

“ Getting variety maturity class wrong can have massive implications.”

Navigating the maize

More from Maize

Maize is an appealing alternative break crop, especially with the expanding anaerobic digestion market, but just driving for yield can mean missing important management and agronomy. CPM explores how to manage it for the best returns.

Melanie Jenkins

Often grown by arable farmers as a break crop, maize provides a viable alternative to oilseed rape or sugar beet. It has several market opportunities, including as forage for livestock farmers, maize for grain or as a feedstock for anaerobic digestion (AD).

A greater focus on management could bolster the return on investment, believes Jonathan Payne, seed specialist at Nickerson Seeds.

“Maize provides an alternative to cereals and an opportunity to help fight blackgrass due to its spring drilling date. It’s a viable crop in its own right, and there’s been a sharp increase in the area grown in recent years.”

The crop is certainly a financially viable

option as it’s less reliant on pesticides than other crops, he adds. “As long as you do it right, maize is a lot more secure and lower risk than some of its alternatives.”

“Unfortunately, sometimes maize can get a bad reputation. But if variety selection and soil management are right, it can be a good option to increase soil organic matter rather than deplete it.”

But its market and variety choice need to be considered in unison, he advises. “As growers are frequently paid per tonne of freshweight, they just tend to look at yield, as that’s what they’ll get paid on,” says Jonathan.

Maturity

It’s later maturing varieties which often offer the highest yield on paper, but when it comes to the realities of growing the crop, they can fall short of realising this potential. “We’ve found with late varieties that often the crop won’t mature, cob formation won’t be correct and growers don’t end up hitting their yield expectation.”

Later maturing varieties can also lead to delayed harvests, poor fermentation of wet maize, problems resulting from clamp slips and knock-on impacts for the following crop, especially if soils are too wet at harvest and compaction issues ensue, he explains.

“Many growers are going into maize but aren’t getting the results, including harvest date, they anticipated because of using an

inappropriate later maturing variety. Getting the maturity class wrong can have massive implications.”

But as each farm is unique, it’s a case of scrutinizing which variety will work best on each one, suggests Jonathan, and that means knowing which will suit your soils and location.

“The FAO maturity class system offers a recognised guide but knowing how varieties will perform in different areas is key as well,” he says.

Early varieties require fewer Ontario Heat Units (OHU) to mature than later maturing varieties and they will be fit to harvest sooner, in better conditions and don’t carry any yield penalty. With an ▶



Jonathan Payne stresses that it’s important to know which variety is right for any given situation, so that yield and quality go hand in hand.

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Drilling into moisture is the key when planting maize, even if it means going a little deeper.

▶ FAO 170 score, LG Prospect requires fewer OHUs to reach maturity, whereas LG Mantilla has an FAO score of 210 and will need more OHUs to mature, requiring a warmer site or longer growing season.

“Nickerson does a lot of farm scale trials to really understand how varieties will perform in different locations, and this can help highlight which variety is right for any given situation, so that yield and quality go hand in hand.”

But if growers are paid on yield, why is maize quality important? Potential biomethane yield doesn't necessarily correspond to yield because it's based on crop quality, he explains. “It's not unreasonable to assume AD plant owners might put more emphasis on quality in future as there can be a big difference in gas output from varieties.”

Within the Nickerson portfolio, everything is about quality whether for AD or for the rumen of a cow, he explains. The factors affecting quality in maize are the starch content and the Cell Wall Digestibility (CWD). As around 50% of the total energy in a maize crop is in the vegetative parts of the plant, it's crucial that these cell walls are as digestible as possible with low levels of lignin.

Aside from picking the right variety with a suitable maturity rate and excellent quality attributes, there's plenty more growers can do to optimise growth, he explains. As well as considering soil type, selecting a variety with early vigour can help get crops up and away, says Jonathan. Varieties like LG31207, which has tremendous vigour, will establish quickly which translates into better yields, especially if sown into warm, moist soils.

For those in a conventional tillage system, his advice is not to lose too much moisture prior to drilling. “If you do too much seedbed preparation, you can lose moisture quickly. So do as much of the primary cultivations as you can early.”

When considering drilling depth, if crops

are drilled into moisture at 10cm or below and the seed bed is loose, Jonathan doesn't see a problem. “But if you drill into dust, you won't see a seedling until you get rain. So be precise about placing the seed where the moisture is.”

Establishment

Jonathan isn't a fan of calendar date farming and with maize finds soil moisture more important than temperature. Though generally lighter soils want to be at least 8°C at sowing depth and heavier soils 10° three to four days prior to drilling, he says drilling into moisture is the key factor, even if it means going a little deeper.

Most maize crops will be sown at 105,000 seeds/ha, but this can vary depending on variety, explains Jonathan. For earlier varieties he'd advise nearer 111,000 seeds/ha and later ones 99,000 seeds/ha.

It might also be worth looking at the row spacings on drills, he suggests. “A lot of data about maize is based on 75cm row spacings, but plenty of farmers are running at 50cm and varieties will perform differently with different row spacings,” explains Jonathan. “How they perform will be down to cob formation; more grain-type maize will perform better on narrower row spacings because these tend to encourage a bigger cob.”

For those drilling maize early, Jonathan advises not putting the full amount of fertiliser down the spout with the seed but to go in with a later application. “At establishment, concentrate on retaining moisture and put a nutrient seed treatment on with trace elements to maximise root growth. This way crops will be better structured to take up moisture and nutrients quicker.”

He suggests looking closely at trace elements such as copper, zinc and manganese to create a healthier plant and to stimulate the uptake of nitrogen (N). “Maize takes up 30% of its N requirement



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post-flowering, therefore, if the maximum amount of N is applied too early, a lot will have been lost by the time the plant requires it. So look at split dosing.”

Another highly important aspect is to make sure varieties senesce correctly before harvest, adds Jonathan. “There are very late-maturing varieties on the market that rely on poor disease profiles to push senescence. In this case, all of the crop quality will have been eaten by fusarium in high pressure years, but in low pressure years the crop won't die.”

The newer LG Varieties are bred to remain healthy and to photosynthesise right up to harvest, without relying on becoming diseased to achieve an increase in dry matter percentage, so provide a longer harvest window.

Summing up, Jonathan believes that paying attention to detail when selecting a maize variety can pay dividends — there really is a variety for every situation. Get it right and maize can prove to be a reliable break crop with good marketability that also contributes to the bottom line.

“If growers want long-term contracts with their buyers, growing good quality crops — based on early maturing, high quality varieties with excellent agronomic characteristics — will lead to stable relationships,” he concludes. ■

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In this series of articles, *CPM* has teamed up with leading maize breeder LG to investigate ways maize can bring added benefits to arable farms, as well as the key agronomy and market factors to consider for success. Continuously improving genetics has contributed to the growth of the crop in the UK, with a wide range of varieties now available to suit different situations.

LG is a brand of plant breeders Limagrain, a

farmer-owned co-operative dedicated to developing new varieties of arable, forage and small seeds for farmers and growers. The new varieties the company introduces every year from its breeding and research programmes offer benefits of — increased yield, stronger agronomic characteristics, and better disease resistance.

