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# Impact Assessment of Farm Women Training Programmes in Andhra Pradesh

**Ch. Chandravati, D.V.S. Rao and V.T. Raju***

A study was conducted to assess the impact of ANTWA (Andhra Pradesh Training of Women in Agriculture) programme on crop productivity, farm incomes, labour employment and productivity of farm women and to identify the constraints in the implementation of the project and problems faced by the trainee farm women. A sample of 120 farm women trainees were selected from four mandals covering three villages in Visakhapatnam district of Andhra Pradesh during the year 1997. The impact assessment was done through estimation of incremental differentials before and after training in generation of employment, in increase of crop productivity, farm incomes and female labour productivity. The ANTWA training was successful in increasing the initiation of women in doing farm activities by themselves and brought a clear change in the involvement of more and more women trainees in farm activities. The total female family labour use had increased after training while the hired labour and male labour work days decreased. The family female labour work days increased by 7 to 14 per cent in different crops. The per hectare productivity of rice increased by 7.51 quintals, of sugarcane by 60.46 quintals, of groundnut by 1.17 quintals and of sesame by 0.47 quintal. The increase in net income per hectare ranged between Rs. 1,027 and Rs. 6,537 in the above crops. The productivity of female labour per work day had also increased in different crops.

The standard normal deviate test (Z test) indicated significant and positive impact of ANTW programme on gross returns, working expenses, women employment-days and number of farm activities in which women farmers participated before and after training. The total income from all the crops increased from Rs. 18,235/- to Rs. 30,359/- per hectare. The regression analysis revealed that working expenses and involvement in farm activities by women were found to be significantly influencing gross returns. The constraints faced by the trainees were shelter and transport problems during training, poor resource base of the farmers, physical hardship to take up certain farm works and insufficient knowledge about plant protection chemicals and crop varieties. The study suggests the need for conducting more demonstrations on farm holdings, involvement of more women farm extension workers, developing improved technology for reducing hardships faced by women in farm activities, conducting need-based training programmes for women farmers, and provision of credit facilities for small scale and cottage industries. There should be close follow-up action after imparting training in different farm activities.

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# A Study on Decision Behaviour of Rural Women in Madurai District, Tamil Nadu

**T. Alagumani**†

An attempt is made in the paper to analyse the women's role in household decision on consumption, production and investment and identify the potentiality of women to become entrepreneurs in Madurai district of Tamil Nadu. The study is based on data collected, using a pre-tested questionnaire, from a random sample of 1,500 female housewives selected from 15 villages in Madurai East, Periyakulam and Thirumangalam blocks representing canal irrigated, well irrigated and rainfed agricultural situations of the district respectively. Scoring technique was used to evaluate the decisions. The total scores for all decisions were computed and the range was divided into convenient class intervals. Probability of each score range was derived and expected values for decision-making process were computed for each block separately.

The study revealed that rural women were involved to the extent of about 73 per cent with regard to decisions concerning household consumption. The extent of participation varied from 76 per cent in Madurai East, 70 per cent in Periyakulam to about 73 per cent in Thirumangalam. The mean score for involvement of rural women in production decisions was 55.74, indicating that half of the women folk did not involve themselves in the process. In the canal irrigated area of Madurai East, the score was 60 and it was the least in Thirumangalam with a score value of 52.80 (rainfed area) and in Periyakulam it was 54.30, partly due to male domination in production decisions and lack of interest on the part of rural women.

The study revealed poor involvement of rural women on investment decision-making with a mean score value of only 38.70 per cent. However, women with the score values above mean value in the class intervals of 41-50 and above, constituting 49.57 per cent of all women who were not currently working, might be considered to have entrepreneurial potential and they could be motivated and assisted for undertaking entrepreneurial activities.

# Female Work Participation and Involvement in Decision-Making Process: A Study in Uttarakhand

**Ajit Kumar Singh and Pratap Singh Garia***

The paper seeks to analyse the impact of women participation in agricultural work on their role in decision-making process about economic activities and household matters. The analysis is based on the primary data collected from a stratified random sample of 180 households from six villages of Chamoli and Almora districts of Uttarakhand in Himalayan Uttar Pradesh with the help of a structured questionnaire. The reference year of the survey was 1993-94.

