

# myKWS MAIZE

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George Davis has been experimenting with the technique for the past couple of years

SEEDING  
THE FUTURE  
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# Welcome...

...to the winter 2023/24 edition of myKWS newsletter.

There is plenty to cover in this issue, with the latest news on the seed dressing regulations and a farm case study on one of our top varieties, KWS Temprano, which is grown for anaerobic digestion on a farm near Exmoor. Meanwhile, Somerset-based milk producer, George Davis, gives an update on the success of his experiment with maize strip-tillage.

## Reflecting on the 2023 maize season

ANDREW COOK, KWS

**Maize crops are safely in storage and the vast majority of growers are pleased with the results, with early-drilled crops given plenty of opportunity to catch up after a somewhat shaky start to the season, due to high rainfall in some areas.**

Grass yields were also generally favourable for livestock producers and hopefully forage stocks are replenished and will last well into next autumn.

It is always advisable to allow time for newly-ensiled maize silage to settle in the clamps, where possible, as it allows starch to increase in degradability by the point of feed-out.

Looking ahead to spring sowing, we have a wide range of top-performing varieties for you to choose from, whether you grow for forage or for AD plant supply. Our latest **KWS Maize Variety Portfolio** can be downloaded at [www.kws-uk.com](http://www.kws-uk.com), or you can order a paper copy version by emailing [maize@kws-uk.com](mailto:maize@kws-uk.com)



Andrew Cook

# SEED DRESSINGS REGULATIONS UPDATE

Overall, it's good news for maize seed dressings, with emergency authorisations granted for three key products just in time for us to organise fungicide, insecticide, and bird repellent seed treatments for the spring sowing season.

Three products were facing withdrawal: **Redigo M**, **Korit 420 FS**, and **Force 20 CS**. However, the industry joined together for a lobbying campaign, which led to the granting of emergency authorisations by the Chemicals Regulation Division of the Health and Safety Executive, to allow their continued use for 2024.

Subsequent to this, it was announced that parliamentary approval has been granted to extend the use of plant protection products until July 2027. The pesticides used to treat the seed must have been authorised in an EU country before the end of the implementation period and must remain authorised, to ensure that they have passed through a strict regulatory regime.

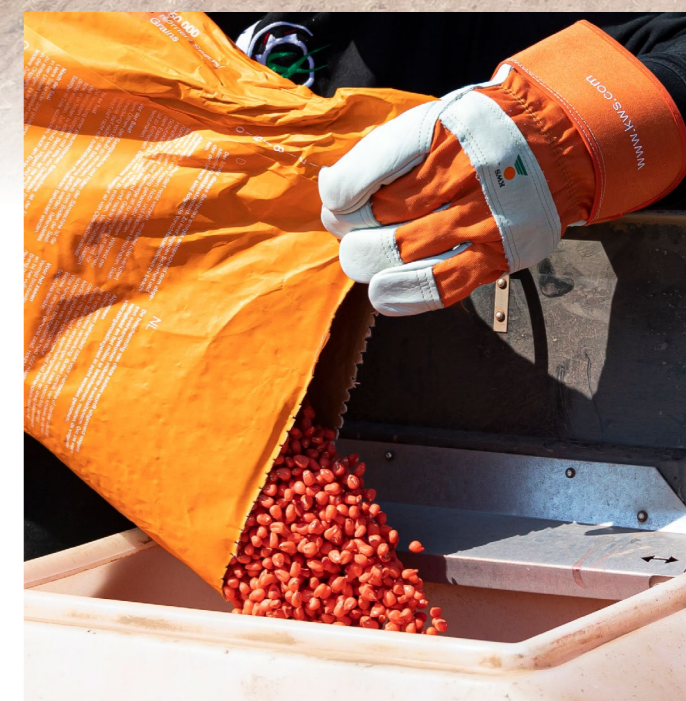
For 2024 sowing, all our maize seed will be treated with our very effective product, Initio Bird Protect. As an extra bonus, our new product, Initio Pro, will be added to specified varieties.

### InitioBirdProtect

– contains active fungicide and bird repellent ingredients, plus zinc and manganese, to promote healthy root development.

