



SPRING GUIDE 2021

**GROWING
TOGETHER**
THROUGH EXPERIENCES

syngenta®

At Syngenta our goal is to support a sustainable farming industry and help growers with practical solutions in these changing times and for the future.

We understand the challenges growers face and we are dedicated to building our expertise and overcoming these difficulties in the field. Our Innovation Centres across the country are looking at these challenges and this guide will give you an insight into some of the innovation which could help with your decision making.

2020 will, without doubt, be seen as one of the most challenging our industry has faced in recent times. As the global coronavirus pandemic has progressed, agriculture has once again demonstrated its resilience and importance. I think that now, more than ever, people appreciate the need to have a sustainable and productive farming industry in the UK.

The new season brings opportunities of course, but also further changes (and hopefully opportunity) as we continue to redefine our relationship with Europe and other trading nations and the government expands it's Environmental Land Management Scheme (ELMS) pilots across the country. To reflect this changing market and environment, our Innovation Centres have also evolved over the last few years to move away from traditional research and development trials, to become sites where we can dig into and help support growers with the complex challenges they face. We believe, it's important not just to bring new tools to market, but to help growers

understand how our technologies and services fit into the bigger picture as part of sustainable and profitable farming systems.

With this in mind, our Innovation Centres are focused on key and developing challenges that growers face on-farm today - resistance management, navigating the ever-changing crop protection tool box and how we bring together sustainable cropping practices with economics that make sense.

The team at Syngenta wishes you a successful and healthy year and we hope that this guide can help support you with some of the decisions you make along the way.

Take care and stay safe

Jonathan



JONATHAN HALSTEAD
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CONNECT WITH US:



ASK US A QUESTION, WE WOULD LIKE TO HEAR FROM YOU.

We hope this guide provides you with useful information. Our virtual open days will provide an opportunity for discussion and questions, but if you want to ask an expert now, you can do so by submitting your question here:

[? CLICK TO ASK AN EXPERT](#)

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GROWING FOR END MARKETS

WHY CHOOSE SPRING BARLEY?

The last three years have been very different seasons for spring barley growers. 2018 started with snow until late spring and many growers could not drill at their optimal timing, then the heat wave came and spring crops suffered more than most with the drought conditions. Spring barley conditions were good for the 2019 crop, and growers were rewarded with some excellent crops and an attractive price for the right variety at market.



2020 saw an increased spring barley area drilled (driven by poor autumn conditions for winter drilling) - but a wet summer saw difficult harvest conditions and some crops suffered. However, the majority of crops have performed well and some varieties show more resilience in these difficult seasons than others. Ensuring you have a contract in place and growing a malting variety that is in demand from maltsters is key for 2021. Syngenta have the varieties and the expertise to help growers achieve the best from their spring barley crops and reach the right specifications this year.

Spring barley remains an attractive option for 2021. With a large malting capacity to supply, growing spring varieties for local markets remains profitable. With the uncertainties around Covid 19 and Brexit, maltsters will be looking for domestic supply to meet their requirements and this is a good opportunity for growers.

Choosing a spring crop also helps manage risk and workload whilst giving the opportunity to use chemistry that isn't always available for winter crops. Not to mention the benefit of black-grass management!

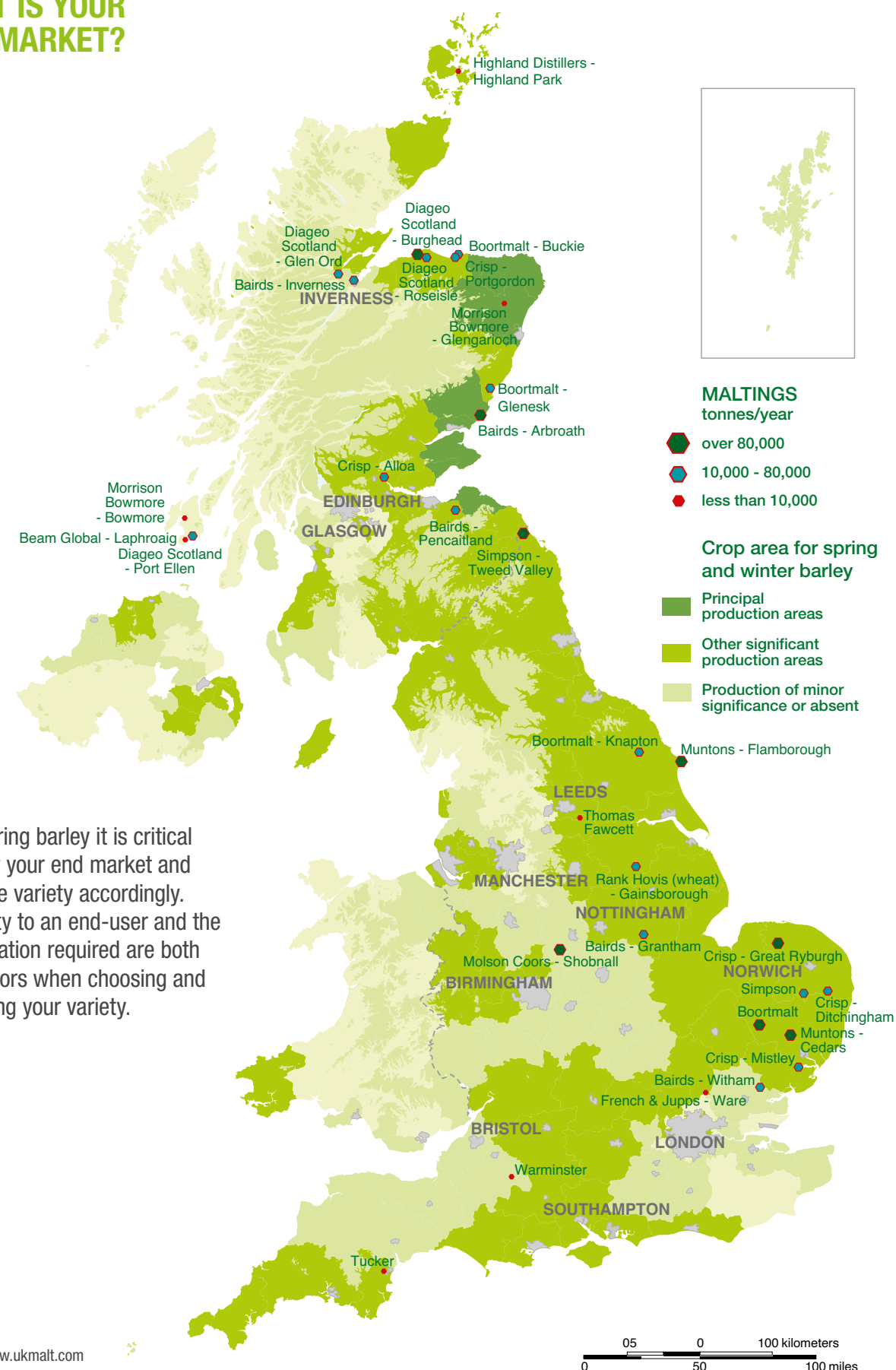
Spring barley crops may not yield as high as winter crops, but for many growers, spring barley can be the most profitable crop on farm.

Syngenta have been breeding barley varieties for 40 years and can offer expert advice to help you get the best from your crop.

 [CLICK TO FIND OUT MORE](#)



WHAT IS YOUR END MARKET?



With spring barley it is critical to know your end market and grow the variety accordingly. Proximity to an end-user and the specification required are both key factors when choosing and managing your variety.

WHAT IS YOUR END MARKET?

With spring barley it is critical to know your end market and grow the variety accordingly. The table below highlights the key considerations for each end market.


	BREWING USE	MALT DISTILLING	GRAIN DISTILLING	FEED
What's it for?				
How big is this market?	382,500 ha	235,500 ha	10,000 ha	120,000 ha
Main geographic region	UK (mainly England)	Northern England and Scotland	Scotland	West and North of UK
What do end markets need?	1.6-1.75% N (up to 1.8% N for export) 94% screenings over a 2.25 mm sieve (England)	1.5-1.65% N Non-GN 90% screenings over a 2.5 mm sieve (Scotland)	Over 1.85% N Non-GN 90% screenings over a 2.5 mm sieve (Scotland)	High yield with good specific weight
Nitrogen programme to achieve this	2 splits Nitrogen	Lower total Nitrogen, 1 to 2 splits	High total Nitrogen, later applications	Normal practice following RB209
Syngenta Varieties	LAUREATE PROPINO	LAUREATE	FAIRING	WAGGON SCHOLAR

HOW TO GET THE MOST FROM YOUR SPRING BARLEY



Laureate
Spring barley

Very high yielding spring malting barley with FULL MBC Approval for brewing and malt distilling. **LAUREATE** has an excellent overall agronomic package with strong maltster support.



Propino
Spring barley

Tried and trusted spring malting barley for brewing. Consistent performance for the end users and export potential gives **PROPINO** multiple market options.



Fairing
Spring barley

FULL MBC Approval for grain distilling, with contracts available in this market. Very early ripening and excellent *Rhynchosporium* resistance makes **FAIRING** ideal for both the Scottish and English grain distilling markets.



Scholar
Spring barley

A spring feed barley with consistent yield performance, stiff straw and very high specific weight, **SCHOLAR** is a very good option for the feed market.



Waggon
Spring barley

A popular spring malting barley variety in Scotland, due to its excellent straw strength, straw yield and very early maturity, **WAGGON** remains a firm favourite.



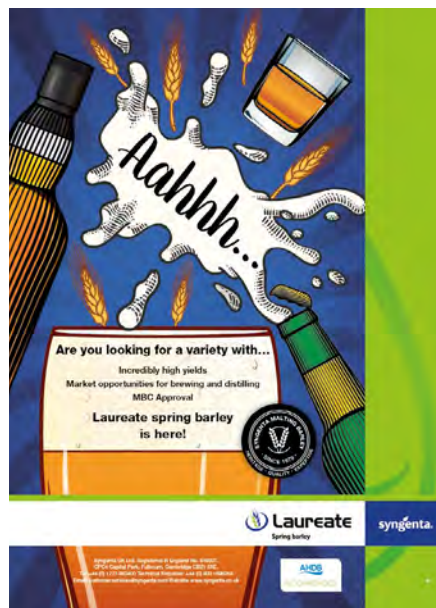
SY Tungsten
Spring barley

Recommended in 2020 for the brewing and malt distilling market. Provisionally MBC Approved for both markets, **SY TUNGSTEN** brings both yield and quality to the UK.



SY Splendor
Spring barley

Recommended in 2020 and Provisionally MBC Approved for the Brewing market, **SY SPLENDOR** brings outstanding yields and quality to the brewing and feed market and is a large step forward in yield for England.



VARIETY DESCRIPTION

LAUREATE is a non-GN variety with Full MBC Approval for brewing and malt distilling. It is high yielding with an excellent disease and agronomic profile.



	LAUREATE	RGT PLANET	LG DIABLO
MALTING BARLEY APPROVAL	Full for Brewing Full for Malt Distilling	Full for Brewing	Full for Malt Distilling Full for Brewing
% TREATED CONTROLS	101.1	99.5	102.1
SPECIFIC WEIGHT (KG/HL)	66.3	67.8	66.9
RESISTANCE TO LODGING (NO PGR)	7	7	7
RIPENING	+1	0	+2
BROWN RUST	5	5	5
RHYNCHOSPORIUM	6	5	5

Source: AHDB Recommended List 2021/22

 [CLICK TO FIND OUT MORE](#)



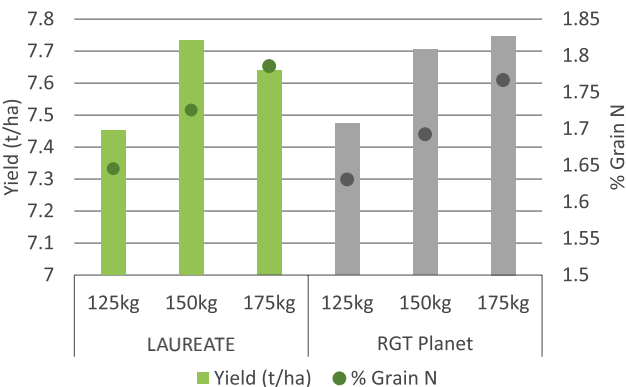
THINGS TO CONSIDER

- Strong support from end-users with multiple contracts available for both brewing and malt distilling.
- Many maltsters will only take an MBC Approved variety. Check with your local contracts to see which variety they require for the coming growing season.
- Later applications of nitrogen will increase the final % N within the grain.
- Higher yielding varieties have a natural dilution effect, so high yields will decrease % grain N.

LAUREATE can be grown for both brewing and malt distilling, but these two markets require a different % grain N in order to make either beer or whisky. It is important to know which market your grain is going to, so you can tailor your nitrogen inputs and achieve the right specification for the market you are growing for.

LAUREATE FOR BREWING

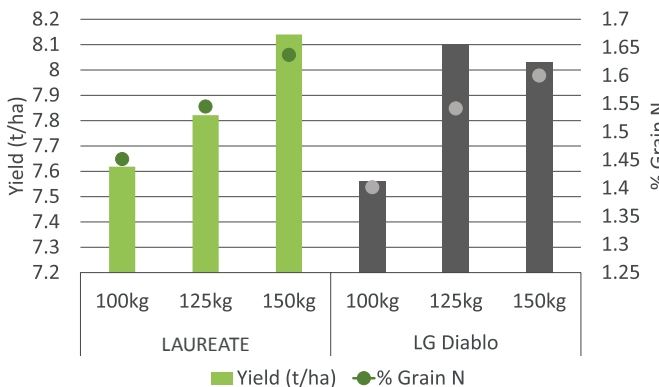
- Aim for a % grain N of 1.6-1.75%.
- 2 splits of nitrogen will help achieve higher % N.



Source: SYN N trials 2017-20 (Mean 11 sites across England)

LAUREATE FOR MALT DISTILLING

- Aim for a % grain N of below 1.65%.
- 100% application of nitrogen in the seedbed will help keep the nitrogen lower.



Source: SYN N trials 2019-20 (Mean 6 sites across Scotland)



Propino

Spring barley



VARIETY DESCRIPTION

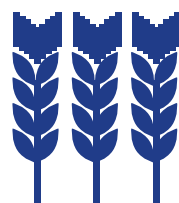
PROPINO is a spring malting barley that has produced very consistent yields across all regions of the UK and was the highest purchased spring brewing variety in England from harvest 2018.

It's reliable nature means it remains a favourite on farm. Although it no longer has MBC approval for brewing, it is still suitable for this market and will have demand for export across the world.



6 YRS

Number 1 purchased variety for the past 6 years of the last 7 years in England



10 YRS

PROPINO has been a favoured brew variety for the past 10 years



Propino

Spring barley

PROPINO was the 3rd largest variety purchased by English maltsters from harvest 2019



PROPINO

is a tried and trusted variety and remains popular with maltsters and exporters



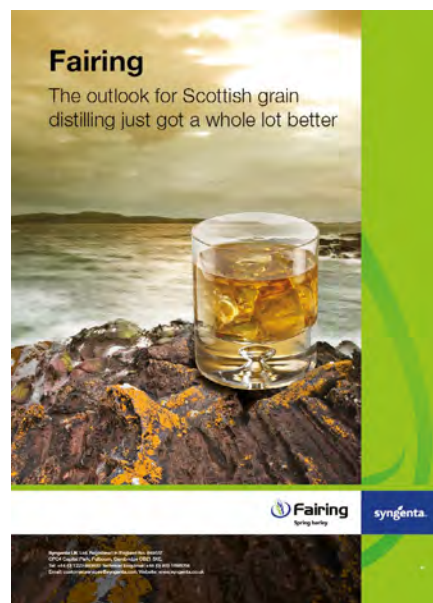
CLICK TO FIND OUT MORE

	PROPINO	RGT PLANET	LAUREATE
% TREATED CONTROLS	95.1	99.5	101.1
SPECIFIC WEIGHT (KG/HL)	68.1	67.8	66.3
RESISTANCE TO LODGING (NO PGR)	7	7	7
RIPENING	0	0	+1
MILDEW	6	9	9
RHYNCHOSPORIUM	5	5	6

Source: AHDB Recommended List 2021/22



*Source: The Maltsters Association of Great Britain (MAGB)



VARIETY DESCRIPTION

FAIRING is the only spring malting barley with Full MBC Approval for grain distilling. Unlike other varieties **FAIRING** was specifically bred for the grain distilling market and contracts are available in both Scotland and England this year.

KEY FACTS

- Earliest maturing variety on the AHDB Recommended List.
- One of the highest resistance ratings to *Rhynchosporium* available.
- Delivers very high nitrogen.

FAIRING	
MALTING BARLEY APPROVAL	Full for Grain Distilling
% TREATED CONTROLS	93.0
SPECIFIC WEIGHT (KG/HL)	68.2
RESISTANCE TO LODGING (NO PGR)	7
RIPENING	-1
MILDEW	8
RHYNCHOSPORIUM	6

Source: AHDB Recommended List 2021/22



 [CLICK TO FIND OUT MORE](#)



END MARKETS

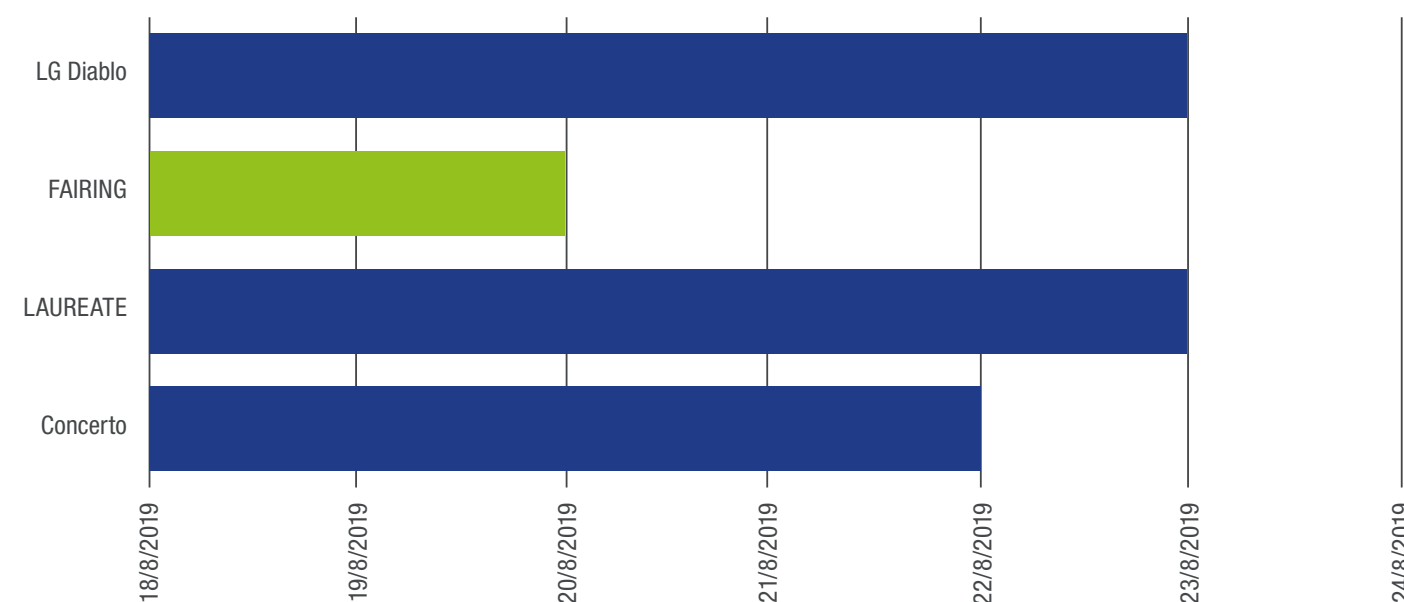
FAIRING is not as high yielding as LAUREATE but grows especially well in Scotland and areas of England where grain distilling contracts are available. It delivers very high nitrogen and is consistently able to meet the grain distil contract specifications (typically above 1.85% N). It also has a very high specific weight. FAIRING has contracts available for harvest 2020 and is in increasing demand from maltsters.



DID YOU KNOW?

FAIRING has been the earliest or joint earliest maturing variety on the RL for the last 6 years ever since it was Recommended. This early maturity is key in areas of Scotland to enable timely harvest before wet weather prevents combining and starts to impact quality. In Syngenta trials, FAIRING was ripe 2 days earlier than Concerto and 3 days earlier than both LAUREATE and LG Diablo.

MEAN MATURITY DATE



Source: Syngenta Spring Barley maturity trials harvest 2019 (mean 3 sites)



SY TUNGSTEN is the new brewing and distilling variety that everyone is looking for. It has excellent quality for both brewing and malt distilling and has Provisional Approval by the MBC for both these markets. It also has outstanding yield and moderate maturity, similar to LAUREATE and earlier than LG Diablo. It also brings an improvement in straw strength.

KEY FACTS

- Very high yields - the highest yielding dual purpose variety.
- High quality with potential for both brewing and malt distilling.
- Excellent specific weight.
- Stiff straw and moderate maturity.

RECOMMENDED 2020/2021

	SY TUNGSTEN	LAUREATE	LG DIABLO
MALTING BARLEY APPROVAL	Under Test for Brewing and Malt Distilling	Full for Brewing Full for Malt Distilling	Full for Malt Distilling, Provisional for Brewing
% TREATED CONTROLS	102.5	101.1	102.1
SPECIFIC WEIGHT (KG/HL)	67.4	66.3	66.9
RESISTANCE TO LODGING (NO PGR)	7	7	7
RIPENING	+1	+1	+2
BROWN RUST	4	5	5
RHYNCHOSPORIUM	[4]	6	5

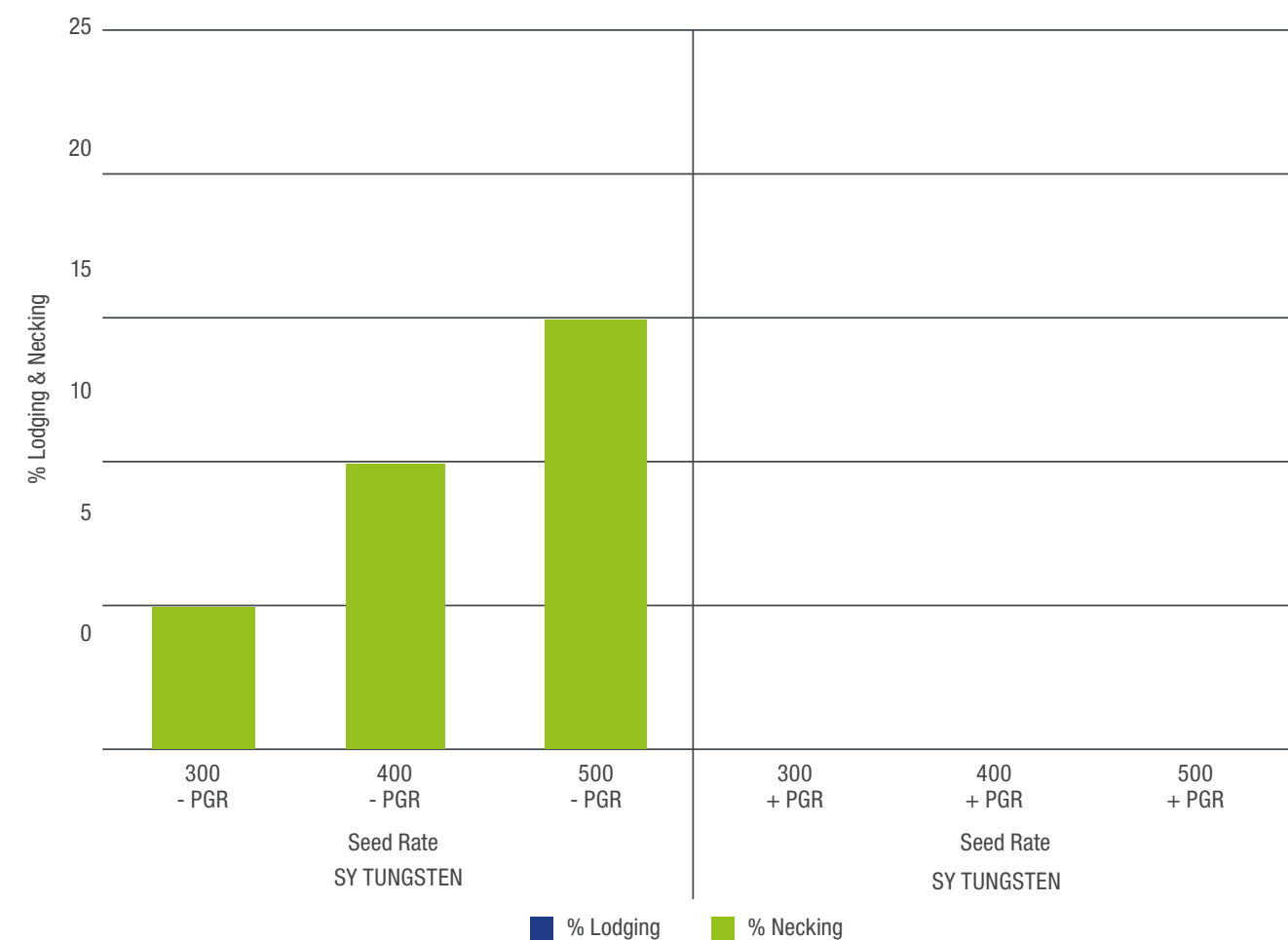
Source: AHDB Recommended List 2021/22



SY TUNGSTEN responds incredibly well to a PGR programme. In Syngenta trials a programme of MODDUS® + chlormequat reduced lodging levels to zero.

