Soil Erosion

Introduction: Soil Erosion

- Soil erosion is the washing or blowing away (by wind or water) of the top layer of soil (dirt).
- Erosion also leaves large holes in the earth, which can weaken buildings and even cause them to collapse.
- Soil erosion is a natural process. It becomes a problem when human activity causes it to occur much faster than under natural conditions
- Soil erosion occurs when soil is removed through the action of wind and water at a greater rate than it is formed. If the soil has eroded, the crops will not grow very well.

What is soil erosion?

- When a raindrop hits soil that is not protected by a cover of vegetation and where there are no roots to bind the soil, it has the impact of a bullet.
- Soil particles are loosened, washed down the slope of the land and either end up in the valley or are washed away out to sea by streams and rivers.
- Erosion removes the topsoil first. Once this nutrient-rich layer is gone, few plants will grow in the soil again.
- Without soil and plants the land becomes desert like and unable to support life.

Causes of soil erosion

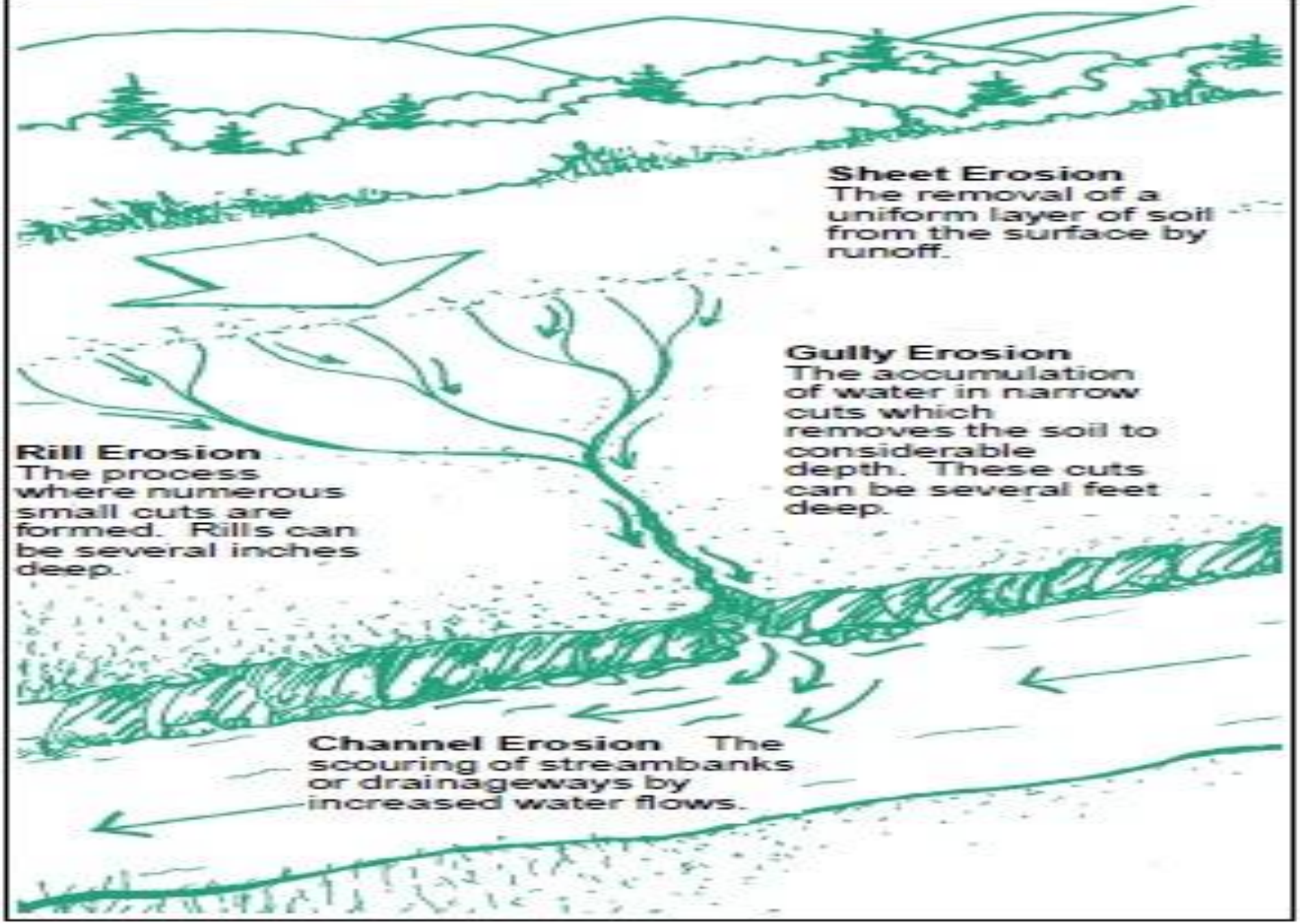
Wind and water are the main agents of soil erosion. The amount of soil they can carry away is influenced by two related factors:

