

Strengthening Uganda's Agro-Input Dealer Knowledge through enhanced professional training

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Summary

CABI has been supporting Uganda's Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) to strengthen agro-input dealer training through the PlantwisePlus Programme. This professionalises agro-input dealers, promotes the safe use of pesticides, and institutionalises training and certification through standardized materials and processes. By enabling agro-input dealers to provide sustainable agricultural advice, this approach extends the reach of extension services and reduces improper handling of pesticides by farmers. This study shares stories from trained agro-input dealers, and analyses how CABI can support pesticide regulators in Uganda to build on its successes and tackle remaining challenges. It also highlights learnings for PlantwisePlus implementation in other countries.

Highlights

- The training has facilitated behavioural change amongst agro-input dealers, extension officers and farmers, equipped them with knowledge, skills and confidence to advise

farmers on safer use and handling of pesticides, promote use of lower-risks alternatives, while improving the livelihood of the agro-input dealers.

- The trained agro-input dealers have gained a better understanding of pesticide risks to human health, plant health, animal health and the environment.
- Cross-sectoral collaboration with the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), through the Department of Crop Inspection and Certification (DCIC), partnered with Makerere University (MAK) and the Uganda Agro-input Dealers' Association (UNADA) contributed to the success of the professionalisation of the agro-input dealers.
- The blended and participatory training approach enhanced comprehension capacity strengthening outcomes for agro-input dealers

Background

Agriculture is central to Uganda's economy, employing over 70% of the population. However, productivity and safety have been undermined by counterfeit and unsafe agro-inputs. While pesticides are vital in reducing crop losses, growing evidence points to their misuse, characterized by improper handling, wrong application, and reliance on Highly Hazardous Pesticides (HHPs). Such practices have far-reaching consequences, posing serious threats to human and animal health, contaminating the environment, and undermining the safety and sustainability of food production systems.

Agro-input dealers are retailers of agricultural inputs who provide farmers with not only pesticides but also pest management advice. However, many of them lack basic diagnostic skills in addition to technical knowledge on safe pesticide handling, biopesticides and [Integrated Pest Management \(IPM\)](#). As a result, a majority are not confident enough to guide farmers on the proper selection, handling, and use of pesticides, making them more dispensers than advisors.

[A 2021 study](#) found that 44% of the 402 surveyed agro-dealers in Uganda did not have the required certification for handling pesticides. Furthermore, 42% did not have a trade license at all (Staudacher et.al., 2021). In addition, [a CABI survey](#) of 557 agro-dealers in Uganda identified knowledge gaps in their understanding of Lower Risk Plant Protection Products (LRPPPs). However, it also revealed their strong interest in acquiring the skills to provide and sell them. At the time, only 16% were selling biopesticides. This was primarily due to a lack of access and awareness about LRPPPs and a lack of demand from farmers (Tambo et.al., 2024).

This has impacted on the quality of the advice given to farmers on using pesticides correctly. These challenges highlighted the need for equipping agro-input dealers with pesticide use knowledge through enhanced professional training. It is against this background that the [Ministry of Agriculture, Animal Industry and Fisheries \(MAAIF\)](#), through the Department of Crop Inspection and Certification (DCIC), partnered with [Makerere University \(MAK\)](#), [Uganda Agro-input Dealers Association \(UNADA\)](#) and [CABI's PlantwisePlus Programme](#) to strengthen Uganda's agro-input dealer training. The goal was to professionalize agro-input dealers by improving their technical capacity to promote the safe use of pesticides, which is vital in improving farmer support. This was to be achieved through an improved training curriculum with standardized materials and processes. These materials were added to the existing institutionalised training delivered by MAAIF and MAK.

Throughout this document, "Partners" refers to MAAIF, MAK, MAAIF-DCIC and UNADA.

CABI's interventions

CABI funded the Training of Trainers (ToT) in 2023 and trained 32 trainers (25 from DCIC, 5 from DCP, 1 from the private sector (Export Trade Group), and 1 examiner from Makerere University)¹. These trainers piloted the new curriculum (Safe Use and Handling of Pesticides course incorporating the LRPPPs module) and certified 89 agro-input dealers across 43 districts. In addition, the trainers have trained 33 extension staff across 14 districts in 2024 and 2025².

The training generated valuable feedback to refine and validate both content and delivery approaches.

"I have gained knowledge of lower-risks products, especially by reading labels to farmers and by considering their impact to the environment."

