

Promoting the adoption of IPM in vegetable production

R8341

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See R6616, R6615, *Perspectives on
 Pests 1996–2000*, pp. 50–55

Horticulture provides employment for around two million people in Kenya, but there is scope for expansion and improvement. Many horticultural crops are susceptible to pests and diseases, and farmers often rely on chemical sprays to maintain and increase supply to a growing urban population. They want easy, rapid and reliable crop protection, and a common perception is that pesticides are the modern (and hence desirable) solution for successful farming. Previous research by CPP and other projects has shown that a mix of traditional and newer control techniques, important in IPM, can reduce reliance on pesticides and improve sustainability. These methods are knowledge-intensive, but to date farmers have received little objective and scientifically sound information, advice and training on how to minimise the use of pesticides and how to use them sustainably. This project aimed to develop training capacity and to pilot an effective system for disseminating information to trainers and farmers, to enable them to use IPM to grow safe and healthy crops in a profitable and sustainable way. Information was incorporated into a series of training aids comprising a *Manual for Trainers*, a comprehensive training kit and various targeted dissemination resources. These kits provided the foundation for a two-level course design that enabled the project to train 16 specially chosen trainers, who initially trained over 500 farmers, with the aim of improving the quality and production levels of vegetables in Kenya.

SELECTED PUBLICATIONS

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DOBSON, H.M., COOPER, J.F., AGUDAH, R. and WAINWRIGHT, H. (2005) *A Manual for Trainers – Promoting Integrated Pest Management*. NRI, Chatham, UK.

DOBSON, H.M., COOPER, J.F., AGUDAH, R., WAINWRIGHT, H. and MWAMPEMBWA, G.A. (2004) *Calendar 2005 – Pest Management for Smallholder Farmers*. NRI, Chatham, UK.

ISSUES

Horticultural crops – both for local consumption and for export – are important in Kenya. They are recognised for their health and nutritional benefits, and provide cash income. One-tenth of vegetables in Kenya are grown for export. The total area under horticultural crops is estimated at 245,920 hectares, of which approximately 100,000 hectares are under vegetable production.

Production of vegetables in Kenya, especially for the expanding domestic market, is still limited by major pest and disease problems, and a lack of information and knowledge of improved technologies to address these major constraints. The majority of smallholder vegetable farmers rely heavily on spraying pesticides to reduce the damage caused by pests and diseases. These farmers pay little attention to cultural pest management methods or the potential role of natural enemies. Pesticides are marketed aggressively, but there

is little objective, appropriate and scientifically sound information, advice and training on how to minimise their use or how to use them sustainably. The cost of pesticides absorbs a significant proportion of farmers' income, but without information on cultural and biological technologies, farmers have few alternatives. The mixture of traditional and newer techniques that comprise IPM can reduce reliance on pesticides and improve sustainability.

Further challenges exist for growers who export crops to Europe, where many pesticides are being withdrawn, as standards governing production and handling of fresh produce become stricter. Fewer pesticides, and very low permitted residue levels, present farmers with no choice but to adapt to more rational use of carefully chosen pesticides, integrated with use of alternative pest management strategies. This pressure for change coincided with the aims of the project and probably made stakeholders much more open to new ideas.

This training and dissemination-based project aimed to wean growers away from existing practices that include over-use of pesticides, overdosing and wrong choices of product, leading to poor efficacy.

ACHIEVEMENTS

This project was a collaboration with the Real IPM Company (Kenya). It was one of three projects commissioned by the CPP in 2003 (along with R8297, page 116 and R8299, page 128) to initiate dissemination of outputs from previous research (including projects R6146, R6615, R6616, R6799 and R7403), and to ensure that the beneficial impact of this work is maximised.