- ✔ speed - the faster either moves, the more soil it can erode;
- ✔ plant cover - plants protect the soil and in their absence wind and water can do much more damage.

Erosion occurs when farming practices are not compatible with the fact that soil can be washed away or blown away. These practices are:

- ✔ Overstocking and overgrazing
- ✔ Inappropriate farming techniques
- ✔ Lack of crop rotation
- ✔ Planting crops down the contour instead of along it.

Types of Erosion




Zuid-Limburg018a

How to Stop Soil Erosion

Our soil is eroding fast and it will never come back! But we know how to stop erosion. Let's act now to save our soil.
Waduda

Terraces
- Build terraces to create level ground and stop soil washing away

Cover crops, beans etc
- Stop splash erosion
- Help soil absorb water

Ground cover
- Grass absorbs water into the soil
- Stops splash erosion

Trees
- Roots hold terraces and trash lines together

Ditches
- Conserve water

Mulch
- Stops splash erosion
- Keeps soil moist
- Adds organic matter to soil

Grass Bands
- Elephant and napier grass keep terraces strong

Trash lines
- Put weeds along contours
- Soil builds up behind to form a small terrace

USAID FROM THE AMERICAN PEOPLE
Livelihoods and Enterprises for Agricultural Development (LEAD)
KYAGALANYI COFFEE LTD
Member of VOLCAFE Group
UTZ CERTIFIED Good Inside

Prevention

- Planting wind breaks can be effective
- Terracing can also be effective.
- The use of contour ploughing
- Leave unploughed grass strips between ploughed lands (strip cropping)
- Make sure that there are always plants growing on the soil, and that the soil is rich in humus
- Avoid overgrazing
- Allow indigenous plants to grow along riverbanks
- Conserve wetlands
- Cultivate land, using a crop rotation system
- Minimum or no tillage
- Encourage water infiltration and reduce water runoff.

SOIL CONSERVATION

BIOLOGICAL METHODS

1. SALT
2. GRASS HEDGES
3. AGRONOMIC PRACTICES

I. CONTOUR PLANTING
i. COVER CROPS
iii. MIX CROPPING
iv. ZERO TILLAGE AND MINIMUM TILLAGE
v. MULCHING
vi. SELECTIVE WEEDING

