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Good fences make good neighbours

I gather that I’m not alone in having my farm re-drawn by the Rural Payments Agency in their latest mapping exercise but, nonetheless, I’ll happily bore you with the details.

First, I was given my neighbour’s reservoir, which was a lovely gesture by the RPA because I’ve always coveted that bit of water — but I doubt my neighbour and his solicitors will feel as free-and-easy with the property as the RPA does.

Then having failed to pick up the fenced road that delineated my field from the aforementioned neighbour’s reservoir, the RPA then managed to sub-divide a field by identifying an electric fence as a permanent boundary — despite the fact that we’ve always submitted it as one single block.

To cap it all, there was an old counter-wall drawn in out on the marsh that hasn’t been there since the war. So if, as they claim, the RPA have used aerial photos to assemble these new maps, one wonders if they were reconnaissance pictures taken by the Luftwaffe?

But despite all of my angst, I resisted the Victor Meldrew tendencies within me and duly corrected the mistakes and sent them back — but there remains some further work to do.

A few of my field boundaries apparently aren’t substantial enough and I’m told by the RPA that I need to make them more obvious on the ground by using 75cm diameter white-topped stakes, or large stones, as boundary markers. I did wonder if the RPA realised what a large stone or stake could do to a combine concave but on contemplation, I thought better of it and duly put them in.

Yet it strikes me that, if this is an issue in England, on the Continent things must be a thousand times worse. Over vast swathes of arable land in western Europe, it’s common to have featureless, 10ha fields under multiple ownership and farmed in 20m strips. The custom in places such as France and Germany is to mark the boundaries with small stones at either side of the field. Quite how an inspector will sort that lot out is beyond me.

The situation becomes even more challenging in Eastern Europe where land that had been collectivised in the ‘50s into 100ha fields has since been repatriated to its hundreds of owners. Here, as far as I could see, there were no visible markers — and the farm co-ops openly admit that they aren’t quite sure where the actual boundaries lie. They just divvy things up as best they can where the historic claimant wants to re-occupy the land.

One has to seriously wonder how the English mapping system was found to be unacceptable by the European court of auditors on the grounds that it could potentially facilitate fraud. Answers on a postcard please.

Whither malting barley?

As autumn beckons, thoughts again turn to next year’s cropping plans. But with prices where they are right now, it’s a bit of a head-scratcher to decide which crops will generate the best gross margins — and we seem to be back to the old syndrome of wondering whether we’d be much worse-off growing nothing at all.

This assumes, of course, that we could instantly rid ourselves of all our fixed costs as well as the variables, and therein lies the rub.

Having had a bit of a renaissance over the past five years, malting barley looks like it could be heading back to Cinderella status in gross margin terms. It certainly seems as if the wet back-end last year, together with high fertiliser prices, pushed too many of us into malting barley — and consequently, the job was over-cooked.

It hardly seems possible that the price has fallen from £170/t in June ‘08 to £80/t in July ’09. It’s anyone’s guess where it might end up come next July.

At the moment, there seem to be no buyers out there for next year’s harvest and the best guess appears to be about the £100/t mark. For me, unless the market picks up to over £120/t, I can see very little point in growing malting barley. The trouble is, if I’m thinking like that, then maybe everyone else is as well?

Are we all in a mood to over-react but in the opposite way to how we did last year to the point where so little will be grown, it’ll be in short supply — once again causing a bull-run on the price?

So is the counter-intuitive decision the one to take — sticking with the crop in the hope that you’re not moving with the herd. But then again, maybe I’m not the only one thinking like this.....

It’s anyone’s guess where barley might end up come July 2010.

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Weed control

Fighting the age-old enemy

With a depleted arsenal of herbicides and ever-increasing resistance, growers must work harder to exploit cultural controls and optimise the use of existing chemistry.

By Charles Abel and Angus McKirdy

ALTHAN is a very precious product which needs to be protected.'

Difficult conditions for weed control last autumn may not have resulted in fields riddled with grassweeds this summer. But there are good reasons why this has been the result, and with fewer herbicide options and resistance levels rising, growers need to deploy every asset available to them as they wage war on weeds this autumn, consultants advise.

What looked like a disaster for weed control last autumn — with many pre-em sprays being omitted and most post-em being applied in early spring — has proved to be anything but.

Farmer blushes were spared by a combination of factors. Wet weather forced later drilling, cutting the pressure from weeds and the cool, wet summer caused very high dormancy in weed seeds — with weeds emerging later in the season and ending up being well controlled by the delayed post-emergence sprays.

A repeat of those circumstances is unlikely. “Conditions have been far more favourable for weed seed ripening this summer,” says independent crop consultant, Peter Taylor of Essex-based Samco. “Weeds will be jumping out of the ground with the wheat, so growers really need to target bad blackgrass fields first and get in with their pre-em sprays as early as they can.”

High jump

But simply relying on herbicides is not the whole picture, says James Clarke of ADAS Boxworth. “Far from it. It’s a bit like a high jump competition with the bar rising each and every year, with resistance making it progressively harder to get high levels of control from herbicides alone.”

Cultural control needs exploiting to ease the pressure on the remaining herbicide options — particularly those most vulnerable to herbicide resistance.

“It requires a fundamental change of tactics. Instead of thinking ‘how little can I get away with in addition to using Atlantis’, growers need to think more about what they can do to avoid using this valuable herbicide, and to protect its value for future years.

“That means doing the most they
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Resistant plants are a problem that are only ever going to get worse,” says Stephen Moss.

Planning to skip using a powerful herbicide like Atlantis (mesosulfuron + iodosulfuron) is a pretty radical step, but it still makes sense, insists James Clarke. “If you can give Atlantis a rest for one year, it will do a lot to reduce the selection pressure and delay any build-up of resistance on-farm.”

“If you get everything else right, there are circumstances where you could easily do that.”

Resistance to Atlantis has been confirmed in over 250 fields in England to date, comments research scientist, Dr Stephen Moss of Rothamsted Research. “But complete failures are still rare considering how widely it’s used now — and many suspected cases are due to poor application.”

But with no new herbicides in the pipeline — and with existing options significantly depleted now IPU and trifluralin are gone, and pendimethalin now under significant pressure from the water companies — growers need to do all they can to protect this important herbicide, he believes.

“Atlantis is a very precious product which needs to be protected. But it’s a fickle one too, so be sure to optimise its use.”

Too much reliance?
His concern is that growers place too much reliance on Atlantis, a product which is vulnerable to both progressively worsening enhanced-metabolism resistance and ‘fall-off-a-cliff’ target-site resistance.

Mark Hemmant of Agrovista concurs: “It’s a numbers game with Atlantis — the less you expose it to weed pressure, the less the risk of resistance developing.”

But Stephen Moss found small clumps of surviving blackgrass in several otherwise clean fields last summer. “Resistance was confirmed in most cases — maybe reflecting the seed shed from a single resistant plant the year before.” Further tests are being conducted.

Brome pressure building
Pressure from brome grass species is building — mainly because of minimum tillage, early sowing, over-reliance on herbicides and bare patches on field margins and near hedges. Differentiating between species is important to optimise control.

Anisantha (barren/sterile and great brome) and Bromus (meadow, soft and rye brome) species are all well controlled by ploughing down to 15cm, but seed from the latter is best left on the surface of a stale seedbed for as long as possible to maximise chitting.

Conversely, Anisantha becomes more dormant if left in daylight — so shallow cultivation should be carried out as soon as possible after harvest to stimulate chitting. In both cases, glyphosate should be applied shortly afterwards to eliminate the weed seedlings.

Source: HGCA Information Sheet 7
The Advantage is in the Formulation
“The worry is that these small groups of plants shed seed and become ever bigger patches in succeeding years. That may not be hitting the yield quite yet but resistant plants are a problem that are only ever going to get worse.

“And with no alternative herbicides in the pipeline, it really is imperative that farmers and advisors work hard to preserve all the options they have in an increasingly limited spray armory.”

**Spring Atlantis**

Although spring Atlantis did a good job this season, he urges growers not to be complacent. “Much of it was down to favourable spraying conditions and smaller blackgrass plants in the spring as a consequence of the relatively cold winter and later drilling.

“Spring germinators have a very limited impact on the yield and produce relatively few heads and seeds anyway, adds Stephen Moss. “I think a lot of the spring blackgrass people chase is actually autumn-germinated plants that have stayed small and undetected through the winter.”

Regardless of the germination date, increased emphasis on non-chemical control is needed, urges Stephen Moss. “That should include everything feasible from the cultural control armory.

“With IPU and trifluralin now gone, and so much hinging on Atlantis, we must work hard to protect it — making a real effort to use stale seedbeds, cultivations, crop competition and drilling date considerations to combat blackgrass and reduce the pressure on the remaining herbicides.”

Delaying drilling remains unpopular
Weed control

with growers, admits James Clarke. “But on every farm, one field has to be drilled last and with everything else being equal, it makes sense to plan for that to be the field with the worst blackgrass.”

Crop density can help too, adds Stephen Moss: “Keep the seed rate up and look to grow more competitive varieties such as Robigus — avoiding very low seed rates where blackgrass is expected to be bad.”

Pre-drilling weed kill has a valuable role to play too, continues James Clarke: “Think in terms of destroying weeds by burying the seed, with rotational ploughing one-year-in-three slashing blackgrass numbers by up to 80%.” The same approach applies to bromes, he adds (see panel on p8).

Seedbed preparation needs to focus on producing fine seedbeds, with as few clods as possible, he stresses. “Clods impair the efficacy of pre-em herbicides and can help the weed seed over-winter — subsequently emerging as the clods break down in the spring.”

Stephen Moss encourages growers to make better use of break crops, or even a full fallow, where necessary. “It’s not as absurd as once thought. Ideally, you want to have two years of preventing blackgrass from seeding. In Essex, some growers are using two successive crops of oilseed rape after continuous wheat to achieve this.

“A two-year break from blackgrass seed return can cut the weed seed bank by more than 90%, whereas a single year will only achieve 70%.”

‘Kerb key’

In oilseed rape, propyzamide (i.e. Kerb) is the key — particularly in non-inversion tillage situations, he continues. “And despite resistance issues, ‘fops’ and ‘dims’ can help. Even where there’s full blown fop/dim resistance, adding them to a Kerb-based weed control programme can boost control for reasons that are hard to fully explain.”

Pursuing a more diverse rotation — including non-cereal and spring-sown crops — reduces the dominance of blackgrass and other annual grass weeds, and gives access to a wider range of herbicide modes of action, lowering the selection pressure for herbicide resistance, says James Clarke.

With pre-em sprays, punctuality is a key priority, he continues: “If you need to switch a man from the drill to the sprayer to ensure the pre-em sprays are all on within a week of drilling, then do it. Properly timed applications make a huge difference to blackgrass control, and the spray timing is more important than product choice.”

Stephen Moss agrees: “Provided the seedbed has settled, the ideal time for a pre-em to go on is as soon after drilling as possible — even if it’s dry — rather than waiting for the blackgrass to emerge.” Failure to get a pre-em applied puts “huge pressure” on the rest of the programme, he adds.

His preference is for an early application of a flufenacet-based product (i.e. Crystal or Liberator) — possibly together with Defy (prosulfocarb) — as part of the overall tank-mix. “Adding DFF to Defy certainly boosts the performance of the latter.”

Mark Hemmant goes further still: “It’s very clear that you can’t beat flufenacet and I’d encourage growers not to mess about too much, and to use it at full-rate.” Pendimethalin is

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sustainable to enhanced-metabolism resistance, so it’s best to use it at the pre-em treatment (as in Crystal/Trooper i.e. flufenacet+ pendimethalin), he adds.

Similarly, in non-blackgrass situations where ryegrass and brome are the main targets, flufenacet remains the best pre-em choice, he notes.

‘Stacked’ approach

His favoured approach is to ‘stack’ 2 l/ha Trooper with 0.3 l/ha Firebird to deliver full-rate flufenacet, plus 60g/ha diflufenican together with pendimethalin. “Weed control is better than with Trooper alone but the treatments all need to go on in good time.” Drifting to the peri-emergence timing will generally give inferior control, he adds.

Including an adjuvant can help boost the ground coverage, he continues. “Pre-ems obviously need good coverage of the soil, which air inclusion nozzles don’t necessarily give. But by adding 0.2 l/ha of the adjuvant Grounded, growers can get all the benefits of a 100 litre Billericay Bubble jet, in terms of reduced drift, lower water volumes and more acres sprayed — improving control at the same time.”

Where blackgrass pressure is most severe, consider using a peri-emergence treatment after the pre-em spray, he continues. “Avadex (tri-allate) fits well in this situation — especially where there’s brome to kill too — with the new BASF product, Auxiliary (prosulfocarb+ clodinafop), being a good alternative on farms lacking an Avadex applicator.” Blackgrass control will definitely benefit where it’s used, he adds.

Turning to Atlantis, Stephen Moss favours its early application. “Application at the one-to-two leaf stage of the weed looks to give better results than waiting until it has two-to-three leaves — especially if it means spraying in cold winter conditions.

