myKWS MAIZE

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SEEDING THE FUTURE
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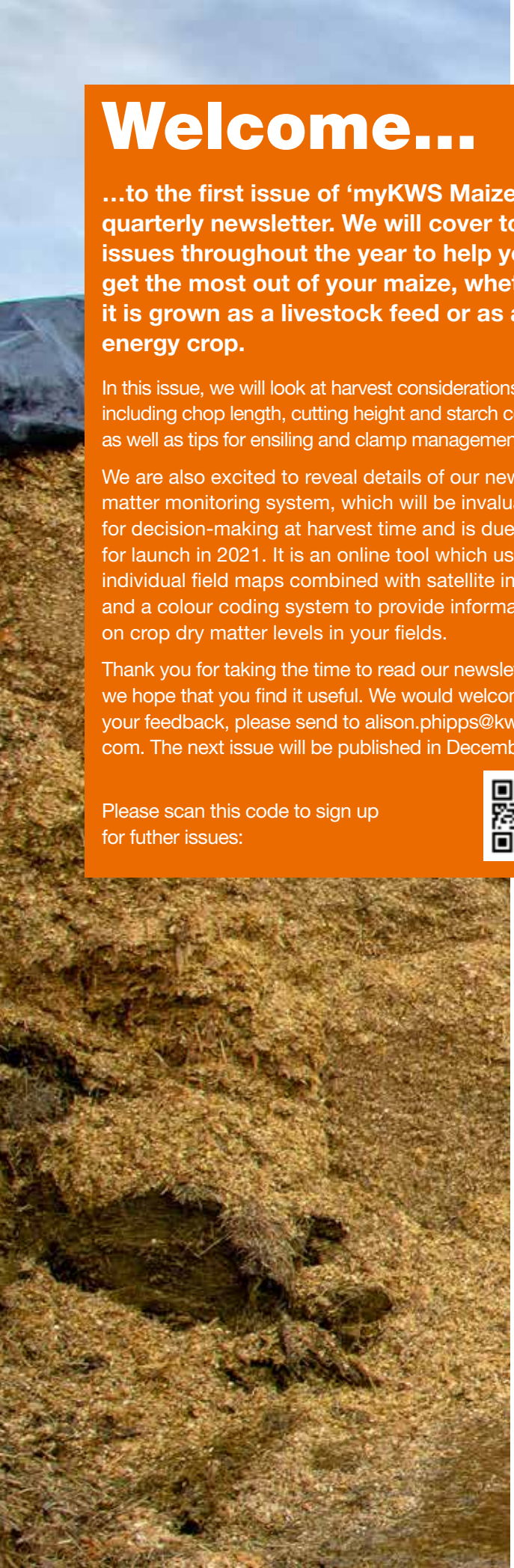


Welcome...

...to the first issue of 'myKWS Maize' quarterly newsletter. We will cover topical issues throughout the year to help you get the most out of your maize, whether it is grown as a livestock feed or as an energy crop.

In this issue, we will look at harvest considerations, including chop length, cutting height and starch content, as well as tips for ensiling and clamp management.

We are also excited to reveal details of our new dry matter monitoring system, which will be invaluable for decision-making at harvest time and is due for launch in 2021. It is an online tool which uses individual field maps combined with satellite imagery and a colour coding system to provide information on crop dry matter levels in your fields.

Thank you for taking the time to read our newsletter; we hope that you find it useful. We would welcome your feedback, please send to alison.phipps@kws.com. The next issue will be published in December.

Please scan this code to sign up for futher issues:

MAIZE VARIETY PORTFOLIO 2020

The new variety portfolio will be released on 6 September 2019.

Divided into forage and biogas sections, the portfolio contains a handy reference chart to compare traits and performance between varieties and assess their suitability for your growing situation. It also offers tips on drilling and recommended seed rates.

Our maize hybrid breeding programme has been very successful and we have made great strides in producing hybrids with maximum potential for both yield and quality. Copies of the portfolio can be downloaded from our website at www.kws.com or request your postal copy by emailing maize@kws.com

Maize Round-up

The droughts of 2018 have thankfully not returned this season and it is looking like a much more 'normal' year, writes KWS product manager, John Burgess.

"2019 has been far more in line to the long term average in terms of drilling conditions, heat units and crop development. Despite the high residual soil moisture deficit left from 2019, there has been adequate ongoing rainfall this season, so we can expect none of the drought and associated crop failures which caused real yield losses for some farmers, especially those in East Anglia last year".

