of Mesoamerican common bean (Phaseolus vulgaris L) germplasm in Uganda. Plant Genetic Resources: Characterization and Utilization (2018) 16(3); 237–248

7. Okii, D., P. Tukamuhabwa, G. Tusiime, **H. Talwana**, T. Odong, C. Mukankusi, A. Male, W. Amongi, S. Sebuliba, P. Paparu, S. Nkalubo, M. Ugen, S. Buah, P. Gepts. (2017) Agronomic qualities of genetic pyramids of common bean developed for multiple-disease-resistance. African Crop Science Journal, 25 (4): 457 – 472.

8. Ebinu J.A., V. Nsabiyera, M.H. Otim, S. Nkalubo, M. Ugen, A.J. Agona and **H. L. Talwana**. 2016. Susceptibility to bruchids among common beans in Uganda. African Crop Science Journal, 24(3): 289 - 303

9. **Herbert Talwana**, Zibusiso Sibanda, Waceke Wanjohi, Wangai Kimenju, Nessie Luambano-Nyoni, Cornel Massawe, Rosa H Manzanilla-López, Keith G Davies, David J Hunt, Richard A Sikora, Danny L Coyne, Simon R Gowen and Brian R Kerry. 2016. Agricultural nematology in east and southern Africa: Problems, management strategies and stakeholder linkages. Pest management Science 72(2): 226 –

245.

10. Kiryowa M., S. T. Nkalubo, C. Mukankusi, **H. Talwana**, P. Gibson, P. Tukamuhabwa. 2015. Effect of Marker Aided Pyramiding of Anthracnose and Pythium Root Rot Resistance Genes on Plant Agronomic Characters among Advanced Common Bean Genotypes. Journal of Agricultural Science 7(3): 96 – 104.

11. Geofrey Kawube, **Herbert Talwana**, Mogens Nicolaisen, Titus Alicai, Michael Otim, Jolly Kabirizi, Anthony Mukwaya, Steen Lykke Nielsen. 2015. Napier grass stunt disease prevalence, incidence, severity and genetic variability of the associated phytoplasma in Uganda. Crop Protection 75: 63 – 69.
12. Kawube, G., T. Alicai, M. Otim, A. Mukwaya, J. Kabirizi and **H. Talwana**. 2014. Resistance of Napier grass clones to Napier grass stunt disease. African Crop Science Journal, 22(3): 229 - 235

13. Arinaitwe, I.K. , E. Hilman, R. Ssali, A. Barekye, J. Kubiriba, G. Kagezi, **H. Talwana,** C. Nankinga, P.E. Ragama and W.K. Tushemereirwe. 2014. Response of banana hybrids to the banana weevil (*Cosmopolites sordidus* Germar) (Coleoptera: Curculionidae) in Uganda. Uganda Journal of Agricultural Sciences, 15 (1): 73 – 85.

14. Waniale, A., Wanyera, N. and **Talwana H**. 2014. Morphological and agronomic traits variation for Mungbean variety selection and improvement in Uganda. African Crop Science Journal 22(2): 123 – 136.

15. Kamira M., S. Hauser, P. Van Asten, D. Coyne and **H.L. Talwana.** 2013. Plant parasitic nematodes associated with banana and plantain in eastern and western Democratic Republic of Congo. Nematropica 43:216-225.

16. Nakacwa, R., A. Kiggundu, **H. Talwana**, J. Namaganda, C. Lilley, W. Tushemereirwe, H. Atkinson. 2013. Nematode 18S rRNA gene is a reliable tool for environmental biosafety assessment of transgenic banana in confined field trials. Transgenic Research 22: 1003–1010. DOI 10.1007/s11248-013-9712-9

17. Anyanga Milton, Muyinza Harriet, **Talwana Herbert**, Hall David, Farman Dudley, Ssemakula Gorrettie, Mwanga Robert, Stevenson Philip.2013. Resistance to the Weevils *Cylas puncticollis* and *C. brunneus* conferred by Sweetpotato root surface compounds. Journal of Agricultural and Food Chemistry 61, 8141−8147

18. Maphosa Mcebisi, **Herbert Talwana**, Phinehas Tukamuhabwa. 2013. Assessment of Comparative

Virulence and Resistance in Soybean Using Field Isolates of Soybean Rust. Journal of Agricultural Science 5(5): 249 – 257.

19. Nampeera, E. Lugwana, **Talwana Herbert** and Potts Mitcheal.2013. Bioefficacy of Crude Leaf Extracts of *Cupressus lusitanica*, *Nicotiana tabacum*, *Azadirachta indica* and *Lantana camara* against Sweet Potato Weevil for Organic Farming. Biopesticides International, 9(2): 204–212.

20. Mudiope J., D. L. Coyne, E. Adipala and **H. A. L. Talwana**. 2012. Damage to yam (*Dioscorea* spp.) by root-knot nematode (*Meloidogyne* spp.) under field and storage conditions in Uganda. Nematropica 42: 137-145.

21. Maphosa M., **Talwana H**. and Tukamuhabwa P. 2012. Enhancing soybean rust resistance through Rpp2, Rpp3 and Rpp4 pair wise gene pyramiding. African Journal of Agricultural Research, 7(30): 4271-4277.