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Economic valuation of work performed in agriculture has been worked out by multiplying the annual working hours put in by the male, female and child workers by the prevailing wages for different agricultural activities in the region, while valuation of animal husbandry work and domestic work has been done on the basis of wages for 'other agricultural work'. An analysis of time-wise activity of the respondents showed that of the total working hours spent by household members, adult females accounted for 85 per cent of agricultural work, 81 per cent of work related to animal husbandry and 81 per cent of domestic work. The analysis reveals overwhelming economic contribution of women in productive as well as domestic activities in the hill region of Uttar Pradesh. Thus female family labour contributed as much as 80 per cent of the value of productive work and nearly 90 per cent of the value of domestic work.

The higher participation of women in economic activity was found to have a positive impact on the status and power of women within the household as reflected in their participation in decision-making. Women in the study area enjoyed greater autonomy and power in the domestic affairs than in the economic sphere. Though women performed more than four-fifths of agricultural work, their decisions were accepted only in less than one-third of the cases. The power to take or influence decisions was found to be high in matters related to seed selection (29 per cent), purchase of agricultural implements (30 per cent) and sale and purchase of livestock (34 per cent). However, the decisions regarding the purchase/mortgage of land, agricultural credit, sale of produce and use of fertilisers rested with the male members. The intermediation with market forces related to purchase of inputs and sale of output is still through the male members of the household even when their actual participation in productive activities is relatively small. It was, however, found that this correspondence between work participation and women's status was not perfect and male domination continued to exist due to the prevalent patriarchy in the society which shaped the attitudes of both males and females.

## Role of Farm Women in Agriculture and Their Involvement in Decision-Making - A Study in Jorhat District of Assam

**Anuva Saikia**†

The paper seeks to study the role of women in agriculture including animal husbandry, sericulture and other allied activities and the involvement of farm women in the decision-making process, based on analysis of data collected from a sample of 138 farm households randomly selected from three villages belonging to different blocks in Jorhat district of Assam. The data pertained to the year 1994-95. Cropping patterns directly affected the employment of females in agriculture. Under mono cropping of winter rice the female labour was employed for 48.52 days (labour day = 8 hours) in a year, on an average, which increased to 58.63 days under autumn rice-winter rice, to 64.90 days under autumn rice-winter rice-pulse/oilseeds and to 79.92 days under winter rice-pulse/oilseeds/vegetables-sugarcane. Females continued to carry on specific farm activities of transplanting, harvesting

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and post-harvest activities and their involvement in other operations was less. Seasonal variations of employment was higher in the case of females than in males. Sericulture was an important allied activity in some households while handloom weaving was the only household industry pursued by most of the females. On an average, females were employed for 222.61 days in a year, of which 38 per cent was on crop production, 7.5 per cent on food processing, 15.2 per cent on handloom weaving while 39.3 per cent was on animal care activities.

Under-utilisation of female labour existed in all size-groups of farms and it was higher in marginal and small size-groups. There is much scope for increasing gainful employment opportunities for females through development of the farming sector, allied agricultural activities, rural based industries, etc. The development of infrastructure in rural areas is the immediate need along with provision of training facilities for rural females. Socio-economic constraints hindering effective participation of females in agriculture and rural development works need to be removed through rural-based awareness programmes by the Government and NGOs.

Females played an important role in the decision-making for management of farms and households. In male headed households, 15 to 34 per cent of the females played major roles in decision-making where their decisions were accepted in regard to farm production activities, 33 to 47 per cent of them played an equal role along with the males and 18 to 52 per cent of them had only a minor role. The proportion of females playing a major or equal role was the highest in the selection of crop variety, while in financial matters, the involvement of females was relatively less. In female headed households, females had mostly major/equal role in taking decisions relating to production activities, financial matters and household activities.

