



Cereal Disease
iGuide

We're with you in the field
cropscience.bayer.co.nz



At Bayer our team knows that the pressures farmers face are constantly changing.

Whether it is financial challenges, changing weather patterns or attacks from weeds or disease, our aim is to understand these so we can work and support you in the field.

One way we hope to help is with this Cereal Disease iGuide. It provides a visual identification of key New Zealand cereal diseases, along with information about the Bayer fungicide range.

arablefungicides.co.nz



Prosaro is a dual DMI fungicide for broad spectrum disease control in wheat, barley and ryegrass seed crops. Prosaro is the ideal partner for VIMOY iblon.



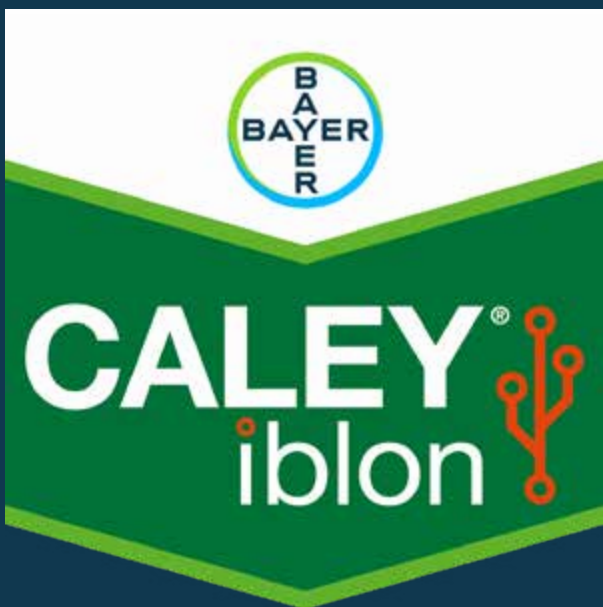
Kestrel is a dual DMI fungicide for broad spectrum disease control in wheat, barley and ryegrass seed crops. Kestrel is the ideal partner for VIMOY iblon.



Proline from Bayer is recognised as New Zealand's leading brand of prothioconazole. Trust Proline to protect your wheat, barley and ryegrass seed crops.



VIMOY iblon is a powerful solo SDHI fungicide that provides excellent, broad spectrum disease control resulting in healthy plants and high yields and is the ideal partner for Prosaro.



CALEY iblon combines isoflucypram (SDHI) with prothioconazole (DMI) to deliver effective disease control and high yields in a convenient co-formulated fungicide.



Delaro is the ideal fungicide for early season use in barley and late season use in wheat.



Aviator Xpro delivers cost-effective disease control based on prothioconazole and bixafen, a powerful DMI+SDHI fungicide combination.



Folicur has been a trusted partner for New Zealand farmers for many years. Used in combination with strobilurin fungicides it is a cost-effective option for T3 fungicide control in wheat.

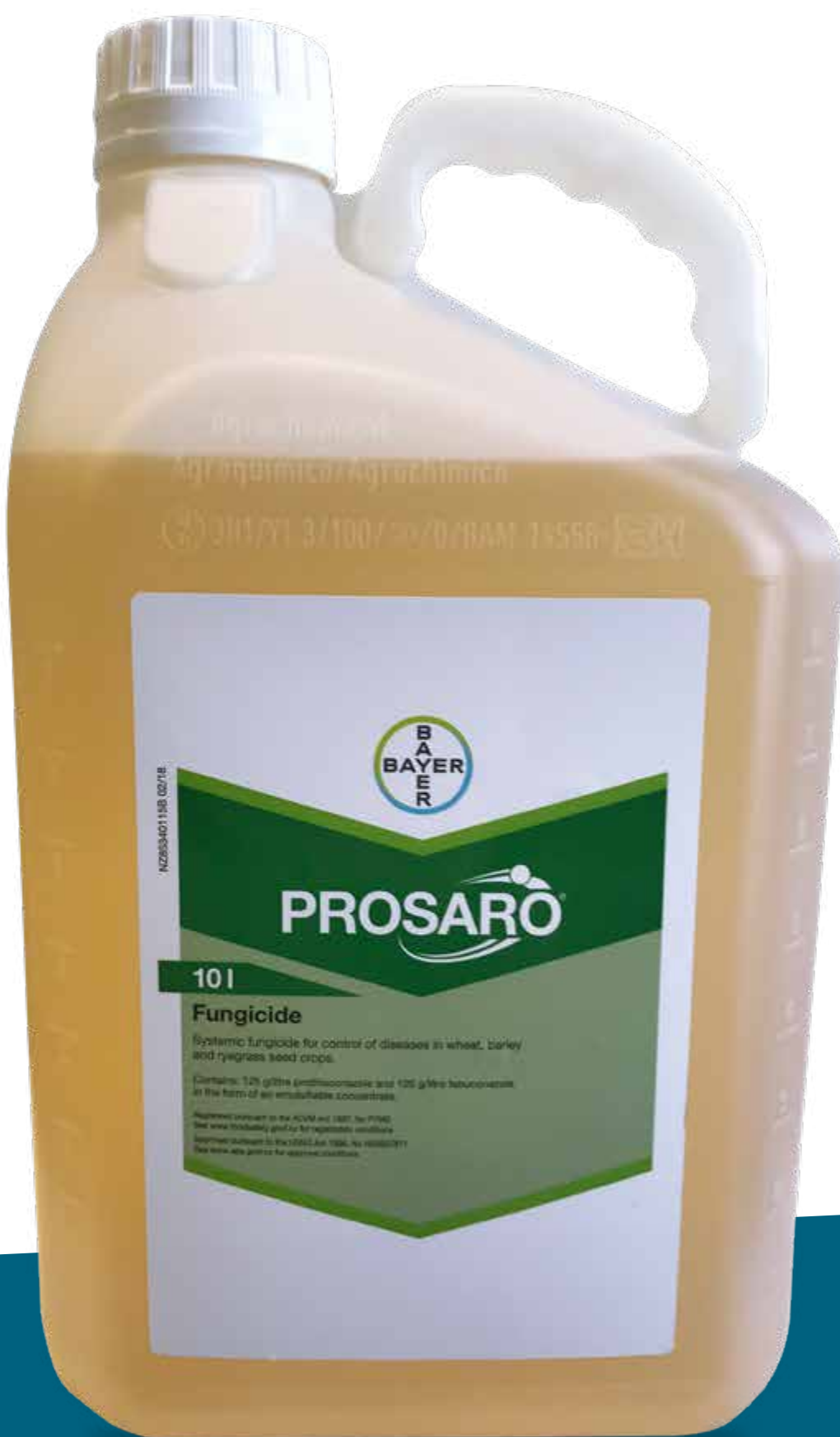
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PRODUCT INFORMATION

PROSARO®



Flexible, dual DMI fungicide for wheat, barley and ryegrass seed crops.

