

Constraints in Jatropha Cultivation Perceived by Farmers in Udaipur District, Rajasthan

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INTRODUCTION:

In India, 16% of the world's population struggles to survive on 2.4% of the planet's land mass. The pressure of this intense land utilization is causing more and more forest and agricultural land to deteriorate into useless wasteland. In 2000, India's Ministry of Land Use classified nearly 63 million hectares of the subcontinent and about one-fifth of its entire territory as wasteland, out of which 33 million hectares of wasteland were allotted for tree plantation. According to the government, 174 million hectares i.e. more than half of the country's territory is suffering to a greater or lesser extent from land degradation, not as the result of a law of nature but the vicious circle of erosion.

Soil deterioration and poverty can, however, be prevented by Jatropha cultivation. This technology has a huge potential for replication nationwide and improving the livelihood of many. It can be used to replace petrol/diesel, for soap production and for climatic protection and hence deserves specific attention. Jatropha can help to increase rural income, promote self-sustainability and alleviate rural poverty, but at present this crop is not cultivated on scientific lines and is merely grown as fencing or a wild plant. With this in mind, the present study was undertaken with the following specific objective:

To identify the various constraints perceived by farmers in the adoption of recommended Jatropha cultivation practices.

METHODOLOGY:

The present study was conducted in Udaipur district of Rajasthan. The Udaipur district was selected purposely since Jatropha is grown by a large number of farmers there. The district consists of 11 panchayat councils, out of which two were selected on the basis of maximum number of Jatropha growers. The five villages with

the highest number of Jatropha growers were then selected from each identified panchayat. In all, ten villages were taken for the present study. To select respondents, a list of Jatropha growers was prepared from each identified village in consultation with local personnel and a few community members of the area concerned. From the list so prepared, ten tribal and ten non-tribal Jatropha growers were selected randomly with the help of a random table from each identified village. Thus, the total sample consisted of 200 respondents, out of which 100 tribal and 100 non-tribal Jatropha growers were from all the selected villages. Data were collected by the investigator with the help of a well prepared, structured interview schedule employing personal contact. Thereafter, data were analyzed, tabulated and interpreted in the light of the objective of the study.

RESULTS AND DISCUSSION:

To get an overview of the respondents regarding the constraints encountered by them in the adoption of recommended technologies for Jatropha cultivation, they were ramified into three strata i.e. low, medium and high level of constraints. These categories were formed on the basis of calculated mean and standard deviation of the scores given to the constraint items by the respondents.

67% of all respondents faced medium levels of constraint in the adoption of Jatropha cultivation technology whereas 22.5% were in the high constraint group and only 10.5% perceived low levels of constraint. 69% tribal and 65% non-tribal farmers fell under the category of medium level of constraints. Likewise, 29% tribal and 16% non-tribal farmers could be placed under the category of high level of constraints. However, only 2% tribal and 19% non-tribal farmers came under the category of low level of constraints. The

present findings are in accord with the findings of Neelam (2006).

The constraints identified were:

1. Lack of technical guidance and information
2. Inadequate training facilities for acquiring skills about Jatropha cultivation technology
3. Lack of suitable plantation schedule
4. Long gestation period of Jatropha
5. Adverse climatic and edaphic factors for the survival of plants
6. Lack of knowledge about scientific cultivation of Jatropha
7. Lack of awareness of economic value of Jatropha seeds

Lack of technical guidance and information was the severest constraint perceived by the tribal and non-tribal respondents with mean per cent score 86.50 and 84.83 respectively and was ranked first by both categories of respondents. The next important constraint perceived by tribal farmers was **inadequate training facilities for acquiring skill about Jatropha cultivation technology** with 77.50 MPS and ranked second, whereas this constraint was assigned third rank by the non-tribal respondents with 70.83%. This was followed by the constraint **unawareness about economic value of Jatropha seeds** which was also singled out as one of the important technological constraints by tribal and non-tribal farmers with 77.33 and 71.33 MPS respectively. **Lack of suitable plantation schedule** and **lack of knowledge about scientific cultivation of Jatropha** were also felt to be important constraints by both categories of Jatropha growers. **Adverse climatic and edaphic factors for the survival of Jatropha plants** was perceived at the lowest by tribal and non-tribal respondents to the extent of 42 and 40% respectively. The ranking of this problem at the lowest may be due to the fact that climatic factors of the area are not suitable for cultivation of Jatropha plants in the summer season. These findings are supported by the findings of Umale *et al.* (1991), Singh and Sharma (1995) and Meena (2005).

