

Grant

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Co-ordinator

University of Greenwich – Natural Resources Institute (NRI-UoG), United Kingdom

Partners

- Agricultural Research Council, South Africa
- World Agroforestry Centre (ICRAF), Kenya
- Ministry of Agriculture, Water and Forestry, Namibia
- Ministry of Agriculture and Food Security, Tanzania
- University of Zimbabwe, Zimbabwe
- Egerton University, Kenya
- Mzuzu University, Malawi
- Royal Botanic Gardens, Kew, United Kingdom
- Ministry of Agriculture, Irrigation and Food Security (MoAIFS), Malawi
- Southern Alliance for Indigenous Resources (SAFIRE), Zimbabwe
- Ministry of Food and Agriculture, Ghana

Associates

- Kasisi Agricultural Training Centre (KATC), Zambia
- Southern Alliance for Indigenous Resources (SAFIRE), Zambia

Project duration

36 months
From 10/11/2009 to 09/11/2012

EC co-funding

EUR 989,204.00

Total budget

EUR 1,163,769.00

Programme Management Unit

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Field demonstrations of pesticidal plants for farmers (Nchenachana, Malawi, July 2009).

African Dryland Alliance for Pesticidal-Plant Technologies: A network for optimising and promoting the use of indigenous botanical knowledge for food security and poverty alleviation in Africa (ADAPPT)

Challenge

While the production of sufficient food is paramount, additional yields can generate income and are the only opportunity for most African farmers to improve their livelihoods and raise themselves out of poverty.

Focus

The project contributes to reducing the high level of rural poverty in sub-Saharan African (SSA) countries by making agriculture and animal husbandry more competitive, increasing food security and raising poor farmers' incomes by cost-effectively increasing crop yields, reducing storage loss and protecting livestock.

The project strengthens the scientific and technological capacity of African nations to exploit pesticidal plants and optimise their use for poor farmers by establishing a pesticidal plant network of scientists and technicians from NGOs, agricultural institutes and universities. This network facilitates the development and optimisation of appropriate, cost effective and environmentally benign agricultural technologies that are based on indigenous pesticidal plant materials for insect pest management in field crops, stored products and ectoparasite control on livestock in the small-scale farming sector across African drylands. The network provides a platform on which old and new knowledge can be better consolidated, expanded and disseminated.

Rationale

Agricultural productivity is limited by numerous biotic and abiotic constraints, but insect pest management is arguably the most important since it is a constraint over which even the poorest farmers can have some direct control and if left unmanaged has severe consequences. Commercial insecticides usually work but they have limited distribution in rural areas, are often

adulterated or inappropriately applied and increasingly are ineffective due to insect resistance. Health and safety is also a serious issue since insecticides are applied with no protective clothing; there is no mechanism to ensure food safety for consumers, and little concern for chronic effects. The environmental impact for wildlife, crop pollinators and natural enemies is also severe and the cost of correctly applied synthetics can be prohibitive.

Pesticidal plants are an effective alternative and their promotion, particularly with optimised application protocols and effective extension services, would have enormous impact on a farmer's ability to manage insect pests. Generations of farmers have used plants in this way, making the technology familiar, trusted and acceptable, but their priority in agricultural policy is low. This may be due to knowledge gaps or maybe because there are few commercial incentives or revenues to drive policy as is the case with synthetic pesticides. Pesticidal plants can also provide marketable products for farmers and small business and their commercialisation will provide both an additional income stream to poor farming communities and a major uptake pathway for business-driven promotion of proven and effective pest management technology. The optimisation of their full potential, especially for the poorest farmers, is constrained by inadequate product evaluation and development which, if improved, will increase the reliable options available to farmers. This project aims to address this directly.

Method

Establishment, consolidation and expansion of a regional network to research, exploit and optimise the use of pesticidal plants. The knowledge developed, shared and disseminated will be used to build capacity for



ACP SCIENCE & TECHNOLOGY PROGRAMME

ACP countries and regions involved

Eastern Africa – Kenya, Tanzania

Southern Africa – Malawi, Namibia, South Africa, Zambia, Zimbabwe

Western Africa – Ghana

Programme theme(s)

Agriculture and agro-industry

Sector

Agricultural policy; Agricultural extension; Agricultural education/training; Agricultural research; Agricultural inputs; Plant and post-harvest protection and pest control; Livestock/veterinary services; Small and medium-sized enterprises (SME) development; Environmental policy and administrative management; Biodiversity; Rural development; Research/scientific institutions

Keywords

Pesticidal plants, botanical pesticides, pest control, natural product chemistry

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research, development and innovation. In this way, the sustainable development of pesticidal plant use in Africa is ensured.

Provision of a forum for widely raising awareness about pesticidal plant use, particularly the livelihood benefits to poor farmers. Understanding how the technologies work can improve their efficacy, health and safety of their use, enhance knowledge about their distribution and habitats to reduce impact on natural habitats, and opportunities for their cultivation to promote conservation across the region and develop and strengthen their market potential.

Creation of an environment for cross-training and skill-transfer through practical demonstration sessions around seminar themes, thereby building individual and institutional capacity. The delivery of training workshops on the exploitation and optimisation of pesticidal plants will focus on improving the quality of research and development outputs, namely through seminars on:

- Planning for the design, evaluation and analysis of plant materials through Participatory Rural Appraisals (PRAs) with end-users and in the laboratory to support and improve the scientific approaches to pesticidal plant evaluation and use;
- Analysis of materials as an effective rural policy option with institutions and farmer groups supporting agricultural production based on pest management using indigenous technology;
- Protecting indigenous knowledge and habitats and improving regulatory frameworks.

Development of policy guidelines to ensure validated marketing and promotion of safe and effective plant-based pesticides in compliance with the UN Convention on Biological Diversity (CBD) while promoting the conservation of habitat diversity across the region.

Outputs

- Pan-African network on pesticidal plant research and development, including a wide diversity of stakehold-

ers from farmers and researchers to government:

- ADAPPT website built as a pesticidal plant forum.
- African dryland pesticidal plant database.
- Collaborative research platform for capacity building and training and knowledge exchange.
- At least three multidisciplinary taskforces on identified knowledge gaps.
- Sustainable production of botanical pesticides through improved harvesting, propagation, cultivation and conservation:
 - Propagation criteria for at least eight pesticidal plant species (one per country).
 - Harvesting protocols and optimised preparations at least for eight pesticidal plant species.
- Production and marketing of pesticidal plant products.
- Policy recommendations formulated and document produced covering the following issues:
 - Best practices and case studies of marketing and commercialisation.
 - Farmer production and marketing networks.
 - Marketing and commercialisation.
 - Bio-safety requirements.
 - Intellectual property and product registration.
- Communication and dissemination platform for pesticidal plant knowledge:
 - ADAPPT forum for communication among partners.
 - At least 10 papers published in international scientific journals.
 - International conference.
 - Proceedings in international journal, e.g., *Crop Protection*, with additional research papers published as appropriate.

Outcomes

- At least 80 scientists or students (ten per country) trained in aspects of pesticidal plant research, development and deployment.
- At least 24 scientists (three per country) across the whole network trained in proposal writing for international funding bodies.
- Research quality of network members raised to international level and research outputs of network members enhanced.



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