

Dryland Agriculture

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SUMMARY

The dryland agriculture plays an important role in the progress of agriculture in the Indian economy. In India 68% of total net sown area (136.8mha) comes under dry lands spread over 177 districts. Dry land crops account for 48% area under food crops and 68% area under non-food crops. Dry land, besides being water deficient are characterized by high evaporation rates, exceptionally high day temperature during summer, low humidity and high runoff and soil erosion. The soils of such areas are often found to be saline and low in fertility.

INTRODUCTION

Dryland agriculture refers to cultivation of crops entirely under natural rainfall without irrigation. It is a form of subsistence farming in the regions where deficit of the soil moisture retards the growth of water consuming crops like rice (*Oryza sativa*), sugarcane etc. Dryland areas are characterized by low and erratic rainfall and no assured irrigation facilities. Dryland agriculture is important for the economy as most of the coarse grain crops, pulses, oilseeds and raw cotton are grown on these lands. Dryland areas receive between 500 and 1200mm.

Types of Dryland Agriculture

Depending on the amount of rainfall received, dryland agriculture has been grouped into three categories:

Dry farming: It is production of crops without irrigation in areas where annual rainfall is less than 750mm. Crop failures are more frequent under dry farming condition owing to prolonged dry spells during crop period. The growing season is less than 200 days. It is generally practiced in arid region of the country.

Dryland farming: cultivation of crops in areas receiving rainfall above 750 mm is known as dryland farming. Dry spell during crop duration occurs, but crop failures are less frequent. Semi-arid regions are included under this category.

Rainfed farming: It is practice of crop cultivation without irrigation in areas receiving 1150 mm rainfall, mostly in sub-humid and humid areas. Here chances of crop failure and water stress are very less.

Distribution of Drylands

Our country has fertile cultivable land and receives the highest rainfall on per unit area basis anywhere in the world due to short duration of rainfall in a year. One hundred and twenty eight districts in India have been recognized as dryland farming areas. Of these, 91 districts are spread in the states of Madhya Pradesh, Chhattisgarh, Uttar Pradesh and Tamil Nadu, representing typical dry farming tracts. Rest of the districts belongs to Central Rajasthan, Saurashtra region of Gujarat and rain shadow region of the Western Ghats.

India has about 108 million hectares of rainfed area which constitutes nearly 75% of the total 143 million hectares of arable land. In such areas crop production becomes relatively difficult as it mainly depends upon intensity and frequency of rainfall. The crop production, therefore, in such areas is called rainfed farming as there is no facility to give any irrigation, and even protective or life saving irrigation is not possible.

Major dry farming crops are millets such as *jwar*, *bajra*, *ragi*, oilseeds like mustard, rapeseed, and pulse crops like pigeon pea, gram and lentil. Almost 80% of maize and *Jwar*, 90 per cent of *Bajra* and approximately 95% of pulses and 75% of oilseeds are obtained from dryland agriculture. In addition to these, 70% of cotton is produced through dryland agriculture. Dryland areas also contribute significantly to wheat and rice production. Thirty three per cent of wheat and 66% of rice are still rainfed.

Prospects of Dryland Areas

More than 75% of the peasants involved in dry farming are small and marginal. Therefore, improvement in dry farming would raise the economic status of farmers thus helping in poverty elimination. Dryland farming holds immense significance especially in the context of fluctuating food grain production and expanding population in our country. The biggest employer in our country, the cotton mills are fed by raw cotton grown mostly in dryland areas. Increasing production of cotton subsequently leads to increase in exports of cotton good. The expanding import of oilseeds is a cause of concern to Indian nation. The improvement of production of

oilseeds in these regions will save valuable foreign exchange reserves. By enhancing the productivity of crops like *jowar*, *bajra* and *ragi* which are mainly grown in dryland farming would increase the nutrient consumption levels of our nation.

Marginal lands in the semi-arid regions offer potential for fodder production to feed the cattle population which is an integral component of farming practice of this region. Providing importance to these areas can solve the problems of pulses, oilseeds and cotton. The dryland areas have also tremendous potentiality of increased food grain production. Thus enhanced agricultural production in these areas would boost the agriculture dependent economy of India. Moreover it would also be helpful in eliminating the problem of hunger and malnutrition prevailed in below poverty line society of the country.



Constraints of Drylands

Drylands are characterized by low and uncertain rainfall therefore, crop failure is common feature. The various constraints of drylands includes:

- In dryland areas in general, the rainfall is low and highly variable which results in uncertain crop yields. The distribution of rainfall during the crop period is uneven, receiving high amount of rain when it is not required and lack of it when crop need it.
- Generally in dryland areas when the monsoon sets in late, the sowing of crops are delayed resulting in poor yields. At times, the rains may cease very early in season exposing the crop to drought and during flowering and maturity stages which reduces the crop yields considerably.
- Soils of the drylands are not only dry but also deficient in macronutrients like nitrogen and phosphorous. Thus in other words drylands are not only thirsty but they are hungry too. The temperature in dryland varies greatly. During the period of moisture stress and drought, the temperatures accelerate the crop development resulting into forced maturity. Chilling or frost injury at flowering results in poor grain setting and deteriorates the grain quality.
- Dryland areas suffer from various process of soil degradation especially soil erosion.
- Extremely poor condition of farmers, lack of infrastructure to boost production.

Major Areas of Concern

Major areas of concern in dryland agriculture are:

- Proper marketing and price policy to cover crops and animal products.
- Conservation of soil and water resources.
- Need to evolve high yielding and drought resistant crop varieties.
- Low cost and locally suited agricultural implements.
- Judicious and balance use of costly chemicals.
- Proper financial availability to purchase inputs; and
- Extension education.

CONCLUSION

With climate change likely to exacerbate. The water scarcity is threatening the scope of dryland agriculture. More over to meet the food security of over billion Indian population and check the extent of land degradation. Dry land agriculture management has become critically significant. Day by day the area under cultivation is contracting to meet the developmental need of nation. So the future will depend on how efficiently dry land agriculture is managed.

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