

### Annexure III Pests and diseases of Crops

District: Bilaspur									
1	2	3	4	5	6	7	8	9	10
Host	Insect/ animal	Scientific name	Local name	Habitat	Time/ season of attack	Management mechanism	Associate d TK	Other details	Community knowledge holder
Maize	Black cutworm	<i>Agrotis ipsilon</i>	Katua Keet/ Toka	<ul style="list-style-type: none"> <li>• Found during day time hiding in soil close to stems.</li> <li>• Larva cut the seedling plants and feed.</li> </ul>	April-June & Oct-Nov	<ul style="list-style-type: none"> <li>• Hand picking and destruction of larvae.</li> <li>• Apply chlorpyrifos 20 EC @ 2 litres/ ha.</li> </ul>	-	-	-
	Termites	<i>Microtermes obesi</i> <i>Odontotermes obesus</i>	Deemak	<ul style="list-style-type: none"> <li>• Build tall (2-4 m), cylindrical mounds or termitarium.</li> <li>• workers damage roots.</li> </ul>	Regular	<ul style="list-style-type: none"> <li>• Locating and destroying termite nests.</li> <li>• Use well decomposed FYM.</li> <li>• Applying chlorpyrifos 20 EC @ 2 litres/ ha after mixing with 20-25 kg of sand.</li> </ul>	-	-	-
	Maize Stem Borer	<i>Chilo partellus</i>	Tane ki sundi	<ul style="list-style-type: none"> <li>• larvae first feed on the leaves, making a few shot holes.</li> <li>• Central shoot withers and leading to dead heart.</li> </ul>	July	<ul style="list-style-type: none"> <li>• Remove the dead-hearts and infested plants.</li> <li>• Apply 2 g phorate (Thimmet 10G) per meter of row length.</li> </ul>	-	-	-
	Corn leaf aphid	<i>Rhopalosiphum maidis</i>	Tela	<ul style="list-style-type: none"> <li>• Aphids infest leaves, leaf sheaths and inflorescences.</li> <li>• Most severe damage occurs to the tassel.</li> </ul>	September	<ul style="list-style-type: none"> <li>• Foliar spray of imidacloprid 200SL or thiamethoxam 25 WDG @ 0.005%.</li> </ul>	-	-	-
Paddy	Grasshopper	<i>Hieroglyphus</i> spp., <i>Chrotogonus</i> spp.	Tidda	Damage germinating crop by cutting the	Regular	<ul style="list-style-type: none"> <li>• Clean cultivation by removing weeds</li> </ul>	Dusting of wood ash		Local people

				plants in nursery and in the fields. The adults are often serious and attack the periphery of the <b>panicles</b> .		<ul style="list-style-type: none"> <li>• Bunds must be cleared off grasses and weeds</li> <li>• Spray 1250 ml Chloropyriphos 20 EC per 500 L water/ha on appearance of pest.</li> </ul>			
	Leaf folder	<i>Cnaphalocrocis medinalis</i>		Caterpillars infest leaves of young plants by fastening the edges of the leaf together and live inside rolled leaf. Occasionally cause serious damage at vegetative stage	Occasional / at vegetative stage	<ul style="list-style-type: none"> <li>• Clip-off the affected leaves.</li> <li>• Remove weeds especially graminaceous ones</li> <li>• Spray 1250 ml chloropyriphos 20 EC (per 500 L water/ha on pest appearance.</li> </ul>	Clip-off the affected leaves		Local people
	Stem borer	<i>Scirpophaga innotata</i>		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	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Spray 500 ml methyl parathion (Metacid 50 EC) in 500 L water/ha. Repeat after 45 days.</li> </ul>			Local people
	Leaf Hopper	<i>Nilaparvata lugens</i>		Nymphs and adults of hoppers cause heavy damage to this crop by sucking the sap from various parts of the plant during July-	Regular	<ul style="list-style-type: none"> <li>• Spray 1250 ml Chloropyriphos 20 EC or 1500 g carbaryl 50 WP per 500 L water/ha on</li> </ul>			

				September. Cause 'hopper burn' symptoms		appearance of pest.			
<b>Wheat</b>	Termite	<i>Odontotermis obesus, Microtermis obesi</i>	Deemak	Infest crop at germination stage. Cause yellowing and patchy growth of wheat visible from seedlings to maturity	Regular	<ul style="list-style-type: none"> <li>Remove stubbles of previous crop before sowing.</li> <li>Termite mound should be destroyed in vicinity of crop</li> <li>Seed treatment with chlorpyrifos 20 EC (4ml/kg seed)</li> <li>Soil application of 2lt.chlorpyrifos 20 EC mixed in 25 kg sand per ha at the time of sowing</li> </ul>			
	Grasshopper	<i>Hieroglyphus spp., Chrotogonus spp.</i>	Tidda	Feed on foliage and soft stem of young plants	Regular	<ul style="list-style-type: none"> <li>Bunds must be cleared off grasses and weeds</li> <li>Collect and destroy the insect</li> <li>Dust Folidol 2% @ 20-25 kg/ha It is better to dust the grass on bunds and in waste land near the field before germination of wheat and barley as hopper migrate to germinating crop from these sources.</li> </ul>	Dusting of wood ash		Local people
	Aphid	<i>Rhopalosiphum maidis, Sitobion avenae</i>	Tela	Suck sap from soft leaves, stem and developing grains from December till	Regular	<ul style="list-style-type: none"> <li>Follow common cultural, mechanical and</li> </ul>	Dusting of wood ash		Local people