This project focused on developing the tools, skilled personnel and promotion techniques to enable others to continue with sustainable IPM promotion. New vegetable IPM instructor's resource kits were developed and used to train IPM instructors. The kit is based on a training manual covering curricula at two levels: a training-of-trainers course, and farmer training materials for use by IPM instructors in conjunction with existing dissemination resources such as handbooks and posters. The training manual contains guidance on course planning and delivery of sessions, practical training exercises, interactive games, and materials that can be used in courses or issued as handouts. It concentrates on pest management in tomato, brassicas and green beans. The materials, all housed in a strong case, provide a tool to help plan and execute training. Kits include posters, books, a calendar, calculators, spray equipment and a hand lens, in addition to the manual. The usefulness of the individual components was rated very highly at a workshop that took place after the instructors' training.

Several supplementary dissemination resource materials were produced, including two posters translated into Kiswahili



Scouting is detective work – inspect the crop very carefully before deciding whether to spray



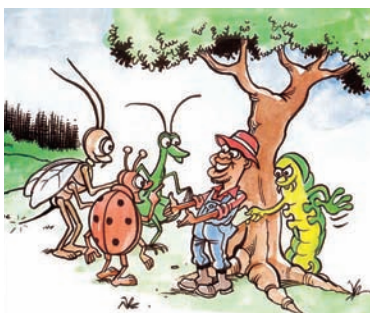
Don't use more spray than you need



Produce may be dangerous if harvested before the pre-harvest interval



Flowering plants provide food for farmers' friends and attract them



Pests can rob you, but some insects are friends

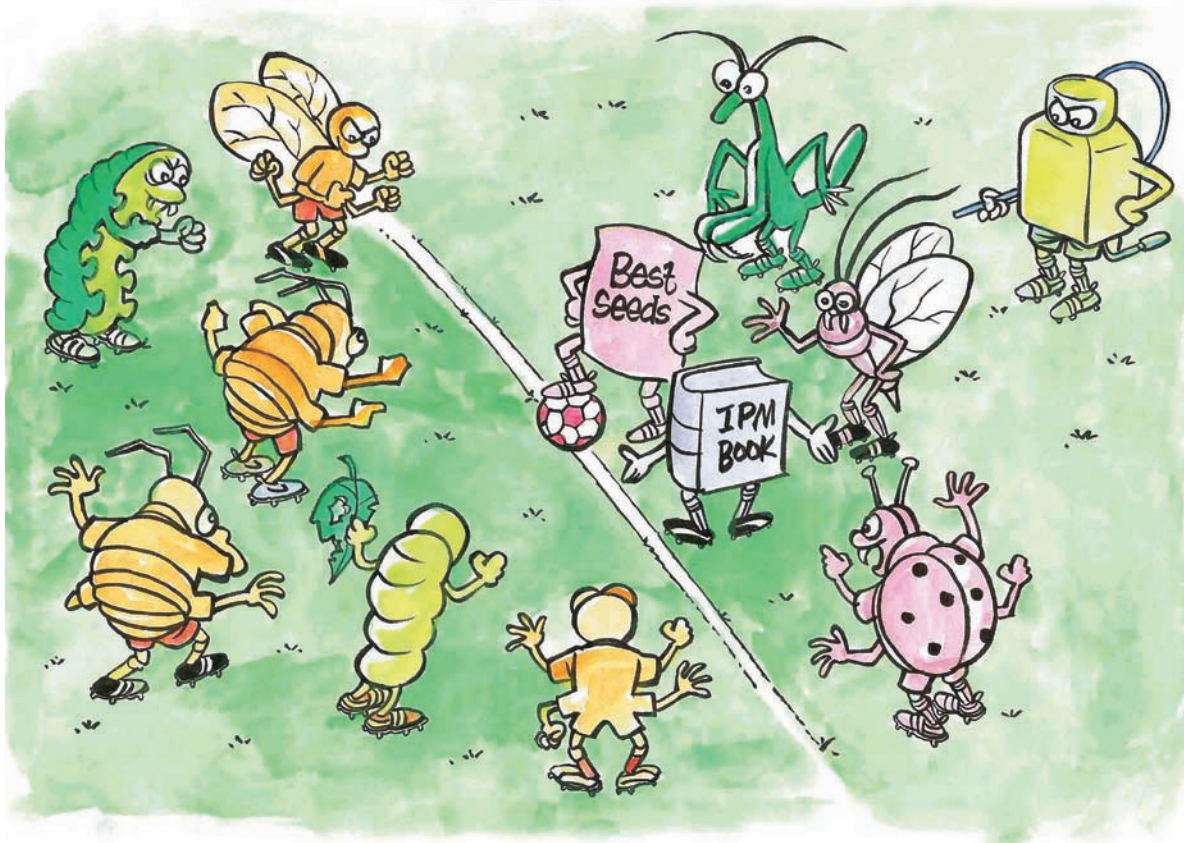
Cartoons from the 2005 Calendar of Integrated Pest Management (reproduced courtesy of Gado)

