

Direct drilling using the Roto-drill

BACKGROUND

The Roto-drill concept was first used by a New Zealand farmer to introduce new pasture species in native grasslands. The N.Z.A.E.I. has carried out machine development and agronomic trial work to establish the effectiveness of this concept.

HOW IT WORKS

The Roto-drill consists of a modified rotary hoe with seed and fertiliser boxes added. The cutting blade configuration is designed to make slots and destroy the vegetation within them. The seed and fertiliser are sown into the slots and are covered by a fine tilth from the rotor. Press wheels are used to firm the soil over the seed and give a good seed-soil contact for rapid germination.

OVERDRILLING TUSSOCK AND NATIVE PASTURE

For this work the machine usually cuts 100 mm wide slots at 250 mm spacing. Because the machine is P.T.O. powered it is able to cut efficiently through surface trash and the root mat, thus creating a seed bed in one pass. The reduction of the competition from around the new seedlings by mechanical means usually eliminates the need for herbicides. The press wheels are individually spring mounted to ensure even compaction.

CEREAL AND GREEN FEED CROPS

Roto-drills for this work have the blade configuration modified to cut 75 mm wide slots at 150 mm spacing. The machines are able to penetrate and form a good tilth in the most difficult soils. The ability to handle large volumes of trash means that green feed crops can be sown into cereal stubble without the removal of the straw. For best results in cropping, it is recommended that some herbicide is used. The combination of cultivation plus herbicide gives good reliability under adverse conditions.

FUTURE DEVELOPMENTS

The present single shaft rotor machines have limitations in their ability to follow abrupt variations in ground contour, particularly in tussock country. Requirements in New Zealand and overseas have led to the development of a machine which has a series of independently floating cutting heads. This concept will also enable the cutters to be protected from damage by large stones and rocks. The N.Z.A.E.I. has imported an English machine for evaluation under New Zealand conditions.

Request for information should be addressed to:

Extension Officer
NZAEI
Lincoln College
CANTERBURY