SEEDING SYSTEM SETUP FOR SUCCESS

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Key takeaways

- **Most seeders can perform well in dry conditions if they are correctly calibrated and adjusted. Poor setup is a bigger risk than the machine design itself.**
- **Tyne seeders create more soil throw than disc seeders, providing better incorporation of pre-emergent herbicides. There is a risk, however, if operated too fast that herbicide treated soil can be thrown into adjacent furrow causing crop damage.**
- **Disc seeders leave a greater portion of pre-emergent herbicide on the surface which can increase crop damage.**
- **Sowing fast reduces placement accuracy and increases risk of shallow seed or fertiliser contact. Slower speeds improve control on rough ground.**

There is no perfect seeding system for all situations, but most can be made to work effectively with thoughtful setup and adjustment. Whether sowing dry or into good moisture, the way a seeder is configured often matters more than the machine type itself.

That said, dry conditions can wear down parts more quickly, and require more horsepower and diesel to maintain consistent depth and function. Setup changes such as increasing tyne breakout pressure, reducing sowing speed to control soil throw, and ensuring good seed and fertiliser separation can improve crop establishment.

Depth control and seed placement

Inconsistent depth leads to patchy emergence and weed competition. Tyne seeders are better suited to sowing deeper. To improve depth control and seed placement, consider:

- Increasing tyne breakout pressure.
- Using narrow, tungsten-tipped points to reduce drag and improve soil penetration.
- Setting the boot to drop seed at the bottom of the trench if applicable to your seeder, onto a firm seed bed.
- Reducing seeding speed, especially in variable or rough ground, to avoid shallow sowing or seed bounce.
- Using press wheels to pack soil over the seed providing good seed/soil contact.

Disc seeders are better suited to shallow sowing and can struggle to sow to depth in hard soils. There are some adjustments to help sow deeper:

- Apply enough downforce to ensure the disc penetrates dry, firm soil and maintains a consistent sowing depth. Hydraulic systems usually offer better control than springs.
- Keep discs sharp and in good condition.
- Use residue managers or row cleaners to remove stubble ahead of the discs.
- Check that disc angle and overlap are set correctly.
- Adjust the gauge wheels to maintain consistent depth across varied soil surfaces. If the wheels apply too much pressure, depth can be reduced in firmer ground.
- Reduce sowing speed.

Sowing speed

Faster sowing speeds can boost productivity, but tends to increase soil throw and reduce seed placement accuracy, particularly in tyned machines. Slower speeds usually lead to more accurate seed placement.

Herbicide compatibility and soil throw

Setup is critical to prevent treated soil or surface residue washing into the seed row. Tyne seeders disturb more soil, which helps incorporate herbicide, but can also throw treated soil into adjacent seed rows. To reduce this risk:

- Operate at moderate speed (around 6–8 km/h).

Factor	Disc Seeder	Tyne Seeder
Hard soils	May struggle to sow to depth	Better suited
High stubble loads	Better trash flow	Risk of blockages
Herbicide incorporation	Minimal—use low-risk products	Good incorporation
Fertiliser safety	Riskier in dry soil, single chute	Safer with dual chute and deep banding
Adjustment ease	High precision, slower to adjust	Easier to modify for row spacing
Moisture depth (6–10 cm)	Variable performance	More reliable
Canola	Good for shallow placement	Requires careful setup
Wheat	Flexible	Flexible

- Use narrow points and appropriate row spacing to control soil throw.
- Set press wheels to stabilise furrows and limit wash-in.

Disc seeders disturb less soil and generally reduce the risk of herbicide reaching the seed row. However, low-disturbance discs can leave herbicide on the surface, where it may wash into open slots after rain. Many disc openers also leave the slot partially open, especially in dry, crust-prone, or hard-setting soils.

To reduce risk with disc systems:

- Use triple-disc setups (which include a leading coulter blade followed by a double-disc opener) that generate modest soil movement ahead of the opener. These systems have demonstrated crop safety comparable to that of knife-point and press wheel systems, provided the setup is correct.
- Heavier single-disc systems, or those with sufficient downforce, can also work well.
- Add residue managers ahead of single disc openers. These tools clear away surface residue and a small band of treated soil, reducing the chance that herbicide will be concentrated in the seed row.
- Choose herbicides registered for use with low-disturbance systems.
- Ensure good slot closure.

