



Planning and Decision Making

Looking forward to autumn 2015

Dick Neale (Hutchinsons Technical Manager) feels that the decision making process for crop establishment is now more complicated than it has been for many years. Having had many discussions with farmers and growers at our summer RTC demonstrations, Dick believes there are three topics which are causing farmers the greatest challenges as autumn 2015 approaches:-

- The black grass burden on many farms, which must be assessed on a field by field basis in order to plan a strategy for successful management
- Loss of neonicotinoid seed treatments in winter oilseed rape - calling in to question the viability of this crop for many growers (see article from Dr David Ellerton)

- Cropping decisions and cultural control options, planned with the requirement to fulfil **the three crop rule** and greening requirements of the new **Basic Payment Scheme** regime (see article from Matt Ward).

Start with cultivations

The decisions and then the activities of the cultivations you make for establishing a crop have far more influence on the overall success of crop production than simply seedbed quality at time of sowing. It is therefore vital to get this right as these first steps create the platform upon which all other decisions and crop inputs are based.

Cabbage Stem Flea Beetle

activity is strongly influenced by the amount of soil movement at sowing for Winter Oilseed Rape. Chalk soils seem particularly at risk from CSFB damage - we have

seen very significant reductions in feeding damage where WOSR is established with a micro-wing establishment system.

Phosphate is easily complexed with calcium in these soils (held away from easy root uptake) so a placement phosphate based fertiliser should be employed to accelerate seedling growth. Micro granular fertilisers Primary-P and Prime-Start with phosphate protection technology are key tools for this at low application rates.

Cultivation strategy also strongly influences the performance of residual herbicides such as propyzamide and carbetamide in WOSR. These are vital components of a successful grass weed control programme across the arable rotation, so their performance must not be compromised.

Here again the use of minimal disturbance establishment techniques can vastly improve how effective these herbicides are and deliver very high levels of weed control.

>>> Stale Seedbeds

For autumn sowing of cereals we encourage the production of stale seedbeds immediately post combining. Stale seedbeds are produced to a depth of 50mm and this action will encourage the germination of all seeds, both weed and cultivated seeds dropped from previous crops. It is vital to keep WOSR seeds in the top 50mm – this will prevent dormancy occurring and also stop a legacy of WOSR volunteers later in the rotation. Where 6 row hybrid barley is being utilised as part of the strategy for black grass control, avoiding volunteers is equally important - ploughing or min-til will set dormancy for later emergence in the rotation.

VIP - ploughing and min-til do not create stale seedbed conditions, stale seedbeds are 50mm deep.

Our research at Brampton is demonstrating that ploughing for managing black grass has a sting in the tail ...older, yet still viable seed, ploughed back up may not break dormancy for up to 2 years. This can then lead to unexpectedly poor control 2 or 3 years after initial inversion – and underlines why more frequent use of the plough is not a useful long term black grass control strategy.

Getting the best from Cover Crops

In our April edition we stated we would return to the subject of cover crops, and now is an ideal time to re-visit them. First and foremost the question to be asked is **why** you want to utilise a cover crop. Are you doing it in order to:-

- Build soil organic matter
- Improve soil fertility
- Scavenge and hold nutrients
- Enhance soil stability
- Develop soil conditioning
- Control weeds
- Produce a source of fodder
- Provide a short term summer cover or longer overwinter cover
- A mix of the above.

A well-reasoned and clear plan will help with the decision making process so that the right crop or mix of crops is chosen – vital in order to achieve the desired result.

The next question to address is what crop will be grown **after** the cover. This is important as some cover crops can be antagonistic to the commercial crop that follows. Additionally, certain cover crops are excellent at scavenging nutrients but may not readily release them to the following crop. Instead they break down more slowly across the rotation and give up their nutrients over an extended period. Also, there is little point in building high soil nitrogen reserves with legumes-based covers, only to then follow it with a pea or bean crop.

Soil Protection and Organic Matter

The title 'cover crop' can also in itself be miss-leading. In a light land, sand, chalk or skirt fen situation the objective is likely to be enhancing soil organic matter (SOM), increasing soil stability, building and scavenging nutrition and suppression of broad leaved weeds. It may also provide winter grazing. On these soil types complete ground cover with plant material that produces a large biomass is desirable.

When the time comes to sow the next commercial crop, however that cover-crop is destroyed (spray-off, flail/mow etc), the soil underneath will always work and drill more-easily, and moisture retention is a positive benefit from the cover for later in the season.

