Crop Development

Drilling has been progressing across the region in some cases since early September especially on easier working soils, although the last couple of weeks have seen intense activity in most areas. Seedbeds started on the dry side until most areas, except further north into Lincolnshire, experienced a wet weekend in mid-September which helped produce some excellent seedbeds. In some cases, the drive to get crops drilled in good time in response to last autumn may produce a legacy of large amounts of blackgrass next summer. At the time of writing seedbeds are generally excellent with periods of rain and dry weather allowing black grass to flush and crops to emerge within 7 days of drilling.

Weed Control

Delayed drilling in black grass fields has proven to be a valuable cultural control technique – this has been clearly demonstrated in commercial crops and in Agrii trials. For example delaying from 27th September to 1st November coupled with pre-drilling glyphosate at Stow Longa last autumn reduced blackgrass populations in the crop by 84% on average. Cultivation strategy was also important – especially with the later drilling timing – to produce a good well-established and competitive crop.

Unless this advice has been ignored and fields are already drilled delaying drilling until the second week of October is a very rough guide to timing drilling on bad blackgrass fields. The principle is to encourage a large percentage of the blackgrass to emerge before drilling so that it can be sprayed off with glyphosate. Factors that impact on the success of this strategy include soil moisture and blackgrass dormancy status. Signs in the field and assessments of a range of seed samples indicate relatively low dormancy but with quite high variability between populations – probably related to differences in local weather conditions during seed maturation. It is important to monitor actual blackgrass emergence to ensure that at least one good flush has occurred and been sprayed off with glyphosate before drilling. Blackgrass certainly seems to be emerging rapidly and in large numbers now in many fields although more would be encouraged with further rainfall. The more that can be encouraged and killed pre-drilling the better. Check glyphosate products carefully and ensure statutory intervals between spraying and cultivating/drilling are observed as there are subtle differences between product approvals and labels.

Once the crop has been drilled successful control is reliant on good herbicide activity of which the pre-emergence treatment is the most important. Stacking and sequencing of herbicide active ingredients is becoming more popular as it has been shown to increase weed control and reduce the risk of resistance developing to follow up herbicides especially SU chemistry. Where Target Site Resistance to SUs exists (i.e. Atlantis / Hatra / Pacifica / Unite) then stacking and sequencing predominantly residual herbicides is the only option to achieve best levels of control BUT final results are very unlikely to be as good as when all the herbicide chemistry was working effectively.

If the resistance mechanism to SUs is via Enhanced Metabolism then grassweed SUs can still work effectively if applied to small weeds (no more than 3 leaf).
For best activity residual herbicides should always be applied pre-emergence, providing the seedbed contains enough tilth to surround and cover the seed completely. Damage from pre-emergence residuals can occur where seed is placed amongst clods and/or is very close to the surface and can be exacerbated by heavy rainfall shortly after application. In this situation spraying at the peri-emergence or early post-emergence stage is safer although care should be taken with highly wetted or multi-way tank mixtures to avoid damage to soft crop leaves. Remember that herbicide programmes containing DFF should deliver no more than 130g/ha active ingredient to remain within the supported maximum limit where OSR is to follow in the rotation – thorough soil mixing prior to planting the OSR is also required. Remember the only product containing CMPP that can be used in the autumn is a co-formulation of CMPP and DFF – this will also be its last autumn of use. Use of this product is therefore going to increase the total amount of DFF applied to the crop and this should be considered when formulating plans for pre-emergence herbicides.

Where the weed spectrum is annual meadow grass and broad-leaved weeds, and where variety allows, a product containing CTU (chlorotoluron) may provide the basis for herbicide programs. Where required CTU + DFF co-formulations must be on farm before the end of this year (cut-off for sales is 31st December 2013) although use by dates vary between products.