[PRODUCT RESOURCES >](#)



PROSARO



- Prosaro is the ideal fungicide for wheat controlling all of the main diseases - speckled leaf blotch, stripe rust, leaf rust and ear diseases. Together with VIMOY iblon, Prosaro allows fungicide programmes to be devised for all wheat crops
- Prosaro is an easy-to-use, ready mixed fungicide containing two different DMI fungicides. These are combined in the ideal ratio to help slow down the development of speckled leaf blotch intolerance to DMI fungicides
- Prosaro is very convenient with just one dose rate for use on all wheat varieties



KEY POINTS FOR USE

DISEASES CONTROLLED

A range of foliar diseases of wheat, barley and ryegrass seed crops (see page 11).

CROP

Wheat, barley and ryegrass seed crops applied between GS25 to GS65.

RATE

1.0 L/ha.

APPLICATION TIMING

Apply at the first signs of disease. Re-apply 3-4 weeks later if required. For blind seed disease apply at the start of flowering then repeat 10-14 days later.

APPLICATION METHOD

By tractor-mounted hydraulic boom sprayer or by aerial application.

WATER RATE

200 L/ha water by ground application or 50 L/ha by aerial application.



KEY POINTS FOR USE

RAINFAST

Rainfast 1 hour after application under most conditions.

WITHHOLDING PERIOD

Wheat and barley:
56 days (grain) or 42 days (forage).

Ryegrass seed crops:
30 days (seed) or 35 days (forage).

NO. APPLICATIONS/ CROP

Maximum two per crop.

COMPATIBILITY

Compatible with a wide range of commonly used herbicides and insecticides.

PACK SIZE

10 L.

CERTIFIED HANDLER

Not required.



SUMMARY

SUMMARY OF DISEASES CONTROLLED

WHEAT Speckled leaf blotch, stripe rust, leaf rust, powdery mildew, glume blotch, ear disease complex.

BARLEY Scald, net blotch, spot blotch, ramularia leaf spot, leaf rust.

**RYEGRASS
SEED CROPS** Crown rust, stem rust, blind seed disease.



PRODUCT INFORMATION

KESTREL®



Flexible, dual DMI fungicide for wheat, barley and ryegrass seed crops.

[PRODUCT RESOURCES >](#)

KESTREL

KESTREL®

- Kestrel is the ideal fungicide for the control of all key diseases of wheat and barley – speckled leaf blotch, leaf and stripe rust, powdery mildew (wheat), ear diseases, scald, net blotch and ramularia leaf spot
- Kestrel very effectively controls crown rust, stem rust and blind seed disease in ryegrass seed crops. (For endophyte-containing cultivars seek advice prior to application)
- Kestrel contains two different DMI fungicides combined in a very effective ratio for disease control and to help slow down the development of intolerance to DMI fungicides by several key diseases e.g. speckled leaf blotch



KEY POINTS FOR USE

KESTREL®

DISEASES CONTROLLED

A range of foliar diseases of wheat, barley and ryegrass seed crops (see page 16).

CROP

Wheat, barley and ryegrass seed crops applied between GS25 to GS65.

RATE

1.0 to 1.25 L/ha for wheat and ryegrass seed crops and 1.0 L/ha for barley.

APPLICATION TIMING

Apply at the first signs of disease. Re-apply 3-4 weeks later if required. For blind seed disease apply at the start of flowering then repeat 10-14 days later.

APPLICATION METHOD

By tractor-mounted hydraulic boom sprayer or by aerial application.



KEY POINTS FOR USE

KESTREL®

WATER RATE	Minimum 110 L/ha water by ground application or 50 L/ha by air.
RAINFAST	Rainfast 1 hour after application under most conditions.
WITHHOLDING PERIOD	Wheat and barley: 56 days (grain) or 42 days (forage). Ryegrass seed crops: 30 days (seed) or 35 days (forage).
NO. APPLICATIONS/ CALENDAR YEAR	Maximum two, with a minimum interval period of 21 days.
COMPATIBILITY	Compatible with a wide range of commonly used herbicides and insecticides.
PACK SIZE	10 L.
CERTIFIED HANDLER	Not required.



SUMMARY

KESTREL[®]

SUMMARY OF DISEASES CONTROLLED

WHEAT

Speckled leaf blotch, stripe rust, leaf rust, powdery mildew, tan spot, glume blotch, ear disease complex.

BARLEY

Scald, net blotch, spot blotch, ramularia leaf spot, leaf rust, ear disease complex.

RYEGRASS SEED CROPS

Crown rust, stem rust, blind seed disease.



PRODUCT INFORMATION

PROLINE®



Proline provides broad spectrum, curative control of all key diseases of arable crops.

[PRODUCT RESOURCES >](#)

PROLINE



PROLINE®

- Proline is especially effective against scald and net blotch in barley, speckled leaf blotch in wheat and stem rust and blind seed disease in ryegrass seed crops
- Proline is the foundation of disease control programmes. Mix Proline with another complementary fungicide to deliver double-barrelled disease control and optimised yields
- Proline stimulates important plant physiological factors, including photosynthesis
- Proline has gained the trust of New Zealand farmers who value consistently receiving a high quality formulation



KEY POINTS FOR USE

DISEASES CONTROLLED

A range of foliar diseases of wheat, barley and ryegrass seed crops (see page 21).

CROP

Wheat, barley and ryegrass seed crops applied between late tillering and a crop GS that complies with the withholding period.

RATE

400-800 mL/ha.

APPLICATION TIMING

Apply at the first signs of disease. Re-apply 3-4 weeks later if required.

APPLICATION METHOD

By tractor-mounted hydraulic boom sprayer or by aerial application.