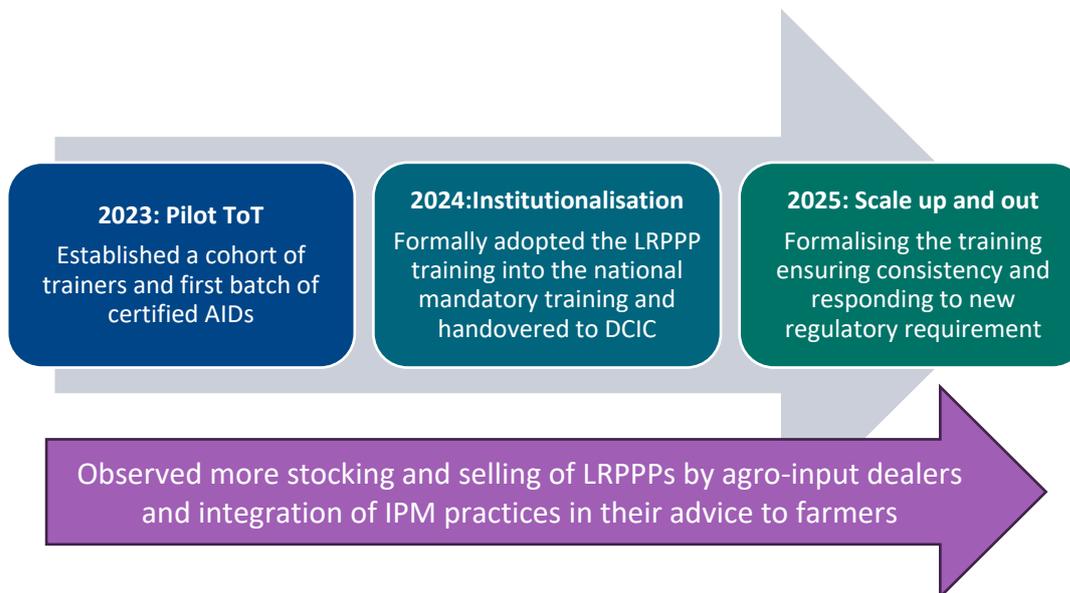
--- Darius Atukwatse, Isingiro

"I learnt about the proper storage of pesticides, such as keeping chemicals in their original containers, and how farmers can become exposed when safety measures are not followed."

--- Patrick Omugwa from Soroti

"I learnt about the importance of personal protective equipment (PPE). I now keep PPE in stock, including for all my agro dealership staff, and I encourage farmers to use protective equipment as well."

--- Source Peter Oonyu from Soroti



¹ Adjumani, Amuria, Arua, Bududa, Bugiri, Bukedea, Ibanda, Iganga, Isingiro, Jinja, Kabale, Kalaki, Kamuli, Kampala, Kamwenge, Kapchorwa, Katakwi, Kayunga, Kapelebyong, Kaliro, Koboko, Kumi, Luwero, Maracha, Mayuge, Mbale, Mbarara, Mityana, Mitooma, Nakaseke, Namisindwa, Namutumba, Ngora, Ntungamo, Rubanda, Rwampara, Serere, Sheema, Soroti, Tororo, Wakiso, Yumbe, Zombo

² Two pilot trainings were funded by CABI, and national partners used the same curriculum to train more agro-input dealers based on demand afterwards.

What we did

The study brief employed a mixed methodological qualitative approach. Information was gathered through primary and secondary data sources, including blogs published on the CABI website, key informant interviews capturing stories of change, testimonials collected during review workshops with Partners and participants in September 2025 and through email correspondence, desk review of internal activity reports in 2024 and 2025.

Findings

Most Significant Changes

Institutionalisation of mandatory training in regulatory framework

In November 2024, the finalized LRPPP training toolkit including the “Course companion for training on lower-risk plant protection products: Reducing the risk of highly hazardous pesticides.” (**Error! Reference source not found.**), was formally handed over to the Commissioner, DCIC, Dr. Paul Mwambu and incorporated into Uganda’s national mandatory Safe Use and Handling of Pesticides Training Scheme, marking a significant milestone in institutionalising standardized agro-input dealer training nationwide.



