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# Adoption of sustainable agricultural practices by women farmers

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## ABSTRACT

The study was executed during 2006-09 to find out the adoption of sustainable agricultural practices by 270 women farmers of Dharwad, Belgaum and Haveri districts of Karnataka state. Women farmers from Belgaum district were found to have lead in adoption of sustainable agricultural practices followed by Dharwad and Haveri districts. On an average 65 per cent of women farmers adopted more then one type of selected agricultural practices. Practices related to organic farming, integrated nutrient management, integrated pest management and water conservation were found positively and significantly related to training programmes undergone indicating the resultant significance of need based intensive training programmes. Contrary to it non-significant relationship was found wrt the practices of agro-forestry, land resources and natural farming in the study area.

**Keywords:** Women farmers; adoption; sustainable agriculture; practices

## INTRODUCTION

Women are a vital part of Indian economy. Over the years there is a gradual realization of the key role of women in agricultural development and their vital contribution in the field of agriculture and allied sectors. In past years more and more women are taking active participation in agriculture and allied sectors. Due to the more seasonal migration of men in search of better paid jobs in urban areas men impose extra burden on women and for this reason women have to play the full role of farmers and managers.

Indian agriculture needs to be reinforced with latest and sustainable agricultural technologies to have sustainable production. It is estimated that the Indian

population will grow 1.4 billion in 2025 requiring 380 MT of food and 1.7 billion in 2050 requiring 480 MT of food on the same available land ie 146 million ha. To meet growing needs sustainability is to be maintained (Yadav et al 2000). To produce more and maintain sustainability in agriculture emphasis should be on reduced chemical use, viewing of world as a global village, respect for nature, family and group self reliance (D'Souze 1998). It integrates three goals mainly environmental health, economic profitability, social and economic equity (Malkina-pykh and Pykh 2003). There is need to study the role of women in management of sustainable agriculture, adoption of new technologies and assessment of training programme which help in improving agricultural productivity and production and maintaining the sustainability in the farming system. Keeping this in view the present study was conducted with the objectives of analyzing the adoption of sustainable agricultural practices by the women farmers and to study the impact of training programs on adoption of sustainable agriculture.

## METHODOLOGY

The study was executed during 2006-09 to find out the adoption of sustainable agricultural practices by the women farmers. A total of 270 women farmers were selected in the three districts of Karnataka 90 each from Dharwad, Belgaum and Haveri districts. A structural interview schedule was used to collect the information such as demographic profile of the respondents and sustainable and agricultural practices adopted by them. Eight different sustainable practices commonly used in agriculture were selected to assess the adoption level. Correlation was used to know the relation between the sustainable agricultural practices and trainings undergone by the women farmers. Chi-square test was applied to study the differences among the districts in adoption of sustainable agricultural practices. Correction study was done to know the relationship between the independent variables and the adoption of sustainable agricultural practices.

## RESULTS AND DISCUSSION

### Demographic characteristics of the women farmers

Table 1 represents the demographic characteristics of the women farmers selected for the study from the three districts. It is clear from the total sample that majority of the women farmers were illiterates (39.25%). Farm women were agriculturists (74.08%) on their owned land and their husbands' occupation was also noticed as agriculture (66.29%). More than 80.00 per cent of women farmer families were nuclear type (83.33%). Majority of the women farmers from the selected districts fell in the middle age group (30 to 40 years). More than 45.00 per cent of the women farmers had farming experience of 10 to 20 years.

Table 1. Demographic characteristics of the women farmers selected for the study in the three districts

