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Optimising pesticidal plants in Africa: technology innovation, outreach and networks

Optimización de plantas plaguicidas en África: innovación tecnológica, alcance y redes

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Small-holder farming in Africa is marginal and at risk of failure through losses due to biotic and abiotic factors. Invertebrate pests are perhaps the most important biological stress since pest control technologies are usually straightforward even for resource poor farmers and the effects of control are easily seen. Synthetic pesticides are used widely but are, however, expensive, frequently adulterated (so lose efficacy), are often out of date or are toxic, are not always available, may be used incorrectly and are persistent in the environment. Pesticidal plants are a low cost and effective alternative, and many small-holder farmers in Africa depend on them entirely for controlling invertebrate pests of stored products, field crops and livestock. However, chemical variability in some species, limited natural availability of plants and inefficient application methods mean there is considerable scope for optimising their safe use. We have developed a network of universities, NGOs, government institutions and private sector over several years and are enabling researchers in Africa to understand how best to use plants based on robust scientific evidence of the chemistry and efficacy and impacts on non-target species. Our work is now developing technologies for improved food security based on pesticidal plants that can be effectively deployed within the context of local needs and resources. We are also developing protocols for the propagation and cultivation of key species to improve availability and increase opportunities for commercialisation. Capacity building for stakeholders is critical to successful and sustainable uptake but users need to fully understand the policies that govern their use and the most effective and efficient applications in pest management and food security. An understanding of the policy environment is required to develop commercial opportunities at both the large and small scale to enhance our promotion strategies widely for optimised and safe use.