

One-way Disc Plough



Plozza disc modified 5GP trailed one-way plough operating at 32cm depth (Image: University of South Australia)

Key points:

- One-way disc ploughs upgraded with larger (76 cm) diameter and greater concavity discs set at double the initial spacing are known as the 'Plozza plough'. They enable a deeper inversion ploughing of sands down to 35-40cm depth.
- Work rate of a 15 disc Plozza modified plough may vary in the range of 1.5-3 ha/hr with approximate cost of \$65-80/ha.
- The extent of topsoil inversion is greatest in moist soil conditions, at slower ploughing speed (3-4 km/h) and with larger concavity disc blades. Observations suggest soil layer mixing effects are more prominent at faster speeds (e.g. >8 km/h).
- Field testing has shown some good effectiveness in cancelling surface non-wetting and reducing resistant weed seed issues.
- A modified one-way disc plough provides a low-cost option to incorporate surface amendments to greater depth than disc harrows, while the proportion buried is distributed in a narrow band from near full depth to the surface.
- One-way disc ploughs can be used to incorporate lime to treat acidity but be mindful that acidic sub-surface layers may be brought to the surface and may need additional lime applications. Assess soil pH after amelioration.

Note: A new designs of disc plough offering two stage-ploughing and reversibility for up/back ploughing, which is able to achieve a 100% burial at high speed, is now becoming commercially available.