| Variable | Dharwad (n=90) | | Belgaum (n=90) | | Haveri (n=90) | | Total (n=270) | |
|---|---|---|---|---|---|---|---|---|
| | Frequency | % | Frequency | % | Frequency | % | Frequency | % |
| **Educational Level** | | | | | | | | |
| Illiterate | 32 | 35.56 | 26 | 28.89 | 48 | 53.33 | 106 | 39.25 |
| Can read and write | 23 | 25.56 | 16 | 17.78 | 4 | 4.45 | 43 | 15.93 |
| Primary | 16 | 17.78 | 20 | 22.22 | 14 | 15.56 | 50 | 18.52 |
| Middle | 13 | 14.43 | 17 | 18.89 | 12 | 13.33 | 42 | 15.56 |
| Matriculate | 5 | 5.56 | 11 | 12.22 | 10 | 11.11 | 26 | 9.63 |
| Graduate | 1 | 1.11 | - | 0 | 2 | 2.22 | 3 | 1.11 |
| **Marital status** | | | | | | | | |
| Unmarried | 5 | 5.56 | 3 | 3.33 | - | - | 8 | 2.96 |
| Married | 81 | 90 | 85 | 94.45 | 79 | 87.78 | 245 | 90.75 |
| Separated | - | - | - | - | 3 | 3.33 | 3 | 1.11 |
| Divorcee | - | - | - | - | 2 | 2.22 | 2 | 0.74 |
| Widow | 4 | 4.44 | 2 | 2.22 | 6 | 6.67 | 12 | 4.44 |
| **Age of the respondents (yrs)** | | | | | | | | |
| Young (<30) | 31 | 34.62 | 39 | 43.48 | 24 | 26.32 | 94 | 34.83 |
| Middle (30-40) | 31 | 34.62 | 35 | 39.13 | 39 | 43.16 | 105 | 38.88 |
| Elderly (>40) | 28 | 30.76 | 16 | 17.39 | 27 | 30.52 | 71 | 26.29 |
| **Occupation of the respondents** | | | | | | | | |
| Agriculturist (on leased land) | 16 | 17.78 | 13 | 14.44 | 2 | 2.22 | 31 | 11.48 |
| Self farmer | 12 | 13.33 | 4 | 4.44 | 23 | 25.56 | 39 | 14.44 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Agriculturist (own land) | 62 | 68.89 | 73 | 81.12 | 65 | 72.22 | 200 | 74.08 |
| **Husband's occupation** | | | | | | | | |
| Agriculture | 57 | 6333 | 54 | 60.00 | 68 | 75.55 | 179 | 66.29 |
| Agricultural labour | - | - | - | - | - | - | - | - |
| Business | 7 | 7.78 | 22 | 24.44 | 3 | 3.33 | 32 | 11.85 |
| Govt employee | 12 | 13.33 | - | - | 2 | 2.22 | 14 | 5.18 |
| Others | 5 | 5.56 | 9 | 10 | 6 | 6.67 | 20 | 7.40 |
| **Type of family** | | | | | | | | |
| Nuclear | 74 | 82.22 | 82 | 91.11 | 69 | 76.67 | 225 | 83.33 |
| Joint | 16 | 17.78 | 8 | 8.89 | 19 | 21.11 | 43 | 15.93 |
| Extended | - | - | - | - | 2 | 2.22 | 2 | 0.74 |
| **Farming experience (yrs)** | | | | | | | | |
| <10 | 18 | 19.61 | 16 | 17.39 | 6 | 6.59 | 40 | 14.8 |
| 10 -20 | 49 | 54.90 | 43 | 47.83 | 31 | 34.07 | 123 | 45.55 |
| > 20 | 23 | 25.49 | 31 | 34.78 | 53 | 59.34 | 107 | 39.64 |

**Adoption of sustainable agricultural practices**

Results obtained on the adoption of sustainable agricultural practices by women farmers are presented in Table 2. Each item of sustainable practice includes many activities concerned to it. More number of women farmers (65.25) in Belgaum adopted sustainable agricultural practices followed by Dharwad (49.55) and least (34.78) by Haveri district women farmers. The district-wise data revealed that land resource management practices noticed the index score of 77.41 and 71.73 in Dharwad and Belgaum districts respectively and in Haveri it was 50.74. Adoption of organic farming practices was next best sustainable agricultural practice followed by women farmers of all the three districts. The highest adoption was in Belgaum with a score of 70.79 followed by Dharwad (58.25) and Haveri (56.83). Edwards (1988) stated that integrating various practices like use of organics and animal and agricultural wastes helps in maximizing benefits in sustainable agricultural systems. Another study indicated that organic farming encourages nutrient recycling and enhances crop yield (Anon 1996). This could be the reason for adoption of organic farming by the women farmers in the three districts. Integrated nutrient management, integrated pest management and agro-forestry system practices were next best sustainable agricultural practices adopted by women farmers. In all these cases also Belgaum women farmers had edge over those of Dharwad and Haveri. Natural farming, water conservation and integrated farming practices were least preferred by the women farmers.