The kinds of service/supply constraints perceived by respondents included:

1. Non-availability of improved varieties of Jatropha
2. Lack of irrigation facilities for seedlings
3. Lack of rainfall for direct plantation
4. Non-availability of manure, fertilizer and plant protection chemicals for nursery raising
5. Insufficient labour during work season
6. Higher cost of inputs required for Jatropha
7. Non-availability of plants in time to replace casualties
8. Lack of land under Jatropha cultivation
9. Lack of finance facilities

Non-availability of improved varieties of Jatropha plant was expressed as a constraint with high intensity by all respondents (99.67% and 99.33% respectively). In fact, no improved varieties have been developed so far for commercial exploitation. The next important constraint was **lack of finance facilities** with MPS 98.5 and 95.83 respectively. This was followed by **lack of land under Jatropha cultivation, lack of irrigation facilities for raising seedlings, non-availability of plants in time to replace the casualties and higher cost of inputs required for Jatropha cultivation**. The extent of these constraints perceived by tribal farmers was 96.66%, 74%, 66% and 57.67% respectively whereas among non-tribal farmers it was 95.66%, 64.67%, 49% and 47.67% respectively.

Non-availability of manures, fertilizers and plant protection chemicals for nursery raising and insufficient labour during work season were perceived as less important constraints by both categories of Jatropha growers because farmers of the area do not cultivate Jatropha plants on commercial lines as recommended by scientists. These findings are supported by those of Dixit (1988) and Sharma and Bangarva (1999).

The general constraints perceived by farmers included:

1. Non-availability of land for nursery raising
2. Extremely degraded conditions of soil on the plantation sites
3. High mortality in the first year
4. Lack of marketing facilities for the sale of produce
5. Absence of any procurement policy by the government
6. Lower price of *Jatropha* produce in the market
7. Non-availability of oil extraction units in the area
8. Lack of awareness of the medicinal value of *Jatropha*
9. Lack of motivating agencies in the area
10. Absence of awareness of bio-diesel use of *Jatropha*

Lack of marketing facilities for sale of produce was seen as the most important constraint by tribal and non-tribal respondents with 99.5% and 98.8% respectively. This was followed by the constraints of **lower price of *Jatropha* produce in the market** and **lack of motivating agencies in the area**. The MPS of these constraints were 91.33% and 90.2% respectively among tribal farmers, and among non-tribal farmers 90.33% and 92.67% respectively.

The majority of tribal and non-tribal *Jatropha* growers were confronted with the **non-availability of oil extraction unit in the area** with 87.25 and 86.58 MPS and ranked fifth by all respondents. The next important problem was **absence of any procurement policy by the government** with 85.25% and 83.33% respectively.

Most respondents faced the constraint **absence of awareness about bio-diesel use of *Jatropha*** with 83.67 and 77.33 MPS respectively. The constraint which was given least importance was **extremely degraded conditions of soil at the plantation site** with 44.67% and 42.33% respectively. These findings are in

accord with the findings of Dhanasekaran (1990) and Meena (2005).

Overall, the comparison of the three different kinds of constraints – technical, service/supply and general – showed that there was only a significant different between tribal and non-tribal farmers in service/supply constraints.

These findings are similar to the findings of Neelam (2006).

CONCLUSION:

Lack of technical guidance and information, non-availability of improved varieties of *Jatropha* plants and lack of marketing facility for sale of produce were perceived as major constraints by tribal and non-tribal *Jatropha* growers. It was further concluded that tribal respondents perceived more constraints than non-tribal farmers in cultivation of *Jatropha* plants.

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