

^{fs}tillage

Best crop establishment practice

Spring 2016



Practical

Potash and how to make best use of the nutrient

Case study

World barley record

Big picture

Optimum rather than maximum

Case study

Sustainable OSR growing

Case study

Strip tillage pioneer

Case study

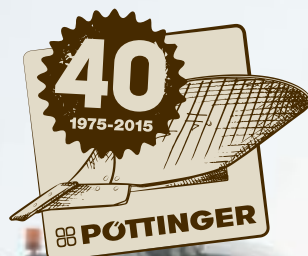
Variable rate drilling to tackle black grass

Insight

A viable alternative to arable crops?

tillagemagazine.net
for the latest
industry news

The new SERVO 45 S
plough range.
Now rated to 350 hp.



0% Finance
Available on all PÖTTINGER products.

PÖTTINGER SERVO 45 S NEW

- Manufactured in Austria using high quality European steel.
- Unique inner beam strengthening bars offer high load bearing capability.
- **SERVOMATIC** adjustment centre for easy plough set up.
- **NONSTOP** ploughing with NOVA auto reset models reduces downtime.
- Large inter body and point to point clearances bury trash with ease.



Visit us in
Hall 5, Stand 545



PÖTTINGER Finance available to business users only.
Subject to terms and conditions. Details upon request
Alois PÖTTINGER UK Ltd, T: 01536 272220
info.uk@pottingeruk.co.uk, www.pottingeruk.co.uk



Tillage News 4-5

The latest developments
from the industry

Practical 6-11

Potash and how to make best
use of the nutrient

Insight 12-13

Drones – tool or toy?

Case Study 14-15

World barley record

Big Picture 16-19

Optimum rather than maximum

Case Study 20-23

Sustainable OSR growing

Case Study 24-27

Strip tillage pioneer

Insight 28-31

Variable rate drilling to tackle
black grass

Insight 32-33

A viable alternative to arable crops

Tech Update 34-35

New developments in the market



BETTER DECISION MAKING AND MORE SUSTAINABLE CROP HEALTH PRACTICES



Fiona Burnett, FRSB
Head of Crop and Soil Systems
Professor Applied Plant Pathology
SRUC

Plant health issues have come way up the public and policy agenda, fuelled by the rise of problems such as ash-die back. Within this wider plant health debate, crop protection has economic, social and environmental costs impacting as does on industry margins, food production and the environment. Better decision-making should equal better and more sustainable crop health management but one of the issues with crop health is the multiple decision makers involved. Effective

crop protection depends on the quality of decision-making (by policy makers, agronomists, scientists, growers, buyers and others) in response to the threat of plant disease in much the same way as the quality of shared decision making by doctors and patients contributes to effective health care. There are constraints on crop protection decision making too - at the moment we are dealing with product withdrawals and losses due to resistance development, with the uptake of other options such as resistant varieties sometimes limited by buyer or consumer preferences. Growers are being pressed to implement more integrated and sustainable practices as governments seek to demonstrate uptake of the Sustainable Use Directive. A risk based approach to judging treatment needs based on monitoring and surveillance data and evidence on the efficacy of different interventions is essential and ultimately good shared decision making depends on effective knowledge exchange between all those involved.

JOHN DEERE IN LORD MAYORS SHOW



The new four-track John Deere 9620RX tractor had a starring role in the 2015 Lord Mayor's Show in London in November, in support of the Worshipful Company of Farmers modern livery company and the NFU's Back British Farming campaign.

It was driven in the parade behind a fully restored John Deere 4020 tractor from the 1960s (picture supplied by the NFU), to help illustrate technological progress in agriculture and to mark 50 years of John Deere Limited in the UK and Ireland - the company started trading from its present day site at Langar, near Nottingham, in January 1966. The 4020, nicknamed BEV after its original registration plate, will also be featured alongside the 9620RX on the company's stand at LAMMA.

New practical drainage guide

The basic principles of field drainage, as well as maintenance and installation information, are the subject of a new practical guide launched by AHDB.

By refreshing knowledge on drainage, it is hoped that the guide will play an important role in stemming the decline in UK drainage investment.

Well-drained soils enhance the resilience of land by making it more able to withstand weather shocks - such as those seen in the wet autumn of 2012.

It is now estimated that around 6.4 million hectares of agricultural land in England and Wales is currently under drained.

Good field drainage is of particular value to growers on heavy soils, in high rainfall areas or where the water table needs to be controlled.

Guide co-author Kirk Hill, ADAS Senior Soil and Water Engineer, said: "In essence, good drainage is about managing soil to help it return to field capacity.

"Soils in a well-drained state tend to work more easily and provide yield benefits.

This guide explains how to get fields in that state, which often does not involve a significant capital investment."

Maintaining drains

The guide describes how a relatively small investment, such as locating and maintaining existing ditches and drains, is likely to reap rewards relatively quickly.

Mr Hill said: "If ditches become in filled and outfalls are not kept

clear, the field drainage system will cease to function effectively.

"This can result in yield-robbing waterlogging beneath the surface and is not merely a problem when there are visible wet patches in the field.

"To control drainage, the first thing to do is rummage around the farm office for drainage plans or create a new plan showing pipes, outfalls and ditches.

"Once located, blocked outfalls can be cleared with a spade in a matter of minutes

Based on 2015 prices, it is estimated that a new system typically costs around £2,500-£3,500 per hectare for drainage with permeable backfill and around £1,500-£2,500 per hectare for drainage without backfill.

Costs can vary greatly and growers looking to invest in a new system are advised to seek the experience of land drainage consultants and contractors.

Not all about drains

All drainage works best in tandem with good soil structure, if soil is compacted it impedes the flow of water to the pipes. In fact, maintaining good soil structure may even avoid the need for capital investment.

The guide also addresses subsoiling, topsoil loosening and the appropriate use of mole drains.

Sustaining soils

Mr Hill concluded: "All landowners should take drainage seriously and invest in their land, and the lack of grant aid should not be a disincentive, particularly for simple maintenance tasks.

"It makes good business sense to invest and there is rapid pay-back for some management options."

"The good news is that the increased use of yield maps is flagging up poorer yielding areas and making growers question whether it could be due to a hidden soil drainage issue."



and blocked drains cleared using a rod or a jet to rejuvenate an entire field."

Useful guidance to help growers locate outfalls, such as checking ditches after rainfall in autumn and winter when there is less vegetation, is detailed in the guide.

Installing drains

The guide provides outline costs and real-life case studies of new system installations.

The AHDB Field drainage guide is available to download from cereals.ahdb.org.uk/publications

The benefit (left) of applying fertiliser with OSR seed contrasts with seed - only sowing in this Opico picture

PHOSPHORUS PLACEMENT UNDER FRESH SCRUTINY

Feed the plant – not the soil. That's the thrust of on-going research to learn how to use phosphorus (P) more efficiently and sustainably in arable farming. By Andrew Blake

Fertilisers containing several nutrients, including P, were once often applied with seed during planting and so-called "combine drills" were common on farms - but the practice declined.

Renewed interest in using P fertiliser more efficiently, especially to boost early growth, has triggered two AHDB

research projects and prompted manufacturers to develop more accurate ways of applying it.

Plants need phosphorus to grow, but most of the P in soils is unavailable to them.