Table 2. Adoption of sustainable agricultural practices by women farmers

| Practice | Adoption index | | | | $X^2$ |
|---|---|---|---|---|---|
| | Dharwad (n=90) | Belgaum (n=90) | Haveri (n=90) | Average | |
| Land resource management | 71.73 | 77.41 | 50.74 | 66.63 | 5.33 |
| Organic farming | 58.25 | 70.79 | 56.83 | 61.96 | 1.71 |
| Integrated farming | 33.33 | 47.8 | 17.56 | 32.89 | 12.43** |
| Natural farming | 41.11 | 58.20 | 31.18 | 43.55 | 7.73* |
| Integrated nutrient management | 55.68 | 62.96 | 46.17 | 54.94 | 2.32 |
| Integrated pest management | 52.72 | 64.94 | 42.35 | 53.04 | 4.32 |
| Agro-forestry | 51.11 | 95.56 | 12.44 | 53.11 | 58.71** |
| Water conservation | 32.44 | 48.56 | 21.00 | 34.00 | 10.15** |
| Average | 49.55 | 65.25 | 34.78 | | |

Table 3 reveals the correlation between sustainable agricultural practices and trainings undergone by the respondents. As per the data on organic farming, integrated farming, integrated nutrient management, integrated pest management and water conservation practices were significantly related with trainings undergone by the respondents but non-significant relationship of trainings with land resources, natural farming and agro-forestry was found.

**Correlation between sustainable agricultural practices and trainings undergone**

Data on correlation between sustainable agricultural practices and independent variables are presented in Table 4. Organic farming was positively related with all the independent variables such as income, landholding, age, education and farming experience. Integrated farming was positively related with income, landholding, age and education. Land resource management was found to have relationship with landholding, education and farming experience. Integrated nutrient management and integrated pest management were positively related to education and farming experience. Water conservation had positive correlation with income, land holding, education and farming experience except age. Natural farming and agro-forestry practices had no significant relationship with any of the variables.

Table 3. Correlation between sustainable agricultural practices and trainings undergone by the respondents

| Practice | Correlation |
|---|---|
| Land resource management | NS |
| Organic farming | 0.78** |
| Integrated farming | 0.73** |
| Natural farming | NS |
| Integrated nutrient management | 0.62** |
| Integrated pest management | 0.69** |
| Agro-forestry | NS |
| Water conservation | 0.43** |

**Significant at 0.01% level NS: Non-significant

## CONCLUSION

Women farmers adopt the technologies best suited to them and are

Table 4: Correlation between sustainable agricultural practices and independent variables

| Practice | Income | Land holding | Age | Education | Farming experience |
|---|---|---|---|---|---|
| Land resource management | 0.18 | 0.66** | 0.23 | 0.31* | 0.65 |
| Organic farming | 0.48** | 0.59** | 0.37** | 0.67** | 0.58** |
| Integrated farming | 0.57** | 0.48** | 0.41** | 0.58** | 0.18 |
| Natural farming | NS | NS | 0.19 | 0.17 | 0.21 |
| Integrated nutrient management | NS | NS | 0.15 | 0.72** | 0.49** |
| Integrated pest management | NS | NS | 0.04 | 0.69** | 0.43** |
| Agro-forestry | NS | NS | 0.16 | 0.14 | 0.17 |
| Water conservation | 0.53** | 0.44** | 0.12 | 0.55** | 0.55** |

*Significant at 0.05% level; **Significant at 0.01% level; NS: Non-significant

sustainable in nature. They give importance to such technologies which are beneficial to them in the long run. Results of the study indicate that there is a need to create still more awareness among women farmers on the adoption of sustainable agricultural practices to improve production and productivity through suitable training programmes and demonstrations in the three study districts of Karnataka.

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