



AGRONOMY TECHNICAL NOTE – OCTOBER 2011

Harvesting under wet conditions and reducing the risk of soil erosion and run off

SIMON DRAPER – MGA AGRONOMIST

Introduction

The chances are that as autumn approaches ground conditions are becoming less than ideal for maize harvest, with the risk of soil compaction and resultant soil erosion and or runoff increasing.

Soil erosion and run off from maize fields is now a high priority for many and as a result fields need to be managed so that the risks are minimised as much as possible.



Compacted headlands can lead to soil erosion and runoff

The options to reduce soil related problems are:

1. Harvest as soon as possible, when conditions are dry.

If crops are mature, then harvest as soon as possible. The ideal dry matter to harvest the crop to get maximum milk/meat production is 30-35% dry matter, however many crops, particularly in the most 'at risk' marginal areas are nowhere near this target. Bearing in mind the time of year, in these areas, if the crop has reached 28% DM then it ought to be considered ready for harvest. At this dry matter the crop should not produce too much effluent and will be good, although not exceptional silage.

2. Correctly determine the dry matter of the crop.

The correct assessment of the dry matter of the crop is difficult to do, but well worth the effort in a year like this, where crop maturity is so variable.

To correctly determine the dry matter, the first thing is to take a representative sample of the crop, which means taking ten adjacent cobs on a row, at least three points in the field (more where the field is noticeably variable).

Do not pick the cobs, but just peel them back to expose their colour and then choose the plant which is most representative of the average. Cut this plant and then test both the cob and the plant for the dry matter. Testing the cob can be done by the standard finger nail method, milkline or tasting it for the starch content and then from experience the dry matter of the plant and hence the crop can be deduced.

The problem with this method is that the assessment is only on the dryness of the cob and no account is taken of the rest of the plant, whose dryness can vary depending upon variety and the amount of disease (in particular eyespot) within the plant. Therefore to ensure that the correct dry matter is obtained for the whole plant, the plant should be cut into inch squares, weighed and put in an Aga overnight and reweighed. For those that want a more instant result, a microwave can be used, but do be careful to avoid the crop burning! (John Morgan always likes to place a glass of water alongside the sample in the microwave to minimise the risk of burning!)

3. Tyre pressures and wide tyres.

Although the fields are wet and some waterlogged, the maize crop does remove a large amount of moisture and therefore under the crop itself for the majority, the land will be dryer than neighbouring fields.

This does mean that harvesters should be able to travel on most fields without causing too much damage. Whilst the harvester will not cause damage, the same cannot be said for the tractors and trailers taking off the crop and severe rutting can be caused by these machines.

To help avoid this, ensure that the contractor is using low ground pressure tyres on the trailers.

High tyre pressures or tyres designed for a large amount of roadwork will tend to have strong tyre walls and this directly transfers the weight to a small ground area, which can cause the deep ruts and soil compaction. Even if the wrong tyres are being used, reducing the tyre pressure to the minimum the tyre can take will dramatically reduce the compaction and rutting on the field.

The same is true for the tractors pulling the trailers – so a tyre pressure gauge is a farmer's best friend in the current situations.

4. Use a gateway at the top of the slope where possible.

Using a gateway at the bottom of the slope inevitably leads to tracking to and from it. Such tracking in the wrong conditions can channel runoff out of the field. Where possible, use of "top of slope" gateways should be targeted to avoid tracking/runoff issues.

5. Cultivate immediately after harvest.

Normally the driest time to post harvest cultivate is when the crop is being harvested. The crop will have removed much of the moisture and if the forager can travel, so can the cultivation machinery.

Where low ground pressure tyres have been used, then the compaction will be no more than 5 inches deep and can therefore be taken out with a chisel plough or similar.

Plough high risk land (those fields sloping down to a watercourse or road) or any land if it is not required for manure spreading later in the year.



Cultivation immediately after harvest will increase water infiltration

6. Subsoil headlands.

With time pressing, cultivations of rutted headlands may be all that is possible. While not ideal, headland subsoiling most certainly should be done, as the risk of trailer ruts, channel water and soil from the field will be much reduced.

7. Subsoil the bottom 25 m.

Again if time is limited, focus on breaking long slopes with single cultivations across the hill, as well as sub soiling the bottoms of the slopes. The 25m at the bottom of the field should be subsoiled, so that a sink is formed to catch run off in this area.

8. Choose fields for manure spreading carefully.

Choose fields which present a low risk of run off, for the fields to receive manure next year – these should be fields away from watercourses and only with gentle slopes on them. The top and bottom headlands of these fields should then be subsoiled or cultivated to produce a 'sink' and stop water running across the field. This will not only prevent water run-off but also nutrient run-off.