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Machinery Drills

What's the drill?

Min-till, conventional, no-till or strip-till – the technique is down to individual farms, but which drill to choose in whichever category you sit? CPM navigates the minefield of drills on the market and takes a closer look at some of the options for different enterprises.

By Melanie Jenkins

Many conversations have been had — and will continue to be had — about which cultivation practice is best and for which crop, under which conditions, but it's always going to be down to the individual. Whether you're a staunch conventional cultivator or direct-drilling fan, there's a range of different drills out there suited to each grower's needs.

Conventional sowing

Amazone's range of Cirrus trailed cultivator drills are designed to perform in conventional and mulch-sowing situations, with working widths of 3-6m. Targeted at providing precise metering through pneumatic seed distribution, the Cirrus has two different sowing coulters choices: RoTec pro single disc coulters or the TwinTeC+ double coulters.

The Cirrus can prepare the seedbed

and seed all in one pass with its two-row cultivation disc segment, with the harrow loosening, crumbling and levelling the seedbed prior to sowing.

Amazone's conventional Cataya harrow-mounted seed drill is designed for use after ploughing or mulching. According to the firm, when combined with the KE rotary harrow, KX/KG rotary cultivators or mounted Combi Disc harrow, it's the ideal machine in its arsenal of conventional drills.

With working widths of 3m and 4m, and hopper sizes from 650 litres to 1730 litres, it's available with RoTec Control single disc coulters or TwinTeC double disc coulters. Amazone claims its Control 10 and Control 25 depth guidance rollers — for setting the sowing depth on the single disc coulters — are wear-resistant and self-cleaning.

Using a Precis metering system, the machine can change from fine to normal seed via its shutter slide. The drill can be controlled either by the in-cab AmaDrill 2 terminal or via an ISOBUS-ready operating terminal.

New from Pottinger and suited to mulch drilling is the Terrasem. Available in working widths of 3-9m, this drill combines soil cultivation, reconsolidation and planting.

The drill has a two-gang disc harrow with smooth or scalloped discs and can work effectively on heavy soils or with harvest trash, says the firm.

Using parallel-guided dual disc coulters, mounted in an offset configuration, with rear depth control press wheels, the drill can provide uniform seed depth placement, according to Pottinger. Central coulters pressure adjustment is between 40kg and 120kg per coulters.

New to this piece of kit is a low draft Wave Disc which has a diameter of 510mm and is designed for low disturbance sowing. Instead of being moved to the side, soil is loosened in strips, to prevent smearing at seed slot level, claims the firm.

For mechanical seed drills, Lemken's Saphir range is suited to medium-sized farms. With seeding rates of between 0.5kg/ha and 500kg/ha, the seeds are metered using a variable oil bath transmission and distributed longitudinally via the seed shaft.

The Saphir comes with a parallelogram-guided double disc coulters with depth control roller and Easytronic electron implement control, which means that tramline preparation can be controlled and monitored.

It's available in a hydraulic, semi-mounted version or as an AutoLoad version with three-point attachment, with seed hopper volumes of 650-1100 litres.

In the mounted version, the Saphir 7 is placed directly on top of the cultivator's roller and can be either coupled to the



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Amazone's Cataya is designed for use after ploughing or mulching or use after ploughing or mulching.



Pöttinger's Terrasem has a two-gang disc harrow with smooth or scalloped discs.

▶ tractor via the three-point linkage or combined with seedbed preparation implements.

Alternative to this is the Saphir 8, which features an electronic seeding shaft drive with electronic speed control. A range of seeds can be metered at seeding rates from 0.5kg/ha to 500kg/ha and a single calibration process allows the seeding rate to be changed.

On the pneumatic drill front, Lemken's Solitair 12 unit comes in working widths of 8-12m with an approximate hopper capacity of 5800 litres. Using a hydraulically-driven fan which provides a constant air flow, seed is carried to the out-most seed rows.

In the metering unit, the two seeding shafts are driven by an electronic motor and are electronically related. The 2 x 4 metering units release the desired quantity of seed into the air stream, allowing the seed to reach the eight distributors positioned directly above the coulters.

The coulters are equipped with four linked cylinders to allow for ground adaption across undulating terrain, according to Lemken. Both the coulters pressure and the working depth of the double disc coulters with depth control wheels are hydraulically adjustable.

Min-till and no-till

For those with hard clays or stony soils, min and no till operations can become quite tricky, limiting drill and coulters choice, so getting the right drill for the job is paramount to ensure good establishment.

