

Successful strategies for promoting new farming technologies

RIU

Validated RNRRS Output.

A systematic approach to planning and applying effective 'pyramidal' training and dissemination strategies is now available to help get new techniques into use by farmers. Originally developed to promote integrated pest management (IPM), the system can be used to build capacity in a wide range of fields. From innovative, interactive and enjoyable training courses for trainers and farmers, to training guides, farmer pocket books and pest identification cards, a host of useful and well-targeted outputs have already been produced. These are being used in 40 countries. Plus, the generic training strategy has already been successfully used locally by government agencies and NGOs such as Harvest Help and SACDEP in 10 countries: Kenya, Zimbabwe, Uganda, Jamaica, Cameroon, Ghana, Lesotho, Zambia, Mauritius and India.

Project Ref: **CPP34:**

Topic: **7. Spreading the Word: Knowledge Management & Dissemination**

Lead Organisation: **Natural Resources Institute (NRI), UK**

Source: **Crop Protection Programme**

Document Contents:

[Description](#), [Validation](#), [Current Situation](#), [Environmental Impact](#), [Annex](#),

Description

CPP34

Research into Use

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Geographical regions included:

[Burkina Faso](#), [Burundi](#),
[Cameroon](#), [Chad](#), [Congo](#)
[DR](#), [Cote d'Ivoire](#),
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[Ghana](#), [India](#), [Kenya](#),
[Lesotho](#), [Mali](#), [Mauritania](#),
[Mauritius](#), [Mozambique](#),
[Uganda](#), [Zambia](#),
[Zimbabwe](#),

Target Audiences for this content:

A. Description of the research output(s)

1. Working title of output or cluster of outputs.

Title:

Tools, methods and systems to promote and scale up the adoption of integrated pest management and other improved farm practices

Working title:

Strategies to promote adoption of IPM outputs in Africa

2. Name of relevant RNRRS Programme(s) commissioning supporting research and also indicate other funding sources, if applicable.

- Crop Protection Programme
 - § Additional support for publications from the Technical Centre for Rural and Agricultural Co-operation (CTA) in the Netherlands

3. Provide relevant R numbers (and/or programme development/dissemination reference numbers covering supporting research) along with the institutional partners (with individual contact persons (if appropriate)) involved in the project activities. As with the question above, this is primarily to allow for the legacy of the RNRRS to be acknowledged during the RIUP activities.

- R8341 Promoting IPM in Vegetables
- R8417 Promoting IPM at Farmer Trainer Level

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Associated projects:

[Crop farmers,](#)

- R6764 1997 -2001 Environmentally acceptable crop protection strategies based on the improved use of pesticides and adoption of integrated pest management strategies by smallholder farmers in Zimbabwe
- R7403 1999 – 2002 Pest management in horticultural crops; an integrated approach to vegetable pest management with the aim of reducing reliance on pesticides in Kenya
- R8341 2005 – 2006 Promoting adoption of integrated pest management in vegetable production
- R8297 Development of private sector service providers for the horticultural industry in Kenya

4. Describe the RNRRS output or cluster of outputs being proposed and when was it produced? (**max. 400 words**). This requires a clear and concise description of the output(s) and the problem the output(s) aimed to address. Please incorporate and highlight (in bold) key words that would/could be used to select your output when held in a database.

Many RNRRS projects have generated **technologies** that could help **smallholder vegetable farmers** improve their **crop protection and production** practices. The equally important associated challenge is to ensure **adoption** by the end users so that the outputs translate to **behavioural change** that improves **revenues, nutrition and safety** at farm, national and global level.

The challenge led to the development of **specific outputs** relating to **promotion of IPM**, but also to **generic outputs**, applicable to building capacity in any research area.

