

## Agroecology

- Holistic approach looking at whole farms and farming systems
  - Soil and natural resources
  - Agronomy
  - Livestock and grazing
  - Forestry/plantations
  - Mechanization and energy
  - Organisational innovations
  - Post-harvest management
  - Marketing
- maximise natural functioning of ecosystems for ecosystem services
- nutrient cycles and ecology



Transition towards agroecology

## Redesigning the agroecosystem as a new set of ecological processes

This involves a fundamental change in overall system design focusing on the prevention of problems before they occur, rather than trying to control them after they happen.



*Model farmer explaining her agroecological practices to peers in a farmer-to-farmer exchange*

## Agroecology and the SDGs - Sustainable Development Goals

Agroecology is a key response to guide the sustainable transformation of our food systems and supports the achievement of most SDGs.



For more information please contact the ISFM+ Project ProSilence component at [tesfay.haefom@giz.de](mailto:tesfay.haefom@giz.de).

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# Agroecological Practices

A holistic approach to agricultural development and food systems



### Increasing input use efficiency

- reduce the use and consumption of costly, scarce, or environmentally damaging inputs
- nitrogen fixation by legumes
- lime for balanced pH and efficient uptake of nutrients
- precision agriculture



### Improving soil health and conservation

- incorporating organic fertilizers
- crop rotations with legumes
- green manuring
- crop residue management (mulch)
- barriers or hedges (stone walls, ditches, grass strips, trees along contour lines to reduce erosion)



### Improved agronomic practices

- improved seed
- optimal seed spacing
- row planting rather than broadcasting
- intercropping, relay cropping or diversified cropping
- minimum tillage



### Reduced or improved use of water

- soil water holding capacity (org. matter)
- rainwater harvesting
- tied ridges between crop rows



### Integrated Pest Management

- biological prevention measures with minimum chemical pesticides and drugs
- Push-pull, based on companion or intercropping (stem borer and *Striga*)



### Integrated Crop Livestock Management

- create synergies
- making optimal use of resources with the waste products of one component serving as a resource for the other
- manure → improve soil fertility
- crop residues and other by-products → supplementary feed for animals



### Use of locally produced livestock feed

- feed scarcity major constraint
- transition from free grazing to tethering or barn/pen husbandry
- cultivate forages and fodder trees for cut-and-carry system
- use of by-products and supplementation



*Farmer feeding freshly cut fodder grasses to tethered cow*



### Use of waste products

- waste products of one sector = inputs to another
- enhancing productivity
- reducing pressure on ecosystem functions and services.
- use of bio-slurry or animal urine



*Application of animal urine as part of nutrient recycling*



### Agroforestry

- provides sustainable livelihoods
- achieving biodiversity targets
- offsetting greenhouse gases



### Diversification

- for farm enterprises to maximise use of the environment or waste products
- honey production, aquaculture (fish) and small-scale poultry production