Pulse Point 6

Dry sowing

Dry sowing is a means of getting crops sown on time in seasons with a delayed break. You must sow on time if you want to get the best yield, so if the time comes and it hasn't rained, consider sowing dry!

The biggest risk of failure when dry sowing pulse crops is the survival of rhizobia and subsequent nodulation. Narrowleaf lupins sown into a paddock with a history of lupins are the safest pulse crop to try. The risk of nodulation failure is greatly reduced where a background population of rhizobia is present in the soil.

Broadleaf weed control is the other key factor to consider when dry sowing. Limited post-emergent broadleaf herbicides are available for chickpeas and faba beans so careful paddock choice and timely use of a pre-emergent herbicide is essential.

Why dry sow?

The reason for dry sowing is to get more crop in on time. It lets you:

- optimize all crop yields by sowing each one on time,
- sow more crop on time without the cost of increasing machinery size,
- spread labour requirements and operations,
- handle more trash while stubble is dry; and the
- warm soil conditions aid crop establishment.

Considerations

Paddock selection

Normal paddock selection criteria apply for each pulse species. Look at soil pH, soil drainage and weed burden. The best results from dry sowing occur on freely draining, well structured soils but it is also successful on other soil types. Avoid hard setting or crusting soils without Stubble also helps retain soil moisture and reduces the risk of pulse diseases such as brown leaf spot in lupins.

Weed management

Knowledge of likely weed species in a paddock is essential, and the ability to control them under dry sowing conditions should be determined.

Triazine herbicides are effective in dry sowing and stubble retention situations. They should be applied to moist soil post sowing /pre-emergent. Do not apply triazines to dry soil, as heavy rain will leach the herbicide reducing efficacy and risking crop damage.

The effectiveness of soil incorporated herbicides is debatable due to limited soil mixing at sowing from narrow points under dry conditions.

Chickpeas should not be dry sown unless a broadleaf weed control strategy is in place and the paddock has low levels of weeds. Chickpeas are very poor early competitors.

Rhizobia survival

Survival of rhizobium is the biggest risk when dry sowing. Research suggests that survival under these conditions could be limited, however farmers have achieved good nodulation.

Satisfactory nodulation was achieved in a trial at Condobolin in 1998 where lupin, chickpea and faba bean were sown 12 days before significant rain on 21 April. A longer dry period between sowing and rain may have given a different result.

Ensure maximum survival of rhizobia on the seed during the sowing process.

- Use cool water to mix the inoculum slurry and clean containers (avoid those used for pesticides).

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- Keep treated seed out of direct sunlight.
- Avoid treated seed contact with hot augers, grouper, seeding tynes.
- Plant at cooler times of the day—avoid really hot conditions.
- Use a higher rate of inoculum to increase the number surviving on the seed.
- Avoid fungicide seed dressings as these may reduce survival. If seed dressing is essential to reduce disease risk, don't dry sow.
- Use molybdenum in districts where soils have low levels, to assist nodulation.

Seeding machinery

Major changes to seeding machinery for dry sowing are not required. You will need enough tyne break out pressure to penetrate the soil and maintain even seeding depth. Narrow seeding points with tungsten give better results and trash flow is often better when stubble is dry.

Ensure that the sowing boot is set up so the seed is dropped at the bottom of the trench, but with some loose soil beneath it. Press wheels or cultipackers are the better covering devices. They pack soil over the seed providing good seed/soil contact and don't create dust problems like covering harrows.

Sowing—date, rate, depth and row spacing

Start dry sowing at the beginning of the normal sowing window for that species and variety. As a guide, sow no earlier than the third week of April for low rainfall zones, and the fourth week of April for high rainfall zones.

Row spacing, seeding rate and seed depth should all be maintained as for normal sowing. Place seed at the deeper end of the recommended range to reduce the risk of partial germination on light rain, and to maximise rhizobium survival. Row spacing can be increased to handle heavy stubbles with minimal reduction in yield.

Case study

Trundle district farmers, Peter and Catherine Ledger, "Argyle Downs", started dry sowing in 1990 when their cropping area increased due to the downturn in wool—they had a labour shortage, a four row combine and more stubble because of the lengthening crop rotations. Dry sowing allows their four row combine to handle about 50% more stubble and they are able to crop a much larger area without extra capital.

Peter recommends:

- dry sow into stubble;
- use narrow points;
- pick paddock with a low weed burden;
- sow on the early side;
- use press wheels if possible.

From experience Peter suggests:

- avoid fallow paddocks that have soil structure or drainage problems;
- retain standing stubble and only graze it lightly if neccesary;
- look at your management if dry sowing fails—it probably isn't the dry sowing!

Further information

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