“But it rather depends on the effectiveness of the pre-em treatment and the drilling date. Mid-September drilling with good pre-em control favours an autumn post-em treatment but for later October drillings, the temperature may already be too low to consider autumn Atlantis — even at the one-leaf timing.” This is a rather controversial area, with many conflicting trial results, he concedes.

Stephen Moss is particularly keen that growers make the best use of Atlantis for blackgrass control — not compromising its efficacy by chasing other weed targets as well, including wild oats and brome. “There are good herbicide options for dealing with these species, so I’d rather see growers keep Atlantis fully-focussed on blackgrass to make the most of its activity on that weed, and to protect its activity from resistance.

“But don’t risk the blackgrass control to get some wild oats as well. However, there do seem to be more of them around this year — probably because of the cold winter breaking their dormancy”

‘Reasonable job’

Peter Taylor highlights some scope for using Topik (clodinafop) as an alternative to Atlantis where fop/dim resistance permits. “Used at the one-true-leaf stage after a pre-em treatment, it can do quite a reasonable job.” Atlantis can be reserved for later in the autumn, or in
the spring if needed — or left out of the programme altogether."

Mark Hemmant also sees a clear role for clodinafop — alongside Atlantis and a residual element — to bolster weed control efficacy when temperatures start to fall. “It certainly improves its consistency.”

**Latest trials**

Agrovista’s latest trials show a worthwhile benefit from using the drift-reduction product, Companion Gold together with BioPower, when applying the new liquid formulation of Atlantis (marketed as Horus by Agrovista).

“It allows growers to use a blue flat fan nozzle facing forwards at 30° to improve the coverage of small weeds — using just 100 l/ha water and up to 15kph forward speed — which will be very attractive for farms with large areas to cover and only limited spraying days within the optimum autumn spray window.”

He also highlights the need to spray the treatment onto a dry leaf preferably, or to ensure at least four hours drying time. “In dewy conditions, an afternoon application onto a wet leaf is going to give inferior control.” However, Agrovista trials show improved rainfastness where Companion Gold is used in conjunction with Horus.

“And where blackgrass isn’t an issue, Broadway Star (pyroxsulam+ florasulam) will take care of brome, plus or minus ryegrasses and oats.”

In barley, creating a stale seedbed then using a strong pre-em combination of Crystal, Ice or Liberator — sometimes combined with Stomp — is important because Atlantis/Pacifica can’t be used, says Peter Taylor. “I’m less convinced by Lexus (flupyrsulfuron), but DFF/Hurricane with Crystal can work well. Fortunately, barley is a very competitive crop.”

Growers and agronomists should keep records of their blackgrass populations, believes Stephen Moss. “You need to know what’s happening in your fields so you can catch shifts in resistance early on and respond fast by spraying these patches out with glyphosate before the seed is shed.”

Using Atlantis to its full effect is key, targeting the right growth stage, environmental conditions, spray quality and nozzle choice, and avoiding antagonistic tank-mix partners in the spring, he concludes. “Attention to detail will pay dividends and above all, don’t be complacent about the risk of resistance.”

“Drifting to the peri-emergence timing will generally give inferior control of blackgrass,” says Mark Hemmant.
Giving OSR the upper-hand

What lessons should be learned from last year’s disastrous autumn for OSR establishment? CPM finds out.

By Charles Abel and Rob Jones

‘You can almost guarantee that you’ll get phoma, which may need spraying up to three times.’

ough conditions tested rape establishment systems to breaking point last autumn. So what lessons can growers learn?

Tailoring the technique to the conditions, rather than staying wedded to one approach, is probably key, believe agronomists. Moreover, giving herbicides a fighting chance and making the best use of autumn nitrogen are hugely important too.

“The value of good seedbeds was amply demonstrated last autumn — not only through the widespread establishment difficulties where seedbeds were inadequate, but by the results from last summer’s harvest too,” says ProCam technical director, Dr David Ellerton.

“Our 4cast crop recording survey, spanning 40,000ha of winter OSR, showed crops drilled into ploughed seedbeds yielded 4t+/ha on average, compared with around 3.3t/ha from till-seeding, 3.2t/ha from min-tilling and just 2.4t/ha from broadcasting — and that was from crops established in easier conditions in autumn 2007” (see graph on p18).

“So it’ll be extremely interesting to assess how crops mauled into awful seedbeds last autumn performed this harvest.”

Too many OSR growers focus on the time and cost-savings resulting from reduced or no-till establishment without realising how much yield can be lost when the soil conditions are poor, he believes.

“We’ve seen all of the techniques working well, with some very good results from both min-till and till-seeding — and even some disappointing results where ploughing has produced a poor seedbed,” continues David Ellerton. “Min-till and till-seeding can work particularly well on lighter soils — especially when it’s relatively dry since moisture is conserved so effectively.”

But the technique must match the conditions on the day, he insists. “If you don’t do that and persist with a min-till or till-seeding technique in the wrong conditions, things can become very difficult — with rape emerging from different depths over a prolonged period of time, severely restricting the pre-em herbicide options.”

Shared views

David Ellerton’s views are shared by Richard Overthrow of TAG: “There are big differences between different cultivation methods, so growers really mustn’t pursue a single, blanket approach. If they don’t adapt to the conditions, they may end up having to re-drill up to three times — as some did last autumn.”

David Ellerton believes not all min-till systems are equal. “There are huge differences, with some machines achieving quite an even depth of drilling — and others not — with problems where crops were muddled into inadequate seedbeds last autumn clearly highlighting the risks.

“These crops never really recovered, and where a pre-emergence herbicide had been applied, farmers found that they’d}
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The establishment technique must match the conditions on the day," says David Ellerton.

burned their bridges for alternative crop options — and many were left with appalling crops with very poor prospects."

The learning point is clear, he believes: "Don't sow seed unless you know the conditions are right." His advice is therefore to prepare seedbeds early and to delay sowing until the conditions are optimal — ideally in the mid-to-latter part of August — allowing time to burn-off stale seedbeds with glyphosate.

Essex-based AICC adviser, Peter Taylor, agrees it's more important to get a crop established when the soil conditions are right than to wait for the perfect sowing date. "We've seen a move away from the ideal date of 20-25 August in recent years towards as soon as possible after 1 August, and I have to say that I support that trend.

"Don't farm according to what happened last year — think of the issues on the day instead and get the crop sown when the conditions are right."

Seed rates will need adjusting — with early-sown crops requiring a maximum of just 50-60 seeds/m² in good conditions, compared with 100+ seeds/m² later on, he says. "There's evidence that high seed rates cause antagonism between plants, hence they don't get away as well as thinner stands."

Pressing and rolling close behind the seeder is also important to conserve moisture in dry weather, he adds.

However, a word of warning from Richard Othrow on drilling too early: "Growers tell me they're planning to sow from early August onwards this year but that creates extra pressure from diseases, pests and over-lush crops going into autumn."

"You can almost guarantee that you'll get phoma, which may need spraying up to three times, and there's a greater risk of downy mildew and cabbage root fly too."

'All manageable'

"These are all fairly manageable — particularly with the new seed treatments Modesto (beta-cyfluthrin+ clothianidin) and Cruiser (thiamethoxam) helping to protect against pest attack — but growers need to realise that they'll be dealing with a very different crop and, as a result, they should certainly look at reducing seed rate by up to 25%, depending on the soil conditions, to compensate for the stronger autumn growth."

But whatever the sowing date, the key is to create as good a seedbed as possible, with good seed-to-soil contact and an even depth of drilling to promote consistent emergence across the field to allow herbicides to work to their optimum, comments David Ellerton.

Peter Taylor agrees: "The key is to get good soil-to-seed contact which means achieving a reasonable tilth — not lumps and cobbles — with any compaction removed." He believes this is where sub-soiler and cultivator broadcasting systems can work well, 'boiling up' the soil up on light-to-medium soils, but struggling to achieve the same effect on heavier land.

"Rape is a notoriously lazy rooter, so with poor soil conditions following last autumn — evident in the way crops looked in the run up to harvest — it's important to address this as soon as possible, particularly where rape is following late wheat. Rape needs a good soil structure and root run."

Rooting can be boosted by using a PGR-type fungicide such as metconazole (e.g. Caramba), flusilazole (e.g. Genie) or tebuconazole (e.g. Folicur) in the autumn, notes David Ellerton. "It helps to push the roots down further, resulting in stronger, thicker tap roots with better lateral rooting too."

However, growers also need to observe label requirements for cultivations where sulfonylurea herbicides, such as Atlantis or Pacifica (both mesosulfuron+ iodosulfuron), Monitor (sulfo sulfuron) or Attribut (propoxycarbazone-sodium), were used in the preceding wheat crop, he adds.

"Indeed, herbicide issues should be one of the main influences in OSR establishment decisions. As we gradually lose our herbicide armoury across the range of arable crops, it's crucial that growers really take advantage of the benefits of OSR as a cleaning crop for weeds and use the different modes of action of the various herbicides available — including pre-em as well as post-em options."

Yet min-till and till-seeded crops can be particularly vulnerable to pre-em herbicide damage resulting from seed being left exposed on the soil surface.
The spectre of last year’s wet harvest and late OSR plantings as a result, plus the loss of trifluralin, means weed control tactics need a rethink this year, believes Chris Bean, technical director for UAP. “Some rape crops were planted very late and in less-than-ideal conditions. This resulted in some poor crops with thin plant stands which were then targeted by pigeons from late winter until well into the spring. These crops were unable to compete with emerging weeds once the pre-em herbicide had run out of steam, with the wet weather tending to reduce the persistence as well. You haven’t got to travel very far to see the many weeds that escaped treatment this season –– not least hedge mustard, cleavers and blackgrass, and poppy on the lighter chalk soils. Growers therefore need to reassess their focus this summer and set-out to drill OSR a bit earlier –– from mid-August onwards –– into moist, well-consolidated and relatively fine seedbeds to give both the crop and the herbicide a head start. That will lead to quicker emergence, more even establishment and a better plant stand overall — all of which will give crops more yield potential.”

He believes the loss of trifluralin will leave a significant gap, although the herbicide, Shadow (dimethenamid+ metazachlor+ quinmerac), could be a suitable alternative, he says. “Launched last year, Shadow controls a wide range of weeds including speedwell, chickweed, cleavers, cranesbill, shepherd’s purse, hedge mustard and poppy. In particular, the dimethenamid looks to be a useful new active.” Shadow has given excellent control of cleavers and shepherd’s purse in UAP trials over the past few years, he continues. “It also copes very well with poppies on lighter land where a split pre/post application has improved the level of persistence. The product also has very useful activity on blackgrass — around 60-70% control — meaning it provides a very good start to the grassweed control programme. Significantly, it incorporates different modes of action in killing the weed — a welcome boost from an anti-resistance perspective.”

In fields with more difficult blackgrass, Aramo can be used at the 2-true-leaf stage to boost the level of control but even this isn’t working well enough in some situations, he continues. “Mixing Kerb (propyzamide) and Crawler (carbetamide) as an alternative has given surprisingly good results, introducing a number of different actives with varying modes of action.”

Chris Bean warns that cutting herbicide dose rates isn’t an option nowadays. “There’s always a temptation to trim the rates in oilseed rape because of the expense involved but doing so is a recipe for disaster. For example, reducing the overall dose rate of Shadow from 2.5 l/ha will give disappointing control of key weeds such as cleavers, cranesbill and poppies — and if you fail to control these early on, there aren’t many reliable options to tidy up with later on.”

Keeping it clean

The spectre of last year’s wet harvest and late OSR plantings as a result, plus the loss of trifluralin, means weed control tactics need a rethink this year, believes Chris Bean, technical director for UAP. “Some rape crops were planted very late and in less-than-ideal conditions. This resulted in some poor crops with thin plant stands which were then targeted by pigeons from late winter until well into the spring. “These crops were unable to compete with emerging weeds once the pre-em herbicide had run out of steam, with the wet weather tending to reduce the persistence as well. You haven’t got to travel very far to see the many weeds that escaped treatment this season — not least hedge mustard, cleavers and blackgrass, and poppy on the lighter chalk soils.

Growers therefore need to reassess their focus this summer and set-out to drill OSR a bit earlier — from mid-August onwards — into moist, well-consolidated and relatively fine seedbeds to give both the crop and the herbicide a head start.

“That will lead to quicker emergence, more even establishment and a better plant stand overall — all of which will give crops more yield potential.”

He believes the loss of trifluralin will leave a significant gap, although the herbicide, Shadow (dimethenamid+ metazachlor+ quinmerac), could be a suitable alternative, he says. “Launched last year, Shadow controls a wide range of weeds including speedwell, chickweed, cleavers, cranesbill, shepherd’s purse, hedge mustard and poppy. In particular, the dimethenamid looks to be a useful new active.” Shadow has given excellent control of cleavers and shepherd’s purse in UAP trials over the past few years, he continues. “It also copes very well with poppies on lighter land where a split pre/post application has improved the level of persistence. The product also has very useful activity on blackgrass — around 60-70% control — meaning it provides a very good start to the grassweed control programme. Significantly, it incorporates different modes of action in killing the weed — a welcome boost from an anti-resistance perspective.”