A well-set-up knife-point and press wheel system can strike a good balance between crop safety and herbicide performance. See the case study on pre-emergent herbicide strategies.

Set up tips to reduce herbicide damage risk when dry sowing

Press wheels create stable furrows to limit herbicide wash-in or backfill contamination

- Use wider press wheels (≥110 mm) to help stabilise the furrow shoulders.
- Align behind the opener, so the wheel presses over the seed row, not beside it.
- Use sufficient down-pressure to firm the soil without creating smearing or compaction. Using flat-faced or U-shaped profiles that press across the trench, not into it, reduces the risk of creating a slot that herbicide could later settle into.

Seeder layout

- Staggering tynes across multiple bars allows better trash and soil flow.
- No wheels inside the frame allows better stubble flow and less blockage.

General:

- On light soils or where water-harvesting furrows are formed, furrows can also funnel herbicide back into the row.

Birchip Cropping Group

Key messages

- **Good crop establishment depends more on seeder set-up, maintenance, and calibration than on the brand or age of the machine.**
- **Simple checks, such as sealing air carts, setting distribution bar height correctly, and re-checking calibration, help keep seed placement accurate and consistent.**

To help growers lift crop establishment and get more from existing machinery, BCG has been running Seeder Set-Up Days across the Wimmera. The first event in 2024 featured five different seeding systems.

Kelly Angel, BCG operations manager, said ‘We’ve had over 200 attendees over the last two years. Growers on the day shared what they liked and disliked about their machine, how they go about setting it up, and what led them to choose that particular model. It was an opportunity for open, peer-to-peer discussion grounded in real paddock experience.’

Alongside the machinery demonstrations, presentations covered the fundamentals of crop establishment. Key topics included disc vs tyne seeders, new versus older equipment, air cart set-up and calibration, identifying and resolving seeder issues, fertiliser toxicity, herbicide safety, and the basics of good establishment.

- Incorrect fan speed can cause uneven seed distribution.
- Maintain wider row spacing (e.g. 250–300 mm) if soil throw is high and difficult to control.

Fertiliser Placement

In dry soils, the risk of fertiliser toxicity increases, particularly with ammonium-based products like urea and MAP. To reduce the chance of crop damage:

- Use dual-shoot systems where possible, to place seed and fertiliser separately.
- Deep-band fertiliser at least 3 to 4 cm below the seed row.
- If using single-boot systems, avoid drilling urea or potash with the seed; top-dress instead.
- Increase seedbed utilisation (SBU) by narrowing row spacing or using paired-row boots to reduce fertiliser concentration near the seed.
- Reduce starter fertiliser rates in dry sandy soils or wide-row setups with low SBU.

The sessions highlighted core principles that can easily get skipped during the pressure of sowing—calculating seeding rates, checking sowing depth, matching sowing speed to soil and conditions, and making sure machinery is functioning as it should.

‘Crop establishment isn’t just throwing seed in the seeder,’ said Kelly Angel. ‘There are some core principles to set the crop up for success, but these can be skipped when growers are pushed for time.’

According to Kelly, there are plenty of practical things growers can do to ensure their equipment is set-up well for seeding.

Air carts need to be air-tight
Air carts were tested for leaks using a smoke bomb placed in a steel bucket inside the tank. Kelly said, ‘The majority of aircarts need to be fully sealed to deliver seed property. It was a good visual test.’

Check distribution bar height
Distribution heads need to be in the right place across the bar, and make sure they are positioned high enough so seed can flow down to the tines properly and to avoid blockages in the tubes.

Check settings regularly
‘Know how to calibrate your machine to put out the right seeding rate, and re-check when changing seed source, crop type, soil type, and occasionally just because. Also make sure you check for blockages systematically if you don’t have sensors that do this for you, to avoid frustration of missed strips’.

The trials confirmed that setup, maintenance, and understanding how machinery interacts with soil type have a greater impact on establishment than machine brand or age. ‘When we checked the demo strips in spring,’ Kelly said, ‘the disc machine was slightly more precise, but age made no difference—setup mattered most.’

While seeder make and model are often front of mind, the event reinforced that set-up, maintenance, and understanding how the machine works in different soil types has a bigger influence on crop establishment than the brand or age of the seeder.