On high yield potential sites, or those with a history of spring barley lodging, we would recommend a PGR is used to ensure that the quality of the grain is secure.

% LODGING & NECKING

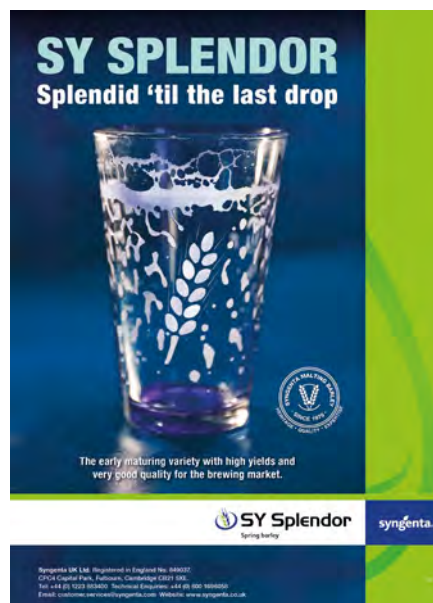


Source: Syngenta Spring Barley Agronomy trials harvest 2019 (mean 3 sites)



SY Splendor

Spring barley



VARIETY DESCRIPTION

SY SPlendor is a new high yielding brewing variety. It has outstanding yields over all regions of the UK and brings a step forward in yield over the current brew varieties of RGT Planet and PROPINO. It has stiff straw and good agronomics. SY SPlendor has Provisional Approval by the MBC for the brewing market and has performed exceedingly well in micromalt trials. It will be evaluated by end-users from harvest 2020.

KEY FACTS

- Very high yielding spring barley variety.
- Excellent grain characteristics with very high specific weight and very good brewing quality.
- Stiff straw with a good agronomic package.

 **RECOMMENDED 2020/2021**

	SY SPlendor	RGT Planet
MALTING BARLEY APPROVAL	Under Test for Brewing	Full for Brewing
% TREATED CONTROLS	103.2	99.5
SPECIFIC WEIGHT (KG/HL)	67.9	67.8
RESISTANCE TO LODGING (NO PGR)	7	7
RIPENING	+2	0
BROWN RUST	3	5
RHYNCHOSPORIUM	[4]	5

Source: AHDB Recommended List 2021/22

 **CLICK TO FIND OUT MORE**

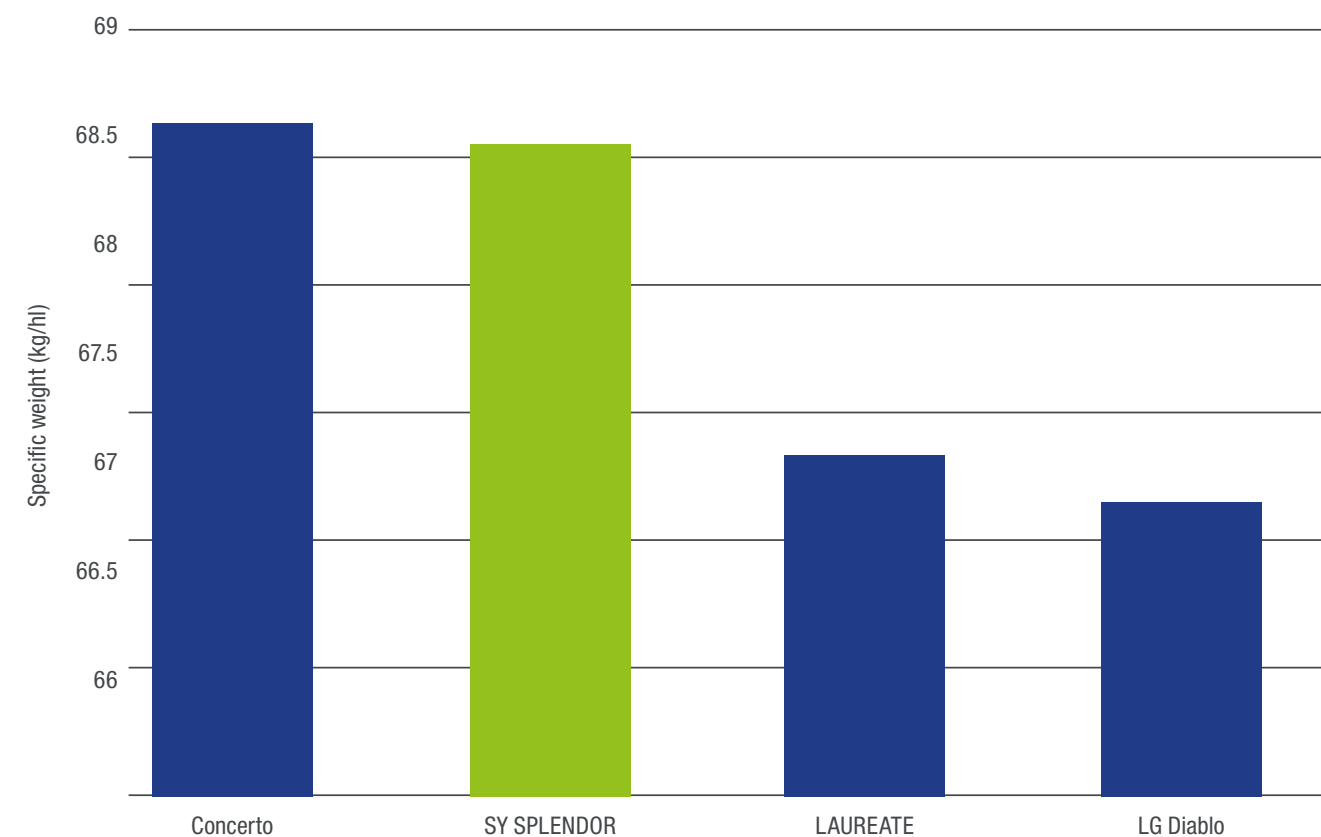


HEADING FOR CONSISTENCY?

SY SPlendor has very high grain quality and straw strength, making it a valuable addition to the brewing market. In high potential areas, the risk of lodging is increased, and straw strength is becoming increasingly important as many of the highest yielding varieties have lower resistance to lodging.

High specific weight and low screenings from SY SPlendor are excellent attributes in the malting process, ensuring high alcohol production for the end users.

SPECIFIC WEIGHT COMPARISON



Source: Syngenta trials harvest 2019 (mean 3 sites)



GROWING FOR END MARKETS

FEED SPRING BARLEY

Although only 20% of the spring barley market is for pure feed, it remains a popular choice for growers that have livestock to feed, where the grain and the straw remain equally important.

SCHOLAR is a popular feed variety and delivers a good combination of yield, straw strength and a very high specific weight. It has a strong overall disease profile with very high resistance to *Ramularia* and a very high untreated yield.

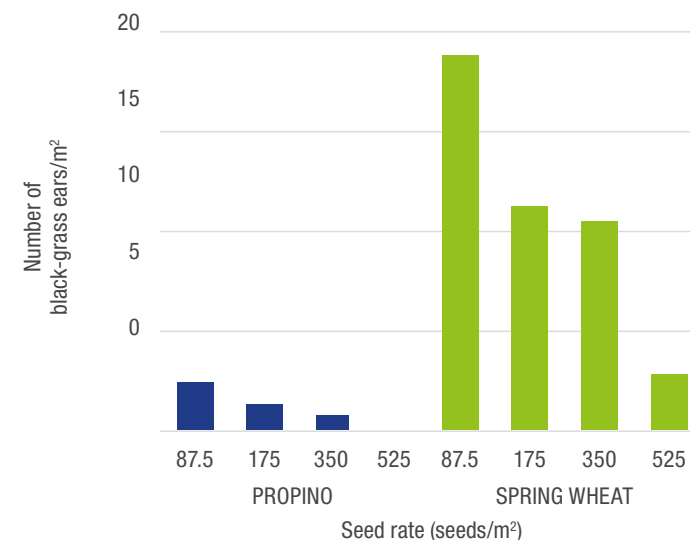
WAGGON is the favourite feed variety for Scotland. WAGGON is no longer on the Recommended List but remains popular due to its very early maturity (-2) and large quantity of straw.

GROWING FOR BLACK-GRASS MANAGEMENT

Spring cropping is a key strategy for black-grass management. Trials have shown that spring barley is significantly better for black-grass suppression than spring wheat.

Growers that are considering growing spring barley as part of their black-grass management strategy will need to decide whether they want to grow for feed or for malting quality. Deciding this before drilling will help you to get the most out of the crop.

PROPINO IS HIGHLY COMPETITIVE AGAINST BLACK-GRASS



Source: Syngenta trials H2016 (mean of 2 sites Oxford IC and Rougham IC)

DOUBLE BONUS FROM SPRING BARLEY

Introducing spring barley onto his farm has given a double bonus for Cambridgeshire grower, James Fountain.

Firstly, it has proved an effective weapon in his fight against black-grass. Secondly, by delivering high yields as well as meeting malting specifications and being cost-effective to grow, it has delivered high margins.

“The original reason for growing spring barley was because of black-grass,” says James who introduced

it four years ago on the family’s 500 ha business at CJ Fountain and Son, Whittlesey near Peterborough.

“With a lot of winter wheat in the rotation, black-grass was getting worse. Also, there were no contact herbicides that were working well in wheat for us. Spring barley seemed like the best break crop.”

“With spring barley, we get a good black-grass kill in the autumn,” James continues, “and hopefully another good kill before planting in the spring.

Originally trying spring barley in just one field, rising confidence in the crop has seen it increase to 8% of the farm’s acreage, with 40 ha now grown.

HOW TO GET THE MOST FROM YOUR SPRING BARLEY



ESTABLISHMENT

Selecting the correct seed rate for your chosen variety is key to optimal establishment. Syngenta recommend the following seed rates depending on variety and drilling date. The target plant population once established is around 300-325 plants/m².

SEED RATE (SEEDS/M ²)			
	DECEMBER	JANUARY – FEBRUARY	MARCH +
LAUREATE	325	325	325-350 (350-375 Scotland)
PROPINO	325	325	350-375 (375-400 Scotland)
FAIRING	325	350	350-400 (400-425 Scotland)
SCHOLAR	325	325-350	350-375 (375-400 Scotland)
SY TUNGSTEN	325	325	325-350 (350-375 Scotland)
SY SPLENDOR	325	325	350-375 (375-400 Scotland)

To give your spring barley the best start, a seed dressing will protect against seed- and soil-borne diseases. VIBRANCE® Duo is now approved on malting barley, and will provide excellent rooting and establishment benefits as well as disease control.

[+ CLICK HERE for more information on rooting and establishment](#)

HOW TO GET THE MOST FROM YOUR SPRING BARLEY



CANOPY MANAGEMENT

In order to maximise the potential of your spring barley it is important to keep green leaf area for as long as possible to maximise photosynthesis and build yield.

ELATUS® Era is approved for use on malting barley and is exceptional at controlling brown rust, the most prevalent barley disease of recent years.

Ramularia is becoming increasingly important as resistance to fungicides is increasing. Chlorothalonil was the best active ingredient available to combat this disease, however it is no longer available to growers.

CLICK TO SEE Cereal Disease & Canopy Management section for more information.

Some of the new high yielding spring barley varieties are more susceptible to lodging. Syngenta trials have found that height reduction is the key to keeping the crop standing. In high risk situations the use of a PGR is recommended to secure grain quality. See Cereal Disease & Canopy Management section 'Standing power of your crops' for more information.

HOW TO GET THE MOST FROM YOUR SPRING MALTING BARLEY



BREWING

Grain N target: 1.6-1.75% for domestic use and over 1.8% for export

Syngenta trials have shown **LAUREATE** has an increasing yield response up to 150 kg N/ha total dose without impacting % grain N in England.

Suggested application timings - 2 doses to be applied by GS15.

For export, higher total dose and later timings may help to achieve the higher grain N, **PROPINO** has an innately higher grain N which suits the export market.



MALT DISTILLING

Grain N target: 1.65% and below

Syngenta trials have shown total N from 100-125 kg N/ha increased yield without adversely affecting % grain N in **LAUREATE**.

Suggested application timings - either applied 100% in the seedbed or as a split dose applied before GS15.



GRAIN DISTILLING

Grain N target: 1.85% and above

Specialist varieties for grain distilling contain very high levels of enzymes to convert starch into sugar during the fermentation process. These varieties are in general lower yielding, but have higher innate grain N than the brewing and malt distilling varieties.

FAIRING has consistently seen improving yields when increasing N up to a total dose of 150 kg N/ha, after this yield tends to plateau. However % grain N continues to increase up to a total N dose of 200 kg/ha.

Suggested application timings - 2 doses to be applied by GS21.

HOW TO GET THE MOST FROM YOUR WINTER MALTING BARLEY

Syngenta have a long standing reputation for high yielding varieties with excellent malting quality. **CRAFT**, **FLAGON** and **ELECTRUM** all have Full MBC Approval for Brewing.



The leading winter malting variety in the UK.



New winter malting variety bringing high yields, good quality and very early maturity to the UK.



Although no longer on the AHDB Recommended List, **FLAGON** remains a popular variety for East Anglia and was the highest purchased winter malting variety from harvest 2018.

HOW TO GET THE MOST FROM YOUR WINTER MALTING BARLEY



CRAFT has replaced **SY VENTURE** to be the number one winter malting variety in the UK. It is showing significant maltster purchases and accounted for 44% of the winter barley purchased in England by maltsters from harvest 2019.

FLAGON remains popular with maltsters. It was the second highest purchased winter malt by English maltsters from harvest 2019 (accounting for 21% of winter malt purchases). There are significant contracts out for both **CRAFT** and **FLAGON** for harvest 2021.

ELECTRUM is the newest of the AHDB Recommended winter malts, and gained Full MBC Approval for Brewing in 2020. It has been launched on farm this year and looks to be a popular variety for maltsters and growers. Contracts are available for **ELECTRUM** for harvest 2021.

	ELECTRUM	CRAFT	SY VENTURE
MALTING BARLEY APPROVAL	Full	Full	Full
% TREATED CONTROLS	96.7	95.7	92.5
SPECIFIC WEIGHT (KG/HL)	69.2	69.5	69.9
RESISTANCE TO LODGING (NO PGR)	7	8	7
RIPENING	-1	+1	0
MILDEW	6	6	5
RHYNCHOSPORIUM	6	6	5

HOW TO GET THE MOST FROM YOUR WINTER MALTING BARLEY



Most winter malting barley varieties will be aiming for a malting contract for brewing. Typically the following will be required:

- A grain nitrogen content of 1.6-1.75%
- 94% screenings over a 2.25 mm sieve

In order to achieve this, all our varieties require a similar nitrogen programme of approximately 100-120 kg N/ha applied in 2 splits, by the end of March.

This will vary depending on soil type, farm history and weather.

Varieties such as **ELECTRUM** and **FLAGON** will benefit from a PGR programme in order to protect grain quality.

All varieties will have a different disease resistance programme and fungicide programmes should be adapted to suit the variety, region and weather in the season, for more information see the Cereal Disease Management section.



HOW TO GET THE MOST FROM YOUR HYBRID FEED BARLEY

Here's a reminder of the main benefits of each hybrid barley variety:



The high performing all-rounder



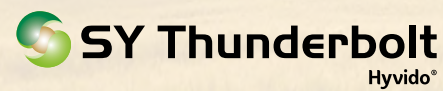
The number 1 for yield



Proven high yield with grass weed suppression



A top choice for the North and West



Strikingly high yields



Toughen up your disease protection



The resilient all-rounder that is easy to manage



The high-yielding variety with consistent performance

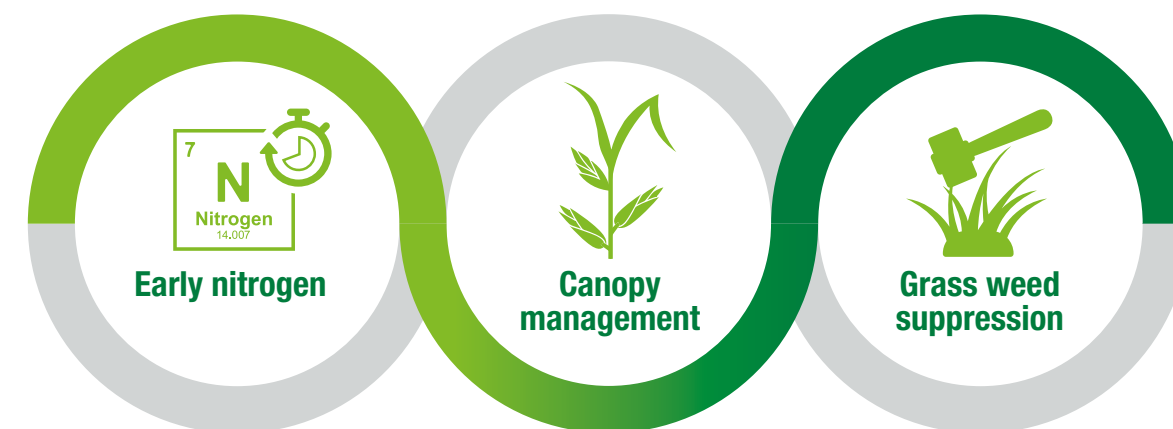


Exceptional grain quality

 [CLICK TO FIND OUT MORE](#)

HOW TO GET THE MOST FROM YOUR HYBRID FEED BARLEY

The three key areas to focus on for a hybrid barley variety in the spring are:



NITROGEN MANAGEMENT

Get the best out of your hybrid barley crops with the following nitrogen programme:

SPLIT	TIMING	% OF TOTAL TARGET N
1	Early spring (approx. GS25) as soon as application is possible	30
2	At or just before GS31 (typically 3-4 weeks after first application)	50
3	2-3 weeks after second application	20

KEY PRINCIPLE: APPLY EARLY NITROGEN TO SUPPORT VIGOROUS SPRING GROWTH AND DRIVE BLACK-GRASS SUPPRESSION



Nitrogen application programmes should typically be completed by the end of April at the latest (subject to weather conditions).

50:50:0 is a good alternative if the more favourable 3 split programme is incompatible with on-farm workloads.

HOW TO GET THE MOST FROM YOUR HYBRID FEED BARLEY



CANOPY MANAGEMENT

All hybrids on the 2020/21 Recommended List have a rating of 7 or more for resistance to lodging.

SY BARACOODA is the tallest variety at around 118 cm (untreated) and shows a good response to PGR programmes. A PGR, such as MODDUS, will help promote rooting early on and strengthen tillers whilst limiting height to reduce the risk of brackling.

Disease profiles of the hybrids are very similar, so we would advise the fungicide programme below. If you are growing **BELMONT, BAZOOKA, SY BARACOODA & SY KINGSBARN** they will benefit from a good brown rust programme, while **BAZOOKA, BELMONT, LIBRA** and **SY ARMADILLO** may benefit from the addition of a mildewicide.

For major barley diseases such as brown rust that favour warm, humid weather, the use of ELATUS Era at T2 timing will limit the spread of infection.

TIMING	BELMONT* BAZOOKA* SY KINGSBARN SY BARACOODA	BELFRY, LIBRA* SY ARMADILLO* SY THUNDERBOLT SY KINGSTON	PGR	WHY?
T0 (GS30)	Rust-active triazole (+ KAYAK®)	According to local risk	MODDUS 0.1-0.2 l/ha + chlormequat (~50% dependent on product)	Remove overwintered disease in lush crops, protect new growth and help with rooting
T1 (GS31-32)	ELATUS Era 0.5-0.6 l/ha	PTZ/SDHI/ strobe/cyprodinil	MODDUS 0.1-0.2 l/ha + chlormequat (~50% dependent on product)	Keep lower leaves green, keep out disease and aid stem strengthening
T2 (GS39-59)	PTZ/SDHI + folpet 1.0 l/ha	ELATUS Era 0.5-0.7 l/ha + folpet 1.0 l/ha	Ethephon-based product 0.75-1.5 l/ha <i>DO NOT APPLY AFTER GS39</i>	Drive final yield and maintain specific weight, reduce brackling

* Add partner product at T0 if powdery mildew is established. Adapt inputs according to local risk and disease.

HOW TO GET THE MOST FROM YOUR HYBRID FEED BARLEY



GRASS WEED MANAGEMENT: FROM SCIENCE TO FARMING

Grass weeds, and herbicide-resistant black-grass in particular, are a headache for many winter cereal growers. Fortunately, hybrid barley offers a useful tool for suppressing black-grass populations, and reducing seed return, as part of an integrated approach.

Indeed, many growers have realised these benefits on their own farms in recent years. Crops have done well and a lower level of seed return has reduced black-grass problems in following crops.

Furthermore, we have now extended this grass weed suppression concept to ryegrass and brome. Our results have shown that hybrid barley will suppress both of these weeds too.

GRASS WEED SUPPRESSION IN ACTION



THE ROCHE APPROACH

Join Paul Roche for a virtual tour of our black-grass, brome and ryegrass suppression trials.

[CLICK HERE TO SEE FOR YOURSELF](#)

HOW TO GET THE MOST FROM YOUR HYBRID FEED BARLEY



HARVEST

Optimising combine set-up is an absolutely critical step as hybrid barley is often the first crop to be harvested. Factory settings are only a starting point!

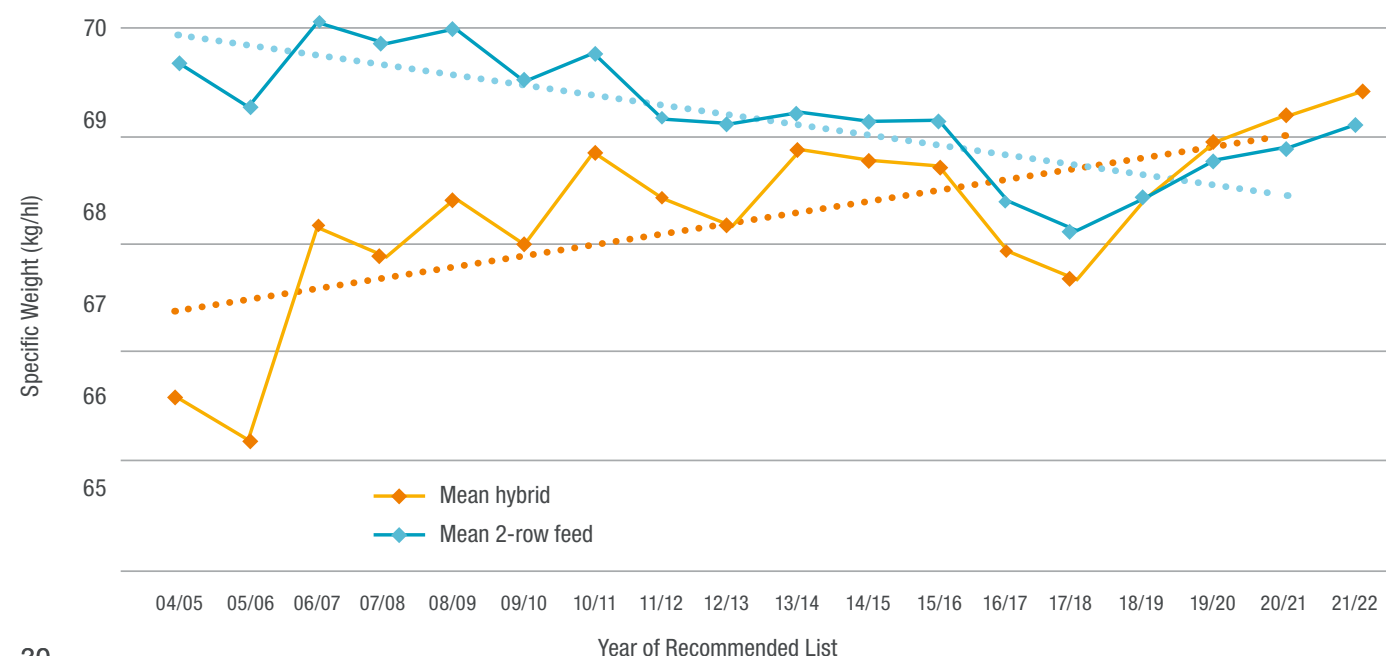
Straw prices rose markedly at the end of the 2020 season as straw yields were heavily compromised by the challenging growing conditions.