WATER RATE

200 L/ha water (applied by hydraulic boom) or 50 L/ha of water (for aerial application).



KEY POINTS FOR USE

RAINFAST	Rainfast 1 hour after application under most conditions.
WITHHOLDING PERIOD	Wheat and barley: grain - 56 days; forage 42 days. Ryegrass seed crops: grain - 14 days; forage - 35 days.
NO. APPLICATIONS/ CROP	Maximum two per crop.
COMPATIBILITY	Compatible with a wide range of commonly used fungicides, herbicides and insecticides.
PACK SIZE	10 L.
CERTIFIED HANDLER	Not required.



SUMMARY

SUMMARY OF DISEASES CONTROLLED

WHEAT

Speckled leaf blotch,
stripe rust, leaf rust.

BARLEY

Scald, net blotch, ramularia
leaf spot, leaf rust.

RYEGRASS SEED CROPS

Crown rust, stem rust,
blind seed disease.



KEY POINTS FOR USE

RAINFAST

Rainfast 1 hour after application under most conditions.

WITHHOLDING PERIOD

Wheat and barley: grain - 56 days; forage 42 days.

Ryegrass seed crops: grain - 14 days; forage - 35 days.

NO. APPLICATIONS/ CROP

Maximum two per crop.

COMPATIBILITY

Compatible with a wide range of commonly used fungicides, herbicides and insecticides.

PACK SIZE

10 L.

CERTIFIED HANDLER

Not required.



SUMMARY

SUMMARY OF DISEASES CONTROLLED

WHEAT

Speckled leaf blotch,
stripe rust, leaf rust.

BARLEY

Scald, net blotch, ramularia
leaf spot, leaf rust.

RYEGRASS SEED CROPS

Crown rust, stem rust,
blind seed disease.



PRODUCT INFORMATION

VIMOY[®]
iblon



VIMOY iblon, an innovative SDHI fungicide for exceptional disease control of arable crops.

[PRODUCT RESOURCES >](#)

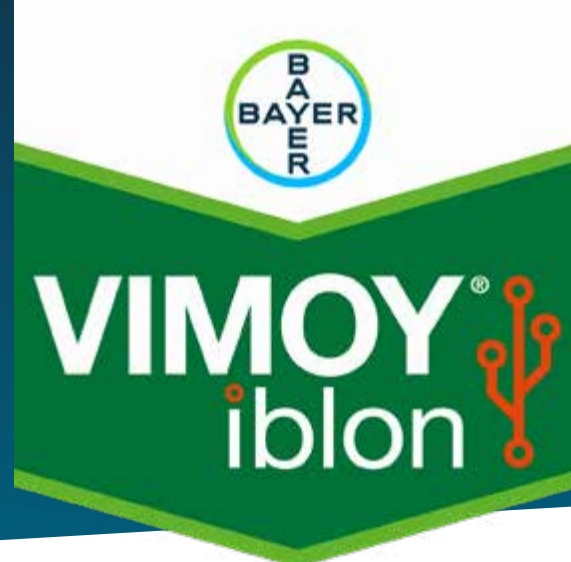


VIMOY[®]
iblon

VIMOY iblon

- VIMOY iblon contains isoflucypram, a latest generation SDHI fungicide, developed by Bayer under NZ climatic conditions
- VIMOY iblon provides superior disease control in wheat, barley and ryegrass seed crops
- VIMOY iblon is a convenient and flexible fungicide which allows you to design your most effective disease management programme by combining with other fungicides such as Prosaro
- The effective disease control provided by VIMOY iblon means crops stay cleaner and greener for longer, delivering higher yields and increased profit

KEY POINTS FOR USE



DISEASES CONTROLLED

The key foliar diseases of wheat, barley, triticale and ryegrass seeds crops (see page 29).

CROP

Wheat and triticale - apply between GS30-GS69.

Barley – apply between GS30-GS61.

Ryegrass seed crops – apply no later than GS61.

RATE

1.5 L/ha.

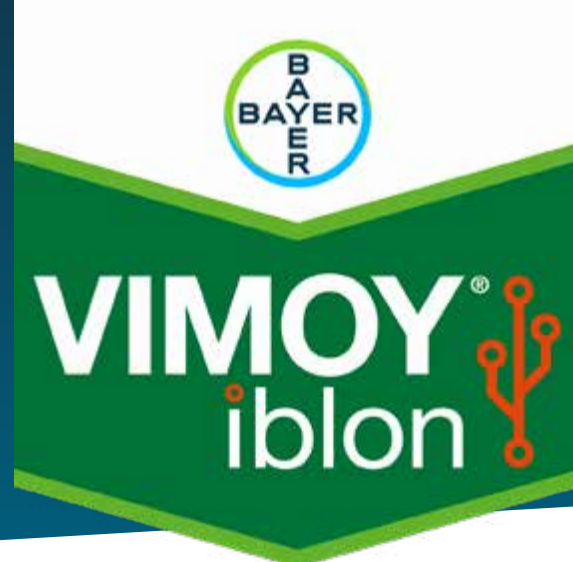
APPLICATION TIMING

Apply at the first signs of disease.

APPLICATION METHOD

By tractor-mounted hydraulic boom sprayer or by aerial application.

KEY POINTS FOR USE



WATER RATE

100-300 L/ha water (applied by hydraulic boom) or 50 L/ha of water (for aerial application).

RAINFAST

Rainfast one hour after application under most conditions.

WITHHOLDING PERIOD

Barley grain and straw/
stubble: 56 days.

Barley forage green feed/
silage: 42 days.

Wheat and triticale grain and
straw/stubble: 42 days.

Wheat and triticale feed/
silage: 28 days.

Ryegrass seed crops
regrowth: 49 days.

Ryegrass seed crops straw/
stubble: 35 days.



VIMOY[®]
iblon

KEY POINTS FOR USE

NO.

**APPLICATIONS/
CROP** One per crop.

BUFFER ZONE None required.

COMPATIBILITY Compatible with a wide range of commonly used fungicides and insecticides.

PACK SIZE 10 L.

**CERTIFIED
HANDLER** Not required.



VIMOY[®]
iblon

SUMMARY

SUMMARY OF DISEASES CONTROLLED

WHEAT

Speckled leaf blotch,
stripe rust, leaf rust.