Kelly said, ‘in Spring, we went back and looked at the seeder demo strips. The only thing that stood out was the disc machine was more precise with seed placement, and the age of the machine didn’t influence the final establishment number. Machine set up matters more than machine age.’

The 2024 event was well attended, however it quickly became clear that the timing—mid-April—was too close to sowing for many growers. ‘Some had to go seeding the very next day,’ said Kelly. ‘They were interested in adjusting their machines, but there was no time to go home and and carry that out ahead of a busy program.’

In response, the 2025 days were moved earlier in the season and expanded to two events, both held in February. The format was closer to a harvester set-up day, focused on giving growers the time and space to inspect and adjust their own equipment before sowing began.

BCG seeder set up day.
Photo: Kelly Angel, BCG

Residue Management

Crop establishment into heavy stubble can reduce seeding efficiency and crop establishment. Tyne seeders are more prone to blockages in thick or clumped residue, particularly when it has been grazed or slashed. To improve performance with tyne seeders:

- Spread residue evenly to avoid chaff lines, especially behind headers.
- Use high-capacity tyne designs with wide inter-tyne spacing.
- If necessary, inter-row sow to maintain trash flow.
- Increase row spacing to handle heavy residue.
- In heavy residue, consider double row spacing to allow shallow sowing of crops like canola.

Disc seeders generally handle standing residue better than tyne seeders but are more prone to hair-pinning. This risk increases in damp or flattened stubble. To improve performance with disc systems:

- Spread residue evenly at harvest and retain as much standing stubble as possible.
- Sow between rows to avoid disturbing moist soil and minimise slotting.
- Use implement steer to improve row accuracy, especially in narrow rows.
- Fit residue managers or row cleaners to clear the path ahead of the opener.
- Match sowing direction to the previous harvest (follow the header/stubble direction) so residue flows with the opener rather than across it.

In both systems, shallow sowing into residue—especially when using pre-emergent herbicides—can lead to poor emergence if residue covers the seed row or interferes with slot closure.

FarmLink

The 2024 FarmLink trial at Ardlethan, NSW, tested how stubble height affected early-sown canola. Canola sown into taller stripper-front stubble (64 cm) established better, with 26–29 plants/m² compared to 20–25 in the shorter 23 cm draper-front stubble. Soil moisture was similar, suggesting the upright residue reduced evaporation and protected the seed zone. A severe September frost limited yield potential across treatments, so differences in final yield were small and inconsistent.

Draper vs stripper front stubble. Photo: FarmLink

Upper North Farming Systems

Key messages

- **A hybrid disc seeder conserves soil moisture while still incorporating herbicides effectively.**
- **Good seed–fertiliser separation allows higher fertiliser rates when needed.**
- **The parallelogram opener improves depth consistency but takes extra time to adjust.**

Dave Clarke switched to a hybrid disc seeder in 2022, replacing his knife-point and press wheel setup to improve moisture conservation on his low-rainfall country. The new system allows him to retain more standing stubble, reducing evaporation and improving harvest efficiency.

The hybrid design uses a zero-tilt disc and seed boot that create enough soil throw for herbicide incorporation.

The opener uses an undercut disc, tilted off vertical and slightly turned to create a furrow. The seed boot follows behind the disc and sits in the furrow, placing seed on a ledge on one side of the trench. Dave describes it like a paired-row system, but only on one side.

This provides effective seed–fertiliser separation and flexibility to apply higher rates when required.

Each parallelogram opener follows the ground independently, maintaining consistent depth. Sowing depth is adjustable in quarter-inch increments, although changing settings can be time-consuming. Press wheel pressure is managed from the cab.

After two seasons, Dave has seen strong establishment and believes the system's precision placement is improving crop consistency, though it is still too early to confirm yield benefits.

Dave explaining his seeder set up.

The project, "*De-risking the seeding program – Adoption of key management practices for the success of dry and early sown crops*" was led by Ag Excellence Alliance. It combined research and on-farm experience to support earlier and more strategic sowing decisions to build drought resilience. The project draws on the expertise and local knowledge of fourteen grower groups across the grain producing regions of South Australia, Victoria, New South Wales and Western Australia. Scan the QR code to find out more.

Cover photo: *2025: Seeder set up day. Photo: Kelly Angel, BCG.*