### InitioPro

– Initio Bird Protect + Force 20 CS (tefluthrin) an effective insecticide for wireworm protection.



## Seed Dressings Regulations Background

**Post-Brexit regulations require approval for all UK pesticides by the GB Pesticides Approval Register.**

The licences for the three treatments were due to run out on 1 January 2024, with no use-up date permitted.

The revised legislation gives the key products a use extension and/or allows more time for new registrations to be completed.

# Maize for AD/Biogas

JAMES VERNEY, CROSSE FARM, SOUTH MOLTON, DEVON

“It was a difficult spring. Roughly 75mm of rain fell on the early-drilled crop but the later drillings fared much better.”



James Verney

The Verney family farms on the edge of Exmoor, with the land described as “marginal” for the maize that has been grown for a local anaerobic digestion (AD) plant for the past six years. Maize varieties must be early-harvesting and have the potential to perform well in the location, which is 600 feet above sea-level, explains James. He grew Perez KWS and KWS Temprano for harvest 2023.

“Perez is early to harvest and has been our mainstay variety for a decade, but our agronomist also recommended KWS Temprano, as it requires even fewer days to reach maturity by comparison,” says James. “This proved to be good advice and the Temprano was cut 10-12 days earlier than the main Perez crop. It was harvested alongside two fields of Perez at the beginning of October and the rest of the maize was cut one week later.”

“Earliness is a key factor for us, as it allows plenty of time to sow the following wheat crop and minimises the risk of soil structure damage. In addition, our location means that we sometimes struggle to achieve the required heat units, so a short growing season is preferable.”

The baseline for the AD plant’s payment system is a minimum 16.2 tonnes/acre at 32% dry matter, with a premium paid for every additional dry matter percentage.

“While the Perez and the Temprano looked fairly evenly matched for the majority of the season, the Temprano matured rapidly in September,” he comments. “It was early to harvest and produced a dry matter figure of 38-39%, compared with the Perez at 32%. Temprano’s high dry matter contribution brought up the average figure when the varieties were combined for storage. This helped us to meet the plant’s baseline specification.”

“Temprano fulfilled all the promises in the varietal description and yielded 14 tonnes freshweight/acre, which equates to 5.46 tonnes of dry matter per acre. Meanwhile, the Perez yielded 16 tonnes/freshweight/acre, which is equal to 5.12 tonnes of dry matter per acre. The valuable contribution of Temprano to the overall dry matter of the crop and good performance on our marginal site means that it will be sown again next season.”



“Our maize growing programme relies on consistent performance and KWS Temprano has exceeded our expectations.”

The farm usually grows 100-120 acres of maize annually, with 70 acres of Perez and 40 acres of Temprano sown for 2023, explains James, who farms with his parents, Dawn and David, and his brother, Edward.

“It was a difficult spring. Drilling usually starts on 1st May and some of the crop was sown on 3rd May, following a crop of rye. Roughly 75mm of rain fell on the early-drilled crop and the later drillings fared much better, with sowing completed by 18th May.”

Crosse Farm has a wide range of enterprises, with 800 dairy goats, a flock of 12,000 laying hens and a sheep flock, as well as 600 acres of arable land. The soil type ranges from a heavy clay loam to a more free-draining shellate, with the latter chosen for the maize fields.

“Maize used to be grown for a local dairy farmer, but the opportunity to supply the neighbouring Ixora AD plant was very welcome,” says James. “It pays for our maize silage on a monthly basis and that is very good for business cash flow. Our maize growing programme relies on consistent performance and Temprano has exceeded our expectations.”

## AGRONOMIST PERSPECTIVE

The Verney family’s agronomist is Neil Potts of Matford Arable Systems, who is Devon-based. He describes KWS Temprano as an “insurance policy” for Crosse Farm.

“Temprano fitted the bill, given the farm’s altitude and the requirement for an early harvest,” he says. “Perez KWS is an early variety, but Temprano pushes the boundaries even further. It has delivered strong performance and earned its place in next year’s maize rotation.”

