

## DISCUSSION: BIOLOGICAL PESTICIDE RESEARCH AND EXTENSION

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### I. GENERAL INFORMATION

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Duration:	22. 05 - 14. 06. 2008
Number of participants:	4
Number of Contributions:	4

### II. INTRODUCTION OF THE TOPIC

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I am currently the Côte-d'Ivoire team leader of a sub-regional project financed by the Conference of the agricultural research leaders in West and Central Africa (CORAF). The project is operating in Ghana, Togo, Benin and Côte d'Ivoire. It looks at **using plant extracts (from neem and papaya tree) as bio-pesticides substituting for chemical pesticides on horticulture crops**. The CORAF project was started in 2005 and is in its last year of implementation. This December it will hold a final workshop in Lomé to report results in the four countries concerned by the project.

So far we have encountered the following issues:

1. An initial knowledge survey has pointed out that **producers as well as consumers don't have any or little information on the possibilities of using bio-pesticides**. An urban and peri-urban horticulture project (HUP) was implemented by FAO in Yamoussoukro zone from 2003 to 2005. However sustainability of its results and impact has not been achieved and the country's crisis has further impoverished farmers. Despite this, **95 per cent of people interviewed** said that they would be **ready to use or to buy**, even at a higher price, **bio-pesticides, provided that there is a supply in the market**. This is **not** the case in most of our countries.
2. In Côte d'Ivoire, the **effective dosage** of plant extracts from neem or papaya are **unknown**. The HUP project used dosages applied in other countries such as Mali, Senegal or Burkina Faso.

However, phenotypes are not always the same across countries, due to differences in soils and in the ecological and climatic environment. Therefore, the CORAF project has been carried out trials to identify the effective dosages when using extracts from local plants.

3. The **dissemination of research results** obtained at the research station of the University of Agronomy (ESA) involved the public extension services and the National Agency for Support to Rural Development (ANADER). This included the monitoring of Farmer Field School activities, in the framework of on-farm trials. **The homologation of tested plant extract dosages was a challenge, as were the formulation of extracts and their preparation, which should be simplified and less demanding .**

Of course, the chemical pesticide firms will not be interested in this aspect of things which come into "competition" with their activities.

It is therefore left to our Africans countries and organisations involved in biological productions to find solutions to those problems.

**Therefore, we would like to have your advice and learn from your experiences regarding bio-pesticides. Any information (examples, reference papers, contacts...) and insight/advice would be most helpful to our work.** Our worry is not only to solve the above-mentioned problems, but also **how to make our activities sustainable**, how to find **funding to up-scale the project to the highest possible proportion of food crop producers.**

As a matter of fact, the concept of food security also takes into account the quality of food on the daily consumers' market. Food can be a nutriment but also a poison. We know that chemical pesticides which are not officially recognised or not well adapted, are being used on food products, with the risk that pesticide residues are being consumed on a daily basis.

Many thanks and best regards,

Aude Viviane Goulivas (Mrs)

**PS: I would also like to provide some more details about the project as follows:**

At the beginning of the project (07-12.2005), an initial knowledge survey was carried out to identify the determinants of bio-pesticide adoption by horticulturalists, consumers, as well as input distributors.

Then in each country effectiveness trials were conducted at the research station. In Côte d'Ivoire, the project is based in the Agricultural and Animal Resources Department of the University of Agronomy of Yanoussoukro. These trials, started in June/July 2006 and were continued in 2007. This year, we are doing on-farm trials following the Farmer Field School approach. Results will be available around May.

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Original message in French

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Je suis actuellement chef de l'équipe Côte d'Ivoire pour un projet (financé par le CORAF) sous régional (Ghana, Togo, Bénin et Côte d'Ivoire) sur **l'utilisation d'extrait végétaux (neem, papayer) comme bio-pesticide en alternative des pesticides chimiques sur les maraîchers**. Ce Projet CORAF a commencé en 2005 et est à sa dernière année d'exécution avec un atelier de restitution des résultats des 4 pays concernés, prévu en décembre à LOME.

A partir des activités réalisées, nous pouvons retenir ce qui suit:

1- Au niveau de l'enquête de perception, il ressort **qu'aussi bien les agriculteurs que les consommateurs n'ont aucune information ou sinon, peu d'information sur les possibilités d'utilisation des bio-pesticides**. Un projet d'horticulture urbaine et périurbaine (HUP) a été mené par la FAO dans la zone de Yamoussoukro entre 2003 et 2005. Mais la pérennisation des acquis n'a pas été effective et avec la crise qu'a connue le pays, les agriculteurs se sont davantage appauvris. Malgré cet handicap, 95 % des personnes interrogées se disent **prêtes à utiliser ou à acheter (même plus cher) les produits traités aux bio-pesticides, pourvu qu'il y ait une offre sur le marché** (ce qui n'est pas le cas dans la plus part de nos pays).