Figure 1: Ms Christine Alokit, CABI Country Coordinator, presents part of the training toolkit to Dr Paul Mwambu, the Commissioner for the Department of Crop Inspection and Certification, Ministry of Agriculture, Animal Industry and Fisheries (MAAIF)

Formalisation of the whole curriculum

In 2025, the training was very popular, and oversubscribed. CABI and its Partners are revising the structure of the five-day training course, which will combine classroom instruction, demonstrations, and visual aids into a blended learning approach, improving knowledge retention and practical application. More importantly, the toolkit will standardise the approach of how the training should be delivered, ensuring the quality of the training.

Module/Topic
Module 1: Legislations, Governing Use of Agricultural chemicals
Module 2: Pest identification, damage signs and symptoms
Module 3: Principles of Pest Management
Module 4: Pesticides
Module 5: Pesticide application and equipment
Module 6: Problems Associated Pesticide Use
Module 7: Bioprotection products
Module 8: Fumigation
Module 9 (new): Fertilization

Table 1: Modules of the updated LRPPPs training (incorporation of LRPPPs and fertilizers)

In addition, Partners have demonstrated uptake as they are planning to tailor the training to different occupations, including not only agro-input dealers but Spray Service Providers (SSPs) and fumigators. The discussion around improving the course has generated interest from Makerere University who would like to develop the modules further for higher education curriculum.

Agro-input dealers providing better advice and services to farmers

We have observed not only knowledge increase but also behaviour change amongst the trained agro-input dealers. Their confidence in advising farmers has been enhanced and they now provide quality advice and have changed their behaviour with some mentioning phasing out suspected HHPs, as well as introducing IPM practices, promoting better **human and environmental health** in the community. Additionally, knowledge cascade to peers and farmers has been fostered with the license, professionalising the business, and thereby building trust with farmers.

- a) **Enhanced capacity** in advising farmer on IPM practices and LRPPPs, such as actively encouraging farmers and peers to read and follow product labels, understand chemical risks, and choose safer alternatives. They can explain both human and environmental risks of misuse of pesticides.

“I have put learning into practice that, before serving clients, there is a need to investigate and gain knowledge of the real problem or disease so that the right chemicals can be identified. I have also increased my advisory services that includes IPM practices, such as post-handling, and pre-entry chemical advice.” — Stella

“The first training provided me with wide knowledge about low-risk chemicals. Before the training, I sold products without acknowledging risk levels. Now I manage agricultural risks more effectively, including placing bucket of sand in the shops to manage sudden chemical spillages. We have also applied for certification and registration of all our outlets.” - Franco

- b) **Enhanced risk management and safety practices**, including proper pesticide storage, use of sand to manage chemical spills, and adherence to safe handling and application procedures.

- c) **Increased stocking/selling of LRPPPs while phasing out highly hazardous pesticides.** LRPPPs including macrobials, microbials, biopesticides, semiochemicals, synthetic pesticide.

“I used to sell all products because my motivation was to earn more money. Now my strategy is to negotiate with clients on the use of lower-risks products.” — Liberty

“I have adopted the use of lower-risk products to save farmers from the effects of highly hazardous chemicals. I now advise on integrated pest control measures, including biological, physical, cultural, and chemical methods — with chemicals as the last resort.” — Rashul

Knowledge transferred to peers and farmers: Many AIDs reported greater confidence to train peers, pursue certification and inspection, and formally registered their agro-input businesses.

As of **September 2025**, sixteen trained and licensed AIDs reported a total of **19,072 men and women farmers** were provided with advice. The AIDs have

recommended or sold LRPPPs to farmers, such as pheromone traps, Biocure A and B, Nimbecidine, etc.

“I realized that high-risk products are too dangerous for farmers. I now advise them (farmers) to use low-risk products and to handle post-harvest equipment properly.” — Ruben

“I no longer repackage chemicals, and I make sure farmers understand how to read labels and use gloves and masks when spraying. Customers trust me more now.” — Samuel Okello, Dealer, Mbale District

“Because of this training, I was able to register officially and become licensed. Farmers now come to me for advice before buying—it has changed my business.” — Jane Namusoke, Agro-Dealer, Masindi District