				crop maturity and ultimately inhibiting grain formation		<ul style="list-style-type: none"> <li>biological practices</li> <li>• Spray 750 ml methyl demeton 25 EC or dimethoate 30EC in 750 l water/ ha</li> <li>• Generally, natural enemies present in the field help in controlling the population of this pest</li> </ul>			
<b>Gram (Chic kpea)</b>	Gram pod borer	<i>Helicoverpa armigera</i>	Falli ki sundi	<ul style="list-style-type: none"> <li>• The larvae feed on leaves and bore into pods.</li> </ul>	March	<ul style="list-style-type: none"> <li>• early sown crop escapes the infestations</li> <li>• intercrop with wheat, mustard and linseed</li> <li>• Apply HaNPV @ 250LE/ ha</li> <li>• Spray the crop with lambda-cyhalothrin 5% EC @ 400-500ml/ 400-600 L/ ha</li> </ul>	-	-	-
	Aphids	<i>Aphis craccivora</i>	Tela	<ul style="list-style-type: none"> <li>• Aphid is dark green to black Bean aphids.</li> <li>• Attack terminal leaves, flower heads, and stems of pods.</li> </ul>	Regular	<ul style="list-style-type: none"> <li>• Foliar application of imidacloprid 200SL (0.005%), acetamiprid 20SP (0.01%), lambda cyhalothrin 5EC (0.008%)</li> </ul>	-	-	-
	Black cutworm	<i>Agrotis ipsilon</i>	Katua Keet/ Toka	<ul style="list-style-type: none"> <li>• Found during day time hiding in soil close to stems.</li> <li>• Larva cut the</li> </ul>	April-June & Oct-Nov	<ul style="list-style-type: none"> <li>• Hand picking and destruction of larvae.</li> <li>• Apply</li> </ul>	-	-	-

				seedling plants and feed.		chlorpyrifos 20 EC @ 2 litres/ ha			
	Termites	<i>Microtermes obesi</i> <i>Odontotermes obesus</i>	Deemak	<ul style="list-style-type: none"> <li>• Build tall (2-4 m), cylindrical mounds or termitarium.</li> <li>• Workers damage roots.</li> </ul>	Regular	<ul style="list-style-type: none"> <li>• Locating and destroying termite nests.</li> <li>• Use well decomposed FYM</li> <li>• Applying chlorpyrifos 20 EC @ 2 litres/ ha after mixing with 20-25 kg of sand</li> </ul>	-	-	-
<b>Mash</b>	Blister beetle	<i>Mylabris postulata</i>	Ghodi	Adults feed voraciously on flowers	Regular/ at flowering and pod bearing stage	<ul style="list-style-type: none"> <li>• Collect and destroy beetle</li> <li>• Spray 625 ml methyl parathion (Metacid 50 EC) in 625 L water/ha at the tasselling stage, if required.</li> </ul>	Collect and destroy beetles		Local people
	Hairy caterpillar	<i>Diacrisia obliqua</i>	Jhan	Feed gregariously on foliage and soft stems of young plants	Occasional at vegetative stage	<ul style="list-style-type: none"> <li>• Collect and destroy the congregating caterpillars.</li> <li>• Dust Folidol 2% @ 20-25 kg/ha</li> </ul>			
<b>Rapes eed-mustard</b>	Cabbage aphid	<i>Brevicoryne brassicae</i>	<i>Tela</i>		Rabi *	<ul style="list-style-type: none"> <li>• Spray methyl demeton 25EC or dimethoate 30EC @ 1ml/l.</li> <li>• If crop is meant for 'Sag' purpose, then spray malathion 50EC @ 1ml/l and observe 1 week waiting period</li> </ul>			
	Mustard aphid	<i>Lipaphis erysimi</i>	<i>Tela</i>		-do-	• -do-			
	Green peach	<i>Myzus persicae</i>	<i>Tela</i>		-do-	• -do-			