Covers that help dry

In heavy clay planned for drilling in the following spring however, a full canopy cover can be very problematic. In clay soils I prefer to use the term 'conditioning crop'. These should focus on root production and architecture within the soil to produce good aggregation and moisture extraction, along with nutrient building and scavenging. The canopy however should 'open' rapidly when sprayed off in the spring to allow sunlight and wind to dry the top for drilling.

Foliage lying prostrate on the soil surface will shade the soil, keeping it cool and damp and is not a desirable feature on heavy clay's. If grazed of course this negative is removed but equally, so too is a large proportion of the organic matter and stored nutrition you have strived to produce.



Dick Neale examining stubbles at Brampton

To achieve an open canopy and be successful in areas like black grass control the following should be considered:-

- Manage out blackgrass by spraying off germination flushes during August and September and sow spring oats from around 15th October onwards (although this would need to be completed by 1st October if using to comply with EFA rules)
- Keep seed rates low (75-80kg/ha)
- Mix in peas and field beans and phacelia if the early autumn conditions have been mild.

This mix will extract moisture, condition the soil, fix and retain nitrogen plus it leaves an open canopy after spraying off around the end of January. It is ideal in a non-legume rotation (although disease and pest carryover is minimal during winter months). Avoid mixtures with forage rye if sowing spring barley or wheat.

For more detailed examination of the use of cover crops contact your Hutchinsons agronomist who will be able to give you expert guidance in these areas. Additional information can also be gleaned from AHDB Information Sheet 41 (Summer 2015).

Achieving Cabbage Stem Flea Beetle control in Oilseed Rape



Following the decision by the European Commission to implement a two year ban on the use of neonicotinoid seed dressings in oilseed rape from 1st December 2013, last autumn was the first opportunity to assess the impact of this decision on control of one of our major autumn oilseed rape pests, cabbage stem flea beetle (CSFB).

In this article, Dr David Ellerton (Hutchinsons' technical development director) **summarises lessons learnt from surveys this season and suggests strategies to minimise the impact of the pest this coming autumn.**

The weather last autumn was very mild compared to the 30 year mean and September was particularly dry with an average of only around 10% of the mean monthly rainfall. This meant that many oilseed rape crops struggled to grow due to moisture stress and this, combined with high levels of flea beetle due to warm temperatures, meant that the risk of pest damage to oilseed rape was very high in many parts of the UK.

Insecticide Resistance

Despite increased use of pyrethroids applied for control of flea beetles, these were in many cases largely ineffective due to either overwhelming numbers of flea beetles or KDR resistance which had been identified as widespread in adults and larvae tested the previous autumn and spring

and confirmed in adults tested last autumn. In some cases pymetrozine, applied mainly for peach potato aphid control may have had some effect. Eventually, in late September two further options became available – a label clearance for thiacloprid for use in the autumn and a 120 emergency clearance for acetamiprid. However in most cases this came too late for applications to save already seriously damaged crops.

Initial estimates from an AHDB funded survey at the end of September



Flea beetle feeding on rape seedling

estimated losses of 2.7% of the winter oilseed rape area in England and Scotland, equivalent to some 18,000 ha. However there was a significant variation between regions with the East and South East most affected and counties such as Herts, Cambs, Beds and Hants reporting up to 40% crop loss. In fact many crops were destroyed even before reaching the accepted threshold of waiting until 'Adults have eaten over 25% of leaf area at the cotyledon to two true leaf growth stage or when adults have eaten over 50% of the leaf area at the 3-4 true leaf stage.'

AHDB also concluded that crops drilled early up to mid-August, established quickly before dry weather set in and were often able to grow away from the pest while late drilled crops at the end of September were also often less affected as beetle migration had fallen by this time and rain fell soon after drilling. Most affected were crops sown at the traditional time of late August/early September which went into dry seedbeds at peak beetle migration.

Impact Survey

Hutchinsons' staff carried out a survey amongst agronomists to gain a greater understanding of the impact of flea beetles this season. In total there were 97 agronomist respondents, covering an area representative of circa 15% of OSR grown in the UK - from Cornwall to Fife in Scotland - enabling a strong countrywide representation of the problem to be drawn.

Nationally, 44% of the respondents experienced the greatest issues when OSR was drilled in the last 2 weeks of August, and 29% in the first two weeks of September (See Figure 1.) These results tie in closely with AHDB conclusions.