"So it's necessary to apply phosphate fertiliser, most of which is made from mined rock phosphate, to increase and sustain crop yields," says ADAS

research scientist Alison Rollett.

Current UK production systems aim to keep soil P reserves high by applying highly water-soluble fertilisers, she notes. "But this is very inefficient and increasingly costly, and is depleting the finite non-renewable global reserves of rock phosphate."

Winter wheat trials

One aim of the new research is to maximise and determine the value of fresh annual fertiliser P applications in terms of crop yield and quality under various levels of soil P fertility, explains Steve Dudman of industry partner Frontier.

"Frontier are coordinating a series of tramline trials so the project can look at responses on a field scale using precision equipment," he says.

The first site – one of 20 trials intended by 2018 – was established in autumn 2014 on clay loam in Northants after assessing the farm's soil maps created by joint industry partner SOYL.

"The P indices ranged from 2 to 3. Ideally we would have liked a greater range including soils at index 0 to 1 to stretch the treatments, but we wanted to make a start on an otherwise ideal farm so we could develop a robust on-farm protocol for conducting these demanding trials," says Mr Dudman.

The four treatments, to winter wheat after peas, repeated three times across the field were: zero fertiliser, 15kg P₂O₅/ha placed, 70 kg P₂O₅/ha placed and 70 kg P₂O₅/ha broadcast and incorporated to 5cm. All were



Steve Dudman of industry partner Frontier

drilled with a 12m Horsch Sprinter tined seed and fertiliser drill.

"The farm's operations are all managed with an RTK system, so location of the treatments was very accurate."

The seed was sown 5cm deep across a 150mm band, and TSP* fertiliser was placed 5cm below, allowing roots from the germinating seed to contact fresh P quickly, he explains.

"At first glance, the better response from placing 15kg/ha than from either of the larger applications looks promising, but further analysis is required

in relation to soil P before we can get a full picture regarding treatment effects.

"We'll use the lessons from this first year to adjust our approach to future sites. We have four more for harvest 2016, in Northants, Cambridge, Essex and Gloucestershire. Three have been sown with winter wheat, using either a Sprinter or a Vaderstad Rapid drill, and the fourth is scheduled for spring cropping. The soils range from clay loam to chalky sandy clay loam.

"As more trials are done, we should begin to understand on a field scale how to use fertiliser phosphate more efficiently at different soil concentrations on different soil types and in a way that can increase yields."

Small plot trials on crop nutrition struggle to achieve the 95% confidence level for the results to be statistically significant, so potentially beneficial management changes may get dismissed, notes Mr Dudman.

"Achieving reproducible results on a field scale may give us a more acceptable link between technical and economic responses. Only time will tell."

Modify the application method

The practice has also led to a build-up of P in soils, sediments and wastes which are gradually leaking into lakes, rivers and estuaries and encouraging undesirable algal growths. Even in highly water-soluble forms fertiliser P is rapidly immobilized

by soil processes, she adds.

"One way to overcome this is to modify the application method to circumvent the soil and allow more precise targeting of P at key times for the plant's growth and development.

"Placing it close to the seed is a well-established technique which largely ceased in recent decades

to enable faster drilling.

"Top dressing after drilling has become more common, but these surface applications pose an acute risk of P loss in run-off which can lead to water pollution.

In the first of the latest research projects, the LINK-funded Targeted-P work led by ADAS and Bangor University, ten field

trials using experimental drills and planters showed that placing P fertiliser, rather than broadcasting and incorporating it, boosted spring barley and potato yields by up to 0.4t/ha and 3t/ha respectively.

feed the plant not the soil

That work, which ended in 2014, is being built on by the AHDB Cost Effective Phosphorus Management project, also led by ADAS.

The research could eventually help growers farm profitably at P index 1 rather than index 2 and reduce P losses to water, notes Dr Rollett. "The approach is to feed the plant not the soil."

P with the seed in OSR

Agrii's work with oilseed rape last season found that sowing

P-containing fertiliser with the seed lifted yields by up to 0.3t/ha.

"Broadcasting on the surface feeds and helps weeds to grow" – David Langton, Agrii.

Establishing the crop quickly



David Langton

and evenly to defend it from flea beetles is becoming increasingly important, he stresses.

"With placed fertiliser we

usually get an increase in green area index (GAI) before the onset of winter. This doesn't always increase yield, but that isn't necessarily the aim with winter rape – reliable establishment of a robust crop is key."

The replicated trials on chalk soil used various combine drills (Amazone EDX, Horsch Focus, Kuhn Optima, Sumo DTS and Vaderstad Tempo) to apply 100kg/ha DAP** + P Reserve with the seed. "P Reserve is a coating that prolongs the availability of the phosphate and reduces its lock-up by the soil," explains Mr Langton.

The placed fertiliser delivered 18kg/ha N plus 46kg/ha P₂O₅ and led to GAI increases averaging 0.35 by mid-October.

Placing is particularly important where the crop is sown in wide rows, says Mr Langton. "Fertiliser will be used only if it's close enough to the developing plant."

Precision Farming Advert

GROWING RANGE OF PLACEMENT TACKLE

1. Seed row banding

Phosphorus is notoriously immobile and not easily reached by emerging seedlings, says Simon Brown of Amazone. "So adding a band into the seed row will pay dividends."

Accelerating seedling development by using starter nutrients, particularly P and nitrogen in the autumn on oilseed rape, improves root development and strengthens crops against diseases and pests helping them compete against weeds, he maintains.

Fertilising and drilling simultaneously can also save time; but the equipment is more expensive and the machines' smaller hoppers will affect filling practices and turnaround times, he admits.

"But the improved early development can cut the cost of crop protection, and the technique is ideal for winter



Simon Brown



oilseed rape using DAP or MAP***. For winter cereals the restriction on autumn nitrogen means only TSP is appropriate."

Amazone offers two types of combined seed and fertiliser drills – SingleShoot and

DoubleShoot, explains Mr Brown.

"The former, available on the firm's C range such as the Cirrus C and Cayena C drills, applies seed and fertiliser together down the same spout making them ideal for autumn cereals and rape establishment."

DoubleShoot, as in firm's CC range such as the AD-P CC combined drill combination, or the ED and EDX precision maize drills which have proved very effective for rape seeding, places the seed and fertiliser into separate soil zones no closer than 2cm," he explains.

"Depending on soil moisture levels, care needs to be taken not to get some fertilisers too close to the seed. High nitrogen concentrations in a dry time close to the seed can affect germination, and the smaller the seed the greater the risk. Where there's a lack of moisture then the use of TSP rather than an ammonium-based fertiliser should be considered."

used in combination with grain and fertiliser-spec drills, plus the latest Kultistrip strip tillage machines.

"All elements of the Kultistrip are fully adjustable, including the fertiliser placement tube which is not fixed to the low disturbance loosening leg," says Mr Burt. "This patented feature lets growers choose the fertiliser placement depth independently of the loosening leg."

"And with development of an optional wider leg in combination with a larger diameter tube, Kultistrip can also handle slurries and liquid fertilisers."

3. Newcomer applies seed and fertiliser at different depths



James Woolway

Sky-Agriculture's French-made drills have recently become available through Opico.