One of the main challenges for maize growers in his region is the N-max regulation, which sets an annual 150kgs/nitrogen/ha limit to the crop on land which falls into a nitrate vulnerable zone, he says.

“The optimum nitrogen application rate for maize is 200-220kgs/ha, a figure which includes organic manures and/or AD plant digestate,” says Neil. “It is a good policy to analyse any organic manures that are being applied, in order to maximise nitrogen delivery without exceeding the set limit and to balance the total rate when chemical fertiliser rates are included.”

“One option for delivering nitrogen to maize is to use one or more foliar nitrogen applications. These operate with greater efficiency compared with soil-applied nitrogen, as they are delivered directly to the leaf at a stage of improved uptake by the plant. Therefore, 7-8kgs/nitrogen/ha applied as a foliar spray has the potential to achieve a response similar to 35-40kgs/ha of soil-applied nitrogen.”

“Foliar nitrogen should be applied to maize as late as possible. The ideal timing is when the plants contain plenty of biomass, but before the size of the crop precludes travel. In terms of pence per kilogram, a foliar nitrogen product is more expensive. However, when the yield response is factored in, it makes good economic sense, despite the additional cost of one or two passes with the sprayer. The price of nitrogen has exceeded £1,000/tonne in recent times and it has focused growers’ minds on making more efficient use of the nutrient,” says Neil.

## KWS TEMPRANO FAO 150

- Ultra early variety
- Rapid dry down, for an early harvest
- Very high starch content – 38.9% in trials
- Yield average 19.4t/ha in trials
- Suitable for AD or livestock forage
- Superb early vigour

## PEREZ KWS FAO 160

- Early variety
- Ideal for late drilling on favourable sites
- Starch at 35.5% in trials
- Strong DM yield in its segment (98%)
- Suitable for light or heavy land
- Recommended for AD or livestock forage
- Excellent early vigour

## TOP TIP!

**Maize for AD** – use a range of varieties to help spread harvest dates, target high freshweight yields and good disease resistance ratings

“Temprano fitted the bill, given the farm’s altitude and the requirement for an early harvest.”

Neil Potts



## MAIZE SILAGE

# Dairy Cow Diets

ANDREW COOK, KWS

Andrew Cook explains how maize silage is processed in the rumen and looks at the effect of varying inclusion rates, as well as offering some advice on varietal choice.

With dairy margins under pressure, the desire to produce milk from home grown forage is, as ever, high on producers' agendas. Producing plentiful high quality feed, which increases milk production whilst promoting a healthy rumen, and minimising metabolic disorders is the way forward. Maize is ideal for this and optimising its inclusion in the ration can deliver all round results. Producing excellent starch contents, and at a target dry matter in silage of 30-33% will form the basis for success.

### THE SCIENCE BEHIND THIS

Some 80-90% of maize silage is digested in the rumen in a generally rumen friendly manner, with the remainder passing into the small intestine where it becomes by-pass starch; a readily-available energy source which promotes yield. Its positive effect will increase proportionately, as maize silage inclusion levels rise.

"Research has indicated that including maize silage in the ration will encourage dry matter intakes and increase liquid and protein yields," he says. "One trial which compared maize silage inclusion rates showed that a diet containing only grass silage as the forage element gave an average DMI/head of 9.8kg/day, while the figure for an inclusion rate of 66% grass silage and 33% maize silage rose to 11.2kgs/day. When grass silage made up 25% and maize 75%, DMIs went up to 13kgs/day.

"A similar effect was noted on milk protein percentages, with cows fed on grass silage-only averaging 3.0%. At a ratio of 66% grass to 33% maize, milk proteins increased to 3.1%. For a 25% grass to 75% maize ratio, 3.2% was recorded. However, butterfat production was slightly reduced as maize silage inclusion increased."

### Maize inclusion compared with grass silage-only diets

Silage Inclusion	Grass (100%)	Grass (66%) Maize (33%)	Grass (25%) Maize (75%)
Forage DM Intake (kg/day)	9.8	11.2	13.0
Milk Fat (%)	4.2	4.0	3.9
Milk Protein (%)	3.0	3.1	3.2
Increase in Milk Yield (kg/day)	-	+3.2	+5.5

Source: Cedar (university of Reading)

There are limits to the level of starch that can be digested by a dairy cow, he points out.