Mixtures of CTU + DFF with pendimethalin/picolinafen as required can provide full spectrum control of autumn weeds including AMG up to 2-3 leaf stage. Where the variety is not tolerant of CTU then options include early (pre- or early post-emergence) application of alternative residual chemistry or use of iodosulfuron/mesosulfuron mixtures (wheat only NOT barley) if the AMG is getting larger. Barley will therefore be reliant on early applications of residual herbicides where the variety is not tolerant of CTU.

**Pest Control**

Plenty of reports and observations of slugs and slug eggs especially in 1st wheats following rape. Cloddy seedbeds will favour slug movement and grain hollowing so don’t assume, just because it is dry, that slugs won’t be active. Remember that Deter seed treatment will only discourage grain hollowing it will not provide a complete solution or protect crop leaves from slug grazing.

Where pellets are required remember that pollution of water can come from both point-source (e.g. a spillage resulting in run-off to a drain/watercourse) and diffuse sources (mainly leaching of metaldehyde from correctly applied pellets through the soil to drains and then watercourses).

Consider the Metaldehyde Stewardship Group best practice guidelines (below) to minimize the risk of metaldehyde ending up in water from point-source and diffuse pathways (alternatively switch to ferric phosphate pellets in sensitive areas of the field e.g. next to field edges/watercourses):
• An ADVISORY maximum single dose of 210g active ingredient per ha (e.g. max 7 kg/ha of a 3% a.i. pellet)
• An ADVISORY maximum total dose of 210g from 1st August to 31st December
• A STATUTORY maximum total dose of 700g active ingredient per ha per CALENDAR YEAR (implications where previous crop has had metaldehyde pellets applied in the same calendar year)
• No pellets to be applied within 6m of watercourses
• Use minimum active per ha to avoid drainage and runoff losses
• Do not apply when heavy rain is forecast
• If drains are flowing do not apply metaldehyde based slug pellets

BYDV (barley yellow dwarf virus) can affect cereal crops including wheat, barley, oats and triticale. The virus is vectored by aphids – predominantly bird-cherry oat aphid and grain aphids – so prevention of infection is reliant on controlling aphids before their numbers increase and spread within the crop. Aphids on healthy volunteer cereals in stubbles which are cultivated / ploughed can move onto newly emerging cereal crops through ‘green bridge’ transfer. It is therefore wise to spray off green stubbles / stale seedbeds before cultivations to prevent this method of virus transmission. Once the new crop emerges it is susceptible to winged aphids migrating into fields. These aphids can transmit virus but more importantly they can produce large numbers of offspring very rapidly in mild conditions. These wingless aphids, if not controlled, will spread through the crop transmitting BYDV. Control is reliant on insecticides both seed-applied (e.g. Deter) and foliar applied (e.g. pyrethroid sprays). Deter is a systemic insecticide which will kill any aphid which probes the leaf but its persistence is finite and depends on the loading of the active ingredient which depends on the seed rate (kg/ha) at drilling. On crops where Deter/Tripod Plus seed treatment isn’t applied and on treated crops where the seed treatment has run out of steam a foliar insecticide should be considered. The best timing for this foliar insecticide is at ‘T-sum 170’ when the second generation of wingless aphids is about to be produced. ‘T-sum 170’ occurs when the accumulated day degrees above 3°C reaches 170 and should be calculated from when the crop first emerges (where not treated with Deter or Tripod Plus) or when the seed treatment runs out of steam. Agrii are running a T-sum 170 advisory service to guide foliar insecticide spray timings taking into account drilling date, emergence date and whether or not the seed has been Deter/Tripod Plus treated.

The other complicating factor is that there have been a few confirmed cases of Kdr (resistance to pyrethroids) amongst grain aphids in East Anglia. We are still awaiting results from testing this autumn to help understand if it will be a problem this year. At this stage Kdr hasn’t been confirmed in the bird-cherry oat aphid population. Discuss control tactics with your Agrii agronomist.