Recent trials have shown that hybrid barley varieties produce an equivalent amount of straw to conventional varieties despite their lower seed rate. This is an added benefit that could create extra value from the crop.

Specific weights for 6-row barley varieties used to be a challenge. However, modern hybrid barley varieties have specific weights that are similar to, or even exceed, some conventional 2-row barleys.

Maximising yields of high quality grain at harvest can best be achieved by focusing on PGR and fungicide inputs, this will reduce the risk of lodging and maximise yield.

HYBRID GRAIN QUALITY HAS IMPROVED: NOW EQUIVALENT TO 2-ROW FEEDS



SYNGENTA WINTER WHEAT VARIETIES

Here's a reminder of the main features of the winter wheats from the Syngenta family:



SY Insitor

Winter wheat

Very high yielding hard group 4 feed combined with excellent grain quality and a strong overall disease package.



Gleam

Winter wheat

The very high yielding, adaptable and flexible variety with a very wide drilling window.



Graham

Winter wheat

The secure, consistent feed wheat, with outstanding *Septoria tritici* resistance.



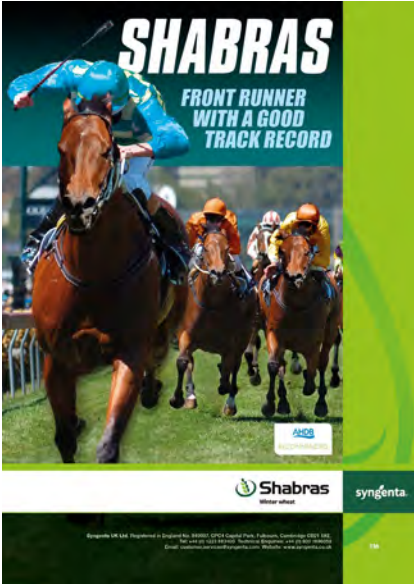
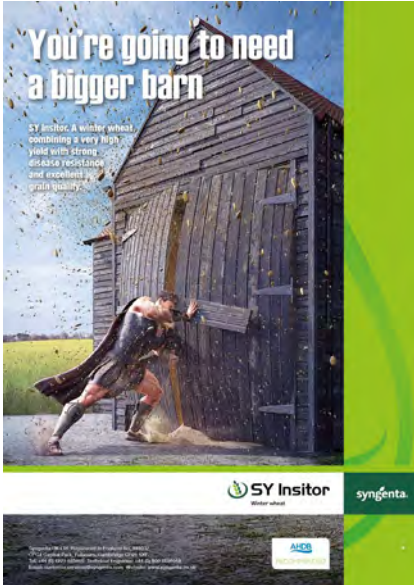
Shabras

Winter wheat

The high yielding barn filler that performs particularly well on light land and in second wheat situations and has the ideal growth habit for suppressing grass weeds.

HOW TO GET THE MOST FROM YOUR WINTER FEED WHEAT

Whether it's a secure option with excellent disease resistance, or an out and out yielder, Syngenta have a feed option for every situation:



 [CLICK TO FIND OUT MORE](#)

HOW TO GET THE MOST FROM YOUR WINTER FEED WHEAT

Below are the key statistics for each of the winter wheat varieties from Syngenta:

KEY STATISTICS	SY INSITOR	GLEAM	GRAHAM	SHABRAS
SEPTORIA TRITICI	6.8	6.1	6.8	6.1
YELLOW RUST	5	5	8	5
BROWN RUST	5	6	5	5
RESISTANCE TO LODGING WITH PGR	7	7	8	7
RESISTANCE TO LODGING WITHOUT PGR	6	7	7	7
SPECIFIC WEIGHT (KG/HL)	78.4	76.3	76.8	76.0



HOW TO GET THE MOST FROM YOUR WINTER FEED WHEAT

GROWTH HABIT

Understanding each varieties' growth habit is key to being able to manage the crops' canopy, to maximise photosynthetic activity and yield.



SY INSITOR:

- Quick early development, with erect growth habit
- Fast to reach GS30, but slower to reach heading
- The latest Syngenta variety to reach ripening
- Not a late maturing variety, classed as a moderate maturity of +1



GLEAM:

- Slow development over winter with a very prostrate growth habit
- Very high tillering ability with excellent tiller retention throughout the season
- Slow to reach GS30, but speeds up once stem extension is reached
- Early maturity



GRAHAM:

- Slow development over winter
- Prostrate growth habit with good ground cover over winter
- Slow to reach GS30
- Quickly moves through GS30-39, resulting in very early maturity



SHABRAS:

- Very quick early development
- Erect, lush growth habit, with good smothering habit for grass weeds
- Will be one of the first varieties to reach GS30
- Even gaps between main fungicide timings (3-4 weeks)



HOW TO GET THE MOST FROM YOUR WINTER FEED WHEAT

YELLOW RUST

- Yellow rust is a key foliar disease to look out for in the autumn and winter.
- Regular monitoring is recommended to check for early season disease.

There is a difference between seedling and adult plant resistance:

As a 'seedling', wheat varieties are either classed as resistant or susceptible to yellow rust.

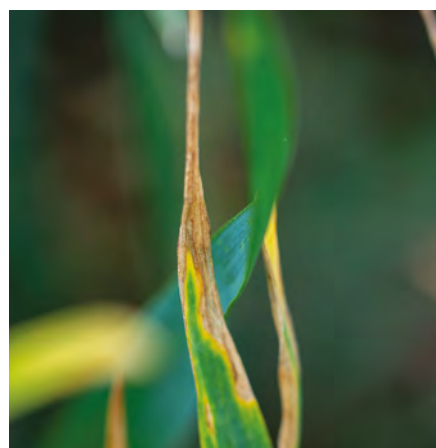
The majority of varieties on the Recommended List are susceptible to yellow rust at the seedling stage, including all of the Syngenta varieties.

As an 'adult,' wheat varieties are given a resistance rating (1-9) which can be found on the AHDB Recommended List. This differs for each variety, usually this resistance is active by GS31 but can be as late as GS39.

None of the current Syngenta winter wheat varieties have resistance to yellow rust at the seedling stage, therefore we recommend regular monitoring from planting through to April.

If yellow rust is seen, a rust active triazole should be used at T0 and T1 to control early disease before adult plant resistance is operational.

HOW TO GET THE MOST FROM YOUR WINTER FEED WHEAT

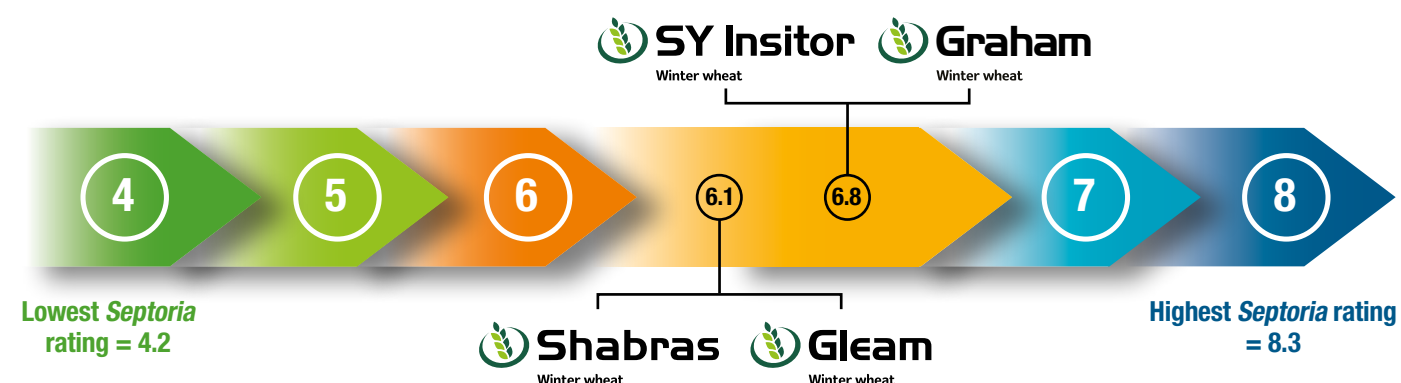


SEPTORIA TRITICI

Still the biggest yield robbing disease in winter wheat, Syngenta recognise that resistance to *Septoria tritici* is incredibly important and have been breeding for high resistance to this disease for a number of years.

Varietal resistance to *Septoria* is the first step to controlling the disease and minimising yield impact later in the season.

All Syngenta varieties have a resistance rating of above 6 for *Septoria tritici*, giving a solid start to tailor fungicide inputs going forward.



From the Syngenta winter wheats, SY INSITOR and GRAHAM have the highest resistance to *Septoria* with a 6.8. GRAHAM was one of the first varieties recently to have a 7 rating. Since then, GRAHAM has retained this high rating for the last four years. Having this resistance allows:

- Greater flexibility in fungicide timings, useful when spray timings are compromised because of weather
- Enables a mix of variety resistance on farm
- Protects yield potential in high disease pressure years

Septoria tritici can be seen on a number of winter wheat varieties over the winter, including those with the highest resistance ratings. Varietal resistance to the disease will be seen later in the year.

T0 is an important timing for disease control as it will enable growers to keep on top of disease early.

Fungicide advice at T0 can be found in the Cereal Disease & Canopy Management section.

HOW TO GET THE MOST FROM YOUR WINTER FEED WHEAT



PESTS

Orange wheat blossom midge has been an issue in certain areas over the past few years. With cocoons staying highly viable for at least 4 years we could see issues again this coming year.

OWBM RESISTANCE

GLEAM	✓	SY INSITOR	✓
GRAHAM	✗	SHABRAS	✗

- Susceptible varieties will benefit from an application of HALLMARK® Zeon, when the threshold for OWBM is reached
- For feed wheat the threshold = 1 adult in 3 ears
- For best results spray before large number of eggs are laid



CANOPY MANAGEMENT

As yields are pushed higher and ears get heavier, lodging is always a risk.

Each variety differs in its resistance to lodging:

GRAHAM has stiff straw with good resistance to lodging. It also shows a good response to PGRs in high risk situations.

GLEAM carries a lot of tillers, but ear size is relatively small. It has strong root anchorage, and has good resistance to lodging, but again does show a response to PGRs.

SHABRAS has weaker straw than both GRAHAM and GLEAM, and will benefit from a good PGR programme. It develops quickly, so is not suitable for early drilling, and the first T0 timing will be key.

SY INSITOR is a tall variety when left untreated, but shows a very good response to PGRs in both height and lodging reduction.

PGR advice can be found in the Cereal Disease & Canopy Management section.

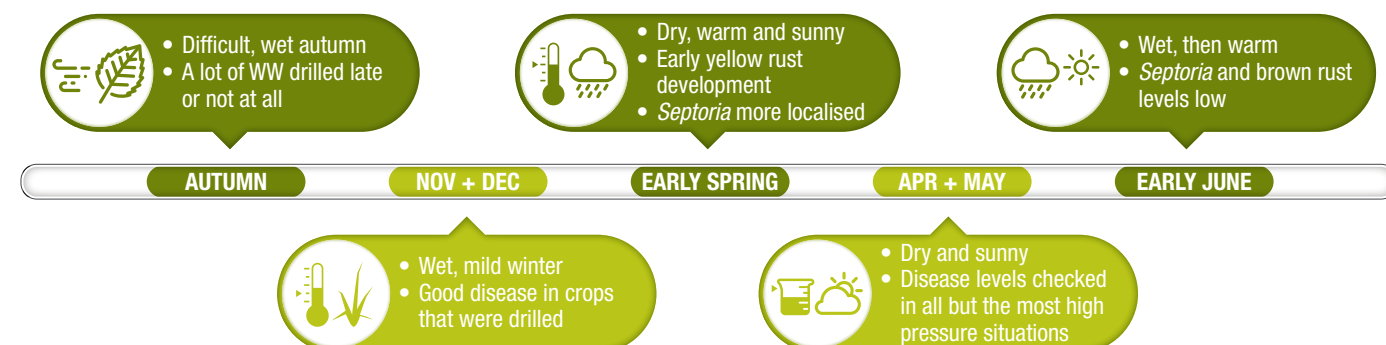


CEREAL DISEASE AND CANOPY MANAGEMENT

This year we will look at ways to minimise fungicide resistance and adapting to change.



WHAT DID THE 2019-2020 SEASON LOOK LIKE?



• Difficult weather conditions in the 2020 season resulted in below average fungicide yield response

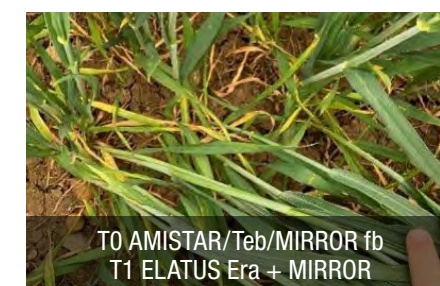
YELLOW RUST LEARNINGS

This unpredictable disease was found across the country on many different varieties last season.



IMPORTANCE OF CONTROL

- T0 is critical for early infections, however T1 is a key timing for both *Septoria* and yellow rust
- Yellow rust can be unpredictable due to shifts in races and varietal susceptibility
- Most varieties do not carry juvenile plant resistance, and adult plant resistance may not “kick in” until mid-season by which time the disease can have already had a big impact
- If yellow rust is seen in any variety from early spring, it should be controlled immediately
- At T0, a rust active triazole +/- strobilurin (e.g. AMISTAR®) may be appropriate
- At T1 a strong rust active SDHI will be appropriate, and ELATUS Era should be the product of choice
- Including prothioconazole in your spray programme at T1 will also help with eyespot suppression



The images show that ELATUS Era provides good yellow rust control when included in your spray programme at T1

YELLOW RUST CONCLUSIONS

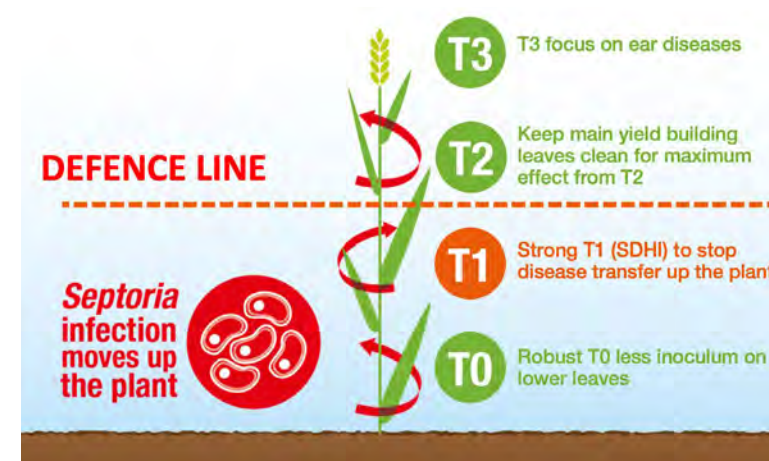
Don't grow susceptible varieties without a T0 application

Yellow rust can occur early in the season on unexpected varieties before adult plant resistance kicks in

ELATUS Era provides the most effective yellow rust control

DON'T FORGET ABOUT SEPTORIA

SEPTORIA SEASON LEARNINGS



- Varietal resistance, drilling date and spring rainfall are key drivers for *Septoria* epidemics
- Curative activity on *Septoria* is still very limited, even with the newer chemistry
- Strong protectant activity (a “firebreak”) from the T1 fungicide is also important to ensure disease spread up the canopy is reduced, and the T2 (flag leaf) spray is applied to disease free leaves
- ELATUS Era is the most potent and long lasting SDHI + triazole combination which is ideal as a T1 ‘firebreak’ choice
- Including the multi-site folpet provides additional *Septoria* control and is important for resistance management

UTILISING INTEGRATED DISEASE MANAGEMENT



RESISTANT VARIETY

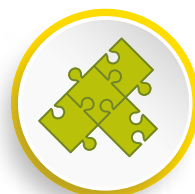
- Growing the right variety for your region is important. First consider what diseases are your main concern in your location and what market you are aiming for
- Resistant varieties can reduce disease by up to 90% compared to a highly susceptible variety
- Spring weather will dictate how disease epidemic develops from overwintered inoculum



DRILLING DATE

- One of our varieties, GLEAM, has a latest safe drilling date of mid-February
- Drill your least susceptible varieties first
- Early drilling increases the risk of *Septoria*

[+ SEE more information](#)



USE OF MULTI-SITE

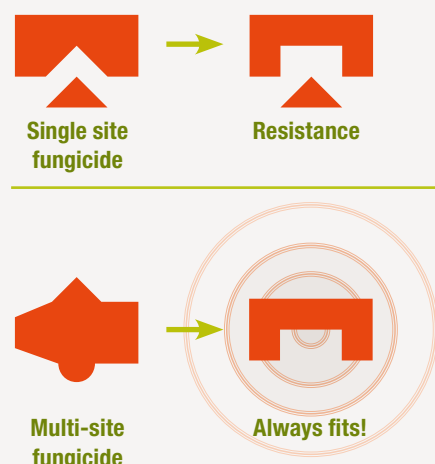
- We have tested various multi-site options in our trials as alternatives to chlorothalonil such as copper, mancozeb and sulphur
- Folpet was found to be the most effective multi-site, adding to *Septoria* control and yield when used alone or in mix with new and existing chemistry
- Trials have shown that mixing folpet with an SDHI/triazole is as effective as increasing the rate of the SDHI/triazole with the benefit of improving resistance management

WHY ARE MULTI-SITES IMPORTANT?

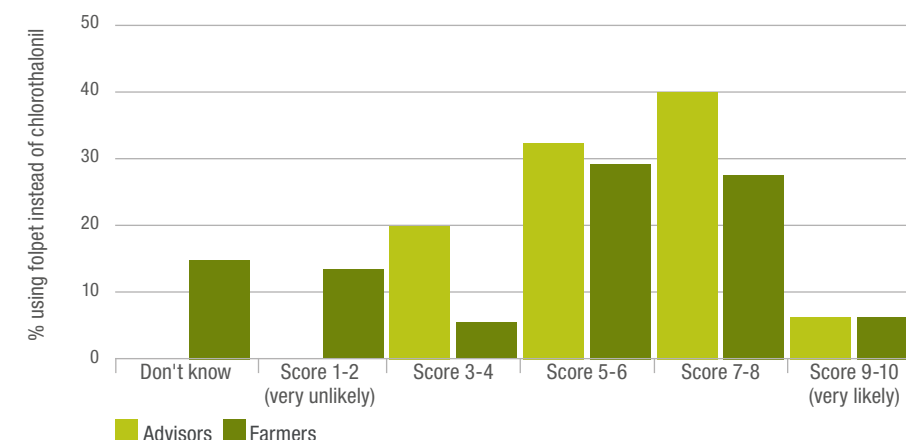
Multi-sites show low risk to developing *Septoria* resistance and help to prolong the life expectancy of existing chemistry (SDHIs and triazoles). Even with new products coming to the market, protecting against *Septoria* resistance is crucial.

Multi-sites combined with other modes of action protect in higher risk situations especially earlier in the season. They should be considered in your disease management programme.

[CLICK TO WATCH our 'Why multi-sites matter' video](#)



This year our market research showed that more advisors in 2020 were considering using folpet in their spray programme going forward.



Market research data has been funded by Syngenta. Percentage figures show the number of growers choosing to use folpet this season.



"Multi-site fungicides are the ONLY products not affected by shifts in disease sensitivity and can help slow down resistance development in other products"

Iain Hamilton

RECOMMENDATIONS - DECISION TREE

WHAT IS YOUR VARIETY'S MAIN DISEASE CONCERN?

Fill in variety rating	<i>Septoria tritici</i>	Yellow rust	Brown rust
Septoria susceptible			
High pressure?			
YES		NO	
T0	Folpet	T0	Folpet
T1	ELATUS Era + folpet	T1	Other SDHI
T2	New chemistry	T2	ELATUS Era + folpet
T3	<i>Fusarium</i> active triazole (PTZ/TCZ/MCZ)	T3	<i>Fusarium</i> active triazole (PTZ/TCZ/MCZ)
Brown Rust			
Low risk <i>Septoria</i>		High risk <i>Septoria</i>	
T0	Nil or according to risk	T0	Nil or according to risk
T1	Triazole + AMISTAR + folpet	T1	Other SDHI + triazole + folpet
T2	ELATUS Era + folpet	T2	ELATUS Era + folpet
T3	Add AMISTAR if brown rust pressure high	T3	<i>Fusarium</i> active triazole (PTZ/TCZ/MCZ)
Yellow Rust			
Low risk <i>Septoria</i>		High risk <i>Septoria</i>	
T0	Protectant: AMISTAR Curative: Rust active triazole (TCZ/EPZ)	T0	Protectant: AMISTAR Curative: Rust active triazole (TCZ/EPZ)
T1	ELATUS Era (+/- folpet)	T1	ELATUS Era + folpet
T2	Other SDHI + triazole	T2	Other SDHI + triazole + folpet
T3	<i>Fusarium</i> active triazole (PTZ/TCZ/MCZ)	T3	<i>Fusarium</i> active triazole (PTZ/TCZ/MCZ)

TCZ = tebuconazole, EPZ = epoxiconazole, PTZ = prothioconazole, MCZ = metconazole

BARLEY

Use of the multi-site folpet can help improve control of key barley diseases, especially *Ramularia*. It also provides resistance management when mixed with SDHI/triazole based products. The main benefit comes from T2 (GS39-45) applications along with ELATUS Era. In high pressure *Ramularia* situations, including folpet at T1 (GS30-31) can also help.

Variety susceptibility	What should you consider?	Our advice
<i>Ramularia</i>	Weather Location	Utilise folpet
Brown Rust	Variety Temperature Location	ELATUS Era is highly effective
<i>Rhynchosporium</i>	Variety Weather Location Drilling date	Programmes should be based on prothioconazole and additional modes of action, e.g. SDHIs, strobos, KAYAK
Net Blotch	Variety Weather Resistance status	Consider adding KAYAK to the programme or an alternative mode of action

KEY ISSUES IN BARLEY DISEASE CONTROL

Brown rust has been the most predominant disease recorded in AHDB RL Winter and Spring Barley trials over the last few years. This is due to a combination of varietal genetics and mild winters (in the case of WB) and warmer springs.

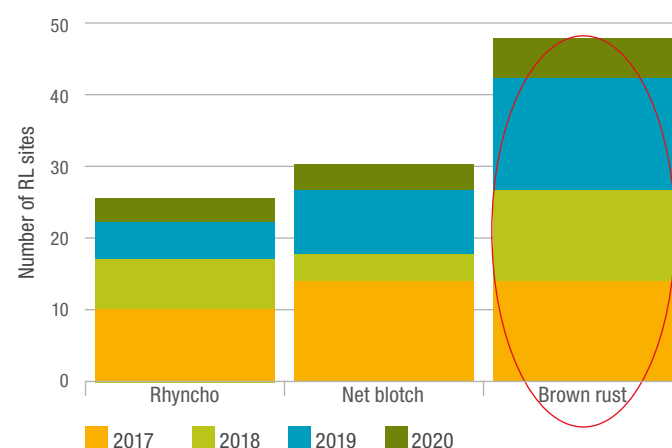
Unlike wheat, the disease does come in early season and needs tackling early if present, depending on variety and situation.

At T0 (<GS30), a rust active triazole is the best approach (e.g. tebuconazole)

At T1 (GS30-31) ELATUS Era, containing Solatenol, is a very strong option for brown rust.