"Sky is a new brand which has made a huge impact on the



European market in a very short time," says Opico's James Woolway.

Sky's EasyDrill has two distinct air delivery circuits allowing operators to apply seed and fertiliser at separate depths.

"Eighty per cent of fertiliser efficiency is due to proper

placement," says Sky's Christophe Decarville.

"Phosphorus is the least mobile element. To be available it must be located less than 2mm away from a root, so placement with the seed is the most efficient approach."

Concentrating P with the seed makes economic and environmental sense, he says. "You don't use too much of a natural resource – there's a finite quantity on earth – and you don't lose any in surface water."

Phosphorus availability is sensitive to soil moisture, temperature and pH, and placing P really close to the roots helps counter both those problems, adds Mr Decarville.

2. Independently adjustable fertiliser placement



Kverneland's approach to P placement centres mainly on the DF1 front fertiliser hopper, notes Kverneland's Adam Burt.



Adam Burt

The 1500-litre capacity DF1 with integral metering can be

4. A liquid solution

Cultivating Solutions' approach to placement is via liquids.

The firm's Richard Scholes says it is widely understood that P cannot travel in the soil profile more than a few millimetres a year. "Therefore broadcast applications of granular P cannot be guaranteed to be available to recently sown plants."

"Broadcast application is completely random, and it's pot luck whether a granule lands close to a plant. This isn't the way to guarantee nutrient availability from day one. Indeed it could be argued that plants on low P index soils may struggle to get hold of any P at all during the season."



Richard Scholes



The firm offers two systems for applying liquid fertilisers while drilling. "One is a stream jet method whereby the streams are aligned to the seed rows as they are sown," he explains. "The second is a form of injection in which nutrient is delivered alongside the seed through the coulter."

"Some people advise placing the nutrients under the seed, but we don't subscribe to that. If the idea is that the plant roots grow down to the nutrient below, then what happens after that? We want crops to develop the maximum root mass by scavenging the whole soil profile for nutrients and water throughout the season."

Drones, a toy for today or a tool for tomorrow?

The Drones for Farming Conference 2015 was held at Harper Adams University in November. Robert Yardley went along to find out more.

Trimble UX5



To most farmers, owning an Unmanned Aerial Vehicle (UAV) to increase efficiency and productivity is a nice idea, crop walking or weed mapping whilst sat at the breakfast table.

Lee Williams from Harper Adams University, organiser of the event said that he 'hopes the event will enable farmers to make informed decisions before leaping into the unknown, reducing costs by engaging in discussion and finding out the facts'.

The attendance of 165 was significantly up on the previous years numbers. An indication that farmers and the industry are keen to learn about the advantages of UAV's.

Brome grass issue

On Andrews farm the main problem is brome grass. Not owning a drone himself, he has used drone technology as a management tool to identify areas

Nuffield Precision Farmer

One of the speakers at the event was Andrew Williamson, a farmer and Nuffield scholar from Bridgnorth in Shropshire, cropping 900 acres of arable. Andrew's scholarship was titled Precision Farming - can it help feed the world. His precision farming experience began in 2007 employing yield mapping and targeted soil sampling. In 2008 he began applying variable rate N, P and K followed by auto section & height control on his sprayer in 2010. At the event he outlined the three pillars of precision



Andrew Williamson

agriculture: data management, variable rate application and machine control.

of weed growth, realising that areas of weed do not necessarily move and are located in relation to soil conditions. These real time pictures were then overlaid on to historical data maps such as:

drainage maps, soil type maps, soil nutrient maps, variable nutrient application maps and yield maps. By data layering Andrew realised that he needed to identify the

the value of data is not in the collection, but in the analysis

causes of variation and that the value of data is not in the collection, but in the analysis.

Analysing the drone pictures alongside data layering enabled quantifying the field weed area percentages to help decide if desiccation should occur due to the low yield in areas, allowing him to build a picture of operations to be conducted.

Through soil type analysis, Andrew used to lower seed rates in sandier patches, knowing he would get better germination. With yield mapping he realised he was only getting 1 t/ha in these areas rather than 10 t/ha like the rest of the field. Using drones enabled Andrew to produce weed growth maps. The collection and data analysis process has since allowed him to increase seed rates in these areas, allowing for the possible use of hybrid seed (variable seed type) in certain areas and the variable application of specific chemicals for example, avadex. Thus allowing more precise applications of herbicides, replacing blanket applications and reducing the risk of water contamination. The benefits of only applying 55% of a field rather than 100% with avadex can soon be calculated and added to the layers of data for analysis at a later date.

Early drone adopter goes CTF

Chris Eglington from North Hill Farm in Norfolk took part in the conference. He is a keen adopter of precision farming techniques using a Controlled Traffic Farming system (CTF) on his 400 Ha farm and the precision drilling of



Chris Eglington

Oilseed Rape at 21 plants per sq/m. Purchasing a DJI Phantom drone for approximately £800 + VAT, Mr Eglington now 'considers it almost as much of a necessity as his telehandler'. He went on to say that 'sometimes it's difficult to quantify the cost benefits of certain aspects of agriculture for example employing CTF and soil health, you've got to have a bit of faith that what you're doing is right'. Mr Eglington has found his drone useful for:

- Photographing land plots for agents
- Searching for lost cattle in Oilseed Rape at flowering
- Ensuring machine movement is maintained within a strict CTF system

He would also like to enhance his business performance by mapping slug damage through drone technology to improve the accuracy of slug pelleting. Chris went on to say that 'I have seen things that otherwise I wouldn't have known were there' giving him a much better perspective of the fields and farm from an aerial view, allowing him to then go and manually inspect these areas. However he thinks that the biggest problem employing drone technology on a practical level will be legislation, as they must comply with the Regulation 393 - Small Aerial Surveillance Aircraft law enforced by the Civil Aviation Authority (CAA) and pilots must now have a licence by law to fly drone aircraft.

The big question?

Drones make it easier to collect data. The challenge is what to do with all this data once it has been collected, if the necessary layers or software are not present to complement its collection, enabling informed cost effective decisions to be made. Other issues concerning the ownership of data collected were also discussed at the conference with no clear answer, will it be on farm, belong to consultant companies, the government or available to all?

The adoption of any new technology should also bring clear quantifiable cost benefits to any business, increasing margins or improving efficiency, it was difficult for companies at the conference to give any clear cost. Investment into drone technology should be carefully considered. Data collection is easy. But analysing and making informed decisions based upon that data is another matter.



@robertyardley

Robert Yardley is the main arable operator on an arable and grain storage unit in Cheshire and is studying part-time for an FdSc in Agriculture at Reaseheath College. Robert recently won a travel scholarship from the Oxford Farming Conference to attend Agritechnica 2015, kindly hosted by the DLG and supported by Massey Ferguson.

Recipe for world record

In January 2015 this year Warren and Joy Darling from Timaru in New Zealand harvested 13.8 tonnes per hectare of barley off an irrigated 11.6ha block at their 450-hectare Poplar Grove Farm to smash the Guinness World Record for the highest barley yield – a record that had stood at 12.2 tonnes for some 25 years. The new world record was confirmed by Guinness World Records on April 15th.

With a rotation focused on oilseed rape, wheat and winter barley all sown in the autumn, the Darlings also report an average wheat yield of 12 tonnes per hectare and an oilseed rape yield of around 6.3 tonnes.

