

Annexure III: Diseases of Crops in Himachal Pradesh

1	2	3	4	5	6	7	8	9	10
Host	Disease	Scientific name of causal agent	Local name	Habitat/ Districts	Time/ season of attack	Management mechanism	Associated ITK	Other details	Community knowledge holder
Cereal crops									
Wheat	Yellow rust	<i>Puccinia striiformis</i>	Ratua, geru/	Foliage, prevalent in wheat growing areas in all districts	Jan -March	Grow resistant varieties Spray with propiconazole 25EC @ 0.1 % at 15 days interval from first appearance	-	-	-
	Loose smut	<i>Ustilago tritici</i>	Kungi, kagiyari	Earheads All wheat growing areas when infected seed used	Feb-March	Seed treatment with carbendazim or carboxin @ 2.5 g/kg or tebuconazole 2DS @ 1g/kg seed			
	Karnal bunt	<i>Tilletia indica</i>	-	Seed, occurs in Foot hills & sometimes mid hill areas	Feb-March	Seed treatment with carbendazim or carboxin @ 2.5 g/kg or tebuconazole 2DS @ 1g/kg Spray crop with propiconazole @ 0.1 % at flag leaf stage and 50% ear emergence	-	-	-
	Hill bunt	<i>Tilletia foetida</i> <i>T. caries</i>	Matu	Seed, in mid & high hills (temperate)	Rabi	Seed treatment with carbendazim or carboxin @ 2.5g/kg seed	-	-	-
	Powdery mildew	<i>Blumeria graminis</i> f sp <i>tritici</i>	-	Foliage All the wheat growing districts	Rabi	Use resistant recommended varieties, Spray crop with propiconazole @ 0.1 %	-	-	-
	Barley	Yellow rust	<i>Puccinia striiformis</i>	Ratua, geru/	Foliage, prevalent in all barleygrowing areas (all districts)	Jan -March	Grow resistant varieties Spray with propiconazole 25EC @ 0.1 % at 15 days interval from first appearance		
Stripe disease		<i>Drechslera graminea</i>		Leaves Kangra, Kullu, Mandi, Una, Hamirpur, Sirmur	Rabi	Seed treatment with carboxin+thiram @ 3.0g/kg seed			
Loose smut		<i>Ustilago nuda</i>	Kungi Kangiyari	Kullu, Kangra, Lahul & Spiti, Kinnaur	Rabi/ Kharif (Zone IV)	Seed treatment with carbendazim or carboxin @ 2.5 g/kg or tebuconazole 2DS @ 1g/kg seed			
Rice	Blast	<i>Magnaporthe grisea</i>	Flah/	Leaf , neck and panicle,	Kharif	Grow resistant varieties	-	-	-

			Jhulsa rog Jalada rog	in all rice growing districts	during Mid July to mid September	Spray the crop with tricyclazole 75 WP (@ 0.06% or carbendazim (0.1%) Seed treatment with carbendazim @ 2.5 g/kg			
	Brown spot	<i>Bipolaris oryzae</i>	-	Leaf and glume in rice growing districts (poor soils)	July to September in upland conditions	Use pathogen free certified seeds of recommended varieties Seed treatment with carbendazim (@ 2g/kg seed Use balanced fertilization	-	-	-
	Sheath blight	<i>Rhizoctonia solani</i>	-	Sheath, leaf blade in all rice growing districts	Kharif	Follow crop sanitation Spray crop with carbendazim (0.1%)	-	-	-
	False smut	<i>Ustilaginoidia virens</i>	-	Grains , Severe in hybrid rice in low hill and foot hill areas of rice growing districts	Kharif	Follow crop sanitation Use optimum fertilizer Spray the crop with copper oxychloride@2.5g/L or propiconazole @ 0.1 % during flowering	-	-	-
Maize	Banded leaf and sheath blight	<i>Rhizoctonia solani</i> f sp <i>sasakii</i>	-	Leaf, sheath & cobs All maize growing districts	Rainy season Kharif	Sanitation Removal of lower leaves Crop rotation Spray crop with carbendazim (0.1%)	-	-	-
	Brown spot	<i>Physoderma maydis</i>	-	Leaf, sheath & stalk All maize growing districts	Kharif	Follow crop sanitation and crop rotation	-	-	-
	Maydis blight	<i>Bipolaris maydis</i>	-	Leaves, sheaths, stalks All maize growing districts	Kharif	Follow sanitation and crop rotation	-	-	-
	Turcicum blight	<i>Exserohilum turcicum</i>	-	Leaves, sheaths, stalks Hilly areas of all maize growing districts	Kharif	Follow sanitation and crop rotation	-	-	-
Pulse crops									
Common bean (French bean & Rajmash)	Anthraco nose	<i>Colletotrichum lindemuthianum</i>	-	Leaves, stems and pods All areas where rajmash cultivated Kinnaur, Mandi, Kullu, Kangra, Chamba	Rainy season	Use disease free certified seed Grow disease resistant varieties Seed treatment with carbendazim or mancozeb	-	-	-