BROWN RUST PREVALENCE

DISEASE PREVALENCE IN AHDB TRIALS



COMPARISONS



STANDING POWER OF YOUR CROPS

HIGH YIELDING CROPS FACE INCREASED LODGING RISK THROUGHOUT THE SEASON

Tailored PGR programmes can reduce the risk of lodging and:

- Develop stronger stems
- Promote deeper rooting
- Shorten crop height
- Help crops to deal with increasingly stressful environmental conditions and optimise the use of water, nutrients and other inputs



FACTORS AFFECTING LODGING AND ULTIMATELY YIELD:

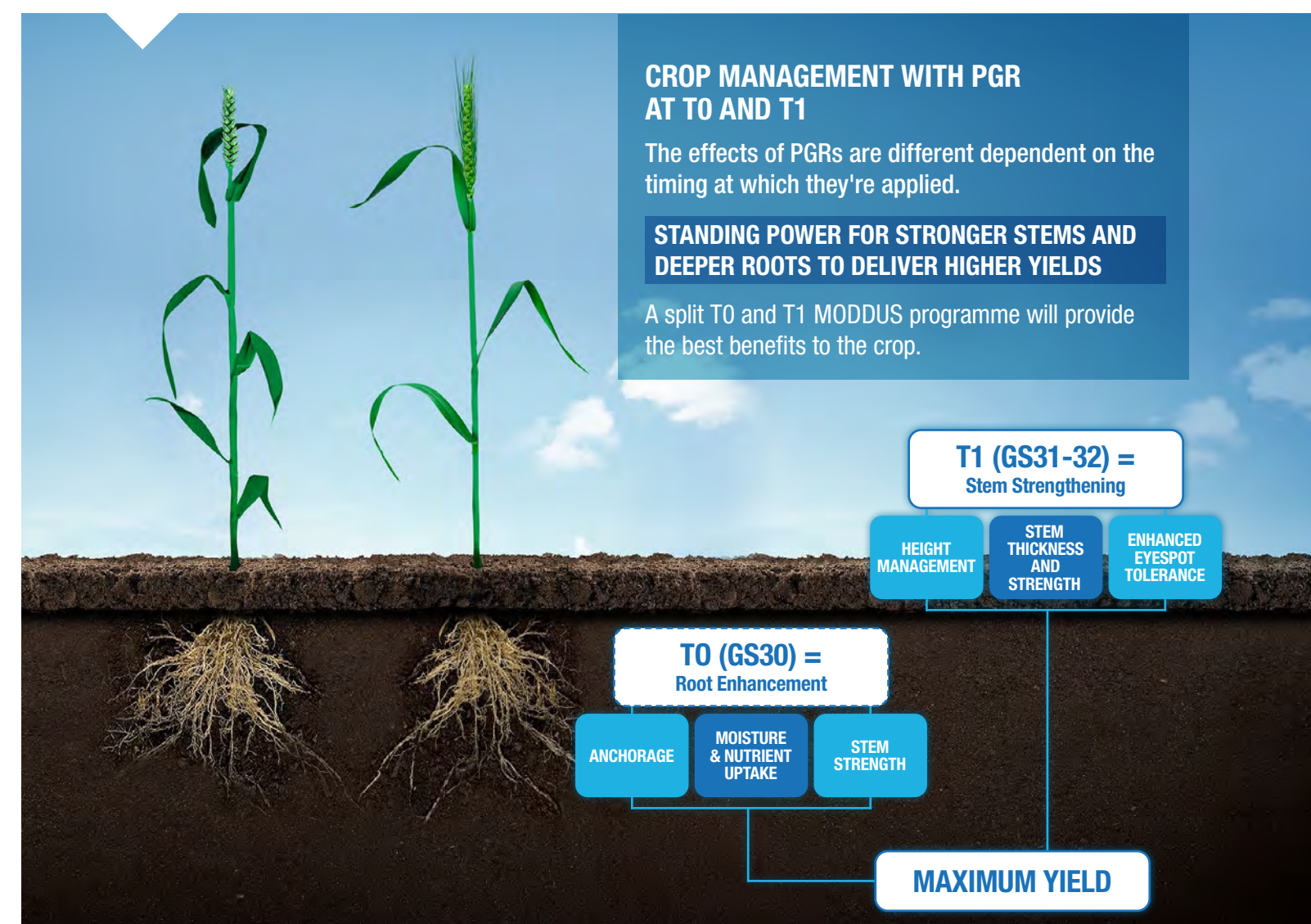
- ✓ Location
- ✓ Weather
- ✓ Soil Type
- ✓ Drill Date
- ✓ Crop GAI (yield potential)
- ✓ Variety

CROP MANAGEMENT WITH PGR AT T0 AND T1

The effects of PGRs are different dependent on the timing at which they're applied.

STANDING POWER FOR STRONGER STEMS AND DEEPER ROOTS TO DELIVER HIGHER YIELDS

A split T0 and T1 MODDUS programme will provide the best benefits to the crop.



HARPER ADAMS RESEARCH - VARIETY SPECIFIC PROGRAMMES



In-depth variety studies conducted by Dr Mitch Crook from Harper Adams University help us generate unique profiling of individual varieties to give an indication of how they will perform in the field, and how they can be better managed with PGR use and other agronomy decisions.



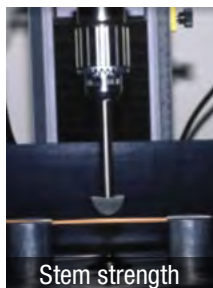
LISTEN to Mitch on the podcast



WATCH trials by Dr Mitch Crook



Anchorage




Stem strength



Centre of gravity



Understanding specific varieties' strengths and weaknesses for root or stem lodging can prove invaluable in tailoring PGR requirements.


[CLICK to calculate your field specific programme](#)

RECOMMENDATIONS

Always apply MODDUS to actively growing and non-stressed crops

Crop	T0 GS30	T1 GS31-32	T2 GS37-39
	MODDUS rate recommended within the PGR programme		
Winter wheat	0.2 l/ha	0.1-0.2 l/ha (+ CCC)	Ethephon based product*
Conventional winter barley	0.1-0.2 l/ha (+ CCC) in higher risk situations	0.1-0.2 l/ha (+ CCC)	Ethephon based product*
Hybrid barley	0.1-0.2 l/ha (+ CCC)	0.1-0.2 l/ha (+ CCC)	Ethephon based product*
Winter malting barley (low nitrogen)	-	0.1-0.2 l/ha (+ CCC)	Ethephon based product*
Low risk winter oats	0.2 l/ha (+ CCC)	-	-
High risk winter oats	0.2 l/ha	0.2 l/ha (+ CCC)	-
Spring wheat	0.1-0.2 l/ha	0.1-0.2 l/ha (+ CCC)	-
Spring barley	0.2 l/ha		Ethephon based product*
Spring oats	0.2-0.3 l/ha		-

CCC = chlormequat at ~50% dose rate. Various products and formulations exist. Please consult a BASIS qualified advisor.
 *rates dependent on situation, ask your agronomist for advice
 Risk is dependent upon several factors including soil fertility, seed rate and drilling timing

VARIETY PROFILING

Basic Advice (all varieties): T0 (from GS30) MODDUS 0.1–0.2 l/ha for root enhancement followed by T1 (GS31–32) MODDUS 0.1–0.2 l/ha + CCC (dependent on product, ~50% dose rate). Consider higher rate for those varieties with a weaker basal stem strength. In addition to the basic recommendations, below is further tailored advice by variety.

Variety	AHDB rating -PGR	AHDB rating +PGR	Centre of Gravity (cm)	Basal Stem Strength (Nm)	Anchorage Strength Plant (Nm)	Specific Variety Advice
KWS Siskin	6	7	**	**	**	Consider higher rates in higher risk situations
LG Sundance	6	7	**	*	**	Target higher rates of MODDUS at GS31-32; Ethephon at GS37-39
SY Insitor	6	7	**	*	***	Target higher rates of MODDUS at GS31-32
Zulu	6	7	*	**	**	Consider higher rates in higher risk situations; Ethephon at GS37-39
Costello	7	8	**	**	**	Consider higher rates in higher risk situations
Crusoe	7	8	**	**	**	Consider higher rates in higher risk situations
Elation	7	8	***	**	**	Standard programme according to the situation
Elicit	7	8	**	**	**	Consider higher rates in higher risk situations
Evolution	7*	7*	*	**	*	Target higher rates of MODDUS at GS30 to enhance anchorage
Gleam	7	7	**	*	*	Target higher rates of MODDUS at GS30 to enhance anchorage
Graham	7	8	*	**	**	Consider higher rates in higher risk situations; Ethephon at GS37-39
JB Diego	7*	8*	**	**	**	Consider higher rates in higher risk situations
KWS Basset	7	8	***	***	**	Standard programme according to the situation
KWS Extase	7	8	**	***	**	Standard programme according to the situation
KWS Kerrin	7	7	**	**	**	Consider higher rates in higher risk situations
KWS Lili	7	8	***	*	**	Target higher rates of MODDUS at GS31-32
KWS Santiago	7*	8*	**	**	**	Consider higher rates in higher risk situations
KWS Zyatt	7	8	**	*	**	Target higher rates of MODDUS at GS31-32
Leeds	7	8	**	*	**	Target higher rates of MODDUS at GS31-32
Revelation	7	8	**	***	***	Standard programme according to the situation
RGT Gravity	7	7	**	**	**	Consider higher rates in higher risk situations
Shabras	7	7	**	**	**	Consider higher rates in higher risk situations
Skyscraper	7	7	**	**	**	Consider higher rates in higher risk situations
KWS Jackal	7	7	**	**	**	Consider higher rates in higher risk situations
KWS Kinetic	7	8	***	**	**	Standard programme according to the situation
Grafton	8*	8*	***	**	**	Standard programme according to the situation
KWS Firefly	8	8	***	**	**	Standard programme according to the situation
RGT Skyfall	8	8	**	**	**	Consider higher rates in higher risk situations
KWS Parkin	8	8	***	*	*	Target higher rates of MODDUS at GS30 to enhance anchorage

■ High Risk
 ■ Medium Risk
 ■ Lower Risk
 Colours according to AHDB -PGR. * No longer RL listed. Ratings are from previous years.

GRASS WEEDS

Grass weeds reduce crop yield and quality and with increasing herbicide resistance, it is a key priority to maximise grass weed control through timely identification and optimum application techniques.

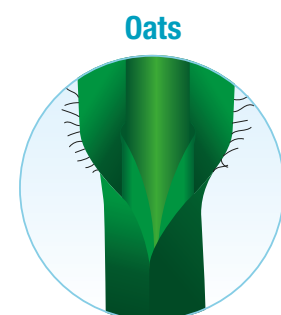
Understanding weed physiology and how herbicides work helps to highlight the key considerations for ensuring optimal control, particularly for difficult and yield-robbing weeds, such as wild oats and ryegrass.



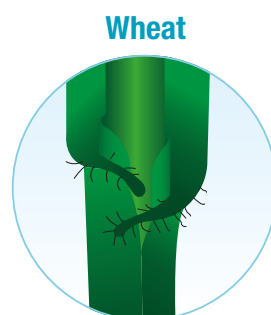
KNOW YOUR WILD OATS

WILD OAT PHYSIOLOGY

At the vegetative stage, wild oats can be identified in cereal crops by:



Oats



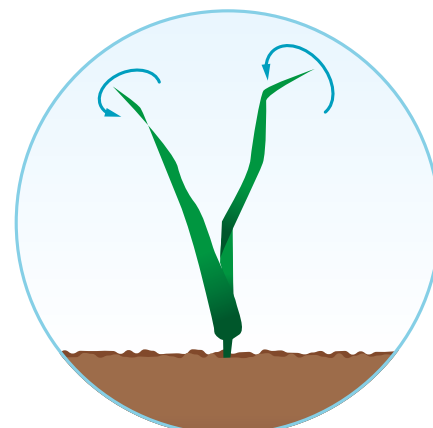
Wheat



Barley

Hairy leaf margins and the absence of auricles

**5 wild oats/m² =
5% wheat yield loss**



The lower half of leaves of wild oats tend to twist anti-clockwise when viewed from above. Wheat and barley leaves tend to twist clockwise.



FIND OUT HOW
TO IDENTIFY
DIFFERENT SPECIES
OF WILD OATS



LYNN TATNELL
Weed Biologist, ADAS Boxworth

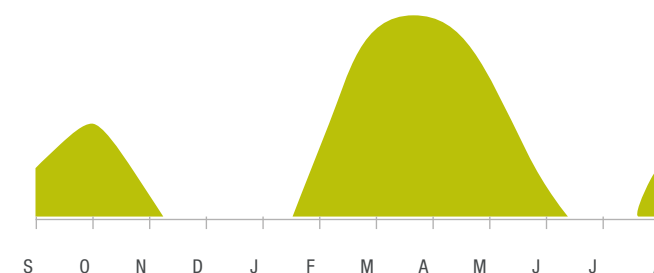
[CLICK TO WATCH](#)

SPECIES OF WILD OATS

It is important to understand which of the two species of wild oats are present in order to adapt your control strategy.

AVENA FATUA – COMMON OR SPRING WILD OAT

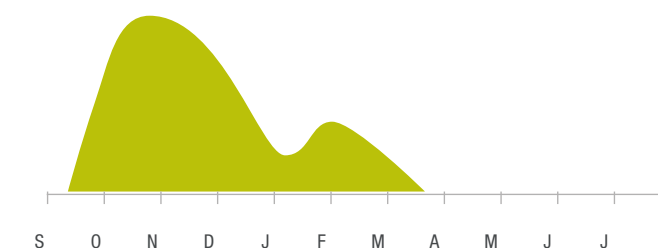
- Occurs throughout England



- Germinates mainly in spring (March/April) but with a variable, and sometimes considerable amount of autumn germination too (mainly September/October)

AVENA STERILIS – WINTER WILD OAT

- Less common
- Probably under-reported due to confusion with *Avena fatua*



- Germinates mainly in autumn and winter, from October to early March



Awn **present** on
3rd seed in spikelet
(and 4th seed if present)



Seeds separate
and are shed singly

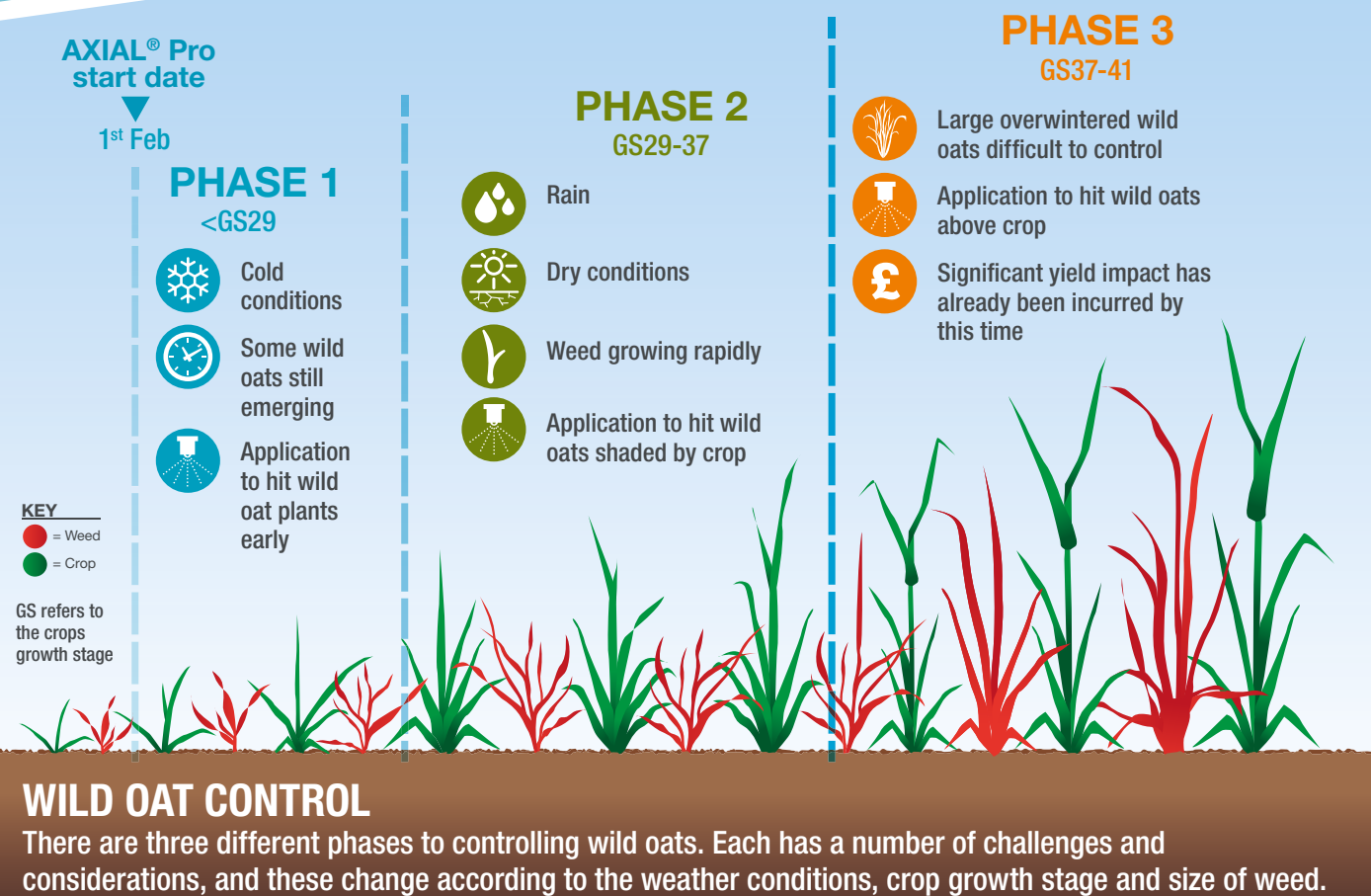


Awn **absent** on 3rd seed
in spikelet (and 4th seed if
present)



2-3 seeds shed in clusters

GRASS WEEDS



PHASE 1

Reliable activity from AXIAL Pro in cold conditions

Trials over the past 14 years have demonstrated consistent performance from AXIAL Pro in cold conditions, with activity superior to other ACCase chemistry. This is beneficial for earlier application in winter crops when unexpected cold snaps may occur, such as the 'Beast from the East' in 2018.

Some wild oats still emerging

Timing of control is a compromise, some wild oats may still be germinating, however late emerging weeds have a lower yield impact and produce fewer seeds. Knowing the germination pattern of the species on your farm is important in helping to achieve best control. All wild oats that have overwintered are waxier and therefore harder

to control. Early application to smaller weeds gives the most reliable results.

Application to hit wild oat plants early

Hitting wild oats before the crop becomes too thick ensures better coverage for better control – the target is easier to hit when weeds are small.

- 0.4*-0.6 l/ha AXIAL Pro
- 3D nozzle delivers best all round coverage of a 3D target
- 50 cm boom height; <12 kph forward speed
- 100-200 l/ha water volume

*MSO should be added at this dose rate.

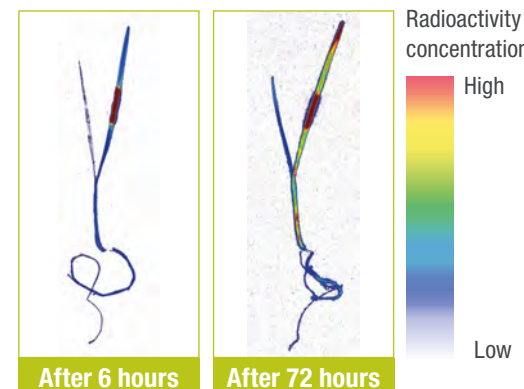


PHASE 2

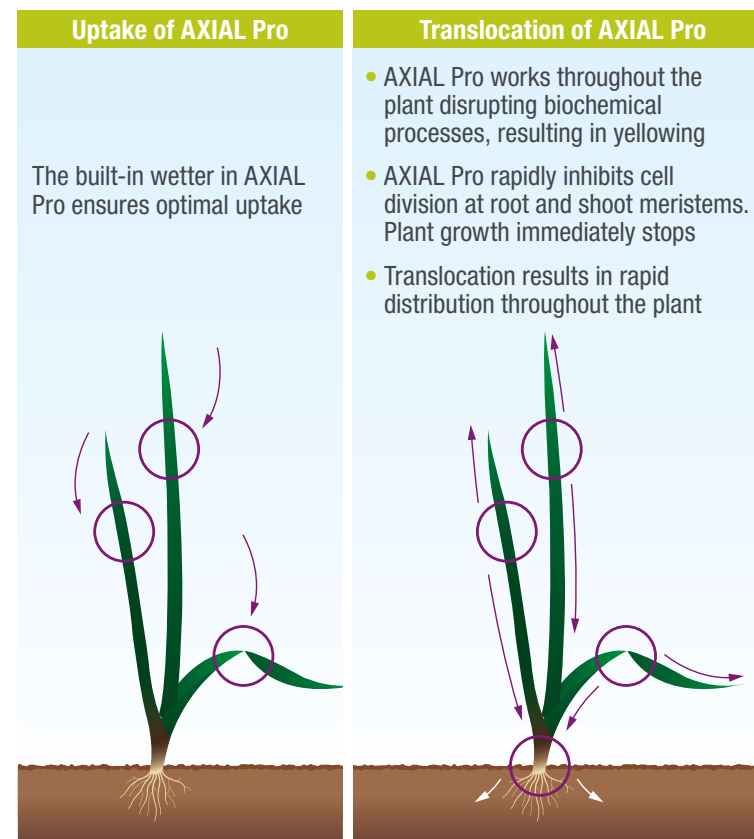
Wild oats grow rapidly

AXIAL Pro translocates to kill the entire wild oat plant, but good coverage is still important.

- Fast re-distribution around wild oats
- Superior activity where coverage is an issue



This phosphorimaging study demonstrates the uptake and movement of AXIAL Pro in wild oat plants over time. The optimised built-in wetter formulation of AXIAL Pro means that pinoxaden translocates quickly within the target weed.



Application to hit wild oat plants shaded by the crop

For wild oats shielded by the crop, optimal application is key.

- 0.6-0.82 l/ha AXIAL Pro, increase to 0.82 l/ha for overwintered wild oats
- AMISTAR/air induction nozzle helps spray to penetrate a dense canopy for better coverage of the wild oat plant
- 50 cm boom height; <12 kph forward speed
- Application trials have shown higher water volumes of 200 l/ha can improve control of difficult wild oat populations



WATCH THE SPRAY DUDES FOR TOP TIPS ON HOW TO HIT SPRING WEEDS

[CLICK TO WATCH](#)

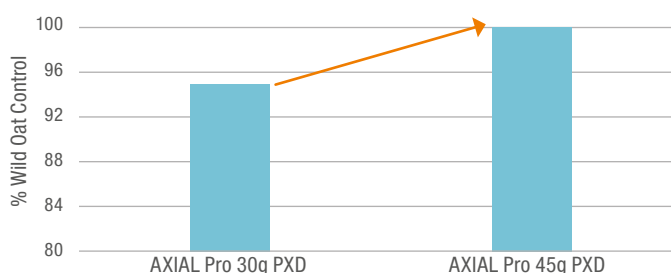
GRASS WEEDS

CLICK TO PLAY our 'Know your Wild Oats' knowledge quiz



PHASE 3

For large overwintered wild oats use the new 0.82 l/ha rate



Yorkshire, 2018. Winter germinating wild oats

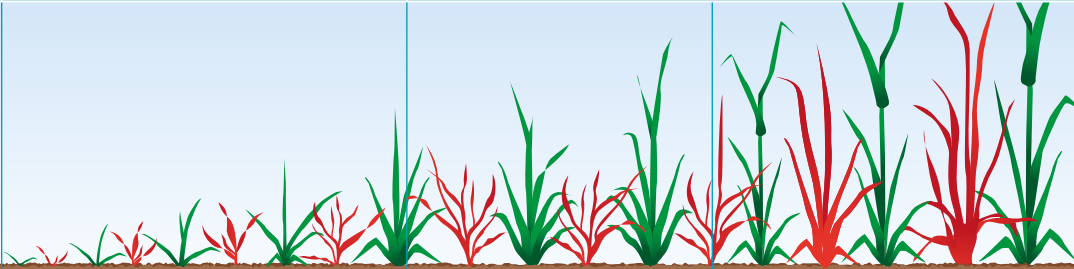
Application to hit wild oats above the crop

Wild oats that grow above the crop are easy to hit. Weed competition will have an impact on yield.

- AMISTAR nozzle GS30-39 at 100 l/ha
- 50 cm boom height; <12 kph forward speed
- Ensure weeds are actively growing
- Application trials have shown higher water volumes of 200 l/ha can improve control of difficult wild oat populations



AXIAL PRO BEST USE ADVICE FOR WILD OATS

Wild Oat	<GS29	>GS29	
Spring germinating	0.4 l/ha + ADIGOR 0.5% or another MSO adjuvant	0.6 l/ha	
Overwintered	0.6 l/ha	0.82 l/ha	
			
Crop GS	<GS29	GS29-37	GS37-41
Application objective	Fine droplets for good coverage	Crop shading weed target, coarser droplet for penetration	Angled spray of coarse droplets for optimum coverage
Nozzle	3D	AMISTAR	AMISTAR

OTHER SPRING GRASS WEEDS

Effective control has been seen of other grass weeds from AXIAL Pro applied at 0.82 l/ha: Loose silky bent, rough stalked meadow-grass, onion couch, awned canary grass.

