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Training in Agroecology: Principles and Practice

Curriculum

A. Agroecology : Theoretical background.

Biodiversity and complexity. Nutrient cycles. Population ecology. Species interactions in agroecosystems. Food web structure. Above- and below-ground food webs. Pollination biology. Soil texture, moisture content. Meaning of Sustainability. System Resilience. Bio-socio-political ecology. Community.

B. Cropping Systems

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

C. Selection and Breeding

Outcrossing and breeding experiments. Traditional selection and breeding methods for enhancing selected characteristics. Choice of suitable crops and varieties. Crop characterization. Rouging and genetic purity in landraces.

D. Soil and Water Management

Soil quality maintenance. Mulching. Cover crop. Composts. Dry compost, wet compost, liquid compost. Biochar and PSM application. Water conservation. Water stress and crop selection. 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 system resilience.

F. Farm Animals & the Use of waste

Integration of farm animals. Integrated farming systems.

G. Ecological sanitation and human waste use: Eco-San.

H. Conserving and enhancing diversity

Levels of diversity: Ecosystem, Taxic, Species, Genetic, Alpha and beta diversity. Farm architectural complexity. Introduction of species and ecological engineering.

I. Community involvement

Localization of production and distribution. Seed bank: *ex situ* vs *in situ*. Sharing of seeds, tools, knowledge and vision. Commons and the communitarian ethos. Transition town.