“Our priority is normally wheat and it wasn’t until we cut 11.5 metric tonnes of barley per hectare in the previous year that we began to take a closer interest,” explained Warren.

“We looked at the previous record and how we might tweak things here and there to give us a

good chance of beating it. We knew we had the right conditions and climate. We knew our soil was in great shape thanks to several years of min-till and incorporating residues. We just needed to enlist the support and resources of our agronomy and seed breeding partners to make it happen.”

But as Warren is happy to confirm, the decision he took approximately ten years ago to change from a plough-based to a min-till system has also played a major role in his impressive achievement.

Agronomy

The record-breaking variety 776, developed by breeder John Blackman, is a true winter two-row barley that is not available in the UK but is ideal for New Zealand’s growing conditions and climate. Characteristics of the variety include good resistance to most diseases, big grain, big

ears, stiff straw and it also tillers well, claim the breeders.

Starting at the end of September, Warren applied 318kg of nitrogen (including soil nitrogen) – 22kg of N/per tonne. The uniformly applied N input was based on testing levels in the soil which also showed a healthy level of trace elements. Soil grid sampling provided the basis for variable rate application of phosphate and potash.

The fungicide programme started with a mid-winter clean-up of 0.31/ha Proline (prothioconazole) followed by a four-spray programme at 28-day intervals of Mogul, Aviator, Aviator plus Amistar and Folicur plus Amistar, mostly used at full label rates to maximize yield potential.

Approaching harvest there were 100 plants/sq.m. and 15 tillers per plant, giving 1,500 ears/sq.m. By harvest the crop was leaning a little but still standing due in large part to the variety’s inherently stiff straw.

Moisture content was 13.6% – a level rarely seen with barley and indicative of the highly successful harvest.

From a level of 6.0 he has also managed to increase his soil pH levels to where he wants it to be, which is around 6.3, making more nutrients more readily available to the roots.

The agronomic package together with low seed rate and Warren’s highly efficient min-till operation incorporating residues going back several years were key to achieving the world-record barley yield.

The min till approach

In 2004, Warren acquired one of the first prototypes of the new Simba SL and ran the machine on grassland to see how it went and assess how it worked the soil. Impressed with the job that the SL was doing he bought one of the first units off the production line in 2006.

“It took three years before we began to see the real benefits of our change to a min-till system coming through. But our patience has been well-rewarded. The SL is doing a great job of chopping and mixing the crop residue into the top of the soil as well as performing a valuable soil loosening operation deeper down. The rear roller provides good consolidation and we get more volunteers striking at greater depth.

“The mixing in the top three inches of the soil is perfect. I reckon we are getting near 80% soil contact with straw. We are constantly building on what is already a very fertile growing platform,” he explained.

‘Doesn’t look pretty but gets the job done.’

The consolidating roller at the rear of the machine has been

set up with the wider 200mm spacing to operate deeper into the soil. As Warren states, the roller’s effectiveness at getting more volunteers to strike and the mixing action of the discs “doesn’t look pretty, but it gets the job done.”

Some eight years of incorporating stubble from previous crops using his one-pass SL followed by the Centurion cultivator drill has helped build up the organic matter in the soil.

With a coastal terrain

in just one pass with the SL instead of several passes, the effective soil loosening operation performed by the ST tines, and also because Warren runs most of his big kit on tracks.

The difference that straw incorporation has made to the quality of his soil is not the only benefit that Warren’s min-till system has delivered.

“Having reduced the number of passes from as many as five to just one, we are spending around 30 minutes per hectare in the field. This compares with 60-



We knew our soil was in great shape thanks to several years of min-till and incorporating residues – Warren Darling

predominantly of steep, rolling hills and high average rainfall, especially in the winter, it is important to steps to combat and, eradicate the problem of water and wind erosion.

The straw content in his soil acts as a ‘reinforcing rod’ holding the soil together and ensuring that moisture is retained and readily available to plant roots when conditions are dry. As well as ensuring the soil’s water holding capacity is not compromised, the straw helps to prevent erosion stripping way valuable nutrients and organic matter.

The soil structure is good and consistent right across the profile and there is minimal compaction. This is due to a number of factors, not least his ability to prepare a good quality seedbed

minutes for cultivations and drilling when we were ploughing,” he explained. “We have also halved our fuel costs. Consumption is now 20 litres per hectare compared with 40 litres prior to min-till. In addition, we have, of course, greatly reduced the potential for compaction that could seriously inhibit plant growth.”

Given all the hard work put into the world-record attempt by Warren, his wife and family and his agronomy and seed breeding partners, Warren needed to be confident that his machinery wouldn’t let him down. That confidence has certainly not been misplaced. “The Centurion drill has been great for us,” he enthused. “We know we can rely on it to get the job done.”



DECISION TIME!

Many farmers will currently be looking out on autumn-sown crops – especially oilseed rape – that may not make a profit, as low projected crop prices struggle to cover the investment already committed.

With forward crop prices showing little sign of rising, how do they break out of this cycle?

How do they manage their existing crops and are there alternatives that might prove more profitable?

What guides their thinking regarding land management in the short and long term, and does whether they are owners or tenants change any of those answers?

2015's harvest helped remind every farmer of a conundrum that their industry has faced since the first farmer planted the first seed: No matter how well you plan and how hard you work, the weather during the growing season is the biggest single influence on your crops' performance.

As an example, many people have questioned the logic of continuing to grow oilseed rape when it perennially struggles to produce reliable profits – but in 2015 Yorkshire farmer Steve Tuer produced a 7.2 tonne/ha crop (see farm story), and plenty of others celebrated yields of 6t/ha plus.

Steve's agronomist, Chris Martin from Agrovista, says this year's oilseed rape performance underlines an important point:

"Nobody would advocate continually sowing crops that have no chance of making any money, but years differ and this year it would have been a big mistake not to grow oilseeds.

"This year they were the biggest gross margin earner for many farmers because the

yields were so good".

While some growers might wonder how far they could reduce inputs during the season, he says any reduction that risked losing yield would be a mistake:

"If farmers are going to justify growing crops they have to commit to using the right inputs because yield is the main driver of income and profitability. Once the crop is established there is no point in skimping on inputs because your fixed costs have already been paid and you would effectively be writing off everything you have already invested".

His colleague Phil Edenborough says there are opportunities to make savings, but as well as ensuring they protect yields, farmers must remain conscious of their obligations under existing law – especially if they are tenants.

So while they may be tempted to cut costs by reducing or omitting phosphate and potash applications, they should remember their obligations, both under RB209 rules and –



There are opportunities to make savings' Phil Edenborough, Agrovista.

in many cases – under terms included in their tenancy agreement:

"Many Farm Business Tenancy contracts include a clause specifying that things like the potash and phosphate indices must be maintained. Specific clauses enshrining that are becoming increasingly popular with land agents.

"Under good agricultural

practice they should already be topping up potash and phosphate levels to compensate for crop removals and support future crops.

"If they are in the last year of an FBT and have no chance of seeing it renewed, then they might be able to grow a crop which is recognised to have a low potash and phosphate requirement, or take an application holiday – but only if they have maintained levels effectively in previous years.

