Insect Pests of Groundnut and their Management: An Overview

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Groundnut is the most important oilseed crop in India which cover almost half of the total oilseed crop areas. It is cultivated during different seasons under various cropping systems. Gujarat, Andhra Pradesh, Rajasthan, Tamil Nadu, Karnataka, and Maharashtra are the major groundnut growing states which provide around 80% of groundnut production in India. It is attacked by various pests including soil insect pest (white grubs and termites), defoliators (leaf miner, red hairy caterpillar and tobacco bud worm) and sap feeders (leaf hoppers, thrips and aphids).

Table 1: Major pests of peanut

S.N.	Common name	Scientific name
1	White grub	*Holotrichia consanguinea*
2	Aphid	*Aphis craccivora*
3	Jassid	*Empoasca kerri*
4	Leaf miner	*Aproaerema modicella*
5	Termite	*Odontotermes* spp.
6	Thrips	*Scirtothrips dorsalis*
7	Tobacco caterpillar	*Spodoptera litura*

(**Source**: Saroj Singh *et al.*, 2014)

Table 2: Identification of pest and natural enemies

S.N.	Insect pest's identification		
	Pest	**Feature**	
1	White grub	Grub is whitish in colour, adult beetles are dark brown	
2	Aphids	Shiny black with legs and antennae that are white to pale yellow with black tips	

3	Thrips	Soft bodied adult with fringed wings	
4	Jassids	Nymphs and adults yellowish green in colour	
5	Leaf miner	Larvae can be seen in mines on leaflets cause blotches in early stage. Later instar acts as leaf Webber	
6	Spodoptera	Eggs are laid in cluster. Larva acts as defoliators of plant	
7	Red hairy caterpillar	Larvae reddish brown with dense hairs	
Natural enemies' identification			
1	Coccinellids	Grubs are slender with strong thoracic legs. Adults are brightly coloured.	
2	Spiders	With 8 legs and 2 body parts. It feeds on soft bodied insects.	

(**Source:** NICRA team, 2011)

Management practices:

Internet of things (IoT)

It uses sensors and wireless communication to observe critical factors such as climate, soil, water to identify pest and diseases. IoT can provide farmers with suitable scientific information about pest outbreak forewarning to take timely decisions for their crops thereby maximizing yield and income by reducing loss by pest. (Koshy *et al.,* 2018).

Table 3: Threshold levels of different pests

S. N.	Insect Pest	ETL (Economic threshold level)
1	White grub	1 grub/m2
2	Jassids	15-20 jassids/plant
3	Thrips	5 adults/terminal buds
4	Leaf miner	2-3 larvae/plant
5	Aphids	5–10 aphids/ terminal at seedling stage
6	Defoliators	10% foliage damage
7	*Spodoptera*	2 larvae/plant or 20-25% defoliation at 40 days

(**Source**: Saroj Singh *et al*., 2014)

Cultural practices:
1. Deep ploughing in summer and timely sowing to overcome the problem of white grubs
2. Intercropping groundnut with sorghum/ pearlmillet/ pigeonpea to reduce thrips
3. Planting cowpea or soybean as trap crops for leaf miner

Mechanical practices:
1. Installation of light traps/ha: manage red hairy caterpillar (RHC), white grub.
2. Use of Pheromone traps @ 5/ha for monitoring and trapping of *Spodoptera*
3. Destruction of egg masses and early instar larvae of *S. litura* and RHHC
4. Trenching to prevent the march of hairy caterpillar larvae

Biological control:
1. Conserve the natural enemy's population or release *Telenomus remus* @ 50000/ha for 4 times @ 7-10 days interval against defoliators
2. Use of *Bt* products @ 1 kg/ ha or *Sl*NPV @ 250 LE/ha or 5% NSKE (Neem Seed Kernel Extract) against *S. litura*
3. EPN can be recommended @ one billion per acre for the management of white grub.

Chemical control: Need based application of recommended insecticides upon reaching ETL.

White grub management:
Deep summer ploughing and pruning of host trees, collection and destruction of beetles collected using light trap, seed treatment with chlorpyriphos 20EC @ 25 ml/kg seed, soil application of bio-pesticide (*Metarhizium anisopliae,* 1%WP) @ 2 kg/ ha, erection of host tree branches such as khejri or neem just after early monsoon rains on community basis are promising tools to control beetles. Further, use of slow-release aggregation pheromone which is available in nanoformulation (methoxy benzene) developed by ICAR-NBAIR, Bengaluru, successfully control the white grub.

References

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