Gout fly can be a problem in earlier drilled crops and warm settled autumns. Although not on the product label observations in trials have been that Deter will provide some reduction in infected tillers. If white cigar-shaped to oval-shaped eggs are found on the leaves of early emerged crops, even with Deter seed treatment, it would be worth considering an application of pyrethroid. Especially where blackgrass is a problem a healthy competitive crop canopy is important – a canopy thinned by gout fly is less likely to compete as well against blackgrass.
Crop Development

Growth stages vary from just emerged and in need of a decent rain to 6 – 8 leaves and in need of some growth regulation.

Weed Control

A lot of the focus is now on blackgrass/grassweed control – plenty of fields contain very high levels of emerged blackgrass. Where already treated with Centurion Max early indications are of very good results in many cases. However, it is not the most flexible product to use mainly due to limited tank mix options. Other strategies are of course possible! Nevertheless control or at least suppression of blackgrass is needed at this stage to get the crop through to true ‘propyzamide/carbetamide’ timing which is likely to be around the first week of November at the earliest.

Thoughts may also be turning to BLW control in coming weeks if weeds have escaped early residual treatments. Charlock and runch are growing rapidly alongside the rape and in some cases cranesbill may escape earlier targeted treatments where soils have been very dry.

Pest Control

Warm dry conditions are perfect for many insects and various species have been pestering rape including flea beetle, leaf miner and cabbage white butterflies. Cabbage stem flea beetle pressure has been very high and some crops continue to be shot-holed despite a seed treatment and foliar pyrethroid application. Follow up treatments of pyrethroids have been applied in many cases but none of it bodes well for next autumn in the absence of seed treatments. Agrii are trialling alternative foliar insecticide strategies in preparation.

Where seed treatments start to run out of steam or perhaps aren’t working so well in dry conditions and have been diluted in large rapidly growing crops consider the need to protect the crop against aphids as they are vectors of TuYV. *Myzus persicae* is the main culprit and both Kdr and MACE resistance are common in this species. An alternative to pyrethroids has recently gained approval.

Comments regarding slug control apply equally well to OSR as to cereals (see above) although small rape plants can be destroyed very easily by slugs. Many are now at or beyond the 4 leaf stage and should be safe but heavy pressure can result in considerable loss of leaf area.

Nutrition and Downy Mildew

Most crops have been sown in good time this autumn and growth has been good in the above average temperatures of September. Growers should be thinking about nutrition of the crops currently in the ground – without good macro and micro nutrition, yield potential will be lost.
Surveys have shown that under a third of arable soils are under the target indices of phosphate and potash for optimum production. The winter rape plant typically requires 15 kg/ha of phosphorus and 50 kg/ha of potash (as well as 60 kg/ha of nitrogen) during active growth phase in the autumn. We are currently in the closed period for the application of organic or inorganic nitrogen containing fertilizers to tillage land, but growers can still apply phosphate and potash to maintain target soil indices and replace removals from previous cropping. 30 kg/ha N is allowed to be applied to WOSR in the closed period until 31 October. However it is really too late now to get the benefit & with warm soils unlikely to be required anyway.

Phosphate deficiency often shows up as purple leaves and stunted growth either due to low soil phosphate or lack of available phosphate in seemingly well-supplied soils. In these situations phosphate fertiliser should have been incorporated into the seedbed preferably with nitrogen as well (for example as broadcast DAP or placement starter fertilisers). Growers who have used starter fertilizers when sowing their winter oilseed rape need to remember that this approach supplies only small, targeted amounts of phosphate around the plant rooting zone. Growers will still need to address total phosphate requirement for maximising crop output. In addition to seedbed fertiliser, foliar phosphate can be applied through the sprayer. Phosphite (PO₃) cannot replace phosphate (PO₄) as a plant nutrient. Phosphites act as plant stimulants which encourage uptake of phosphate and other nutrients.

Oilseed rape has a low requirement for sulphur in the autumn so no specific dressings are required at this time. However, some growers apply elemental sulphur in autumn to allow time for oxidation by *Thiobacillus* to plant-available sulphate in spring. Many larger rapidly growing crops in dry soils have been showing symptoms of interveinal yellowing/marbling. If confined to older leaves this is most likely to be due to Mg deficiency.

