



# Information Sheet

## 4. HUSBANDRY

### 4.10 Minimum tillage

**M**inimum tillage is the practice of reducing the amount of soil disturbance when preparing the land for planting. It is recommended during the summer period when high intensity storms occur, to reduce the risk of soil erosion.

Replanting of cane requires three separate operations:

- complete eradication of the previous crop
- soil preparation
- planting the cane setts.

Conventional land preparation by ploughing and discing the land has a **number of disadvantages:**

- difficulty in destroying the previous crop, and therefore pests and diseases

- increased erosion hazard on sloping land
- faster mineralisation and oxidation of soil organic matter
- breakdown of soil structure
- high cost of operation.

#### **Eradication of previous crop**

There are four recommended practices which are effective without significant disturbance of the soil:

- chemical
- mechanical
- combination (chemical and mechanical)
- manual (hand chipping).



*Minimum tiller in action; limiting cultivation to the old interrow, leaving the dead cane undisturbed.*

These practices are fully described in Information Sheet 4.2: **Cane Stool Eradication**.

### **Soil preparation**

Experiments indicate it is normally not necessary to use deep ploughing and discing. However, where there are signs of compaction, a shallow till would suffice. **The whole principle of minimum tillage is to avoid unnecessary soil disturbance**, as sugarcane only benefits from a finely prepared tilth in close proximity to the setts.

### **Planting**

In most soils, a relatively simple minimum tiller can be used to prepare a suitable planting tilth. This implement opens a furrow of the required depth in the old interrow and creates tilth without causing major soil disturbance. After the cane is planted the setts are covered by hand.

### **Advantages**

The numerous advantages of minimum tillage are:

- simple system, very often requiring light machinery only
- more effective destruction of the old crop
- more effective kill of pests and diseases
- greatly reduced soil erosion by retention of stubble
- improved soil moisture retention
- preservation of soil organic matter and nutrients
- more cost effective than conventional tillage
- enhanced yields, particularly on poorer soils
- reduced fallow period, under certain circumstances.

### **Recommendations**

**Minimum tillage** is a highly recommended practice at all times. There are only two situations in which it is not suitable:

- where the row alignment of the previous crop needs to be changed for conservation or mechanisation purposes
- where lime has to be incorporated.

**Minimum tillage** must be practised under the following conditions:

- erodible soils - slopes greater than 11%
- moderately erodible soils - slopes greater than 13%
- resistant soils - slopes greater than 16%.

Chemical destruction of the crop is only effective in the spring and summer months when vigorous growth is taking place, i.e. October to March.

Mechanical methods are only effective during the dry winter season when growth is negligible. Manual methods, although more effective during the drier months, can be successfully performed at any time of the year.

**NOTE:** If RSD is known to be present, a delay of three months is necessary after destroying the old crop and before replanting.

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