RYEGRASS

TACKLING THE RISING RYEGRASS PROBLEM

Ryegrass is an ever greater challenge for many UK arable farms

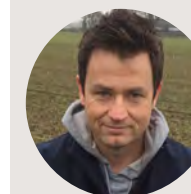
- Populations are increasing
- Faster establishment in open autumn conditions
- Incidences of reduced herbicide efficacy
- Ryegrass is even more competitive than black-grass

DONCASTER RYEGRASS FOCUS SITE

The Syngenta Ryegrass Focus Site in Doncaster is exploring innovative ryegrass management techniques and practical approaches to deliver integrated solutions that you can adopt on your farm.

The site aims to demonstrate novel agronomy and offer solutions to manage ryegrass weed populations at economically and agronomically sustainable levels.

FOLLOW OUR RYEGRASS FOCUS SITE UPDATES

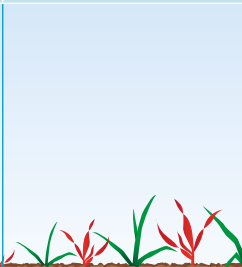

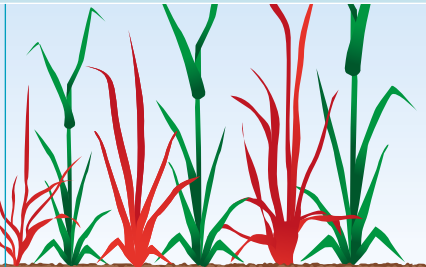


ANDY CUNNINGHAM
Field Technical Specialist

CLICK TO WATCH

AXIAL PRO BEST USE ADVICE FOR RYEGRASS

AXIAL Pro contains 55 g/l pinoxaden with built-in wetter.

Ryegrass	<GS22	>GS22	
Ryegrass	0.6 l/ha	0.82 l/ha	
			
Crop GS	<GS29	GS29-32	>GS32
Application objective	Fine droplets for good coverage	Crop shading weed target, coarser droplet for penetration	Angled spray of coarse droplets for optimum coverage
Nozzle	3D	AMISTAR	AMISTAR

AXIAL PRO MIXING & SEQUENCING ADVICE FOR ALL SITUATIONS

Mixing	Day	Sequencing	
<p>If mixing with an SU or Arylex, AXIAL Pro should be used at a minimum rate of 0.6 l/ha for wild oats or 0.82 l/ha for ryegrass regardless of timing.</p> <p>Do NOT use AXIAL Pro in mixture with hormone containing herbicides.</p>	1	AXIAL Pro	SU/hormone
	4	WAIT 7 DAYS	WAIT 21 DAYS
	6		
	8	SU/hormone	
	10		
	12		
	14		
	16		
	18		
	20		
	22		





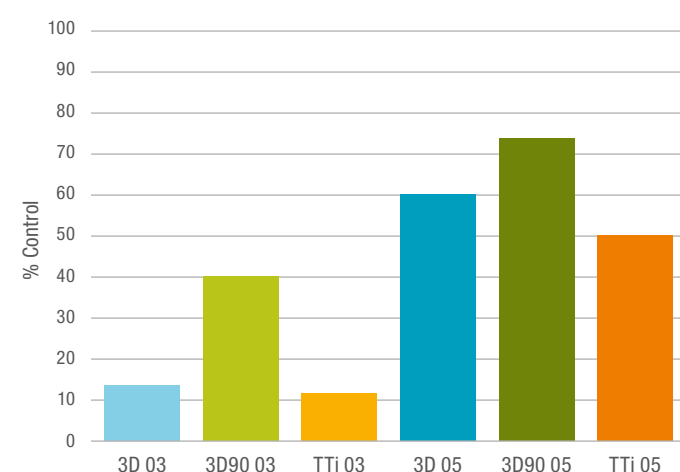
APPLICATION

Growers can be fully confident of product efficacy with the 3D90 nozzle, along with all the operational advantages of low drift technology

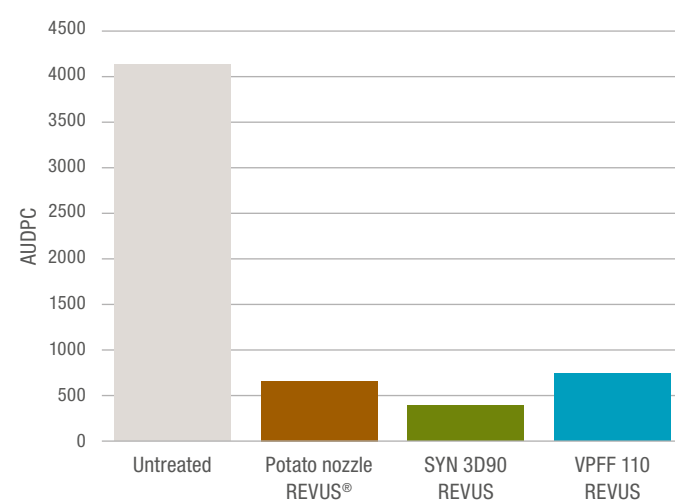
The intention of the 3D90 nozzle design is to achieve the most even distribution across the whole target area. Tested using a laser refractometer, the 3D90 nozzle has been engineered to eliminate virtually all the drift susceptible fine droplets, and deliver the maximum number of droplets possible to achieve the 90% drift reduction capability.

With repeated fine tuning, the optimum angle of 55° was shown to give the most consistent results for application to designated targets. Even altering the angle in development by as little as 5° degrees, resulted in 31% greater spray deposition overall on the target, with 36% more on the back and 20% on the front to enhance all round coverage.

RYEGRASS CONTROL



ASSESSMENT OF NOZZLE TYPE USING CUMULATIVE DISEASE



Potato trial 2020, 5 repeated blight applications using REVUS and just changing nozzle type, Eurofins, Derbyshire



"The nozzle is giving us more flexibility. It's a game changer"

NICK LIGHT, LODGE FARM, WESTHORPE

ADVANCING THE ART OF APPLICATION

3D ninety

The iconic design of the Syngenta 3D90 nozzle combines the exceptional performance of the renowned 3D nozzle, with the benefits of revolutionary 90% drift reduction technology (DRT)

The 3D90's innovative design incorporates an integral snap fit bayonet with every nozzle, to facilitate easy fitting for operators onto any sprayer. The 3D90 nozzle is fully compatible with the latest Pulse Width Modulation technology.



SCAN QR CODE TO BE NOTIFIED WHEN AVAILABLE





ROOTING AND ESTABLISHMENT

Establishing good root structures can be particularly important in spring cereals. Recent seasons have seen extremes of weather including dry spring conditions which can lead to plant stress especially on the typically lighter soil types used for growing malting spring barley.



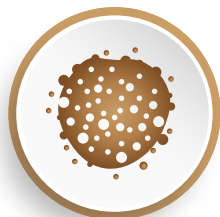
Establishing a strong and resilient crop is vital. Choosing the right seed treatment is not only critical for tackling seed- and soil-borne disease but also for improving establishment and boosting rooting to maximise yield and protect quality.

ESTABLISHMENT CONSIDERATIONS



UNPREDICTABLE WEATHER

can have an impact on the health of the crop throughout the season.



SOIL TYPES

pose different challenges:

Light land –

less able to deal with drought

Heavy land –

more difficult to cultivate for an optimum seedbed



GRASS WEED MITIGATION:

Spring cropping allows time for a flush of weeds and a good stale seedbed but a competitive crop must still be established.

[CLICK TO SEE more information about grass weeds](#)

NEW APPROVAL FOR MALTING BARLEY



VIBRANCE Duo, has now been accepted by the British Beer and Pub Association and Campden BRI for use on spring and winter malting barley.

[+ CLICK TO SEE MORE about malting barley varieties](#)

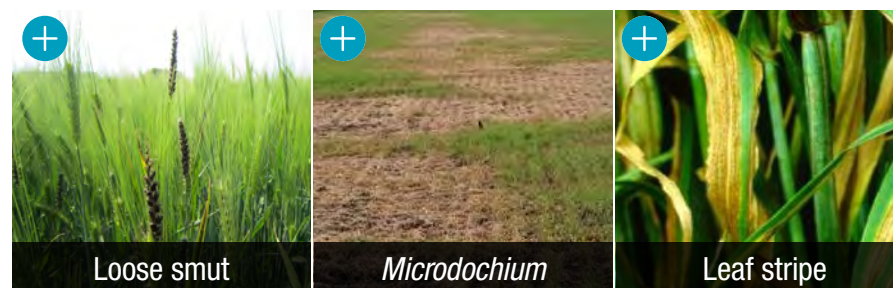
SPRING BARLEY SEEDLING DISEASES

It is important to protect spring barley from seed- and soil-borne pathogens which can significantly impact establishment, yield and quality.

Know your risk:

- It is important to understand the quality of your seed by testing for seed-borne diseases. Even when tested, the test relies on good, representative sampling.

KEY SPRING BARLEY DISEASES



[+ CLICK the icons in the above images for disease information](#)

SUMMARY OF ACTIVITY IN BARLEY

Co-application of VIBRANCE Duo and a loose smut active partner provides complete control across the disease spectrum

		Active ingredient (Ai)		
LATIN NAME	COMMON NAME	SEDAXANE	FLUDIOXONIL	IPCONAZOLE
<i>Microdochium nivale</i>	Snow mould	3	3	1
<i>Fusarium spp.*</i>	Foot rot	1	3	1
<i>Ustilago hordei</i>	Covered smut	3	3	-
<i>Ustilago nuda#</i>	Loose Smut	2	1	3
<i>Pyrenophora graminea</i>	Leaf Stripe	2	2	2

Level of control: ■ Excellent ■ Good ■ Weak

* *Fusarium spp.* control in barley is not claimed on the VIBRANCE Duo product label. Trials have shown that BERET Gold (fludioxonil) in barley is very effective on the disease so control is likely.

Loose smut control is not claimed on the VIBRANCE Duo product label but trials have shown Sedaxane to have good activity.

SYNGENTA MALTING BARLEY EXCELLENCE

Syngenta have been breeding malting barley for over 40 years. In that time we have shown we have the expertise to deliver class-leading varieties for you to grow for the brewing and distilling industry. Over the last 15 years, our malting barleys have accounted for more than 650,000 tonnes of certified seed sales and produced over 1.6 billion pints of beer.



Remember, having clean seed is one aspect of minimising disease risk. Don't overlook the risk in your soil.

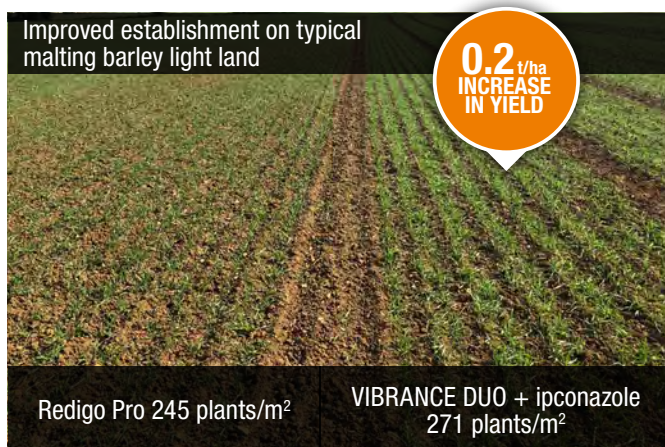
[+ CLICK HERE for more information on seed- and soil-borne diseases](#)

[▶ CLICK TO PLAY the seedcare knowledge quiz](#)

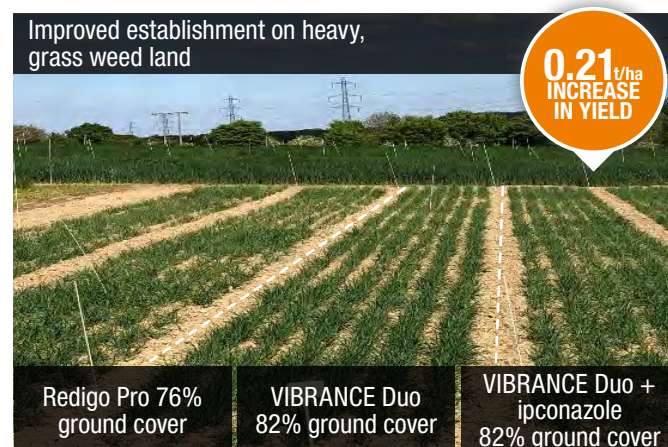
[+ CLICK HERE for loose smut results](#)

BUILDING A RESILIENT CROP

IMPROVED ESTABLISHMENT OF LAUREATE SPRING BARLEY HELPS TO PROTECT YIELD

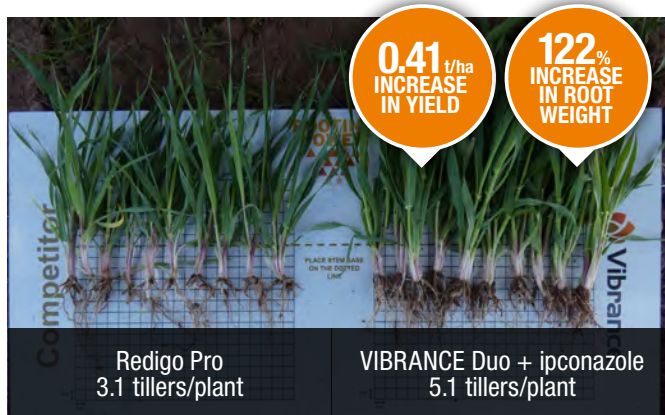


Crowland, LAUREATE spring barley, sandy loam, drilled 5th March 2019



Doncaster Ryegrass Innovation Centre, LAUREATE spring barley, heavy land drilled 25th February 2019.

A STRONG ROOT STRUCTURE PROVIDES BETTER ACCESS TO NUTRIENTS AND WATER LEADING TO IMPROVED PLANT HEALTH AND VIGOUR



Shropshire, LAUREATE spring barley, light land, drilled 23rd March 2020 and assessed 14th May 2020



Fife, Scotland, LAUREATE spring barley, sandy clay loam, drilled end of March 2020 and assessed 14th May 2020

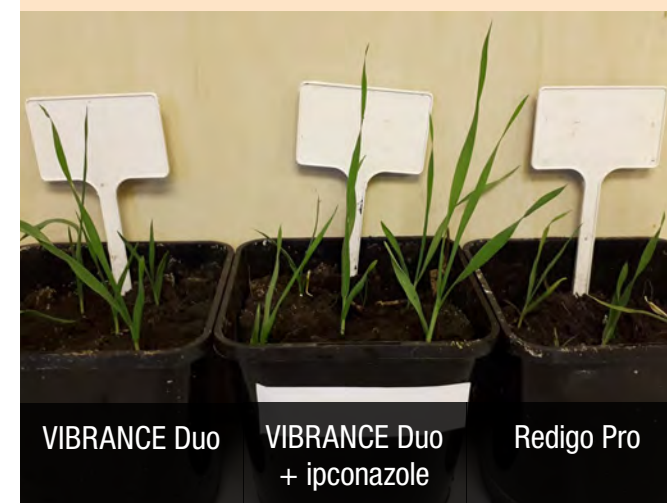
SEED TREATMENT AND MOISTURE IMPACT ON ESTABLISHMENT

At the time you buy your seed you don't know what the weather has in store, but you can mitigate against adverse conditions through the use of an effective seed treatment. Our recent pot study shows VIBRANCE Duo + ipconazole improves establishment in many scenarios.

OPTIMAL CONDITIONS



LOW RAINFALL CONDITIONS



HIGH RAINFALL CONDITIONS



WATERLOGGED CONDITIONS



NEW APPROVAL FOR SPRING WHEAT

VIBRANCE Duo recently gained approval for use on spring wheat seed. In spring wheat specifically, independent university research showed that seed treated with sedaxane, the SDHI active ingredient in VIBRANCE Duo, produced plants with greater root and shoot mass, even in the absence of known disease. Improved rooting effects were also long-lasting, still evident when the crop was coming into ear.

Establishing good root structures is associated with improved access to soil moisture and nutrients and is a significant step towards maximising crop yields and quality.

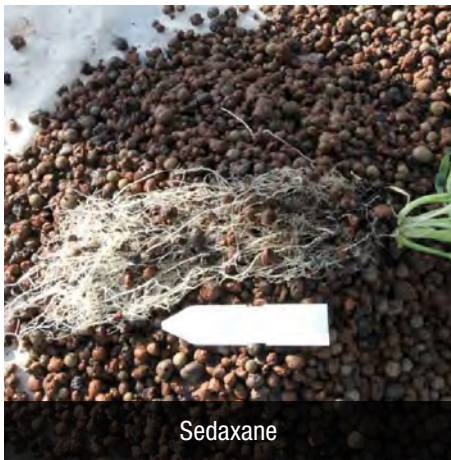
In other trial work, VIBRANCE Duo gave an average of an extra 0.27 t/ha over an alternative seed treatment across three different varieties of spring wheat.



Untreated



Prothioconazole



Sedaxane

VIBRANCE DUO LABEL

Active ingredients	25 gai/l sedaxane + 25 gai/l fludioxonil
Spring crops	Spring wheat, spring barley, spring oats
Use rate	2.0 l/t spring wheat, spring barley 1.0 l/t spring oats
Timing	1 application before planting

VIBRANCE Duo cannot be used on barley seed crops grown for certified seed production.



STEWARDSHIP

Let's protect our available chemistry and go back to basics:

TARGET YOUR CHEMISTRY – some diseases cannot be controlled by foliar sprays. Seed treatments are highly targeted so the field only receives a small amount of active ingredient. Choose your chemistry wisely.

ALWAYS READ AND FOLLOW THE LABEL – adhere to cut-off dates, drilling depth and safety advice.

ENSURE SAFE HANDLING OF TREATED SEED – always wear the right PPE according to label requirements.

REDUCE DUST – reduce the risk of dust by avoiding filling the hopper too quickly or from a height. Avoid shaking seed bags as they empty. Avoid breathing in dust and ensure all equipment is cleaned following use.

ENSURE DRILLING IS ON TARGET – ensure no seed is released in transit to the field and that the drill vents are in the soil and the drill is moving forward before the seed is released.

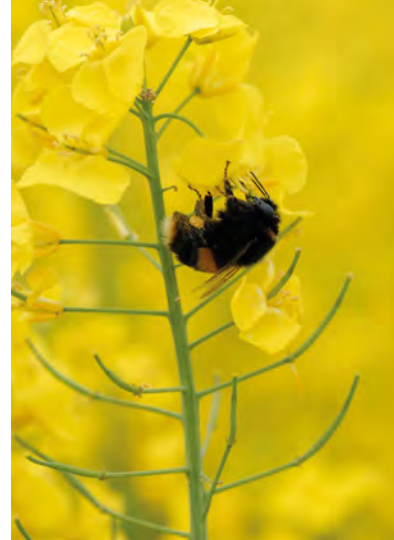
MANAGE SPILL RISKS – carry a spill kit containing a spade and seed bag when drilling. Fill the drill in an area where a spill can be easily cleared up. Small spills can be buried, larger spills will require clearing up into a bag for safe disposal later.

ENSURE ALL TREATED SEED IS BURIED – during drilling visually check difficult areas of the field, such as corners and headlands to ensure all treated seed is buried to protect wildlife.

OSR DISEASE AND CANOPY MANAGEMENT

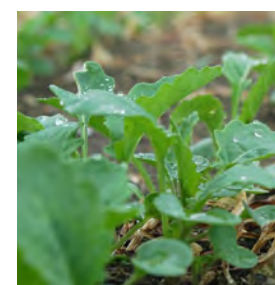
The challenges of growing oilseed rape are increasing, but when successful it still remains one of the most valuable break crops on farm.

With a much more successful establishment during autumn 2020, protecting crops to drive yield will deliver the most to the bottom line.

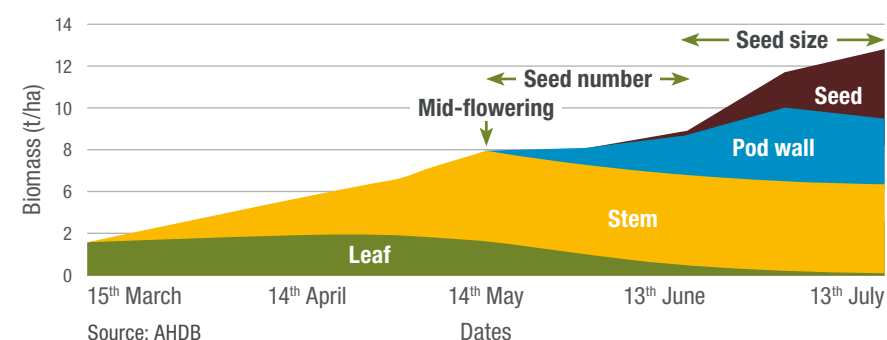


OSR SPRING YIELD CONSIDERATIONS

OSR is renowned for being unpredictable, but there are five key considerations that research has proven to contribute to yield:



- GAI of 3.5 at flowering for the right number of pods
- Keep the crop standing
- Synchronise flowering
- Keep plants free from disease
- Create optimum plant structure and maintain green leaf area to capture sunlight for photosynthesis



Biomass accumulation in a typical oilseed rape crop growth cycle and its influence on key periods for determination of seed number and seed size.

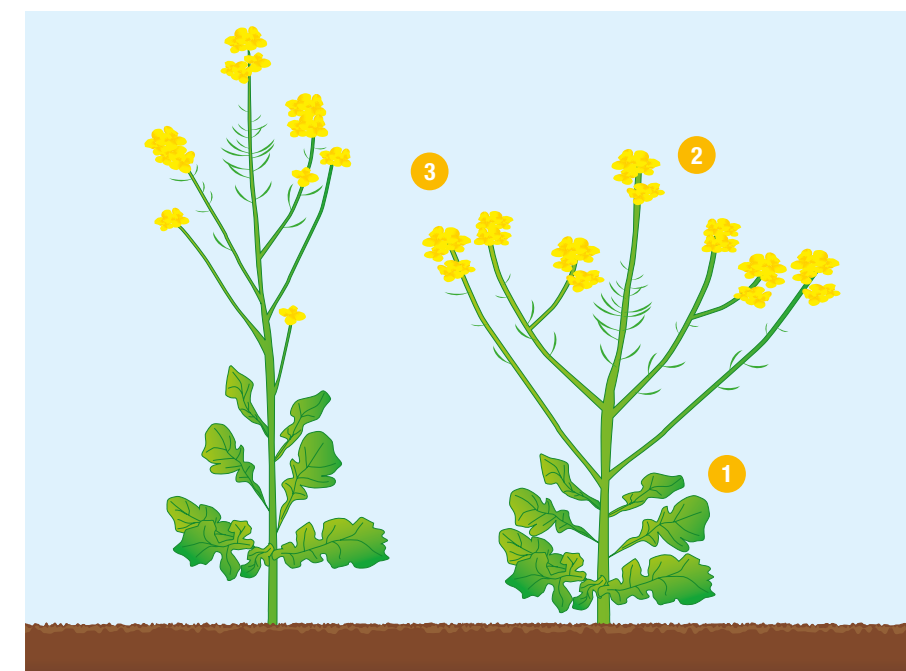


Syngenta is working in partnership with ADAS' Yield Enhancement Network project to better understand how to manage more variable crops affected by cabbage stem flea beetle and pigeon damage through field scale trials with the iOSR farmer group.



[CLICK HERE to follow the latest updates](#)

CANOPY ARCHITECTURE MANIPULATION - PLANT STRUCTURE HELPS MAXIMISE YIELD



- 1 Reducing crop height** is the primary function of a PGR. PGRs can help to achieve the target GAI of 3.5 and reduce lodging risk.
- 2 Increased branching** allows side shoots to develop with the main stem, promoting better canopy structure.
- 3 Synchronised flowering.** In untreated crops the main stem and side branches flower over a prolonged period. With a PGR, synchronised flowering helps reduce light reflectance from flowers and improves sunlight capture by leaves.

TAILOR THE TIMING OF YOUR PGR TO YOUR SITUATION

Prioritise earlier TOPREX® application on crops that are vigorous, tall/weak stemmed varieties, or in a high lodging risk situation for maximum height reduction.

Ensure the crop has started to grow in the spring and apply from the beginning of stem extension. Avoid use in cold conditions as PGR effect will be limited.

Applications of TOPREX or CIRCLE® at the end of stem extension will reduce height throughout flowering and increase branching to maximise yield.

PGRs are not appropriate in backward crops where GAI is under 1.0 in March or 2.0 in April.