Drilling Date Most Affected by Adult CSFB Damage (%)

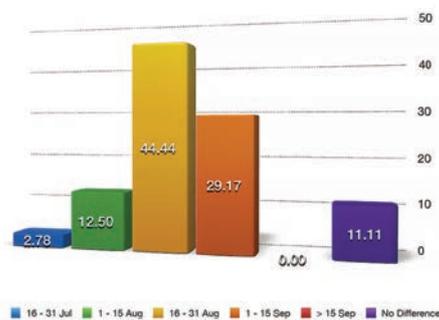


Figure 1

Establishment methods were also questioned in the survey and although many saw no difference, there were a number of respondents who highlighted certain methods as being problematic. Subsoiling was raised by 22% of respondents as creating a greater problem and 27% also said that not rolling after drilling increased problems (see Figure 2). Interestingly 10% thought ploughing promoted CSFB infestation, possibly due to loss of soil moisture hindering early growth

Perception of Establishment Techniques Promoting CSFB Infestation

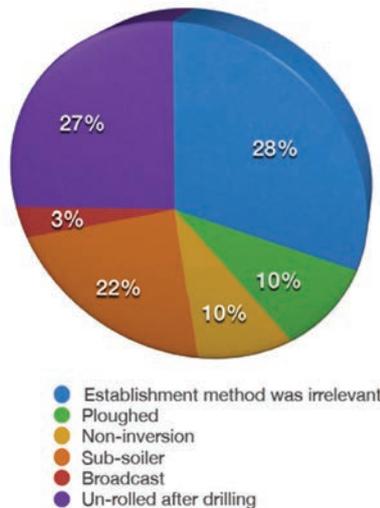


Figure 2

It is also clear from the survey that crop vigour is very important in getting the crop to a more tolerant stage. Once at 4 true leaves, the plant can tolerate the damage, and the CSFB threshold is therefore lower. Getting to this stage as rapidly as possible is therefore crucial for reducing CSFB impact.

Although earlier drilling did help this rapid establishment, this also correlated with readily available water. Rainfall in August meant that early drilled crops moved through the initial growth stages more quickly than those in September. Therefore keeping cultivations to a minimum in order to conserve soil moisture or drilling only when rainfall is forecast could be argued to be just as important as drilling early. Moisture retention is evidently important and it is therefore unsurprising that rolling often helped while rough seedbeds were more problematic.



CSFB in OSR Stems

Using placed fertiliser was also regarded as important for achieving rapid OSR establishment as well as choosing hybrids over conventional varieties, in order to utilise the greater early vigour of some hybrids (see Figure 3).

In summary, from AHDB and Hutchinsons results, it can be concluded that these are the key areas which will have greatest impact on minimising CSFB damage, by helping the crop to become established as quickly as possible:-

- optimum drilling date (linked to rainfall and available soil moisture giving the highest potential for rapid germination and strong seedling growth)
- minimal soil movement and rolling of seedbeds to conserve soil moisture
- use of placed fertiliser at drilling to enhance crop establishment and vigorous growth
- choosing vigorous varieties to outgrow flea beetle feeding damage.

All of these elements are important in reducing pressure on insecticide sprays where resistance is a key problem. Additional information can also be gleaned from AHDB Information Sheet 43 (Summer 2015).

Significance of methods used to minimise CSFB impact (%)

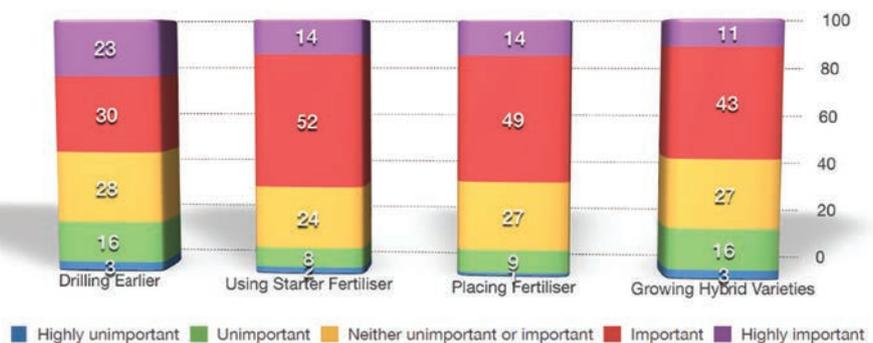


Figure 3





Planning your Cropping Choices



With the need for farmers to understand the new Greening rules, overcome fields with black grass problems, get the better of Cabbage Stem Flea Beetle and mitigate the impact of poor commodity prices, preparing the best-fit cropping plans for this autumn have become more complicated than ever. Matt Ward (Services Leader) gives his thoughts on how to get a little clarity when preparing a well thought out cropping plan.