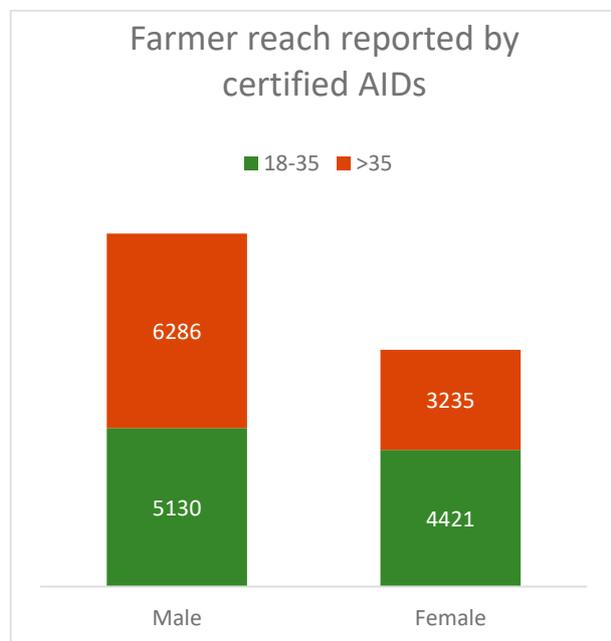


Figure 2: Number of farmer reach reported by AIDs during a review meeting in September 2025

Success stories from dealers and partners' voices

CABI training transforms his advisory services and business growth - Meet Seryazi Abdallah: Plant Doctor and Agro-Input Dealer

The challenge

Before receiving plant doctor and safe pesticide use training from CABI, Seryazi Abdallah faced significant challenges in accurately diagnosing crop pests and diseases at both the Zirowwe-Kalagala Multipurpose Youth Cooperative Society Ltd and his agro-input shop. His recommendations to farmers were often less precise, resulting in less effective pest control and difficulty fully supporting the farming community.



CABI training – the turning point

Through CABI training, he has learned knowledge on pest and disease diagnosis, IPM, bio-protection, and safe chemical use. This has motivated him to put knowledge into actions in protecting human and environment health, which also builds his integrity as a businessman. *“Humans come before my business. I need to safeguard my own health, as we all eat from the farmer. This is the right thing to do. Farmers are now informed because I give them the right products and recommendations, and they always come back as a result.”*

“Now, I confidently support over 876 farmers who are registered in our cooperative, since I started my business in 2022 (when) through plant clinics, cooperative trainings, farm visits, and advisory services across Luweero District.” His recommendation to farmers include: lower-risks alternatives such as bioprotection products, and guidance in monitoring crops, managing pest and disease problems, and using conventional pesticides responsibly.

His agro-input business thrives as a result.

“CABI’s digital tools and the training on lower risk products have helped me organise my shop, registered with the Crop Certification and Inspection Department under MAAIF, and improve my operational standards. I now stock lower-risks products and provide farmers with up-to-date, practical advice. Thanks to CABI, my advisory capacity has grown,” he said. With better knowledge, tools and products, his relationship with farmers has improved. *“I have authority and always command respect because of my knowledge. My business is thriving,”* he added.

As part of the PW+ programme, he is also benefited from using PW+ digital tools to advise farmers. *“The PlantwisePlus Knowledge Bank and Factsheet App help me make recommendations to farmers. I love them because they dig deeper into the scientific knowledge that you need to learn about pest and disease management. They also provide lower risk alternatives across the world [...] not just within your locality,”* he said.

Judith Nassuna, Zunie Agri-consultancy in Wakiso district: A mother and an agri-service provider who cares about the health of her family and the community

The problem: not knowing pesticide risks on health

Judith is 27 years old. She has been an agro-dealer and farm manager, selling and managing agrochemicals, but she had no idea how to safely handle agrochemicals. She



was a hardworking employee of Zunie Agri-consultancy, who was five or six months pregnant, still spending long hours inside the shop, often with the doors closed. Headaches were part of her routine, and she wrote them off as “just pregnancy.”

When she was chosen to attend the training on the safe use of agrochemicals, everything she took for granted was quietly dismantled. In the training, she learned that pesticides

are especially dangerous to pregnant women, babies, and the elderly, and that inhalation and skin contact could cause serious long-term harm. She started to realise the headaches she experienced in her past nine months in the shop could be related to the constant cleaning with no mask, the way she would walk straight into the storeroom first thing in the morning, breathing in everything the walls and containers gave off.

Empowered through learning

For the first time, she feared for not only her health getting worse but her baby's. *“What if I lose my baby?” she thought.* From that moment, she began changing how she worked. She followed the advice she had been given. Before entering the shop, she opened it and waited outside, letting it air for several minutes. The headache eventually disappeared. She began by changing the way she looked at a pesticide bottle. Instead of thinking “this is what everyone uses,” she now started with the label: the active ingredient, the colour band, the recommended doses, pre-harvest interval, and safety instructions.

