

Weeding and Weeding Tools

Introduction: Weeds cause greater reduction in potential yields than any other single factor by their competition for light, nutrient and water with the crop the farmer is trying to grow. This is particularly true at the small scale level where the tools available, such as the machete, are intended to be for multipurpose use rather than for weeding.

It is often traditional to start weeding when the weed canopy covers the whole area. At present most weeds are removed by mechanical means but the rate and type of work of the existing tools is both slow and tends to loosen the soil thus allowing valuable moisture to escape. In any one area weeds develop at the same time so the hand labour is limited to those who normally work on that area and where extra casual labour is available the cost is high in relation to the daily output. The net result is that some weeds are able to seed before they can be removed and the weed seed reservoir in the soil increases thus compounding the problem.

The work of weeding is normally carried out by women and young persons and is very tedious but necessary in terms of the number of hours and days needed. The relief from the competition comes when the crop canopy is sufficiently large for its competition to prevent further germination.

Theory for improved weed control

Annual weeds are frequently the most troublesome due to the large numbers of seeds they produce on a short growth period. Rains cause both the weeds and crop to germinate but generally the crop emerges over a short period of time than different weeds which appear over a longer period. Weeding should start immediately the rows of the emerging crop can be identified. At this stage the emerged weed seedlings will be at the two to three leaf stage while many others will have germinated but not yet emerged.

Experience has shown that weeding the whole area can control by both the emerged seedlings and those which have germinated but not yet emerged and this control will last for 2-3 weeks which allows the crop canopy to develop thus inhibiting further weed germination.

Practices for improved weed control

The techniques used should combine weed control with moisture conservation and the minimum energy input. The best technique is the passage of a thin blade inclined horizontally through the soil at a depth of about 10 mm. The soil and weeds are raised and flow over the blade back to the soil where the weeds lie on the surface and desiccate due to the effects of sun and wind. If there is a surface crust this will be broken to form a mulch to cover or seal any cracks and reduce moisture loss.

The tools described below have been designed to raise seedling weeds with the minimum energy input and at higher rates of work than normally found.

The growing of crops in rows greatly facilitates weeding and two designs of tool are needed for

weed control. One for weeding the long spaces between the rows and the other to remove the weeds between each plant along the row.

Weeding between the plants: Seeds should be planted at as constant spacing as possible the distance being according to recommended agronomic practice. The width of the tool should be less than the crop space to reduce the chances of damage and allow error in planting distance.

The width of the hand weeder for between-the-plants will depend on the crop but widths of 100 or 120 mm have been found appropriate.

The shape of blade may vary but the types shown here have been developed from practical experience to give the best performance.

Hand hoes





When using a hoe, the weeds are pulled out of the ground by the hoe's head. The hoe is used to pull weeds from a row of young plants in a field of brown soil.