



PENYAKIT BURUK/REPUT DAUN

Patogen penyebab: *Rhizoctonia solani*

Tanaman: Jenis Brassica seperti Sawi

Tanda-tanda penyakit:

Kesan buruk pada daun.

Cara merebak:

- Air Hujan.
- Peralatan ladang dan sistem pengairan yang membawa tanah yang telah dicemari.
- Sisa-sisa tanaman yang berpenyakit.

Kawalan:

- Buang dan bakar daun-daun yang terkena kesan serangan.
- Buang dan bakar pohon-pohon yang sudah teruk terkena serangan.
- Amalkan tanaman bergilir.
- Sembur dengan racun penyakit yang disyorkan pada peringkat awal sebaik-baiknya sebelum adanya kesan serangan.

Racun-racun yang disyorkan:

Azoxystrobin (Amistar), Benomyl (Benex, CH Benomyl), Carbendazim (Bandazim, Halex Carbendazim), Chlorothalonil (Daconil, Rovaltac), Mancozeb (Disan 45, Dithane M-45, MZ-45), Maneb (Trineb, BM Maneb), Propineb (Antracol, Catalyst), Zineb (Zinacol), Captan (Captan), Pencycuron (Monceren, Beacon), Iprodione (Rovral), Trifloxystrobin (Flint).





LEAF ROT DISEASE

Causal Organism: *Rhizoctonia solani*

Crop: *Brassica* sp.

Symptoms:

Rotting symptom on leaves.

Method of Spread:

- Rain splash.
- Water system and farming tools that carry along infected soil.
- Infected crop residues.

Control:

- Dispose and burn infected leaves.
- Dispose and burn badly infected plants.
- Practice crop rotation.
- Spray with recommended fungicides before symptoms appear.

Recommended Fungicides:

Azoxystrobin (Amistar), Benomyl (Benex, CH Benomyl), Carbendazim (Bandazim, Halex Carbendazim), Chlorothalonil (Daconil, Rovaltac), Mancozeb (Disan 45, Dithane M-45, MZ-45), Maneb (Trineb, BM Maneb), Propineb (Antracol, Catalyst), Zineb (Zinacol), Captan (Captan), Pencycuron (Monceren, Beacon), Iprodione (Rovral), Trifloxystrobin (Flint).





PENYAKIT ANTRAKNOS

Patogen penyebab: *Colletotrichum* sp.

Tanaman: Lada

Tanda-tanda penyakit:

Kesan buruk pada buah (tanda berpusar) dan buah akan gugur.

Cara merebak:

- Air Hujan.
- Angin.
- Sisa-sisa tanaman yang berpenyakit.

Kawalan:

- Amalkan tanaman bergilir dengan jenis tanaman yang lain.
- Buang dan bakar daun, buah dan ranting yang terkena kesan serangan.
- Gunakan biji benih yang bebas/tahan penyakit.
- Sembur dengan racun penyakit sebaik-baiknya 4 minggu selepas berbunga bagi mencegah serangan penyakit pada tanaman lada.

Racun-racun yang disyorkan:

Azoxystrobin (Amistar), Azoxystrobin + Difenconazole (Amistartop), Carbendazim (Bandazim, Halex Carbendazim), Chlorothalonil (Daconil, Rovaltac), Mancozeb (Dithane M-45, Disan 45, MZ-45), Maneb (BM Maneb, Trineb), Propineb (Antracol, Catalyst), Zineb (Zinacol), Captan (Captan), Prochloraz manganese chloride (Octave), Difenconazole (Score, Barb), Tebuconazole (Folicur), Trifloxystrobin (Flint), Iprodione (Rovral).





ANTHRACNOSE DISEASE

Causal organism: *Colletotrichum* sp.

Crop: Chilli

Symptoms:

Rotting of the fruits (concentric rings) and eventually fruits drop.