"Maize yields for 2019 are likely be equal or exceed those from 2018, but with far more consistent dry matter ranges, as a lack of drought will allow better grain filling and starch laydown too", concludes Mr Burgess.

HARVEST CONSIDERATIONS

The KWS variety portfolio is focused on the breeding of varieties which offer maximum flexibility to the harvest window.

This will reduce the risk of low dry matter and generally poor quality silages in a difficult season. Some have been bred specifically for their ability to require fewer days to reach maturity but do not come with the yield penalty that was associated with earlies in the past. These have a lot to offer, particularly when it comes to maximising opportunities for harvesting before the weather closes in. The aim should be for dry matter to reach 33%.

Patience is Key at Harvest

As autumn approaches, it can be tempting to harvest maize before it is fully mature, in order to avoid problems at harvest. In general this is not recommended practice, unless extreme conditions prevail. Consider the use of an additive, especially in a difficult season. However in cases of serious eyespot infection, an early harvest may be the only option.

Effects of harvesting too early

- Quality and quantity may be compromised
- Can cause problems in the ensiling process
- High levels of acidity
- Reduced energy, starch and ME silage content
- Low palatability of livestock feed and negative effect on DMIs
- Higher risk of effluent – crop may require a longer chop length (20mm+)

Effects of harvesting too late

- Poor clamp stability
- Increased costs
- Higher risk of losses
- Low digestibility and palatability
- Difficulties with clamp consolidation – crop may require a shorter chop length (15mm)
- Soil damage and compaction issues can carry over to the following year

Grain maturity	Description	Cob DM (%)	Whole plant DM (%)
Milk	Grain immature Avoid premature harvesting	10-15	< 20
Soft dough	Grains become firmer. Husks remain green	20-28	20-27
Hard dough	Silage maturity reached at 'hard dough' stage. Reduced risk of clamp effluent	30-45	28-32
Hard ripe	Grain at 'hard ripe' stage. Crop ready for late cut silage or CCM	48-50	33-35
Fully ripe	Grain fully matured Husks died back Ready for crimped maize or late cut CCM	65-70	36-45

Tips for Assessing Maize Crop Dry Matter

The cob:stover ratio in a normal growing season is around 45:55 (often 50:50 + for 'ultra-early' FAO 150-160 hybrids)

For 2019 – this ratio is exactly within the normal range (typically 40 : 60 cob : stover), so judging DM% by grain fill, or the classic 'milk line or thumbnail test' will give a better indication of crop ripeness. “Farmers must however always remember to assess the level of sap moisture in the lower stem base, particularly in higher fertility situations,” says Mr Burgess.

Key actions ahead of harvest:

- Check the grain milk line in September
- Cut the plant above the first node (around 15 cm) from the soil surface
- Twist the stem to assess moisture content
- The stover should be drying out prior to harvest

Cutting Height

Increasing the cutting height will boost the starch content of maize silage, although this gain will be offset by a decrease in dry matter yields.

Chop Length

Chop length determination will depend on weather conditions and the end use. In high rainfall situations, or when harvest has been delayed, a longer chop length of about 20-25mm will help to reduce effluent. In general, aim for a chop length to suit your silage feeding needs, longer for dairy of beef (20 – 25mm) to preserve scratch factor, shorter for AD (6 – 10mm) to boost surface area for fermentation.

Corn Cracker Settings

On livestock farms with large acreages in particular, there is pressure on to achieve a rapid harvest, but it is important to make sure that cob kernels are broken down before the material is clamped. If kernals are ineffectively smashed, starch is less available to the animal. Corn cracker settings must be correct, even if this means accepting a slightly slower harvest throughput.

Tips for Ensiling Maize and Clamp Management

- Make sure new maize goes into a clean clamp, to prevent later spoilage
- A narrow design will help to minimise losses at the face

Problem Solving After Clamping

- Silage too wet? Use sodium bicarbonate or a specialised buffer product to raise pH levels
- Silage too dry? Use a liquid biological additive at the face, to combat heating and mould growth.

LIVESTOCK FARMERS

MAIZE FEED-OUT

KWS UK maize sales manager John Morgan stresses that newly-ensiled crops should be left to settle for as long as possible.

"Maize is like a fine wine; it improves with age. Opening up a new clamp will not allow enough time for the ensiling process to break down the kernels. The silage will lack energy and its rumen degradeability will be compromised."

"Starch levels peak in maize silage after six months, so it is best to wait 2-3 months before feed-out, if at all possible, although I appreciate that this target figure is not always achievable."

