

Spring Barley Growing Guide 2020

February 2020

Introduction

All signs are pointing to a significant rise in the spring barley area in 2020, with it likely to be the crop of choice for many growers where late-drilled winter wheat or spring wheat is not an option.

Strutt & Parker's Crop Production Focus Group, part of the Farming Department, has produced the following guide which covers the main financial and agronomic considerations for growers this season – highlighting how to avoid some common mistakes.

The guide covers aspects like how much spring barley it might be sensible to drill, what are the implications for the following crops, variety choice and seed rates. It also details how best to manage the crop to maximise yields and reduce the risk of lodging,

The goal should be to manage this season's crops as well as possible to minimise the financial losses that are likely to occur and to limit potential damage to the rotation carrying on into harvest 2021. As such, it will be important to keep focussed and grow the best performing crops, to take full advantage of any market price increases that may occur in the volatile months ahead.

Spring barley market outlook 2020

At the time of writing, all signs point to a potential 30% increase in the spring barley area for harvest 2020. Unless harvesting conditions are poor this is likely to mean that malting premiums will be small and for all but the specialist varieties or soil types not worth chasing.

At average to slightly below five-year national average yields the 2020 UK barley harvest could be around 8 million tonnes and rival the 2019 harvest. With supply outstripping internal demand and with the potential of so much of the crop not making a malting spec, grain marketing will rely on merchants being able to export the crop to overseas markets creating export parity, a position once again made uncertain with pending trade discussions.

New crop cereal prices are holding, which would suggest there is no **advantage to fixing a** base feed price just yet. As mid/end of Feb window for drilling winter wheat closes the market will adjust and come to terms with just how much barley may be planted and in what condition. As this point nears it will be useful to keep an eye on the market to see which way it is heading and possibly fix the base price on a proportion of the crop if confident the tonnage can be supplied.



Spring barley gross margin

The price of feed barley and its discount to feed wheat could be the deciding factor on how much spring barley gets drilled. From the end of February spring barley for most will be the default option once it is too late to plant Skyfall winter wheat.

Spring wheat is looking potentially more attractive than feed barley if the c. £30/t discount for barley continues and the new crop full spec milling premiums of c. £25/t can be realised. A potential £50/t difference in the price between spring barley and a milling spring wheat provides a big buffer should yield suffer, however the cost and availability of spring wheat for those who have not yet secured it will limit the area planted.

Where spring barley seed can be home saved, on the soil types/cropping situations that make spring wheat unattractive or if the drilling window for spring wheat closes (end of March), spring barley will be the crop of choice and with it will come the pressure on the feed barley price. A feed barley price of c.£110/t is far less attractive and without the income from straw sales will struggle to make a positive margin, especially if paying contractor charges.

Spring Barley Gross Margins Spring 2020

	Spring Barley Yield						Late Wheat	Late Wheat
	5	6	7	8	9	10	7	7.5
Grain Yield t/ha	5	6	7	8	9	10	7	7.5
Price £/t (Nov 2020)	125	125	125	125	125	125	155	155
Received Malting Premium	0	0	0	0	0	0	0	0
Straw Yield t/ha	2.75	3	3.5	3.5	3.75	3.75	0	0
Straw £/t	25	25	25	25	25	25	0	0
Gross Output £/ha	694	825	963	1088	1219	1344	1085	1163
Seed £/ha (av 375seeds@ £375/t)	60	60	70	80	80	80	80	80
Nitrogen	89	89	104	104	104	104	170	170
S							15	15
P								
K								
Sprays								
Pre Em	0	0	0	0	0	0	0	0
Broad Leaved Weeds	12	12	12	12	12	12	15	15
Wild Oat Control(Foxtrot@1.0l/ha)	17	17	17	17	17	17	40	40
Fungicides x2	45	45	45	45	45	45	80	80
Terpal + Adj. @ 1.0l/ha	13	13	13	13	13	13	0	0
Moddus x2 splits of 0.10 l/ha	5	5	5	5	5	5	10	10
Manganese x2	5	5	5	5	5	5	5	5
Magnesium x2							8	8
Total VC	246	246	271	281	281	281	423	423
Gross Margin	448	579	692	807	938	1063	662	739
Nitrogen @ £0.74/kg (An @ £255/t)								