GS31 Stem extension actively growing crops	GS51-55 Early to Late Green Bud
Optimum timing for maximum height impact	Canopy & flowering effects. Reduced impact on height
Hybrids/tall weak stem variety, higher lodging risk	Low/medium biomass varieties or lower lodging risk

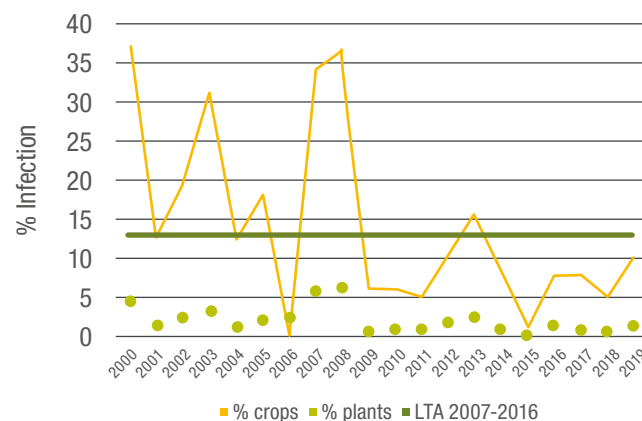
Up to

KEEP THE CROP GREEN WHILST PROTECTING AGAINST KEY FLOWERING DISEASES

SCLEROTINIA

The prevalence of *Sclerotinia* has been below the long-term average for the last 5 years

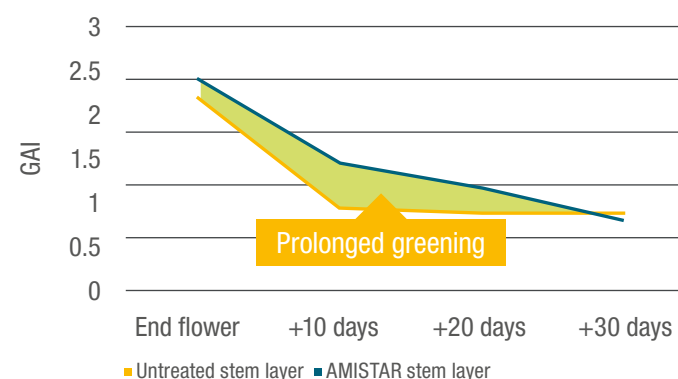
- That will have reduced the number of *Sclerotia* returned to the soil. However, they can remain viable for many years
- High risk seasons are perceived as those with more rain at flowering, however that wasn't the case in the last big *Sclerotinia* year in 2007
- Heavy dews can produce enough moisture for petal stick and infection



KEEPING THE CROP GREEN

Green biomass drives greater productivity. Keeping leaves green during the yield generating phase drives seed fill and increases oil content.

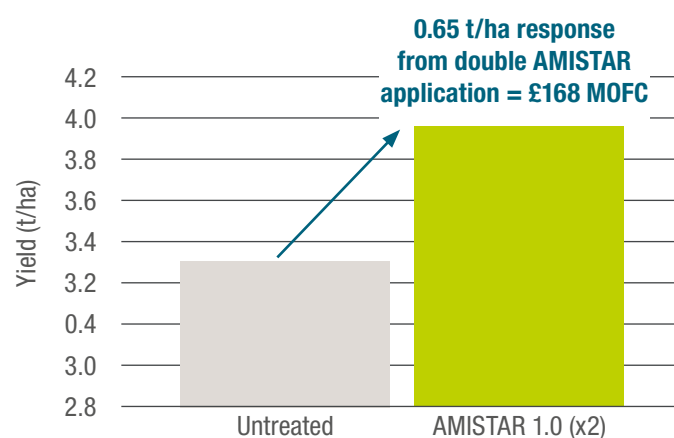
Many years of trials have demonstrated the benefits of strobilurins, such as AMISTAR in extending green leaf retention.



Source: ADAS trial 2005. AMISTAR sprayed at 1.0 l/ha

YIELD IN THE ABSENCE OF DISEASE

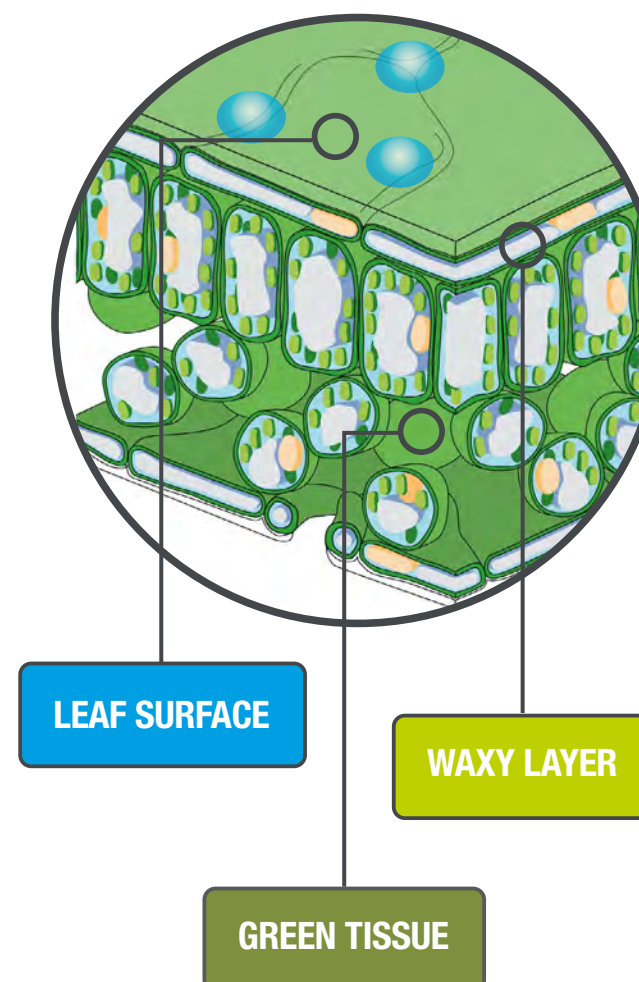
Even in years without *Sclerotinia* pressure, trials have demonstrated yield benefits and margin improvements from including AMISTAR in the flowering spray programme.



Syngenta trial 2017 – North Yorkshire
Applied on 4th April and 28th April 2017
Based on £345/t OSR price
MOFC = Margin Over Fungicide Cost

FORMULATION MAKES A DIFFERENCE

Oilseed rape has a waxy leaf surface that makes the product formulation of AMISTAR important to ensure active substance retention on the leaf to protect against disease spores, along with penetration of waxy layers to reach green tissue and deliver greening benefits.



RECOMMENDATIONS FOR FLOWERING SPRAYS

- *Sclerotinia*, *Alternaria* or *Verticillium* control
 - Low Pressure – AMISTAR 0.75 l/ha
 - Medium/High Pressure – AMISTAR 1.0 l/ha
- Yield boost and increased oil content – AMISTAR 0.75 l/ha alone or in mixture
- Mixed complex of diseases including light leaf spot control
 - AMISTAR 0.75 l/ha + Proline 0.32 l/ha*
 - AMISTAR 0.75 l/ha + Folicur 0.5 l/ha* (will add growth regulation)

*Resistance advice from Proline & Folicur Labels:
Strains of light leaf spot resistant to azole fungicides are known to exist. To avoid development of resistance apply product protectively in response to disease forecasts. Where possible, when light leaf spot is present, avoid the use of azole based fungicides when targeting other diseases such as *Sclerotinia* at mid flowering stage.



**FIND OUT MORE ABOUT
OUR WORK WITH iOSR**

[CLICK TO WATCH the latest videos on iOSR](#)



PEST MANAGEMENT

Pest management although challenging is still achievable, especially when a full integrated pest management (IPM) approach is adopted to help reduce the chance of risk occurring.

IPM will especially help in the context of pyrethroid resistance, which is now widespread in some key crop pests. Resistant varieties, plant date manipulation and adherence to thresholds will help reduce over reliance on foliar insecticides.

Measures to STOP the further development of resistance to pyrethroids are crucial – and will be equally important for any new classes of insecticide chemistry that become available.

- Always use the most effective pyrethroids available as the first point of action
- Always use the full label rate specified for the target pest
- Use an application technique to optimise the targeting and performance of the insecticide
- Monitor pest numbers before and after application
- If pests are still active after treatment due to resistance, STOP. Making another application of any pyrethroid, even at a higher rate or in mix, is unlikely to offer any better control of resistant populations – and could make matters worse

Develop a practical Integrated Pest Management programme for your farm and cropping rotation, to minimise pest numbers and encourage beneficial predators.

Follow industry IRAC Guidelines with every insecticide application. Be vigilant for indications of insecticide resistance.

[+ CLICK HERE to visit the IRAC website](#)



CEREALS: APHID FLIGHT RAISES BYDV RISK

THREE KEY VECTORS OF BYDV

Autumn sown crops are typically too advanced to be affected by further spring infection of BYDV transmitted by aphids.

However, if early spring flights occur before GS31, winter crops can still suffer significant yield losses, as well as acting as a reservoir of active virus that can spread to spring crops.



Bird cherry-oat aphid



Cereal aphid



Rose-grain aphid



Winter wheat BYDV spring infection: Rougham Innovation Centre

The increasingly mild autumn/winter temperatures have caused earlier spring aphid migrations. Spring 2020 had high BYDV infection levels, not only in spring cereals but in winter cereals as well (pictured). Currently temperatures have been warmer than the long-term average in 4 out of 5 winters.

As numbers of Cereal aphid, Rose-grain aphid and Bird cherry-oat aphid build-up, it increases the risk of spreading Barley yellow dwarf virus (BYDV) – resulting in extensive patches of stunted, pale yellow, low-yielding plants. However, spring crops are more at risk from primary infection than secondary, as such BYDV Assist is not recommended for spring use.



PEST MANAGEMENT

SPRING SOWN CEREAL CROPS INFECTED PRIOR TO GS31 ARE MOST AT RISK FROM YIELD DAMAGING EFFECTS OF BYDV

When tracked alongside virus-transmitting aphid populations, crops drilled in February are typically ahead of GS31 before aphid numbers build significantly.

However, the vulnerable early growth stages of March drilled crops typically coincide with the first spring flush of aphid numbers, and April sown crops would be growing right through the peak increase in spring aphid populations.

Spring cereal crops generally only respond well to a single foliar insecticide application timed at aphid invasion, as such the BYDV Assist app is not applicable for these crops and should not be used. A second application of a pyrethroid insecticide for spring cereals is not recommended and typically shows a lower return of control and overall benefit.

This season spring cereals can have VIBRANCE Duo applied. Trials have shown improved plant establishment, tillering and rooting compared to other SPD treatments leading to a more resilient crop. A more resilient crop may be able to better tolerate BYDV primary infection or Gout fly infestation.

GOUT FLY – SPRING CEREALS



A pest of wheat, barley, triticale and rye, but not oats, causing characteristic gouting of attacked tillers.

Guidelines for control:

- Late sown winter crops & spring crops are most at risk in May
- Inspect crops for the pest from one leaf stage
- Apply HALLMARK Zeon as soon as 1st eggs are laid/seen
- For maximum effect, treatment must be made before majority of eggs hatch

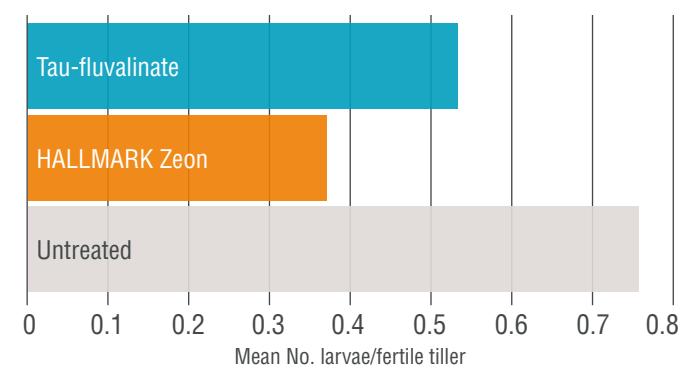
Average date* spring sown cereal crops reach crucial GS31	
February drilling	First week May
March drilling	Mid-May
April drilling	End-May

* Four year national average, with site specific and seasonal variability

Target
Cereal aphids
HALLMARK Zeon
50 ml/ha
Apply when aphid populations are increasing and crop is at a growth stage at risk of virus transmission

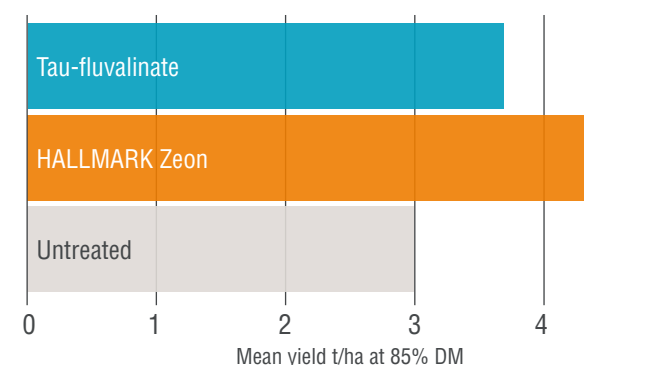
Target
Gout fly
HALLMARK Zeon
50 ml/ha
Efficacy is reduced if plant invasion has started before application

EFFECT ON LARVAL NUMBERS

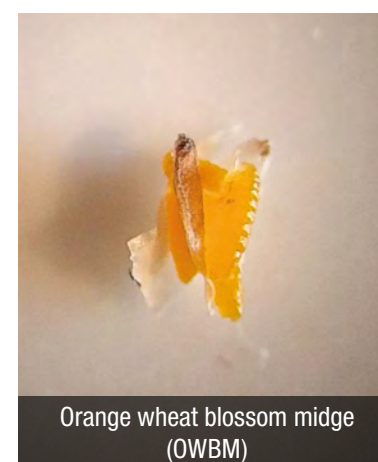


Source: ADAS 2004, Ixworth. Crop: Spring wheat, Pragon Drilled: 20/04/04
Application: 26/05/04, peak adult activity (Larvae LSD 0.127, yield LSD 0.347)

EFFECT ON YIELD



ORANGE WHEAT BLOSSOM MIDGE



Group 1 and 2 wheats and seed crops should be treated as a priority. Skyfall is the only OWBM resistant Group 1 variety and Detroit is the only Group 2 OWBM resistant variety. Greater options are available for Group 3 and 4 resistant varieties, such as GLEAM and SY INSITOR as part of an IPM programme.

Using an OWBM resistant variety doesn't give control of Yellow wheat blossom midge, if found in traps foliar insecticides will still need to be applied.

HALLMARK Zeon is especially well suited for OWBM control as the micro-capsules give better coverage to target the small midge pests. Furthermore the titanium dioxide in the product offers UV protection for more persistent activity on pests in bright summer conditions.

Pheromone traps placed in the crop at GS45, at right angles facing North/South and East/West, can indicate initial adult activity to treat the following week (typically 30 or more adults caught), or timing for immediate action (120 or more adults caught) at GS53-59.

Thresholds for HALLMARK Zeon treatment at GS53-59 is:

- 1 adult per 3 ears for feed varieties
- 1 adult per 6 ears for milling varieties

Target
Orange wheat blossom midge
HALLMARK Zeon
50 ml/ha
Apply at the full label rate at or before peak adult midge activity, as soon as threshold numbers are reached

+ CLICK for more information on HALLMARK Zeon



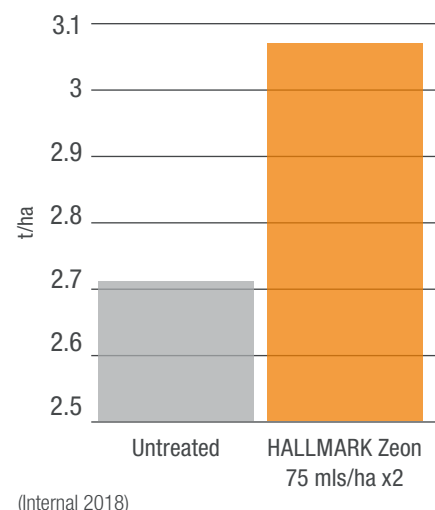


PEST MANAGEMENT

PEA AND BEAN WEEVIL

HALLMARK Zeon at 75 ml/ha (total dose: 150 ml/ha) provides good control of adult Pea and bean weevil, reducing larval load on the roots, improving nodule retention allowing better yields. Priority crops will be late sown or backward crops. The risk period is from March, after periods with temperatures above 15°C. Threshold for applications is an average of 30 or more weevils caught in traps in a single day. Trials have shown yield improvements of 0.3 t/ha with HALLMARK Zeon (see opposite).

PEA & BEAN WEEVIL YIELD INCREASE ACROSS 2 TRIALS



Pea and bean weevil



Pea and bean weevil larvae

BRUCHID BEETLE

For the 2021 season Syngenta and PGRO have decided to stop the use of Bruchidcast. This decision has been made due to its inability to act as a stewardship tool to reduce spray events. From experiences in the last couple of seasons, increasing temperatures has caused prolonged periods of spray events, rather than few targeted events. As such the tool was not promoting good practice, nor was it helping to achieve higher efficacy and therefore better quality.

However, if individuals want to keep track of their risk using the model behind Bruchidcast, it can be done with a few simple steps. Bruchid beetle adults fly into crops attracted to the pollen once flowering starts. When adults are found in the crop, the **maximum** daily temperature has reached 20°C on two consecutive days and beans have developed the first pods on the lowest trusses, this will trigger egg laying the next day and therefore damage.

IMPORTANT

IF INSECTICIDE APPLICATIONS ARE MADE – SPRAY WHEN BEES ARE NOT ACTIVELY FORAGING AND DO NOT MIX WITH TRIAZOLES, ESPECIALLY WHEN CROPS ARE FLOWERING

POLLEN BEETLES

Pollen beetles' search for the first food sources of spring can irreparably damage oilseed rape flower buds before they open.

Trials have shown that crops with an open canopy, multiple side shoots and the ability to flower freely – to produce ample pods – can withstand higher levels of initial Pollen beetle activity in buds. However, crops established at higher plant density – often intended to offset Cabbage stem flea beetle damage at sowing – are less able to compensate for Pollen beetle damage and have a lower threshold.

Economic damage thresholds advocated by the AHDB indicate Pollen beetle populations of up to 25 per plant can be tolerated with plant densities of less than 30 plants per m², but down to just seven beetle per plant with plant numbers in excess of 70 plants per m².

Once oilseed rape crops come into flower, Pollen beetle are attracted to the open petals. At that point they change from damaging pest to beneficial pollinator – with no benefit from further control.

Warm, dry weather encourages spring movement of Pollen beetle from overwintered woodland. Migration forecast maps are available each season to predict risk and spray timing.

Pollen beetle resistance to all pyrethroid insecticides has been increasing across the UK - where possible use an alternative mode of action. Follow IRAC Guidelines to STOP further development of resistance (see page 64).

CABBAGE SEED WEEVIL AND POD MIDGE

Even in the final few weeks before harvest, oilseed rape pests conspire to spoil the crop's yield potential.

Cabbage seed weevil is the first to attack, but typically causes minimal yield losses itself. However, the holes that it makes in pods enable the smaller, but far more damaging, Brassica pod midge to get inside and lay its eggs. The larvae of the Pod midge result in pods swelling and bursting open as they mature, with total loss of the affected pod.

Pod midge can go through several generations in a season. Targeted control of Cabbage seed weevil during pod development – often from 20% pod set to the end of flowering on the main raceme - should be aimed to prevent pod damage and protect against later Pod midge activity.

HALLMARK Zeon is also directly effective against Pod midge, where it is active at the time of application.



Pollen beetle

Target

Pollen beetle

HALLMARK Zeon

75 ml/ha

Apply at the full label rate when the crop is at green to yellow bud stage and damage threshold numbers are reached. Remain aware of pyrethroid resistance issues

[+ CLICK for more information on HALLMARK Zeon](#)



Cabbage seed weevil

Target

Cabbage seed weevil

HALLMARK Zeon

75 ml/ha

Apply at the full label rate at the peak of adult activity. Thresholds are 0.5 weevil per plant in Northern Britain and 1 weevil per plant in the rest of the country





SUSTAINABLE FARMING

We want to support a sustainable future for agriculture in the UK, helping to balance growers' crucial role of looking after the land and its ecosystem, with an increased demand for safe and affordable food production.



CLICK TO WATCH FARMER PHIL DISCUSS WHY HE IS INVOLVED IN THE PROJECT



PHIL JARVIS

Head of Farming,
The Allerton Project,
Loddington

CONSERVATION AGRICULTURE AND SUSTAINABLE FARMING SYSTEMS

UK agriculture in the future will be directed towards a more sustainable farming system. However there is a need to understand, identify and assess the potential benefits of conservation agriculture and the challenges it poses for adoption to be successful.

OUR PROJECT:

- Focusing on 3 different cultivation systems at field scale
- European project lasting 5 years
- 5 countries across different soil types
- 8,400 data points across 2 sites over 5 years in the UK, to understand different farming systems
- Working alongside farmers, researchers and industry specialists to provide advice for sustainable farming adoption

3 FARMING SYSTEMS:

CONVENTIONAL: Based on good agricultural practice e.g. inversion tillage with winter and spring crops.

SUSTAINABLE SYSTEM 1: Based on non-inversion practices, including catch and cover crops.

SUSTAINABLE SYSTEM 2: Based on a more direct drill approach, including catch and cover crops.

TRIAL AT LODDINGTON, LEICESTERSHIRE



IN CONJUNCTION WITH GWCT AND NIAB

Heavy land site

5 fields split 3 ways to cover each scenario

5 year rotation: Hyvido-OSR-WW-S Beans/Peas-WW

PHIL JARVIS
HEAD OF FARMING, THE ALLERTON PROJECT, LODDINGTON

TRIAL AT LENHAM, KENT



IN CONJUNCTION WITH NIAB

Light land site

4 fields split 3 ways to cover each system

5 year rotation: WW-SB-S Beans-WW-OSR

ANDY BARR
FARMER, KENT



"Conservation Agriculture will provide us with a chance to reduce costs, improve soil health and develop a sustainable farming system. It can improve farm profitability, whilst supporting wider biodiversity and protecting natural resources."

BELINDA BAILEY,
SUSTAINABLE FARMING MANAGER

COPING WITH CLIMATE CHALLENGES

Farm's involved with the Conservation Agriculture project have been hugely impacted by a season dominated by the weather, as it has for everyone.

The extremes of rainfall - high and low - posed serious questions, particularly at Loddington on the heavy soil land.

How resilient the different establishment systems prove to climate challenges is a primary objective of the initiative.

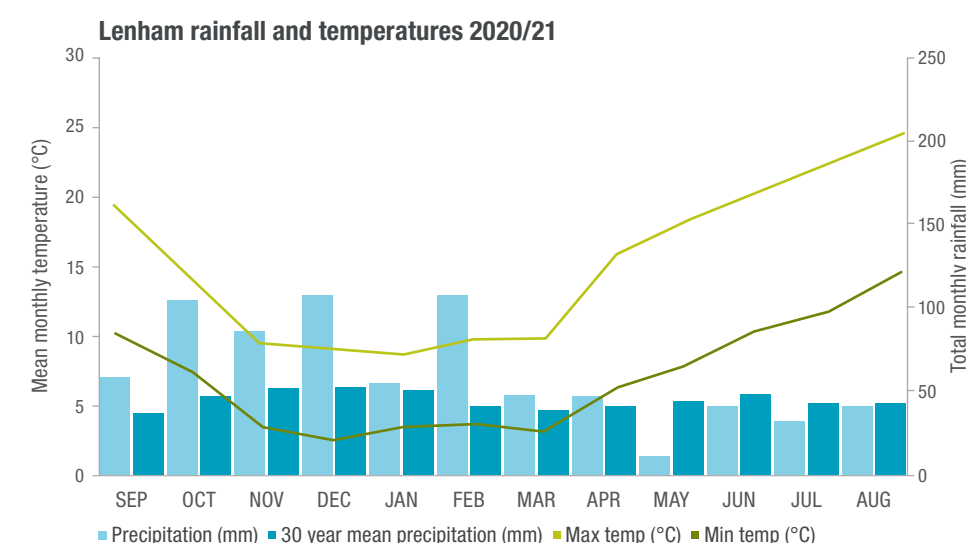
Agronomic, financial and ecological assessments from the initiative look to give an encouraging future for growers.

The graphs show the rainfall from each site, against the 30-year average rainfall extremes experienced.

