

Managing production risk at seeding

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Taking the time and trouble to stagger the sowing dates of a variety can reduce growing-season risk and pay handsome dividends come harvest time, but there are other perspectives.

Farmers have been left in no doubt about the importance of getting their crops in on time, with many now seeding 'by the calendar' rather than waiting for ideal paddock conditions.

In many instances in recent years that has meant seeding dry, which can reduce time pressures but heightens the importance of having paddocks that are weed free or at least have very low weed seed numbers.

Dry seeding also limits the ability to spread flowering-time risk because all dry-sown seed will germinate as soon as there is sufficient moisture available.

Crops seeded dry will all germinate as soon as there is sufficient moisture and the temperature is right, so choosing varieties with different flowering and maturity times is almost the only risk management strategy available to growers using this approach.

Growers taking the conventional approach of waiting for the 'break' then seeding on moisture have much more flexibility but many are not taking advantage of that fact, often because they feel under pressure while conditions are right; driven by the belief that every week's delay after the optimal seeding date carries an average yield penalty of 200 kg/ha adding extra pressure.

However, even with those pressures it can pay to spread at least some varieties over several seeding times to minimise the risk of yield loss due to frost, heat or moisture stress or insect attack.

The risk management message is gradually 'getting through', according to BGC consultant Harm van Rees.

"The big risks are frost and heat shock and an increasing number of growers are beginning to spread varieties across the seeding window."

However, many growers still sow varieties in succession rather than seeding some of each variety early, some mid-seeding and some later in the seeding period, he said.



BEING EQUIPPED TO EFFICIENTLY SEED PADDOCKS WITH HIGH STUBBLE LOADS IS AN IMPORTANT RISK MANAGEMENT FACTOR BECAUSE IT IMPROVES THE ABILITY TO SOW VARIETIES AT THE PLANNED TIMES.

This means that, unless seeding is disrupted, each variety will flower and be filling grain at the one time, so if there is a severe frost at flowering time or a period of extreme heat at grain fill, all paddocks of that variety will be exposed to damage from that event.

"Many growers are reluctant to rotate varieties across the seeding window because they need to clean out the seeding equipment each time they changed varieties, which is a hassle and takes time they believe they can't afford," Dr van Rees said.

"But this attitude exposes them to significant levels of production risk because it means that all paddocks of each variety they sow are at the same stage of development throughout the season."

And the time required to change varieties during seeding can be reduced, he said.

"The machinery does need to be cleaned out when changing varieties but it really doesn't matter if a few grains of the previous variety remain in the machinery when the next one is loaded.

"A few plants of a different cultivar in a paddock won't have any impact on the quality of the grain that is harvested, but having all of a variety flowering when there is a widespread severe frost or setting grain when there is an extreme heat event can slash yield and quality.

"On the other hand if, say, some of each

variety was sown early, mid and late, it is likely no more than a third of each variety would be exposed to a short-term event such as a frost."

An alternative risk-reduction approach, which eliminates the clean-out issue, is to sow a mixture of an early and late variety in the one pass, Dr van Rees said.

It is important that the varieties in a mixture produce grain of the same classification, he said, and delivery and marketing are likely to be easier if the grain quality of the two varieties is similar.

Growers would also be well advised to ensure there is a market for the mixture and that it will be accepted by receival depots come harvest time, he said, with payment of the appropriate royalties also an issue with varieties subject to PBR.

Most growers sow late-season varieties with long growing periods first then move on to mid-season varieties, seeding short-season 'early' varieties. However, if a growing season cuts out and crops begin to run out of moisture early, there can be distinct benefits from having seeded a short-season variety early because that improves the chance of it filling grain while there is moisture available.

This is one way growers who forward sell can reduce production risk.

"Spreading the risk at seeding time makes sense. In the Wimmera, average growing season rainfall over the past 20 years is

20% below the long-term average and flowering dates are changing, but there is no indication the severity or incidence of frost is reducing,” Dr van Rees said.

Heat shock is also a major consideration.

“In 2009 the Wimmera had five successive days of 38°C and 39°C in November, during grain fill, which is unheard of and had a devastating effect.”

