Soils, Nutrients and Fertiliser Factsheet

Fertiliser Spreader

Tray test and field procedure

1. Check settings in field

- Machine set to manufactures guidelines for the fertiliser being used
- Height of machine is correct
- PTO & forward speed
- Working width is correct

2. Check for even distribution

- Set trays at equal distance across full bout width
- Run spreader over the trays in three passes, far left, centre, far right tramline, to ensure full spread pattern is recorded
- Collect fertiliser in measuring cylinders and compare

3. Marking out / GPS

To achieve an accurate distribution it is critical that working width is correct

- Physically mark out bouts widths in field
- Foam marking possible for narrow working widths
- Alternatively use of GPS guidance will ensure bout width is maintained

4. Headland control options

Many different types available: reverse disc direction; different disc/vane; deflector etc.
Many offer the user the option to select the extent of control

- Yield orienting - full rate to boundary, with small amount beyond boundary
- Environmental - reduced rate to boundary with zero beyond
- Watercourse - reduced rate to boundary side, +1 m buffer zone unspread

5. Maintenance/care

Fertiliser is corrosive

- Clean spreader after use
- Lubricate all moving parts
- Apply anti corrosive protection
- Store spreader safely
- Replace damaged parts

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Fertiliser quality characteristics & impact on spreading

1. Fertiliser granule size

- Particle size distribution will have a large impact on fertiliser spread width and uniformity
- In general large granules will be thrown further than small granules
- The more variation within granule size the greater the risk of uneven spreading/segregation
- Aim for 80% of granules in the 2 to 4 mm range
- Larger granules are better on wider spread widths
- Use a fertiliser sieve box to determine fertiliser size range

2. Shape of granules

Fertiliser granules shape will vary between fertilisers. For example nitrogen (CAN, urea, phosphorus) tend to be round in shape whereas potassium tends to be angular. Round granules tend to roll along the vanes while angular granules tend to slide along the vanes

Round granules

- Move off the spreader disc more easily
- Travel through the air better

Angular granules

- Due to angular nature and move on spinning discs can result in some breakage on the disc
- Don't travel as well in the air due to granule shape and exit velocity from the vanes

3. Granule density

Granule density represents the mass to volume ratio of granules. This is a measure of the physical weight of 1 litre of fertiliser measured by a weighing scale.

- Important factor when setting up the fertiliser spreader
- Large impact on the spread width of the fertiliser
- More dense particles will spread wider at high spinning disc speeds
- Blending fertilisers of similar density is important to prevent segregation
- Urea is a low density fertiliser with a granule density of 0.75 kg/l. More difficult to spread on large bout widths
- CAN (27% N) is a high density fertiliser with a granule density of 1.0 kg/L and is easier to spread

4. Granule hardness

Granule hardness refers to the forces that can be applied before the granule breaks.

- Granule hardness will influence both the spread width and the disc speed
- Soft fertilisers may shatter on the disc resulting in granule breakage
- Check fertiliser granule hardness with a hardness indicator
- Aim for granule hardness of greater than 6

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