"The land's p and k reserves are a bit like a bank account; you need to ensure they are topped up to replace crop removals. If you are handing land back at the end of a tenancy agreement you should ensure levels are sufficient to satisfy whatever is contained in that document".

He suggests several other ideas that farmers can consider to reduce costs with minimal risk to yield:

"Some farmers are examining ways of reducing seed and agrochemical bills by home-saving seed, having it tested for germination and then being very selective in choosing only the seed dressings they need, or whether they need to apply any at all.

"Buying your fertiliser well

also helps, as does examining alternative nutrient sources such as sewage sludge. Anything you can do to reduce the amount of fertiliser you buy in bags can help".

But several factors combine to secure oilseeds position in most people's arable rotations – among them familiarity: Farmers know how to grow it; it is a proven effective break crop and that they can rely on it to provide a good entry for the

"Farmers should think hard before growing alternatives to oilseeds" – Chris Martin, Agrovista.

following first wheat.

Chris Martin says farmers should think hard before starting to grow any of the many options available as an alternative to oilseeds:

"Winter beans have done very well this year, but in my experience you rarely get two successive good bean years in a row.

"There is quite a large acreage of linseed being grown and it works very well in the right soils and the right conditions, but you need to be sure of getting good yields if you are going to make an acceptable margin.

"The crop is also very weather dependent – this year it yielded well partly due to the comparatively mild winter, but in previous years we have seen crops almost totally wiped out by frost".

One thing everyone agrees on – leaving land fallow, while often touted as an alternative, is very rarely practiced and for good reasons:

"Any farmland needs to have something happening on it; some root activity to help keep it alive and help maintain healthy organic matter levels", says Chris.

Paul Gosling from AHDB agrees, saying: "We hear plenty of talk about it and little bits of research going on, but we don't know of anybody doing it".

He says continuing to grow oilseeds despite poor profitability makes sense for most: "They have to consider what they are trying to get from the crop. Is it Black-grass control, entry for the first wheat or profit?"

"We would suggest they stick with it, manage it as best they can because it is an important part of the rotation for several reasons and if they substitute something that gives a similar return – or may improve earnings – that might have consequences for the following wheat"

Sabre Tine Range



www.tillso.co.uk
Tel: 01733 270135



- Targeted, permanent soil loosening action
- Restructures across full working width
- Preserves organic matter
- Minimum surface disturbance
- Weed seeds and fine particles are left on the surface

BUSHES AND SPACE PRODUCE TOP OILSEED YIELD

Steve Tuer doesn't want to grow oilseed rape plants. He wants to grow oilseed rape bushes.

When he gets it right the results are spectacular – as proved by this years unofficial world record 7.2 t/ha crop he grew on the family's Hutton Grange, Hutton Bonville, near Northallerton.

That yield is no fluke: the same field produced 7t/ha when it last grew oilseeds in 2011 –

their rotation is two winter wheats, winter barley and oilseeds – and other fields have topped 6t/ha in recent years.

And the records are not restricted to oilseeds: another field produced 12.2t/ha of winter barley this year, which equals the UK record.

So what is he getting right?

At first sight it is a typical Yorkshire arable farm. Soils are mainly clay-based types over a clay sub-soil, with a few lighter patches. Like many others, all crops are autumn-sown because of the soil type and weather conditions.



Who is Steve Tuer:

Steve Tuer studied agriculture at university, specialising in arable production for the last year. Skill at maths runs in the family – both his sisters studied the subject at university and he uses his to work out slurry application rates (and pig diets) in an instant. He spent some years as an airline pilot, which entails a couple of days every year spent practising emergency drills in a flight simulator, and once you've rehearsed what to do when the engines cut out often enough, you're probably adept at putting farm crises in perspective!

"The first wet spell in October usually finishes things for us, so we aim to be done within the first week or 10 days of the month. After that we do not get enough heat or sunshine to dry the land out sufficiently.

"We keep a close eye on the weather and – if it is settled – pick our drilling date. But if it is unsettled we might go early, because that is preferable to not getting on until late or not drilling at all.

"While they are heavy, these soils hold onto moisture well. I don't think we have ever had problems with crops being droughted out".

In his view, key factors in achieving high yields are the soil's natural fertility; getting the seed rate and crop canopy right, and then looking after the crop right through to harvest.

The arable enterprise totals

just under 400 hectares and is run across three farms, one of which only went out of dairying in 2009.

The regular use of slurry is a key factor in that fertility, he says. The muck the cows produced – which was topped up with turkey muck when needed – has been replaced by pig slurry, as they now have 1,200 sows, with all progeny being finished to baconer weight.

This supplies important nutrients to the soil – "we haven't had to top up phosphate or potash for some years" – and is either spread on stubbles and worked in, or applied in the spring.

Cultivations for oilseeds, first wheats and some second wheats is what he describes as "a typical non-inversion system", with land going into barley being ploughed:

"We use a machine with deep

working legs and shallow working discs. The legs are set to run just below the previous crop's ploughing or discing depth so we remove compaction and restore structure.

"When drilling oilseed rape we aim for 36 plants sq/m, although rates can vary from 30 – 50 seeds sq/m.

"Our attitude has changed completely. We used to sow a carpet of plants to stop the pigeons landing. Now we aim for an exact population and good spacing between plants – that is the biggest single contributor to yields.

"It is important to keep the pigeons off, but a good strong crop should soon out-grow them anyway".

He isn't a fan of the wide rows advocated by some consultants and farmers:

"If we sow 36 plants sq/m in

rows 50cms apart that is 18 seeds per metre per row which will cause bunching. We sow that many seeds at conventional 12.5cm row widths, so there are only around five plants per metre in each row and they all have space in which to develop.

"That is important because oilseed rape plants don't like rubbing up against the next door plant. By spacing them as we do we prevent them competing against each other".

Effective consolidation is crucial, he adds, with everything being Cambridge rolled once and oilseeds being done twice if weather and land conditions allow, so good soil to seed contact is achieved and germination optimised.

The record-breaking field had no special treatment: "The barley was harvested and the straw cleared before

the field received a good dose of slurry on the stubble which was worked in; then we left the seed-bed to go stale, sprayed and drilled on September 6th.

"After that it received sprays for volunteers and light leaf spot. Because it was sown relatively late for oilseed rape and at a low seed rate we didn't need to apply any growth regulator.

"It received a conventional spring/summer fungicide programme, featuring robust fungicides, but we delayed fertiliser applications for as long as possible so we achieved the good, open canopy that so many agronomists advocate. We also apply a sclerotinia spray with the foliar N.

"We aim to apply a total of 220kgs N/ha over the entire season, with the final applications being made as foliar nitrogen during early and mid flowering,

which I believe contributes significantly to the final yield".

"We knew this field had performed really well four years previously and that the potential was there.

"The crop developed as well as it could have done, and it was a big canopy by the time it was harvested. Just how good it soon became apparent when we started combining it".

The 7.2t/ha yield was not formally recorded by Guinness World Records, but was confirmed both by the combine's yield monitor and by the farm's weighbridge.

"If you can get an extra 5% of yield from any crop just by getting the timing of treatments exactly right that is worth a fortune. And if you can get yields like this consistently your growing costs per tonne seem much more reasonable", he concludes.



Sales of strip tillage drills have been increasing in Ireland over the past five years.