Method of Spread:

- Rain splash.
- Wind.
- Infected plant residues.

Control:

- Crop rotation with different plant groups.
- Dispose and burn infected leaves, fruits and twigs.
- Use disease-free/resistant seeds.
- Spray with recommended fungicides at least 4 weeks after flowering as a prevention method.

Recommended Fungicides:

Azoxystrobin (Amistar), Azoxystrobin + Difenconazole (Amistartop), Carbendazim (Bandazim, Halex Carbendazim), Chlorothalonil (Daconil, Rovaltac), Mancozeb (Dithane M-45, Disan 45, MZ-45), Maneb (BM Maneb, Trineb), Propineb (Antracol, Catalyst), Zineb (Zinacol), Captan (Captan), Prochloraz manganese chloride (Octave), Difenconazole (Score, Barb), Tebuconazole (Folicur), Trifloxystrobin (Flint), Iprodione (Rovral).





PENYAKIT LEPUH PUTIH

Patogen penyebab: *Albugo ipomoeae-panduratae* (Kangkong)
Albugo bliti (Bayam)

Tanaman: Kangkong dan Bayam

Tanda-tanda penyakit:

Bintil-bintil kecil berwarna kuning pada permukaan daun. Apabila patogen semakin membiak, bintil berwarna putih akan kelihatan pada bahagian bawah daun.

Cara merebak:

- Air
- Angin

Kawalan:

- Memantau kesan serangan pada peringkat awal tanaman, jika ada kesan serangan disyorkan dibuang dan bakar.
- Sembur tanaman dengan racun penyakit yang disyorkan pada peringkat awal.
- Petik hasil tanaman 19 – 21 hari selepas bertanam bagi mengelak kesan serangan yang teruk.
- Amalkan tanaman bergilir.

Racun-racun yang disyorkan:

Azoxystrobin (Amistar), Chlorothalonil (Daconil, Rovaltac), Copper oxychloride (Cupravit, Copper Super, Coprantol, Pipertox), Mancozeb (Dithane M-45, Disan 45, MZ-45)





WHITE BLISTER DISEASE

Causal Organism: *Albugo Ipomoeae-panduratae* (Water convolvulus)
Albugo bliti (Spinach)

Crop: Water Convolvulus and Spinach

Symptoms:

Yellow blisters on leaf surfaces that turns white as the pathogen matures which shows on the underside of the leaves.

Method of Spread:

- Water.
- Wind.

Control:

- Early stage monitoring, once symptoms are detected dispose and burn infected leaves.
- Spray with recommended fungicides at early stage.
- Harvest crops 19 – 21 days after transplanting to avoid higher levels of infection.
- Crop rotation.

Recommended Fungicides:

Azoxystrobin (Amistar), Chlorothalonil (Daconil, Rovaltac), Copper oxychloride (Cupravit, Copper Super, Coprantol, Pipertox), Mancozeb (Dithane M-45, Disan 45, MZ-45)





PENYAKIT BURUK/REPUT DAUN

Patogen penyebab: *Rhizoctonia solani*

Tanaman: Jenis Brassica seperti Sawi

Tanda-tanda penyakit:

Kesan buruk pada daun.

Cara merebak:

- Air Hujan.
- Peralatan ladang dan sistem pengairan yang membawa tanah yang telah dicemari.
- Sisa-sisa tanaman yang berpenyakit.

Kawalan:

- Buang dan bakar daun-daun yang terkena kesan serangan.
- Buang dan bakar pohon-pohon yang sudah teruk terkena serangan.
- Amalkan tanaman bergilir.
- Sembur dengan racun penyakit yang disyorkan pada peringkat awal sebaik-baiknya sebelum adanya kesan serangan.

