

PREFACE

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THE MANDATE of the International Centre of Insect Physiology and Ecology (ICIPE) is to contribute to increased food production by undertaking mission-oriented research on pests of major food crops, vectors of important livestock diseases and insect carriers of human diseases critical to tropical rural health; and secondly, to increase the capacity of developing tropical countries in pest and vector management research, and the application of the results of this research by training selected scientists and technologists in these fields.

In translating this mandate into working objectives, the ICIPE has been guided by the need to establish a solid knowledge base on which effective, long-term pest control strategies could be developed to replace the short-term fire-fighting tactics that have been long adopted in emergency or epidemic situations to deal with our major pest and vector problems, particularly in Africa. We believe that this research orientation—over the 10 years of functional existence of the ICIPE—is yielding significant information which might well result in the development of innovative and cost-effective pest management methodologies in the very near future, for instance in the control of the vector of East Coast Fever.

The Crop-borers Research Programme is the youngest of the Centre's programmes—being only 3 years old—other than the programme on Insect Pathology and Pest Management (IPPM), which was only launched this year. The other five elements of the ICIPE core programme are: Bases of Plant Resistance to Insect Attack, Livestock Ticks, Tsetse, Leishmaniasis and Research Training. All these elements represent extremely difficult problem areas. Yet, the tropical developing countries have limited resources (including human resources) and limited relevant technology necessary for the control of these major pests and disease vectors in a manner which would be both economically and ecologically sustainable in the long-term.

The ICIPE quest for new cost-effective pest management methodologies for Africa (as well as other tropical developing countries) starts from the circumstance that the great majority of the farming community—constituting about 80% of the latter—is made up of the small-scale rural farmer, who has a holding of 3 hectares or less. Under this agro-economic situation, it is clear that, firstly, pesticides as the primary tool for pest control must be drastically reviewed, indeed, any expensive agricultural input cannot form a viable element in the agronomic practice of the small-scale farmer; and secondly, the automatic transfer of technology for pest control or other agronomic practices from industrial, large scale agriculture is most likely irrelevant and ineffective.

The ICIPE approach to crop-borers research has been quite different from the picture I have just painted. The first element in this process has been to focus most of the research at Mbita Point Field Station, which we regard as a critical facility for this programme (as well as some other elements of the ICIPE core programme). It is located at the focus of a small-scale farming rural community, in an area having many major pests which are the targets of ICIPE's research, and where the ICIPE can work closely with the resident farmers, interacting with them directly and appreciating their pest problems and the traditional technology they have acquired over the ages to tackle these problems. The three years we have been working closely with the rural community at Mbita Point and its environs, has convinced us that we have indeed adopted a most important approach to undertaking pest management research for the small-scale rural farmer.

The constellation of the problems we are meeting with at Mbita Point makes a unique framework for our mission-oriented research on the crop-borers of cereals and grain legumes:

- (1) mixed cropping is a common feature of the cropping system for food crops;
- (2) unreliability of rainfall is a constant anxiety of the farmer;
- (3) disease and pest tolerant or resistant cultivars are a boon to the farmer;
- (4) the assurance of stable and reliable crop yields is much more important to the farmer than high yields;
- (5) the farmer is unlikely to be able to carry out extensive monitoring or sampling survey for pests;
- (6) farmers can hardly afford the purchase of fertilizers, herbicides and insecticides.

These are tough factors to deal with in a pest management research programme. But we have devised our research work plans, taking these factors into account. Although the pest control strategy we are looking for will therefore need to be low-cost, long-range and agro-ecologically non-deleterious, the research and development that might lead to the successful design of such methodologies are likely to be long-term and expensive. A taste of this preliminary conclusion can be seen from the work on mixed-cropping entomology that has been reported during the study workshop, or similar reports on phenology of the cowpea plant in relation to experimental levels of pest damage, or even the work on plant resistance. The potential for success is certainly there; but it will prove a long haul!

In May 1980, the ICIPE convened, jointly with the International Fund for Agricultural Development (IFAD), an International Study Workshop on the Sorghum Shootfly (Biology, Ecology and Control of Shootfly) in Nairobi, proceedings of which have already been published in *Insect Science and Its Application* (Vol. 2, Issue No. 1/2, 1981). The workshop put forward a number of recommendations on research collaboration, extension and training, which have been stimulating to the ICIPE and its collaborators through the sorghum shootfly distribution range. Later, in September 1980, the ICIPE and IFAD jointly convened an International Scientific Working Group on Cereal Stem-borers and Legume Pod-borers at Mbita Point Field Station, which reviewed the entire Crop-borers Research Programme at the ICIPE and put forward some far-reaching recommendations. These have been circulated to the partici-

pants at the present International Study Workshop, to give it a measure of the progress the ICIPE has made in the last 2 years and therefore to review the recommendations.

The crop-borers are a major constraint in cereal and legume production in the tropics; sharply-focused and well-directed research is needed to enable us to remove or minimize this constraint on a long-term, agro-ecologically effective manner, best suited to giving the rural community a stable and increased yield of these major staples. The present volume, representing the proceedings of the International Study Workshop on *Crop-borers and Emerging Strategies for Their Control* held from 14 to 18 June 1982 at ICIPE's Mbita Point Field Station (on the shores of Lake Victoria) goes some way to reviewing a great deal of recent information on crop-borers which might lead to new crop-borer management strategies.