Specific outputs:

- § **Vegetable IPM Master Trainer's Resource Kit**, for use in conjunction with existing CPP dissemination resources such as books and posters. This contains guidance on course planning and delivery of sessions, practical training exercises, interactive games to make learning fun, and graphics resources
- § **Farmer Trainer Guidance Book**, with session summaries, session plans and tips for **effective training**
- § **Vegetable IPM Farmer Pocket Book** – an A5 black and white reference document that can be cheaply reproduced by photocopying
- § **IPM Field Identification Cards** – with pictures of key pests, diseases and natural enemies on one side, and summarised information on the reverse, for use as a reference or interactively to quiz farmers.
- § **IPM Calendars (2005 and 2006)** with irreverent cartoons carrying key messages.
- § 18 **IPM Master Trainers** from the **private, government and NGO** sectors trained
- § 32 **Farmer Trainers** were trained in order to pilot the training strategies and materials
- 640 **Farmers** trained in basic vegetable IPM techniques (incorporating technologies developed under CPP research), including some export outgrowers
- § **Impact assessment and feedback** for iteration of approaches

Generic outputs

The specific outputs developed under these projects allowed the piloting of a systematic approach to planning and preparing **pyramidal** training and dissemination strategies. This model involves characterising the different **Target Groups**, determining their requirements through **Training Needs Analysis**, establishing **Training**

Objectives for post-training **performance**, building relevant and **appropriate content**, developing **participatory** modules and methods, creating innovative **learning tools** with appropriate media, and drawing up detailed **session plans**. Implementation uses participatory and highly active delivery methods, and enables the trainees to understand, retain and put into practice the **knowledge, skills and positive attitudes** they have gained.

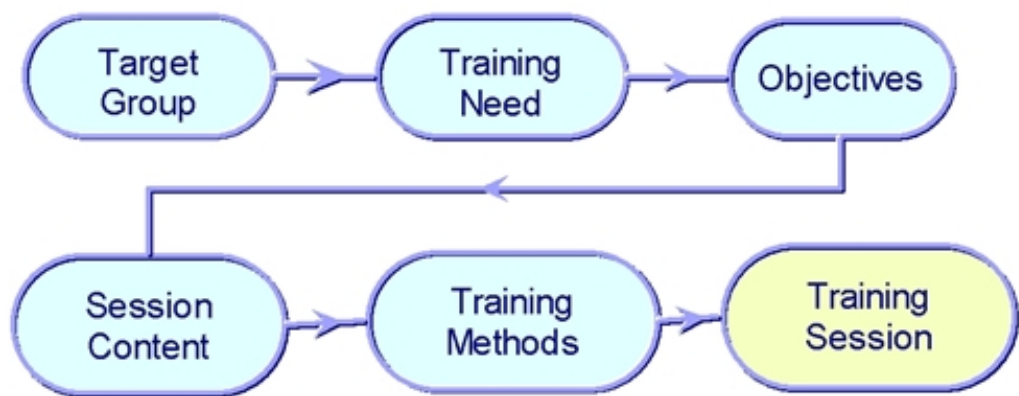


Figure 1. Systematic training strategy

This system was successful and is a **generic model**, responsive and adaptable to promoting uptake and/or adoption of any other technologies generated by the research programmes, at any level from farmer to policy maker, and can accommodate any number of training layers and multipliers.

5. What is the type of output(s) being described here?

Please tick one or more of the following options.

Product	Technology	Service	Process or Methodology	Policy	Other Please specify
X	X		X	X	

6. What is the main commodity (ies) upon which the output(s) focussed? Could this output be applied to other commodities, if so, please comment

The specific outputs focussed on vegetables (export and local consumption) – but are applicable to a wide range of horticultural and agricultural crops.

The generic outputs relating to the model for creating bespoke strategies to promote adoption are applicable much more widely. The methods could potentially involve all commodities from across all former research programmes – including forestry, fisheries and livestock.

7. What production system(s) does/could the output(s) focus upon?

Please tick one or more of the following options. Leave blank if not applicable

Semi-Arid	High potential	Hillsides	Forest-Agriculture	Peri-urban	Land water	Tropical moist forest	Cross-cutting
X	X	X	X	X	X	X	X

8. What farming system(s) does the output(s) focus upon?

Please tick one or more of the following options (see Annex B for definitions).