BARLEY

Scald, net blotch, ramularia
leaf spot, leaf rust.

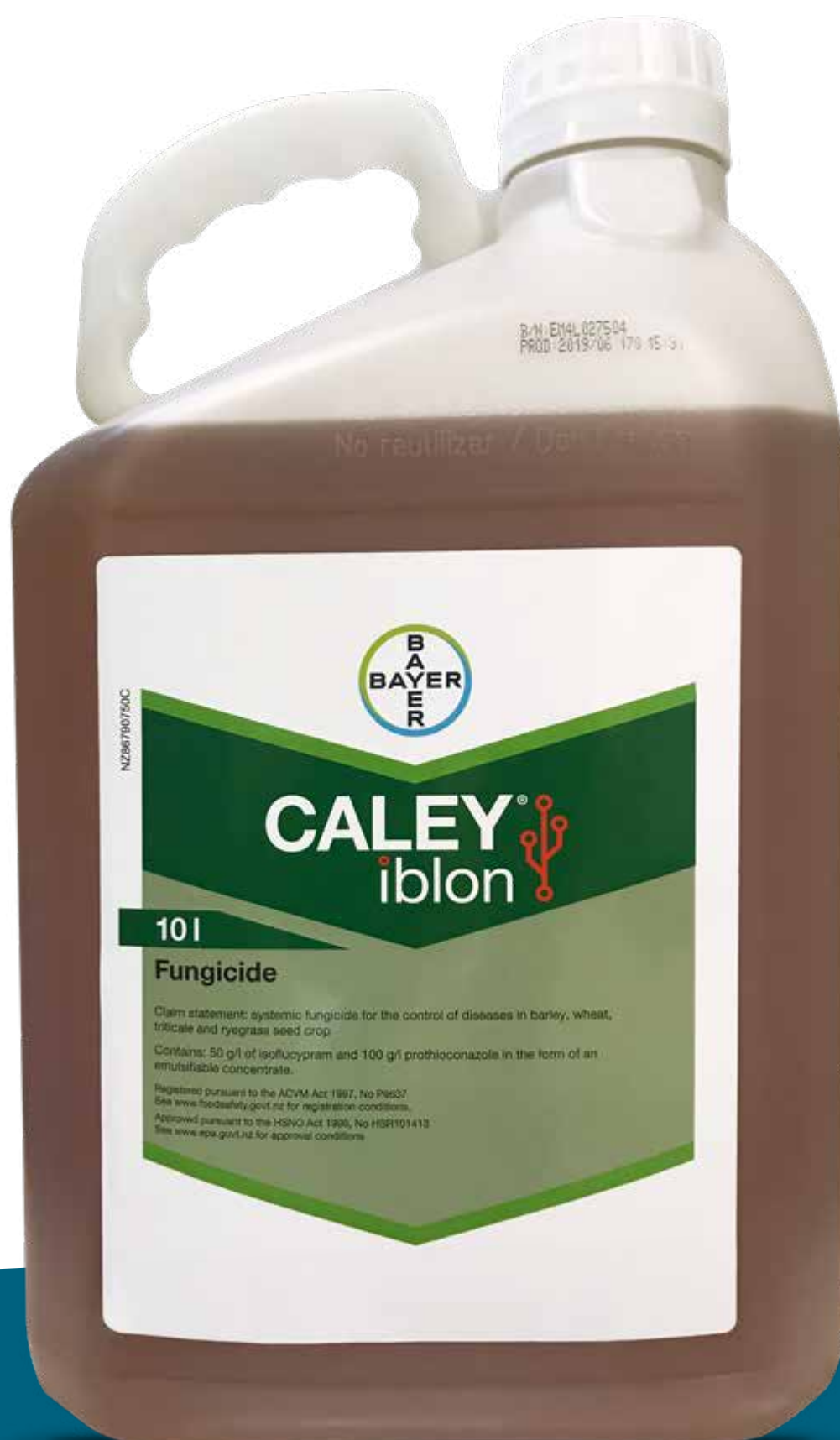
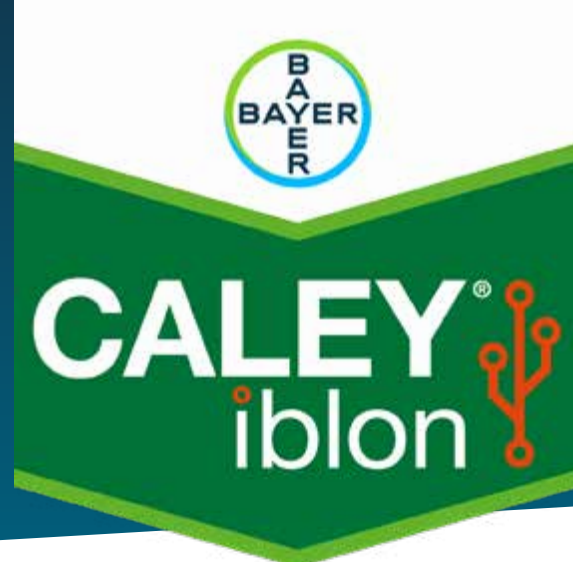
TRITICALE

Stripe rust, leaf rust.

RYEGRASS SEED CROPS

Stem rust.

PRODUCT INFORMATION



CALEY iblon simplifies your fungicide choice for arable disease control.

[PRODUCT RESOURCES >](#)

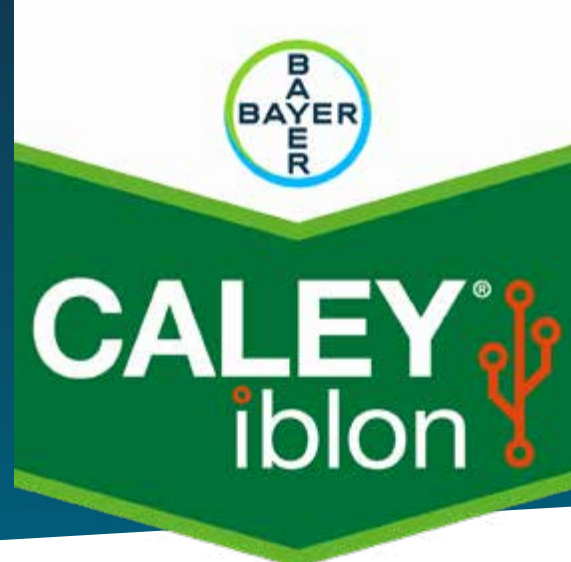


CALEY iblon



- CALEY iblon conveniently delivers the ideal combination of two exceptional fungicides, Iblon (isoflucypram) and prothioconazole (Proline[®], Prosaro[®]), making your fungicide choice simpler
- CALEY iblon has been rigorously developed by Bayer under NZ climatic conditions so you can be sure it contains the optimum amount of both fungicides
- CALEY iblon provides superior disease control in wheat, barley and ryegrass seed crops. This means crops stay greener for longer, delivering higher yields and increased profit

KEY POINTS FOR USE



DISEASES CONTROLLED

The key foliar diseases of wheat, barley, triticale and ryegrass seeds crops (see page 35).