- Maize Silage Utilisation – Minimise Spoilage
- Aim to utilise one metre of maize silage a day across the clamp face in winter, with two metres as a general rule throughout the summer
- Keep a tight cut to minimise losses and reduce the risk of mycotoxin contamination
- Only roll back the clamp cover as far as necessary to access the silage
- Ensure that livestock troughs are cleaned out regularly

✓ TOP TIP

Spoilage is not always visible from the clamp face. Tunnel into a small section of the clamp on a weekly basis to check for mould growth.

Maize Silage Sampling

John Morgan of KWS recommends that growers take at least two samples of maize silage in the months after harvest.

"I consider it to be a risk to base a whole winter's ration on one maize silage analysis, because of the changes that occur over the fermentation period. Taking a second set of samples later in the year should show raised starch levels by comparison, and the total ration can be adjusted accordingly."

KWS Maize Demonstration Site

Lydney, Gloucestershire – Open during September

To book your visit please contact your merchant, or the KWS Office.

The KWS Maize demonstration sites at Lydney and St Briavels are unique in the UK, showcasing all aspects of Maize breeding and the full KWS maize portfolio and includes:

- Breeding demonstration
- Population wheel
- All current commercial hybrids
- New KWS forage and energy hybrids prior to commercialisation
- Sowing date trial
- Vaderstad row width trial (50cm v 75cm)
- Compare the UK's top 20 bestselling maize hybrids

Second demonstration site at nearby St Briavels at 600ft above sea level demonstrates the different growing and varietal effects experienced at altitude.

? DID YOU KNOW?

It is believed that maize plants as we know them have been in existence for 6,000 years.

9-10 September 2019

A Keynote Address, Dinner and Practical Day for AD Plant Owners, Managers and Growers

Guest Speakers

9th September

Philipp Lukas, MD Future Biogas
Carbon sequestration/AD future for the next 5-10 years

10th September

Nick Reynolds & Andrew Tenney, Vale Green Energy, Springhill Farms
– Why AD works for us and the future

To register please contact Alison Phipps alison.phipps@kws.com, 01594 528234.

Breeding for nitrogen efficiency

The KWS maize plant breeding team is currently analysing the genetic make-up of plants, to find out whether varieties of the future can be selected for high nitrogen efficiency. So far, they have found that the trait is influenced by many sections of DNA. Watch this space for more news on their progress.

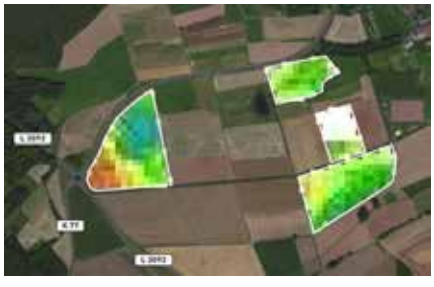
Look out for!

New – our short videos on facebook and twitter

Breeding for efficiency during photosynthesis

KWS scientists are working with other specialists to find out whether photosynthesis efficiency can be improved through breeding selection. They have reached the first stage of the investigation and the next step is to discover more through the use of gene marker technology.

New online dry matter monitoring tool for farmers



KWS is once again at the forefront of innovation, as experts are currently monitoring feedback from 25 UK farms taking part in a pilot study in preparation for the launch of a new precision harvest management tool. It will help maize growers with more accurate decision-making at harvest time. The dry matter monitoring system uses satellite imagery and is due to go live in 2021.

Using satellite imagery, growers of the future will be able to use a KWS online tool (accurate to 10 square metres) to view their own fields. An accompanying colour coding system will give a more accurate assessment of dry matter content than it is possible to achieve using the standard method.

The internet-based system uses the imagery in conjunction with mapping and other information provided by the grower, explains KWS' John Burgess.

"There can be a wide maturity variation within each field. This can present difficulties, when it comes to making a decision on harvest dates. The new KWS UK DM Monitoring tool uses satellite imagery alongside information on the FAO, or maturity rating, of a variety, combined with real-time data on rainfall, heat units and radiation on individual farms. A colour coding system will indicate whether the crop is too wet, harvest-ready or that DM content has exceeded the optimum figure."

"It should be particularly useful for growers with large acreages, as it will help them to prioritise those fields which are ready to cut. On smaller farms, it will also increase the accuracy of decision-making on harvest dates and we anticipate that it will improve yields and quality, as well as reducing the potential for silage losses."

*Post-launch, the KWS UK DM Monitoring system will cover 80% of the maize growing acreage and will eventually be rolled out countrywide.

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