Leave blank if not applicable

Smallholder rainfed humid	Irrigated	Wetland rice based	Smallholder rainfed highland	Smallholder rainfed dry/cold	Dualistic	Coastal artisanal fishing
X	X	X	X	X	X	X

9. How could value be added to the output or additional constraints faced by poor people addressed by clustering this output with research outputs from other sources (RNRRS and non RNRRS)? (**max. 300 words**).

Please specify what other outputs your output(s) could be clustered. At this point you should make reference to the circulated list of RNRRS outputs for which proformas are currently being prepared.

The specific outputs will add value to the many other horticultural initiatives from NRI, CABI, CSL, CIAT, ICRIASAT, Imperial College, ICIPE and ARI (project codes too numerous to quote). They have already made a valuable contribution to the EC's Pesticides Initiative Programme, in that CPP dissemination outputs have been used in the delivery of Training of Trainers and Farmer Training courses in East and West Africa and the Caribbean.

The generic outputs will add value to any outputs from the former programmes that need to be disseminated through significant multipliers, while retaining the integrity and developmental impact of the original research output messages.

The impact of Programmes' research outputs has been limited to date due to training and other capacity building being *ad hoc*, variable in quality and not conforming to any coherent strategy. Treating training as a science in itself will increase adoption of technologies and other outputs. A systematic analysis of the beneficiaries' circumstances and needs ensures that methods, content and learning tools are relevant, useable and pitched at an appropriate level, and the participatory approach ensures ownership of the learning while providing real-time feedback to the trainers on the success of their endeavours.

Very often, training courses are delivered by a single technical specialist to an unmanageably large group of trainees, resulting in a one way, lecture-based style with little opportunity for discussion, participation or practical work. Pairing a specialist in the research outputs with a training and communication specialist is a far more effective approach. They add value to each other as they work together to prioritise needs, to distil the most important messages, to plan, prepare and deliver high quality participatory training. The 'sweet spot' in the middle of Figure 2 illustrates where needs, research outputs and effective training coincide to bring about sustained beneficial

change.



Figure 2. Three components of beneficial change

Validation

B. Validation of the research output(s)

10. How were the output(s) validated and who validated them?

Please provide brief description of method(s) used and consider application, replication, adaptation and/or adoption in the context of any partner organisation and user groups involved. In addressing the “who” component detail which group(s) did the validation e.g. end users, intermediary organisation, government department, aid organisation, private company etc... This section should also be used to detail, if applicable, to which social group, gender, income category the validation was applied and any increases in productivity observed during validation (**max. 500 words**).

Both specific and generic outputs were validated over a period of time through a variety of methods and by a range of players

Specific outputs – training materials, manuals, information

Validation of such materials can take several direct and indirect forms:

- Demand for the materials. There has been strong demand for the materials, articulated by email, airmail and in-person requests, coming in to the authors, CPP staff and Kenyan collaborators. In this case it is those requesting the materials that are validating them – farmers, extensionists, trainers, research staff, academic staff and industry in LDCs
- Positive feedback from users. Formal course assessment questionnaires were completed by trainees to whom the materials had been distributed, and included specific questions about the training tools and materials. Informal feedback was also gathered during conversations with recipients, including farmers, extensionists and trainers. The feedback was extremely positive, with participants feeling that they were empowered by the materials. One quote from Zambia *"The two things I have liked most about this training are the training materials and the selection of the course participants. It's like winning yourself a place in a national team and playing side by side with professionals. This is a great motivation for me. I will go and implement what I have learnt here."* Watson Chakufwaya, farmer
- Quoting or copying the materials. Some of the cartoon images conveying IPM messages have been copied in Kenya – the Farmers Friend image of a ladybird shaking hands with a farmer had been redrawn in an NGO training manual. Also, staff from the Horticultural Crops Development Authority in Kenya have made hand-drawn A2 flip chart training aids from the calendar cartoons. In Mauritius, the Winding Road IPM poster has been copied professionally and made into an official poster.