CROP

Wheat and triticale - apply between GS30-GS69.

Barley – apply between GS30-GS61.

Ryegrass seed crops – apply no later than GS61.

RATE

1.5 L/ha.

APPLICATION TIMING

Apply at the first signs of disease.

APPLICATION METHOD

By tractor-mounted hydraulic boom sprayer or by aerial application.

KEY POINTS FOR USE



CALEY[®]
iblon

WATER RATE

100-300 L/ha water (applied by hydraulic boom) or 50 L/ha of water (for aerial application).

RAINFAST

Rainfast one hour after application under most conditions.

WITHHOLDING PERIOD

Barley grain and straw/
stubble: 56 days.

Barley forage green feed/
silage: 42 days.

Wheat and triticale grain and
straw/stubble: 42 days.

Wheat and triticale feed/
silage: 28 days.

Ryegrass seed crops
regrowth: 49 days.

Ryegrass seed crops straw/
stubble: 35 days.



CALEY[®]
iblon

KEY POINTS FOR USE

**NO.
APPLICATIONS/
CROP** One per crop.

**BUFFER
ZONE FOR A
DOWNWIND
WATER BODY** Ground-based application –
2 metres.
Aerial application –
50 metres.

COMPATIBILITY Compatible with a wide
range of commonly used
fungicides and insecticides.

PACK SIZE 10 L.

**CERTIFIED
HANDLER** Not required.



CALEY[®]
iblon

SUMMARY

SUMMARY OF DISEASES CONTROLLED

WHEAT

Speckled leaf blotch,
stripe rust, leaf rust.

BARLEY

Scald, net blotch,
ramularia leaf spot,
leaf rust.

TRITICALE

Stripe rust, leaf rust.

RYEGRASS SEED CROPS

Stem rust.



PRODUCT INFORMATION

DELARO®



Delaro is a broad spectrum, cost-effective fungicide for cereals.

[PRODUCT RESOURCES >](#)

- Delaro provides excellent early season disease control at GS30-32 in barley. Delaro can also be used as a cost-effective GS60-65 fungicide in wheat
- Delaro is a convenient ready-mixed formulation of prothioconazole (DMI) and trifloxystrobin (strobilurin) - two highly effective fungicides with complementary modes of action, saving you time and effort, whilst reducing the number of fungicides you stock
- Delaro is very cost-effective, delivering high levels of effective fungicides for a competitive price



KEY POINTS FOR USE

DELARO[®]

DISEASES CONTROLLED

Foliar diseases of barley, wheat and ryegrass seed crops (see page 40).

CROP

Barley, wheat and ryegrass seed crops applied between late tillering and a crop growth stage that complies with the withholding period.

RATE

600-750 mL/ha.

APPLICATION TIMING

Apply at the first signs of disease. Re-apply 3-4 weeks later if required.

APPLICATION METHOD

By tractor-mounted hydraulic boom sprayer or by aerial application.

WATER RATE

200 L/ha water by hydraulic boom or 50 L/ha by aerial application.



DELARO[®]

KEY POINTS FOR USE

RAINFAST	Rainfast 1 hour after application under most conditions.
WITHHOLDING PERIOD	Wheat and barley: grain - 56 days; forage 42 days. Ryegrass seed crops: grain and forage - 35 days.
NO. APPLICATIONS/ CROP	Maximum two per crop.
COMPATIBILITY	Compatible with a wide range of commonly used fungicides and insecticides.
PACK SIZE	10 L.
CERTIFIED HANDLER	Required.



DELARO[®]

SUMMARY

SUMMARY OF DISEASES CONTROLLED

WHEAT

Speckled leaf blotch,
stripe rust, leaf rust,
glume blotch.

BARLEY

Scald, net blotch,
ramularia leaf spot,
leaf rust.

RYEGRASS SEED CROPS

Crown rust, stem rust,
blind seed disease.



PRODUCT INFORMATION

Aviator[®]
Xpro



The convenient, high performing cereal fungicide for wheat and barley.

[PRODUCT RESOURCES >](#)

AVIATOR XPRO



- Aviator Xpro technology combines excellent control of the key diseases of wheat (speckled leaf blotch, stripe and leaf rust) and the key diseases of barley (scald and ramularia leaf spot) with long lasting crop greening to deliver high yields and an attractive return on investment
- Aviator Xpro is the easy way to apply a ready-mixed formulation of both a DMI and SDHI fungicide, in both wheat and barley
- Bayer's innovative Leafshield™ formulation maximises the number of days when spraying is possible. Containing specially designed adjuvants, Aviator Xpro spreads evenly on the leaf, dries quickly and is rainfast once dry on the crop
- Aviator Xpro reduces the complexity of stocking multiple fungicides – less partially used containers, less plastic waste, less risk of applying the wrong rate
- And you can be sure that Aviator Xpro has been fully developed under New Zealand conditions by Bayer's expert development team



KEY POINTS FOR USE

DISEASES CONTROLLED

A range of foliar diseases of wheat, barley and triticale (see page 45).

CROP

Wheat, barley and triticale.

APPLICATION RATE/TIMING

Apply 700 mL – 1.0 L/ha in 120 L/ha water at the first signs of disease. Re-apply 3-4 weeks later if required.

APPLICATION METHOD

By tractor-mounted hydraulic boom sprayer or by aerial application.

