Forecasting in the War against Armyworm

Plagues of armyworm (*Spodoptera exempta*) commonly erupt in Tanzania with the start of the rainy season. These voracious caterpillars rapidly multiply to such large numbers that swathes of cereal crops and pasture are consumed. In an attempt to predict outbreaks, and so prepare for counter measures against the infestations, agricultural research stations have, traditionally, recorded armyworm populations by trapping adult moths using pheromone traps. Such records provide projections of caterpillar outbreaks two weeks hence. This system relies upon an institutional hierarchy of farmers and local extension officers, district agricultural officers, and central and regional organizations. Forecasts made by the national centre are based on data obtained from research stations and extension staff who in turn pass the forecast data back to the farmers/pest management organizations. Participation at all levels and rapid information flow are essential for successful forecasting but only partial success has been achieved in the control of armyworm plagues.

Women farmers learning to recognize the moths (armyworm adults) which are caught by the pheromone traps

In project R7966 the various armyworm stakeholder groups – those affected by the pest, those involved in the monitoring and forecasting and those involved in its management – are working together to develop a more efficient and appropriate method of forecasting. Traditional roles are being questioned so as to develop forecasting tools and processes which can operate at the local level and, thereby, also encourage participation at more centralized levels. This project links with a CPP project exploring novel control strategies for armyworm (R7954), which has been so successful that both the Tanzanian Ministry of Agriculture and USAID have funded additional components.

Group discussions on relative merits of different forecasting approaches

An armyworm forecasting pack (comprising a pheromone trap, rain gauge, guidance notes and stationery items) has been developed with villagers, for villagers' use, and is now being promoted. In Kilosa District the project's approach was well received at both district and village level. Each village elected two farmers for the armyworm forecasting training course at the Ministry of Agriculture Training Institute (MATI), Ilonga. Farmers were trained to develop a weekly forecast and participated actively in counting moths, reading rainfall data and scouting vegetation for armyworm. Various models for communicating the locally developed forecast were tested and farmers came up with modifications. The project is actively supported by the Government of Tanzania which has provided sprayers and protective overalls so that farmers have the means to respond when the forecast is positive. When this community activity starts, it is hoped that about 15,000 small-scale farmers will benefit.

This highly successful project has alerted farmers to the armyworm threat and this knowledge is spreading through communities. Policy makers and other donors are reacting to its success by providing further support and, after the success in Kilosa District, the Ministry of Agriculture has provided additional funds for similar activities in another district.

R7966: Identifying the factors causing outbreaks of armyworm as part of improved monitoring and forecasting systems
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