Making the transition

from conventional to strip tillage in the Emerald Isle

Plough-based tillage systems still dominate in Ireland, but in recent years strip tillage has attracted a steady trickle of growers. Strip tillage is currently part of a major research project being undertaken by Teagasc, Ireland's national agricultural research agency. The results will be closely watched by Irish

farmers, with the aim of the project being to assess the merits of strip tillage in terms of yield and labour costs over conventional tillage systems. Perhaps tellingly, in the past five years sales of strip till drills in the Emerald Isle have been steadily increasing.

However, there are some big

challenges. As in min-till, there needs to be a high degree of management with the strip-till technique. While increased sowing speeds and lower establishment costs are definite advantages, notoriously wet Irish autumns and persistent grass weeds are potential banana skins.

Noel Furlong, Stradbally, Co Laois

To find out more about an Irish tillage farmer's experience on his conversion from conventional to strip tillage system I visited Noel Furlong. Based in Stradbally, Co Laois, in the heart of Ireland, Mr Furlong farms in excess of 500 acres of crops, including winter oilseed rape, winter and spring barley and winter wheat. He also acts as an agent for Claydon drills in Ireland. Five seasons ago he purchased a 3m Claydon Hybrid drill of his own, and he hasn't ploughed his land since. It has been a steep learning curve, but based on figures so far Mr Furlong estimates the cost of establishing crops with a strip tillage system to be approximately one-third that of using a full cultivations programme, and half that of conventional minimum tillage.



Noel Furlong, based in Co Laois in Ireland, first adopted a strip tillage system back in 2011.

Mr Furlong says the main bulk of savings come under two headings; reduced diesel and labour costs. He explained; "My advice to farmers thinking of trying a strip tillage system is to first ensure you have the

groundwork done in terms of having the ground level and relieving any compaction issues in the soil. If that is done properly the yields will be more comparable to ploughing. But be warned; you can't just go straight in with a strip drill into uneven, compacted ground with poor soil structure and expect to get similar yields. After an initial challenging couple of years, the time and cost savings from using this system have greatly impressed me. An unexpected benefit I have noticed is that the soil structure on my farm is far better. This has led to better drainage on the farm and it means I can get on the land at any time of the year to apply agrochemicals and fertilisers."

One of the key challenges is the inevitable surge of weeds, but from experience Mr Furlong has come up with clever tactics that limit this problem. For example, he has found a novel way of controlling the spread of



Mr Furlong's drill of choice is a 3m Claydon. The drill requires 150hp out front and is priced at €52,000 plus VAT.

Better seed to soil contact. Faster crop emergence.



Seed anytime, anywhere.

The 750A drill minimises soil disturbance, reducing grass weed growth and making it ideal for All-Till, No-Till and stale seedbeds.



Quick germination.

The single disc, press wheel design ensures optimal soil penetration for rapid, uniform crop growth.



Reduce costs.

The low draft of the 750A requires less power, giving you a more economical performance.



ISOBUS ready.

Combine with John Deere Guidance and optimise your application through variable rate seeding.



JOHN DEERE

sterile brome into crops from hedge rows. To control it he opts to spray off a one metre distance of crop back from the base of the hedge. "This forms a type of 'crop break,' an area where the brome is unable to grow into and contaminate the rest of the crop," he explained. "It also means when it comes to combining time the combine header isn't pulling brome from the headlands and base of the hedge row into a wider swath area. This saves a lot of trouble in consecutive years." Asked why he doesn't just allow a 1m seed break when planting in the first instance, Mr Furlong said such a move would actually encourage the brome to grow because it wouldn't have any competition from the crop.

The pros and cons of strip tillage

Pros:

- There is dramatic reduction in establishment costs through a reduction in the amount of machinery capital required.
- Reduced fuel consumption and labour requirements.
- Increased work rates.
- Reduced number of passes, so reducing overall compaction.

Cons:

- Initial investment in machinery is costly
- Heavier reliance on herbicides particularly with grass weeds.
- The cool damp, climate in Ireland and the UK often leaves soils prone to compaction and harder to cultivate. Strip till can be a system more suited to dryer climates.
- Pests can be a problem, especially slugs in autumn.



The main crops grown include winter oilseed rape, winter and spring barley and winter wheat.

Claydon drill

His machine of choice is a 3m Claydon drill that weighs in at 1330kg. It has high clearance tines to allow trash to flow through the machine. Typical planting rates are about five acres per hour, or 50 acres planted in a ten hour day. Centrally mounted depth wheels are used for packing, while leveling boards or harrows are used to level the soil post drilling. The drill requires 150hp out front and is priced at €52,000 plus VAT (£36,473 plus VAT). Sales of Claydon drills have been increasing in Ireland, with around 60 sold in the past season alone. For farmers looking for a bigger drill, Claydon advise that as a rule of thumb you need about 50hp per metre drill width.

Top tips from strip tillage experience

Noel Furlong doesn't pretend his change to a strip tillage system was seamless. On the contrary, he admits it is a system that needs preparation and persistence over a couple of seasons in order to see the benefits. He has used certain management guidelines to help smooth his transition from conventional to a strip tillage system;

1. Soil management: It is imperative to get drains and wet spots sorted out and to plough and level the farm so you are starting with a level stubble for strip tillage the following season. This will minimise any drop in yields in the early years as you move into the system.
2. Harvest management: Make sure the straw is chopped and spread evenly. If you're
3. Drilling: Closing the slot to get good seed to soil contact is critical. It is important to close the slot and remove air pockets to ensure quick and even germination. This will be the task of the reconsolidation packer wheel on the drill.
4. Weed control: this starts in the previous crop. Sterile brome is a big worry in Ireland, so as with min till chemical control needs to be available as a management tool. Mr Furlong's 'crop break' technique of spraying back a 1m break from the base of the hedge row has enabled him to control sterile brome.



Sterile brome is a big worry in Ireland, but Mr Furlong has come up with some clever management techniques to control the weed.



Agden Green Farm

Talking blackgrass

At the Amazone Crop Conference in summer 2015, Will Mumford spoke about the issues his Cambs farm faces with Blackgrass. Marion King followed this up on behalf of Tillage magazine with Will.

Farm Facts:

Will Mumford farms 600 acres at Great Staughton, St Neots, Cambridgeshire

Heavy clay soil

Approximately Cropping 350 acres of wheat, 90 acres of winter barley and 40 acres of linseed

Employs two part-time staff

Equipment:

MF 7274 Combine

Cat challenger MT 765

New Holland 6.140

New Holland 6.180

Two Heston rape swathers

Twenty six years ago Will Mumford was struggling to make a profit on his farm in Cambridgeshire. The price of wheat had dropped to below £100 a tonne and the farm was only half the size it is today, it wasn't delivering enough income.

"I had to diversify, at one point wheat dropped to £58 a tonne, it was a desperate situation," said Will. So he started a company called Agricultural Services where he built and fabricated agricultural kit for local people. With a background in communications it wasn't long before people were asking him about CB and two-way radios and so in 1994 he moved into GPS technology and AS Communications was born.

"The two businesses, although run from the same location, are completely separate. Every device we distribute we trial on the farm first. All our vehicles are fitted with some form of autosteering.