The availability of boron to winter rape plants may be sub optimal especially on acid, sandy soils, low organic matter soils or where soil pH is high (which renders the boron less available). Results have indicated that boron applied in autumn can stimulate root development and help develop a healthy, vigorous transport system for good nutrient supply within the plants; this can aid plant overwintering.

Manganese is the most widespread trace element deficiency in arable crops as the nutrient is bound onto clay particles and so is locked up in many soils particularly where pH is above 7. Manganese seed treatments can help supply the nutrient during early crop growth and establishment but with current good conditions for growth, there will be a need to ‘top up’ plant manganese status with foliar application especially where earlier dry soils may have reduced uptake or in fields where there is a history of manganese deficiency.

Molybdenum is being investigated for its role in nitrogen utilization in winter oilseed rape. Deficiency is most likely to occur on acid soils. We are investigating responses to molybdenum timing in trials this season.

One good approach for autumn winter oilseed rape nutrition is to use multi nutrient products which will supply nutrients including boron, magnesium, manganese, molybdenum, sulphur and nitrogen to ‘top up’ plant requirements before winter.
Remember, there may still be some poor soil structures as a result of the appalling weather last autumn especially where no or little steps have been taken to rectify problems. In these situations, it will be even more important to ensure plant requirements are met by fresh nutrient applications to help maximise output.

Downy mildew produces grey/white mycelial growth on the underside of cotyledons and true leaves which can then lead to cotyledon/leaf death. It can be quite easily found now. In larger crops it shouldn’t be a major problem but on later drilled / smaller crops it can hold back crop development.

Disease Control

Dry conditions have not favoured Phoma development yet but lesions may start to appear from now on especially if we get some rain. The Rothamsted forecast has not yet been published but is likely to appear very soon. Low doses of fungicide applied early can help delay eventual disease development and allow greater timing flexibility for other spray treatments. With plenty of advanced crops now at 4 – 8 leaves the emphasis in these will be on using a PGR-active fungicide to slow the rapid development of top growth and improve rooting.
WINTER BEANS

With cereal drilling progressing rapidly those planning to grow winter beans this year may well be straining at the leash to keep the drill running and put the beans in. However, they should not be sown too early, ideally not before the second week of October. Crops which are too forward are more prone to disease and to the effects of severe winter weather and with warm soils and mild conditions at the moment emergence and growth is likely to be comparatively rapid. Sowing from mid-October to early November is usually the optimum time and also allows for pre-drilling germination and spraying off of blackgrass. Slightly later drilling will also favour better activity from pre-emergence residual herbicides both for BLW and grassweed control.

Seed should be/have been tested for Ascocysta (max 1% infection) and stem nematode (only drill clean seed). The following seed rate calculator is reproduced from the PGRO ‘Pulse Agronomy Guide’:

<table>
<thead>
<tr>
<th>Seed rate and plant population</th>
<th>Final target population (plants/m²)</th>
<th>Expected field loss %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter sown beans</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>Spring sown beans</td>
<td>40</td>
<td>5</td>
</tr>
</tbody>
</table>

The seed rate can be calculated from the following formula:

\[
\text{Seed rate kg/ha} = \frac{\text{thousand seed weight} \times \text{target population plants/m}^2 \times \text{100}}{\% \text{ germination} \times \text{100}-(\text{field loss})}
\]

To calculate seed rates accurately you will need to know the thousand seed weight. These seem to be comparatively high this year with samples up to the 800g mark. The 15% field loss quoted above is based on ploughing seed in. Where seed is drilled into good conditions field losses are likely to be lower.

A level seedbed will aid combining and also provide better conditions for residual herbicides. Remember weed control still relies on pre-emergence herbicides and if drilling crops comparatively early into warm soils emergence will be rapid necessitating spraying ASAP after drilling. Due to the uncompetitive nature of the crop it is vital to get the maximum persistence possible from residual herbicides therefore full rates are recommended in most cases to prolong weed control into the spring.