these white speckles will increase in number, the leaf will take on a bleached appearance and die.

II. Pest Surveillance
Weekly monitoring should be done through pest scouting with the help of monitoring devices like pheromone and colored sticky traps. For field scouting 300 fruits from 100 plants per acre should be observed. Minimum 15 spots at reasonable distance with each other following a cross diagonal pattern moving zig zag manner for counting all type of insects. Pest monitoring for fruit flies using traps should be done regularly from fruiting stage onwards.

If 95% plants are found free from insect pests then the field will be considered fit for export.

III. Integrated Pest Management strategies
The following Good Agricultural Practices should be adopted for the management of various pests of smooth gourd:

- Destruction of debris, crop residues, Weeds and other alternate hosts.
- Adoption of proper crop rotation.
- Use of Resistance varities and tolerant varieties recommended by the State Agricultural Universities of the region.
- Use well decomposed FYM @ 8-10 tones per acre or vermi-compost @ 5 tons per acre treated with *Trichoderma* sp. and *Pseudomonas* sp. @ 2 kg per acre as seed / nursery treatment and soil application.
- Soil application of neem cake @ 250 kg/ha immediately after germination and repeat at flowering followed by sprays of neem seed powder extract @ 4% or neem soap @ 1% reduces the incidence of leaf miner.
- Plant maize as a border crop seven days before sowing.
- Management of leaf miner by removal of cotyledon leaves infected with leaf miner one week after germination followed by spraying of neem seed powder extract @ 4% or neem soap @ 1% reduces the incidence of leaf miner.
- Set up yellow/blue traps/sticky traps 15 cm above the crop canopy for monitoring and mass trapping of Thrips, Whitefly,Aphids @ 10-20 traps per acre.
- Conserve the existing bio-control agents like Spiders, Coccinellids, Syrphid flies etc. in the field by avoiding, delaying and reducing the use of chemical pesticides and promoting the use of bio-pesticides including botanicals and microbial.
- Augment the bio-control agents like egg parasite *Trichogramma* spp., *Telonomus* sp., *Bracon* sp., *Campoletis chlorideae*, *C. blackburni*, Chrysopa sp. etc
- For management of fruit fly Crush pumpkin 1 kg and add 100 gm jaggery and 10 ml Malathion and keep in the plot (4-6 places per acre). Adults are attracted to the fermenting pumpkin and lay eggs and get killed. Repeat the process 2-4 times in the cropping season.
- Bait Application technique (BAT) Spray liquid of 0.1% insecticide and 10% jaggery or 10% ripe banana at 200 spots/ha or Erect Cuelure (para pheromone trap) 3 per acre to attrackt and trap male fruit flies.
- Male Annihilation Technique (MAT) 5 x 5 cm2 wooden blocks soaked in solution of 6:4:1 ethanol: methyl eugenol: malathion for 48 hours hung @ 10/ha.
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For more details please contact:

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Smooth gourd or sponge gourd is annual climbing crop which produces fruit containing fibrous vascular system. The fruit is smooth and cylindrical shaped. It is monococious. It prefers pH of around 6-6.8. Loofah is attacked by a number of insect pests throughout its vegetative and production phases. During high infestation these pests become more serious pests from quarantine point of view as they may find a place in the pathway of smooth gourd fruits export to European Union.

1. Identification pest of Smooth gourd

1. Fruit Fly (Bactrocera cucurbitae):
   Eggs lay singly in clusters on fruits. Larva is dirty white apodous maggot and they pupate in soil. Fruit fly maggots feed on the internal tissues of the fruit causing premature fruit drop, yellowing and rotting of the affected fruits. This fruit fly is difficult to control because its maggots feed inside the fruits, protected from direct contact with insecticides.

2. Thrips (Thrips palmi Karny):
   Thrips palmi is polyphagous but mostly found on Cucurbitaceae and Solanaceae crops. Egg is colorless to pale white in color, and bean-shaped in form; turns yellow towards maturation; laid singly inside the plant tissues. The larvae resemble the adults in general body form though they lack wings and are smaller. They usually feed on older leaves. Adult are pale yellow with numerous dark setae. Slender fringed wings are pale. Fringe is shorter on the anterior edge than posterior. Body length is 0.8 to 1.0 mm. adults feed on young growth. Thrips antenna is seven segmented, Ocelli red pigmented.

3. Leaf miner (Liriomyza trifolihi):
   This polyphagous pest causes characteristic white twisting lines in ash gourd, Cucumis sativus and Cucumis melo. Severe leaf mining accelerates leaf drop and retards growth and yield of plants. After hatching, larvae start feeding in palisade mesophyll cells of leaves while moving inside. Mines start from margins of leaves and progress towards centre. Adult look pale yellow in colour. Yellow larvae can be seen at the end of mines. Larval duration is 4-6 days. When larva is ready to pupate, it cuts a semicircular slit on leaf surface and fall down on ground.

4. Pumpkin beetles (Aulacophora foecicollis):
   Adult are red colore, oblong 5-8 mm long, in their life span of 60-85 days, they lay about 300 oval, yellow eggs singly or in batches of 8-9 in moist soil, near the base of the plants. The eggs hatch in 6-15 days, freshly hatched grubs are dirty white; full grown are creamy yellow, 22 mm long. Grub period 13-25 days and pupate in thick-walled earthen chambers in the soil, at a depth of about 20-25 cm. The pupal stage lasts 7-17 days. Life-cycle is completed in 26-37 days and the pest breeds five times in a year. Both grubs and beetles damage the crop, grubs remain below the soil surface feeding on roots, underground stems of creepers and on fruits lying in contact with the soil. The adults feed on those parts of the plant which are above the ground.

5. Whiteflies (Bemisia tabaci):
   Eggs are yellowish white laid singly on the under surface of leaves. Nymphs are yellowish and brownish, sub elliptical and scale like. They are found in large numbers on underside of leaves. Pupae also resemble nymphs in shape and have brownish opercula. Whitefly is a well-known vector, which transmits leaf curl virus. It has piercing and sucking mouthpart and both nymphs and adults feed on lower surface of the leaves causing deformation of young leaves. Whiteflies also excrete honeydew, causing sooty mold.

6. Red spider mites (Tetranychus sp.):
   This pest is serious on cucurbits during warmer climate. Colonies of mites with in silk web can be observed on ventral leaf surface when incidence is high. Adult mites have eight legs and an oval body with two red eyespots near the head end. Eggs are spherical and translucent, like tiny droplets, becoming cream colored before hatching. Larvae, nymphs and adults of mites lacerate veins of leaves from under surface and suck sap resulting in production of white patches between veins. Infested leaves turn yellow and fall of prematurely. In severe cases, intense webbing occurs giving a dusty appearance to under surface of leaves. As mite numbers increases