						@2.5 g/kg seed Spray crop with carbendazim (0.1%)			
	Angular leaf spot	<i>Pseudocercospora griseola</i>	-	Leaf and pod Shimla, Kullu, Sirmour, Kinnaur, Mandi and Chamba districts	Rainy season in higher hills	-do-	-	-	-
	Floury leaf spot	<i>Mycovellosiella phaseoli</i>	-	Foliage Shimla, Kullu, Sirmour, Kinnaur, Mandi and Chamba districts	-do-	-do-	-	-	-
	Common bean mosaic virus	<i>CBMV</i>	-	Foliage Shimla, Kullu, Sirmour, Kinnaur, Mandi and Chamba districts	-do-	Use disease free seed	-	-	-
Mash and Mung	Anthracnose	<i>Colletotrichum truncatum</i>	-	Leaf and pod In all mash growing districts	Rainy season	Use certified disease free seed Spray crop with carbendazim (0.1%)	-	-	-
	Cercospora leaf spot	<i>Cercospora canescens/cruenta</i>	-	Foliage In all mash growing districts	-do-	Use certified disease free seed Grow resistant varieties Follow clean cultivation Spray crop with mancozeb (0.2%) or carbendazim (0.1%)	-	-	-
	Leaf crinkle	<i>Virus</i>	-	In all mash growing districts	-do-	Use certified disease free seed Rogue out infected plant early	-	-	-
	Yellow mosaic	<i>Virus</i>	-	In all mash growing districts	-do-	Rogue out infected plant early Control insect vector with insecticides	-	-	-
Chickpea / Gram	Ascochyta blight	<i>Ascochyta rabiei</i>	Bijal padna	Leaves, stem & pods Una, Hamirpur, Bilaspur, Mandi, Kangra, Sirmaur districts	Feb- April (Rainy weather) Rabi	Grow resistant varieties HPG-17, Himachal Chana-1 Treat seed with carbendazim @ 2.5g/kg seed Spray crop with mancozeb (0.25%)	-	-	-
	Fusarial wilt	<i>Fusarium oxysporum</i> f. Sp. <i>ciceri</i>	Ukhera rog	Soil borne, affect roots & stem Una, Hamirpur,	Feb-April Rabi	Grow resistant varieties Himachal Chana-2 & GPF-2 Treat seed with carbendazim	-	-	-

