

Vetiver Grass and Pest Control

We know that vetiver hedges are one of the most effective measures for reducing sediment flows from leaving farm land and other areas. These same hedgerows also effectively act as rainfall run off “spreaders”, spreading out concentrated water flows, thus acting as a form of “irrigation” to plants that otherwise might not get their fair share of water. However most small farmers don’t often see the economic connections from these benefits. Now we have rediscovered an old attribute of vetiver, long forgotten, that could have real and visible economic benefits to farmers – vetiver’s ability to interact with pests.

In the C^{19th} growers of vetiver in St. Tammany Parish of Louisiana, USA used it as a hedge and would dig the root for use in sachets as a moth repellent; also when the leaves and roots were ground up and used as a mulch for strawberries the mulch effectively controlled incidence of white fly. More recently a commercial farmer from Zambia, Dereck Jacobi wrote :

“We have noted the control of maize stalkborer in fields of Baby Corn as well as control of leafminers in peas and in our coffee blocks. Vetiver acts as a trap crop for the stalkborer moth when it lays its eggs, whereas with the leafminer it seems that the beneficial wasp population takes care of the leafminers.” The kill rate in coffee was almost 100%, and in the peas out of a sample of 50 infected leaves they found only 2 live leaf miners.

Dereck Jacobi has been working with Professor Johnnie van den Berg of the School of Environmental Sciences and Development, North West University (Potchefstroom Campus), South Africa. Prof. Van den Berg has undertaken serious research on vetiver’s impact on stalk borer (*Chilo partellus*) and has now confirmed and quantified Jacobi’s observations. Studies were conducted to determine preference of female moths for vetiver grass compared to maize and to determine the suitability of vetiver, Napier grass and maize for survival of stem borer larvae. Results indicated that vetiver grass was highly preferred for oviposition, but that larval survival on vetiver grass was extremely low. Thus, vetiver has potential as trap crop component of an overall “push-pull” strategy to concentrate *C. partellus* oviposition away from the maize crop and reduce subsequent population development. This technology may also have application in rice pest management. (Currently controlled observations of the impact of stem borer in rice are about to commence in Vietnam.)

In subsequent field scale studies van den Berg reports “Large scale field experiments showed that vetiver really does work as trap crop for *Chilo partellus* under field conditions. Other field work showed that the vetiver barrier around the maize acts as a reservoir for beneficial insects that attack crop pests in maize. We observed a move of beneficial insects (predators and parasites of pests) from maize towards vetiver when it became winter and the maize crop died. We are now waiting for spring to monitor if and when they move back. We will then be able to see if vetiver can be said to be a reservoir and refuge for beneficial insects. We have done many surveys and samples here and have

not come across any pests of vetiver. One unidentified stem borer was found where vetiver was used for soil stabilization in a mountain pass but it was not important”.

These results have tremendous implication for farmers and the environment. Vetiver Systems with one stroke can, on a farm, reduce crop damage, reduce the use and cost of pesticides, and do its basic job of soil erosion control. In addition the bi-product use of vetiver for handicrafts, mulch, thatch, fodder, and fuel are all there for the taking! What a plant!

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