

"It takes half a millennia to build two centimeters of living soil and only seconds to destroy it."

Anne Glover  
Chief Scientific Adviser,  
European Commission

Soil erosion is second only to population growth as the biggest environmental problem the world faces. Yet, the problem, which is growing ever more critical, is being ignored because who gets excited about dirt?

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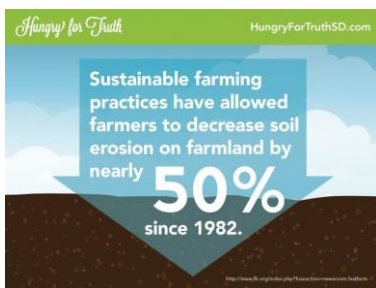
David Pimentel

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## Soil Conservation

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- **Remediation:** occurs when land is already degraded to such an extent that the original use is no longer possible and the land has become practically unproductive.
- **Mitigation:** intervention intended to stop further degradation and to start improving resources and their functions
- Best is Prevention – stopping soil quality loss before it happens!

## Farming Practices



## Farming Practices



## Farming Practices

### Intercropping:

- Planting two or more crops during a growing season on the same land.
- Often a legume (nitrogen replenishing) crop is seeded with a non-legume crop.
- Decreases erosion, replenishes nutrient levels in soils



## Farming Practices

### Crop rotation:


- Farmers alternate the types of crops grown in a field year to year.
- On the prairies cereals (wheat, barley), legumes (peas, lentils), oilseeds (canola) and forage crops (alfalfa) are often rotated.
- Renews soil nutrients and breaks cycles of returning pests and disease, helps prevent soil erosion



## Farming Practices

**Shelterbelts:**

- Rows of trees or tall perennial plants are placed around crop borders in order to slow the wind and protect the soil




- Reduce wind erosion, trap snow for additional moisture, provide shelter for wildlife

## Farming Practices

**Conservation Tillage:**

- Soil surface is not turned over (tilled) year after year.
- Leaves the stubble of the previous crop standing to protect the soil

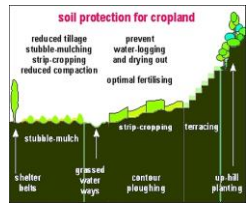


- Contributes organic matter to soil, adds nutrients, reduces erosion

## Farming Practices

**Terracing:**

- Steep slopes turned into "steps"



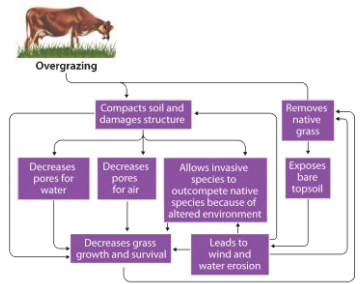
**Contour Farming:**

- Planting perpendicular to hill's slope

## Ranching Practices

- Ranching is the raising and grazing of livestock.
- Overgrazing causes and worsens many soil problems.
- Range managers encourage grazing limits and enforce them on publicly owned land.

## Ranching Practices




**Overgrazing**

- Compacts soil and damages structure
- Decreases pores for water
- Decreases pores for air
- Allows invasive species to outcompete native species because of altered environment
- Decreases grass growth and survival
- Leads to wind and water erosion
- Exposes bare topsoil
- Removes native grass

## Forestry Practices

- Forestry practices, such as clear-cutting, can increase erosion.



## Forestry Practices

- Today, practices that reduce soil erosion, such as **selective logging** where only certain trees are removed, are increasingly common.



## Conclusions

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## Conclusions

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