In fields with more difficult blackgrass, Aramo can be used at the 2-true-leaf stage to boost the level of control but even this isn’t working well enough in some situations, he continues. “Mixing Kerb (propyzamide) and Crawler (carbetamide) as an alternative has given surprisingly good results, introducing a number of different actives with varying modes of action.”

Chris Bean warns that cutting herbicide dose rates isn’t an option nowadays. “There’s always a temptation to trim the rates in oilseed rape because of the expense involved but doing so is a recipe for disaster. For example, reducing the overall dose rate of Shadow from 2.5 l/ha will give disappointing control of key weeds such as cleavers, cranesbill and poppies — and if you fail to control these early on, there aren’t many reliable options to tidy up with later on.”
Buffer strips to protect water quality

OSR growers should include grass buffer strips in their fields beside water courses, according to the latest Voluntary Initiative advice.

Latest evidence from the crop protection industry shows that 6m grass buffer strips can reduce pesticide loss through surface run-off by over 50%.

With the water companies detecting residues of the main OSR herbicides in water, extra precautions are vital to protect water quality and to secure the future use of these herbicides.

For maximum effect, grass buffer strips should be established at least a year before oilseed rape is sown. However, the VI advises growers to aim to establish buffer strips for both 2009 and 2010 plantings of OSR and winter beans.

Financial support for buffer strips is available through the various agri-environment schemes such as Environmental Stewardship.

Improving slug pellet use

1. 5m no-pellet buffer around all watercourses and ditches
2. Keep pellets out of field margins; switch off when turning; treat headlands last
3. Don’t pellet if heavy rain is forecast, or if leaching and/or run-off is likely
4. 700g/ha max per year; 250g/ha max per application; adjust rate to pellet size
5. Treat only according to need
6. Fill pelleter in-field; clear up spills immediately; never leave product unattended
7. Clean applicator in-field and away from ditches and roads
8. Store kit under cover; dispose of waste appropriately
9. Calibrate applicator for rate and side/rear spreading
10. Pellets are pesticides; users must be trained; use protective clothing at all times

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match cultivations to conditions

Autumn N worthwhile

Start seedbed preparation early

Crop boosters beneficial

Use OSR to clean land

Hybrids best at later sowing dates

Aim for early weed control

Exploit stale seedbed if possible

Autumn N worthwhile

Crop boosters beneficial

osr action plan

Spring growth saves late-sown crop

"Flash bounced back in the spring so we decided to stick with it," says Henry Wilson (pictured above, right).

When Henry Wilson's 42ha of OSR failed to emerge last autumn, there were concerns that part of it would have to be ripped up for the second year running.

However, an “explosion of growth” during the spring put the crop well and truly back on-track.

Henry Wilson farms a total of 240ha at Fishers Farm near Hungerford, Berks — mostly on a wheat/rape/wheat/oats rotation. Last season, he and farm contractors, Donald and Philip Brown, chose to abandon 8ha of rape which hadn’t established properly — re-sowing the land with a spring variety.

But those 8ha yielded less than 9t in total and it was hardly worth the time and effort,” he explains. So last autumn when the crop drilled on 19 September failed to make any progress, it was feared the previous year’s scenario would be repeated.

“Because we sowed this season’s crop a lot later than normal because of the late wheat harvest in 2008, it simply didn’t have a chance to get going. But we carried on with it — applying nitrogen in the autumn as normal — and stuck with our standard herbicide regime in the hope it would eventually take-off.”

Walking through the crop last winter was a worrying experience, he admits. “Some plants had emerged but there were huge areas of bare ground. We had a feeling that the plants were there but that they just hadn’t managed to break through.”

Eventually, the crop of Flash started to grow in March and together with his agronomist, David Lines, he took the decision to stick with it — despite some jibes from neighbouring farmers, he says.

Re-sowing would’ve cost an additional £50/ha and he’s now relieved the gamble paid-off. “Since March, plants have appeared in places where we thought all hope was lost. Although there are still some small patches of bare soil, the whole, the crop has filled out extremely well.”

Flash has been grown at Fishers Farm for the past couple of years and will be sown again next season. “We used to grow Expert but we decided to go for a higher yielding variety. But at 550ft altitude, we’re quite a late farm anyway and our heavy clay-capped land isn’t ideal for rape — so we needed something with plenty of vigour.

“Flash has given us that extra edge and while it looked fairly gutless at first, it really exploded into life in the spring — to the amazement of the neighbours.”

Although this season’s crop was established using a min-till approach, “things will be different next season”, explains Henry Wilson. “We’re going to bring the plough back into action and make sure we create much firmer, deeper seedbeds.”

Moreover, the seedrate will be 60/m2 — the highest recommended for the variety, he says. “That will help compensate for the reduced germinations that our heavy soils are notorious for, and will allow for any slug and bird damage as well.”

He’s also planning to apply 25-30kgN/ha to the seedbed in front of the drill to kick-start early growth.

Richard Elsdon, technical manager for United Oilseeds, believes Henry Wilson — and other farmers like him — may need to consider applying a PGR to next season’s rape. “Following last year’s dreadful harvest conditions, a lot of growers are determined to drill their oilseed rape as early as possible.

“This could therefore be the year that a PGR is needed to limit excessive top growth and encourage improved rooting.”


Weed control

‘The implications if we get this wrong really will be quite profound.’

Growers and agronomists are being urged to make an extra effort to safeguard the future of several key oilseed rape pesticides this autumn. Failure to do so could see the products banned and the crop rendered uneconomic on the majority of farms.

Establishing buffer strips beside crops (see panel on p18) could be a crucial first step to preserving the key herbicides carbetamide (Crawler), clopyralid (DowShield), metazachlor (Butisan S) and propyzamide (Kerb), plus the slug killer, metaldehyde.

All five are being targeted by water companies facing hefty costs to remove them from their supplies to comply with the EU Water Framework Directive’s 0.1ppb drinking water standard.

If banned, OSR would be uneconomic to grow on most farms — particularly on heavier land where blackgrass is a problem, according to a report produced by ADAS, and funded by the AIC and CPA (the industry bodies serving the agricultural supply trade and agchem industries respectively).

Stark picture

It paints a stark picture. “Farmers and agronomists must act now to ensure the crop remains viable, and that means adopting best practices and stewardship measures to protect water from herbicide and other pesticide residues,” explains the report co-author, James Clarke of ADAS Boxworth.

Reduced blackgrass control alone could cut rape yields by one-third, slashing up to £390/ha from gross margins as more costly — yet less effective — weed control measures, combined with the yield shortfall, are factored in.

Similarly, reduced ryegrass control could cut 20% from margins, according to the report. Pressure on metaldehyde slug pellets further adds to the concern — risking complete crop failure on individual farms.

Taken together, the cost implications could push oilseed rape margins far below the typical £450/ha overhead cost of the crop — rendering it a non-starter on most farms.

With few alternatives to OSR on heavy land, rotations would suffer hitting total farm income. “Winter beans are the most likely alternative but offer gross margins around £60-100/ha lower, and without any significant cost-savings,” says James Clarke.

Spring-drilled linseed or spring barley also offer gross margins around £80-110/ha less than OSR, he adds.

“Knock-on grassweed pressures in wheat could add up to a further £300/ha to the total losses if rotational ploughing, later drilling and more costly herbicide programmes became necessary. Moreover, the early entry slot for winter wheat would be lost, with workloads being further squeezed.”

Losing the crop would also deal a body blow to biodiversity, with rape acting as a good scavenger of autumn nitrogen and providing a welcome alternative habitat for reed buntings, linnet and yellow hammers, for example, he continues.

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WFD and its implications for OSR

EC Water Framework Directive main threat to OSR

Key products breaching 0.1ppb residue limit in drinking water supplies at risk of being banned

OSR margins potentially unsustainable

Rotations threatened

Water Protection Advice Sheets launched

“H2OK? Water Protection Advice” booklet sent to all farms

Autumn weed control advice

Create 6m grass buffer strips beside all OSR crops

Don’t spray if drains are running or if heavy rain is expected within 48 hours

Carbetamide – only use full 2,100g ai/ha rate for blackgrass; 1,500g ai/ha is sufficient for annual meadowgrass

Propyzamide – only use full 840g ai/ha for severe blackgrass; 700g ai/ha is OK otherwise

Metazachlor – max 1000g ai/ha per crop

Visit www.voluntaryinitiative.org.uk for more information
We learned from the VI catchment work assessments that just one farmer can let the whole side down and set the regulatory process churning,” says Patrick Goldsworthy.

He admits that the issues are complicated. “There’s a real danger that people will push it out of mind, which is why new advice has been mailed to every grower in the UK.”

**Latest advice**

The new “H₂OK? Water Protection Advice” document summarises the latest advice, drawing on practices developed in Voluntary Initiative catchment areas over the past six years, explains VI manager, Patrick Goldsworthy. “At its heart lies a series of Water Protection Advice Sheets for the most vulnerable herbicides, plus the slug killer metaldehyde.

“We’ve included a check list to highlight what needs addressing. If farmers can tick all the boxes that’s obviously ideal but if they can tick two-thirds then at least they’re on the right track. It really is very important for everybody to get involved.”

“We learned from the VI catchment work assessments that just one farmer can let the whole side down and set the regulatory process churning.”

He urges growers to think about introducing grass buffer strips around OSR fields as a priority this autumn because the threat to these products is so great. “These can make a real difference because surface run-off can be such an issue.”

VI work in the Cherwell catchment study showed 60% of the residues can stem from field losses, exceeding the 40% coming from in-yard losses caused at filling and washdown in particular. “We know that heavy rainfall, leading to surface run-off and losses through field drains, is strongly linked to pesticide peaks in the watercourses.”

Avoiding spray applications when field drains are running and when fields are saturated, or when heavy rainfall is expected within 48 hours, is a key priority, he adds.

Acknowledging the practical issues involved, independent agronomist Peter Taylor of Essex-based SAMCO stresses the importance of having the discussion on every farm. “Having a 48-hour delay when spray days are limited creates huge tensions but this is a really serious issue.

“We need farmers to have discussions about the implications of what they’re planning to do in advance. Implementing grass buffer strips should be a key goal for this season.”

**Weed control**

While some dose rate advice has been updated, spray timing and buffer strips are more important, concludes Patrick Goldsworthy. “At peak times, the 0.1ppb limit is going to be breached whether 1kg of product is used or 0.5kg.

“What we really need to do is remove the peaks — and that means preventing pesticides from getting into water supplies.”

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Integrated control ‘a must’

Growers need to review their slug control tactics this autumn if metaldehyde’s future is to be secured.

By Jo Palmer

The timing of slug pellet application is more important than product choice.

Growers must be prepared to adopt a fully integrated approach to slug control this autumn — or run the risk of losing metaldehyde.

Metaldehyde-based pellets typically have around an 80% share of the UK slug control market most seasons but with residues having been detected in drinking water supplies — especially during the last two wet autumns — action must be taken on-farm to maintain metaldehyde’s ongoing approval.

Good Agricultural Practice now dictates a Maximum Individual Dose of 250g metaldehyde ai/ha and a Total Maximum Dose Rate of 700g ai/ha per calendar year — the latter already being a label requirement in potatoes. In the past, there was no limit on the total dose which could be applied.

East Lothian-based agronomist, Craig Herkes of CSC, believes growers must be prepared to adapt to this new situation to ensure they comply with the various labels, industry guidelines and Stewardship requirements. “They need to think of alternative ways of reducing slug populations before they even think of pelleting.”

He reckons the first challenge is achieving a good tilth. “A fine, consolidated seedbed with no clods is what’s needed since cloddy seedbeds are an absolute slug’s paradise.

“I’d then consider using the seed treatment Deter (clothianidin) in cereals since slugs won’t go near treated seed — and that in turn will help reduce grain hollowing prior to crop emergence.”

He believes that, with the loss of IPU and trifluralin, the amount of post-emergence herbicide applied for annual meadowgrass and broadleaf weed control in October or November — all of which were tank-mixed with an insecticide in the past — will plummet.

“Early-sown crops need protecting with an effective seed treatment and Deter will give around 6-8 weeks security against BYDV.”

‘Real bonus’

The product’s ability to reduce grain hollowing is a real bonus and its use will often mean growers won’t have to start pelleting at drilling-time — waiting until crop emergence instead, he says. “Seed treatments in wheat will therefore have a key role to play in any integrated control strategy against slugs.”

Craig Herkes believes each component in the prevention strategy plays an equally important part in reducing the slug population — helping to ensure pellets are only used in high risk situations. “The idea of making prophylactic slug pellet applications is long gone.”

He advises growers to use HGCA’s guidelines for trapping. “We need to get much smarter when it comes to slug pelleting, and monitoring populations is part of the integrated process — helping to ensure the risk of crop damage is actually high enough to justify treatment.” Moreover, there’s no point applying pellets when it is too dry, he adds.

“And it’s essential to continue monitoring until crops are past the vulnerable stage.”

Craig Herkes prefers to use durum-based, wet-extruded pellets, such as Wetex, because of the formulation advantage. “They show good integrity but remain palatable to slugs.

“I’ve found that bran-based pellets tend to lose their integrity more easily, and some durum pellets are too hard for the slugs to eat.” He believes the Wetex formulations strike the right balance.

