



Centurion
UNIVERSITY

LECTURE NO. 1

Dryland farming-introduction and definition and importance



Centurion
UNIVERSITY

Introduction

- ❑ Agriculture is the single largest livelihood sources in India with nearly two thirds of people depend on it.
- ❑ Rainfed agriculture is as old as agriculture it self. Growing of crops entirely under rainfed conditions is known as dryland agriculture.
- ❑ Depending on the amount of rainfall received, dryland agriculture can be grouped into three categories:



Centurion
UNIVERSITY

1.1 Definitions

1. Dry farming:

It is cultivation of crops in regions with annual rainfall less than 750 mm. Crop failure is most common due to prolonged dry spells during the crop period. These are arid regions with a growing season (period of adequate soil moisture) less than 75 days. Moisture conservation practices are necessary for crop production.



Centurion
UNIVERSITY

2. Dry land farming:

It is cultivation of crops in regions with annual rainfall more than 750 mm. In spite of prolonged dry spells crop failure is relatively less frequent. These are semi arid tracts with a growing period between 75 and 120 days. Moisture conservation practices are necessary for crop production. However, adequate drainage is required especially for vertisols or black soils.



Centurion
UNIVERSITY

3. Rain fed farming:

Crop production in regions with annual rainfall more than 1150 mm. Crops are not subjected to soil moisture stress during the crop period. Emphasis is often on disposal of excess water. These are humid regions with growing period more than 120 days.

United Nations Economic and Social Commission for Asia and the Pacific distinguished dryland agriculture mainly into two categories: dryland and rainfed farming. The distinguishing features of these two types of farming are given below.



Centurion
UNIVERSITY

1.2 Dryland vs. Rainfed farming:

Constituent	Dryland farming	Rainfed farming
Rainfall (mm)	<800	>800
Moisture availability to the crop	Shortage	Enough
Growing season (days)	<200	>200
Growing regions	Arid and semiarid as well as uplands of sub-humid and humid regions	Humid and sub-humid regions
Cropping system	Single crop or intercropping	Intercropping or double cropping
Constraints	Wind and water erosion	Water erosion



Centurion
UNIVERSITY

1.3 Importance of Dry farming in Indian Agriculture

1. About 70% of rural population lives in dry farming areas and their livelihood depend on success or failure of the crops
2. Dryland Agriculture plays a distinct role in Indian Agriculture occupying 60% of cultivated area and supports 40% of human population and 60 % livestock population.
3. The contribution (production) of rainfed agriculture in India is about 42 per cent of the total food grain, 75% of oilseeds, 90 per cent of pulses and about 70% of cotton.



Centurion
UNIVERSITY

4. By the end of the 20th century the contribution of drylands will have to be 60 per cent if India is to provide adequate food to 1000 million people. Hence tremendous efforts both in the development and research fronts are essential to achieve this target.
5. More than 90% of the area under sorghum, groundnut, and pulses is rainfed. In case of maize and chickpea, 82 to 85% area is rainfed. Even 78% of cotton area is rainfed. In case of rapeseed/mustard, about 65.8% of the area is rainfed. Interestingly, but not surprisingly, 61.7, 44.0 and 35.0 per cent area under rice, barley and wheat, respectively is rainfed.



Centurion
UNIVERSITY

6. At present, 3 ha of dryland crop produce cereal grain equivalent to that produced in one ha irrigated crop. With limited scope for increasing the area under plough, only option left is to increase the productivity with the modern technology and inputs, since the per capita land availability which was 0.28 ha in 1990 is expected to decline 0.19 ha in 2010.
7. The productivity of grains already showed a plateau in irrigated agriculture due to problems related to nutrient exhaustion, salinity build up and raising water table. Therefore, the challenges of the present millennium would be to produce more from drylands while ensuring conservation of existing resources.



Centurion
UNIVERSITY

8. Hence, new strategies would have to be evolved which would make the fragile dryland ecosystems more productive as well as sustainable. In order to achieve evergreen revolution, we shall have to make grey areas (drylands) as green through latest technological innovations.

Drylands offer good scope for development of agroforestry, social forestry, horti-sylvi-pasture and such other similar systems which will not only supply food, fuel to the village people and fodder to the cattle but forms a suitable vegetative cover for ecological maintenance.



Centurion
UNIVERSITY

1.4 Area under dry lands

- Globally the area under drylands is about 6150 m.ha. In India out of the total cultivated area of 143 m.ha the area under drylands is about 85 m.ha, which comes to 60% .
- It is estimated that even after creating entire irrigation potential for irrigation about 55% of total cultivated area remain as rainfed.
- Except in the states of Punjab, Haryana and Pondicherry the percentage of area under drylands is high in all other states
- In Andhra Pradesh the area under drylands is about 6.576 m.ha (60 %).