# Crop maturity is the secret to perfect maize

Knowing when to harvest maize isn't a guessing game and should not be dictated by contractor availability. **Sarah Trickett** reveals what a difference a week can make in this step-by-step approach to maize harvest assessment

**Maize harvest should be dictated by crop dry matter rather than a date that suits the contractor.**

### IMPORTANCE OF HARVEST DATE

It's all too common that maize harvest is planned around contractor availability rather than crop maturity. And while agreeing to have the contractor on a certain date makes for an easy life, it could have significant effects as to how well the crop will feed to cows later in the season.

Harvesting maize at a dry matter level which is lower or higher than the ideal 32-34% will ultimately reduce the feed value and quality of the silage, according to Limagrain UK's Tim Richmond.

"It is important growers target to produce a maize silage content of at least 30% DM to produce a quality feed at a cost-effective price, and date of harvest and crop maturity are vital in getting the correct dry matter percentage," he says.

And crop maturity is so important because, as the crop matures, sugars produced from photosynthesis are deposited in the grain as starch, making starch one of the principal energy sources in the ensiled crop.

"Some research we conducted found maize harvested and ensiled three weeks before maturity had half the starch yield, and metabolisable energy was significantly lower than that harvested later."

That's why from September onwards growers should be looking at their crop every week to establish an accurate harvest date, as the crop dries down by about 2% a week, says Mr Richmond.

**TABLE 1: ASSESSING STOVER DRY MATTER %**

| Leaf description | Stem moisture | Stover dry matter % |
|---|---|---|
| Green | Juice emerging | 18 |
| Starting to turn yellow | Stem wet | 21 |
| Brown | Stem dry | 24 |

**TABLE 2: ASSESSING COB DRY MATTER %**

| Proportion of yellow in each kernel | Proportion still juicy | Cob dry matter % |
|---|---|---|
| 0.25 | 0.75 | 35 |
| 0.33 | 0.66 | 40 |
| 0.5 | 0.5 | 45 |
| 0.66 | 0.33 | 50 |
| All | None | 55 |

**TABLE 3: OVERALL CROP DRY MATTER %**

| DM % of cob | DM % stover 18% | 21% | 24% |
|---|---|---|---|
| 35% | 24 | 26.5 | 28.5 |
| 40% | 25 | 27.5 | 30 |
| 45% | 25.5 | 28.5 | 31.5 |
| 50% | 26.5 | 29.5 | 32.5 |
| 55% | 27 | 30.5 | 33.5 |

*Figures in table 3 also take into account non-grain parts of the cob such as the spindle and husk.*

PHOTOGRAPH: BREEZE AND FREEZE

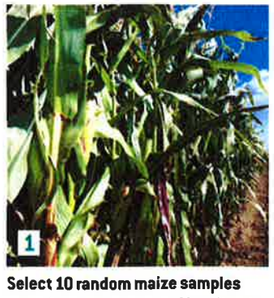
### ASSESSING MAIZE

But maize assessment isn't as simple as walking into a field and looking at the nearest cob for size and colour.

"Farmers need to be assessing a representative sample and looking at the whole plant rather than just the cob," as Mr Richmond explains in the simple steps to maize harvest assessment below.

### 1 SELECTING SAMPLES TO ASSESS

Walk into the field and get away from any gateways or headland before selecting cobs for assessment. Walk in a W shape and select a sample of 10 random maize plants to assess from different locations.



**Select 10 random maize samples away from gateways and headlands.**

### 2 ASSESSING THE STOVER

Once the samples are gathered, the first thing to assess is the green part of the plant – the leaves and stem (stover). These make up 50% of the bulk of the crop and a substantial proportion of the energy, according to Mr Richmond.

Take the stem and twist it. When there is juice emerging from the stem and the leaves are still green, then it is likely the DM content coming from the stover is 18% (see table 1 to aid stover DM prediction). The aim is to harvest when the stover has a DM of about 25%.

When the leaves are starting to turn yellow and the stem is still exhibiting a little moisture then the stover DM is likely to be about 21%.

**Assess the dry matter of the stover by firstly twisting the stem.**

The ideal situation is when the leaves are beginning to turn brown and the stem is dry. At this point it is likely the stover DM content will be at the ideal 24-25%. Other telltale signs the crop is close to harvest is when the leaves near the top of the plant are turning pale and papery.

### 3 ASSESSING THE COB

Assessing the cob is equally important, with the aim to harvest the plant with cob dry matter of 50-55%.

First, take the cob and do the thumbnail test and press in to the outer edge of the kernel to assess for juiciness. There should be no juice coming out when harvesting and the cob should be hard and glassy looking.

**Take the cob and do the thumbnail test to assess for juiciness.**

Second, snap the cob in half. Discard the top half as this will appear mostly the desired yellow/orange colour, which is misleading as to how much starch is actually in the cob.

Then look at an individual kernel to assess the proportion that is yellow (starch). The ideal is to have 75%-100% of the kernel yellow instead of milky and to have no milky liquid excreted when pressed. When both of these criteria are met, then the dry matter of the cob will be at the ideal 50-55% (see table 2 for other figures to work out cob dry matter content).

**Snap the cob in half and discard the top half.**

**Look at the kernels and assess the proportion of yellow in each.**

### 4 CALLING THE CONTRACTOR

It is only once the cob DM is nearing 50% and stover DM 25% that you are going to get the ideal overall crop dry matter of 32-35% (see table 3 to work out overall crop dry matter). And only then should the contractor be called, says Mr Richmond.

"When growers harvest early and do not have the ideal DM content then the liquid ferments and is burnt off in the clamp and turned in to lactic acid.

"A crop with a dry matter below 26% will also produce a lot of effluent from the clamp and could be more likely cause acidosis in cows."

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**Only once the dry matter is 32-35% should the contractor be called.**

### PLANNING FOR 2011

* Assessing the maize crop in the run up to harvest is also the ideal time to consider whether the variety is suited to your farm, adds Mr Richmond. "It is a great time to look for any diseases. Some varieties, for example, can be more susceptible to the fungus fusarium, which causes cobs to tip over and snap off. It is vital you find a variety that is less susceptible to this as the cob is the most valuable part of the plant. Ask your supplier about this."

**Fusarium can cause cobs to tip over and snap off.**

Mr Richmond also recommends growers look at cob coverage. Some maize varieties may look as if they have good dry matters when in fact it is just because the cob has been exposed because the husk does not cover the cob. "This not only gives misleading figures as to the quality, but when cobs are not sufficiently covered they are more prone to spoilage which can subsequently develop mycotoxins."

**Insufficient coverage means cobs are more prone to spoilage.**

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Watch a step-by-step video to assessing maize in the run-up to harvest online at **www.fwi.co.uk/harvestmaizevid**