Neil Fettel, lecturer in Sustainable Grains Production at the University of New England and Visiting Scientist at the Condobolin Agricultural Research Station in NSW, agrees that spreading the sowing time for individual varieties ‘has some appeal for risk management’.

But, he points out, it can also reduce average yield potential, with little of any variety sown at its optimum time.

The perspective may well depend on regional climate.

Dr Fettel suggests his views may be coloured by his experience in the variable, low-rainfall environment of the Condobolin district, where sowing opportunities are often limited by dry conditions and hot dry finishes are the norm, with frost events ‘rather random’. In this environment it is standard practice to ‘seed early, seed light’, with the aim of capitalising in every drop of available moisture, he said.

While he supports the ‘seed early, seed light’ approach, he cautions against dry-seeding longer-season crops or varieties unless growers are ‘locked in by herbicides or rotation issues’.

“Dry-sowing a longer-season crop can be a disaster if rains don’t come until late.”

NSW growers who want to time flowering for a particular ‘window’ in the growing season can use the ‘Sowman’ program to find out the best seeding time for their district.

It can be accessed by visiting <http://cropmate.agriculture.nsw.gov.au/>, clicking on ‘sowing’ near the bottom of the left-hand bar and selecting ‘Sowman’ from the ‘Decision Tools’ menu.

WA growers have a similar ‘flowering calculator model’ for varieties grown in WA.

In practice, many farmers achieve a spread of sowing, flowering and harvesting dates because of the time taken to complete seeding, he said, and there are logistical issues associated with spreading varieties across several time slots, with trucks,

groupers, augers and air seeders having to be emptied and cleaned each time there is a change from one variety to another.

A ‘staggered’ approach to seeding might also mean cleaning headers, chaser bins and trucks at harvest because it could make it difficult to harvest all of a variety in the one run, he said.

Barry Haskins, NSW DPI agronomist at Hillston, near Griffith, places a high priority on sowing early to maximise yield potential and have the crop flowering when there is little risk of frost, although in the central NSW environment, a grower who isn’t carrying a 10% frost risk may not be maximising yield potential, he said.

Mr Haskins is comfortable with seeding the longest-season [latest] variety first, followed by mid-length then ‘early’ short-season varieties because sowing later means less time for the crop to develop before season cuts out.

He recognises this could be seen as increasing rather than spreading risk because it tends to mean all the varieties are flowering and filling grain at about the same time but the story is not that simple, he said, because some varieties can flower over three of four weeks because of their grown habits.

“It is important to know the characteristics of each variety being sown and understand what that means in the paddock.

“There is considerable potential for growers to spread production risk by taking advantage of the growth habits and other characteristics of different varieties.”

“Varieties such as Axe, H45 and Waagan produce only a few tillers and tend to flower over a very short period, often only three or four days.

“Others that tiller profusely, like Sunvale, can flower over two to three weeks because the tillers emerge over an extended period, with the heads on the early ones flowering well before those that emerge later. This automatically spreads frost and heat stress risk over a similar period.”

And some varieties are quite flexible when it comes to sowing time, Mr Haskins said.

“It is widely accepted that there is a yield penalty of 200 kg/ha for every week seeding is delayed beyond the optimal seeding date but that is an average. The actual figure varies considerably from variety to variety.

“Janz, for example, maintains yield potential across a wide sowing window and produces about the same whether it is sown moderately early or quite late.

“Whistler and Waagan, on the other hand, do not tolerate variation in seeding time well and drop yield rapidly if sowing time varies far from the ideal.”

In the Griffith district the best option is to sow early and sow light, he said.

“In this region there is a strong correlation between time of sowing and vegetative index, so it is important to reduce the seeding rate when sowing early.

“Early-sown wheat is typically seeded at 15 to 20 kg/ha here because early-sown crops produce more tillers.”



THE LIKELIHOOD OF PRODUCING CROPS LIKE THIS CAN BE INCREASED BY GOOD SEEDING-TIME DECISIONS THAT REDUCE THE RISK OF LOSSES FROM FROST OR HOT, DRY CONDITIONS AT GRAIN FILL.