For most growers, wheat and oilseed rape will still be the cornerstone of most arable rotations, but increasingly clients require rotations that help manage the risks posed to the profitability of these crops. The additional pinch for many though is having to introduce a third crop to comply with the crop diversification rules of the Basic Payment Scheme.

Prioritise and pick strengths

Importantly, before growers make their cropping decisions, they will have to prioritise the importance of the differing strengths and weaknesses of each crop choice and apply that knowledge to their local farm and field situations. For example, is the choice of crop aimed primarily at:-

- black grass control as the key focus *or*
- is the anticipated gross margin the principle driver *or*
- does this crop have to make a contribution to the Ecological Focus Area (EFA)?

The main strengths and weaknesses of some crop choices are summarised below and a comparison of benefits vs drawbacks is displayed in Table 1.

Barley in the plan

Winter barley may fit the bill for many whose primary concern is the gross margin which the crop will produce.

The Hyvido barley varieties such as Fletcher and Volume can contribute to a black grass management strategy, reduce harvest **pressure** and provide an excellent opportunity to get early oilseed rape establishment next year. The growing costs for hybrid barley are higher than conventional varieties, but those considering a compromise and growing a conventional variety run the risk of compromising blackgrass control. In this instance spring barley might be a better fit, with lower growing costs, better blackgrass control and improved workload pressure. However, spring barley can clash with the wheat harvest and can cause storage problems.

Spring wheat varieties can assist with storage logistics and workload, but although it is a spring crop, spring wheat can still be difficult to manage in a high pressure blackgrass situation due to the lack of herbicides registered for use. Spring cereals do offer an excellent opportunity to establish cover crops overwinter, helping to build fertility and qualify for

continue overleaf >>>



	Winter Barley	Spring Barley	Spring Wheat	Winter Beans	Spring Beans	Spring Peas	Fallow	Winter Oats
Gross Margin	££££	£££	£££	£££	£££	££££		£££
Growing Costs	££££	£££	£££	££	££	££	£	£££
Following crop benefit	✓			✓✓✓	✓✓✓	✓✓✓✓	✓✓	✓✓
Blackgrass control	✓✓✓	✓✓✓✓	✓✓	✓	✓✓	✓✓✓	✓✓✓✓	✓✓
EFA (Ecological Focus Areas)		✓*	✓*	✓✓✓	✓✓✓	✓✓✓	✓✓✓✓	

Table 1: Benefits and drawbacks from various cropping choices for harvest 2016

* N.B. Although they do not qualify for EFA, spring cereals provide excellent opportunities for cover crops in the rotation

>>> EFA, albeit that the area is only 0.3 of the cover crop area. Be careful that the EFA cover crop rules don't compromise your blackgrass management decisions.

Including pulse crops

Nitrogen fixing crops also qualify for EFA area, converted at a rate of 0.7. Winter and spring beans or spring peas provide an excellent break crop opportunity for the next wheat crop, and due to their nitrogen fixing ability can be a relatively cheap crop to grow.

However, blackgrass control can often be poor and although peas are possibly the most competitive against blackgrass and have potentially the highest gross margin, they can often be the most challenging to grow. Winter beans are perhaps more flexible, with spring beans often providing higher gross margin opportunities with valuable contracts for human consumption.

Leaving land fallow offers the opportunity to qualify for EFA and an excellent opportunity to control severe blackgrass populations, but it must be managed. Indeed research suggests fallow requires a following spring crop for best blackgrass reduction. Fallow can provide an excellent opportunity for mole draining or any remedial drainage work, however, the negative margin from fallow remains the largest hurdle for most.

Getting your oats?

Finally, winter oats can provide a good gross margin, particularly if a milling sample can be achieved. With a relatively low input cost and also a limited demand, the market can easily be over-whelmed so they are usually best grown on contract. They are a very good break crop and, although they are extremely competitive, the restricted number of grassweed herbicide options does exclude the crop being grown in many farm situations.

The final decision about what to grow and where to grow it has clearly become much more complex than ever before. It takes careful planning to ensure you make the right choice, for the right reasons. Discussing your thoughts with your agronomist before the final decision is made can often help steer you towards the most appropriate choice for your specific situation. More information on EFA's is available in the CFE leaflet *Voluntary Measures – getting the most out of Ecological Focus Areas*.

For more information on any of our products or services please contact your local Hutchinsons agronomist or contact us at:

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