				Bilaspur, Mandi, Kangra, Sirmaur districts		or thiram @ 2.5g/kg seed			
	Stem rot	<i>Sclerotinia sclerotiorum</i>	Tana sadan rog	Soil borne Affects stem & base of branches Una, Hamirpur, Bilaspur, Mandi, Kangra, Sirmaur districts	Feb- April (Rainy wet weather) Rabi	Deep ploughing Field sanitation Spray crop with mancozeb (0.25%) or carbendazim (0.1%)	-	-	-
Lentil	Fusarium Wilt	<i>Fusarium oxysporum</i> f. Sp. <i>lentis</i>	Ukhera rog	Soil borne, affect roots & stem Una, Hamirpur, Bilaspur, Mandi, Kangra, Sirmaur districts	Feb-April Rabi	Grow resistant varieties Treat seed with carbendazim or thiram @ 2.5g/kg seed			
	Ascochyta blight	<i>Ascochyta lentis</i>	-	Leaves, stem & pods Una, Hamirpur, Bilaspur, Mandi, Kangra, Sirmaur districts	Feb- April (Rainy weather) Rabi	Grow resistant varieties Treat seed with carbendazim @ 2.5g/kg seed Spray crop with mancozeb (0.25%)			
Oilseed crops									
Soybean	Pod blight	<i>Colletotrichum truncatum</i>	-	Pods Mandi and Kangra districts	Rainy season	Grow resistant varieties Use certified disease free seed Seed treatment with carbendazim @ 2g/kg	-	-	-
	Frogeye leaf spot	<i>Cercospora sojina</i>	-	Leaf , stem and pods Kangra and Mandi districts	-do-	Use disease resistant varieties Use certified disease free seed Follow crop rotation	-	-	-
Brown and Gobhi sarson/ Toria	White rust	<i>Albugo candida</i>	-	Foliage Kangra, Mandi	Rabi	Grow resistant varieties Use certified disease free seed Seed treatment with metalxy @ 2g/kg Spray crop with mancozeb (0.2%) or copper oxychloride or Ridomil MZ (0.25%)	-	-	-
	Downy mildew	<i>Hyaloperonospora parasitica</i>	-	Foliage In all Brassica growing districts	Rabi	-do- Spray crop with Ridomil MZ @ 0.25%	-	-	-

	Alternaria blight	<i>Alternaria brassicae</i> , <i>A. brassicicola</i>	-	Foliage and pods In all Brassica growing districts	Rabi	Grow resistant varieties Use certified disease free seed Spray crop with mancozeb (0.2%) or Score (0.05%)	-	-	-
	White rot	<i>Sclerotinia sclerotiorum</i>	--	Stem and root	Rabi	Use wider spacing and follow sanitation measures	-	-	-
Linseed	Rust	<i>Melampsora lini</i>	-	Foliage Kangra, Mandi	Rabi	Use recommended resistant varieties Himani, Him Alsi 1 and Him Alsi 2 Spray crop with propiconazole (0.1%)	-	-	-
	Wilt	<i>Fusarium oxysporum lini</i>	-	Root and stem Kangra, Mandi, Una	Rabi	Use recommended resistant varieties Treat seed with thiram or carbendazim @ 2.5g/kg seed	-	-	-
Sesame	Blight	<i>Phytophthora parasitica</i> var <i>sesami</i>	Jhulsa	All aerial parts of plant Kangra, Una, Hamirpur, Bilaspur, mandi districts	Kharif Wet weather	Treat seed with thiram @ 3g/kg seed Spray crop with Ridomil MZ or mancozeb (0.25%)			
	Phyllody	<i>Phytoplasma</i>	-	Leaves & flowers Kangra, Una, Hamirpur, Bilaspur, mandi districts	Kharif	Use healthy disease free seed Grow sesame with maize/ sorghum Spray crop with insecticides to check leafhoppers			
Sunflower	Alternaria blight	<i>Alternaria helianthi</i>	-	Leaves, petals, petioles, heads & stems Foot hill areas Una, Nalagarh, Indora (Kangra)	Spring-Summer	Follow crop rotation Spray crop with mancozeb (0.25%)			
	Rust	<i>Puccinia helianthi</i>	-	Leaves Foot hill areas	Spring-Summer	Grow resistant varieties Spray crop with mancozeb (0.25%)			
Vegetable crops									
Potato	Early blight	<i>Alternaria solani</i>	Ageta Jhulsa	Foliage All potato growing districts (Low & Mid hill areas)	Spring Summer	Follow crop sanitation Crop rotation Spray crop with copper oxychloride or mancozeb (0.25%)	-	-	-
	Late blight	<i>Phytophthora infestans</i>	Pachheta	Foliage and tubers	Rainy	Grow resistant varieties	-	-	-