WATER RATE

120 L/ha water by ground application or 50 L/ha by aerial application.

KEY POINTS FOR USE



Aviator[®]
Xpro

	Wheat and triticale (grain): 56 days.
WITHHOLDING PERIOD	Barley (grain): do not apply after GS45 (late boot stage) Wheat, barley and triticale (forage): 42 days.
NO. APPLICATIONS/ CROP	Maximum two per crop.
COMPATIBILITY	Compatible with a wide range of commonly used fungicides and insecticides.
PACK SIZE	10 L.
CERTIFIED HANDLER	Not required.



SUMMARY

SUMMARY OF DISEASES CONTROLLED

WHEAT

Speckled leaf blotch, stripe rust, leaf rust, tan spot.

BARLEY

Scald, net blotch, ramularia leaf spot, leaf rust.

TRITICALE

Stripe rust, leaf rust.



PRODUCT INFORMATION

Folicur®



Folicur SC is a cost-effective solution for disease control in wheat, barley, oats, ryegrass seed crops and peas.

[PRODUCT RESOURCES >](#)



Folicur®

Folicur SC

- Folicur SC can be used on a wide range of crops and has good activity against rusts and ear diseases in wheat
- Folicur SC is a cost-effective solution for disease control in wheat, barley, oats, ryegrass seed crops and peas providing increased yield and quality
- Systemic movement allows the active ingredient to penetrate the plant rapidly and become evenly distributed throughout the leaf, providing superior disease protection



Folicur®

KEY POINTS FOR USE

DISEASES CONTROLLED

Foliar diseases of wheat, barley, oats, ryegrass seeds crops and peas (see page 51).

CROP

Wheat, barley, oats, ryegrass seeds crops and peas.

RATE

All crops except peas
440 mL/ha.

Peas 145 mL/ha.

APPLICATION TIMING

Wheat, barley and oats – for foliar diseases apply at the first appearance of disease. For ear disease apply to fully-emerged ears.

Ryegrass seed crops – for foliar disease apply at the first appearance of disease. For blind seed disease apply at flowering and repeat 10-14 days later.

Peas – apply preventatively at flowering or at the first sign of disease.



Folicur[®]

KEY POINTS FOR USE

APPLICATION METHOD

By tractor-mounted hydraulic boom sprayer or by aerial application.

WATER RATE

200 L/ha water (applied by hydraulic boom) or 50 L/ha of water (for aerial application).

RAINFAST

Rainfast one hour after application under most conditions.

WITHHOLDING PERIOD

Cereals: 49 days.

Fodder cereals: 28 days.

Ryegrass seed crops:
30 days.

Peas: 14 days.



Folicur[®]

KEY POINTS FOR USE

COMPATIBILITY

Compatible with commonly used herbicides and insecticides.

PACK SIZE

10 L.

CERTIFIED HANDLER

Not required.



Folicur[®]

SUMMARY

SUMMARY OF DISEASES CONTROLLED

WHEAT

Speckled leaf blotch, stripe rust, leaf rust, powdery mildew, glume blotch, ear disease complex.

BARLEY

Scald, net blotch, ramularia leaf spot, leaf rust.

OATS

Crown rust.

RYEGRASS SEED CROPS

Crown rust, stem rust, blind seed disease.

PEAS

Powdery mildew.



Diseases in wheat.

Speckled leaf blotch	45
Stripe rust	47
Leaf rust	49
Tan spot	51
Powdery mildew	53
Fusarium ear blight and sooty moulds	55
Wheat disease control programme	57

SPECKLED LEAF BLOTCH (SLB)



Wheat crop in early December showing severe speckled leaf blotch developing at all levels in the crop canopy.

LOOK OUT FOR:

- Black surface spore cases
- Lesions with yellow edges
- Long narrow lesions in the early stages

RISK FACTORS:

- Crops emerged by mid-late May are at higher risk
- High rainfall



Speckled leaf blotch lesions demonstrating three key characteristics: lesions in stripes, lesions with yellow margins and the presence of black spore cases (pycnidia).

- Speckled leaf blotch (SLB) is a common wheat disease occurring throughout New Zealand. SLB can be found from late winter but the main infection period is October onwards when disease symptoms become obvious
- Look for black pycnidia (spore cases) on the surface of disease lesions. Also look for long, narrow lesions constrained by leaf veins (once lesions coalesce, this can be harder to see)
- SLB infection is always a risk in New Zealand but three factors increase that risk. Firstly, cultivar choice: some varieties are more susceptible to SLB infection (often though, they are higher yielding). Second, planting date: wheat crops emerged before late May are at higher risk. Finally, high rainfall increases the risk from SLB, especially rainfall in Oct/Nov
- Yield losses can be high, often in the order of 30% but up to 80% in extreme cases

STRIPE RUST



Stripe rust showing characteristic yellow lesions arranged in stripes. In Europe, stripe rust is known as yellow rust.

LOOK OUT FOR:

- Yellow rust pustules arranged in stripes

RISK FACTORS:

- Cultivar choice
- Cool, moist conditions



- Stripe rust is found throughout New Zealand. Stripe rust is wind-dispersed, placing all wheat crops at risk
- Stripe rust tends to develop earlier in spring, being favoured by cool, moist conditions
- Early infections of stripe rust and leaf rust are hard to distinguish with pustules scattered on the surface of leaves. Later stripe rust pustules, which are quite yellow, form distinct stripes
- Yield losses can be high, often in the order of 15-40%

LEAF RUST



Leaf rust infection of wheat in early summer. (Some small speckled leaf blotch lesions are visible in the centre of the leaf). In Europe leaf rust is also known as brown rust.

LOOK OUT FOR:

- Brown rust pustules scattered across the leaf

RISK FACTORS:

- Cultivar choice
- Cool, moist conditions



- Rusts are wind-dispersed placing all wheat crops at risk
- Leaf rust is more of a problem in early to mid-summer
- Early infections of rusts are hard to distinguish with pustules scattered on the surface of leaves
- Leaf rust pustules, which are brown, remain scattered on the leaf as the disease matures
- Yield losses can be high, often in the order of 15-40%

TAN SPOT



Leaf tan spot lesions infecting wheat and showing the typical yellow margin and dark centre.