The training she had received when she was pregnant stayed with her. She remembered how, before, she and other agro-dealers would follow farmers to their fields, help them spray, and never think about masks, gloves or waiting periods. They would let spray drift onto their own skin, believing that being outside meant being safe.

A change maker

Now, she tells farmers a different story. After spraying, they should not rush back into the field; they need to respect the pre-entry period and give the chemicals time to settle. She emphasised that even skin and nails are porous: mixing chemicals with bare hands means letting those substances into the body. She also promotes the use of lower-risk alternatives such as Neem-based (Nimbecidine), Acelamectin, and Copper-based fungicide when she trains farmers at the consultancy. Change is not easy to make, but she keeps trying. Despite older farmers' long-held habits of applying more pesticide than the recommended dose, she patiently demonstrated how accurate calibration of pesticide would not only save money but also save plants. *“They are appreciating, slowly, slowly,” she said.*

Robben Pelendu, Koboko district: Young agro-input dealer provides improved agri-services build better businesses



Robben is 28 years old. He started his business in 2020 with a capital of less than USD 200 (UGX 700,000). He participated in the training on the safe use and handling of agrochemicals, facilitated by CABI in 2024.

What is the change after the training?

Since the completion of the training, his loyal customer base has grown because he has been more capable in diagnosing farmers' problems before making recommendations. This was unlike before when his focus was simply on selling products. He added that the training boosted his confidence, and he has trained farmers on good agronomic practices, including pest management, an approach that has helped him attract even more clients.

He has also stocked more lower-risks alternatives such as Nimbecidine, pheromone traps, and plant boosters like Vegmax. Since he mainly served vegetable farmers growing for export to regional markets, advising farmers on lower-risks products mean safer food for consumers and benefiting the environment.

Better agri-services, better livelihood

His business has grown ten times to a net worth of UGX 10,000,000 (USD 2800), and he attributed 60% of its growth to the training. This has contributed to transformative changes to the quality of his service provision and business development. "Before the training, I didn't have an iron-roofed house, but now I do. I have also acquired a Yamaha motorcycle worth UGX 7,000,000 (USD 2,000), which has solved my transport challenges." Improved mobility enabled him to reach farmers easily and provided timely extension services, offering advice on the safe handling of agricultural chemicals, pest identification and management using safer alternatives, and general crop agronomy. His shop has become a role-model agro-input outlet in his community.



Hellen Rose Akol – agro-input entrepreneur, Uganda

Hellen Rose Akol is an agro-input entrepreneur who came to this role via a circuitous route. She had received training under CABI's PlantwisePlus programme on ways to improve citrus health, but when she returned home and started using her new skills to advise farmers, she faced a challenge: there were no agro-input shop nearby. She first dealt with this by sourcing inputs from dealers in a nearby town, but she soon took the step of attending agro-dealer training and then opened her own agro-input shop.

Hellen explains: *“The [CABI] training gave me the confidence to start a business that meets real farmers’ needs. In a few weeks [...] I was able to make over 150,000 UGX (USD 42), which confirmed that if I put more effort in this agribusiness, I was sure I will make more money”*. Hellen now sells quality, safe inputs and aims to expand from a small retail outlet to a wholesale operation to support more farmers and to strengthen the local agricultural value chain.

Support from Partners

Partnerships were instrumental to the success of this intervention. MAAIF and MAK had existing curricula that provided a foundation for CABI to refine and collaboratively develop an enhanced version with local experts. The Agricultural Chemicals Review Committee (formerly known as Agricultural Chemicals Board) then reviewed, approved, and endorsed the curriculum. UNADA supported the initiative by facilitating connections with its members and offering valuable insights on engaging the wider community, thereby helping to promote the training among agro-input dealers.

Mr. Chris Ibyisintabyo, Executive Director of UNADA acknowledged the continued collaboration and support from MAAIF and CABI in strengthening the professionalism of agro-input dealers. He noted that as Uganda and the world move toward LRPPPs, there is growing need to raise awareness across the entire agricultural value chain and address remaining gaps in local production, import logistics, and supply chain profiling.

“UNADA remains committed to promoting professionalism, enforcing compliance, and supporting our members through skills development and market access,” he said. “The success of this work depends on strong district branches and the active participation of our members.”