He also tends to use methiocarb-based pellets in preference to metaldehyde. “We grow a lot of potatoes up here and some of the wheat is sown late in cold conditions on less-than-ideal seedbeds. We’ve found methiocarb works best in this situation.
“Integrating methiocarb into the programme helps to take the pressure off metaldehyde — and using less metaldehyde should in turn reduce the level of water contamination.”

Craig Herkes believes that by using a series of planned measures, growers should be able to reduce the number of pellet applications required. “In the past, three applications were the norm but that could be reduced to 1-2 where an integrated control approach is used.”

Bob Mills, technical manager for Frontier Agriculture, agrees growers need to consider cultural methods, as well as pelleting, to control slugs. “Cultural control is invaluable and will undoubtedly become more important in future.

“This should start as the previous crop is being harvested by minimising the amount of trash left behind — especially if the following crop is to be a first wheat.” Trash tends to harbour and encourage slugs, and can make it more difficult to achieve a suitable seedbed, free from clods, he adds.

“Ideally, the land should be ploughed, pressed and drilled — without too much or too little moisture — so the crop can emerge rapidly and evenly. The goal should be to create an environment where the seed will germinate and get going as quickly as possible.”

Bob Mills is another Deter enthusiast: “It aids establishment by reducing slug activity on the seed. And although it doesn’t actually control slugs — hence you may still see grazing in emerged crops — its use is very valuable.”

However, he believes it may have more of an impact in some years than others. “It will certainly have less work to do in a clod-free, moist seedbed until the crop gets going properly. But when you buy the seed, you don’t know what the season will bring — so it’s better to be safe than sorry and use it if you suspect there’s going to be a problem.”

Bob Mills emphasises the importance of monitoring slug populations before applying pellets. “Every situation is obviously different but high risk factors include wet weather, heavy soils, cloddy soils, minimal cultivation and having oilseed rape in the rotation.”

Growers must strive particularly hard to avoid water contamination from slug pellets this autumn, he stresses. “In particular, growers should take note of the proposed Maximum Total Dose for metaldehyde.

“This should still allow three applications to be made which ought to be sufficient, especially with two other options available — ferric phosphate (i.e. Sluxx) and methiocarb.”

He also reckons wet extruded pellets are better than dry pellets as they take longer to breakdown and provide better persistence. “That in turn leads to fewer applications.”

Moreover, wet extruded pellets tend
With around 100ha of potatoes on the Lincs marshlands, Jonathan Fowler of College Farm, Frampton has watercourses or ditches bordering virtually every field. It’s caused a rethink of his slug pelleting strategy for this autumn, he admits. “We’ve seen 60-80% slug damage in potato crops in the past, and even some written-off fields in worst case scenarios,” says Jonathan Fowler. “Slug-holed potatoes have no value so you have to treat the crop as soon as possible once the assessments highlight a risk.”

He describes the farm being as a ‘moderate user’ of metaldehyde, with a strong emphasis on adopting cultural measures, such as crop rotation and cultivations, to reduce the pressure from slugs. He also recognises the need to alleviate pressure on the active ingredient. After discussing his concerns with his agronomist, Stuart Maltby of Frontier, the two concluded Sluxx (ferric phosphate) appeared to be a ‘no compromise’ solution. Its 3% formulation means it can be used cost-effectively in broad-acre crops such as potatoes — with the advantage of having no statutory buffer zone requirement. The wet extruded ‘pasta’ formulation eventually breaks-down naturally in the soil and is virtually insoluble in water — although its label states pellets should not be allowed to enter watercourses.

Jonathan Fowler made his first application of Sluxx to around 10ha of headlands on a 120ha field of Maris Piper on 2 July this year. It was applied at the label rate of 7kg/ha — equivalent to around 66 pellets/m² and enough to deliver a high level of control, according to manufacturer Certis. The rest of the field received metaldehyde slug pellets as normal. Whilst he’s reluctant to pass judgement on the product prior to harvest, he’s confident it will deliver the required level of control. “We’ve seen the trial results and the efficacy of the material is there — making it more or less comparable with the other leading slug pellets.”

With the crop boundaries on College Farm taking priority for Sluxx treatments, the headlands are viewed as being at a higher risk from slug damage due to the more cloddy, silty soil type compared with the interior of the fields. Moreover, the showery and thundery weather during July was ideal for slugs migrating to the soil surface to feed on pellets — particularly during the night.”

Protecting cropped headlands

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“Traps should be laid before any pellets are applied,” stresses Bob Mills.

- alternative to metaldehyde or methiocarb.

“But always take care when applying these — or any other pellets — as molluscicides are pesticides too.”

Bob Mills believes metaldehyde will continue to be the mainstay product for slug control — assuming growers use it responsibly. “But I’m considering slug control — assuming growers use molluscicides are pesticides too.”

“Putting this into context, there were many factors that were found to influence the viability of carabids — with cultivations being very detrimental.”

Another example investigated was methiocarb’s effects on earthworms, he continues. “It’s known that methiocarb slug baits can affect them if they travel on the soil surface during very wet conditions, but dead worms make up such a small proportion of the overall population that there’s no significant impact in the short or long-term. “This is reflected by the lack of any reference to worms on the approved labels of methiocarb baits and the EIS sheets on the CPA website.”

He explains that in lab tests where earthworms were exposed under extreme conditions to higher-than-field-rates of methiocarb, over 75% of worms were not killed by the chemical. “Where this study was repeated using recommended dose rates, there was no statistical difference between the methiocarb-treated and untreated samples.

“Even in circumstances when methiocarb has been applied and then heavy rainfall occurs — encouraging worms to come to the soil surface — it’s estimated that less than 5% of the population would be affected, compared with around one-third killed by each cultivation pass.”

Critics suggest other wildlife species are at risk from direct or indirect consumption of slug pellets but, in virtually every case, this is caused by un-recommended use, bad storage, spillage or abuse, says Richard Meredith. “According to Defra’s Wildlife Incident Investigation Scheme, approved use incidents were between zero and two per year.”

Moreover, methiocarb isn’t implicated in any of the current issues regarding water contamination — partly because it has a much lower solubility than metaldehyde and is more readily bound onto soil particles, he says. “It hasn’t been found in any of the monitoring tests carried out by the water authorities.”

Richard Meredith concludes that slug pellets are essential in the battle against slugs. “With judicious and responsible use, all products currently available can be used safely with minimal side effects on non-target organisms.”

Although slug pellets pose some risks to non-target organisms, these should be kept in perspective, believes Richard Meredith of Bayer CropScience.

“We’re always looking at any possible side-effects our products may have and we’ve invested significantly in this area.

“For example, methiocarb is a very effective molluscicide but it also has some insecticidal activity, so non-target soil inhabiting arthropods can be affected — but the reality is that any effect is quite limited and transient.”

His claim is supported by extensive studies carried out by ADAS in the TALISMAN project (i.e. Towards A Lower Input System Minimising Agrochemicals and Nitrogen) which included carabid beetles amongst the insects studied.

The project found no adverse effects from methiocarb on any arthropod species following 23 out of 26 uses over a six-year period. “On the three occasions when its effects were deleterious, the carabid beetle population recovered within just three months.

“Putting this into context, there were many significant changes in the ways slugs are controlled in future.

“Cultural control can often be the most effective way of preventing slugs, and the most important decision might be to avoid growing rape in the rotation. Nothing encourages slugs like rape — but what do you grow instead?”

He believes creating an ideal seedbed is the best defence against slugs at drilling-time. “The more soil movement you can achieve the better, since the ultimate solution would be to completely invert the soil by ploughing.

“Next, the goal should be to try to impede their progress through the soil by consolidation. So if seedbed preparation is performed by non-inversion tillage, it’s even more important to consolidate fluffy seedbeds.”

The timing of a slug pellet application is more important than product choice, continues Ben Freer. “In TAG trials, applying slug pellets prior to forecast rain gave much better levels of control — with the peak of the slug kill being within 48 hours of application.

“If you can predict when slug activity is likely to be at its peak — and when slugs are moving up to the soil surface — most pellets will work well.”

He adds that, in his experience, the freshness of the pellet is highly significant.

TAG is fully supportive of the Stewardship campaign for slug pellets (www.getpelletwise.co.uk). “It’s vital that, as advisors, we implement effective cultural control methods wherever we can and that slug pellets are used responsibly.”

Malcolm Smith of Masstool believes one of the most important tasks in an integrated slug control programme is to first assess the degree of risk. “Risk assessment and cultural control measures are closely interconnected, and the first thing growers should do before cultivating is to assess the level of slug activity via trapping.” He agrees that pellets should never be used prophylactically nowadays.

Traps should be baited with chicken layer’s mash and placed evenly, with around nine per field (or proportionately more if the field is larger than 20ha), he says. “On no account should slug pellets be used in traps.

“Traps should then be checked early in the morning, with a catch of four or more slugs per trap indicating a possible risk to cereals — assuming the soil and
weather conditions favour slug activity.”

For oilseed rape, the threshold is lower — with treatment warranted where four or more slugs per trap are found in the preceding cereal crop, or one slug per trap in the preceding stubble, he says.

Malcolm Smith suggests trap catches should be used together with other agronomic information to accurately assess the degree of risk. “High risk rotations are those including oilseed rape, and crops after set-aside because slug populations are allowed to build-up.”

**More impact**

Cultivations are also important and, in general, the greater the level of soil disturbance, the more impact it has on the number of slugs surviving, he says. “Ploughing will therefore have the most impact on slug numbers, and direct drilling the least.

“But whatever tillage method is in use, it’s important to get a well consolidated seedbed. Moreover, the drilling depth should be adjusted to ensure an even germination and emergence, and lastly, Deter should be used in cereals to prevent slugs feeding on the grain after drilling.”

Malcolm Smith agrees that the weather conditions also need to be taken into consideration. “Cool, damp conditions increase slug populations by affecting their activity, survival and reproduction. And having assessed the risk initially, it’s important to continue monitoring crops throughout their susceptible stage.”

He acknowledges that wheat can receive 4-5 pellet applications in a wet autumn, with up to three applications on winter rape. “By assessing the risk and monitoring the changing situation — and reacting only when the threshold is breached — pellet use can be minimised, and slug control maximised.”

The risk of water pollution can also be reduced in this way, he continues. “With last autumn being so wet, it was one of the highest years for slug pellet usage — and metaldehyde was unfortunately found in water. Some of it was obviously misapplied too close to watercourses, and some of it would’ve been split accidentally — with the rest perhaps the result of washing down application equipment in the farmyard.

“But because it’s got into water, every grower must realise the risk of losing the active if the situation continues.”

Malcolm Smith also points out the importance of handling pellets properly during transportation and in-store. “The current packaging of many pellets can easily be damaged, although the manufacturers are making improvements in this area.”

He sees the main slot for methiocarb-based pellets as being later in the season. “If we lost metaldehyde, methiocarb use would inevitably increase and it probably wouldn’t be long before it too was found in water.

The sooner growers come to realise that slug pellets need to be treated as pesticides, the better.”

“If you can predict when slug activity is likely to be at its peak, most pellets will work well,” says Ben Freer.
Evolving markets to shape variety choice?

How should wheat growers be adapting their variety choices for next season?

By Martin Rickatson and Jo Palmer

Whether to focus on premium-earning milling varieties, barn-fillers or ‘yield with a quality bonus’ types has always been the wheat grower’s traditional dilemma when selecting seed.

However, the development of new uses for wheat — in particular, the domestic industrial grain market which has stemmed from the creation of two new bioethanol plants — is one of the biggest factors reversing the traditional geographical flow of wheat within the UK.

With a more ‘open’ market, the trade is now suggesting that growers seeking the maximum returns from their crops need to be more precise about the markets they’re targeting — and the NABIM wheat groups they’re selecting from — when choosing varieties for this autumn.

“This is reflected in the fact that there’s still grain from harvest 2008 looking for a home,” says Elved Phillips, grain groups director for Openfield. He believes the prediction that the 2009 world harvest will be the second biggest ever is very optimistic.

“We started with a smaller crop in the first place, with plantings lower and later pretty much everywhere in the world. The UK crop area alone is down 10% and there have been big problems in other countries as well.

“A lack of credit for inputs — especially for fertiliser — plus a late winter kill will affect yields in central and eastern Europe, and the dry spring has caused problems in other parts of the world. For example, the El Nino weather pattern has led to drought conditions in many Australian wheat crops.

To help arable farmers improve their margins through better crop marketing, Bayer CropScience is sponsoring a series of three features — the last of which puts the spotlight on wheat variety selection.
Several months ago, a weakening dollar and a strengthening oil price resulted in investment fund money flowing back into commodities — with biofuel demand an additional positive market factor, he continues. “But the bulls have retreated for now.

Under pressure

“Bizarrely, world wheat prices are now under pressure again — not through any improvement in the growing crop, but because the USDA suddenly ‘found’ an extra 400,000ha of wheat and 800,000ha of maize in July. As a result, hedge funds quickly liquidated their positions.

“That means UK wheat futures are now £25/t down from the market high reached in early June.