§ Complementary reviews by technical, development or communication specialists. In a review by Lenne and Ward (2004) wrote say that most respondents and stakeholders in Kenya agreed that one of the most important outputs and achievements from the vegetable cluster projects was “the development and wide promotion of attractive and effective promotional tools such as the handbooks on integrated vegetable pest management, accompanying posters and two calendars (illustrated by the Nation’s cartoonists) which were originally developed by R6764 in Zimbabwe: there has been great demand for these outputs which have been subsequently used by a number of CPP projects (e.g. R8297 Private sector service providers and R8341 Promoting IPM in vegetables in Uganda) and by other donors e.g. FAO FFS”. They also state that “Project leaders have been incredibly creative in developing innovative promotional tools.” The FTR review also stated that “Outputs are very relevant to programme purpose in promoting pro-poor methods for pest and disease control” and that promotion and implementation of outputs was “Very good, with a wide stakeholder base for disseminations from export groups to smallholder groups and donors.”
- External funding provided. CTA agreed to co-finance the IPM calendar in 2005 AND 2006 – a validation of its appropriateness and developmental impact potential.

Generic outputs

These have also been validated in a variety of ways:

Positive feedback from training target groups. Formal course assessment questionnaires were completed by trainees and were invariably extremely positive. The participants (validators) were trainers from industry, NGOs, Government regulatory bodies and consultants

Positive feedback from organisations with an interest in capacity building. Horticultural export industry representatives at a meeting of FPEAK in Kenya were extremely interested in the training strategy and the philosophy of making it interactive and fun. Tiku Shah, MD of Sunripe Ltd and Director of FPEAK commented “now I understand what training should be about”

The participatory method itself has a built in validation mechanism in it is very obvious during

practical exercises and discussions whether the trainees have improved their knowledge, skills and positive attitudes. In this case the trainers themselves are the validators.

- Training services contracted by other development agencies. The EU's Pesticides Initiative Programme contracted NRI staff to deliver technical and training skills training in Kenya, Ghana, Uganda and Jamaica, based on approaches, methodologies and materials developed under DFID/PPP funding. In addition, FAO funded a TCP project in Cameroon to build capacity for safe and sustainable pest and vector management. This has developed into the Yaounde Initiative Foundation (see www.yaoundefoundation.org), funded by industry and Government of Cameroon, which is building village-level capacity for control of vectors of malaria, onchocerciasis and other debilitating diseases.

11. **Where and when** have the output(s) been validated?

Please indicate the places(s) and country(ies), any particular social group targeted and also indicate in which production system and farming system, using the options provided in questions 7 and 8 respectively, above (max 300 words).

Specific and generic outputs have been validated in the following places:

Training of Trainers courses

Nairobi and Naivasha, (Kenya) – CPP and EU/PIP courses carried out on horticultural IPM, pesticide management and food hygiene and safety

Accra (Ghana), Ocho Rios (Jamaica) and Kampala (Uganda) EU/PIP courses carried out on horticultural IPM and food hygiene and safety

Yaounde Cameroon. National and International pest management courses carried out, funded by FAO

Yaounde Cameroon. National Vector-Borne Disease Management courses carried out, funded by industry and Government of Cameroon

Mokhotlong, Lesotho - DFID funded course on vegetable pest management

Fiwila, Zambia – DFID funded course on vegetable pest management

Farmer Training courses

Masinga, Yatta and Mwea Divisions (Machakos District) Kenya

Wajohi, North Kinangop, Kenya

Kaseku, Mashuru, Kenya

Kakuku, Kenya

Countless farmer field school trainings through CABI and FAO, Kenya

16 farmer training courses at various rural locations in Jamaica

5 farmer training courses at various locations in Ghana

Burkina Faso, Burundi, Chad, Congo, Côte-d'Ivoire, Dominican Republic, Egypt, Mali, Mauritania, Mozambique, farmer training courses carried out

