ALTERNATIVE METHODS OF PEST CONTROL

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Alternative methods of pest control mainly deal with methods, other than the use of chemicals. Agrochemicals have caused an enormous threat to the environment. As such biologists and chemists are looking for alternative methods of pest control. At the moment, a number of such methods are in use. Also much work is being done in devising new methods.

Some of the alternative methods are :

a. Biological control
b. Alternative crop methods, or rotation of crops
c. Good housekeeping
d. Use of Pheromones
e. Use of suitable traps
f. Radiation methods

a. Biological Control

In the natural environment, both fauna and flora are in a state of balance. The food supply and the climatic conditions are the main factors that may affect this balance. If there is an abundance of food supply for a certain sector of animals, they may multiply beyond control. This article is mainly concerned with the insect pests and certain weeds that affect our agricultural crops.

The recent emphasis on greater production of both grain and seed crops has produced an abundant supply of food for the insects. A few decades ago the farmer had only one crop per year.

With the development of better varieties with shorter maturity age, e.g. rice, he could cultivate throughout the year. As such there was enough food throughout the year for the insects. As the insect population grew, the natural enemies were unable to keep them under control. This is why the farmer had to use various agrochemicals to destroy the pests.

As agrochemicals cause environmental pollution in various ways, researchers are looking for various natural enemies of the insects. In the recent past, the coconut pest *Cumingi* was brought under control using a biological control method. Although the biological control of insect pests does not pose a threat, there is a certain element of risk that the control agent may itself become a pest.

b. Rotation of Crop Method

Often an insect may depend upon one type of food crop. It thrives only if this source of food supply is available. If the food source is removed, the insect will perish. Thus if a farmer grows one type of crop throughout the year it is difficult to eliminate the insect pest dependant on it. Rotation of crops should be done in consultation with the agricultural adviser. It may not harm the environment and at the same time aim at controlling the insect pest.

If grain type of crops is grown in one season, in the other seasons tuber or seed type crops or even leafy type could be grown. Pest feeding on grain may not feed on leaf or vice versa. The rainy condition and other weather and climatic conditions have to be reasonably well established for the rotation of crops to be successful.

c. Good Housekeeping

This simply means to have clean farms, where insects find it difficult to thrive. Often insects lay their eggs in dark sheltered corners with plenty of

debris. As far as possible the farmer should clear up any sheltered areas and odds and ends should be burnt. Very often, quite unnoticeably some grain or seed may accumulate in unattended corners. Such places should be cleaned.

d. **Use of Traps and Pheromones**

Many insects are attracted to light, especially in the blue and ultra violet areas. Once drawn to the light, they should be trapped and killed. High tension voltage, sticky gummed tape or even suitable insecticide could be used to destroy the trapped insects.

In this connection the use of pheromones (insect sex attractants) also could be used. If a female pheromone is placed in a suitable place, many of the male insects in the vicinity will be attracted. They could be trapped and destroyed. Recent research has shown that alarm hormones could be used in a similar way. Many insects when disturbed or in the process of being destroyed secrete some alarm hormones. When such insects are ground up in water and sprayed over the field, many insects were seen to run away, apparently disturbed by the alarm hormones. Snails and slugs are also repelled by alarm hormones.

Other areas of alternative methods of pest control are being investigated. Use of ultrasonic waves, appropriate electromagnetic waves and radio isotopes are some of them. The ultrasonic waves have already proven to be an effective method of repelling insects and rodents. These sound waves do not harm any organism or cause environmental pollution. Electromagnetic waves could adjust to either attract or repel the insect pest. The radio isotopes are used to produce sterile male insects, thereby eliminating the pest.