

# **RESOURCE MANAGEMENT IN RAINFED DRYLANDS**

*Biodiversity conservation for drylands: An Overview*

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**Biodiversity is the origin of all species of crops and the variety within them. ...**

**Maintenance of this biodiversity is essential for the sustainable production of food and other agricultural products and the benefits these provide to humanity, including food security, nutrition and livelihoods.**

- ❖ Biodiversity in plant genetic materials is one of the most basic resources needed for survival
- ❖ It is a source of rich variety of food, fodder, medicines, manure and other raw materials used in providing man's basic needs
- ❖ It has also been the source of breeding material for new crop varieties all over the world

**Biodiversity not only means diverse species, but also the relationships among plants, animals, microorganisms, soil and water which give rise to ecological and cultural diversity.**

**Genetic diversity is not mere breeding material, but a product of interaction between inherited traits and the environment – a result of co-evolution**



## **Importance of biodiversity**

- ❖ Provides internal inputs or nutrients and pest control agents on the farm
- ❖ Crop combination adopted by farmers consider factors like space, time and labor management
- ❖ Multiple cropping system follows the multiple principle of optimizing the use of water, soil & nutrients
- ❖ Nutrition and food security are imperative

## **Why biodiversity conservation?**

- ❖ **To maintain essential ecological process and life-support systems**
- ❖ **To preserve the genetic diversity**
- ❖ **To ensure that utilization of species and ecosystems is sustainable**

## Reasons for biodiversity erosion?

Displacement of multi-cropping system by monoculture leading to a loss of diversity in food crops

Farmers varieties (*i.e* indigenous or native seeds) being replaced by commercially evolved new varieties

Pressure to bring large tracks of land under watersheds in the dryland areas for cultivation of hybrid varieties



## What has to be done?

- ❖ Identify valuable dryland varieties of crops
- ❖ Multiply them among farmer – cooperators
- ❖ Characterize these varieties using farmer – participatory research
- ❖ Promote *in-situ* conservation on small farms through the encouragement of diversified (multi - crop) cropping systems
- ❖ Combine the reintroduction of indigenous varieties with improved and ecologically sound soil, water and nutrient management to further improve the productivity of these local varieties.

- ❖ **Food security by maintaining diversity of food crops**
- ❖ **Conservation of biodiversity in drylands is necessary to create a sustainable farming environment**
- ❖ **The richest diversity of annual food crops in India can be found among its dryland farms**

**Dryland farmers are indeed the best curators of such germplasm**