2- Au niveau de la Côte d'Ivoire, pour les extraits végétaux à base de neem et de papayer, il **n'existe pas de doses testées jugées efficaces**. Les doses utilisées par le projet HUP, proviennent des pays tels que le Mali, le Sénégal ou le Burkina. Le projet CORAF a donc eu le mérite de tester des doses efficaces à partir les plantes locales, dont le phénotype n'est pas toujours le même que celui des autres pays, eu égard à l'environnement écologique et pédoclimatique.

3- La **dissémination des résultats de la recherche** (en station au niveau de l'ESA) a impliquer la structure officielle de vulgarisation, l'Agence Nationale d'Appui au Développement Rural (ANADER), pour le suivi du FFS, au niveau des essais en champ paysan. **Il se pose alors le problème de l'homologation des doses des extraits testés et surtout la formulation des extraits végétaux et leur préparation simplifiée et moins astrignante pour les producteurs.**

Bien entendu, les firmes des produits pesticides chimiques ne seront pas intéressées par cet aspect des choses qui entre en "concurrence" avec leurs activités.

Il revient donc à nos états africains et aux organismes faisant des productions biologiques, leurs priorité de s'approprier ce problème et de trouver des solutions idoines.

**Nous aimerions avoir les contributions des unes et des autres sur ce sujet afin d'enrichir nos travaux. Mais en plus, notre souci est de voir se péreniser les activités entamées et même au delà, rechercher le financement pour étendre ce projet la plus grande proportion d'agriculteurs dans le secteur du vivrier.** En effet, la sécurité alimentaire prend en compte aussi la qualité des aliments mis sur le marché de la consommation quotidienne. L'aliment est une nourriture mais elle peut être un poison, quand on sait que de nombreux pesticides chimiques, non homologués ou non adaptés sont utilisés sur les produits vivriers avec le risque de résidus pesticides que l'on consomme quotidiennement.

Meilleures salutations,

Aude Viviane Goulivas (Mrs)

#### **Quelques autres détails sur le projet:**

Au début du projet (juillet - décembre 2005), il a été nécessaire réaliser une enquête de perception pour identifier les déterminants à l'adoption des bio-pesticides aussi bien par les producteurs maraîchers, les consommateurs que les distributeurs de produits.

Ensuite nous avons par pays, procéder à des tests d'efficacité en station. Au niveau de la Côte d'Ivoire, le projet est logé au sein du Département Agriculture et Ressources Animales de l'Ecole Supérieure d'Agronomie (ESA / INP FHB) de Yamoussoukro. Ces essais débuté en juin/juillet 2006 se sont poursuivis en 2007. Cette année, nous effectuons des tests en milieu paysan par la méthode du Champ Ecole Paysan (Farmer Field School). Les activités se poursuivent et les résultats ne seront disponibles qu'en Avril/Mai.

### **III. LIST OF CONTRIBUTIONS**

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#### **Contribution by Poonam Pande, GTZ (German Technical Cooperation) India**

Dear Friend,

With reference to the topic on Biological pesticide research and extension I would like to state that through our network (**Sustainet, Sustainable Agriculture Information Network** - <http://www.sustainet.org/index-en.html>) our partner organization is working on the use of bio-pesticides in the organic farming production. Our partners are providing trainings also on how to prepare bio-pesticides. For any further information you can contact me.

Warm Regards,

Poonam ([poonam.pande@gmail.com](mailto:poonam.pande@gmail.com))

#### **Contribution by Ramanjaneyulu, India**

Dear Aude Goullivas and Poonam,

Greetings from the centre for sustainable agriculture!

We are a group working on this issue in Andhra for more than 15 years. We were trying to help farmers to make use of locally available material to manage the pests. In the process we also realised that these formulations involving neem and other plant species and the animal dung, urine and other products were effective in managing the pests only if farmers adopt proper preventive steps in the form of surveillance and management practices. We call this as a **Non Pesticidal Management (NPV)**. In 2005 we got the World Bank development market place award for developing a village level production method for NPV.

In AP what we started in few villages has become a big movement now. From the last 4 years we are working with the government of AP in scaling up the best practices. In this NPM has reached more than 10 lakh (one million) acres this season. More than half million farmers in 3000 villages spread across all the districts of AP. This program clearly showed that change is possible if appropriate systems are put in place.

