

Potato

Pests

Aphids (*Myzus persicae*, *Aphis gossypii*, *Aphis fabae*):

There are several kinds of aphids that feed on potato plants. Aphids transmit a virus disease and cause severe damage to the plant by sucking the juice from leaves and young stems. The plants may be stunted, with the leaves tightly curled and rolled when the attack is severe.

Control: Aphids are controlled by adjusting the planting dated upto 15th October in north western plains, 25th October in Central plains and upto 5th November in North eastern plains. In the Plains, aphids are controlled by application of Phorate 10 G (1.5kg a.i./ha) followed by spraying with Dimethoate 30 EC (0.03%). The spraying should be repeated every week till the insect is completely controlled.

Cut Worms (*Agrotis ipsilon* and *Agrotis segetum*):



The caterpillars cause crop damage. They feed at night on young shoots or under ground tubers. In the early stages of if crop, the caterpillars cut the stem of the young plants near the ground and feed on the shoots and leaves. After tuber formation, they bore and nibble into the tubers affecting both tuber yield and market value.

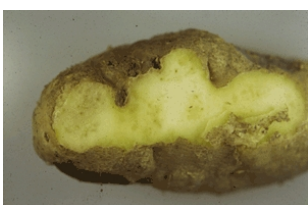
Control: Hot weather ploughing in plains and autumn ploughing in hills reduce the population of immature stages. A number of birds, feed on insects that get exposed upon ploughing. Spraying insecticides like Chlorpyrifos 20EC (2.5 litres/ha) and drenching the ridges on noticing the cutworms controls the pest.

Mites (*Polyphagotarsonemus latus*):

The peak activity of mites occurs during August-September and mid October- mid December. Both adults and nymphs damage the crop by foliage feeding. Mite attack starts from the top potato leaves showing downward curling. In the early stages of infestation, the lower side of leaves appears 'oily'. Gradually these symptoms can be seen on the entire plant. The infested leaves become short and leathery in appearance with characteristic copper colour deposits on lower side. Under severe mite attack, the infested leaves dry up and wither away resulting into death of the plant.

Control: The mite infestation on potato crop can be avoided by delayed planting towards mid October in Indo-Gangetic plains. Frequent spraying with Dicofol 18.5 EC or Quinalphos 25 EC @ 2.0 litres/ha controls the pest. The first application should be done on appearance of the pest and repeated at 7 to 10 days interval depending on the persistence of mite infestation.

Rootknot Nematode (*Meloidogynae arenaria* and *M. incognita*):



Small galls or knots are formed on potato roots but they often go unnoticed. Heavily infested plants are stunted and exhibit early maturity. Reduction in size and number of tubers reduces the yield and warty 'pimple-like' outgrowths formed on tubers result in qualitative reduction.

Control: Avoiding use of seeds from infested areas, deep ploughing and

drying of soil in summer months facilitate drying of infective larva, burning of trash and following a two year rotational sequence of maize-wheat-potato-wheat reduces the root-knot damage significantly. Late Planting of autumn crop and early planting of spring crop in North-Western plains reduces nematode damage, while in the hills early planting of summer crop in 4th week of March is ideal. Application of Carbofuran (Furadan 3G) @ 3 kg a.i./ha is recommended for control of nematodes. The pesticide is applied in two split doses, first at planting and second during earthing up.

Potato Cyst Nematode (*Globodera pallida*):

Small patches of poorly growing plants appear in the field. Such plants show temporary wilting, stunting and premature yellowing symptoms. The size and number of tuber is reduced. Small mustard seed size yellow or white female nematodes are seen sticking to the roots.

Control: Growing non-host crops like radish, garlic, beet and turnip brings down the cyst population. Application of Carbofuran 3G (2 kg a.i./ha) at the time of planting reduces the nematode population.

White Grubs (*Lachnosterna longipennis* and *L. coracea*):



The grubs initially feed on rootlets/roots and then on tubers. The first stage grubs feed on live roots while the second and third instar grubs make large, shallow and circular holes in the tuber and render them unfit for marketing.

Control: A majority of beetles (white grub adults) found in Western Himalayas are attracted to the light source hence electric or petromax light traps may be operated for mass-collection. Wild shrubs and other hosts of beetles growing in/around the potato fields should be removed.

Repeated ploughing before monsoon (April-May) exposes the grubs and pupae. They may be hand-collected and destroyed. Flooding of the fields, for 7-10 days, adopting suitable crop rotations and applying well rotten FYM helps in controlling the pest. Applying Phorate 10G or Carbofuran 3G @ 2.5-3.0 kg a.i. /ha in furrows at planting or near plants base during earthing time is more effective.

Potato Tuber moth (*Phthorimaea operculella*):

Potato tuber moth (PTM) larvae mine the younger leaves and feeds on the tubers. Larvae penetrate the leaves and feed within leaf veins or stems of the plant and on tubers in storage by depositing the eggs near the eye buds, causing irregular galleries and 'tunnels' deep inside the tuber.

Control: An integrated approach is helpful in reducing PTM population in the field and stores. Regular monitoring of PTM adult males with sex pheromone baited water traps (4 traps/100 m³) in field and storage is helpful. Collection of left over tubers, use of uninfested seed tubers, deep planting, frequent irrigation wherever possible, covering the exposed tubers in the field with soil and storage of healthy tubers in moth proof structures are helpful. Spraying Monocrotophos 40 EC (1.5 litre in 1000 litres of water) on 30 day old crop is effective in controlling the pest. The same may be repeated two weeks before harvesting. Use of bioagents, viz. *Bacillus thuringiensis* (Bt) and Granulosis virus (GV) is advocated for PTM control in the stores.