

Stepwise Regression Analysis of Factors Contributing to Involvement of Farm Women in Sugarcane Cultivation Activities

WOMEN are involved in all aspects of agriculture, from crop selection to land preparation, seed selection, planting, weeding, pest control, harvesting, crop storage, handling, marketing and processing. Role of women in farming will increase significantly due to continuous decline in operational holding which are becoming economically unviable. Women have to shoulder the responsibility of farming, while men have to work outside the farm to supplement the farm income (Zaidi and Munir, 2014). The nature and extent of women's involvement in agriculture, no doubt, varies greatly from region to region. Even within a region, their involvement varies widely among different ecological sub-zones, farming systems, castes, classes and stages in the family cycle. But regardless of these variations, there is hardly any activity in agricultural production, except ploughing in which women are not actively involved. In some of the farm activities like processing and storage, women predominate so strongly that men workers are numerically insignificant (Rajulashanthi, 2010).

Studies on women in agriculture conducted in India and other developing and underdeveloped countries all point to the conclusion that women contribute for more to agricultural production. Recognition of their crucial role in agriculture should not obscure the fact that farm women continue to be concerned with their primary functions as mothers, wives and homemakers. Considering the above facts, the present study was conducted to find out the relative importance of selected characteristics of farm women in explaining the involvement of farm women in sugarcane cultivation activities.

The present study was conducted in Maddur and Mandya taluks of Mandya district in Karnataka State during 2014-15. Five villages were randomly selected for the study from each of the two sampled taluks. From each village, six farm women practicing sugarcane cultivation were randomly selected for the study. Thus, the total sample constituted 60 farm women from ten villages of Mandya and Maddur taluks. Data was collected from 60 farm women using

a pre-tested interview schedule. Expost-facto research design was adopted for conducting the study.

Information regarding age (X1), education (X2), family type (X3), annual family income (X4), land holding (X5), farming experience (X6), attitude towards farming (X7), innovativeness (X8), scientific orientation (X9), management orientation (X10), achievement motivation (X11), economic motivation (X12), mass media participation (X13), extension agency contact (X14) and extension participation (X15) was collected using suitable scales Viswanatha *et. al.* (2015.)

In the present study, stepwise regression analysis technique was applied to select the best regression equation and to identify the best characteristics/variables for predicting the maximum variation contributing for the involvement of farm women in sugarcane cultivation activities.

Table I reveals that out of 15 independent variables only eight variables viz., extension participation (X15), economic motivation (X12), education (X2), attitude towards farming (X7), management orientation (X10), innovativeness (X8), mass media participation (X13) and extension agency contact (X14) entered the final stage of stepwise regression. A single factor in the first step is the extension participation (X15) contributing 39.03 per cent of the variation in the involvement of farm women in sugarcane cultivation activities. The percentage of variation as expressed by regression equation (R²) is shown in Table I. All the eight variables together contribute to 62.33 per cent of the variation in the involvement of farm women in sugarcane cultivation activities.

Table II reveals the analysis of regression coefficients, standard error and 't' values. The 'F' value (24.16) was highly significant at one per cent level indicating the significance of regression equation in predicting the involvement of farm women in cultivation activities. Variables like extension participation (X15),

TABLE I
Stepwise regression analysis showing the significant steps predicting the percentage contribution of selected independent variables in the involvement of farm women in sugarcane cultivation activities (n=60)

Step No.	Variables entering regression	Degrees of freedom	't' value	Percentage of variation explained by regression (R ²)
1	X15	58	33.11	39.03
2	X15,X12	57	32.22	43.33
3	X15,X12, X2	56	31.22	49.99
4	X15,X12, X2, X7	55	30.99	62.22
5	X15,X12, X2, X7, X10	54	29.98	59.99
6	X15,X12, X2, X7, X10, X8	53	28.22	60.09
7	X15,X12, X2, X7, X10, X8, X13	52	25.33	61.44
8	X15,X12, X2, X7, X10, X8, X13, X14	51	24.90	62.33

R²=0.6261 : F-24.16 (Significant at one per cent level)

TABLE II
Stepwise regression analysis showing the final step with all the significant independent variables included in the involvement of farm women in sugarcane cultivation activities

Variable No.	Variables	Regression co-efficient	Standard error or regression co-efficient	't' value
X15	Extension participation	0.1459	0.0391	5.28
X12	Economic motivation	0.3112	0.1052	2.83
X2	Education	0.5283	0.1920	4.01
X7	Attitude towards farming	0.6193	0.1149	6.11
X10	Management orientation	0.7189	0.1890	2.83
X8	Innovativeness	0.7891	0.1920	5.09
X13	Mass media involvement	0.3009	0.1061	2.99
X14	Extension agency contact	0.7111	0.1888	3.01

F-24.16 (Significant at one per cent level)

economic motivation (X12), education (X2), attitude towards farming (X7), management orientation (X10), innovativeness (X8), mass media participation (X13) and extension agency contact (X14) were found significantly contributing for the involvement of farm women in sugarcane cultivation activities in the final stepwise regression analysis.

Education provides an opportunity for farm women to expose themselves to mass media which carry messages on production aspects of farming, thus motivating farm women to involve in the farming activities. It is quite obvious that farm women might actively involve in sugarcane cultivation activities when she possesses favourable attitude towards sugarcane

farming, Farm women who are innovative involve themselves in sugarcane cultivation activities for adopting scientific technologies. Sugarcane is a long duration crop where farm women involve at all the phases of management efficiently. The urge of an individual to manage their resources efficiently will take better advantage of the farm women to involve in the cultivation activities. Farm women who are motivated to get higher income will actively get involved in the sugarcane cultivation activities.

Farm women with higher level of mass media participation were found to be having higher level of involvement in sugarcane cultivation activities. Mass media develop modern orientation among the farm women and make them more efficient in acquiring, retaining and evaluating the effectiveness of farm innovations. Frequent contact with the extension workers for gathering information on improved cultivation activities would motivate farm women to involve in such activities. Involvement of farm women in extension activities would promote the acquisition and consequent adoption of farm technologies. The eagerness in solving their problems with extension workers and also the interest in extension activities to gather recent information will enhance their involvement in the farming activities.

It can be concluded that frequent exposure of farm women to the extension activities and frequent contacts with the formal extension personnel will help the farm women to gain knowledge for improving self perception, self esteem and confidence contributing to increased involvement in sugarcane cultivation activities.

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