Integrated Pest Management for Mango Hopper

Mango, *Mangifera indica* L. (Family: Anacardiaceae), known as "The King of Fruits" is an important commercial crop found in all tropical and subtropical regions of the world. Approximately 400 insect pests have been found to be associated with mango crop all over the world, 260 insect and mites have been found in India, out of which 30 species are capable of causing severe yield losses.

Among all the pests, mango hopper (Homoptera: Cicadelidae) is a severe and major pest of economic importance at flowering and fruiting stages. Three species of mango hopper *viz., Amritodus atkinsoni* Leth., *Idioscopus clypealis* Leth., *I. niveosparsus* Leth. are found in Tarai region of Uttarakhand. Infect these species are found in all over India as a most serious pest of mango. Among these, *A. atkinsoni* generally found on the trunk region and feeds on new vegetative flush, whereas other two speceies, *I. clypealis* and *I. niveosparsus* active during flowering season. Both the nymph and adults of mango hopper suck the sap from tender leaves, flower buds and inflorescence which ultimately affects the panicle emergence, flowering and fruit setting. They also secrete honey dew, which enhances the growth of fungus causing black sooty mould and ultimately reduces the photosynthetic ability of the trees. The damage by mango hopper may causes up to 70-80 per cent yield loss.

Use of chemicals has been one of the conventional methods to reduce these losses; however, now-a-days due to various unwarranted side effects, pest management is relied upon many other options along with pesticides.

Integrated Pest Management is a strategy to manage pests on the basis of a systems approach that looks at the whole orchard ecosystem with the knowledge of beneficial insects like natural enemies and pollinators. This includes understanding how the beneficial insect and pests interact with their plant hosts and with the general climatic conditions, plant health and nutrition and with each other. When implementing an IPM system, growers should select ways to reduce overall pest levels in their orchard in such a way that not harm to the ecosystem and ensure that the management of pests is compatible with their other crop management strategies. The role of insect pollinators is also considered for the better fruit set and yield. Growers in general start spraying schedule without any concern on the role of insect pollinators which are very essential for a good yield. Therefore, this is very important to know the time of application of spray and stage of the crop for getting higher yield without any harmful affect on pollinating agents.

Advantages:

1. Compared to other forms of control, insecticide use is highly effective, easily employed by farmers.
2. Easy availability of pesticides in the market
3. Works better and faster than other alternatives
4. No spray is recommended at flowering stage which enhance the activity of insect pollinators resulting good yield.