“A greater predicted carry-over of wheat from the 2008 harvest is also depressing the market — negating to some degree the fact that the UK will be around 2.5Mt down on last year’s wheat crop this harvest.

“The wheat market is currently over-supplied between harvest and December but the situation may improve from January-to-June as variations in world weather patterns have an impact around the globe.”

UK growers are likely to find the wheat market is going to be “more about volume than quality” in the coming years, predicts Elved Phillips. “In the southern parts of England, mycotoxin issues are putting some farmers off growing milling wheat and in the north, the two new bioethanol plants coming on-stream in the next couple of years will lead to a total of 2Mt of extra demand for feed wheat.”

So moving forward to this autumn’s planting — and next season’s marketing plans — what can growers do to select the varieties that will give them an edge?

A variety selection

Openfield seeds manager, Paul Taylor, continues: “Variety selection is obviously the first step in the process and farmers need to identify whether they’re growing for the right markets because, if we don’t realign our lines of supply, the processors may go elsewhere.”

Industrial consumption will change the direction of the flow of grain in the UK, he predicts. “In the past, it used to move from the north to the south — with the north often trading at a discount — but now it’s reversing, and northern wheat is attracting a premium.”

He believes there’s “genuine domestic demand” for feed/industrial grains which is presenting a viable alternative to the traditional practice of ‘dumping’ on the export market — with the premium and human consumption markets having to compete to attract growers.

But while the buyers need to ensure continuity in their lines of supply, growers need to re-evaluate where the most lucrative markets lie, suggests Paul Taylor. “The alternative is losing established markets to other supplying countries.”

He predicts next season could be a “big wheat planting year.” “Last autumn’s poor drilling conditions meant a lot of land was either fallowed or spring-cropped with rape or pulses.

“The USDA suddenly ‘found’ an extra 400,000ha of wheat and 800,000ha of maize in July — undermining global prices,” says Elved Phillips.

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for example — creating many ideal first wheat situations.” He notes that the malting barley market is currently over-supplied.

**Manage risk**

“But given the potential size of next season’s crop, it will pay to manage the level of risk by spreading the marketing options fairly wide,” he advises.

“Rather than going all-out for yield, it’s worth growing something with a bit of quality — Cordiale, Einstein or Grafton, for example.

“Alternatively, there are varieties such as Alchemy and Viscount with a diverse range of end-uses — including distilling, feed, industrial or export.”

But aside from the general advice, what about niche markets? “Among the human consumption varieties — bread, biscuit and cake flour types from NABIM Groups 1 to 3 — there’s plenty of choice,” believes Paul Taylor. “An examination of the characteristics demanded by particular markets, alongside the agronomic advice for each individual variety, should help growers select the types that suit the buyers they’re targeting.

“Of the NABIM Group 1 types, Solstice continues to take the largest market share within its class. The millers like it because its quality is well-proven, and lucrative buy-back contracts are readily available.

**Renewed interest**

Moreover, there’s renewed long-term interest in Hereward — particularly from Warburtons — leading to the re-commercialisation of the variety, he continues. “After 18 years on the Recommended List, it holds no agronomic secrets but seed supplies are relatively limited at present.” But with Openfield recently obtaining C1 and C2 rights to the variety, the aim is to improve the supply situation, he adds.

“Gallant also looks like an attractive option — potentially rivalling Solstice as an immediate entrant to Group One, but growers should be a little cautious. It perhaps isn’t as pretty as it looks on

Should farmers on marginal land be growing winter barley as a more profitable alternative to second wheat?

“On light land and in areas where take-all can reduce second wheat yields to 8t/ha or below, it’s an alternative that should definitely be considered — bearing in mind the potential premium that can be earned, compared with second wheat,” says Jonathan Hoyland of Frontier.

“The barley market bottomed out in 2007 resulting in the lowest area grown that year since 1962,” he says. “This time last season, spring barley was trading at a £55/t premium over feed wheat, with winter barley fetching a £45/t premium.”

HGCA estimates a total winter barley crop of around 417,000ha this harvest (also see feature on p42).

“That figure will probably drop by around 5-7% this autumn as many of those who got in did so because they weren’t sure what else to grow last year — often drilling without a

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**Casting a giant shadow over the competition**

The dawn of a new age for wheat growers

NABIM Group 1

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**Second wheat — or barley?**

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paper and its susceptibility to rusts could be a flaw.”

For growers seeking a Group One for the late drilling slot, Xi19 fits the bill well — although it does need high nitrogen levels for good yields and proteins, says Paul Taylor.

**Group Twos**

Of the Group Twos, Cordiale remains well-liked by the millers, offering flexible gristing options, type diversity and dependable quality, he continues. “Cordiale also has good export potential — we’ve been doing cargoes to Ireland for a couple of years now — but it does need a robust disease control programme.

“Alternatively, Battalion suits the second wheat slot nicely and performs well under a low input regime — being second to none for disease resistance — while Einstein is a well established favourite that’s widely accepted by the millers.”

For those in central and southern England, Group Two varieties may also be worthy of consideration, suggests Paul Taylor. “For example, Zircon, is a white wheat for breakfast cereal production — notably Weetabix — with the alternative being wheat sourced from France.

“So the UK grower either needs to target this niche or surrender the market outlet to overseas growers.”

Of the Group Three soft wheats, Claire remains the dominant variety, continues Paul Taylor. “But there’s now a wide range of markets for wheats from this group, including export, distilling and bioethanol, and there are some other varieties in the group worth considering — notably Scout if you can get any.”

Being the first general-purpose Group Three variety to be introduced for several years, Scout has good grain characteristics — akin to Claire — and relatively few weaknesses, he says.

However, he acknowledges that a large proportion of the UK wheat area will be put down to Group Four types again next season. “Markets for these wheats have developed in recent seasons beyond animal feed to include beer and whisky offtake from the 2009 crop will be 8-10% down due to the recession, which will put some farmers off growing barley again this season, he predicts.

“However, it does leave the market open for others to exploit. The key question is whether to aim for a 6.5t/ha malting crop or 9.5t/ha feed crop.

“On light land, malting varieties tend to make sense while on heavier land, six-row feed varieties tend to have the greatest potential.” Geography also plays a part — particularly when factoring in the additional benefit of straw sales, he adds.

While spring types fulfil some export demand, winter malting barleys generally only find domestic homes — a fact worth bearing in mind when targeting buyers, warns Jonathan Hoyland.

“Think about selling forward and remember that the maltsters don’t dictate the prices. This is very much determined by the end users — the brewers.”
Competitive grassweeds are well-known for compromising cereal yields but that’s not the only threat they pose to crop margins. Higher incidences of disease, more pests, reduced grain quality and protracted harvests can all result in weedy crops, says Simon Gage of Bayer CropScience. “And while the withdrawal of some herbicide active ingredients is forcing growers to reconsider their weed control strategies anyway, the key is to get crops off to the right start. Weed control must commence even before the crop is drilled and preparing the best possible seedbed is the first and most important step.” For growers with difficult grassweeds to tackle, this will ensure their pre-em treatment will work best, he says. Yield penalties from weed competition — especially blackgrass and ryegrass — can be huge, continues Simon Gage. “Populations of 100 blackgrass heads/m² can reduce winter wheat yields by 11t/ha — and even at lower densities, the effect is ideal for wheat/wheat/rape rotations. “But with Grafton seed in short supply, Humber may be a good alternative with its short stiff straw, good drought resistance and impressive second wheat performance.” Whatever the group or variety, it pays to be cautious about the seed source, he stresses. “The big disadvantage with farm-saved seed is that you’re locking yourself into last year’s market. It makes sense to use certified seed aligned with the buyers’ needs. Not only does it offer the ultimate audit trail through the certification process, it provides wide and flexible variety choice as well.” Moreover, Paul Taylor is convinced of the advantages seed dressings now bring — with the end-buyers now starting to take more of an interest. “From the farmer’s point of view, it’s a highly-targeted way of applying a pesticide since you’re not having to ‘heal’ damaged plants. But from the buyers’ perspective, it isn’t just farmers who benefit from having to make fewer passes through a crop. “It makes for lower carbon footprint crops, and less environmental impact from more precise use of chemicals.” He adds that Deter and Galmano are

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Deciding to join a farmer co-operative and committing to storage off-farm — together with pool marketing — was the best decision one Cambs farmer has made in over two decades of farming, he believes.

Growing 480ha of wheat and oilseed rape at Little Gransden near Cambridge, John Jefferies reckons that being able to produce milling wheat and then be assured of its quality in-store has made a significant difference to the way he farms.

"Last year, we were harvesting the grain at over 22% moisture, which the farm would never have been able to handle — but moving it into Camgrain with its up-to-date drying, cleaning and storage facilities meant the quality was assured.

"I'm confident I can now consistently supply the high quality grain the market demands."

Camgrain has two facilities now — one at Linton with a capacity of 150,000t, and the other, newly-opened store near Wilbraham which can handle 90,000t of cereals, rape or pulses. The latter facility was partly grant-funded by a £16M investment from the East of England Development Agency, and Camgrain is planning to expand the site to 210,000t over the next couple of years.

Moreover, permission has recently been granted for a third site — in Northants — which will bring Camgrain's total storage capacity to 500,000t.

John Jefferies is 100% confident the cooperative approach will bring him the best returns. "We benefit from having excellent relationships with the end-users. For example, Sainsburys buys all of the milling flour for its 360 in-store bakeries from Camgrain — partly because of a desire to use flour which is traceable from UK farms."

Sainsbury's chief executive, Justin King, claims all parties involved in the initiative are equally customer-focused. "We buy 65,000t of grain in total from Camgrain for flour, a relationship which started 18 months ago and has recently been renewed.

"We want to show our consumers the provenance of our products and — despite tough economic conditions — our customers appear to be ever more interested in where their food comes from."

Co-op continues to expand

Camgrain's new storage facility at Wilbraham has a 90,000t capacity.

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Fellow Camgrain member, Hugh Wiseman — one of the cooperative’s original farmer directors — believes many growers underestimate the true cost of on-farm storage. "I've been a member for over 27 years and joined because our own grain stores were old and becoming unfit for the purpose.

"In 1982, Camgrain had a central storage capacity of 11,500t and we struggled to fill it. But now, we have the best quality drying and storage facilities for around 300,000t of crops, with plans approved for a further 200,000t."

With 2,000ha of land in one unit, Hugh Wiseman reckons having access to such a sophisticated facility allows him to achieve the best returns from his grain.

"Logistically, Camgrain can offer me a rapid trailer turn-around of around 30-40mins — allowing the corn carters to keep pace with the combine.

"I'm also fully confident that my grain will be kept in exactly the right conditions that the end users want — meaning higher prices and better premiums."

now the preferred seed treatments on some higher-value contracts.

Above all, Paul Taylor urges growers to be sure of the availability of seed for their chosen varieties.
Specialist grower leaves nothing to chance

Focusing on growing a large area of spring barley means the machinery policy at one Hants farm is geared up for an ‘all or nothing’ work schedule. But it’s a routine that leaves little room for error.

By Mick Roberts

‘With just one variety for each crop, it makes it a lot easier from a storage and handling perspective.’

With more than half of Clanville Farm, near Andover down to spring barley, Nigel North and his brother, Graham, are able to avoid the conventional autumn arable crop establishment bottleneck.

But specialising on earning premiums from milling wheat in addition to malting barley, it means they can leave nothing to chance.

“We’ve concentrated on growing malting barley for many years now — my father started this approach more than 30 years ago and loved it, so we’ve stuck with it ever since. The soil is perfectly suited to the crop and he eventually progressed to growing it continuously until smaller areas of winter wheat and oilseed rape were introduced about six years ago.”

The 480ha chalk land farm has some clay cap soils in the fields close to Clanville. The cropping plan is dominated by the spring barley variety Tipple — accounting for 260ha this season.

The brothers also farm some lighter land 27 miles away at Larkhill on the Salisbury Plain but this tends to dry out early in the spring — making it less suitable for spring barley. This area usually alternates between winter wheat and oilseed rape instead.

Outlying land

This year, the outlying land is down to a higher-than-normal proportion of Solstice winter wheat — with 120ha targeted for milling — and with the remainder sown with Castille oilseed rape, which is grown in alternate years.

The only other crop on the farm is a small area of Flagon winter barley (60ha this year) — but Nigel North reckons the winter crop isn’t as lucrative as its spring cousin.

In the past, the majority of the malting barley grown on the farm was sold to local maltsters but this outlet has since closed. Nowadays, it concentrates on growing the varieties which the merchants favour and — although the crop is sold on the open market, with the majority going either for export through Southampton docks, or up to the brewers in Burton-upon-Trent.

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Our cropping plan is dominated by the spring barley variety Tipple,” says Nigel North.

- single variety for malting — and just three other crops on the farm — isn’t this a fairly high risk strategy? “Not really because we’re a quality-led business, rather than being quantity-dependent,” says Nigel North.

Calculated risk?

“There is, of course, a risk it won’t make the quality premium — which is a problem because we don’t get the yields — but we do have quite a bit of experience going back nearly 40 years. No two seasons are the same and while I admit that it’s a bit of a risk, it’s a calculated one nonetheless.”

