[Article ID : 01/XII/05/1221]

PEST MANAGEMENT BY AGRONOMIC METHODS

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Cultural practices are mostly carried out to provide congenial environment for crop for its growth, development and yield. Now-a-days, the environment is changing and this can alter the population of insect and fungi. Insect, pest and diseases which are soil borne as well as viral diseases can be managed effectively through cultural practices.

Practices adopted for managing the influence of insect and pest population in the cropped field are

1. Changing sowing date in order to create unfavourable environment for the insect and pest.
2. Removal of collateral and alternate host.
3. Increasing population of natural enemy by the introduction of crops otherwise volunteer plants.
4. Exposure of population of pupae to unfavourable conditions of environment.
5. Concentration of pest on alternative host.
6. Creation of harsh conditions by irrigation to insect.
7. Creation of physical barriers by border cropping for the entry of insect pest.

Pest occurrence affected by climate

Survival of pest population, their migration, growth rate, death rate, reproductive rate is affected by climate. Temperature is important weather factor that has severe effort on the activity and occurrence of pest. Population of insect pest is reduced by very less temperature of 0°C in winter and very high temperature of 40°C in summer. As soon as, the weather becomes congenial, the insect pest migrates and their activity is affected by temperature, wind and rainfall. Multiplication of insect pest depends on temperature and availability of food. Emergence of pest is affected mainly by temperature and rainfall.

Tillage

Exposure of different insect's pupae is done by tillage especially preparatory tillage. The exposed pupae are eaten by birds and thus decreasing the population of insect pest. The pupae of insect pest die when they are exposed to sun. The infected bolls incorporated by ploughing reduces the population of pink boll worm. After harvesting of rice, ploughing reduces the yellow stem borer of rice.

Time of sowing

By changing the time of sowing, the crop escapes the incidence of pest. Sowing earlier or late than normal can be done. Early or late sowing affects crop yield but reduces insect pest incidence. Incidence of Red pumpkin beetle of cucurbits can be reduced by early sowing. Fruit borer incidence of chickpea can be reduced by early damage.

Seed treatment

Population of soil borne insect decreases by the treatment of seeds with insecticides. This also helps in proper plant stand. Treating seeds of groundnut with chloropyriphos at the rate 6 ml/kg of seeds helps in reducing white grub population.

Intercropping

Leaf minor in groundnut is controlled by intercropping of groundnut pearl millet which enhances parasitiod population. Intercrops such as coriander, cowpea, black gram, green gram, soybean in cotton helps in decreasing boll worm damage.

Trap crop

Trap crops helps to attract otherwise trap insect and pests. Example of trap crops are marigold in cotton, sunflower in groundnut, castor in groundnut. Marigold in tomato helps to decreases damage of fruit borer.

Border crop

Growing of 2-4 rows of another crop along the border of the main crop is the border crop. It acts as a barrier for incidence of pests. Growing of pearl millet, sorghum or maize as border crop reduces population of thrips on groundnut.

Water management

Early morning irrigations buries larval population of caterpillar of tobacco. Alternating the height of water in rice field damages the egg of Brown plant hopper. High humidity created by frequent irritation reduces the population of thrips.

Nutrient management

Manures and fertilizers applied to the field affects the nutrient content of soil and plants and enhance growth of crop which in turn has influence on the palatability to insect and pest. Application of phosphorus and potassium decreases the incidence of white fly. Application of lime and sulphur decreases incidence of root borer of sugarcane.

Removal of alternate hosts

Insect pest survive on alternate host. Removal of alternate decreases build up of pest.