LOOK OUT FOR:

- Brown lesions with a well-defined yellow border and often a dark centre

RISK FACTORS:

- Cultivar choice
- Cool, moist conditions



- Tan spot is most commonly seen in South Canterbury
- The lower leaves develop small brown lesions with a well-defined yellow border. Later the lesions are generally larger, with a dark centre but retaining the yellow border
- Tan spot spores are released from infected crop debris in early spring and can develop rapidly, especially during warm, wet weather
- Yield losses of 30% have been recorded

POWDERY MILDEW



Ear showing powdery mildew infection.

LOOK OUT FOR:

- White surface patches
- Small black spore cases

RISK FACTORS:

- Cool, cloudy and moist conditions



Leaf severely infected with powdery mildew.
Note the black spore cases.

- Powdery mildew, which can infect all parts of the plant when conditions are ideal, is most commonly found in the base of crops. Only occasionally does it develop to be a problem
- Initially seen as surface patches of white mycelium, powdery mildew develops to cover the entire leaf. Mature infections often have black spore cases present
- The disease is windborne and thrives in cool, wet weather
- While normally modest, yield losses of 40% have been recorded

FUSARIUM EAR BLIGHT & SOOTY MOULDS



Fusarium infection resulting in the death of a significant part of the ear.

LOOK OUT FOR:

- Parts of the ear dying and turning white
- General black discolouration of the ear

RISK FACTORS:

- Wet weather
- Delayed harvest



General ear disease caused by a range of fungi.

- There are four main ear diseases to look for: sooty moulds, fusarium ear blight, glume blotch and *Monographella nivalis*
- All are common throughout NZ, occurring after ear emergence, especially when wet weather prevails and harvest is delayed
- Fusarium ear blight has the greatest economic impact by reducing grain size and quality. While the other diseases can reduce yield, they mainly reduce grain quality and cause disappointment. No one wants to see their crop go black

AUTUMN/WINTER SOWN

WHEAT DISEASE CONTROL PROGRAMME



* Apply rate recommended by your advisor.

AUTUMN/WINTER SOWN

WHEAT DISEASE CONTROL PROGRAMME



VIMOY iblon 1.5 L/ha +
DMI fungicide (rec. rate*)



Prosaro 1.0 L/ha +
Strobilurin fungicide (rec. rate*)



37 39 49 51 59 61 69 71-92

* Apply rate recommended by your advisor.



Diseases in barley.

Scald	60
Ramularia leaf spot	62
Net blotch	64
Leaf rust	66
Powdery mildew	68
Barley disease control programme	70

SCALD



Very early scald infection.

LOOK OUT FOR:

- Pale green, 'watersoaked' lesions
- Mature lesions showing brown borders with a pale centre

RISK FACTORS:

- Cool, moist conditions



Recently formed scald lesions showing a greyish green water-soaked appearance.

- Scald is probably the most well-known and encountered barley disease in New Zealand
- Initial symptoms are pale green, “watersoaked” lesions. As these mature they develop a brown border with a pale centre. Lesions often coalesce which leads to the leaves dying
- The initial infection source is stubble debris. Once a crop is infected, spread is by rain splash and dew
- Scald thrives in cool, moist conditions and is often seen during winter and early spring
- Yield losses of 40% have been recorded

RAMULARIA LEAF SPOT



Leaf in spring showing early ramularia leaf spot symptoms.

LOOK OUT FOR:

- Small, brown spots
- Larger, reddish-brown lesions

RISK FACTORS:

- Infected seeds
- Barley stubble
- Spring rainfall
- High light intensity following flowering



Ramularia symptoms are sometimes hard to distinguish but look for the short stripe lesions with a dark centre and the remains of a yellow border.

- Initial symptoms of ramularia leaf spot (RLS) are small brown spots. These then develop into larger, reddish-brown lesions, which can have a yellow margin. RLS lesions penetrate through the leaf. Symptoms can develop very rapidly when conditions are favourable
- RLS has a complex life cycle starting with infected seed. (None of the available seed treatments control RLS). The disease then grows unseen within the plant before it causes symptoms, usually after barley flowers
- If trash from a previous barley crop is present, spores from this source can infect a crop during the season
- Spring rainfall and also periods of high light intensity following flowering favour RLS
- Yield losses of 20% have been recorded

NET BLOTCH



The spot form of net blotch.

LOOK OUT FOR:

- Net-like symptoms, especially in 2nd year barley crops

RISK FACTORS:

- Infected stubble or seed
- Cool, moist conditions



Close up of a typical net type net blotch infection.

- There are two types of net blotch differentiated by the symptoms: a net form and a spot form. Both occur in NZ but the net form is more common
- Infection can be seed-borne or from infected stubble
- Net blotch favours cool, moist conditions
- Yield losses of 10-30% have been recorded

LEAF RUST



LOOK OUT FOR:

- Brown rust pustules scattered across the surface of the leaf

RISK FACTORS:

- Warm conditions



Leaf rust pustules distributed randomly across barley leaves.

- Leaf rust may not be the most commonly encountered barley disease, however it is widespread and can be seen every season
- Leaf rust is wind-dispersed, placing all barley crops at risk
- Leaf rust favours warm conditions and therefore is more of a problem in early to mid-summer
- Severe infections can lead to significant yield losses

POWDERY MILDEW



Spring barley crop affected with a severe powdery mildew infection.

LOOK OUT FOR:

- Surface patches of white mycelium
- Black spores

RISK FACTORS:

