

CROP PROTECTION PROGRAMME

**Development of biopesticide registration and risk assessment
guidelines for Ghana**

R8430 (ZA 0659)

FINAL TECHNICAL REPORT

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Executive Summary

In a collaborative effort between the Ghanaian Environmental Protection Agency (EPA), the consultancy organisation JSC International, and the Natural Resources Institute (NRI) the project successfully prepared guidelines for applicants wishing to register microbial and biochemical biopesticides in Ghana. With the approval of EPA staff, the project drew particularly on outputs of the highly successful CPP-funded Kenyan biopesticide workshop held at Lake Nakuru, Kenya in May 2003. In addition to drafting guidelines, training was provided in biopesticide risk assessment and data evaluation to members of the EPA's Chemical Control Management Centre (CCMC), the Pesticide Technical Committee (PTC) and its sub-committees. Training gave staff an understanding of the specific, yet often qualitative issues involved in registering biopesticides, compared with traditional synthetic pesticides. Through its research programmes, DFID has demonstrated a commitment to the development of environmentally friendly crop protection. Preparation of these guidelines addresses one of the recognised constraints to development of biopesticides highlighted in the recent CPP-funded project R7960 (ZA 0462). While the project specifically targeted the Ghanaian EPA, observers from the neighbouring countries Guinea, Benin, Ivory Coast and Togo also took part in the project to widen its potential impact.

Background

The project proposed assistance to the Ghanaian EPA in the formulation of biopesticide registration and risk assessment guidelines with the aim of facilitating greater use of biologically based safe pest control and management options, thereby contributing to a reduction in the use of toxic synthetic chemical pesticides. Biological pest control agents (BPCA) comprising microbial and botanical pesticides, and semiochemicals are valuable components of IPM programmes particularly because their risk profiles are favourable in comparison with conventional synthetic chemicals, and they may be acceptable in organic production systems. The proposed activities were based on conclusions and outputs of previous research in Africa supported by DFID's Crop Protection Programme and other donors including USAID, in response to rising demand for alternatives to conventional pesticides. Activities represent a logical extension to previous research that will help remove barriers to the application of BPCA.

Despite substantial interest in BPCA, wide-scale adoption is hindered by constraints, and in many cases, products emerging from earlier projects have remained experimental (Langewald and Cherry, 2000). For example, under CPP project R7690 in Benin and Ghana, *Plutella xylostella* granulovirus (PxGV) from Kenya was highly effective against diamondback moth larvae. Lack of specific biopesticide registration guidelines in Ghana and Benin however was a major constraint, a view endorsed by stakeholders, including the EPA, the private sector and growers, at the final project meeting (Cherry, 2004). The same stakeholders recommended that drafting biopesticide registration guidelines should be the number one priority for future biopesticide projects in the region. (The need to obtain a prior licensing agreement to commercialize PxGV in W. Africa could be avoided by using local isolates). In Kenya, PxGV has been developed under projects R6615 and R7449. Support from CPP for the 2003 Lake Nakuru biopesticide registration workshop led to draft guidelines for Kenya and as a result PxGV is now being evaluated by the commercial sector.

CPP projects R7960 and R8300 both tackled aspects of biopesticide registration in Ghana in collaboration with the EPA but neither developed specific registration or risk assessment guidelines. Recent experience shows however (for example from Lake Nakuru) that guidelines can be developed relatively easily using CILSS, EU, OECD or US-EPA models. Under project R7960 a collaborative pan-African biopesticide registration workshop with the USAID-AELGA locust biopesticide project in 2001 (Agri-Culture, 2001) familiarized African regulators with the concept of biopesticides. The workshop made significant contributions to the adoption of registration guidelines in the CILSS (Interstate Committee against Drought in the Sahel) countries, paving the way to registration of the mycopesticide Green Muscle®, for locust and grasshopper control in the Sahel, and also prepared the first draft of a harmonised East African

set of guidelines. In turn, the USAID-AELGA project took the Kenya draft guidelines as a model for a later initiative in Tanzania. This current project was a further step in a sequence of initiatives whose common goal is to encourage greater use of BPCA through improvements in the regulatory environment.

A lesson learned from the USAID-AELGA project was that it is imperative that regulators understand and be comfortable with decreasing regulation instead of increasing it. The process of modifying existing registration requirements to accommodate biopesticides needs to be consciously aimed at providing the minimum necessary information for making sound decisions on the safety and efficacy of a biopesticide. The process must avoid making the regulatory burden heavier than for synthetic chemicals. If that happens, it will impede instead of facilitate the availability of biopesticides in Africa (pers comm. Aug 04. Dr L. Vaughan, USAID-AELGA project leader). This lesson formed the underlying principal of the project activities.

Agri-Culture (2001). Homologation des biopesticides en Afrique. Agri-Culture 25 Avril, pp7 & 14.

Cherry, A (2004) Public-private partnerships for development and implementation of entomopathogenic viruses as bioinsecticides for key lepidopteran pests in Ghana and Benin, West Africa. Final Technical Report, Project 4311. International Institute of Tropical Agriculture, Benin.

Langewald J. and Cherry A. (2000). Prospects for microbial pest control in West Africa. Biocontrol News and Information, 21(2) 51N-56N.