	aphid								
	Mustard saw fly	<i>Athalia lugens proxima</i>	-		-do-	<ul style="list-style-type: none"> <li>• Spray malathion 50EC @ 1ml/l</li> </ul>			
	Cabbage butterfly	<i>Pieris brasscae</i>	-		-do-	<ul style="list-style-type: none"> <li>• -do-</li> </ul>			
	Pea leaf miner	<i>Chromatomyia horticola</i>	-		-do-	<ul style="list-style-type: none"> <li>• Spray methyl demeton 25EC or dimethoate 30EC @ 1ml/l. in crop meant for seed</li> </ul>			
	Painted bug	<i>Bagrada hiliaris</i>	-		-do-	<ul style="list-style-type: none"> <li>• -do-</li> </ul>			
	Flea beetle	<i>Phyllotreta cruciferae</i>	-		-do-	<ul style="list-style-type: none"> <li>• -do-</li> </ul>			
<b>Til</b>	Hairy caterpillar	<i>Spilosoma obliqua</i>		<ul style="list-style-type: none"> <li>• Feed on leaves and growing shoots</li> </ul>	Vegetative stage	<ul style="list-style-type: none"> <li>• Collect and destroy the gregarious caterpillars</li> <li>• Spraying cypermethrin @ 0.01% when the caterpillars are small in size (less than 2mm)</li> </ul>	-	-	-
	Jassids	<i>Amrasca biguttula biguttula</i>		<ul style="list-style-type: none"> <li>• Suck cell sap from leaves</li> </ul>	-do-	<ul style="list-style-type: none"> <li>• Apply phorate 10 CG @ 10kg/ha</li> <li>• Spray oxy demeton methyl @ 0.025%</li> </ul>	-	-	-
	Leaf roller	<i>Antigastra catalaunalis</i>		<ul style="list-style-type: none"> <li>• Young larvae roll the leaves and feed inside</li> </ul>	-do-	<ul style="list-style-type: none"> <li>• Spray quinalphos @0.05%</li> </ul>	-	-	-
	Hawk moth	<i>Acherontia styx</i>		<ul style="list-style-type: none"> <li>• Larvae feed voraciously on leaves by rolling them</li> <li>• Later on feed on flowers also</li> </ul>	Vegetative and flowering stages	<ul style="list-style-type: none"> <li>• Collect and destroy the caterpillars</li> <li>• Spray quinalphos @ 0.05%</li> </ul>	-	-	-
<b>Soybean</b>	Bean bug	<i>Chauliops species</i>	-		Kharif	<ul style="list-style-type: none"> <li>• -</li> </ul>			
	Girdle beetle	<i>Nupserha nitidior</i>	-		-do-	<ul style="list-style-type: none"> <li>• Watch for drooping</li> </ul>			

						<p>and drying of leaves.</p> <ul style="list-style-type: none"> <li>• Manually remove the infested plants or plant parts from below the girdles.</li> <li>• Alternatively, spray triazophos 40% EC @ 625 ml/ha.</li> </ul>			
	Whitefly	<i>Bemisia tabaci</i>	-		-do-	-			
	Cabbage semilooper	<i>Thysanoplusia orichalcea</i>	-		-do-	Apply triazophos 40 EC @ 625 ml/ha or chlorantraniliprole 18.5 SC @ 150 ml/ha.			
<b>Potato</b>	Greasy cutworm	<i>Agrotis ipsilon</i>	Katua Keet/ Toka	<ul style="list-style-type: none"> <li>• Found during day time hiding in soil close to stems</li> <li>• Newly hatched larvae first feed on haulms and then drop from plants and feed underground on stems and tubers</li> </ul>	April-June & Oct-Nov	<ul style="list-style-type: none"> <li>• Forking the soil exposes the larvae to avian predators</li> <li>• Apply chlorpyrifos 20 EC @ 2 liters/ ha after mixing with 20-25 kg of sand</li> </ul>			
	Green Peach aphid	<i>Myzus persicae</i> (Sulzer)	Tela	<ul style="list-style-type: none"> <li>• Aphids can injure a potato plant directly by sap feeding and indirectly by transmitting several important potato viruses</li> </ul>	Regular	<ul style="list-style-type: none"> <li>• Seed plots must be kept free of aphids</li> <li>• Selection and rouging of plants infected with a virus</li> <li>• Foliar sprays of dimethoate @ 1ml/L of water/ha</li> <li>• Imidacloprid and thiamethoxam also provide effective protection</li> </ul>			

	Red ants	<i>Dorylus orientalis</i> <i>D. labiatus</i>	Cheenti	<ul style="list-style-type: none"> <li>•Live in colonies, there may be one or several queens</li> <li>•Damages potato stems and tubers by chewing holes</li> </ul>	Minor	<ul style="list-style-type: none"> <li>• Applying a spray with chlorpyrifos to the soil as a pre-planting dust formulation or as a post-planting spray</li> </ul>			
	Tobacco caterpillar	<i>Spodoptera litura</i>	Kali Sundi	<ul style="list-style-type: none"> <li>•The caterpillars hide during day in crevices and feed at night.</li> <li>•Defoliation of foliage</li> </ul>	June-Oct	<ul style="list-style-type: none"> <li>• Collect and destroy eggs and larvae mechanically</li> <li>• Ploughing to expose and kill pupae in the soil</li> <li>• Flood irrigation may drown the hibernating caterpillars and pupae</li> <li>• Spray Cypermethrin 25 EC or Lamba cyhalothrin 5 EC @ 600 ml/ 750L of water</li> </ul>			