

Reference Guide for Common Insect Associated with Tuber Eaters

Insect	Appearance	Damage	Action
Wire Worm (Click Beetle)	Larva: very small and white when young becoming hard-shelled with dark transverse bands along the length of their body, shiny yellow to rust body with six (three pairs) slender legs toward the head region, pair of pincer-like protrusions at the head, half to an inch long at maturity and easily visible in traps and may be found in or hanging from a potato tuber.	During emergence, larvae may drill into seed-pieces weakening them and soft rot infection may result. Sprouts also may be eaten. During the season, although uncommon, roots and stems may be fed upon. Harvested tubers are often perforated with tunnels appearing on surface as straight, round holes with smooth walls making them unmarketable.	Because wireworm larvae often live for six years and longer, avoid fields with a history of wireworm. Avoid planting after grasses. Planting after several years of alfalfa is excellent. Control is difficult as they live underground. Materials applied in-furrow or seed are labeled for protecting seed-pieces and sprouts. Ethoprop may be applied around emergence and is usually the standard.
White Grub (Sand Chafer)	Adult sand chafer: 1 inch long, similar size and shape to Japanese beetles, shiny black with rusty-red wing covers, bronze or copper from reflecting light when seen from above, Larva (white grub): small, fat and worm-like, inch long, dirty white and partially transparent, brown head with six prominent legs. They live underground.	Tubers appears with large, shallow, irregular and ridged gouges, 1/4 to 1/2 inch deep running along the surface. As grubs enlarge, feeding increases. The worst damage may occur after vine desiccation due to a reduction of shade allowing warming. Feeding stops when the ground cools.	Avoid using manure and planting in high organic matter. Vine desiccate later. Little is known about chemical control. Carbofuran has worked the best but needs to be incorporated by sprinkler irrigation within a week after vine desiccation. Carbofuran may be used against adults in mid-season with some effect..
Flea Beetles	Adult: very small, oval, shiny green to brown to black, enlarged hind legs for jumping. Larva (grub): elongated soft-bodied, white with yellow or tan head, 1/4 - 3/8 inch long, six short legs.	Economic damage is due to feeding on tubers by late season larvae. Tubers appear with narrow, straight, very small tunnels along the perimeter of the tuber. Tunnels are shallow, may extend 1/2 inch deep, and act as a disease entry.	Infestation are sporadic and unpredictable; economic thresholds are not known. Crop rotation and weed control help. Soil-applied systemic insecticides control adults. Most foliar material work well against adults. Treatment for larvae are not available.
Potato Tuber Moth / Worm	Adult (moth): 3/8 inch long with 1 inch wingspan, silver-gray with gray-brown wings. Larva (worm): 1/2-3/4 inch long, gray, cream or pale green with dark head. Pupa: yellow or rusty. Egg: oval, smooth and yellow, laid in clusters on leaves and near tuber eyes.	Considered the most serious pest in warm and dry climates (tropics and sub-tropics), economic damage is from tuber feeding. Tubers are tunneled near eyes forming entry point for disease development. Foliage are mined and stem killed.	Avoid infected tubers; avoid exposing tubers (soil cracks etc.); manage cull piles, and eliminate volunteer plants. Use insecticides; use Bt (gardens) or plant Bt-tubers. Disinfect facilities and containers; store below 52 F (11 C), and screen facility from outside insects.