Will Mumford

Everything is tested here and we can demonstrate to customers under farm working conditions," said Will.

Like many farmers in the UK Will is trying everything in his arsenal to control the spread of blackgrass on his farm. "We've had blackgrass on the farm for 20 years, we have constantly fought against its spread but like everyone else in the last 3 years we have lost the battle."

'You need to mix cultivation techniques as appropriate on your fields'

Patch OSR seed rate

We began last year upping our oilseed rape seed rate massively on the patches of blackgrass found, the theory being close the canopy earlier in the season and combined with the chemistry it would smother it out. And it worked, last year for whatever reason we had no blackgrass in our oilseed rape at all, not a plant across the entire field," he said.

"If we get a bad infestation of blackgrass we experience yield losses, it can bring a crop down from 4 to 1 tonne an acre. It just zaps all the energy from the ground," added Will.

When asked why he thinks we are losing the battle to conquer the weed Will says "I am wondering whether it's something to do with the climate. Perhaps warmer winters are causing it to germinate all year round. Long term if we don't get any more chemistry which is looking highly unlikely we are into spring cropping, fallow breaks and over-winter stubble."

And ploughing according to Will is not the 'save all' answer. "We ran a plough based system here up until 3 years ago. Every year ploughing the blackgrass in this only kills about 80% in the first year so we got to a stage where we were ploughing as much out as in. I'm not a great advocate of doing one thing across the whole farm that seems nonsense. You need to mix cultivation techniques as appropriate on your fields. If direct drilling is correct in a particular field then do it.

When asked how you decide

Position the kit not the tractor

Will uses a couple of different ways to precisely position machines.

TrueGuide is a passive guidance system that controls the machine. It uses the automated steering system on the tractor to keep the implement in line.

The True-Tracker is an active implement guidance system that lets the implement guide itself independent from the tractor. It uses the Trimble Autopilot automated steering system to monitor the implement and signal for it to follow the correct path during periods of drift.

Will also comments that "To accurately position the drill coulters between the rows of last year's crop, to enable planting between the stubble/root structure of the previous crop. You must have RTK systems to compliment auto-steer guidance on the drill whether passive or active. Once you have achieved this then it's very straightforward to position the drill between the rows from the previous year. I don't actually think anyone is doing this, it's being talked about and someone needs to take the bull by the horns and do it."

what is right for each specific field or crop Will "every farmer knows his soil it's just a case of making the right decision for that field on that particular year for that crop, experience helps but you still need to be flexible enough to make on the fly decisions"

Regarding seed rates Will said he was sowing 550 seeds a square metre in bad areas of blackgrass.

Economic answer

As far as costs go Will says, "If your drill is variable rate compatible, which most modern drills are, then the cost is around £750. If not we can vary the drill by adding an electric drive and hydraulic motor but then we are talking about £4000 but it's a very straight forward process."

Key blackgrass facts:

- An annual grassweed, so propagation is solely by seed returns
- Majority of seed is shed in June to August
- Survival each year of buried seed in the soil can be 20 to 30%
- About 80% of blackgrass germinates and emerges in the autumn
- Blackgrass seedlings only emerge from seeds in the top 5cm of soil
- Majority of blackgrass plants emerge within crops, rather than before drilling when they could be easily destroyed
- Herbicides no longer offer reliable control

As for the future, Will sees it as an ongoing problem to increase productivity. "People keep telling us we have to increase production, double it in the next 20 years but from where I'm sitting I'm looking at reducing it by 25%."



On farm technology

Will Mumford practices what he preaches on a daily basis with the precision farming techniques he uses at Agden Green Farm in Cambridgeshire.



The number one tool that identifies the plant within a metre is the GreenSeeker handheld crop sensor. It is a measurement device that can be used for basic NDVI (Normalised Difference Vegetation Index) testing.



Will has fitted variable seed rate technology to the farms seed drills. An increasing number of growers are looking to improve winter cereal crop yields using GPS-guided variable rate technology.



Swaths all Oilseed Rape using AutoPilot on the swathers.



Will is working on getting drones to identify automatically and efficiently where blackgrass is. This project is in the early stages at the moment.



Ploughing on the land using Trimble AutoPilot.

Traditional arable alternative?

Miscanthus is grabbing people's attention as a long-term energy crop that offers great returns and Terravesta, the supply chain solution provider, has been holding farm walks across the country to highlight why the crop can have an important role to play on farms.

Flagship Farming Ltd, who provide a farm contracting service for a group of farms in Lincolnshire, recently showcased the potential for Miscanthus to thrive in traditionally 'problem fields' at its farm in Hackthorn, Lincolnshire.

Jim Beeden, the farm's manager says, "In any arable crop rotation there are going to be problem fields and if they're honest, a lot of arable farmers will be able to identify problem fields that aren't making any money."

"To those farmers I'd say be frank with yourselves and look at how much those problem fields are actually making you. The

money made from fields that are only yielding seven tonnes per hectare of wheat are going to be sapping margins because the small profit they make will go back into the time and effort it takes to farm that land," he added.

The Terravesta and Woldmarsh hosted farm walk aim to demonstrate to farmers whether Miscanthus is a planting option for their difficult fields.

"Over this year we've expanded so fast, adding a further 1,214 hectares to the land we manage and contract farm, and we've planted up an extra 36 hectares of Miscanthus in these new areas this year. As we've

grown, we've planted up more because it's essential to our long term strategy. It allows us to farm the good land well and make a profit on the poor land with the crop, because it thrives on it and requires very little time and input cost," said Jim.

Jim has worked closely with Terravesta since 2006. The company organises the supply of rhizome to plant the crops and buys back the bales destined for biomass pelleting and offer RPIX-linked contracts.

Another miscanthus supporter is Bruce Wilkinson who runs Glapthorn Farm near Northamptonshire. He has been



'if they're honest, a lot of arable farmers will be able to identify problem fields that aren't making any money' Jim Beeden, Hackthorn, Lincs.

growing the crop for 10 years and began with just 9ha and today he grows 182ha.

"We were long-standing wheat and rapeseed growers before we discovered Miscanthus - but we had reached a point where had to make a change to become more profitable. Wheat prices at the time were disastrously low and we were also experiencing real issues with blackgrass -

particularly with it building resistance to certain pesticides. We trialled Miscanthus in one of our fields with flood ground in 2005 and just two years later we converted almost all our land to the energy crop."

Norfolk farmer Bill Lewis has seen a record yield with his Miscanthus harvest this year, and yet the crop was not quite two years old.

Achieving a tremendous 8.82 tonnes per hectare, the result is the largest documented on a second year crop to date.

Typically, the first Miscanthus harvest comes three years after planting, and is around half this tonnage. This yield increases each year, to mature crops yielding 12-18 tonnes per hectare for the rest of its 20 year plus crop life.

The trend to harvesting just two years post planting is likely to increase according to Miscanthus specialists

Terravesta, and offers growers a quicker return.

"We're well ahead of our budgeted figures with this increased yield, and next year it should double," says Bill Lewis.

"It's the sort of land that's difficult to establish crops on, due to water logging. The land is low lying, at 20 foot below sea level, so the surrounding land drains into it. This meant we were spending a fortune on preparing the seed beds, and on inputs," he says.