[+ CLICK to see latest results](#)

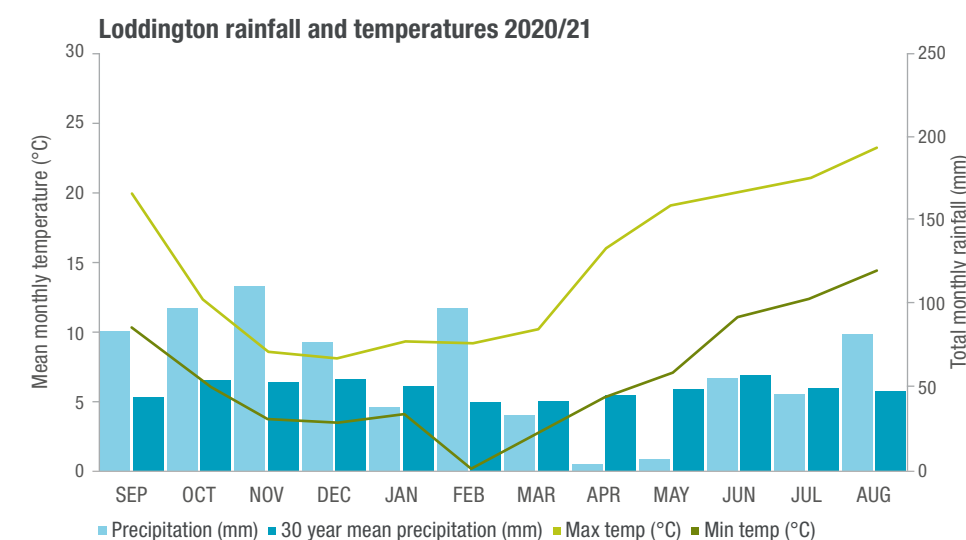
KEY LENHAM MILESTONES

- All cropping planted when planned
- Weather impacts on spring barley establishment reduced yields
- Light land fields suffered from the dry spring compromised yield potential
- Interesting results gained in difficult season



KEY LODDINGTON MILESTONES

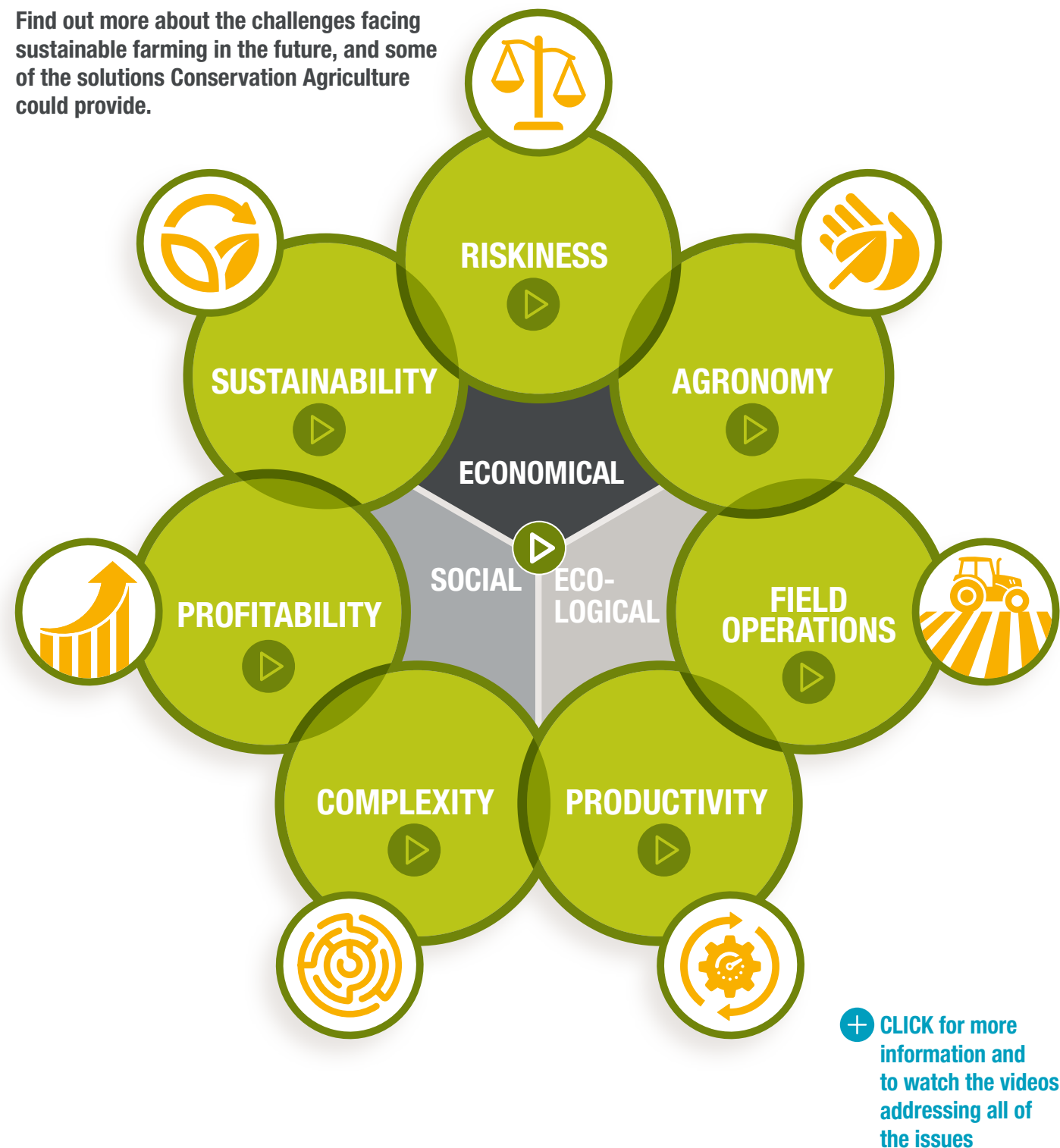
- Wet autumn prevented any winter crop drilling
- Whole cropping plan switched to spring planting
- Dry period post planting hit crops
- Storm damage in August lost spring oat crop before harvest





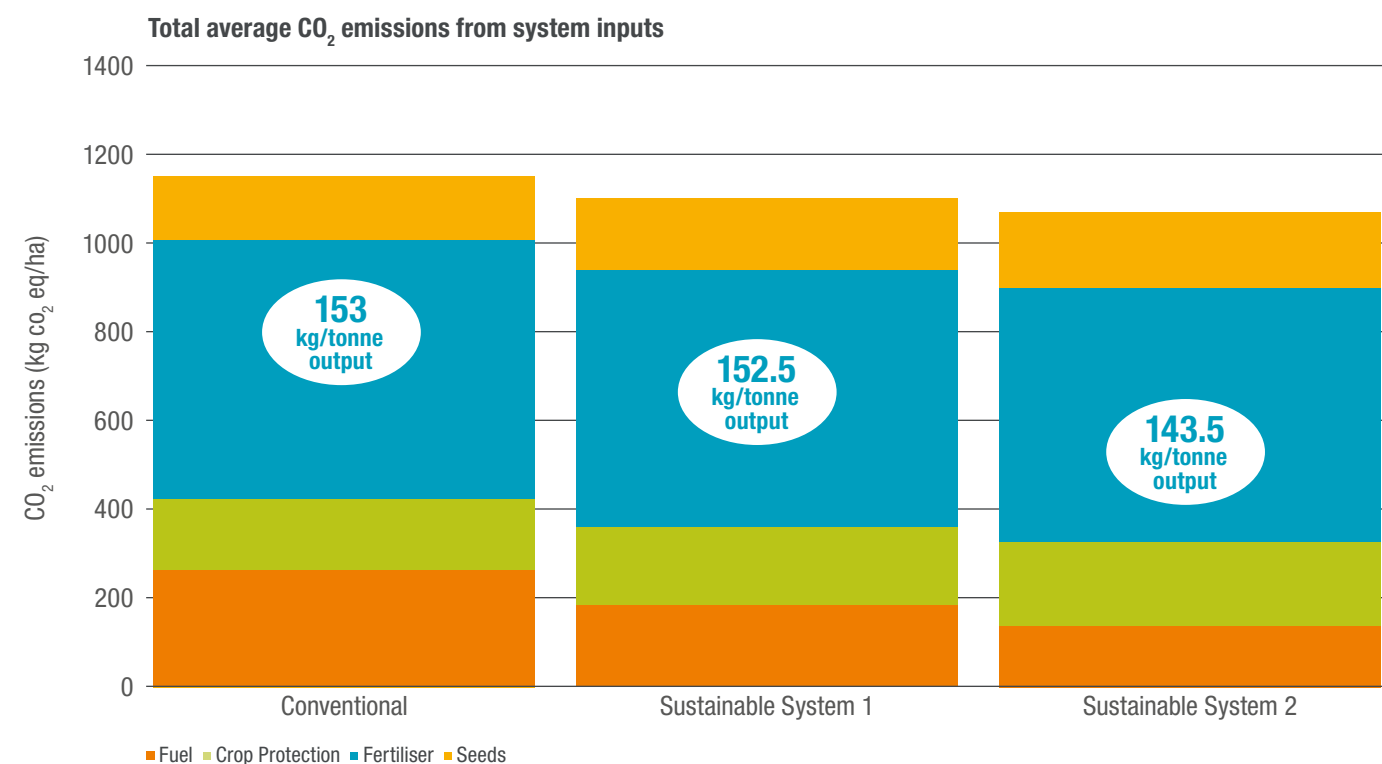
SUSTAINABLE FARMING

Find out more about the challenges facing sustainable farming in the future, and some of the solutions Conservation Agriculture could provide.



CARBON FOOTPRINT CAPTURED

Calculating CO₂ emissions from inputs, across the two sites for all establishment systems, demonstrated that the **Conservation Agriculture Sustainable System 2 saved an average 100 kg/ha of CO₂ emissions, equivalent to 9.5 kg/t of crop produced.**



362,000 ha UK arable cropping currently in Conservation Agriculture



36,200 t annual saving CO₂, compared to conventional tillage

SAVING EQUIVALENT OF

76,032 barrels of oil



12 million litres of diesel



The next step in the project is to measure the carbon sequestration values for each system, to look at the total potential carbon footprint benefits from Conservation Agriculture.

Potential carbon reduction with Conservation Agriculture:

- Sequestration of carbon into soil
- Organic matter increase in soils
- Cultivation fuel reduction
- Efficiency of fertiliser use



SUSTAINABLE FARMING

TEA BAG TEST



An insight into the soil health of fields is being investigated with the internationally recognised 'Tea bag test' – as an indicator of biological activity.

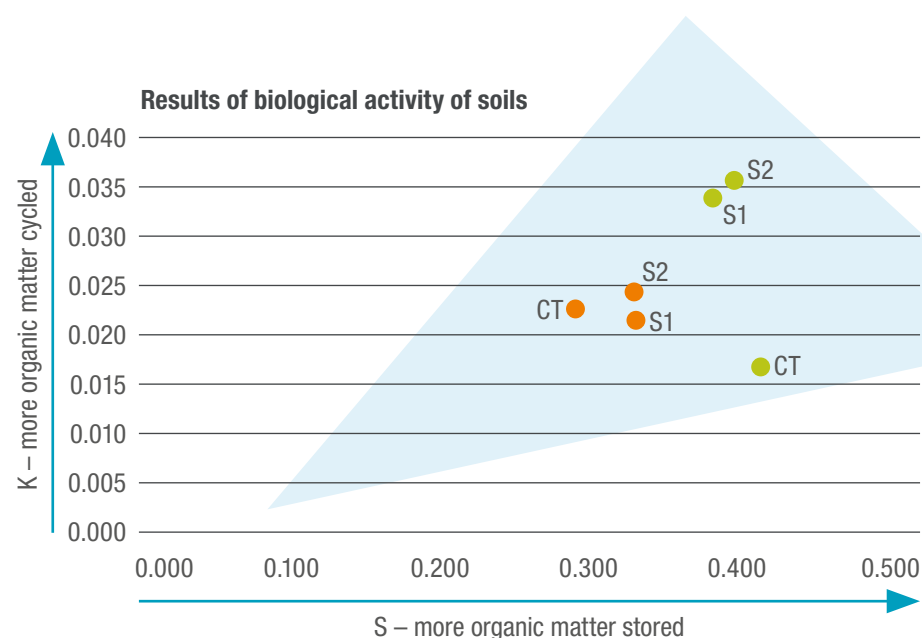
Burying bags of green tea and red tea in the soil and recording how quickly soil microbes break down the leaves enables an assessment of organic breakdown (the K factor) or the rate of stabilisation (the S factor).

K - gives some indication of how quickly soil nutrients would become available for crops

S - indicates a soils ability to retain and build up organic matter, rather than being released as CO₂

The relationship between the K and S can tell you if soils are cycling or storing more carbon under different management systems.

Results and any changes under different establishment systems at Loddington and Lenham will be evaluated over the course of the project.



■ Lenham ■ Loddington CT Conventional Tillage S1 Sustainable System 1 S2 Sustainable System 2

GREENHOUSE GAS EMISSIONS



Unique new research monitoring techniques can now evaluate soil gas emissions from growing crops in the Conservation Agriculture project.

Combining measurements of CO₂, methane and nitrous oxide - and converting to a CO₂ equivalent - initial sample results, averaged across the two sites, indicated the low till system could potentially emit just half the rate of emissions of plough establishment.

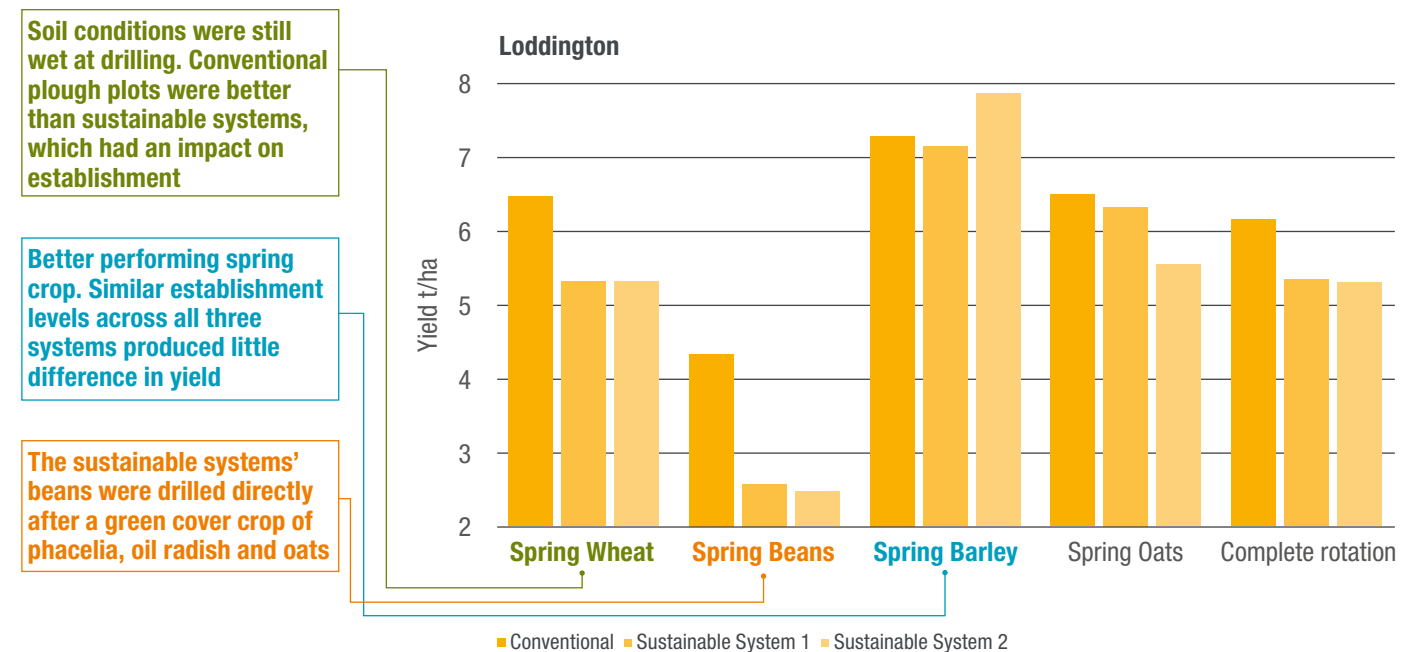
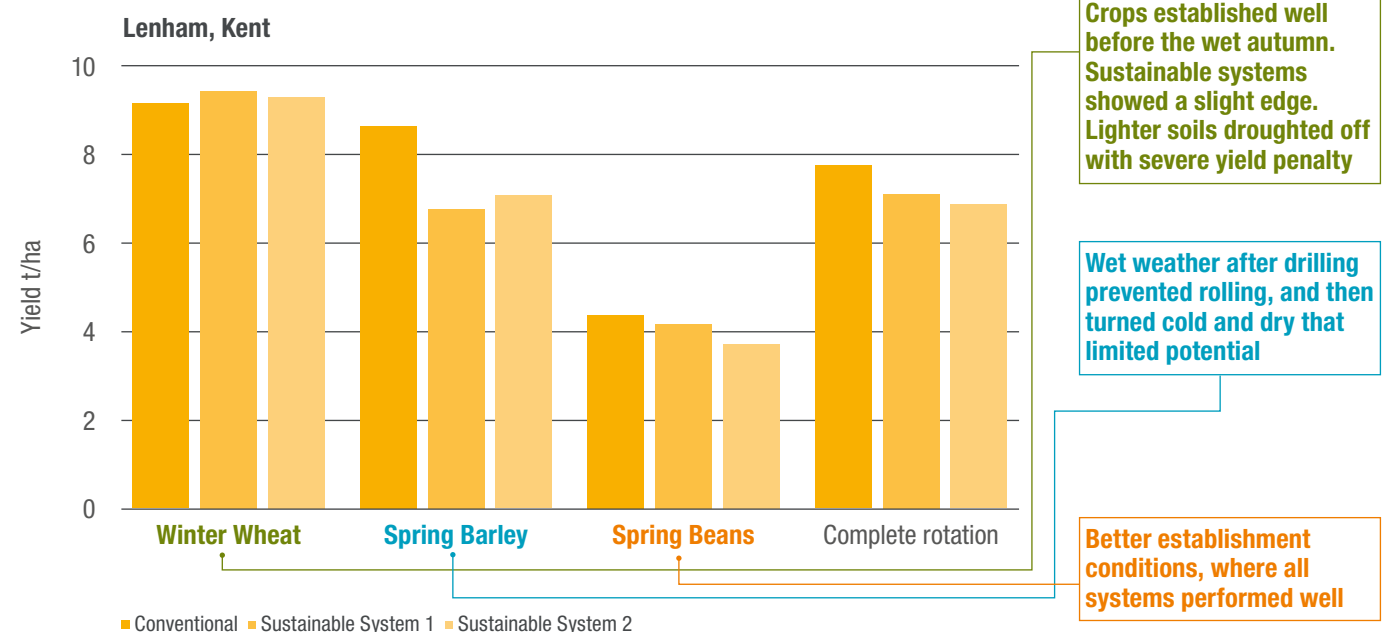
WEATHER HIT FOR CROP YIELDS

The weather has had a huge impact on yields at both UK Sustainable Farming and Conservation Agriculture sites – which truly reflects real life farming situations.

The heavy land at Loddington, best suited to winter crops, was forced into 100% spring cropping in the trial. Effects at Lenham were less severe with autumn establishment on lighter land, but even spring cropping for the project was severely impacted by weather.

Both sites saw that the plough-based conventional system resulted in the highest average yield across the rotation.

As the costings are finalised the overall effect on profitability across each system will be calculated. Added into the fascinating five-year whole farm performance and evaluation, it will help to guide growers adapting to future policy.



[CLICK to see full results and financial implications as they are updated](#)





OPERATION POLLINATOR GROWING GUIDELINES

Operation Pollinator has been supporting growers and wildlife since 2006. Through the development of the project's bespoke seed mixtures we have seen growers sow over 3,000 ha of perennial and annual margins, fitting within environmental schemes and voluntary initiatives across the farmed landscape.

Each of these Operation Pollinator seed mixtures offer biodiversity benefits on farm for pollinators and insects, birds and other wildlife. Placed in the right place on your farm they can also bring added benefit to farm business by protecting water courses, reducing run-off and soil erosion, improve soil structure and capture nutrients. Please speak to your local agronomist or environmental advisor for specific guidance.

[+ CLICK for more information on how to order](#)



ANNUAL FLOWER MIX

SEED RATE: 4-8 kg/ha

PLANTING TIME: August to October

MIX CONTAINS: Crimson clover, red clover, phacelia, native corn flower, native corn marigold and native corn chamomile

GROWING ADVICE

- Plant areas with south facing aspect, sheltered from wind. Margin width ideally minimum of 4 m
- Broadcast the seed onto the soil surface increasing the rate to a max. of 8 kg/ha in compromised soil conditions
- Seedbed needs to be fine, weed free and consolidated
- If autumn planting is not achieved, plant in the spring, but this will compromise length of flowering time
- If required in the spring, lightly top to open up the canopy, this will hold back the dominant species and let the light in for other plants to compete
- To encourage flowering late into the season top part of the plot in April/May before flowering to hold it back
- Leave until the end of flowering, top the haulm and spray off any green regrowth
- Plots can be left over winter to allow farmland birds to eat the flower seed



BEEES 'N' SEEDS MIX

SEED RATE: 20 kg/ha

PLANTING TIME: May to mid-July

MIX CONTAINS: Mustard, brown mustard, buckwheat, Gold of Pleasure, kale rape, sunflower, phacelia and fodder radish

GROWING ADVICE

- Drill into warm soils, from mid-May until the end of June
- Drill into a good, firm, weed free seedbed
- Plant to a depth of 1-2 cm, row widths of 35-40 cm apart
- To encourage rapid growth apply up to 60 kg/ha N, $\frac{1}{3}$ into the seedbed and remaining amount 3 weeks later
- Some herbicides can be applied, please contact a local agronomist or environmental adviser
- To remove – wait until late in the spring, allowing farmland birds access to all seed, then top, spray and cultivate in preparation for re-planting



GREEN HEADLAND MIX

SEED RATE: 20 kg/ha

PLANTING TIME: May through to mid-August

BRASSICA MIX CONTAINS: Common vetch, oil radish, buckwheat, phacelia and berseem clover

NON-BRASSICA MIX CONTAINS: Vetch, buckwheat, linseed, crimson clover, phacelia, berseem clover

GROWING ADVICE

- Drill into warm soils, May-August
- Plant to a depth of 15 mm in standard rows
- Seed can be broadcast but drilling is preferable
- To encourage rapid growth apply 30 kg/ha N
- Period of use – approximately 12-14 weeks from planting
- Once the mix has reached mid-flowering it should either be destroyed with glyphosate or topped at mid height to offset flowering, encourage further rooting and prolong the longevity of use
- It is important not to let the mix go beyond the mid-flowering point as this will avoid any concerns regarding potential seed set



As a long term supporter of the field bean crop, Syngenta continues to innovate to help growers meet the agronomic challenges of growing legumes.

Robust disease control can help guarantee growers margins. With the loss of key products it's important to test new strategies and evaluate their impact on crop management.



CHALLENGES IN FIELD BEAN DISEASE CONTROL AND CROP MANAGEMENT

WHY IS DISEASE CONTROL SO IMPORTANT?

Rust can reduce yield by 14%

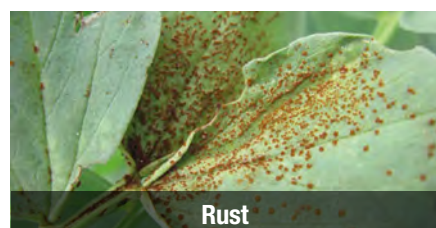
Severe infection by Chocolate spot can half crop yield

CULTURAL CONTROL OF DISEASE

SEED – Most of the major diseases including Chocolate spot and rust can be seed-borne, use clean seed to reduce early disease risk.

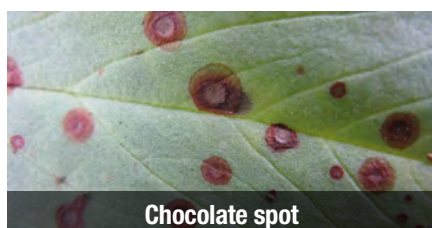
ROTATION AND LOCATION – As most diseases survive on crop debris, use a rotation of at least 1 year in 5 and sow crops as far away from the previous year's crop as practically possible.

MAJOR DISEASES OF FIELD BEANS



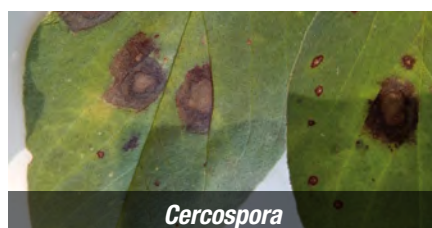
Rust

- Disease survives the winter on crop debris or volunteer crops.
- Risk increases during periods of high humidity and temperature, morning dews are adequate to encourage germination.
- Spore production increases as the disease develops through the season, usually leading to high levels of disease mid-June onwards.



