

# Maize works

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## Technical More from Maize

Arable farmers have a great opportunity to diversify rotations and add a new income stream with maize. CPM considers some key issues.

By Natalie Noble

Modern maize varieties are opening the doors for maize cropping on arable units — for neighbouring livestock farms or anaerobic digestion.

About a decade ago little maize was grown on pure arable farms. The introduction of anaerobic digestion plants prompted a rise in production, says Tim Richmond, UK maize manager at LG Seeds, such that maize for AD now represents 25-30% of the country's total maize acreage.

Initially a lack of knowledge and experience led to immature harvests and waste, he says. “I think the temptation was to grow the biggest pile of fresh yield. Crops were harvested too early with watery, leafy plants and underdeveloped cobs, resulting in low dry matter (DM) and energy wastage from sugars not converting to starch within the cob.”

Selecting later maturing varieties, which at the time significantly out-yielded earlier varieties, was also an issue. “It either results in harvesting before the crop has matured, or later in poor conditions,” he says.

That can delay the establishment of wheat and successive crops.

“A focus for LG has been breeding varieties that are early maturing with shorter growing seasons, but at the same time deliver on yields, starch and digestibility,” explains Tim.

In the past 15 years LG has achieved a 2% gain in DM content — which on average equates to one week earlier maturity and a yield increment of an additional 3t/ha of DM.

### Wheat priority

“For most arable farmers the priority will be getting wheat in the ground — that mustn't be compromised,” he says. “But farmers can now plant an earlier maturing variety without yield penalties — even on less favourable sites.”

Even so, growing maize successfully still comes down to the right site, variety and end user, says John Vickery, regional technical adviser at Agrii.

“Growing maize is very site specific. Most arable farmers are looking for a break crop with wheat following, so the most viable end user will be livestock producers or AD plants.”

There may be potential for the crop to be combined for the grain or crimped maize market, but John advises consideration must be given to the rotation, due to later harvesting dates and trash management. “It may really reduce the chance of getting wheat in.”

Location will also influence the outlet. “In the West, where we see more livestock farms, maize is predominantly grown as forage,” he explains. “In the East, it's more

often grown for AD plants.” But growers should be aware whether the end user expects the maize to be stored on site or can accept it at harvest, he adds.

Maize is one of the better paying break crops, says John. “With the exception of oilseed rape, maize grown well should out-margin pulses and linseed.”

Worth around £30/t fresh weight (FW), before harvesting costs, it's generally subject to adjustments on dry matter and nutrient values — although that will depend on the end user.

“Deals may also be struck on a trade with digestate or farmyard manures, which is attractive given current fertiliser prices — and may help end users keep within nitrogen and phosphate limits.”

Ideally growers should be aiming to grow 40t/ha FW or more from a variety with high



Earlier maturing maize helps arable farmers get the next wheat established in time, says LG's Tim Richmond.



## More from Maize

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, highlighting the key factors growers need to consider. It shows just how genetics has contributed to the development of the crop in the UK, and the scope for getting it right on your farm.

LG is a brand of plant breeders Limagrain; a farmer owned co-op 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 to farmers and growers: increased yield, stronger agronomic characteristics, and better disease resistance.



*Maize success demands the right site, right variety and right end user, says John Vickery, regional technical adviser at Agrii.*

energy content per hectare that reaches 30-32% DM by the first week of October, advises John.

With seed, fertiliser and crop protection costs totalling around £450/ha, it's important growers select the right variety for their rotation and site, he believes.

So how can they do that? Maize maturity is all about heat units; in the UK it needs at least 2,500 Ontario Heat Units (OHU) over the growing period. Earlier varieties require fewer units while later and higher-yielding varieties need more.

But breeding has opened the door for less favourable sites with fewer heat units and challenging soils. "Newer varieties have the potential to achieve 40t/ha FW and be harvested by the first week of October in

eight out of ten years," says John. "LG Gema and LG Resolute are very early and early maturing varieties, respectively, that give a high DM and starch yield, even on less favourable sites."

### Agronomy issues

Maize tends to increase fusarium risk, especially when growing for combine and crimp, he says. "Minimum tillage or direct drilling into stubble also increases this risk. Growers should have a plan to deal with it accordingly, like a T3 fungicide." Maize has an advantage over most other spring sown crops when it comes to combatting weeds like blackgrass. "It allows that extra month for a spring flush before applying glyphosate," he explains. "However, contact

grassweed herbicides used in maize are based on the same ALS chemistry as cereal products; which has the implication that if blackgrass carries high levels of resistance, control is not guaranteed."

Producers can also grow a cover crop ahead of maize, keeping it in the ground until around March, benefiting soil health and providing a window to generate additional income from winter grazing.

Work is also looking into the benefits of strip tillage, he adds. "There are quite a few advantages including considerably reduced cultivation costs, improved soil health and better moisture retention." ■

## West Country maize success

Andrew Spratt and his family farm 288ha at Hazel Farm, near Bristol; a mix of tenanted and contracted land comprising both sandy, stony and heavy clay soils.

"At home we grow a rotation of wheat, beans, wheat, and maize — and on the contracted land we grow first and second wheat, spring barley and beans."

In 2019 maize made its debut after Andrew's OSR completely failed for two consecutive years due to cabbage stem flea beetle.

"I saw maize in a neighbouring field and knew the farmer had no need for maize himself," he explains. "I found it was being grown for a neighbouring dairy farm."

Andrew reached an agreement with the dairy farmer and sought advice from his agronomist John Vickery. "The main priority was to grow a crop that would yield well and be ready for harvest in time for the following wheat," he says.

In the first year Andrew grew 24ha of P7034 — an early maturing hybrid. "We ploughed and power harrowed before a contractor precision drilled the seed on 29 April 2019," he says. "We saw a 3-4% germination loss which I think was down to the soil drying out."

Harvested on 19 September after a good growing season, the crop yielded 39.5t/ha at 31% DM.

In the second year Andrew increased the area to 48.5ha — but variation in ploughing brought a marked difference in crop uniformity. Harvested on 18 September 2020 it yielded 31.2t/ha at 33.7% DM.

The third year saw a change in variety and cultivations. "I wasn't happy with how quickly the crop was drying down so John recommended early variety LG Resolute," he explains. He used a flat lift and disc to prepare the seedbed to aerate and help retain soil moisture — the crop was then precision drilled with a high-speed drill.

"We pretty much got 100% germination and, although there was slight crop stress early on, it grew away well and was very even."

Cut on 13 October 2021 it yielded 41.3t/ha at 34.3% DM with 11.5MJ/kgDM and 35.6% starch.

Andrew now has an annual fixed price (£/t) agreement with the dairy farmer with a positive adjustment for each 1% above 30% DM. Andrew pays for all work and costs up to harvest, while the dairy farmer covers the harvest contractor and delivery.



*Maize for a dairy farming neighbour has replaced OSR on Andrew Spratt's farm near Bristol.*

In addition, Andrew buys 25t/ha of farmyard manure (FYM) from the dairy farmer at a fixed price per tonne.

"It's a mutually beneficial agreement," says Andrew. "I have a productive cash crop that provides a good break without compromising the rotation — it's more profitable than beans — and my neighbour can feed an efficient crop they don't have the acreage to grow themselves."