Vector Intervention Teams trained in 6 villages in the Nyong Sanaga Valley region of Cameroon

The agricultural and vector management ToT courses were targeted at diploma or graduate-level personnel in government, NGO and private sectors. The follow-on farmer training was targeted at poor smallholder groups growing vegetables for domestic and international markets, mostly in the Peri-urban, Hillsides and High Potential production systems, operating in Smallholder Rainfed Highland, and Irrigated farming systems

The generic training strategy outputs adapted to vector management were targeted at government, NGO and private sector trainers, and at Smallholder rainfed/humid farming systems in the Forest Agriculture, Tropical Moist Forest and Peri-urban production systems.

Current Situation

C. Current situation

12. How and by whom are the outputs currently being used? Please give a brief description (max. 250 words).

Dissemination and communication materials continue to be used as reference works, training tools, and source materials for new training resources. One example of deliberate prolongation of impact is the 2005 and 2006 calendars that were A3 size and designed to be cut in half at the end of the year to leave an A4 flip chart with humorous cartoons (by the Daily Nation cartoonist) depicting serious IPM messages, for use in training courses in future years.

People using these materials include:

- § Extension workers
- § NGO organisations
- § Other in country bilateral aid initiatives such as FAO Farmer Field Schools
- § Multilateral donor programmes such as the EUs Pesticides Initiative Programme and FAO's IPM programmes.

The generic training strategies are being used by the Trainers trained under the recent DFID, FAO and EU-funded capacity building activities that have involved the staff that helped develop the strategies. These Trainers from Government, NGO, Horticultural Industry, Private Sector Service Providers and Development Agencies, are putting into practice the systematic training analysis, planning and light-hearted participatory implementation approaches that have been developed under the CPP project.

13. Where are the outputs currently being used? As with Question 11 please indicate place(s) and countries where the outputs are being used (max. 250 words).

The dissemination outputs (Vegetable IPM Handbook, posters, calendars) have been distributed in over 40

countries (Antigua, Australia, Belgium, Cameroon, Curacao, Denmark, Eritrea, Ethiopia, Fiji Islands, Germany, Ghana, Italy, Jamaica, Kenya, Malawi, Mauritius, Namibia, Netherlands, Niger Republic, Oman, Republic, Nigeria, Pakistan, Portugal, Rwanda, Solomon Islands, South Africa, South Korea, Sudan, Surinam, Suriname, Swaziland, Tanzania, The Gambia, Trinidad, Uganda, UK, Vietnam, Zambia, Zimbabwe)

The generic capacity-building outputs have been and are being used in the following countries: Kenya, Zimbabwe, Uganda, Jamaica, Cameroon, Ghana, Lesotho, Zambia, Mauritius. In these countries, training of trainers courses have been carried out using the training tools and systematic training strategies developed during the course of the CPP projects.

Some of these TOT courses have been international, meaning that the outputs have been disseminated yet wider to an additional 10 countries, including

Burkina Faso, Burundi, Chad, Congo, Côte-d'Ivoire, Dominican Republic, Egypt, Mali, Mauritania, Mozambique.

14. What is the scale of current use? Indicating how quickly use was established and whether usage is still spreading (max 250 words).

While there is wide geographical spread, the scale of current use of the publications is relatively small, given the relatively small number of copies of each product. However, the ideas contained within the approach, format and content of the publications is likely to have significant multipliers built in. The IPM pocket book is deliberately designed for photocopying so it can be reproduced and used or issued by any trainer.

Similarly, the generic outputs of boosted capacity for effective training and communication have occurred in several countries, but as yet at a relatively small scale. Given that these are Train the Trainers courses, the multiplier factors for the messages are expected to be of the order of 50 – 100.