22. Maphosa, M., **H. Talwana**, P. Gibson, P. Tukamuhabwa. 2012. Combining ability for resistance to soybean rust in F2 and F3 soybean populations. Field Crops Research 130: 1–7

23. Harriet Muyinza, **Herbert L. Talwana**, Robert O. M. Mwanga and Philip C. Stevenson (2012) Sweetpotato weevil (*Cylas* spp.) resistance in African sweetpotato germplasm. International Journal of Pest Management 58: 73 - 81

24. Kagoda F., DereraJ., Tongoona,P., Coyne D.L. and **Talwana H.L.** 2011. Grain yield and heterosis of maize hybrids under nematode infested and nematicide treated conditions. Journal of Nematology 43: 209 – 219.

25. Ndabikunze B.K., **Talwana H.A.L.,** Mongi R.J., Issa-Zacharia A., Serem A.K., Palapala V. and Nandi J. O. M. 2011. Proximate and mineral composition of cocoyam (*Colocasia esculenta* L. and *Xanthosoma sagittifolium* L.) grown along the Lake Victoria Basin in Tanzania and Uganda. African Journal of Food Science Vol. 5(4): 248 – 254

26. **Talwana, H. L**., Tumuhimbise R. and D.S.O. Osiru. 2010. Comparative performance of a wetland taro cultivar grown in an upland production system as influenced by different plant densities and seedbed preparations in Uganda. Journal of Root crops 36: 65 – 71

27. Muyinza, H., Stevenson, P.C., **Talwana H.**, Hall, D. R.,Farman, D. I., Mwanga, R. O. M. 2010. Root

Chemicals could offer opportunities for breeding for Sweet Potato Resistance to the Weevil *Cylas puncticollis* Boheman (Coleoptera: Apionidae). Aspects Of African Biodiversity: Royal Society Of Chemistry Special Publication, 321: 49–57.

28. Tumuhimbise R., **H. L. Talwana**, D.S.O. Osiru, A.K. Serem, B.K. Ndabikunze, J.O.M. Nandi and V. Palapala. 2009. Growth and development of wetland-grown taro under different plant populations and seedbed types in Uganda. African Crop Science Journal, 17: 49 - 60

29. **Talwana H.A.L**., A.K. Serem, B.K. Ndabikunze, J.O.M. Nandi, R. Tumuhimbise, T. Kaweesi, Chumo, E.C, and V. Palapala. 2009. Production status and prospects of Cocoyam (*Colocasia esculentum* Schott.) for improving food and income security in East Africa. Journal of Root crops 35, 98 – 107

30. Philip C. Stevenson, Harriet Muyinza, David R. Hall, Elaine A. Porter, Dudley I. Farman, **Herbert Talwana** and Robert O. M. Mwanga. 2009. Chemical basis for resistance in sweetpotato *Ipomoea batatas* to the sweetpotato weevil *Cylas puncticollis*. *Pure and Applied Chemistry*, Vol. 81, No. 1, pp. 141–151

31. **Talwana, H. L.,** M. M. Butseya and G. Tusiime. 2008. Occurrence of plant parasitic nematodes and factors that enhance population build-up in cereal-based cropping systems in Uganda. African Crop Science Journal, vol. 16, no. 2, pp. 119 – 131

32. Serem, A. K., Palapala, V., **Talwana, H**., Nandi, J. M. O, Ndabikunze, B and Korir, M. K. 2008. Socioeconomic constraints to sustainable cocoyam production in the Lake Victoria Crescent. African Journal of Environmental Science and Technology Vol. 2 (10), pp. 305-308

33. **Talwana**, **L. A. H.,** P. R. Speijer, C. S. Gold. R.L. Swennen, and D. De Waele 2006. Effect of nematode infection and damage on the root system and plant growth of three *Musa* cultivars commonly grown in Uganda. Nematology, 8: 177-189

34. **Talwana**, **L. A. H.,** P. R. Speijer, C. S. Gold. R.L. Swennen, and D. De Waele 2003. A comparison of the effects of *Radopholus similis* and *Pratylenchus goodeyi* on growth, root health and yield of an East African highland-cooking banana (Musa AAA-group). International Journal of Pest Management, 49:199-204

35. Coyne D. L. and **Talwana, L. A. H.** 2000. Reaction of cassava cultivars to root-knot nematodes (*Meloidogyne* spp.) in pot experiments and farmer-managed field trials in Uganda. International

	Journal of Nematology, 10: 153-158. 36. Coyne D. L., **Talwana, L. A. H.** and Maslen N. R. 2003. Plant parasitic nematodes associated with root and tuber crops in Uganda. African Crop Protection, 9: 87 – 98. 37. **Talwana, L.A.H.**, P. R. Speijer and D. De Waele. 2000. Spatial distribution of nematode populations and nematode damage in roots of three banana cultivars in Uganda. Nematropica, 29: 19-31. 38. **Talwana, L.A.H.**, P. R. Speijer, E. Adipala and N. R. Maslen. 1996. Evaluation of cassava for reaction to root knot nematodes (*Meloidogyne* spp.) in Uganda. African Journal of Plant Protection 6: 125 – 134
Podcasts	n/a
Videos	n/a
Keywords	Herbert Talwana, Plant Nematologist, PANEMA