Racun-racun yang disyorkan:

Azoxystrobin (Amistar), Benomyl (Benex, CH Benomyl), Carbendazim (Bandazim, Halex Carbendazim), Chlorothalonil (Daconil, Rovaltac), Mancozeb (Disan 45, Dithane M-45, MZ-45), Maneb (Trineb, BM Maneb), Propineb (Antracol, Catalyst), Zineb (Zinacol), Captan (Captan), Pencycuron (Monceren, Beacon), Iprodione (Rovral), Trifloxystrobin (Flint).





LEAF ROT DISEASE

Causal Organism: *Rhizoctonia solani*

Crop: *Brassica* sp.

Symptoms:

Rotting symptom on leaves.

Method of Spread:

- Rain splash.
- Water system and farming tools that carry along infected soil.
- Infected crop residues.

Control:

- Dispose and burn infected leaves.
- Dispose and burn badly infected plants.
- Practice crop rotation.
- Spray with recommended fungicides before symptoms appear.

Recommended Fungicides:

Azoxystrobin (Amistar), Benomyl (Benex, CH Benomyl), Carbendazim (Bandazim, Halex Carbendazim), Chlorothalonil (Daconil, Rovaltac), Mancozeb (Disan 45, Dithane M-45, MZ-45), Maneb (Trineb, BM Maneb), Propineb (Antracol, Catalyst), Zineb (Zinacol), Captan (Captan), Pencycuron (Monceren, Beacon), Iprodione (Rovral), Trifloxystrobin (Flint).





PENYAKIT KULAPUK DAUN

Patogen penyebab: *Pseudocercospora fuligena*

Tanaman: Tomato

Tanda-tanda penyakit:

Bintik berwarna kuning pucat pada permukaan atas daun dan berdebu kehitaman pada permukaan bawah daun.

Cara merebak:

- Angin.
- Sisa-sisa tanaman yang berpenyakit.

Kawalan:

- Pangkas, buang dan bakar daun-daun yang terkena kesan serangan.
- Amalkan tanaman bergilir.
- Jika tahap serangan teruk, sembur seluruh pokok dengan racun penyakit bagi tanaman yang belum berbuah atau berbuah pada peringkat awal.

Racun-racun yang disyorkan:

Benomyl (CH Benomyl, Benex), Chlorothalonil (Daconil, Rovaltac), Mancozeb (Disan 45, Dithane M-45, MZ-45), Maneb (BM Maneb, Trineb), Propineb (Antracol, Catalyst), Trifloxystrobin (Flint).



LEAF MOLD DISEASE

Causal Organism: *Pseudocercospora fuligena*

Crop: Tomato

Symptoms:

Pale yellow lesions or spots on the upper leaf surface. The lesions or spots on the lower leaf surface have fungal growth that turns from grey to black.

Method of Spread:

- Wind.
- Infected plant residues.

Control:

- Dispose and burn infected leaves.
- Practice crop rotation with different plant groups.
- If the infection is severe, spray the whole plant (before fruiting and during early fruiting stage) with the recommended fungicide.

Recommended Fungicides:

Benomyl (CH Benomyl, Benex), Chlorothalonil (Daconil, Rovaltac), Mancozeb (Disan 45, Dithane M-45, MZ-45), Maneb (BM Maneb, Trineb), Propineb (Antracol, Catalyst), Trifloxystrobin (Flint).





PENYAKIT MILDEW KEKAPAS

Patogen penyebab: *Pseudoperonospora cubensis*

Tanaman: Tanaman jenis Cucurbit seperti timun, labu, batat dan peria

Tanda-tanda penyakit:

- Tompok-tompok berwarna hijau pucat akan kelihatan pada permukaan daun.
- Warna hijau pucat akan bertukar menjadi bintik-bintik kuning bersegi-segi diantara urat-urat daun.
- Bintik-bintik bersegi atau bulat berwarna kelabu atau perang.
- Jika serangan bertambah teruk, penyakit ini boleh mengakibatkan keseluruhan daun menjadi kering, bergulung atau mati.
- Pada permulaan serang, tanda penyakit akan kelihatan pada daun-daun tua, kemudian akan merebak ke daun-daun muda sehingga sebahagian besar pohon dijangkiti.