Project Purpose

DFID programmes have a commitment to environmentally friendly pest management technologies. Several CPP and Crop Post Harvest Programme (CPHP) projects have addressed this commitment through the development of biorational pesticides such as pheromones and microbial pesticides. One of the main recommendations of the DFID-CPP funded project R7960 (ZA 0462) was that the absence of specific biopesticide registration guidelines in W. African countries was hindering the development and implementation of biologically based pest control agents. This constraint to development was addressed in the current project.

The purpose of the current project was to prepare draft biopesticide registration guidelines and data requirements for promulgation into national legislation that would contribute, in the longer term, to adoption of safer biologically based pest control and management options leading to reduced use of toxic pesticides and safer pest management practices.

Research Activities & Outputs

All planned outputs were achieved in a timely fashion and to the satisfaction of the beneficiary organisation, the Ghanaian EPA.

1. In March 2005 the NRI project leader visited staff at the EPA in Ghana to evaluate the current registration procedures and data handling mechanisms, assess needs and discuss options for biopesticide registration guidelines.
2. The NRI project leader and JSC Int. consultants met in UK in April 2005 to plan and prepare training course materials and resources according to feedback from activity 1 above.
3. **Activity:** A workshop under EPA management was held at the Mensvic Palace Hotel in Accra from 27 to 30 June 2005. The event was attended by members of the CCMC, the PTC and its three sub-committees.

Output: Together with a consultant from JSC International, participants reviewed existing biopesticides registration guidelines from Kenya and OECD and new registration guidelines for microbial and biochemical pesticides were drafted. A resource CD containing useful information on biopesticide registration was handed to all participants. The workshop was attended by observers from the pesticide registration authorities of Togo and Benin.

Lessons learned: This project proved exceptionally straightforward to execute, and with the participatory approach adopted, the output was achieved to the satisfaction of all concerned. Strong demand from EPA also created an enabling environment in which to work. It is clear to me that the ease with which we progressed was heavily dependant on just a few key staff at the EPA in Ghana. Without their cooperation the project could not have succeeded.

4. In June and September 2005 the NRI project and the JSC consultant met to review feedback from workshop 1 and to set the programme for workshop two.

5. **Activity:** A second workshop, also under EPA management, was held from 24 to 27 October 2005 at the Novotel, Accra. The event was attended by 20 members of the CCMC, the PTC and sub-committees as well as by observers from Togo, Benin, Ivory Coast and Guinea.

Output: Participants received training from experienced JSC International staff in operator, consumer and environmental risk assessment risk assessment. Participants also worked in groups to resolve set questions using both real and fictional biopesticide registration data. A review of draft registration guidelines followed the training. These were accepted with only slight modification. An updated and expanded biopesticide registration resource CD was handed to all participants.

Lessons learned: As above.

During the course of the project the EPA's internal pesticide registration guidance manual was brought to the attention of the project leader. Ideally this document should have been complemented with a section on biopesticide registration, drawing on the material provided during workshops but because of its late appearance, this was not included in the original list of activities. Additional funds were awarded from the Crop Protection Programme to permit the project leader and JSC consultant to draft an appropriate section for the EPA manual.

Contribution of Outputs to developmental impact

How is the knowledge promoted benefiting the poor? What coverage has been achieved (numbers of farmers, institutions and production areas adopting the technology). What is the potential for wider scale impact. What follow up action/research is necessary to promote the findings of the work to achieve their development benefit?

Biopesticide registration guidelines were drafted for the Ghanaian EPA which is the immediate beneficiary. No other institutions will need to adopt the project outputs in order for there to be impact. The following is paraphrased from feedback from the director of the EPA's CCMC in November 2005. It indicates follow-up action that will be taken for outputs to achieve their impact.

The EPA is currently drafting other regulations under the [Pesticide Registration] Act 528. The final drafts should be ready before the end of this year (2005). These final drafts together with the draft biopesticides regulations will put before the EPA Board at their first meeting in 2006. The Board after considering them would forward them to the Ministry of Environment and Science for further consideration. The drafts may have to go through consultation with key stakeholders, especially the Ministry of Food and Agriculture and Ministry of Health and the pesticides dealers. The time frame for this is uncertain but results are expected by close of 2006.

The Pesticides Technical Committee will constitute a sub-committee to evaluate biopesticides and make recommendations on policy issues including macrobials biological control agents (BCAs).

The observers [from Togo, Benin, Ivory Coast and Guinea] all expressed interest in developing similar guidelines for biopesticides and [the EPA-CCMC director hopes] DFID could support them in this direction.

Biopesticides are typically niche market products, used where traditional synthetic pesticides are unavailable, undesirable or banned. The market volume of biopesticides worldwide, including biocontrol products, has remained fairly stable at around 1 to 2% of the total global agrochemical market. New, specific guidelines for registration of biopesticides in Ghana should facilitate the uptake and safe use of these products. In Africa, commercial biopesticides have found particular application in export crops destined for markets with strict MRLs on synthetic pesticides. The South African fruit export market is a good example of where biopesticides have found a niche for products destined for the European Union.

Biometricians Signature

Not applicable. There were no statistical issues in this project.