Issues associated with growing spring barley

The main issue of growing spring barley is what to grow after it. The straw generally must be baled as it does not chop and spread readily. Baling generally delays cultivation and the baling operation will generally require deeper cultivation to remove traffic damage. Unless it is a particularly early harvested crop or the location is conducive, winter oilseed rape is no longer a broadacre solution following spring barley and should be avoided.

An issue of following spring barley with cereal crops can be the volunteers. Spring barley volunteer issues are directly related to harvesting conditions. If volunteer numbers are high then ideally the volunteers need to chit and be sprayed off for the good of the rotation and the fields must be ploughed. Wide cutter bars, plus leaving the straw in swaths, will generally concentrate the volunteers into very high numbers. Volunteers from spilt ears pre- or at harvest are the other main source of volunteers and will contribute to pressure between the combine rows.

The easiest win following spring barley is winter barley – the volunteers unless really thick are not really an issue and there is plenty of time to get the land cultivated and the winter barley established for the end of September.

Following spring barley with wheat is okay and will be necessary to correct many rotations for harvest 2021. If possible, leave the barley volunteers on the surface to chit, spray off, cultivate and spray off if possible twice before drilling with wheat. Spring barley volunteers in a wheat crop can be controlled reasonably successfully with Clodinafop-based products (eg Topik while available) –

the blackgrass dose gives some flexibility. Two applications may be necessary and should be planned so it fits in with the PGR and fungicide treatments. It is possible to grow a quality milling wheat sample after spring barley but clearly feed wheats are the safer route. The various forms of SU herbicides used for blackgrass and brome control are generally not good enough at controlling volunteer barley and if having to use an SU eg Horus/Hatra, Clodinafop should be considered either in the tank mix or preferably in sequence.

Winter and spring oats should be avoided as following crops. There is a bit of latitude with winter rye.

Pulse and root crops are fine following spring barley just be mindful of any soil damage caused during harvest if following with winter beans or peas.

A high-yielding spring barley and associated residue appears to take a lot out of the soil and the following cereal crop may look sluggish and require early nitrogen to get it moving.

Maximum area in the rotation

With potentially not much wheat on some farms there will be the temptation to make up much of the shortfall with spring barley. How much spring barley to drill, three crop rule permitting, could be the question?

Spring barley doesn't stand well or for long once the straw is fit. Flat barley is a nightmare, slowing down harvesting, losing yield and quality and making preparations for the following crop slower and more expensive. Typically, barley will start to "lean" in overlaps by the time it is fit to harvest from which there is a 7-10 day window in which to harvest it before the straw strength starts to fail and most commonly the ears can tip over to below cutter bar height.

Putting a figure on how much barley a farm can cope with is very specific but more than 10 straight days of harvesting is likely to get risky and require some mitigating measures, possibly more combine capacity depending on what else is on the farm to cut. These risks are partly mitigated by keeping the crop standing and doing what can be done to widen the harvest window so that not all the crop is ready at once. Spreading drilling date and to a lesser extent variety will assist with this.

Spring barley will be drilled from now onwards and the wider the drilling window, generally the wider the ripening and hopefully harvest window.

Spring barley physiology

Productive spring barley is all about ear number, generally the more ears the higher the yield potential but only to a point. Another point to consider is moisture conservation, the quicker the canopy closes the less moisture from the soil evaporates and the more moisture is available to the crop to draw up nutrition to promote canopy expansion and grain fill.

Tiller survival in spring crops can be variable and relative to environmental conditions, if the seed rate is too low and tiller mortality high, ear number and yield can suffer. One of the main gains of variable rate seed drilling is in spring barley and is mainly from overcoming low plant numbers where germination losses are high on heavier sections of the field.

