

Agroecology: Principles and Practice

Curriculum

A. Agroecology : Theoretical background.

Biodiversity and complexity and resilience. Nutrient cycles. Population ecology of agroecosystems. Food web structure. Species interactions in agroecosystems. Pollination biology. Soil soil texture, moisture content, below-ground food web. Open vs closed agroecosystem.

B. Cropping Systems

Monoculture vs Multi- or Poly-cropping. Alley cropping. Crop rotation. Agroforestry. Ecological productivity and crop yield. The Land Equivalent Ratio of productivity. Allelopathic effects. Multi-tier home garden. SRI.

C. Selection and Breeding

Outcrossing and breeding experiments. Traditional selection and breeding methods for enhancing selected characteristics. Breeding for durable resistance in crop plants. Crop landrace characterisation. Choice of suitable crops and varieties.

D. Soil and Water Management

Soil quality maintenance. Mulching. Cover crop. Irrigation techniques. Composts. Dry compost, wet compost, liquid compost. Biochar and PSM application. Ploughing vs no-till agriculture. Permaculture.

E. Weed, pest and disease control

Definitions and functions of weeds, pests, and pathogens. Coevolution of crop plants, pests and pathogens. Biodiversity-based control methods. Building resistance and resilience in agroecosystems.

F. Domestic animals

Integration of farm animals in nutrient cycles. Ecological sanitation.

A certificate will be given to each participant at the end of the training.