"A cow can only digest a daily 1.5kgs of dietary starch in the small intestine as by-pass starch. In addition, the amount of starch and sugar combined should not rise above 250kgs of dry matter in the total diet. Overstepping these limits can result in acidosis, so the ration should be calculated according to this maximum figure."

The energy content of maize silage for dairy cow diets is an important consideration when selecting a variety, says Andrew.

"KWS has introduced an initiative to help with varietal selection. It divides key varieties into two sections, with **EnergyBoost** varieties containing the highest energy and starch concentrations. They include a new flagship variety, KWS Temprano, which is ideal for producers who feed high grass silage inclusion rates.

"Meanwhile, our **SiloBoost** varieties are noted for their potential to deliver a combination of high dry matter content and starch yields. They are best suited for units which include maize silage at higher rates and where maximum forage yield is a main priority; one example is our top-performing variety, Papageno."



“Research has indicated that including maize silage in the ration will encourage dry matter intakes and increase liquid and protein yields”

Andrew Cook

## UPDATE

# Maize Strip-Tilling

GEORGE DAVIS, WEST BODDEN, SHEPTON MALLET, SOMERSET – 300 COW DAIRY HERD

It's a thumbs up for maize strip-tillage from George Davis, who has been experimenting with the technique for the past couple of years. He strip-tilled 13-hectares out of his 120-hectare total maize acreage this past season and it yielded an extra couple of tonnes/hectare, compared with the conventionally-grown crop.



"Overall, the strip-tilling trial went well and the cost saving is significant, compared with plough-based establishment," says George. "It also reduces compaction and preserves the soil structure. The strip-tillage maize yielded 32.5 tonnes/ha, with 28-30 tonnes/ha for the conventionally-grown crop.

"Strip-tilling will be used across the majority of our maize land for spring sowing. KWS Augustus has shown that it suits the farm and it is early to harvest, allowing time to get an autumn wheat in, so it will be sown again for the coming spring."

"The system is still a learning curve for me, but it has become clear that timings are more critical compared with conventional growing methods, and adequate soil moisture is an essential requirement. Conditions were right during the third week of April and that is why the strip-tillage maize went in early.

"The conventional crop was not sown until the first week in May, so it was not surprising that the strip-tilled maize came in at a slightly higher dry matter, as it had had more time to mature. Harvest started on 22nd September and the job was finished in 2.5 days, with everything going smoothly.

"The cobs from the strip-tilled maize were a very good size and the plants were not under stress, so they grew to their full potential and the crop was

sold to a neighbour. Overall, the farm had a very good year for maize in 2023 and our two best fields produced a 38 tonnes/ha yield."

The farm background and maize strip-tilling system at West Bodden were fully outlined in our summer 2023 newsletter edition. Here's a summary:

- Maize variety priorities: early harvest; high yields and good starch potential
- Maize usually follows a cover crop after winter barley and precedes winter wheat
- Maize strip-tilled in 8 rows, 6-metres wide, following a cover crop treated with glyphosate
- Strip-tilling – 75cms spacings
- Conventional crop sown at 103,000 seeds/ha but strip-till maize sown at 110,000 seeds/ha, due to earlier drilling into cooler soils
- Machine used – Kuhn Striger 600 (purchased by the business)

George farms in partnership with his parents, William and Teresa and his sister Jess, who runs the dairy unit.

*"Soil pH must be correct before maize is strip-tilled. Fairly light land is required and plenty of organic matter will help with strong root development."*

GEORGE DAVIS

### CONTRACTING SERVICES

The Davis family runs an arable and grassland contracting service (including strip-tillage), trading as J and W Davis Ltd.

### ? DID YOU KNOW?

Varieties in the higher FAO (maturity) range do not have quite the same degree of low temperature tolerance found in lower FAO varieties, which fall into the ultra-early and early categories.

# Missed our **Field Days?**



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