The target yields are relatively modest at around 7.5t/ha for the spring barley — with nitrogen being the main limiting factor, he continues. “Not only are we farming in a Nitrate Vulnerable Zone (NVZ), but we have to restrict our N application rates as well so we don’t jeopardise the malting premium.

“It’s been a bit of a roller-coaster ride in recent years with the maltsters determining the prices but we’re still growing the crop, so it can’t be that bad.”

He consults closely with the merchants to ensure he’s growing precisely what the customer requires — the right varieties at the correct specifications.

“But on the other hand, concentrating on the malting and milling markets, and having just four crops means we’ve got a relatively straightforward farming system.

“And with just one variety for each crop, it makes it a lot easier from a storage and handling perspective. But the downside is we end up flipping between some extremely busy periods into slack times.”

To cope with this ‘all or nothing’ workload, the farm is well-equipped with high-capacity equipment — all of it being fairly new and well-maintained. “The investment is there mainly to protect our premiums which could fall foul of any unexpected breakdowns.”

Harvest is a prime example — starting with the winter barley and followed quickly by the oilseed rape. Nigel North drives the combine himself but admits the relatively small area of these crops don’t put him or the machine under too much pressure.

“We’re currently using a John Deere 9780i CTS
Hillmaster, which is two years old and is the second one we’ve owned.” The first CTS replaced two previous John Deere machines — a 2264 and a 2056.

“Our dealer, R Hunt of Chilbolton, advised us that the CTS could easily cope with the area we’re farming and it coincided with a time when my father was looking to take a back seat. We’ve subsequently found we can cut more fields in a day with this one machine than we managed before with two.”

AutoTrac steering
Although the combine is set-up to take the firm’s AutoTrac steering system, he didn’t feel he could justify the extra cost at the time — even though he was impressed by the system. “But we’ll end up using it this harvest having got hold of a new John Deere GreenStar 2600 screen and controller via a different route.

“Basically, we needed to change the fertiliser spreader and although the previous trailed Bredal had served us well — proving very accurate, easy-to-use and reliable — I wanted to shift up to a machine with weigh cells to further fine-tune our fertiliser applications.

“I was all set to go for another Bredal when I discovered the Kverneland Exacta TL spreader came with a ‘plug and play’ ISObus-compatible controller that was actually cheaper to buy. The dealer explained that if I chose a John Deere GreenStar monitor to control it, instead of the Kverneland unit, I could also use the same terminal on the combine and tractors as well.”

His only concerns about buying the Kverneland Exacta TL were that it meant reducing his spreading capacity from 4t on the previous machine to 3.3t — plus the Exacta TL isn’t a model designed specifically for trailed operations, being fitted to a special wheeled ‘trolley’.

“I’d only ever seen a picture of it and I was a bit worried that it didn’t look quite right. But when it arrived, it was absolutely fine.”

Returning to using a mounted spreader was out of the question since the farm needs the capacity to get over a large cropped area in a limited spring working-window. He was also reluctant to move up to a tractor bigger than his John Deere 6930S — but equally, he didn’t want to have 3.3t on the rear linkage and at least a ton of ballast on the front.

“Even if I did this, the entire weight would only transfer on to the rear wheels as soon as I was going uphill — I much prefer to have the weight distributed evenly over three axles. And while this means I have to make a sacrifice on the turning — with extra wheel marks in the crop — I’ve found the Exacta TL is quite close-coupled and doesn’t flatten the crop too much.

“And although it holds slightly less than the previous machine, I’ve actually increased my output from about 120ha/day to 200ha/day.”

Key to success
Timely and accurate fertiliser applications are the key to success with malting barley — particularly with 260ha of the crop to cover, believes Nigel North. “Accurate applications are always important to protect both the yield and the malting premium — particularly considering last year’s tremendous fertiliser price increase.”

Sulphur is also considered to be a vital element for spring malting barley, with the farm applying an average of 124kg/ha Sulphur Gold (30%N/19%S). “This is complemented by 248kg/ha of Nitram and 270kg/ha of a specialist 0:20:20 compound fertiliser ▶
The Exacta TL is fitted with a specially-designed wheeled ‘trolley’. on the output and weights the hopper content as the machine is working — so it’s as accurate as it can be. While it has the capability to also carry out variable rate applications, I haven’t gone down that route as yet — but I’m now applying different rates to individual fields.

“I once put a single 600kg bag onto one field and it was all used to the very last fraction — it was absolutely spot on.”

**Completely compatible**

He finds the John Deere terminal is completely compatible with the Kverneland spreader — proving the value of the ISObus technology. “All the operating pages and adjustments appear just as they would if it was designed for the actual machine.”

And while he doesn’t use automatic shut-off on the headlands, he does program in a 24m ‘virtual headland’ which provides an audible alarm at the correct distance.

His only gripe is the terminal can’t display the page for the JD AutoTrac guidance screen at the same time as the spreader’s pages. He feels a split screen showing both displays at the same time would be helpful but admits, by that time, he’s working in tramlines anyway so it’s not a big problem.

Along with the GreenStar terminal, the farm also bought a John Deere AutoTrac Universal assisted-steering system. While he doesn’t use this in conjunction with the spreader tractor, it’s employed on a range of other fieldwork — particularly cultivations.

As the name suggests, the system can be used on any tractor — two of which are John Deeres anyway — as well as the JCB Fastrac that usually pulls the 8m John Deere 740A drill. “It simply fits around the tractor’s steering wheel, with brackets mounted to the column to keep it steady.

“The one screen can be used on all three tractors as well as the combine,” says Nigel North. “I hardly do any fieldwork without it now.”

**Farm Facts**

**North & Sons**

**Clandeville Farm**

**Nr Andover**

**Hants**

480ha total – mostly tenanted, as well some owned and rented land

- **Soil type:** Predominantly underlying chalk with clay caps. Also lighter loam on Salisbury Plain

- **Staff:** Nigel and Graham North, plus one full-timer

- **Cropping:**
  - Spring barley (malting); winter barley; winter oilseed rape and winter wheat

- **Varieties:**
  - 260ha spring barley – Tipple
  - 120ha winter wheat – Solstice
  - 60ha winter barley – Flagon
  - 40ha oilseed rape – Castille

- **Mainline machinery:**
  
  **Combine:**
  - John Deere 9780i CTS Hillmaster

  **Tractors:**
  - John Deere 8220
  - John Deere 6920S
  - JCB Fastrac 3155

  **Fertiliser spreader:**
  - Kverneland Exacta TL (trailed)

  **Sprayer:**
  - Bateman RB15 with 24m boom and 2,500-litre tank

  **Cultivations:**
  - 5m Kverneland CTC
  - 5.5m Cousins, mounted cultivator (folding)
  - 7f Kverneland semi-mounted plough (RC 100)
  - 5f Kverneland mounted plough (RR85)
  - 12m folding harrows

  **Drill:**
  - 8m John Deere 740A

- **Top dressing**

This spring top dressing regime is one example of the farm’s ‘all or nothing’ fieldwork programme. “We work on the principle that, if the conditions are right to do a job, we go out and do it as quickly as possible — ensuring the optimum timing of the application.”

All of the fertiliser is brought to the field and is loaded quickly into the spreader to improve work-rates. “I can’t afford to waste even 10-15mins driving back to the yard.”

Yet one of the reasons Nigel North has been able to increase his output so dramatically is because of the simplicity of controlling the spreading operation using the GreenStar terminal. “It really is ‘plug and play’ — I connect the spreader via the ISO socket and the operating page appears immediately on the screen.

“I then set the application rate for 124kg/ha, for example, simply by pressing 1, 2 and 4 on the screen, then ‘enter’ — and that’s it. It already knows our 24m working width, so it calculates the area required from the distance travelled.

“The system keeps a constant check that includes magnesium and sulphur as well.

“Application rates are determined with the help of our agronomist, with soil tests being carried out on a regular basis.”

He believes all the fertiliser has to be applied in early April to prevent it from going into the ear.

**Crop Production Magazine –– August 2009**
onto the harvester — then simply plugging them in.

Harvest starts with the 60ha of winter barley and is followed by the oilseed rape, which is desiccated and cut about 10 days later. The spring barley is subsequently harvested at an average rate of about 36ha/day.

**High-value crop**

“It’s a high-value crop so I try to harvest it with minimum losses — we’ve got the capacity in the combine to cope with the area, so it’s as well to use it.”

All the barley and wheat straw is sold to a local merchant who bales and carts it. Whilst Nigel North is conscious he will have to compensate for the lost P&K value, he feels the straw is a valuable commodity for which the farm usually receives a good return — despite common price fluctuations.

The autumn establishment programme kicks-off with oilseed rape. “For this, we still follow the ‘old school’ method of making a seedbed — albeit by min-tilling — using a couple of passes with our Kverneland CTC cultivator. The crop is then sown with the Deere drill.

“The rest of the fields tend to get a pass with the CTC to encourage the weeds and volunteers to chit, then a pass is made with the Cousins heavy-duty cultivator, which we had specially-built. It’s a bit like an old chisel plough — fully-mounted with three rows of deep loosening tines.”

‘No reservations’

Remarkably, the North brothers also have no reservations about going back in with the plough — despite the fact many min-tillers would consider the land already fit to drill. “We obviously look at each field and the conditions on an individual basis, working on the principle that if the roots can’t go down, the crop can’t grow up — it’s that simple.”

However, the plough is used first in the stubble at Larkhill because it “simply isn’t possible” to plough after any other cultivations there since the land goes fluffy and the plough just “pushes it over”, he says. “We sometime establish wheat and rape after a couple of passes with the CTC — depending on the season and conditions.”

On the land following barley — some of which has grown the crop continuously for 40 years — the cultivations begin using a pass with the CTC cultivator to establish a quick chit after the straw has been cleared. “Next might be a pass with the Cousins cultivator, followed by the plough, and another pass with the CTC to work down the furrows — all depending on the conditions.”

The crop is then drilled with the JD 740A, with the headlands often harrowed afterwards to incorporate any seed spilt during turning, and to eradicate the wheel marks.

The ‘slack’ periods that follow the intensive fieldwork aren’t wasted, stresses Nigel North. “We’re building a new farm shop to rent out near Andover, having also refurbished some other buildings — plus we’ve built a house elsewhere for a stable yard.

“In addition, we fabricate buildings in the farm workshop and we’ve got a

16,000 bird day-old-to-point-of-lay chicken rearing business. It’s enough to keep us busy all year round.”
Barley’s popularity to wane?

After returning to favour on many farms — albeit partly because of last autumn’s atrocious drilling conditions — will barley continue to challenge second wheat for a place in the rotation next season?

By Martin Rickatson

“Seed sales are certainly lower, which isn’t surprising with barley prices where they are.’

This season’s barley crop is estimated to be the largest since 2001 at just over 1.1Mha of spring and winter types, according to the latest HGCA data.

Although that hasn’t done much for current prices, is there any reason why farmers shouldn’t consider sowing barley again this autumn?

“If it’s to be a malting variety, they probably shouldn’t bother but if it’s a feed type, there’s every possibility of them making a reasonable profit,” reckons Elved Phillips of Openfield.

Agronomists, grain traders and seed breeders all agree there are significant management benefits to be gained from including barley in the rotation.

Yet recent falls in fertiliser prices should make it possible for growers to produce winter wheat for around £100/t next season,” estimates Elved Phillips.

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“With that in mind — and with an over-supplied malting barley market at present — it would be pure folly to drill a winter malting variety this autumn.”

But there’s no doubt that having barley in the rotation brings a number of strong pluses — making a good entry for oilseed rape, providing more saleable straw, and spreading the drilling and harvest workloads, he says. “For those who can grow good yields of a winter feed variety, or a spring variety, the crop may be worth considering given the lower N prices.

“With malting barley prices currently around £105/t for September 2010, rising to just £110/t for January 2011, there’s almost no premium to be had,” concedes Elved Phillips. “There’s so much malt around at present that there’s enough of last year’s crop to see the industry through until November.”

“It would be pure folly to drill a winter malting variety this autumn,” believes Elved Phillips.
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“Farmers need to be wary of cutting barley out of the rotation altogether simply because prices aren’t competitive now,” says Graham Redman.

- Planting malting types now will only tend to depress the market even further, he adds.

Barley gets thumbs up over second wheat

“We’ve been on and off six-row barley generally for the past 16 years,” admits Neil Armstrong, who farms 860ha in total with his father and brother, trading as JE Armstrong and Sons, based near Berwick-upon-Tweed. “But we went back to it in autumn 2007 by growing Boost.”

Having had good success with the variety, he decided to try the newcomer, Volume, this season. “We’ve found hybrids typically yield around 11t/ha, compared with 9.6-9.7t/ha for our Group 2 and 3 winter wheats, which are grown for distilling.

“As a result, he increased his hybrid barley plantings to 30ha last autumn. However, with a large maltings nearby, the remainder of the 160ha of winter barley he grows was down to the two-row malting variety, Pearl.

Hybrids have also answered his previous misgivings about six-rows having a low specific weight. “You walk into Boost and think it looks good, but you walk into Volume and it looks even better.”