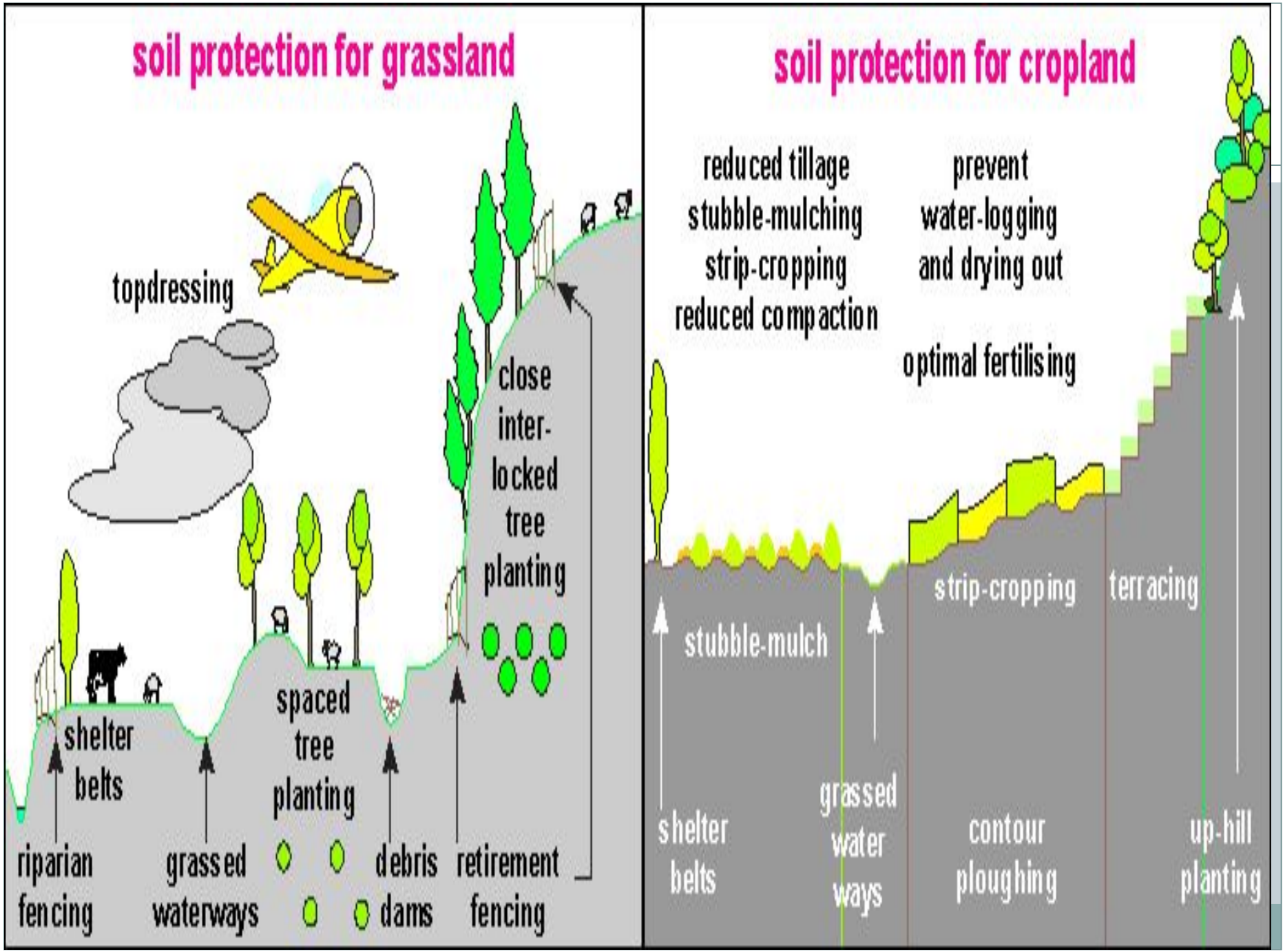
MECHANICAL METHODS

1. STONE TERRACES
2. DRAINS
3. EARTH BUNDS
4. PREPARATION OF TERRACES

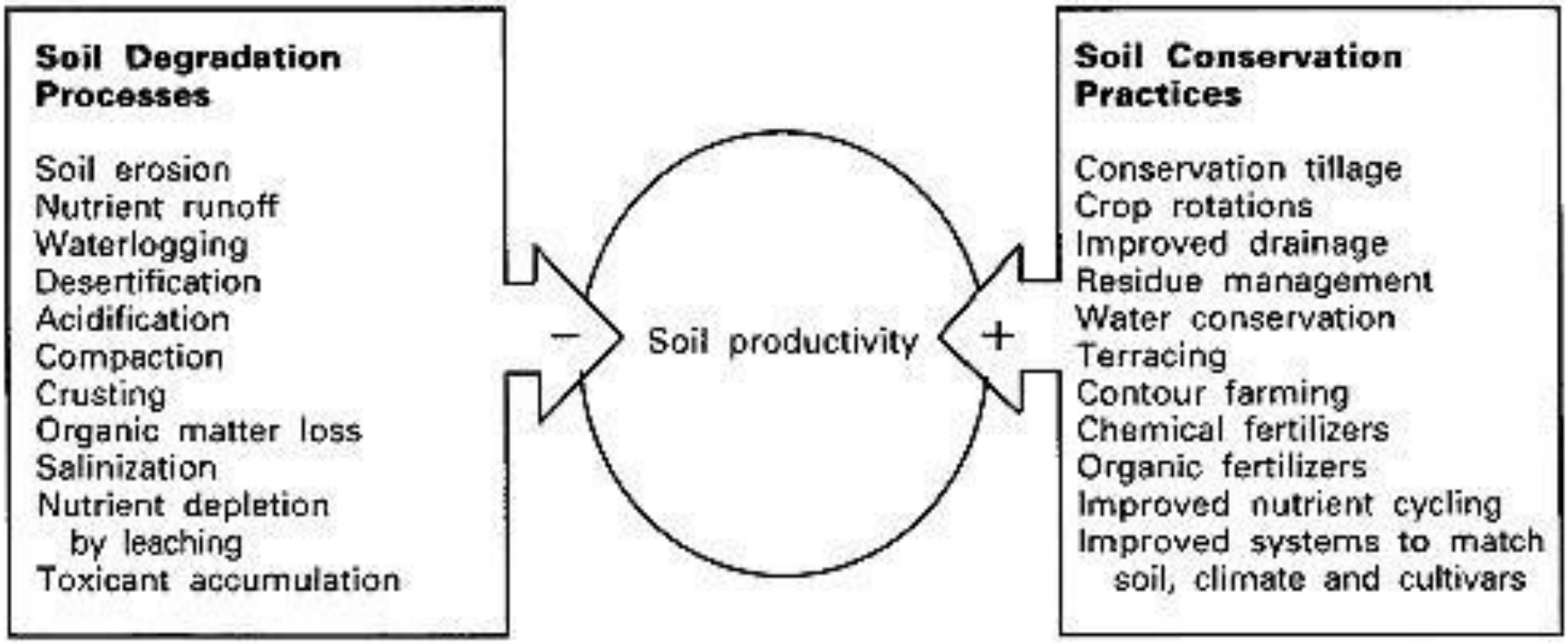
IMPORTANCE OF PLANTS IN CONTROLLING SOIL EROSION

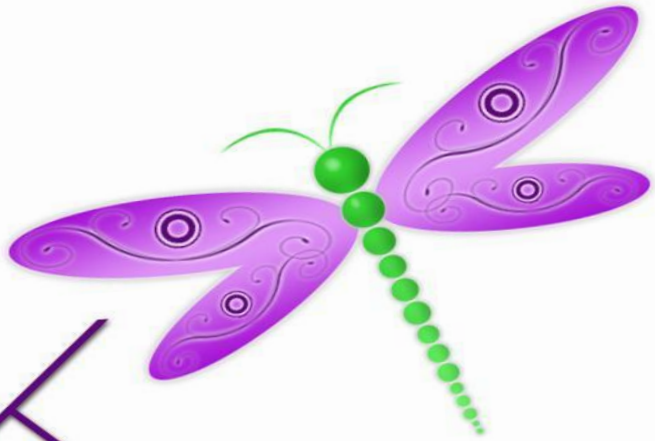
Plants provide protective cover on the land and prevent soil erosion for the following reasons:

- ✔ Plants slow down water as it flows over the land (runoff) and this allows much of the rain to soak into the ground
- ✔ Plant roots hold the soil in position and prevent it from being washed away
- ✔ Plants break the impact of a raindrop before it hits the soil, thus reducing its ability to erode
- ✔ Plants in wetlands and on the banks of rivers are of particular importance as they slow down the flow of the water and their roots bind the soil, thus preventing erosion.


soil protection for grassland
topdressing
close inter-locked tree planting
shelter belts
spaced tree planting
riparian fencing
grassed waterways
debris dams
retirement fencing
soil protection for cropland
reduced tillage
stubble-mulching
strip-cropping
reduced compaction
prevent water-logging and drying out
optimal fertilising
stubble-mulch
strip-cropping
terracing
shelter belts
grassed water ways
contour ploughing
up-hill planting

Process Comparison





thank you . . .