In kind growing conditions/soils optimum ear number can be established from average c.300 seeds/m². Where conditions are compromised or if drilling is delayed the seed rate must be increased to 400+ seeds/m² (eg on the heavy land that will grow a second wheat).

Unlike wheat/winter barley, spring barley does not yield more from early planting. Early planting should only be viewed as exploiting fieldwork opportunities to mitigate the risks of wet/dry conditions later in the spring. The best yields come from the crop being sown into warm soil where it chits and emerges within two weeks. Prompt germination and rapid canopy closure reduces soil moisture evaporation, keeping the crop as competitive as it can be on grass and broad-leaved weeds.

Drilling depth trials would suggest as with most spring crops slightly deeper (2 – 2.5 inches) is better than slightly shallower as an insurance against dry surface soil conditions.

Aside from increased lodging risk, excessive seed can increase grain screenings, but growing conditions and variety can have a large bearing on this.

Spring barley nitrogen & nutrition

If growing this year for a feed market, there will be the temptation to put on more nitrogen for yield which is understandable. In contrast, NIAB in its most recent set of 2019 trials results shows a fairly flat response to applied spring nitrogen over the last 3-4 seasons.

From experience of growing spring barley on heavy land (typically cereal and rape rotations – not sands), high yields (8t/ha+) can be obtained from 100-120kg/ha of nitrogen, with the following considerations.

- 1) Previous crop: Wheat seems to leave higher nitrogen residues than barley and oats (winter and spring) and one would imagine unless yield was considerable, milling wheats will leave more residual nitrogen than feed wheats. The more potential residual nitrogen post crop, the flatter the yield response in the barley and nitrogen rates can be held at 120-130kgs/ha without influencing yield or lodging too much. Where confidence is high that the previous crop has left very little residual nitrogen or the soil type is quite light/low fertility nitrogen rates can be raised to 130-160kgs/ha accepting soil moisture availability could be the most limiting factor on yield.
- 2) A compromised rotation this year may find spring barley in a first cereal situation following a rape or pulse crop. In this instance, Soil Mineral Nitrogen (SMN) samples can be taken to highlight residual levels or be cautious and opt for the lighter end of the nitrogen recommendations. Winter rainfall seems to have little practical influence on reducing residual nitrogen levels, possibly as it is still within the rooting zone of the crop.
- 3) Certain specific brewing contracts that require higher grain N are probably still worth pushing to the higher end of nitrogen rates, but all points re previous cropping and lodging above need to be taken into consideration.
- 4) Organic nitrogen from manures, sludges and digestates are good for barley yields and should not be dismissed when growing for yield. Adjust bagged nitrogen rates accordingly and don't leave post-emergence application of digestate too long post-tillering.

Timing and splits of nitrogen applications to feed spring barley are unlikely to have a significant influence on yield. There is some evidence to suggest earlier drilled crops benefit from an early first split, but this will be a very limited number of crops. To reduce lodging the earlier the nitrogen is applied the better, still sticking to the early tillering cut off for the crop to get its last split of nitrogen.

With generally such a short growing season, form of nitrogen and splits of nitrogen again don't tend to have a significant influence on yield. There is some comfort in applying some sulphur to the crop with the nitrogen, but only in the extreme specific scenarios is this likely to provide a yield response.

Accuracy of nitrogen application: Typically, mishaps in spinner operation cause the most incidence of lodging, most commonly seen on overlaps and in the middle of tramlines. If the crop starts to lodge early while the straw is still green, then clearly it will be a nervous run into harvest.

Turning the spinner/sprayer off short of the headland to minimise overlap on one or both dressings while creating a 'yellow halo' round the field boundary looks odd for a while, but can help reduce lodging risk and will be more applicable to certain field shapes, blocks and fertile sites.

P&K applications: Most will put on some maintenance or regroup with the P&K schedule after harvest. Fresh applied maintenance phosphate applications to the seedbed will give comfort but unlikely to give a positive yield response unless the P index is under 1.