Yet while Neil Armstrong confirms hybrid barley may have similar in-season growing costs to winter wheat — albeit with a lower grain price — it’s the ‘hidden’ benefits which having an early harvest bring that really count. “Those includes less drying and spreading our machinery costs — plus having a timely entry for OSR — which tip the balance in its favour, together with the income from the straw.

“There’s admittedly no farm-saving the seed with hybrid barley and it needs about the same amount of nitrogen to grow it, but wheat is later to harvest and you’ve then got to dry it.”

He normally aims to start combining in the last week of July. “You can usually cut a lot of barley in a day at that time of the year, compared with wheat in September when the nights are closing in — so it helps spread our machinery costs. Moreover, the straw is worth £40-45/t, with hybrids producing an output of around 4.5t/ha. That’s a lot on the bottom-line.”

In addition to the financial benefits, Neil Armstrong notes that Volume was more able to shrug-off the adverse weather last winter. “While all of our other crops remained dormant, it definitely woke up earlier in the spring.”

This year’s crop of Volume was harvested in the last week of July, yielding 11t/ha at 18.7%, and with a specific weight of 63.6kg/hl.

For one Northumbrian farmer, growing hybrid winter barley wins hands down over second wheat.

The combination of a much higher yield and a better margin, together with the multiple benefits from earlier harvesting, all mean he now favours the crop strongly on his sandy clay loam farm.

"In our experience, hybrid barley typically yields 1t/ha+ more than second wheat,” says Neil Armstrong.
are stretched at key points in the arable calendar when rotations are condensed into just two or three crops. “So by extending and diluting that busy period, you can achieve more productivity from those resources as well.”

**Additional cost**

Whether a hybrid variety is worth the additional seed cost is a matter chiefly for an agronomist to advise on, rather than a business consultant, acknowledges Graham Redman. “But as a basic rule of thumb, if the additional expenditure is likely to return at least the same amount — or preferably more — in total returns, or produce cost-savings elsewhere, then it can be justified.

“But remember to account for any other costs incurred — particularly not being able to farm-save seed for the following crop.”

For growers on the right soils, spring-sown malting crops may be a financially-better option than a winter variety, he concurs.

“Growing for malting is what spring barley is all about — achieving a higher premium to compensate for the lower yield. A well-grown spring malting barley crop can provide the highest gross margin of all on some farms.

“That’s not to say it will be the case this coming year. But on favourable soil types which can produce a good malting sample, it’s possible.”

Will Gemmill of Strutt and Parker notes that, across the heavier land his company farms and advises on, feed wheat followed by milling wheat then OSR “undoubtedly works best in the majority of situations”, hence there’s still no place for barley on these soils.

“But it’s a different story on the light land where second wheat may struggle to hit its yield target. Barley does have a place in the second spot in the rotation here — either where malting quality is achievable, or where the combine capacity is pushed and there’s a need to bring forward and spread the harvest.

“However, if a grower is aiming for the former, a malting contract with a reasonable premium is a prerequisite, and the feed barley market is, of course, on the floor at the moment. But that could all change over the course of a year.”

As a company, Strutt and Parker has made a definite move away from barley in recent years, admits Will Gemmill.

“On medium-to-heavy land, Latitude (silthiofam) has given second wheat...”
production a new lease of life, and we use it on the vast majority of our second wheat.

“There are now also some good milling varieties on the Recommended List which are well-suited to the second wheat slot — including Solstice, Cordiale and Einstein.” But in a light land situation, the argument swings back in barley’s favour, he suggests.

Less scope

“There’s a bit less scope on grassweed control since Atlantis (mesosulfuron+ iodosulfuron) can’t be used on barley, but then blackgrass isn’t such a problem on the lighter land anyway. And including barley in the rotation helps spread the drilling workload since it can be sown in between first and second wheat if everything goes according to plan.

“And probably more importantly, it provides an ideal early-entry for oilseed rape — particularly valuable now compulsory set-aside has gone.”

The past couple of years have proved how much of a difference it makes to establish as soon as they’re able. Earlier-sown crops — particularly valuable now compulsory set-aside has gone.

“Earlier-sown crops have tended to be better established, with stronger plants and less susceptibility to pigeons when they move in.

“With winter barley off the field much earlier than a second wheat, growers can then move on with their rape establishment as soon as they’re able.”

While spring barley tends to be more of a northern speciality, for those growers in the south who’re able to produce good malting samples and who can secure a well-priced malting contract, spring types may be well worth considering over winter varieties, he suggests.

‘Best for malting’

“Spring barleys tend to provide the best malting options and may suit farms with land in over-wintered stubbles under ELS or HLS particularly well. The key to making a successful start with the crop is getting it drilled in the right conditions — as early as possible for the best yields.

“In a good season with a well-managed crop, the gross margins on spring malting barley can be as good as that of a winter type.”

Although he has had little first-hand experience of the current batch of hybrid barleys, they look good at first glance, says Will Gemmill. “But they aren’t stunning enough to make winter barley a ‘must grow’ crop.

“And, of course, they tend to be out-and-out feed types which aren’t the most profitable at the moment. But we’ll be watching them carefully to see how they develop.”

He acknowledges the benefits of hybrid vigour have been proven in oilseed rapes in terms of quicker and more reliable establishment — helping to reduce the effects of pigeon damage.

“Hybrid barleys may yet prove themselves in the same manner.”

Variety consultant, Mike Jeffes, stresses the point that growers should compare winter barley figures directly with the performance of second wheat to see whether the former has a valid place in the rotation.

“The performance of the new, high yielding two-rows can stack-up favourably, helping to break the take-all cycle and easing on-farm management pressures at the same time.

“As a rule of thumb, if you can get winter barley to yield on a par with second wheat then winter feed barley trading at a £10/t discount to feed wheat will produce a similar gross margin.”

He bases this on the fact that winter barley production costs are often £80-90/t less than for a second wheat — the savings being achieved through lower N use, one or two fewer fungicides and the fact that there’s no need for a wheat blossom midge spray.

“But you also have to factor in the monetary value and benefits of timeliness and reduced risk management across the whole farm rotation — which is admittedly difficult to quantify — plus the value of any baled straw.

“Combined with the cost-savings on offer, it often swings the decision in favour of growing barley — despite the current price differential of £10-20/t between feed wheat and barley, depending on the location and selling date.”

In contrast though, he’s quick to stress that the argument may not hold for malting barleys, and that variety selection is critical for the best margins.

“New high-yielding feed varieties like KWS Cassia — now on the National List and available for this autumn — are way ahead of the malting types, such as Pearl, on yield with current NL data showing a 10% yield advantage over the latter, which is equivalent to 0.87t/ha.

“When you add in the additional yield penalty associated with reduced N use on Pearl, the premium required to match the margin from a two-row feed barley may need to be £20/t or higher.

Long gone?

“But you need to be sure you can get this if you’re growing for malting — the days of dual-purpose winter barleys are long gone. Just 20-25% of the winter barley area is now reserved for malting types and growers have to be 100% sure they’ll get the premium.”

Mike Jeffes also acknowledges the workload advantages resulting from growing a winter barley. “You can drill in good conditions towards the end of September — and this is clearly earlier than you’d want to be drilling a second wheat.

“Moreover, the timing of the spring fungicide applications often fit well in between those for wheat — enabling better planning and use of the available spray days. And the PGR timings don’t clash, plus you’d normally top-dress barley after rape and before wheat.

“Perhaps most importantly though, with winter barley ready for harvest three weeks-to-a month earlier than wheat, it gives plenty of time to prepare the land for OSR. There’s less need to force a seedbed — you can wait until the soil moisture levels are ideal, and hence get the crop into growing conditions that encourage faster, stronger emergence.

“In some seasons, the earlier harvest also allows discing or shallow-cultivation first to encourage an early flush of blackgrass — but don’t forget the
limitations on herbicide choice later in the crop.”

CEL data is the best guide as to whether hybrids are worth the investment, reckons Mike Jeffes. He notes that Volume is the only variety from the current batch of hybrids which outyields KWS Cassia.

“And it’s pretty clear both Bronx and Volume are inherently weaker-strawed than both Saffron and Cassia. The latter is likely to have a 7-8 rating for straw strength, and is the highest yielding two-row in NL trials.”

With good market outlets in the east of the country, spring malting barley may represent a viable alternative for some growers — and on the right soils, it can be highly profitable, believes Mike Jeffes.

“But while it performs well on chalk and light land, it can be risky on heavy soils.

“On chalk and light land, you can almost drill all-year-round but the key is to get the crop away as early as possible — ideally before the end of January. The plant breeders have made huge progress in terms of yield, and the spring types provide a real chance to get on top of blackgrass.

“However, yields are still around 20% below winter feed barley, and on heavy land, or on farms a long way from a malting outlet, spring types simply don’t pay.”

‘Area to fall’

Lee Robinson of Nickerson, breeder of malting mainstay variety Pearl and the newcomer, Cassata, acknowledges this autumn’s barley area will drop back from its current eight-year high.

“But it’s hard to say precisely by how much. Seed sales are certainly lower, which isn’t surprising with barley prices where they are.

“However, the advantages of the crop don’t change — things like spreading the harvest workload and having grain available early for movement from the farm to make way for wheat are a big advantage. But if a farm can grow good second wheat, then that’s what it’ll stick with.”

He points out that there are now some very high-yielding feed barleys for those looking to move away from second wheat. “The two-row Retriever, for example, produces yields comparable with some six-rows.”

While some growers may be concerned at the cost of hybrid seed — and the fact that it makes farm-saving seed impossible — hybrid development has now evolved to the point where the seed cost isn’t significantly greater than for conventional varieties, claims Rob Hiles of Syngenta Seeds, breeder of the hybrid six-row, Volume.

“The seed cost for Volume is £30/ha higher than a conventional variety but with the highest yields on the current Recommended List — translating into 0.75-1t/ha over conventional types — good returns are achievable even at current grain prices.

“Growers tell us how it’s important for them to spread their marketing and harvesting risks with different crop types. While growing something like Duxford as a second wheat suits some, others want to get on with their combining in July to get things moving — both harvesting and the following cultivations and rape establishment. That’s where barley fits best.”
One Shropshire egg producer’s hens produce far more muck than it can use on its own farm. But with rocketing nutrient prices, the by-product is now a valuable resource — much in demand from neighbouring farms.

By Mick Roberts

Oaklands Farm Eggs’ 1.5M laying hens produce about 50,000t of manure per year and while the family-owned business has a 1,300ha arable farming operation in addition to the poultry unit, it’s nowhere near enough land to cope with the legal and safe disposal of this surfeit of nutrients.

With the farm located in a Nitrate Vulnerable Zone, it means manure management is becoming an increasing important part of running the business as a whole.

“We’re a very unconventional arable farm,” explains Ashley Joule, who looks after the technical aspects of managing the business, while his colleague, Alex Pyke, runs the practical, day-to-day operations.

“We’re owned by J&A O Griffiths & Sons who are now one of Europe’s largest egg producers and this is our core business.” The arable operation exists mainly to help consume the vast amounts of chicken muck produced, he says.

Vast production

However, with such a vast annual production of manure, the business needs considerably more land than it has available. “Prior to the introduction of the NVZ regulations, we used to grow a large area of potatoes — partly because the crop is such a good muck consumer — but they didn’t even come close to matching the area we needed, so we had to find an alternative means of disposal.

“As a result, we decided to scale-up our sales and distribution of manure — with the option of spreading it as well — to make sure we were able to dispose of it all in a responsible manner.

“We actually use very little ourselves now, with the vast majority being sold to neighbouring farms. Demand is strong but the environmental regulations make it increasingly difficult to apply as much as we’d like to at a sensible time within the rotation.

“Although we can spread the manure on the lighter land for a short time during the closed season from 1 August to 15 September (provided the crop is sown before or on 15 September), we’re restricted from using the amount we’d
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“Poultry manure has unjustifiably been categorised with slurries in the NVZ regulations,” believes Ashley Joule.

Like to use at the time when the crops would benefit most.

“So on the one hand, we’re being encouraged to use renewable sources of nutrition — but on the other, we’re being constrained.

“Poultry manure has unjustifiably been categorised with slurries in the NVZ regulations, with its application and incorporation immediately before sowing a winter or spring crop undoubtedly the best time to apply it from a plant growth and environmental standpoint.

“As a result, we and our customers, now have to store the material for longer periods of time — even though the muck is dry enough and has the consistency to allow it to be stacked to comply with the regulations.

“Now, much of the material is used for top-dressing in the spring instead of pre-drilling. And while it’s still a good source of nutrients at that time, it would be far better to incorporate it into the soil in the autumn or spring ahead of sowing.”

That would also help reduce the level of ammonia volatilisation and control the odours better, he notes.

Stockpiled on-farm
The company now encourages its customers to stockpile the muck on-farm ready for spreading as soon as the first crops are harvested. “It’s then ready to spread from the beginning of August on the lighter soils in our area — mainly land going into oilseed rape, or winter cereals sown up to 15 September, or 1 October on heavier land.”

The muck is analysed on a regular basis and in mid-July this year, it’s nutrient content gave it a true value of £15/t ex-farm, claims Ashley Joule (see muck analysis box below). “That’s based on prevailing prices of £170/t for ammonium nitrate, phosphate at £205/t and potash at £540/t.”