Our suggestion for you would be to try for an **input internalisation model**. This will help the farmers to gain control over the resources and also the local knowledge and resources are more effective. For more details on work please check at <http://www.csa-india.org>

Regards

Ramoo

#### **Contribution by David Nowell, IPPC Secretariat AGPP-FAO**

I think we need to be a little more clear about what we mean by biopesticides, which can have a wide range of active ingredients from chemicals to biological entities.

I am based in the regulatory world, which covers R&D and some aspects of commercialization, and we deal with biopesticides which involve replicating biological entities. Again there are two components to the use of such biopesticides:

i) import (=read trans-boundary movement) and release, specifically including that for research and field / commercial testing and use is dealt with within the framework of the International Plant Protection Convention. More specifically the International Standard on Phytosanitary Measures (ISPM) # 3 <https://www.ippc.int/id/13399> details the processes that need to be followed. As you

will see this covers biological control agents in general and those organisms deemed potentially beneficial, including biological organisms used in certain types of biopesticides. National measures are based on a standard risk analysis and works on the premise that not all biological controls agents are beneficial in all environments.

ii)"commercial" use or registration of such products for field trial sand commercialization - in this case there are good guidelines provided by the OECD.

It should be noted that there are certain risk analysis components that are common between these two processes, if such agents are being imported into a country - the "problem" being these components are often regulated by different groups within Agriculture and/or Health Departments.

If you require further clarity, please contact me.

Regards

David

### **Contribution by FSN Moderator**

We'd like to draw your attention to two papers contributed by Dr. G V Ramanjaneyulu, extension scientist and executive director, from the Centre for Sustainable Agriculture, India. Both papers provide Indian experiences and success stories in non-pesticidal management as well as experiences in **scaling up** ecological farming practices, which are particularly relevant to this topic.

The papers have been added to the resource section of the Forum's site ([http://km.fao.org/fsn/resources/resources\\_by\\_topic.html](http://km.fao.org/fsn/resources/resources_by_topic.html)) in the topic "Food security and Agriculture":

- **Non Pesticidal Management: Learning from Experiences** at [http://km.fao.org/fsn/resources/fsn\\_viewresdet.html?r=437](http://km.fao.org/fsn/resources/fsn_viewresdet.html?r=437)

- **Down to Earth, Science and Environment Fortnightly May 2006**, at [http://km.fao.org/fsn/resources/fsn\\_viewresdet.html?r=436](http://km.fao.org/fsn/resources/fsn_viewresdet.html?r=436)

**Development, evaluation, production and application of eco-friendly neem based pesticides- an Indian experiences (PoinwerPoint presentation)**  
<http://neem.tea-nifty.com/neem/files/12.%20Dr.Yash.Pal.%20Ramdev.pdf>

**Communique of the Expert Group Meeting on Strengthening South-South Cooperation and Technology Transfer/Adaptation for the Utilization of Neem in the Production of Biopesticides and other Products**

<http://www.ics.trieste.it/Portal/ActivityDocument.aspx?id=5275>

Please find below the abstract of the first paper.

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### **Non Pesticidal Management: Learning from Experiences**

Dr. Ramanjaneyulu, G. V  
Dr. Chari, M.S.,  
Dr. Raghunath, T.A.V.S.  
Mr. Zakir Hussain  
Ms. Kavitha Kuruganti

## Abstract

Pests and pesticides contribute to the major economic and ecological problems affecting the farmers, crops and their living environment. Two decades of experience in Andhra Pradesh on Non Pesticidal Management shows that pest is a symptom of ecological disturbance rather than a cause and can be affectively managed by using local resources and timely action. The emerging new paradigm of sustainable agriculture shows that the new knowledge synthesized from traditional practices supplemented with modern science can bring in ecological and economic benefits to the farmers. The small success from few villages could be scaled up into more than 1.5 million ha in three years. The costs of cultivations could be brought down significantly without reduction in yield. **The institutional base of Community Based Organizations like Federations of Women Self Help Groups provides a good platform for scaling up such ecological farming practices. This experience also shows how the grass root extension system when managed by the community can bring in change and help the farming community to come out of the crisis.**

Read the full paper at

[http://www.downtoearth.org.in/cover.asp?FolderName=20060531&FileName=news&sid=42&sec\\_id=9](http://www.downtoearth.org.in/cover.asp?FolderName=20060531&FileName=news&sid=42&sec_id=9)