# Impact of Technological Change on Women Employment in Dryland Agriculture

**R. Rajesh and S. Kombairaju***

The paper attempts to understand the role of technological change in the economic status of female workers separately. Specifically, it attempts to analyse the female labour participation and examine the impact of technological changes on female labour employment in rainfed agriculture. Following the three-stage stratified random sampling procedure, data were collected from a sample of 300 farmers, selected from 20 villages, ten villages each from Kovilpatti and Aruppukottai blocks in Virudhunagar and Tuticorin districts of Tamil Nadu. Technology Adoption Index (TAI) as summary measure of adoption of technology was used to classify the farms into three groups: poor adopters with TAI of 1.00 to 33.33, moderate adopters with TAI of 33.34 to 66.66 and high adopters with TAI of 66.67 or above, corresponding to low technology adopters (LTA), moderate technology adopters (MTA) and high technology adopters (HTA), respectively. In the sample farms, the extent of family and hired female labour used per hectare of operational area was estimated for the major

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crops, namely, cotton, cumbu and cholam. It was observed that technology adoption had positive impact on female labour employment for all the three crops. Cotton crop created better employment opportunities accounting for 77.12 man-days/ha as compared to cumbu (37.93 man-days/ha) and cholam (44 man-days/ha). However, with the increase in the level of adoption of technology, the percentage of family female labour to total labour decreased. But hired female labour increased positively when adoption of technology increased. Since the female labourers had to look after both family work and field work they got lesser employment opportunities when compared to the male labourers. In fact, relatively low wage rates and low employment of female labourers prevailed. The economic status of the female labourers remained inferior to their male counterparts in dry farming areas, although the effect of technological change seems to be favourable on both sexes of the agricultural labour force.

## Role of Women in Hill Economy of Uttar Pradesh and Their Participation in Decision-Making Process

**R.S. Tripathi**†

The paper seeks to examine the level and pattern of women's contribution in hill economy and their participation in the decision-making process at the existing level of resource use. The study is based on an intensive enquiry of 140 farm families selected from 14 villages, six from valleys, six from mid-hills and two from high-hills of Tehri district in Uttar Pradesh. The employment pattern of human labour revealed that annual contribution of women in crop production was 230 days/ha, accounting for about 80 per cent of total labour employment whereas men contributed 59 days/ha or just 20 per cent. The contribution made by women for field preparation, manuring and sowing was 41 per cent higher over male's contribution and it was as high as 142 per cent in rice crop. Weeding and hoeing accounted for 48 per cent of the total human labour requirement for crop production, of which 45 per cent was contributed by women and 3 per cent by men. Out of total human labour requirement of crop production as a whole, 13 per cent was on harvesting and digging, of which 10 per cent was contributed by women and 3 per cent by male workers.

Female labour employment in fruit production accounted for 64 per cent of the total labour employed and male labour for 36 per cent. The labour contribution of women in milk production was more than 82 per cent of the total labour employed. The participation of female labour was more in operations such as fodder collection, cleaning of cattle shed and in milking and preparation of milk products. Examining the relationship between yield and return received from all the farm enterprises, the results of regression analysis revealed that the contribution of female labour in the production of crop, fruit and milk and to gross farm income was positive and significant, indicating that the contribution of women in these enterprises was remarkable at the existing level of resource use.

The participation of households in decision-making process revealed that 68 per cent of

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the decisions were taken exclusively by men alone and 12 per cent by men and women together whereas 20 per cent of the decisions were made by women of the households. On an average, 55 per cent of the decisions regarding agricultural production and 74 per cent of the decisions on animal husbandry matters were taken by men without consulting their women family members although about 80 per cent of the operations of these enterprises were performed by women alone. The participation of women in agricultural decisions, on an average, was 30 per cent whereas 15 per cent of the decisions were taken in consultation with women. In regard to household matters, women took decision on 14 per cent of the cases whereas 30 per cent of the cases were decided in consultation with women and 56 per cent of the decisions were taken by males without taking any advice from the women. Thus the degree of participation of women in decision-making process pertaining to agricultural production, animal husbandry and household matters has been small in spite of their significant contribution in all the activities.