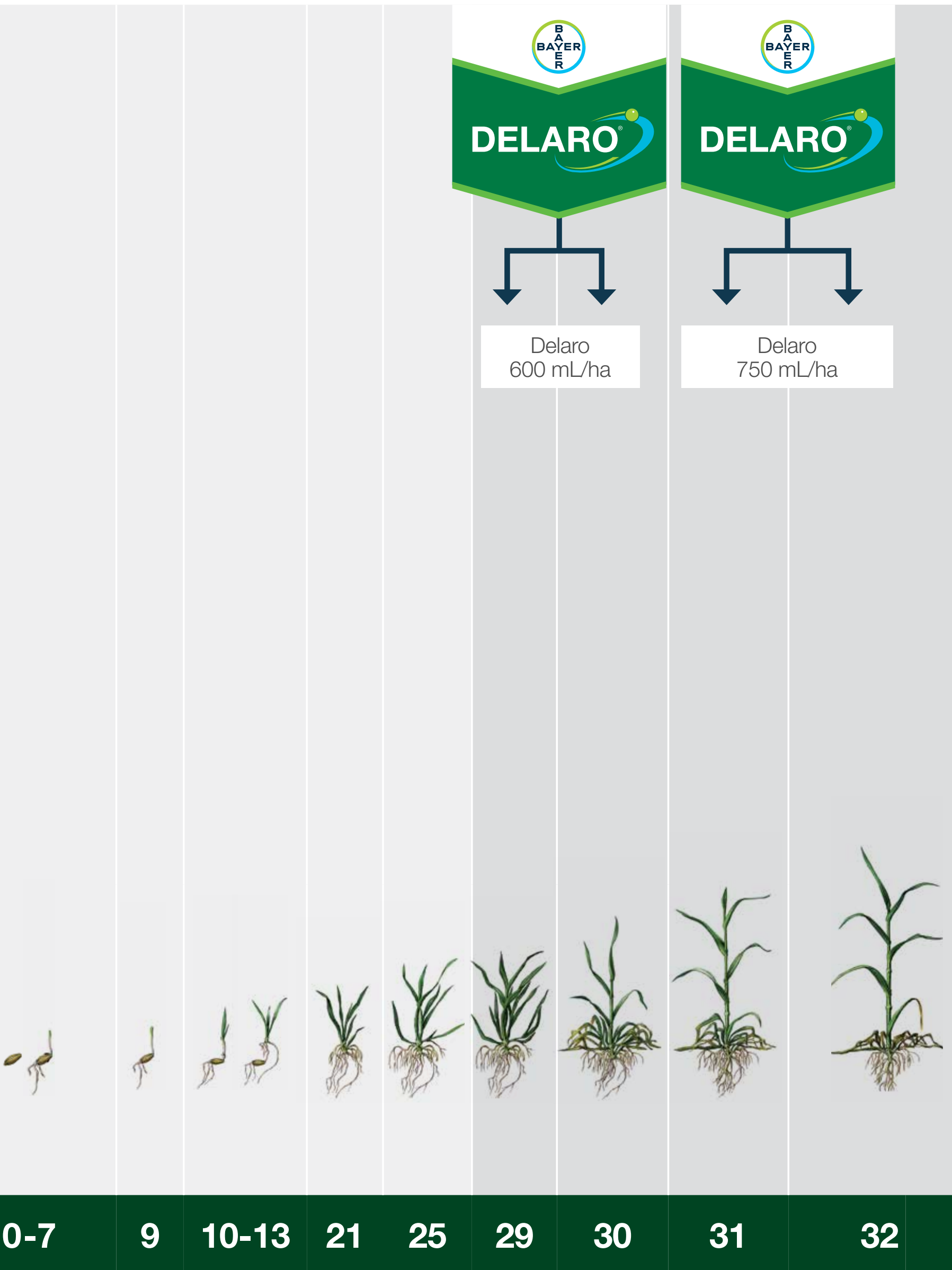
- Cool, wet weather
- Dense crop canopies



- Powdery mildew is commonly found in the base of crops but it can develop to infect the entire canopy
- Initially seen as surface patches of white mycelium, powdery mildew develops to cover the entire leaf. Mature infections often have black spore cases present
- The disease is windborne and thrives in cool, wet weather
- While normally modest, significant yield losses have been recorded

AUTUMN/WINTER SOWN

BARLEY DISEASE CONTROL PROGRAMME



AUTUMN/WINTER SOWN

BARLEY DISEASE CONTROL PROGRAMME



VIMOY iblon 1.5 L/ha +
DMI fung*



37

39

49

51

59

61

69

71-92

* Apply rate recommended by your advisor.

SPRING SOWN

BARLEY DISEASE CONTROL PROGRAMME



DELARO

Delaro
750 mL/ha



0-7

9

10-13

21

25

29

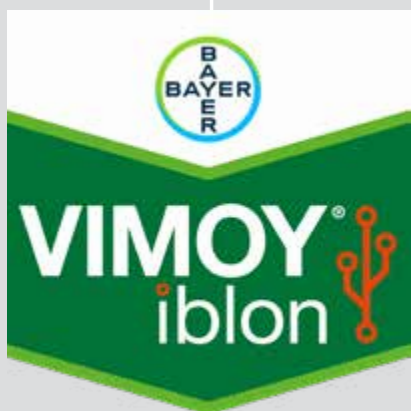
30

31

32

SPRING SOWN

BARLEY DISEASE CONTROL PROGRAMME



Prosaro 1.0 L/ha +
VIMOY iblon 1.5 L/ha



37

39

49

51

59

61

69

71-92

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When you buy a Bayer branded product, you're getting much more than a container of fungicide. We understand what it takes to grow healthier, higher yielding and more profitable crops and we work to ensure you achieve this.

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So whenever you see this promise you can rest assured that you're not going it alone.

Bayer is proud of the portfolio of fungicides it offers in New Zealand. All have a proven track record of delivering exceptional performance, resulting in very profitable yield increases for New Zealand arable farmers. Here are some of the benefits of Bayer fungicides:

- **On demand technical support:** Bayer's proven fungicide portfolio is supported not only by a network of professional and highly trained merchant agronomists, but also by the Bayer Arable Support Team.
- **Cutting edge fungicide research:** each year, Bayer makes a huge investment into fungicide research and development. Bayer is committed to development in New Zealand; in fact the expertise of our development and registration teams has been recognised globally and we are at the forefront of developing the next generation of arable fungicides.
- **Stewardship:** in every country the threat of resistance developing to the key fungicide types is very real. Bayer maintains a comprehensive monitoring programme and is an active member of many global Fungicide Resistance Action Committees.

- **Formulation:** Bayer has been a global leader in arable fungicides for 50 years and during this time it has developed a reputation for delivering innovative, high-performing formulations that you can rely on.
- **Focus on New Zealand:** Bayer is committed to globally promoting the expertise of you, the best arable farmers in the world. The Bayer team knows how powerful this message is and how it benefits you.
- **Highly trained field team:** the Bayer team of Territory Managers and Development Specialists receive regular training across a range of disease control aspects. Their expertise is always available for you to call upon.
- **Product availability:** by working closely with our merchant customers, Bayer's commitment is to ensure adequate supplies of its fungicide products despite the vagaries of the weather.

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