**TECHNICAL UPDATE • BRASSICA** 

# syngenta

# **BRASSICA DISEASE UPDATE**

### SYSTEMIC DOWNY MILDEW

Although all vegetable brassicas can be infected with Downy mildew (Hyaloperonospora brassicae), especially at the small plant stage, it is not normally a significant issue in most crops. Exceptions to this are broccoli and cauliflower where the incidence of infection in mature heads has increased in recent years. This may be partly due to varietal susceptibility.

Infection at any stage during the plant's growth can result in systemic symptoms later on in the growing head. The resulting black patches and streaks are cosmetically undesirable especially when the head is floretted.

#### **CULTURAL CONTROL**

- Choose a tolerant variety which does not express symptoms in the head
- Ensure good disease control during propagation

#### **CHEMICAL CONTROL**

- Monitor crops for disease presence on leaves during vegetative growth
- Identify high risk periods warm, wet weather with high humidity
- · Consider varietal susceptibility as a risk factor
- Treat crops when disease is seen moving up the canopy

REVUS® will give reduction of Downy mildew. Best results are seen when REVUS is applied to at risk crops during early growth, five weeks post planting. Where crops are stressed and waxy, including an approved adjuvant oil will improve efficacy.







#### MAPP No.: 17443

Approved use: Broccoli/calabrese, Brussels sprouts and cauliflower

Disease spectrum: Reduction of Downy mildew Maximum individual dose: 0.6 l/ha

Maximum number of applications: 2

Minimum spray interval: 10 days

Latest time of application: 14 days

Other specific restrictions: For outdoor crops and protected crops that are grown under a temporary cover, the maximum total dose must not exceed 1.2 litres product/ha/year on any single area of land.

**REVUS** has the following EAMU\* approval for Downy mildew:

EAMU No. 20212915 for Propagating material broccoli/calabrese, propagating material Brussels sprout, propagating material cauliflower This will reduce field applications by one.

### OTHER IMPORTANT FOLIAR DISEASES OF BROCCOLI

Broccoli is also susceptible to infection from White blister *(Albugo candida)* at or close to maturity. Infection of the buds can be very visible and causes crop loss. This disease requires only short periods of leaf wetness at warm temperatures - morning dews during hot weather represent a high disease infection risk.

#### **CULTURAL CONTROL**

- Choose a tolerant variety to reduce risk
- Monitor crops in the area to gather data of disease pressure
- Sign up to Brassica Alert for weekly disease updates

#### **CHEMICAL CONTROL**

AMISTAR<sup>®</sup> gives moderate control when used as a preventative treatment. As the risk of crop loss increases and once the head is present, the following strategy should be considered where both diseases are an issue.

### STRATEGY FOR CONTROL OF SYSTEMIC DOWNY MILDEW AND WHITE BLISTER IN BROCCOLI

Weeks Post Planting	Focus	Recommendation	Harvest Interval
5	Systemic Downy mildew	REVUS	14 days
7	White blister	AMISTAR	14 days

#### **RESISTANCE MANAGEMENT**

To minimise the risk of resistance developing, CAA fungicides (REVUS) may be applied in formulated/tank mixture or alternating strategy using fungicides from different mode of action groups which are effective against Downy mildew. Use in alternation with fungicides with another mode of action is recommended. CAA fungicides should make up no more than 50% of the total number of fungicide applications per crop or season.

#### **FOLIAR DISEASE**

**Timing and Monitoring:** Regular crop monitoring and the use of forecasting and disease monitoring such as Brassica Alert are recommended to help

optimise fungicide timing. The focus on disease control will vary with crop type and timing. The following highlights likely high risk periods by disease:

	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR
Ringspot											
White blister											
Light leaf spot											



White blister infection on the head of broccoli



#### MAPP No.: 18039

**Approved use:** Brussels sprouts, cabbage, cauliflower, kale (winter greens), collards (spring greens), broccoli and calabrese - all outdoor

**Disease spectrum:** Moderate control of White blister, Ring spot and *Alternaria spp* 

Maximum individual dose: 1.0 l/ha

Maximum number of applications: 2

Minimum spray interval: 12 days

Latest time of application: 14 days before harvest

Aquatic buffer zone: LERAP B

**Other specific restrictions:** A maximum total dose of 500g azoxystrobin must not be exceeded within a 12 month period on the same field.









#### Ringspot (*Mycosphaerella brassicicola*):

Infection requires temperatures above 10°C and 54 hours of wet leaves in a 3 day period. Disease risk increases as the crop canopy develops and takes longer to dry. Risk declines in the autumn as temperatures drop below 10°C. Ringspot can cause yield and quality issues in Brussels sprouts, cabbage and collards. Although not considered a major issue of broccoli it can reduce green leaf area and potentially reduce yield. AMISTAR TOP<sup>®</sup> gives good control of Ringspot especially if used early in the season.