Chocolate spot

- Survives in the soil as *Sclerotia* or on crop debris.
- Primary infection is through air borne spores produced by maturing *Sclerotia*.
- Secondary infection is most damaging and can occur very quickly after primary infection (1 week), spores from small primary lesions are spread by wind and rain-splash. Secondary infection is favoured by overcast cooler conditions (15-22°C and 90% humidity).



Cercospora

A less prevalent disease but rising in occurrence over the last few seasons. Infection is seen in warm damp conditions, similar to Chocolate spot.

SOLATENOL™ NEW DEVELOPMENT INTO LEGUMES

SOLATENOL ANTICIPATED CROPS AND TIME OF APPLICATION

Crop	Max individual dose	Max treatments per crop	Application window
Field beans and combining peas	0.66 l/ha	1	Up to and including 20% of pods having reached typical length (GS72)
Chickpea and lentils			
Linseed/Flax	0.66 l/ha	1	Up to and including end of flowering (GS69)
Oats	0.75 l/ha	1	GS31-59

- Solatenol formulation also contains prothioconazole (STL/PTZ)
- Requested claims – Chocolate spot, rust and Ascochyta
- First sales planned for 2021 season

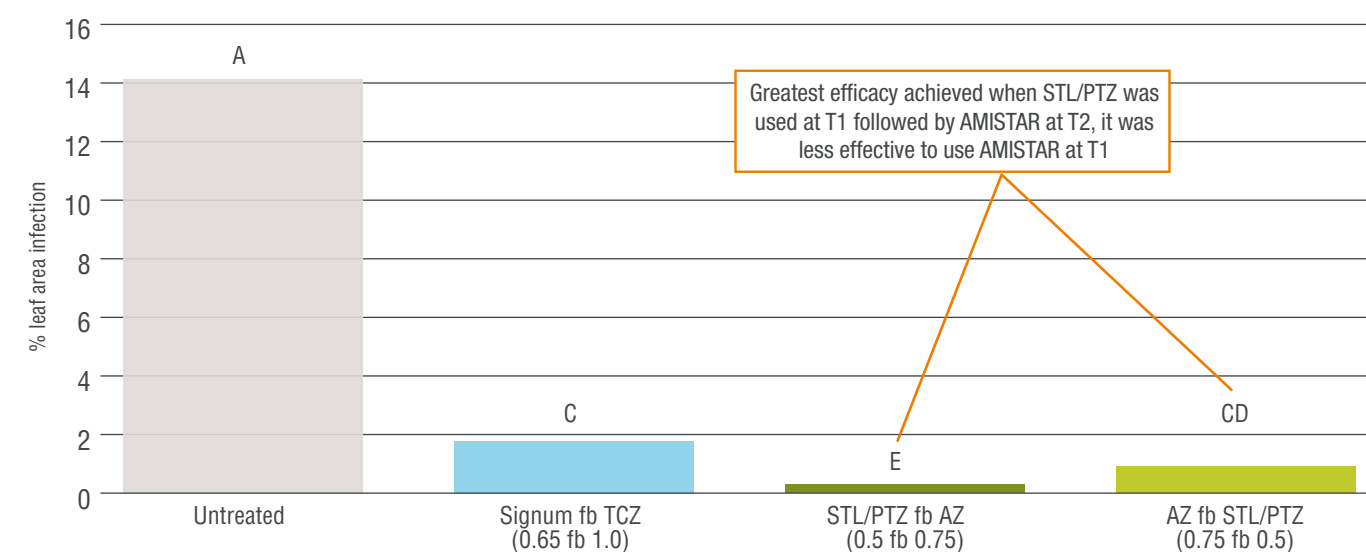
2020 TRIAL WORK CONDUCTED WITH PGRO – RUST

In recent seasons Bean rust (*Uromyces fabae*) has been the main disease threat. However, Chocolate spot (*Botrytis fabae*, *B. cinerea*) remains a considerable threat to bean crops given a season with the right conditions. Trials with the new product have shown good activity against both these important pathogens of winter and spring field beans.

The PGRO spring bean trial was based on two applications at T1 – GS60-63 and T2 – GS69-75. The trial demonstrates the effectiveness of the new product STL/PTZ (Solatenol formulation also contains prothioconazole) against bean rust. The cultivar used was Lynx and the crop was drilled on 28 March 2020.

Using the STL/PTZ product at T1 and following with AMISTAR at T2 gave the best control of rust.

SOLATENOL CONTROL OF RUST (*UROMYCES SP*) IN SPRING FIELD BEANS ASSESSED 28 JULY



Source: PGRO Flawborough site 2020. T1 application: flowers on lower trusses, GS60-63, 8 June. T2 full flower, approaching full canopy, GS69-75, 10 July



2020 TRIAL WORK CONDUCTED WITH PGRO – CHOCOLATE SPOT

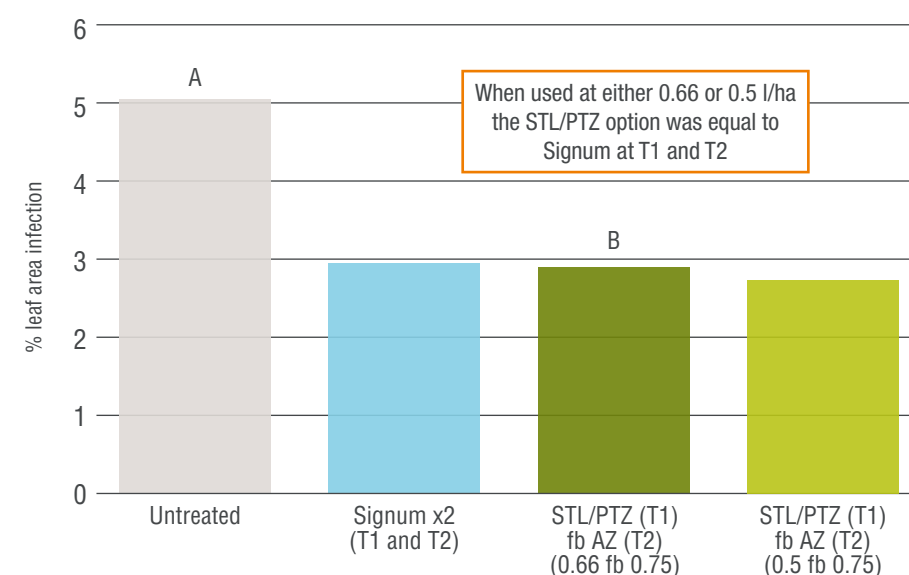
While 2020 was not a bad season for Chocolate spot (*Botrytis fabae*, *B. cinerea*), PGRO were able to find a location for winter beans with some disease but not a high-pressure site.

In the trial a two spray programme was used for all the programmes. In the Syngenta programme STL/PTZ at T1 was followed by AMISTAR at T2 and this was compared with Signum at T1 and T2.

The winter bean site was drilled on 29 October 2019 with the cultivar Tundra. The T1 application time was 19 May 2020 at GS61-65. The T2 application time was 16 June at GS67-69.

The STL/PTZ product at both the 0.66 and 0.5 l/ha rate followed by AMISTAR gave as good control of Chocolate spot as the standard Signum used at T1 and T2.

SOLATENOL CONTROL OF CHOCOLATE SPOT (*BOTRYTIS FABAE*, *B. CINEREA*) IN WINTER FIELD BEANS, ASSESSED 3 JULY



Source: PGRO Branton site 2020. T1 application: flowers on lower trusses, GS61-65, 19 May. T2 full canopy, GS67-69, 16 June



Chocolate spot in field beans

SAVE THE DATE: JOIN US FOR THE 2021 PULSE ROADSHOW WEBINARS

Due to COVID-19 restrictions our annual pulse roadshow events will be taking place online in January 2021.

Grab yourself a cuppa and join us to hear from the experts in this field, in a series of short issue focused Zoom webinars.

MONDAY 18TH JANUARY 2021:

The market for pulses/Varieties for the market
CP00912010

TUESDAY 19TH JANUARY 2021:

Pest management and IPM strategies for pulses
CP00912011

WEDNESDAY 20TH JANUARY 2021:

Disease control in field beans
CP00912012




THURSDAY 21ST JANUARY 2021:

Weed control options in peas and beans
CP00912013

All online meetings will start at 09:00 and end at 09:30 followed by a Q&A session



HOW TO REGISTER

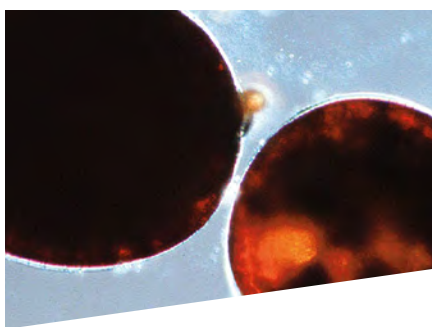
-  **ONLINE**
 -  **EMAIL** and include the CP number for your chosen event
 -  **CALL 0800 652 4216**
- Please use the event ref number provided (each starting with 'CP').



POTATOES

Delivering more for your potatoes.

Syngenta offers UK potato growers and agronomists a unique combination of crop protection products, support tools and services to achieve the optimum results in the field and beyond.



PCN MANAGEMENT

PCN continues to be the most challenging soil-borne pest for long-term sustainable potato production.

Populations of the more difficult to control species, *G. pallida*, have continued to spread across England and Scotland. With favourable weather conditions for longer hatching and growing more susceptible commercial varieties, tighter rotations can lead to higher levels.

Given the threat of PCN for potato production, incorporating NEMATHORIN® in conjunction with ICM programmes can help to manage populations at sustainable levels.

NEMATHORIN is the tried and tested effective control for PCN, providing outstanding results on both *G. pallida* and *G. rostochiensis* species in all soil types. Furthermore, it also reduces the damaging impact of wireworm.

NEMATHORIN recommendations for PCN control	
Application rate	30 kg/ha
Application advice	Apply at planting and incorporate immediately to a consistent depth of 10-15 cm

[+ CLICK TO SEE label info](#)



NEMATICIDE STEWARDSHIP PROGRAMME	
Always follow the Nematicide Stewardship Programme, available on the NSP website	
+ CLICK HERE TO VIEW	



COVERAGE FOR SEED- AND SOIL-BORNE PATHOGENS

Growers and agronomists should now be considering a combination of MAXIM seed treatment and in-furrow AMISTAR treatments, to reduce the combined threats of seed- and soil-borne pathogens.

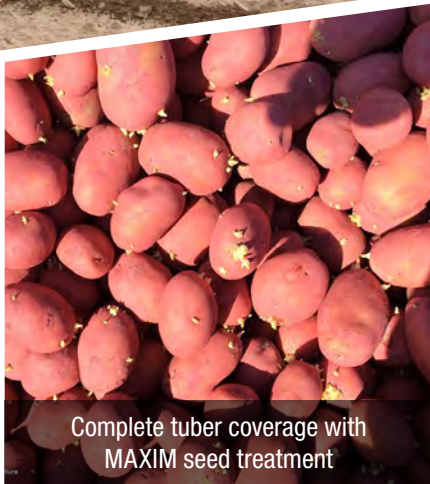
Protection against potato diseases at planting can assure more even emergence and consistent growth, along with cleaner, brighter tubers for sale and storage at harvest. Key seed and soil pathogens to target include *rhizoctonia* stem canker (black scurf), silver scurf, black dot and common scab.

Precision application of MAXIM liquid seed treatment pre-planting can better help to ensure complete coverage and protection of the tuber, along with controlled and convenient treatment. Whilst seed treated at source or contractor-applied mobile

on farm treatment has been standard, new investment in setting up an on-farm treatment line can give extra convenience and flexibility to treat individual seed lots to specific field risks.

Where MAXIM treated seed tubers are to be planted into fields with a known history of soil-borne *Rhizoctonia*, or black dot, the use of in-furrow AMISTAR application is also advised.

AMISTAR has been seen to be beneficial for tuber numbers and consistency of size and maturity right through the growing season to harvest, as well as black dot control for improved skin finish and storability.



MAXIM recommendations for the control of a range of seed-borne diseases	
Application rate	0.25 l/tonne
Max no. treatments	1 before planting
Application advice	Only apply to dormant tubers before planting. Do not apply to crops intended for seed production

[+ CLICK TO SEE label info](#)

AMISTAR recommendations for control of soil-borne pathogens	
Application rate	3.0 l/ha
Application advice	Apply on the planter to incorporate treated soil around the seed tuber. Avoid direct spray onto the tuber

[+ CLICK TO SEE label info](#)



MAINTAINING BLIGHT PROTECTION

The evolution of more aggressive genotypes of potato late blight has highlighted the need for robust anti-resistance strategies with all applications.

A trial was set up at Eurofins in Derbyshire, to test the intrinsic fungicide activity of blight products. In inoculated and irrigated plots shown to be infected with the aggressive EU36_A2 genotype, it showed REVUS with a drift retardant to be the most effective fungicide against all the blight isolates in the trial.

The trial results showed that REVUS is inherently active on all blight genotypes present, including EU36_A2. With the evolution of more aggressive new isolates, it is key to know that robust treatments can help protect the efficacy of every application in the programme for season-long control.

In field applications and independent blight trials, REVUS continued to maintain the same consistently reliable levels of efficacy, and in the presence of more aggressive strains of blight.

REVUS recommendations for blight protection	
Application rate	0.6 l/ha
Number of applications	Four per crop

[+ CLICK TO SEE label info](#)



FORECASTING BLIGHT

Recognising the risk posed by more aggressive blight genotypes, Syngenta BlightCast now features the Hutton Criteria as the key factors determining the five-day local forecasts.

Using new technologies to manage and apply fungicides at the right time and in the right place will all help stay ahead of blight infections in the future.

[+ CLICK HERE to register for BlightCast](#)



WATCH EUROFINS BLIGHT TRIAL VIDEO HIGHLIGHTS

Watch the report from this season's Eurofins trials for the latest on blight fungicide activity and new application advice for the Syngenta 3D90 nozzle delivering outstanding efficacy, along with 90% drift reduction.



Syngenta 3D90 nozzle in action with exciting potential for blight applications

BLIGHT APPLICATIONS ON TARGET

Research with drift retardant tank mix partners has highlighted potential to get the best performance from blight applications.

The addition of Crusade or Sterling drift retardant in the tank mix with REVUS has shown to reduce the risk of drift and potentially optimise spray deposition throughout the crop canopy. The effects have been seen from Syngenta's Jealott's Hill nozzle research, and the performance of blight control in field trial results.

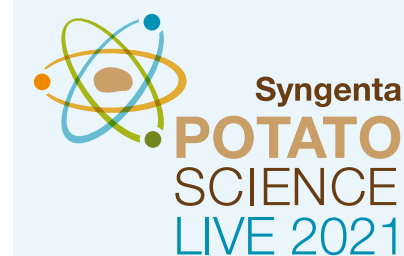
NO COMPROMISE APPROACH TO ALTERNARIA CONTROL

Stress risk factors that trigger *Alternaria* infection are an increasing issue for growers.

Climatic changes, with more severe weather events – from prolonged drought, extreme heat or sudden storms – impose stresses that predispose potato plants to the effects of infection.

The future loss of any blight fungicide active with effects on *Alternaria* could seriously weaken growers' options.

AMPHORE® Plus combines the outstanding late blight protection of REVUS (mandipropamid), with difenoconazole to tackle *Alternaria* – including the two main forms, *A. solani* and *A. alternata*.



WEBINAR EVENTS

FURTHER DETAILS

Mon 8th Feb 2021:
Seed/Soil borne pathogens
CP00916802

Tues 9th Feb 2021:
Soil pest management
CP00916803

Weds 10th Feb 2021:
Blight management
CP00916804

Thurs 11th Feb 2021:
Biostimulants
CP00916805

Fri 12th Feb 2021:
Sustainability
CP00916806

Each webinar will start at 9am and be up to 45 mins long

BASIS and NRoSo points available for attending each meeting

HOW TO REGISTER YOUR INTEREST:

- [Online](#)
- [Email](#) – include the 'CP' ref number in the subject line
- [Call: 0800 652 4216](#)

Please use the event 'CP' reference number when booking





Protector

powered by **syngenta**

Maximise profitability and ensure sustainability on a field-by-field basis



PEST
ADVICE



RIGHT SPRAY
CONDITIONS



IN-APP
TEAMWORK

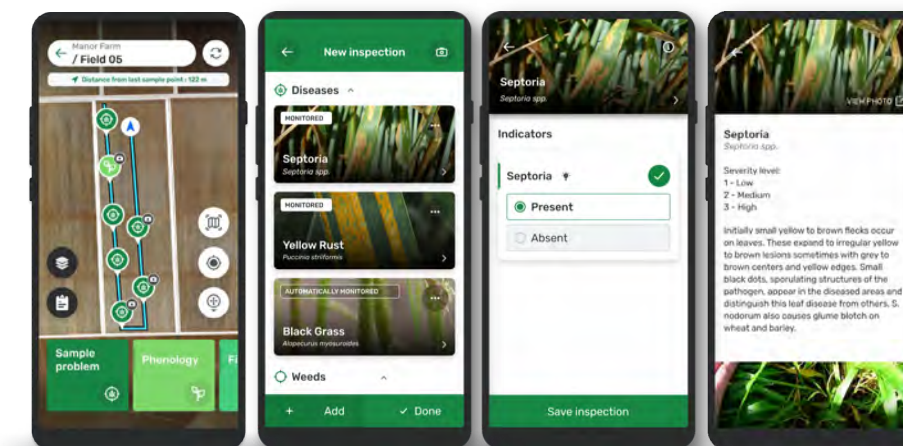
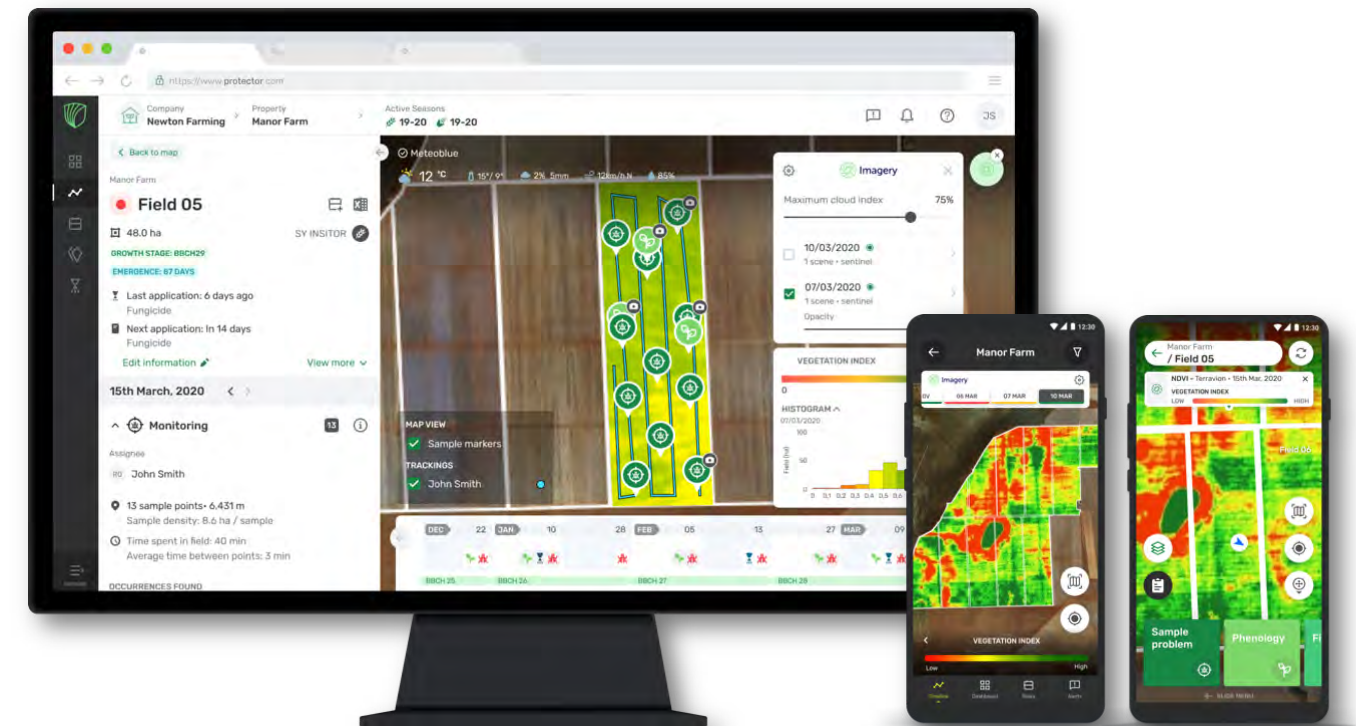


FIELD RISK
ANALYSIS



RIGHT
SPRAY TIME

Protector allows you to collect and record all observations from your fields in a centralised location. These observations can then be analysed using heatmaps or overlaid with application maps to help power your decisions.



It is accessible as an app on your phone and with a desktop computer so that you can observe and visualise your fields on the go or in the office. It will truly revolutionise the way we do agronomy going forwards.

[+ CLICK HERE](#) to sign up to Syngenta's brand-new digital offering



syngenta

SYNGENTA IS COMMITTED TO PROVIDING VALUABLE TOOLS AND RESOURCES TO HELP YOU GET THE BEST OUT OF YOUR BUSINESS.



Pest reports are updated weekly throughout the season by Rosemary Collier in association with Warwick University.



Get online risk warnings and text alerts of key brassica diseases in your area.



Sign up to receive advance warning of blight in your area via a five-day email report.



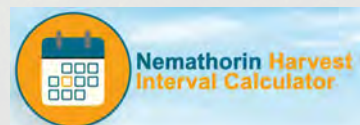
BYDV Assist helps optimise spray timing to control the 2nd generation of aphids in cereals.



What could you earn from your hybrid barley variety? Our simple calculator allows you to calculate your return on investment.



A decision support tool to tailor cereal growth regulator applications.



Input the date you applied NEMATHORIN and this will calculate the earliest desiccation or green top lifting date for each field.



Download our new App created to help sprayer operators select the most appropriate application techniques on-the-fly.

**BASIS
NRoSO**
HOW TO COLLECT
YOUR POINTS

BASIS - 1 point
Quote code CP/107654/2021/g along with your name and BASIS number.

+ CLICK TO COLLECT POINTS

NRoSO - 2 points
Quote code N0468825f along with your name and NRoSO number.

+ CLICK TO COLLECT POINTS



EVENTS



Our Innovation Centres are a fantastic opportunity for you to see our work in-field. A range of exciting exhibits can be seen, from conventional product comparisons and variety interaction trials, to novel techniques and innovations that will help meet the difficult challenges we face today.

Depending on Covid-19 restrictions, the 2021 Innovation Centre open days could be a mixture of in-person and virtual events.

- + Keep up with the latest information on our Innovation Centres**
- + Watch the most recent trial updates from our trialists**

SAVE THE DATE 2021 EVENTS

Due to COVID-19 restrictions our annual pulse roadshow and Potato Science Live events will be online in early 2021.

Join us for issue focused webinars. Grab yourself a cuppa and join the short online meetings to hear from the experts in this field.

PGRO/SYNGENTA PULSE ROADSHOW WEBINARS



Mon 18th Jan 2021
The market for pulses/
Varieties for the market

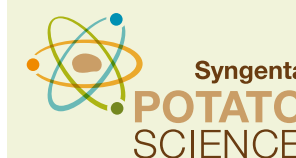
Tues 19th Jan 2021
Pest management and IPM
strategies for pulses

Weds 20th Jan 2021
Disease control in field beans

Thurs 21st Jan 2021
Weed control options in peas
and beans

CLICK TO REGISTER OR FOR MORE INFO

POTATO SCIENCE LIVE WEBINARS



Mon 8th Feb 2021
Seed/Soil-borne pathogens

Tues 9th Feb 2021
Soil pest management

Weds 10th Feb 2021
Blight management

Thurs 11th Feb 2021
Biostimulants

Fri 12th Feb 2021
Sustainability

CLICK TO REGISTER OR FOR MORE INFO



Rewards that help you grow

Join our loyalty scheme. Earn points to buy great products, services and experiences as a thank you for using Syngenta products.

Already a member? Don't forget that you can now submit your product use in real time.

 **PartnershipPlan**™
Loyalty Scheme

 **Sign up or sign in today!**



Protector
powered by **syngenta**

Digitise your field walking

Join our pilot programme for hands on experience of our latest digital ag platform. Test the app in your own fields.

 **Sign up today!**



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