

Importance of Trap Crops in Pest Control

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Introduction-

Trap crops are those crops that can attract insect pests and other organisms to control infestation against main crops. With the advance and modern scientific study of agriculture, the cultivation or conservation of trap crops may be achieved from prevention from reaching the pest from Economic Threshold Level ETL or one can attract the pest in one place for controlling them economically. Scientists have concluded that the life cycle of these insects, the damage they cause, and the discovery of chemicals that destroy them can help kill them.

Economic importance-

The Government of India launched a pest eradication campaign called Pest Eradication Program. But soon the insects became more resistant to the chemicals and the pesticides and became major pests or economically important to the crop ecosystem. So, then the pest control program was implemented. But even that didn't work. So safe way was to choose a pest management program for suppressing the growth of insect pests. The Agricultural University and the Department of Agriculture have started implementing a new program of insect repellent cultivation methods, crop rotation, first monitoring of insect infestations, disregard if the small number of pests are found and use of pesticides only when very annoying. This is called IPM or Integrated Pest Management. It is now common practice to control pests with this method.

For example, in soybeans, one can attract 70-85% of the stink bug population to a trap crop that covers only 1-10% of the total crop area.

Trap cropping relates many development technologies to agriculture and ecology. Mainly the intercropping and mixed farming can help the flora and fauna for the conservation and increases the soil fertility organically involving the Integrated Pest Management. For integrated production of crops, these trap crops technology also led to the study of insect

behaviour (Innate Behaviour) and Plant Secondary Metabolites and Allelo-chemicals in plants. It's important for maintaining the environmental ecosystem and improving the performance of sustainable agriculture. Apart from the frequent use of chemicals for pest control but the trap cropping has been using for many years for different symbiotic purposes. In fact, until the 1970s, it was mostly used for studying the ecology of certain pest species, for example, the dispersal, hibernation, winter survival, and spring emergence of the cotton boll weevil *Anthonomus grandis*.

Another function of trap cropping is to attract many different natural enemies and collect them to control by Biological method under Integrated Pest Management. Some crops attract beneficial insects. For example, in the case of cotton, the practice of mixing the 200 grams of seeds of cowpeas in 1 kg of cotton, lima beans, and roselle plant locally known as "Ambadi" (one line after 10 lines) is common practice in Maharashtra. From the experience of the farmers, it was noticed that the aphids prefer sorghum crop to cotton, also they leave the cotton plants and live on sorghum (repellent crop). Also, mixing or adding the seeds of roselle plant (Ambadi) in cotton ecosystems a more popular method adopted and the pest also like cotton bollworm are attracted to trap crop and lay eggs and complete the life cycle. Later, when the larvae arrive, a parasitic insect called Common green lacewing *Chrysopa carnea* also been found predatory on aphids in a cotton ecosystem. Therefore, the cotton crop is protected from bollworm.

In nursery management, the trap crop like chrysanthemum can attract most of the sucking pests like aphids and it can also lower the population of sucking pests. Marigold is also a useful trap crop. It has been found that the larvae are attracted to it by forgetting its yellow-orange color, and they get stuck in it and die of starvation due to lack of food. After occasional rows of sorghum and in the cotton row they use bird nesting or bird perching. These predatory birds feed the panicles or grains, but on the other hand, also feed on larvae. The cost of transplanting trap crops along with the main crop is only the cost of seeds and it is very low. Some insects are attracted to this crop and leave the main crop, and the effective control of the enemy insects by this trap crop. So it will be good for marginal farmers to be aware of this. One line of roselle plant crop after 10 rows in a cotton crop would be best practice of a trap cropping.

Conclusions-

Trap cropping is a best practice in controlling the pest in different agro-ecosystems. It gives significant economic and environmental benefits, and its use can be achieved integrated with other cultural, biological, and chemical control methods. In present scenario, trap cropping is the also successful in gaining the rational and economically favorable. Technical development and adoption of biological methods in fields such as the identification, implementation, and removal of harmful residues from crop ecosystem like allele-chemicals, and proper application of methods. Its is alternative to indiscriminate use of chemical pesticides and insect ides shall increases gradually with the compact tendencies on chemicals in crop ecosystem.

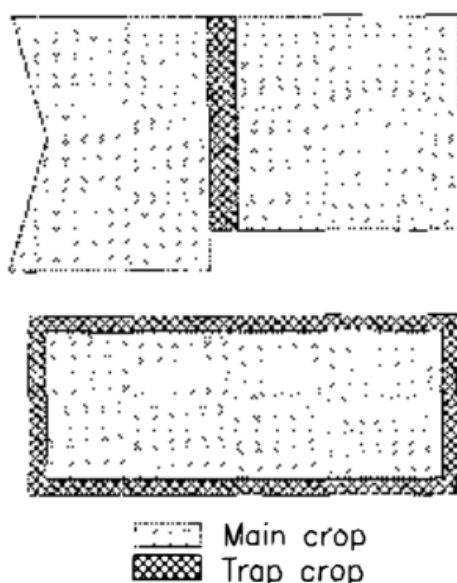


Fig:-1 .Skeleton of trap crop lines strategy & early plantings of the same species as the main crop; restricted entry of pests arrival in fields.

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