Cara merebak:

- Spora yang ditiup angin.
- Tanah dan sisa-sisa tanaman yang pernah dijangkiti.
- Pengumpulan air dari hujan, embun, kabus dan pengairan pancutan.

Kawalan:

- Amalkan jarak tanaman yang sesuai untuk menggalakkan pengudaraan.
- Pangkas daun-daun di bahagian bawah yang dijangkiti bagi mengurangkan tahap jangkitan.
- Buang dan bakar sisa-sisa tanaman selepas menuai bagi mengelakkan sebaran penyakit.
- Amalkan pergiliran tanaman dengan menanam tanaman jenis lain, seperti kacang panjang atau jagung manis.
- Pengairan pancutan mestilah dielakkan kerana ini akan menggalakkan pembiakan penyakit.

Racun-racun yang disyorkan:

Azoxystrobin (Amistar), Azoxystrobin + Difenconazole (Amistartop), Benomyl (Benex, CH Benomyl), Carbendazim (Bandazim, Halex Carbendazim), Chlorothalonil (Daconil, Rovaltac), Mancozeb (Dithane M-45, Disan 45, MZ-45), Maneb (BM Maneb, Trineb), Propineb (Antracol, Catalyst), Zineb (Zinacol), Captan (Captan), Propamocarb hydrochloride (Previcur-N), Copper hydroxide (Blue Pro, Commande, Kocide), Copper oxychloride (Cupravit, Copper Super, Coprantol, Pipertox), Tribasic copper sulphate (Cuproxat), Trifloxystrobin (Flint).





DOWNY MILDEW DISEASE

Causal Organism: *Pseudoperonospora cubensis*

Crop: Cucurbit crops, such as cucumber, pumpkin, honeydew melon and bitter melon

Symptoms:

- Appearance of pale green areas on upper surface of leaves.
- Pale green areas change to yellow spots which remain angular bounded by veins.
- Grey to brown angular or circular spots.
- Spots turn grey, dry and papery as it becomes severe.
- Heavy infection causes the whole leaves to dry up and curl followed by death.
- Symptoms will first appear on lower leaves, then progressively appear on younger leaves until most leaves are affected

Method of Spread:

- Spores blown by the wind.
- Soil dan residues from previously-infected plants.
- Accumulation of water via rain, dew, fog and sprinkler irrigation.

Control:

- Wide spacing between plants to allow free air movement.
- Pruning of infected bottom leaves to reduce the level of infection.
- Remove and destroy all crop residues after harvest to prevent carry-over of the fungal pathogen from infested residues.
- Rotate cucurbits with other crops such as long bean or sweet corn.
- Overhead or sprinkler irrigation should be avoided as this will encourage the development of disease.

Recommended Fungicides:

Azoxystrobin (Amistar), Azoxystrobin + Difenoconazole (Amistartop), Benomyl (Benex, CH Benomyl), Carbendazim (Bandazim, Halex Carbendazim), Chlorothalonil (Daconil, Rovaltac), Mancozeb (Dithane M-45, Disan 45, MZ-45), Maneb (BM Maneb, Trineb), Propineb (Antracol, Catalyst), Zineb (Zinacol), Captan (Captan), Propamocarb hydrochloride (Previcur-N), Copper hydroxide (Blue Pro, Commande, Kocide), Copper oxychloride (Cupravit, Copper Super, Coprantol, Pipertox), Tribasic copper sulphate (Cuproxat), Trifloxystrobin (Flint).