The Sky Easy drill has been imported to the UK by Opico for the past four years to fit into the bracket of suiting all cultivation regimes.

Available in a 3m and 4m gravity fed model and a 4m and 6m pneumatic model, the Sky Easy drill can work direct into a cover or stubble, as well as into a cultivated field.

Both models have two rear press wheels which pivot off centre to minimise depth variation, while seed depth is controlled by a rubber front gauge wheel. The seeding disc is situated between these rear and front wheels and sits in tandem which makes for a more consistent seed depth, similar to a precision drill, according to Sky Agriculture.

A skim coulters cleans the seeding slot before the seed drops and in wet conditions this has the ability to scrape soil off of the disc. The depth setting of the disc and skim coulters operate separately, meaning a strip till effect can be created if desired.

The company also states that the 3.5°



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Lemken's Solitair 12 unit comes in working widths of 8-12m with an approximate hopper capacity of 5800 litres.

angle of the disc helps to minimise soil disturbance, uses less power and can reduce volunteer emergence. A carbide skim coulter runs alongside the disc to keep it clean, the height of which can be altered as the disc wears.

The 3m and 4m versions have 1450-litre and 2000-litre tanks, respectively, and can be fitted with 550-litre and 800-litre extensions.

These gravity-fed models use a double-peg wheel system with small seeds metered by a thin peg-wheel and larger ones with both. Individual row shut off can be managed through closing the guillotine feeding each coulter. A variator gearbox drives the metering shafts and is adjusted by means of a sliding lever and calibration discs.

On the pneumatic model, an electrically driven single-roller metering mechanism can apply a seed rate of 0.5kg/ha up to 450kg/ha. Its row management systems allows individual rows to be manually selected and electronically engaged and disengaged, while rows can be shut off to allow for wider row spacing.

Both drills have optional fertiliser tanks which consist of a dual metering system, feeding two distribution heads, which allows the fertiliser to be applied separately to the seed in a single pass.

The RDS Pilot or Duo Vision Controllers allow the operator full control of the seed (and fertiliser) metering from the cab and the Vision system can be integrated with mapping systems to vary seed and fertiliser rates.

Amazone's Primera DMC trailed seed drill targets precise seed placement due to its low drop height of 10-14cm. Though suited to plough and mulch sowing, it's also capable in a no-till situation. Models are available in working widths of 3-6m, with 4-12 sowing units — each with a 60-litre capacity — and hoppers from 900 litres to 2000 litres.

When equipped with the appropriate singling disc it can be matched to almost any seed type, says the firm. On the ED Special model, the fertiliser and singling drive are mechanical, however the ED Super is equipped with an electric drive for fertiliser metering as well as ▶



The Sky Easy drill can work direct into a cover or stubble, as well as into a cultivated field.

AUROCK

Extend your drilling options



KUHN's new AUROCK 6000 pneumatic triple disc seed drill is designed with the versatility to sow into cover crops, minimum tillage or direct drilling conditions.

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- Centre pivot design aligns seed coulters with opener discs
- Parallelogram-mounted double disc seeding unit for optimum ground following
- An integrated cutter roller can be fitted to allow operation in all types of cover crop
- Two 6m models available:
AUROCK R – single metering, 3,500 litre hopper;
AUROCK RC – dual metering, 5,000 litre hopper.
- Low power requirement (180hp for 6m drill)

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Drills



The Rapid has unique seed coulters and depth control which is adjustable from the cab.

- ▶ a hydraulic singling drive.

The ED model is ISOBUS compatible and can be operated with Profi electronics via Amatron 3, CCI 100, Amapad or other ISOBUS terminals. In its basic electronic equipment level, the ED Special is controlled via the machine-specific Amscan.

An alternative from Amazone is the Cayena. This pneumatic drill has been designed for high-speed sowing on hard, dry and stony soils with or without prior soil tillage.

Incorporating both sowing and reconsolidation in one pass, the Cayena can work at speeds of up to 15km/h.

It has 36 coulters, spaced in 16.6cm

rows, across a 6m working width and a 3600-litre hopper capacity on the standard Cayena model, while the Cayena-C has a 4000-litre tank.

In addition the Cayena-C can place fertiliser together with the seed as the seed hopper is divided into two compartments with a 60:40 ratio, and has two electric metering units. See On Farm Opinion on p64 for more.

