

THE 3 PRINCIPLES OF CONSERVATION AGRICULTURE



CONSERVATION AGRICULTURE: FOOD SECURITY IN LESOTHO FOR A CHANGING CLIMATE

1



Minimum tillage and soil disturbance

Direct planting involves growing crops with minimum soil disturbance since the harvest of the previous crop. Direct planting can be used with all annual and perennial crops and vegetables.

Conservation agriculture can be done manually (i.e. likoti) or mechanically (i.e. animal or tractors drawn conservation agriculture planters).

Advantages of minimum tillage



Protects the soil against erosion by water and wind



Cost savings: fuel, time and labour costs in the long term



Improves infiltration and conserves soil moisture



Improves soil organic matter



Increases yield per unit of fertilizer or manure applied. Long-term decreases the amount of fertilizer per hectare.

2



Permanent soil cover with crop residues and live mulches

Mulch is any organic material (such as decaying leaves, bark, or compost) spread over the soil and around a crop to enrich and insulate the soil.

Live mulches are crops intercropped for purposes of providing soil cover.

Crop residue or live cover protect the soil from direct impact of erosive raindrops; conserves the soil by reducing evaporation and suppresses weed growth.

Advantages of permanent cover: residues and life mulches



Protects the soil from erosion by water or wind



Suppresses weed germination and growth



Improves recycling of nutrients



Improves organic matter accumulation and carbon sequestration

3



Crop rotation and intercropping

Crop rotation means that different crops are alternated in the same field, preferably cereals (maize and wheat) followed by legumes (beans).

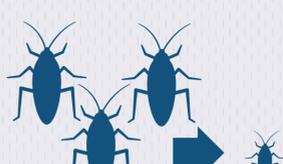
Advantages of crop rotations and intercropping



Improvement of water use: crops with different rooting systems also utilize soil water at different soil depths.



Improve fertility and production: crops have different rooting patterns which take up nutrients at different soil depths. Rotations help to utilize soil nutrients more efficiently. In addition, legumes fix nitrogen in the soil for the benefit of successive cereal crops in a rotation.



Reduction of pests and diseases: different crops are susceptible to different disease and pest agents. Therefore, growing such crops in rotation will reduce the incidence of diseases and pests with no cost.

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