But with an annual production of around 50,000t, it means he has to find a home for almost 1,000t of manure a week — every week of the year. “That’s why we sell the product at just £10/t delivered on-farm, plus an optional £2/t for spreading. At that price, it’s a very cheap source of crop nutrition.”

While Ashley Joule is FACTS and BASIS qualified, he encourages his customers to use their own agronomist to advise on the application rates required to suit individual soils, NVZ requirements and yield expectations.

“We’re very much ruled by the NVZ restrictions on the farm and use surprisingly little muck ourselves. For example, a typical nitrogen application on rape or wheat is about 180kgN/ha and I reduce this by about 40kgN/ha to account for the muck.” The remaining N is applied as a liquid fertiliser top-dressing, he adds.

“No other base fertiliser is used and the fields receive manure every 3-4 years on a rotational basis.”

All loads of muck go over a weighbridge before leaving the farm, so Ashley Joule has a record of the exact quantities delivered to each customer.

“For every job, we log the application rate requested and the fields to which it’s due to be applied. We then print out a map from a satellite image, highlighting the fields to be treated, identify the rates to be applied then hand it over to the operator.”

The actual spreading operation is Alex Pyke’s responsibility, who runs all the field operations. For the muck delivery set up, he has a team of three men — each working for five days on a rota system — to keep the material moving off the farm every day (except for Christmas Day).

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Kg/t</th>
<th>20% readily available</th>
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<tbody>
<tr>
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<tr>
<td>Phosphate</td>
<td>9kg</td>
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<tr>
<td>Potash</td>
<td>9kg</td>
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<tr>
<td>Magnesium</td>
<td>3kg</td>
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<tr>
<td>Sulphur</td>
<td>2kg</td>
<td>All readily available</td>
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<tr>
<td>Copper/Sodium/Zinc</td>
<td>Traces</td>
<td>All readily available</td>
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<tr>
<td>Calcium</td>
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Source: G&J E Griffiths

Closed spreading periods for manure

<table>
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<tr>
<th>Grassland</th>
<th>Tilled land</th>
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<td>Sandy and shallow soils All other soils</td>
<td>Sandy and shallow soils All other soils</td>
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* On tilled land with sandy or shallow soils, manure application is permitted between 1 August and 15 September inclusive — provided a crop is sown on or before 15 September.

Source: Defra NVZ compliance leaflet No.8

Trailer fleet
The manure is loaded from the poultry sheds’ belt systems straight into a fleet of ten, 15t trailers. Hook lift trailers are now employed, creating an opportunity to use a number of different trailer bodies on the same running gear. “These have significantly reduced our operating and maintenance costs, whilst improving safety on the road at the same time.”

Muck is usually tipped into each customer’s manure storage area and because it’s dry enough to be ‘stacked’, it can be kept on an ex-sugar beet clamp, for example, says Alex Pyke. “But it’s the buyer’s responsibility to ensure that it’s stored within the NVZ rules.”

Applications are carried out using an 18t K-Two rear-discharge spinning disc spreader which is loaded using a Hyundai wheeled-loader at each farm store. This is pulled by either a Challenger 765B, or a large wheeled-tractor on wide tyres, which allow them to work in most...
conditions without the risk of causing ruts or compaction.

The Challenger is fitted with AutoGuide automatic steering to help to accurately match up the bout widths. “This is a particularly useful and easy-to-use system.”

**Haulage operation**

The haulage operation runs for 10hrs/day and because the muck is often stored in fields, it has to be carried out using agricultural tractors rather than trucks. For this, Alex Pyke has set-up a hire agreement with his local John Deere dealer, Rea Valley Tractors, paying a set hourly rate.

“These tractors clock up 600hrs in ten weeks after which they’re changed for new replacements,” says Alex Pyke. “It’s an arrangement that suits both the dealer and ourselves very well.

“We’re saving a fortune in tyres alone — I’m now able to operate with reliable new tractors without any other fixed costs. The tractors are serviced once during their time with us, and that’s done by the dealer — again without any cost to us.

“In return, the dealer gets a nearly-new tractor back again that’s never had a machine on its linkage, or turned its PTO. We always keep the tractors clean and tidy and, apart from the tyre wear (about 20%), they look brand new.”

The Challenger 765B which hauls the spreader is one of a pair the company bought new, along with a range of other equipment, last February following a massive machinery clear-out. This came after the decision was made to get out of potatoes.

With an annual production of around 50,000t, Ashley Joule and Alex Pyke have to find a home for almost 1,000t of manure a week.

“While Ashley has a tremendous amount of experience with the potato crop, we both realised that — even though we were growing as much as 280ha — we really needed to expand that area to be fully profitable.”

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The philosophy was previously to grow processing potatoes with low input costs, he adds. “A significant proportion of the cost-saving resulted from using nothing but poultry muck as a fertiliser, but the NVZ regulations made it impossible for us to do so in economical quantities. Moreover, capital tied up in the potato equipment could be used more effectively to redevelop the poultry systems to comply with new regulations being introduced in this sector.”

Core business

“You’ve got to remember that our core business is egg production and that currently requires a huge amount of investment in new colony systems to meet the new regulations being introduced in 2012. We had little choice but to stop growing spuds and to concentrate on combinable cropping instead — streamlining the machinery fleet at the same time” (see Farm Facts opposite).

This also enabled him to simplify the whole machinery operation, with two high power tractors and two drivers now being capable of carrying out all the field work. “I see our role as basically an internal contractor for all the family-owned businesses of which the arable farm is just one.

“The muck spreading is one of the services we provide, just as the arable field work is another. With everything, I work on a philosophy of keeping things as simple as possible.”

Yet that doesn’t mean not employing the most sophisticated technology, stresses Alex Pyke. “With the machinery reinvestment came two auto-steer systems — with a John Deere StarFire system fitted on one JD tractor and AutoGuide fitted on one Challenger.” The AutoGuide terminal can also be transferred to the Claas Lexion 600 combine at harvest, he adds.

“Auto-steering is an important way of maintaining accuracy on the muck spreading — it’s capable of providing immense savings from eliminating overlaps when we’re working, and also when we’re cultivating.

“I calculated that removing a 5% overlap on all of our work adds up to an overall saving of about £16,000/year,” he explains. “That includes time, fuel, seed, labour and wearing parts.”

Crop production

The cropping plans set by the two managers is also designed with the goal of keeping things simple. Feed wheat is the main crop, with the farm producing about 11.5% of the laying hens’ feed requirement.

Einstein, Humber and Oakley are grown purely for yield — averaging about 8.5t/ha across both first and second wheats. “This is sold to a local mill from where we purchase our feed.”

Barley is grown on a smaller area

No other base fertiliser is used by the farm, with the fields receiving manure every 3-4 years on a rotational basis.

Core business

“You’ve got to remember that our core business is egg production and that currently requires a huge amount of investment in new colony systems to meet the new regulations being introduced in 2012. We had little choice but to stop growing spuds and to concentrate on combinable cropping instead — streamlining the machinery fleet at the same time” (see Farm Facts opposite).

This also enabled him to simplify the whole machinery operation, with two high power tractors and two drivers now being capable of carrying out all the field work. “I see our role as basically an internal contractor for all the family-owned businesses of which the arable farm is just one.

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Ashley Joule reckons the farm could supply enough power and heat for 5,000 homes through anaerobic digestion.

“There’s no set rotation, but our main crop is always wheat. It depends on the season and the market conditions at the time. The farm is owned by businessmen and is run as a business — pure and simple.” Other break crops include grain maize and land let for potatoes.

Ashley Joule continues: “The land in Shropshire is very variable, with the soil type often varying from black peat to light land, then to heavy clay in just a short distance — so it’s difficult to adopt a ‘bespoke’ establishment system for any one crop.” However, the plough isn’t used much any more, he adds.

**Primary cultivator**
The Simba Solo is the primary cultivator on the heavier land, with a Lemken Terradisc being preferred on the lighter soils. The farm currently drills its rape but is considering switching to using an applicator mounted on the Solo for the coming season.

“We’ll probably move to more second and continuous wheat production next season since the economics of feed wheat is still more attractive than for other combinable crops”.

Ashley Joule and Alex Pyke are constantly investigating new ways of disposing of muck — partly to meet anticipated future changes to the NVZ rules.

“Anaerobic digestion is one area of particular interest,” says Ashley Joule. “We’ve calculated we could supply enough power and heat for 5000 households, and produce stable liquid and solid fertiliser products at the same time.

“But the capital investment required for this scale of operation is colossal — at least £12M — so we’re in discussion with potential partners at present.”

Methane is one of the worst greenhouse gases and anaerobic digestion not only reduces possible pollution, but it would also provide the farm with a substantial additional source of income, he believes.

“But one problem with poultry manure is that it’s high in nitrogen and ammonia, which kills the anaerobic bacteria used in the process. This needs to be treated by mixing the muck with other organic compounds before it enters the digester.

“One answer is to use food waste but we’re not keen on the idea of opening up the gates and becoming a waste handler.” Another option is to feed the digester with home-grown maize but that defeats the object because it takes land out that could otherwise be growing wheat, he adds.

“The best answer is to find a way to drive off the ammonia and nitrogen, and convert it into a product we can apply as a liquid. The beauty of the anaerobic digester is that the process can harvest the methane to generate power without losing the nutrient value of the muck.

“This is subsequently converted into liquid nitrogen and a dry ‘digestate’ — both of which are easier to handle and more environmentally acceptable than the raw manure.”

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**Why try to predict the future?**

**Versatility is vital**

Changing inputs, grain price and field conditions – whatever the seasons throw at you, arm yourself with a system that can take on the demands of modern farming.

—— Crop Production Magazine — August 2009
If a significant proportion of the winter wheat seed going into the ground this autumn is susceptible either to the new strain of yellow rust or an older one, more than enough inoculum could be produced next season to threaten all regions of the UK.

When evaluating the varietal breakdown of seed being produced for drilling next season, it’s fair to say many are susceptible to the disease.

Without wishing to overplay the situation, this season has seen a very big change in both the amount of yellow rust inoculum, and the virulence of the disease in wheat.

We’ve had the ‘Solstice race’ appear — showing new virulence for a combination of genes, including Yr6 resistance — but we’ve also had other varieties showing high levels of susceptibility to yellow rust.

Yet it’s not always clear whether it’s the new strain of the disease or an older one returning. The ‘Robigus race’ has certainly been the predominant type in recent years but that didn’t have the ability to attack Yr6. The strain we’ve witnessed this season is particularly virulent.

At the moment, we’re right in the middle of a typical three-year cycle for yellow rust whereby the first year we see new races appearing in patches, then the second year it begins to build, and the third — next season — it could become a widespread problem.

But for it to have a serious impact, as well as needing to have the right weather conditions, there has to be a source of yellow rust inoculum in the autumn, with volunteers to act as a ‘green bridge’ across to the new crop.

That’s highly likely this autumn following the levels of disease occurring this season.

One major concern is that many of the crops to be drilled this autumn will be ‘seedling susceptible’ to yellow rust — with the disease appearing prior to adult plant resistance cutting in.

Using a seed treatment, such as Epona (fluquinconazole+ prochloraz) on seedling susceptible varieties will certainly help reduce the green bridge affect and prevent early yellow rust — but they can still pick it up later in the season.

Growers should be aware that the disease can exist as a sub-clinical infection, whereby it infects the seedling leaves in the autumn, remaining inside the apparently healthy green leaf over-winter where frost is unlikely to kill it off.

Then as the weather warms up in the early spring, pustules start to appear and it begins to re-generate itself and spread from plant-to-plant — and then from field-to-field.

Like the brown rust epidemic of 2007, the weather will have a significant part to play if yellow rust is to reach new heights next season. Despite it being a relatively cold winter this year — with relatively low levels of yellow rust inoculum about — we’ve seen its resurgence anyway.

The most important part of the yellow rust jigsaw is variety choice so there should now be a renewed focus on those varieties with high levels of resistance to the disease. At Nickerson, our breeding programme has diversified more than most other plant breeders to avoid the risk of catastrophic crop failure to a particular disease through the development of robust new varieties with adult plant resistance.

As part of a broad-based breeding programme, whereby a range of resistant types are included, our varieties are showing their long-term durability in the field and we’re confident they will continue to maintain a high level of resistance to any potential disease epidemic in future.

Tried-and-tested varieties, such as Claire, have resistance to yellow rust that has held firm for a number of years and more recent varieties, such as Panorama and Cassius, also feature adult resistance profiles — helping to limit crop exposure to risk.

If growers are to maximise the efficacy and timing of their fungicide programmes, they must also be aware of the difference between early and late rusting varieties — something we’ve kept a close eye on this season.

We’ve seen some varieties in trials become severely infected by yellow rust in May and June before a period of drought halted any further infection. But later in the season while the crop was still green, yellow rust got going again with fresh eruptions.

Growers must therefore watch out and be prepared for late attacks.

We’ve seen the effect yellow rust can have on several mainstream varieties this year and, with everything pointing to a resurgence of the disease next season, growers should think long and hard about their variety selection for the coming autumn.

Paul Fenwick is a cereal pathologist for Nickerson.
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