and an IPM calendar for 2005. The cartoons for the calendar (see examples, right) were drawn by Gado, the cartoonist from the *Kenya Daily Nation*, based on themes developed by the project team. Key messages were identified by the project team, then ideas for visualising these messages were developed by the artist in a collaborative exercise. Both languages were included in the calendar. The planned print run of 1000 was doubled, which enabled the resources to be widely distributed to stakeholders (including projects of CAB International and the International Centre of Insect Physiology and Ecology), as well as horticultural and export companies, outgrowers, and organisations conducting training in the horticultural industry. All the farmers (over 500) trained by the project received an IPM calendar and at least two posters.

After the manual had been drafted, a team of 16 would-be vegetable IPM instructors were given a detailed six-day intensive course in IPM – this team then went on to carry out individual farmers' courses. On the training-of-trainers course these instructors, selected from the private, government and NGO sectors, had the opportunity to give mock farmer-training lessons, before presenting their own courses within six weeks of the end of the primary course.

This team of instructors then trained over 500 farmers in how to adopt vegetable IPM techniques. Their trainees consisted of outgrower farmers and some small-scale domestic vegetable growers. One-third of the trainers' courses were observed by the project team. Getting farmers to 'do' rather than merely listen was stressed on the primary training-of-trainers course and, as a consequence, the secondary courses were carried out in a far more participatory way than the traditional lecturing style commonly used with farmers.

Feedback and comments were captured throughout the project.



'IPM team stars' (reproduced courtesy of Gado)

Information was gathered anonymously from participants after both the training-of-trainers and farmers' courses. The usefulness of training kit components was also rated. This information helped to formulate the objectives of a one-year project extension.

Several impact-assessment visits were made in March 2005 to farmers who had attended IPM courses run by project-trained instructors. The aim was not a systematic survey, more an informal appraisal of the success of the training programme to date and an opportunity to gather information to inform the design and approach of the follow-on phase. Responses were very positive, with farmers stating that the training and materials provided were very useful. An indicator of impact and retention was that farmers could describe several of the calendar cartoons and explain the serious message without a copy in front of them. A direct indicator of adoption was that many farmers

said that, since receiving the training, they scouted rather than calendar-sprayed their crops, and now realised how much money they had been wasting.

An assessment was made of the likelihood of continuing beneficial impact from the training given within different sectors. For example, while the access, geographical reach and sustainability of agrochemical input agents are high, the integrity of the information may be compromised by the sales motives of the individual. In contrast, the access and geographical reach of NGOs may be lower, but the 'fit' with their mission is better and the long-term beneficial impact is likely to be higher.

In terms of numbers trained, the 500 or so farmers whom the project reached are only a small proportion of the production base, which comprises many thousands. However, the training manual and other resources produced by the team will provide a major resource in the longer term, and the numbers trained will eventually far exceed the 16 trainers

and several hundred farmers who have already been reached.

This project has contributed to the capacity to respond to the national and international groundswell of food safety, human safety and environmental protection measures that are increasingly affecting the horticultural industry. It has done so by helping growers to overcome the important limiting factor – the ability to control pests safely and sustainably.

FURTHER APPLICATION

There is now an opportunity to broaden the reach of this dissemination by developing materials to support the information that can be used by farmers. One way of reaching very large numbers of farmers is to use 'farmer trainers' – trained farmers who go on to deliver peer-to-peer training and awareness-raising in the community. An extension to the project (R8417) aims to provide resources for this group so that they can multiply the impact of the parent project more effectively.