Take up was rapid due to the demand for the outputs, and they are still spreading. However, the pace of take-up will slow down without continuing investment. The outputs were always meant as pilots for larger programmes, and other projects such as the ICIPE-led project (into which they fed) investigated private sector as a mechanism for sustainability of capacity-building programmes.

15. In your experience what programmes, platforms, policy, institutional structures exist that have assisted with the promotion and/or adoption of the output(s) proposed here and in terms of capacity strengthening what do you see as the key facts of success? (max 350 words).

It is recognized that the outputs from the Renewable Natural Resources Research Programme since 1995 have the potential to reduce poverty. However, in order to realize that potential, the DFID-funded research programme management recognized that these outputs have to be adapted as necessary, then promoted to scale them out and up. For the last few years of the RNRRS there was increasing emphasis on exploring the best ways of doing this – and these outputs are a result of that commitment to learning about promoting adoption. The EU Pesticides Initiative Programme was set up to build capacity in African Caribbean and Pacific countries to comply with new fresh produce import legislation. As such it did not aim to investigate best mechanisms for bringing about the necessary changes in production, handling, transport and management of the industry, but it provided a very

useful test bed for the strategies, methodologies and tools developed by DFID/CPP. The same can be said of the more recent vector management capacity building activities in Cameroon and other Central and West African countries, where the generic model has been adapted in close consultation with national partners.

A shift of perception has also assisted the adoption of the outputs. The conventional attitude some years ago was that export horticulture was of limited relevance to development, and that the priority should be to help communities feed themselves before sending food out of the country. This has changed as LDC policy makers have recognized the macro-economic value of engaging with the global economy. At the micro-economic level, studies such as those of Omosa (undated) found that farmers growing for export felt that they benefited in cash terms compared with others who did not. In this sense, export horticulture can be seen as a force for good in the development of resource poor livelihoods.

A key reason for success has been the willingness to recognize that only a small proportion of research outputs are “self starters”, with most other being more of a “slow burn” requiring active and creative promotion to ensure initial adoption, before they can become sustainably established.

Environmental Impact

H. Environmental impact

24. What are the direct and indirect environmental benefits related to the output(s) and their outcome(s)? (max 300 words)

This could include direct benefits from the application of the technology or policy action with local governments or multinational agencies to create environmentally sound policies or programmes. Any supporting and appropriate evidence can be provided in the form of an annex.

There are direct benefits to the environment from adoption of more benign production practices. Farmers often rely on chemical sprays to maintain and increase supply to an increasing urban population. They want easy, rapid and reliable crop protection but a common perception is that pesticides are the modern (and hence desirable) solution for successful farming. This training and dissemination-based project explored ways to wean growers away from existing practices that include overuse of pesticides and wrong choices of product leading to poor efficacy. Consequences of over-reliance on chemical sprays include operator exposure with associated health risks, contamination of the environment and loss of useful biodiversity. Over reliance on pesticides also leads to secondary problems such as higher inputs costs, residues in produce, build up of resistance and poor control of pests. This leads to a secondary effect, i.e., *increased* use of sprays because pests are not being controlled – sometimes referred to as the pesticide cycle. Once farmers are embroiled in this cycle the detrimental environmental effects multiply. The opposite is the case if farmers have the information and training to use integrated pest management, i.e., adopt the technologies promoted by this project which reduce reliance on chemical crop protection.

25. Are there any adverse environmental impacts related to the output(s) and their outcome(s)? **(max 100 words)**

None

26. Do the outputs increase the capacity of poor people to cope with the effects of climate change, reduce the risks of natural disasters and increase their resilience? **(max 200 words)**

An improved understanding of the biological processes (such as pest/natural enemy interactions) in agriculture and horticulture that results from high quality training is likely to equip farmers with the capacity and the confidence to adapt to climatic and other changes.

Annex

References

Lenne and Ward (2004) Lesson learning study from the Vegetable Cluster with special emphasis on the links with the private sector
Omasa (undated) Export horticulture and livelihood strategies: A focus on the opportunities and constraints facing smallholder farmers in Kenya.