PANDUAN PENGGUNAAN RACUN PENYAKIT TANAMAN

OGOS 2014

Bahan Aktif	Nama Perdagangan	Penyerapan	Sukatan bagi 4.5 liter Air	Jarak Penggunaan	Tempoh Pemetikan Hasil Selepas Semburan
Azoxystrobin	Amistar	Meresap	2.5ml	7 hari	3 hari
Azoxystrobin + Difenconazole	Amistartop	Meresap	5ml (sayur/buah) 7ml (padi)	7 hari (sayur/buah) 14 hari (padi/lada)	7 hari (sayur/buah) 14 hari (lada) 28 hari (padi)
Benomyl	Benlate CH Benomyl Benex	Meresap	5g 2g 2g	14 hari	14 hari
Bitertanol	Baycor	Meresap	7ml	14 hari	14 hari
Captan	ACM Captan Captan	Sentuhan	5g 10g	7 hari	7 hari
Carbendazim	Bavistin Bandazim Halex Carbendazim MaxZim	Meresap	3g 4.5g 5g 4.5g	21 hari 14 hari 14 hari 7 hari	21 hari 14 hari 14 hari 7 hari
Chlorothalonil	Daconil 2787 Daconil ACM Daconil 720 Rovaltac	Sentuhan	12g 12g 4ml 10g	7-10 hari 7-10 hari 7-10 hari 10 hari	10 hari
Copper Hydroxide	Kocide 101 Blue Pro Commande	Sentuhan	5g 10g 8g	7 hari 14 hari 14 hari	14 hari
Copper Oxychloride	Cupravit Copranol Pipertox Copper Super	Sentuhan	8g 8g 8g 7g	21 hari 14 hari 14 hari 7 hari	21 hari 14 hari 14 hari 14 hari
Difenconazole	Score Barb	Meresap	2.5ml 1.5ml	10 hari 10 hari	10 hari 7 hari
Difenconazole + Propiconazole	Armure 300EC	Meresap	5-6.5ml	14 hari	28 hari
Epoxiconazole	Opus SC	Meresap	11 ml	14 hari	10 hari
Fosetyl- Aluminium	Aliette	Meresap	45g (Siram) 2.25kg (Cat) 22.5g (Sembur)	1 bulan 1 bulan 3 bulan	1 bulan 1 bulan 3 bulan
Iprodione	Rovral	Sentuhan	4.5g	7 hari	7 hari
Isoprothiolane	Fuji-one 40 EC	Meresap	10 ml	14 hari	14 hari
Mancozeb	Dithane M-45 Disan 45 Halex Mancozeb MZ-45	Sentuhan	10g 8g 9g 10g	10 hari 10 hari 10 hari 7 hari	10 hari 10 hari 14 hari 14 hari
Maneb	BM Maneb Trineb	Sentuhan	9g	14 hari	14 hari
Metalaxyl	Ridomil Serbamil	Meresap	40g (Cat) 36g (Siram)	3 bulan	3 bulan
Pencycuron	Monceren Beacon 25WP	Sentuhan	5g (Buah dan Sayur) 9g (Padi) 5g	7-10 hari 7-10 hari 7 hari	10 hari 10 hari 7 hari
Phosphorus Acid	Foli-R-Fos	Meresap	1ml/1ml air (Suntikan) 36ml (Semburan)	2 bulan 14 hari	2 bulan 14 hari
Prochloraz Manganese Chloride	Octave	Sentuhan	4.5g	30 hari	30 hari
Propineb	Anthracol Catalyst	Sentuhan	9g 6g	10 hari 7 hari	14 hari 7 hari
Tebuconazole	Folicur	Meresap	1ml	14 hari	14 hari
Tebuconazole + Trifloxystrobin	Nativo	Meresap	3.2g (Padi) 1g (Lada)	21 hari 3 hari	15 hari 3 hari
Tolclofos-methyl	Rizolex	Sentuhan	3g	30 hari	30 hari
Tricyclazole	Beam 75WP	Meresap	5 g	7-10 hari	30 hari
Trifloxystrobin	Flint	Meresap	1.2g	7 hari	3 hari
Zineb	Zinacol	Sentuhan	8g	14 hari	14 hari