The Väderstad Tempo planter range can suit several different cultivation techniques, fitting the bill for no-till, min-till and conventional tillage. It incorporates Väderstad's Gilstring Seed Meter, which aims to deliver precision seed at high speeds. This is achieved by using exact distances between each seed in a row, as well as identical depths, with individual row shut-off for seed, fertiliser and micro granulate. The hydraulic weight transfer is controlled via the iPad-based control system, E-Control.

The Tempo has a pressurised seed meter, which uses air pressure to maintain full control of the seed all the way down into the soil. Each seed meter has an electric drive, meaning it's possible to shut off the row units one at a time, thereby saving seeds and inputs in irregular fields, according to

Väderstad. The electric drive also means that each individual seed meter can be calibrated with different seed rates.

Capable of planting with up to 325kg coulters pressure, the drill can carry out high speed planting in a range of field conditions. The heavy-duty row unit and row cleaners enable the Tempo to operate in min- and no-till systems.

The Tempo comes in six different models, with units available from four to 24 rows.

Another all-rounder that's suited to both no-till and conventional situations is the Väderstad Rapid range. Capable of carrying out seedbed preparation, levelling, drilling and reconsolidation in one pass, it can also work at high speed, says the firm.

The Rapid has unique seed coulters and depth control which is adjustable from the cab. The system uses each packer wheel to control the drilling depth of two seed coulters, while simultaneously reconsolidating.

The single disc seed coulters can penetrate the soil with 150kg of pressure, meaning they can create a clean seed slot without straw incorporation, irrespective of soil type or tillage system, claims Väderstad. The large packer wheels behind the coulters are offset, meaning every second wheel is



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displaced 190mm backwards on a separate axle and these effectively close the seed slots.

For uneven ground or hilly conditions, the Rapid incorporates Väderstad's x-disc set up, which means the machine will always follow the tractor in a straight line.

Available in three different models the Rapid is available in working widths of 3-8m and all models have a hopper capacity of 6000 litres.

The Horsch Avatar is capable of drilling in all sowing conditions, but could be worth considering as a no-till option.

The Avatar can deliver up to 350kg of pressure per coulter using a rubber torsion system. It uses a stable depth control wheel for difficult or changing soil conditions and the interaction of the single disc coulter and seed shoe guarantees a safe opening of the furrow while at the same time removing harvest residues, says the firm.

With working widths of 3-8m, it has a two-bar design with row spacing of 16.7cm and a clearance of 33.4cm per row.

A further — and notably popular — drill for those looking at no till is John Deere's 740A. This drill has a low draught requirement and with a 9m working width, can be pulled by a 130hp tractor. 6m and 8m versions are also available, while the hopper can hold 2300 litres or 3500 litres.

The 343mm double disc openers are positioned offset to be able to penetrate through hard ground or high levels of surface residue, states John Deere. While the depth controlling press wheels are hydraulically adjusted, so the operator selects the required pressure and the system takes over.

Strip-till

This low disturbance option can help improve soil structure, as only a narrow strip of soil is cultivated.

One option is the Horsch Sprinter, which comes in three models: The ST, SW and NT.

These tine drills combine soil preparation, seeding and fertilisation in one pass. The ST and SW have working widths of 3-12m and hopper capacities of 5000 litres and 8000 litres, respectively. The NT has an 11-24m working width and a 17,000-litre hopper.

On the ST and SW models, there is a coulter pressure of 285kg, and the firm says its Mutigrip tine feature uses a set of springs to ensure coulter setting and seed depth, even in heavy soil. A range of different coulters are available, which can loosen, level, mix and crush soil, as well as removing stones, soil clods and straw residues.

Across all models a two-row harrow follows behind the coulters, of which the height and angle can be adjusted, with a tandem tyre packer to consolidate the seed band.

Claydon's Hybrid T trailed drills are hailed by the firm as efficient strip-till machines. Available from 3- 8m, these are designed for large-scale farmers or contractors and yet have a low horsepower requirement of 50-65hp/m.

Seed depth is maintained with sprung seed tines and depth control is hydraulically adjustable.

The Hybrid T comes with a number of options in its four-row set up, including either shouldered front cutting discs or a front wheel press in the first row. The second row consists of a front ground-breaking tine or cutting discs, while the seed row options are



Claydon's Hybrid T trailed drills are available from 3m, these are designed for large-scale farmers.

a range of seeding coulters, set by seed type. The fourth and final row of the machine has several options depending on conditions and soil type, including batterboards, a harrow or wheels. ■



MACHINE OF THE YEAR 2018

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