High yields and baled straw have high P&K offtake which will require replacing to maintain the balance and should not be forgotten about after harvest.

Spring barley varieties 2020

For most, varietal choice will be limited to what has been grown on farm and is available as home-saved seed. Purchased C2 seed is still available although prices will increase as the wheat drilling window draws to a close mid-February.

If growing for yield, Planet and Laureate are the strongest contenders currently on farm both beating Propino on yield. Both have good lodging resistance with Planet edging it slightly. Propino is the weaker on yield and lodging, but is slightly earlier to ripen than above so could command a small area to spread harvest date.

Fairway and Prospect are on RL list of feed spring barley varieties, but unlikely to get any seed.

Spring barley agronomy

The key to good spring barley agronomy is keeping the crop standing through to harvest. High seed rates and thick crops won't help with this. The crop can go through the growth stages very quickly and its easy to neglect the crop whilst focusing on other priorities. As the crop grows quickly it is very responsive to growth regulation and may require 2-3 applications of growth regulator on fertile sites. Early applications of Moddus at 0.1 - 0.15l/ha at GS31 generally slow the crop and provide time to assess how the crop responds when upon another application may be required. In certain situations, it may be good insurance just to spray the fertile parts or overlaps again in preparation for the final PGR review pre-GS49.

Pre-emergence grassweed control tends to centre on using Avadex, Liberator or Crystal. Efficacy of the products can be very variable as soils rapidly dry out. If the blackgrass or wild oat burdens are particularly high then a pre-emergence treatment will give some piece of mind. In season control of oats can be achieved with Foxtrot @ 1.0 l/ha on small oats early in the season or Axail Pro later in the season once confident all the oats are through. There is no effective post-emergence treatment of blackgrass in spring barley – rapid emergence and crop canopy closure are the most effective cultural controls.

Unlike barley volunteers in wheat there are no herbicide options to control wheat volunteers in a spring barley crop. The level of contamination may be insignificant in a feed contract, but high levels of volunteers could give green grains at harvest that either require pre-harvest glyphosate and or an element of drying to safeguard the sample.



Cleavers and spring-germinating polygonums species, typically charlock, black bindweed and poppies, are the main targets for broad-leaved weed control, with possibly some volunteer rape/beans this year. Charlock in particular can get quite large and unsightly if left uncontrolled for too long. Metsulfuron- and fluroxypyr-based herbicides tank mixed together work well, are generally quite benign on the crop, broad spectrum and relatively cheap.

The crop generally will respond to fungicide, but the spend must match the crops potential. Generally, a T2 fungicide is necessary, T1 and T3 fungicide very much dependent on the season and location of the crop in the country. There are many fungicide options available, most of which will give a similar response. While we have CTL this season it should be included for Ramularia control at T2 and possibly T1 where required.

A perennial mistake made with spring barley is looking at the crop at GS37 in dry conditions and deciding not to put on a Terpal application as the crop can look small and short with the awns not far off emerging. In these situations, it is always best to put some Terpal on the crop as the crop height at flag leaf is a poor indicator of final crop height and lodging risk.

Fast-growing spring crops can have demands for trace elements that outstrip supply, especially if conditions turn dry. Basic manganese and magnesium applications are all that is generally required.

Ergot in the grain sample can be an issue with spring cereals. Growing for a feed market will lessen the risks of claims and rejections, but ergot can be an irritating issue in some seasons. Ergot presence in the grain is largely governed by the growing conditions at flowering and therefore mostly out of the grower's control. But incidence can be exacerbated greatly where blackgrass control is poor. The opportunities to reduce ergot incidence generally stem from growing ergot free seed and possibly taking more rows out of each tramline to make the wheelings wider with less chance of damaged late flowering heads getting infected.

Summary spring barley 2020

- 1) Go for yield
- 2) Manage lodging risk
- 3) A grain price of +£130/t would make a good margin given the year and alternatives.

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