White blister (*Albugo candida*): Risk is associated with warmer periods (temperatures above 20°C) and requires only short periods of leaf wetness for infection. White blister is often

leaf wetness for infection. White blister is often seen in August with risk increasing as morning dews are more frequent. Disease can be seen on the buttons of Brussels sprouts, on cabbage leaves and on the head of broccoli. Strobilurins such as AMISTAR can give good preventative control. Where risk is high, products containing metalaxyl-M are recommended. Product choice will depend on approval.

#### Light leaf spot (*Pyrenopeziza brassicae*):

The disease is more active in cool wet conditions, infection is reduced when temperatures rise above 20°C. Hot, dry summers can potentially reduce disease levels leading to lower disease pressure in the autumn.

Infection requires long periods where leaves are wet but can take place at temperatures as low as 4°C. This explains why disease levels can increase quickly through the autumn and winter some years. Crops which are most susceptible are Brussels sprouts and cabbage, especially white cabbage.

#### **VARIETAL TOLERANCE**

Syngenta's Brussels sprout trials show some varieties have good tolerance to Light leaf spot infections. Martinus, Hey Melis, Scorpius, Albarus and Batavus have all shown good tolerance to the disease.

Syngenta's broccoli variety Beany has shown good tolerance to systemic downy mildew in the autumn when pressure is high.

For more information on our varieties please visit: www.syngenta.co.uk/varieties/vegetables









## Amistar Top<sup>®</sup>

#### MAPP No.: 18050

Active Ingredients: azoxystrobin and difenoconazole

**Approved use:** Broccoli, Brussels sprouts, cabbage, cauliflower, collards and kale

**Disease spectrum:** White blister, Powdery mildew, Ring spot and *Alternaria spp* 

Maximum individual dose: 1.0 l/ha

Maximum number of applications: 2

#### Latest time of application:

Cabbage, Brussels sprouts, collards and kale 21 days before harvest. Broccoli, calabrese, cauliflower 14 days before harvest

#### Aquatic Buffer Zone Distance (metres): 5

For use on broccoli/calabrese, Brussels sprouts, cabbage, cauliflower, collards, and kale, the maximum total dose of difenoconazole must not exceed 250 g per hectare per year.

When using in sequence with other azoxystrobin containing products, or on multiple short season crops of broccoli, calabrese, Brussels sprouts, cabbage, cauliflower, collards and kale, the maximum total dose of azoxystrobin must not exceed 500 g azoxystrobin per hectare per year. **Other diseases: Alternaria** (*Alternaria brassicae* and *Alternaria brassicicola*), and **Powdery mildew** (*Erysiphe cruciferarum*) can cause significant yield loss in some seasons/areas. In most seasons *Alternaria* is well controlled when using targeted fungicide applications for other diseases such as Ringspot. Powdery mildew can be an issue depending on crop type. AMISTAR TOP gives good control of both diseases.

**Downy mildew** (*Hyaloperonospora brassicae*) previously known as *Peronospora parasitica* varies in its importance with crop type and variety. Products containing metalaxyl-M will give good control where approved.





### **AGRONOMY TOOLS**



Monitor Brassica pests and diseases more accurately using Brassica Alert. Weekly catches provide up to date activity on Silver Y moth and Diamond back moth in addition to disease forecasting. To find out more visit: www.syngenta.co.uk/brassica-alert

Other Syngenta Agronomy Tools are also available at: **www.syngenta.co.uk/agronomy-tools** 

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#### **MAPP No.:** 17288

**Approved use:** Brussels sprouts, cabbage, broccoli/calabrese, cauliflower, kale and collard

**Disease spectrum:** Leaf spot *(Alternaria spp)* and Ring spot

Maximum individual dose: 0.5 l/ha

Maximum total dose: 1.0 l/ha

Latest time of application: 21 days before harvest

- A minimum interval of 14 days must be observed between applications to brassica crops
- Applications to brassica must only be made to developed canopy and not before GS41, see label for full details



 $\ensuremath{\text{SL567A}}$  has the following EAMU\* approvals: for the control of White blister

EAMU No. 20112048 - for use on outdoor kale and outdoor collard

EAMU No. 20112502 - for use on broccoli/ calabrese

**EAMU No. 20201898** - for use on Brussels sprout, cabbage and cauliflower

\*Applications made under an Extension of Authorisation for Minor Use (EAMU) are at all times at the user's choosing, and the commercial risk is entirely theirs. Syngenta implies no commercial support or provision of liability cover for this use. The basic principle underlying this legislation is that there is no increased risk to the Operator, Consumer or the Environment. The user must observe all safety precautions and statutory conditions relating to use on the original approval and the EAMU approval certificate. A copy of the EAMU must be held by the user. This can be obtained from the Chemicals Regulation Directorate. For full and up-to-date information, go to the Chemicals Regulation Directorate website:

https://secure.pesticides.gov.uk/offlabels/search.asp



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