GUIDELINES ON FUNGICIDE APPLICATION AUGUST 2014

Active Ingredient	Trade Name	Mode of Action	Rates per 4.5 litres of Water	Spraying Interval	Harvest Interval After Spraying
Azoxystrobin	Amistar	Systemic	2.5ml	7 days	3 days
Azoxystrobin + Difenconazole	Amistartop	Systemic	5ml (vegetable/fruit) 7ml (paddy)	7 days (vegetable/fruit) 14 days (paddy/chilli)	7 days (vegetable/fruit) 14 days (paddy/chilli) 28 days (paddy)
Benomyl	Benlate CH Benomyl Benex	Systemic	5g 2g 2g	14 days	14 days
Bitertanol	Baycor	Systemic	7ml	14 days	14 days
Captan	ACM Captan Captan	Contact	5g 10g	7 days	7 days
Carbendazim	Bavistin Bandazim Halex Carbendazim MaxZim	Systemic	3g 4.5g 5g 4.5g	21 days 14 days 14 days 7 days	21 days 14 days 14 days 7 days
Chlorothalonil	Daconil 2787 Daconil ACM Daconil 720 Rovaltac	Contact	12g 12g 4ml 10g	7-10 days 7-10 days 7-10 days 10 days	10 days
Copper Hydroxide	Kocide 101 Blue Pro Commande	Contact	5g 10g 8g	7 days 14 days 14 days	14 days
Copper Oxychloride	Cupravit Copranol Pipertox Copper Super	Contact	8g 8g 8g 7g	21 days 14 days 14 days 7 days	21 days 14 days 14 days 14 days
Difenconazole	Score Barb	Systemic	2.5ml 1.5ml	10 days 10 days	10 days 7 days
Difenconazole + Propiconazole	Armure 300EC	Systemic	5-6.5ml	14 days	28 days
Epoxiconazole	Opus SC	Systemic	11 ml	14 days	10 days
Fosetyl- Aluminium	Aliette	Systemic	45g (Drench) 2.25kg (Paint) 22.5g (Spray)	1 month 1 month 3 months	1 month 1 month 3 months
Iprodione	Rovral	Contact	4.5g	7 days	7 days
Isoprothiolane	Fuji-one 40 EC	Systemic	10 ml	14 days	14 days
Mancozeb	Dithane M-45 Disan 45 Halex Mancozeb MZ-45	Contact	10g 8g 9g 10g	10 days 10 days 10 days 7 days	10 days 10 days 14 days 14 days
Maneb	BM Maneb Trineb	Contact	9g	14 days	14 days
Metalaxyl	Ridomil Serbamil	Systemic	40g (Paint) 36g (Drench)	3 months	3 months
Pencycuron	Monceren Beacon 25WP	Contact	5g (Fruits and Vegetable) 9g (Paddy) 5g	7-10 days 7-10 days 7 days	10 days 10 days 7 days
Phosphorus Acid	Foli-R-Fos	Systemic	1ml/1ml water (Injection) 36ml (Spraying)	2 months 14 days	2 months 14 days
Prochloraz Manganese Chloride	Octave	Contact	4.5g	30 days	30 days
Propineb	Anthracol Paintalyst	Contact	9g 6g	10 days 7 days	14 days 7 days
Tebuconazole	Folicur	Systemic	1ml	14 days	14 days
Tebuconazole + Trifloxystrobin	Nativo	Systemic	3.2g (Paddy) 1g (Chilli)	21 days 3 days	15 days 3 days
Tolclofos-methyl	Rizolex	Contact	3g	30 days	30 days
Tricyclazole	Fuji-one 40 EC	Systemic	5g	7-10 days	30 days
Trifloxystrobin	Flint	Systemic	1.2g	7 days	3 days
Zineb	Zinacol	Contact	8g	14 days	14 days