

THE HISTORY OF NO-TILL IN SOUTH AFRICA

What is no-till?

Dr J.B. Mallet was the agronomist responsible for leading tillage research at Cedara in the 1970's. He was sent to the USA and the UK to study no-till technology. Knowledge gained during these trips was adapted for conditions in South Africa. In his various reports he referred to no-till being synonymous with direct drilling, direct seeding, zero-till, slot-planting, chemical tillage, no-plough tillage, sod planting and sod seeding as an ultimate conservation tillage system.

How does no-till work?

No-till involves the planting of crops in previously unprepared soil by opening a narrow slot, trench or band only of sufficient width and depth to obtain proper seed coverage while no other soil preparation takes place. Chemicals are utilized to control weeds, making mechanical cultivation unnecessary. Uniform mulch from the previous crop acts as an artificial insulating and protective blanket, ensuring greatly improved soil and water conservation. This can result in no-till maize out-yielding conventionally-tilled maize in seasons of erratic or below-average rainfall.

History by Dr Mallet

In his annual reports, Dr. Mallet documented the history of no-till. There was renewed interest in no-till in the 1940's due the abundance of growth regulators that were available after World War II. However, it was only in the late 1960's and 1970's that the USA made major research advances in commercially planted no-till maize. In 1970 Dr Mallet introduced no-till to South Africa when he planted an experimental field of maize on Cedara Research Station. The first no-till maize was planted for research purposes in 1971. Dr Mallet spent the next ten years encountering, researching and resolving many of the no-till challenges. Range 24 on Cedara is still planted to no-till maize, having been originally planted by Dr Mallet in 1976 using a no-till planter imported from the USA.

Why no-till was not adopted by farmers in the 1980's

According to Dr Mallet, the reason for the non-adoption of the no-till system in the 1980's was mostly due to the unavailability of locally-sourced, suitable no-till planters and the strictly regulated SA maize industry, which prevented the commercial acceptance of no-till.

The adoption of no-till by the farming community

Records kept by Dr Mallet report that, Mr John Jackson was the first farm in SA to adopt no-till on a commercial basis while in 1991, Rene Stubbs of Denleigh dairy farm was the first commercial farmer to adopt no-till at Karkloof. Various researchers from the KZN Department of Agriculture became involved (see leaflet by Mr. Bill Berry). The No-Till club was formed in 1997 at a farmers' meeting held in Winterton. Early membership of the club comprised farmers, agro-industry reps and researchers.

Additional benefits of no-till observed by the Karkloof Conservation Center

(Twané Clark & Charlie MacGillivray)

No-till has been well-supported in the Karkloof, with 95% of Karkloof farmers having converted to conservation agriculture (no-till). In addition, when replanting the forests, Sappi allowed for a 50 m buffer from the edge of the plantation to where the wetland experiences a change in soil.

As a result, the wetlands have remained wet and rivers continued to flow during the drought. No water shortages have been experienced, yet there are no dams on the Karkloof river and farmers have continued to irrigate with centre pivots and moisture probes.

Rene Stubbs, since converting to no-till in 1991, has become a recognised custodian of the Oribi, three endangered crane species and the blue butterfly. Prior to implementation of no-till, crane populations had been dwindling. The period between 2001 and 2014 saw the return of a host of crane colonies, including the three most endangered cranes (gray, wattled and blue). Wattled crane numbers have reached a total of 311 birds for the first time in 20 years. The spotted necked otter has also been sighted, an indication of clear and clean waters.

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