Ms. Kisakye Fiona Sarah, Acting Executive Director of UNADA

Fiona has been a dedicated partner in advocating capacity strengthening of agro-input dealers through the training, and the use of LRPPPs among UNADA members. “The trainings have empowered the staff not only with a wider knowledge about low-risk products but also the confidence in promoting low-risk products,” she said.

Using her network creatively, Fiona identified an opportunity for suppliers to advertise low-risk products in a church magazine, an ideal platform since the church advocates for food safety.

Looking ahead, Fiona believes sustained collaboration with manufacturers and suppliers is key. “We expect that in five years, with continued awareness raising, more suppliers will shift to lower-risk products [...] there should be consistent product knowledge transfer systems as well as feedback systems. UNADA remains a relevant entity in this space.”

Ms. Sylvia Nantongo, Senior Agricultural Inspector at MAAIF commended the strong collaboration among partners, including CABI, Makerere University, CropLife, UNADA, and agro-input dealers, in advancing safe pesticide management. She reaffirmed this work is vital to Uganda's national efforts toward sustainable pest control.

“Lower-risk plant protection products are safer alternatives that help protect both people's health and the environment,” she said. “Through continued partnership, we can phase out highly hazardous pesticides and promote safer, more sustainable agrochemical use across the country.”

Dr Paul Mwambu, Commissioner for Crop Inspection and Certification at MAAIF, highlighted the importance of the training to agro-input dealers and extension officers across different districts. He called the toolkit, “a significant step in Uganda's journey towards more sustainable, resilient, and safe agricultural practices.”

“I am confident that with these training materials, we are setting a new standard for plant protection practices across the country.”

He explained the materials will also help them to apply lower-risk products to plant health management. Ultimately, as said by Dr Mwambu, this will help to “shift Uganda's agricultural landscape towards practices that protect both the farmer and the environment.”

The key success factors and way forward

Key success factors

Co-creation with strategic partnerships

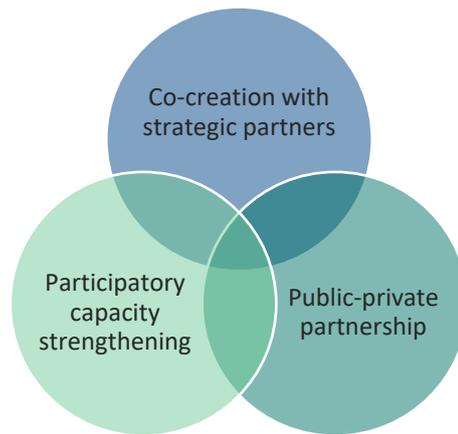
- High-level institutional buy-in from MAAIF ensured integration into national systems
- Strong collaboration among CABI, MAAIF-DCIC, and Makerere University built ownership and sustainability.

Public-Private Partnerships

- The collaboration with UNADA, which is the umbrella association of agro-input dealers in Uganda, contribute to awareness raising of their members on being certified, and thereby strong uptake of LRPPPs through enhanced training modules

Blended, participatory training improves retention

- Direct Approach: facilitators used this method primarily to deliver content on the safe use and handling of pesticides for approximately 3.5 days before transitioning to content on low-risk plant protection products. The structured content was presented with clear demonstrations and step-by-step guidelines.
- Participatory Approach: facilitators engaged participants in hands-on activities, group discussions, and plenary sessions to reinforce learning. Additionally, trainees were supported in navigating CABI's digital tools using their smartphones.



Way forward

- **Explore the role of manufacturers and suppliers** in promoting the use of LRPPPs. The trained agro-input dealers can be connected with manufacturers and distributors of LRPPPs, through establishing demonstration gardens and improving distribution networks across the country. These initiatives will help dispel myths about LRPPPs by showing their effectiveness in practice.
- **Advocate for registration of LRPPPs.** Suppliers of LRPPPs should advocate for registration of the products to improve on accessibility in the market.
- **Ensure Quality Assurance.** The government, with support from manufacturers, needs to enforce strong quality assurance and control measures to prevent the counterfeiting of LRPPPs. This is essential to maintain user trust and ensure the products perform as expected.
- **Ensure training content is up-to-date.** As the Uganda government is developing guidelines to reevaluate registered plant protection products and agro-chemicals (Nandudu, 2025), the updated list of products should feed into the training content to keep agro-input dealers and farmers informed the registered products (e.g. LRPPPs) and banned HHPs.
- **Adapt existing training materials and lessons learnt to scale out to other countries.**

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