Annexure III Pests and diseases of Crops

District: Sirmour									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Host	**Insect/ animal**	**Scientific name**	**Local name**	**Habitat**	**Time/ season of attack**	**Management mechanism**	**Associated TK**	**Other details**	**Community knowledge holder**
Maize	Common cutworm	*A. segetum*	Katua Keet/ Toka	• Found during day time hiding in soil close to stems. • Larva cut the seedling plants and feed.	April-June & Oct-Nov	• Hand picking and destruction of larvae. • Apply chlorpyriphos 20 EC @ 2 litres/ ha.	-	-	-
	White grubs	*Holotrichia longipennis*	Safed Gidar	• Soil dwelling grubs are present in soil at a depth of 5-20 cm. • Grubs feed on underground stem and roots tubers.	June-Oct	• Plough the fields to expose grubs to predators. • chlorpyriphos 20 EC @ 2 litres/ ha after mixing with 20-25 kg of sand.	-	-	-
	Maize Stem Borer	*Chilo partellus*	Tane ki sundi	• larvae first feed on the leaves, making a few shot holes. • Central shoot withers and leading to dead heart.	July	• Remove the dead-hearts and infested plants. • Apply 2 g phorate (Thimmet 10G) per meter of row length.	-	-	-
	Corn leaf aphid	*Rhopalosiphum maidis*	Tela	• Aphids infest leaves, leaf sheaths and inflorescences. • Most severe damage occurs to the tassel.	September	• Foliar spray of imidacloprid 200SL or thiamethoxam 25 WDG @ 0.005%.	-	-	-
Paddy	Leaf folder	*Cnaphalocrocis medinalis*		Caterpillars infest leaves of young plants by fastening the edges of the leaf together and live inside rolled	Occasional / at vegetative stage	• Clip-off the affected leaves. • Remove weeds especially graminaceous ones	Clip-off the affected leaves		Local people

				leaf. Occasionally cause serious damage at vegetative stage		• Spray 1250 ml chloropyriphos 20 EC (per 500 L water/ha on pest appearance.			
	Stem borer	*Scirpophaga innotata*		Damage is caused by feeding of the larvae within the stem. The damaged plants result in `dead heart' and `white head' formation	Occasional at vegetative stage	• Apply carbofuran (Furadan 3 G) by broadcasting in 3-4 cm deep standing water @ 1 kg/ha (a.i.) 10 days after transplanting, if necessary. • Spray 500 ml methyl parathion (Metacid 50 EC) in 500 L water/ha. Repeat after 45 days.			Local people
	Leaf hopper	*Nilaparvata lugens*		Nymphs and adults of hoppers cause heavy damage to this crop by sucking the sap from various parts of the plant during July-September. Cause 'hopper burn' symptoms	Regular	• Spray 1250 ml Chloropyriphos 20 EC or 1500 g carbaryl 50 WP per 500 L water/ha on appearance of pest.			
Wheat	Termite	*Odontotermis obesus, Microtermis obesi*	Deemak	Infest crop at germination stage. Cause yellowing and patchy growth of wheat visible from seedlings to maturity	Regular	• Remove stubbles of previous crop before sowing. • Termite mound should be destroyed in vicinity of crop • Seed treatment with chlorpyriphos 20 EC (4ml/kg seed)			

						• Soil application of 2lt.chlorpyriphos 20 EC mixed in 25 kg sand per ha at the time of sowing			
	Aphid	*Rhopalosiphum maidis, Sitobion avenae*	Tela	Suck sap from soft leaves, stem and developing grains from December till crop maturity and ultimately inhibiting grain formation	Regular	• Follow common cultural, mechanical and biological practices • Spray 750 ml methyl demeton 25 EC or dimethoate 30EC in 750 l water/ ha • Generally, natural enemies present in the field help in controlling the population of this pest	Dusting of wood ash		Local people
Gram (Chickpea)	Gram pod borer	*Helicoverpa armigera*	Falli ki sundi	• The larvae feed on leaves and bore into pods.	March	• early sown crop escapes the infestations • intercrop with wheat, mustard and linseed • Apply HaNPV @ 250LE/ ha • Spray the crop with lambda-cyhalothrin 5% EC @ 400-500ml/ 400-600 L/ ha	-	-	-
	Termites	*Microtermes obesi Odontotermes obesus*	Deemak	• Build tall (2-4 m), cylindrical mounds or termitarium. • Workers damage	Regular	• Locating and destroying termite nests. • Use well	-	-	-

