Livelihood Diversification of Farmers in Salt Affected Soils in Andhra Pradesh

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Paper Received on August 25, 2020, Accepted on September 24, 2020 and Published Online on October 01, 2020

ABSTRACT

The study was carried out in YSR Kapada district of Andhra Pradesh during 2019-20 in Rayachoti, Kadapa and Kondapuram mandals. A sample of 240 farmers having salt affected soils and 240 farmers having non-salt affected soils were studied. Livelihood diversification of farmers in salt affected soils indicated that farmers practiced sheep & goat rearing in addition to agriculture, followed by dairy, orchards, coal preparation, fire wood, tamarind and tamarind leaf collection, neem seed kernel collection, broom stick preparation and leaf plate making. The livelihood diversification index recorded was 0.87. Livelihood diversification of farmers in non-salt affected soils indicated that the respondents practiced dairy, sheep and goat rearing in addition to agriculture. The livelihood diversification index recorded was 0.38.

Key words*: Livelihood; Diversification; Salt affected soils; Diversity index;*

Low rainfall, lack of cover crops, high evaporation, more wind speed, high salt containing minerals in soil, insufficient soil moisture has paved way to soil salinity in parts of YSR Kadapa District, Andhra Pradesh. The degradation of soil due to salinity severely limits people's livelihoods. In India agricultural production is being constrained by land degradation resulting from salinity. In salt affected soils farmers migrate to nearby towns and cities for work to secure their livelihoods. There are several versions that the climate change is making soils saltier and forcing farmers to find new livelihoods. Salts are ruining the soils making them less productive and even non productive for many crops. The salinity has great impact on the diversification of livelihoods of the farmers in this area. In salt affected soils agriculture alone cannot provide livelihood security to farmers. Many farmers diversify their income sources in addition to agriculture.

As diversification options farmers' rear sheep & goat, practice dairy, plant orchards in the salt affected soils, etc. In these salt affected soils natural vegetation include many trees like tamarind, raintree, pongamia, propsopis, acacia, neem, etc. Taking advantage of the natural vegetation, farmers even go for preparation of coal, fire wood, tamarind, broom sticks, leaf plates and collection of neem seeds. Diverse activities are practiced by these farmers in order to survive and to improve their standard of living. Intensification of agriculture and allied activities is observed in these areas unlike in non-salt affected areas. Risk reduction is the main motto for diversification. In these areas the annual rainfall is as low as 300-400 mm leading to much reduced crop returns. At this juncture a study was conducted to compare the livelihood diversification of farmers in salt affected soils with that of non-salt affected soils.

METHODOLOGY

The study was conducted in YSR Kapada district of Andhra Pradesh during 2019-20. The study was conducted in Rayachoti, Kadapa and Kondapuram mandals. A sample of 240 farmers having salt affected soils and 240 farmers having non-salt affected soils were studied. The farmers were selected using simple random sampling procedure. Different livelihood diversification

options of farmers in salt affected and non-salt affected soils were compared. Livelihood diversification index in both salt affected and non-salt affected areas was calculated and compared using the formula of Simpson's index for diversity. The reasons for more or less livelihood diversification index in salt affected soils and non-salt affected soils were also studied. Livelihood diversification index was calculated and compared using the formula of Simpson's index for diversity.

$$D = 1 - \frac{\sum_{i=1}^{S} n_i (n_i - 1)}{N(N-1)}$$

Where D is diversity index, n is the number of respondents opting a particular livelihood, N is the total number of respondents. The value of D ranges from 0 to 1 ranging from no diversity to infinite diversity. Frequency and percentage were also used to present the data.

RESULTS AND DISCUSSION

Livelihood diversification of farmers in salt affected soils as presented in Table 1 indicated that 18.75 per cent of the farmers practiced sheep & goat rearing in addition to agriculture, followed by dairy (17.08%), orchards (15.42%), coal preparation (12.50%), fire wood (10.83%), tamarind and tamarind leaf collection (8.75%), neem seed kernel collection (6.25%), broom stick preparation (5.42%) and leaf plate making (5.00%). The livelihood diversification index recorded was 0.87. This indicates that the farmers practiced alternate livelihood strategies to cope up with reduced crop returns. The findings are in conformity with that reported by *Assan (2014); Saha and Bahal (2014); Sarah (2015); Geremew et al. (2017); Sampson et al. (2017); Das et al. (2018)* and *Oduniyi (2019).*

Livelihood diversification of farmers in non-salt affected soils as presented in Table 2 indicated that less than three fourth of the respondents practiced dairy (74.17%) in addition to agriculture while the remaining practiced sheep and goat rearing (25.83%). The livelihood diversification index recorded was 0.38. Here the crop component is more hence the diversification is less compared to salt affected areas.

The reasons for more livelihood diversification index in salt affected soils as presented in Table 3 indicated that greater majority of the respondents mentioned that they are forced for diversification (91.67%), followed

Table 1. Livelihood diversification of farmers in salt affected soils

Category	No.	%
Sheep and goat rearing	45	18.75
Dairy	41	17.08
Orchards	37	15.42
Coal preparation	30	12.50
Fire wood	26	10.83
Tamarind and tamarind leaf collection	21	8.75
Neem seed kernel collection	15	6.25
Broom stick preparation	13	5.42
Leaf plate making	12	5.00
Total	240	100.00
Livelihood Diversification Index	0.87	

Table 2. Livelihood diversification of farmers in non-salt affected soils

Category	No.	%
Dairy	178	74.17
Sheep and goat rearing	62	25.83
Total	240	100.00
Livelihood Diversification Index	0.38	

Table 3. Reasons for more livelihood diversification index in salt affected soils

Category	No.	%
Less crop component (single or no crop)	165	68.75
Less agriculture work	150	62.50
Time for other activities	194	80.83
Less income from non-salt affected area	182	75.83
More resources for taking up non-crop activities	209	87.08
Big families	152	63.33
More barren lands	205	85.42
Forced for diversification	220	91.67

Table 4. Reasons for less livelihood diversification index in non-salt affected soils

Category	No.	%
More crop component (>one crop in a year)	142	59.17
Busy with agriculture work	163	67.92
No time for other activities	171	71.25
More income compared to salt affected area	190	79.17
Minimum resources for taking up non-crop activities	187	77.92
Small families	140	58.33
Minimum scope for diversification	215	89.58
Intensive cultivable area	153	63.75

by more resources for taking up non-crop activities (87.08%), more barren lands (85.42%), time for other activities (80.83%), less income compared to non-salt affected area (75.83%), less crop component i.e. single or no crop (68.75%), less agriculture work (62.50%) and big families (63.33%). However due to crisis situation livelihood diversification took place.

The reasons for less livelihood diversification index in non-salt affected soils as presented in Table 4 indicated that majority of the respondents mentioned that there is minimum scope for diversification (89.58%), more income compared to salt affected area (79.17%), minimum resources for taking up non-crop activities (77.92%), no time for other activities (71.25%), busy with agriculture work (67.92%), intensive cultivable area (63.75%), more crop component i.e. more than one crop in a year (59.17%) and small families (58.33%). Less diversification is due to the busy schedules and more income in non-salt affected areas.

CONCLUSION

Farming is always a challenge for farmers. In areas with scanty rainfall it is more challenging with a very thin or no profit margin due to stunted and uneven plant growth. However some farmers are taking up coping strategies for livelihood security by opting other alternative and possible occupations under the existing situation along with farming with no or minimum input cost. By diversifying the farmers could offset the reduced or lost crop revenues. These small opportunities and attachment to the native villages reduce the migration of farmers to nearby towns and cities.

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