			Jhulsa	In High hills of Shimla, Mandi, Chamba and Sirmour districts	season but in Kangra in spring season also	Use certified disease free seed tubers Follow spray schedule of fungicide like mancozeb, metaalxyl, Cymoxanil in rotation and combination @ 0.25%			
	Black scurf	<i>Rhizoctonia solani</i>		Tubers, All potato growing districts	Both seasons	Use disease free certified seed tubers, Tubers treatment Boric acid (3%)	-	-	-
	Viral diseases			Foliage & tubers All potato growing districts except Lahaul & Spiti	Rainy and spring season	Use certified disease free tubers	-	-	-
Pea	Root rot	<i>Fusarium pisi</i>	-	Root In all pea growing districts	Rabi and summer in high hills and dry temperate zone	Seed treatment with carbendazim/ vitavax @ 2.g/kg Follow crop rotation	-	-	-
	Wilt	<i>Fusarium oxysporum</i> f sp <i>pisii</i>	-	-do-	-do-	-do-	-	-	-
	Powdery mildew	<i>Erysiphe pisi</i>		-do-	Feb-April July-August in Dry temperate zone	Grow resistant varieties Spray with hexaconazole and or triadmefon @0.05%	-	-	-
	Ascochyta blight	<i>Ascochyta pisi</i> , <i>A. pinodella</i>		-do-	Rabi	Use certified disease free seed	-	-	-
	Rust	<i>Uromyces viciae fabae</i>	-	-do-	Rabi	Grow resistant varieties Spray with hexaconazole and or triadmefon @0.05%	-	-	-
	White rot	<i>Sclerotinia sclerotiorum</i>	-	-do-	Rabi	Seed treatment with carbendazim @ 2.g/kg Use wider spacing Follow sanitation	-	-	-

Tomato	Buckeye fruit rot	<i>Phytophthora nicotiane parasitica</i>	-	Solan and Shimla	Rainy season	Grow resistant varieties Provide stacking Remove lower leaves Ensure proper drainage and mulch the surface Spray crop with Metalaxyl / cymoxanil + mancozeb/	-	-	-
	Late blight	<i>Phytophthora infestans</i>		All tomato growing areas	Rainy season	-do-	-	-	-
	Bacterial wilt	<i>Ralstonia solanacearum</i>	Murjhan	Kangra, Mandi	Summer Rainy	Grow resistant varieties Avoid rainy season crop	-	-	-
	Early blight	<i>Alternaria solani</i>	-	All crop growing areas			-	-	-
Cucurbits	Powdery mildew	<i>Sphaerotheca fuliginea</i>	-	All crop growing areas	Summer	Spray benomyl or carbendazim @ 0.1%	-	-	-
	Downy mildew	<i>Pseudoperonospora cubensis</i>	-	-do-	Rainy season	Follow sanitation Crop rotation Avoid excess humidity	-	-	-
	Anthraco nose	<i>Colletotrichum orbiculare</i>	-	-do-	-d0-	Follow sanitation Crop rotation Spray with benomyl @ 0.1% and or mancozeb @ 0.25%	-	-	-
Ginger	Rhizome rot	<i>Fusarium sp, Pythium sp</i>	Gathi sadan	Rhizome	Sirmour, Solan, Bialspur	Use certified disease free seed Follow crop rotation	-	-	-
Garlic/ Onion	Stemphylium blight	<i>Stemphylium vesicarium</i>	-	Leaf In Kullu Mandi, Sirmour	Feb-April	Use certified disease free seed Follow crop rotation	-	-	-
	Purple blotch	<i>Alternaria porii</i>	-	Leaf Onion/ garlic growing areas	-do-	-do-	-	-	-