Bill attributes the bumper Miscanthus yield to careful planning, planting preparation and aftercare for the first 12 months after planting. "We had 90% establishment, and the support we've received from Terravesta has been invaluable. They advised on our herbicide regime, which is very important in the establishment year, and we treated to control twitch grass and meadow grass."

Successful establishment pointers

Andy Lee of Terravesta gives his top tips for early planning

1. Be bold and commit. If you leave it to the last minute your crop yields might be compromised.
2. It's an ideal crop for difficult to farm, marginal land. And, even though it thrives on almost any soil type, it's crucial to prepare the soil well, as soon as possible. Heavier clay soils need to be ploughed now to achieve a nice tilth in the spring, with help from winter frost that will break down the soil further, leaving your soil finer.
3. Light sandy and gravelly soils can throw up a lot of perennial weeds. Weed control in the establishment phase of the Miscanthus is essential because poor control can hamper the successful development of the crop.
4. If you choose to grow Miscanthus there's no need to order seed and fertiliser as you would other crops because there are minimal and commonly no inputs.
5. Finally, get it right first time. Miscanthus, just like any other arable crop, will do better if cultural controls such as the seed bed and weed management are tip top. The advantage of Miscanthus is that you only plant once, this can become a disadvantage if done poorly. There is no second chance as with wheat for example.



"We're well ahead of our budgeted figures with this increased yield, and next year it should double," says Bill Lewis.

Heres a quick update of the some of the new products available in 2016

New 32" Camso Track for Case IH Quadtrac



The suppliers Eurotrack, claim the major benefit is that it promotes longer track and undercarriage life. The 32" track protects the edge of the wheels from contact with debris, this reduces the amount of material build up, offering more protection for the idlers and midrollers. Track life is also improved due to reduced side wear on drive lugs and reduced lug temperatures.

HORSCH Avatar – new direct drill with single disc coulters



Launched in 4, 6 and 12 m working widths, the new single disc coulters is ideal for direct seeding. The 200kg per coulters pressure ensures soil penetration. The strong

12m Eco Max drill ideal for CTF



Direct drilling specialist Dale Drills will launch a new 12m version of its flagship Eco Drill at LAMMA 2016.

With a daily output of 100 hectares, the new model uses the Eco Drill's tried and tested seeding system to sow directly into uncultivated stubbles or into min-till and conventional seedbeds. The manufacturers claim that the drill requires just 20hp/m to pull.

The new design ensures a huge inter-tine clearance of 750mm, allowing crop residue to flow through easily, while row spacing can be adjusted from 125mm to 250mm for cereals and up to 500mm for oilseed rape.

coulter frame eliminates sideways movement, which ensures the set sowing depth even on uneven soils. A press wheel then closes the seed furrow and consolidates the seed row. The Avatar SD in 4 m working width weighs 5.800 kg, in 6 m 9.300 kg and in 12 m working width 19.160 kg. Despite the high weight, which is necessary for a direct seed drill, the horsepower requirement of the Avatar SD is

Single-Pass cover crop establishment



A new combination of the HE-VA Disc Roller and Variocast 16 will be launched at LAMMA 2016.

The two rows of discs and V profile press shallow cultivate and consolidate at speed providing a shallow stale seedbed for blackgrass control. The integrated Variocast small seed broadcaster allows farmers to optimise the timing of cover crop establishment.

The 125mm spaced V-profile roller's rings ensure level surface consolidation and a weatherproof finish.

Available from 3m to 8m widths in trailed and mounted formats the seeder can cope with seed sizes from mustard to peas.

With a 400-litre hopper, the Variocast unit is ground-speed radar-controlled. It has electronic seed rate adjustment and GPS compatibility to provide variable rate sowing if required.

low as the SingleDisc coulters are arranged in two bars.

HORSCH relies on the well-proven components of the Pronto DC seed drills for hopper and metering. The hopper size is 1,500 litres for the 4m wide model, 3,500 litres for the 6m version and 12,000 litres for the 12m wide machine.

Control and monitoring of the machine is carried out via a standard ISOBUS terminal.

Mid-size John Deeres



The new mid-size 6R Series tractors, including the 6155R, feature the latest Stage IV engines rated from 110 to 155hp, improved manoeuvrability, enhanced operator comfort and a wide range of transmission options. John Deere's intelligent power management system (IPM) provides a 20 to 30hp boost on the four-cylinder models and 40hp on the six-cylinder versions.

These tractors feature CommandARM controls and a Generation 4 CommandCenter touch screen monitor with swipe function display, while the redesigned TLS+ front axle suspension offers improved steering and driving on the road. An electrical loader-ready joystick is also available for use with John Deere's latest R Series front loaders, which feature new mounting frames and hood guards and are easy to attach and operate.

Great Plains launches new X-Press generation



The new line-up will closely mirror the existing range in terms of the working widths available across both mounted and trailed variants. Its core function of integrating high speed shallow cultivations via two rows of discs with consolidation from a rear mounted roller also remains essentially the same, but some important changes and improvements have been made.

The use of tubular steel to the wing sections enables the machine to handle increased torque loadings. Trailed models utilise the tractor's lower links. The articulated headstock allows a tighter turning circle in field, while the long drawbar facilitates the use of wider wheel tracking and dual wheels.

New trailed no-till and min-till drills at LAMMA



LAMMA visitors will be able to see for the first time, two new trailed drills from French manufacturer Sky Agriculture - the no-till EasyDrill and the min-till MaxiDrill, which have just been introduced into

the UK by OPICO.

The EasyDrill is easy to set-up and use. It is suitable for no-till, minimum till, or conventional drilling systems, and is also for drilling into cover crops.

The MaxiDrill is designed to provide a high speed minimum tillage drilling solution with various options which give it the flexibility to work in a conventional plough-based cultivation system, and also as a no-till drill in light soils.



In the next edition we look at Maize in the arable rotation.

farmsmart^{IS}
publishing

Tillage is published three times a year and is available on subscription for a cost of £10/year.

Contact: FarmSmart Publishing Ltd
13 Kings Yard, Sedburgh, Cumbria LA10 5BJ

Tel: 0845 6522 326
Fax: 0845 6522 327
www.tillagemagazine.net

Editor: Andy Newbold
andy@farm-smart.co.uk
Publisher: Andy Newbold
andy@farm-smart.co.uk

Design: Steve Parkman
steve@42creative.co.uk

Advertising sales:
admin@farm-smart.co.uk

News: Marion King
press@farm-smart.co.uk

All rights reserved. No part of this publication may be copied in any form or by any means, electronic or mechanical, this includes photocopying or on any information storage or retrieval system without the prior consent of the publisher.

We accept no responsibility for unsolicited features or photographs, which will not be returned. By submitting copy, text or pictures to the magazine you are agreeing to their publication either in full or edited.

Fast, accurate and efficient drilling

ESPRO



A 3m version of the ESPRO is also available

Less than 35hp per metre

KUHN's 6m ESPRO minimum tillage drill combines speed, accuracy and efficiency, having the capability of working accurately at 17km/hr behind a 200hp tractor. This new machine combines innovative design and the new CROSSFLEX seed bar with established technology such as the SEEDFLEX double disc coulters system.

kuhn.co.uk



forage harvesting | livestock husbandry | arable | landscape maintenance

be strong, be KUHN