				roots.		decomposed FYM • Applying chlorpyriphos 20 EC @ 2 litres/ ha after mixing with 20-25 kg of sand			
Mash	Blister beetle	*Mylabris pustulata*	Ghodi	Adults feed voraciously on flowers	Regular/ at flowering and pod bearing stage	• Collect and destroy beetle • Spray 625 ml methyl parathion (Metacid 50 EC) in 625 L water/ha at the tasselling stage, if required.	Collect and destroy beetles		Local people
	Hairy caterpillar	*Spilosoma obliqua*	Jhan	Feed gregariously on foliage and soft stems of young plants	Occasional at vegetative stage	• Collect and destroy the congregating caterpillars. • Dust Folidol 2% @ 20-25 kg/ha			
	Black bean bug	*Chauliops* spp.	-	Leaf sap feeder	May-September	-	-	-	-
Rapeseed-mustard	Cabbage aphid	*Brevicoryne brassicae*	*Tela*		Rabi *	• Spray methyl demeton 25EC or dimethoate 30EC @1ml/l. • If crop is meant for 'Sag' purpose, then spray malathion 50EC @ 1ml/l and observe 1 week waiting period			
	Mustard aphid	*Lipaphis erysimi*	*Tela*		-do-	• -do-			
	Green peach aphid	*Myzus persicae*	*Tela*		-do-	• -do-			
	Mustard saw fly	*Athalia lugens proxima*	-		-do-	• Spray malathion 50EC @ 1ml/l			
	Cabbage butterfly	*Pieris brasscae*	-		-do-	• -do-			

	Pea leaf miner	*Chromatomyia horticola*	-		-do-	• Spray methyl demeton 25EC or dimethoate 30EC @1ml/l. in crop meant for seed			
	Painted bug	*Bagrada hilaris*	-		-do-	• -do-			
	Flea beetle	*Phyllotreta cruciferae*	-		-do-	• -do-			
Til	Hairy caterpillar	*Spilosoma obliqua*		• Feed on leaves and growing shoots	Vegetative stage	• Collect and destroy the gregarious caterpillars • Spraying cypermethrin @ 0.01% when the caterpillars are small in size (less than 2mm)	-	-	-
	Leaf roller	*Antigastra catalaunalis*		• Young larvae roll the leaves and feed inside	-do-	• Spray quinalphos @0.05%	-	-	-
Potato	Cutworm	*Agrotis segetum*	Katua Keet/ Toka	• Found during day time hiding in soil close to stems • Newly hatched larvae first feed on haulms and then drop from plants and feed underground on stems and tubers	April-June & Oct-Nov	• Forking the soil exposes the larvae to avian predators • Apply chlorpyriphos 20 EC @ 2 liters/ ha after mixing with 20-25 kg of sand			
	White grubs	*Brahmina coriacea* *Holotrichia longipennis* *Anomala* spp	Safed Gidar	• Soil dwelling grubs are present in soil at a depth of 5-20 cm • Grubs make large, shallow, and circular holes in tubers	June-Oct	• Ploughing to expose grubs, pupa and newly formed adults to birds • Beetle collection at night and killing in water mixed with kerosene			

						• Chlorpyriphos 20 EC @ 2 litres/ ha after mixing with 20-25 kg of sand • Insecticide application should occur soon after adult emergence, and should coincide with egg laying or egg hatching			
	Green Peach aphid	*Myzus persicae* (Sulzer)	Tela	• Aphids can injure a potato plant directly by sap feeding and indirectly by transmitting several important potato viruses	Regular	• Seed plots must be kept free of aphids • Selection and rouging of plants infected with a virus • Foliar sprays of dimethoate @ 1ml/L of water/ha • Imidacloprid and thiamethoxam also provide effective protection			
	Red ants	*Dorylus orientalis* *D. labiatus*	Cheenti	• Live in colonies, there may be one or several queens • Damages potato stems and tubers by chewing holes	Minor	• Applying a spray with chlorpyriphos to the soil as a pre-planting dust formulation or as a post-planting spray			
	Wire worms	*Drasterius* sp.		• Major damage occurs from time of tuber initiation until harvest • Bore into the tubers and make cylindrical holes	June-Oct	• Rotation with lgume crops • Keep fields weed-free • Insecticides incorporated into ridges immediately			

						before planting can reduce tuber damage • Phorate applied in furrows is approved for the control of wireworms in potatoes			