THE THREE PRINCIPLES OF CONSERVATION AGRICULTURE

1) Minimum Soil Disturbance 2) Permanent Soil Cover: crop residues and live mulches 3) Crop rotations and/or intercropping

1 First Principle:
Minimum 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 (e.g. likoti) or mechanically (e.g. animal or tractor drawn conservation agriculture planters).

Advantages of minimum soil disturbance

Protects the soil against erosion by water and wind.

Improves infiltration and conserves soil moisture.

Increases yield per unit of fertilizer or manure applied. In the long term decreases the amount of fertilizer per hectare.

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

Improves soil organic matter.

2 Second Principle:
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 live mulches

Protects the soil from erosion by water or wind.

Suppresses weed germination and growth.

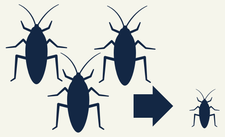
Improves recycling of nutrients.

Improves organic matter accumulation & carbon sequestration.

3 Third Principle
Crop Rotation & 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 & intercropping



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

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.

Humanitarian Aid and Civil Protection

USAID FROM THE AMERICAN PEOPLE

UKaid from the British people

These materials have been commissioned by FAO Lesotho and the Ministry of Agriculture and Food Security with financial support from the European Commission Humanitarian Aid and Civil Protection Directorate (ECHO) and OFDA in 2012. These materials were developed in coordination with, and endorsed by, the Lesotho Conservation Agriculture National Task Force (LCANTF). These materials can be freely reproduced for non commercial purposes ensuring attribution to the LCANTF and FAO. Any derivative work must be approved by FAO and the LCANTF.
The members of LCANTF are the following: Apostolic Faith Mission, CARE Lesotho, Catholic Relief Services (CRS), FAO - Food and Agriculture Organization, Growing Nations, Lesotho Agricultural College, Lesotho College of Education, Lesotho Red Cross Society, Ministry of Agriculture and Food Security, Ministry of Forestry and Land Reclamation, National University of Lesotho (NUL), Rehobothe Church, Rural Self Help Development Association (RSDA), Seeds and Markets Project (SAMP), World Food Programme, World Vision Lesotho.