## Dynamics of Women Work Participation in Bihar

**R.K.P. Singh, Anita Kumari and A.K. Choudhary***

The paper attempts to analyse the changes in the extent of women's participation in various economic activities during the period 1971-91, to examine women's work participation and to estimate the gap in employment of women in different categories of households in agriculturally more developed and less developed situations. The study is based on secondary and primary data. The secondary data were collected from Census Handbooks and the primary data were collected through field survey in two contrasting situations, i.e., agriculturally more developed and agriculturally less developed regions. The field survey covered a random sample of 200 households selected from four villages, two each from Darbhanga (developed) and Rohtas (less developed) districts of Bihar. In Bihar the proportion of women workers to total workers showed an increasing trend from 14 per cent in 1971 to 16 per cent in 1991. The number of female cultivators, female agricultural labourers and female construction workers showed an increasing trend since 1971. There was negligible decadal increase in the number of female workers in the agricultural operations like livestock, forestry and fisheries sectors during 1981-91. The analysis of survey data showed that the female workforce formed 23 per cent of the total female population in the agriculturally more developed situation and about 32 per cent in the agriculturally less developed situation. In both the situations the proportion of female workforce to total female population declined with the increase in the size of holding from 29 per cent in the marginal size-groups (below 1 ha) to 10 per cent in the large size-group (more than 2 ha) in the more developed situation and from 46 per cent to about 2 per cent respectively in the less developed situation. An analysis of gap in employment of female workers revealed that employment gap was relatively higher at 56.25 per cent in the less developed region than in the more developed region (48.96 per cent), indicating higher employment gap on landless households in both the situations (70 per cent and 87 per cent respectively).

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# Contribution of Female Labour to Farm Income: A Study of Tribal Areas of Himachal Pradesh

**R.K. Sharma,† Brij Bala* and H.R. Sharma†**

The paper attempts to study the magnitude of female labour participation in agricultural and livestock enterprises and to estimate the contribution of female labour to farm income. The study is based on data collected from a sample of 120 households proportionally drawn from two blocks, namely, Nichar and Kalpa in the tribal district of Kinnaur of Himachal Pradesh . The data pertained to the agricultural year 1995-96. Cobb-Douglas production function was used to study the resource elasticities and Euler's theorem was applied to estimate their income. There is only one cropping season in the area which grows food crops such as maize, barley, *ogla-phaphra* (pseudo cereals), rajmash and potato and the cash crops of *Kalazira* and saffron - medicinal crops. The main cereal crops, maize and barley, ccounted for a very small proportion of total cropped area. In the cultivation of major crops and in livestock rearing, the contribution of female labour to total labour requirements was more than half except for marketing operations. It was as high as 75 per cent in the case of interculture and harvesting. A similar trend was observed among different categories of farms. No specific trend was observed between female labour employment and the farm size. In the case of livestock enterprise also, the contribution of female labour was around 70 per cent for indoor activities whereas in the case of market-oriented operations, the contribution of male labour was important. The input-output relationship shows that the returns to scale was more than one in all the categories of farms for all the crops and livestock, thereby indicating that the operations of these farms are in the first zone of production function and that there is substantial scope for increasing the farm income by enhancing the input use. The results further showed that the contribution of female labour to total income in all the important crops and livestock was higher than that of male labour in all the farm categories, indicating that the female labour was the sole performers of most of the operations. This suggests that for enhancing farm/gross household income, the females of the tribal area need to be trained in farm/non-farm operations preferably through female extension workers. The time saving energy sources like cooking gas, child care centres, farm tools suitable to the hill agriculture, etc., besides better education facilities, should be made available to the women in these tribal areas for better utilisation of these resources.

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# An Economic Assessment of Role of Women in Traditional Farming Society in Orissa: A Case Study

**Debdutt Behura, Dibakar Naik and Diptimayee Jena***

The paper attempts to examine the role of tribal women in a traditional farming society in Keonjhar district of Orissa. The study is based on data collected from 319 farm women respondents in six clusters of villages selected from the district, grouped into three categories, scheduled castes, scheduled tribes and general. The data pertained to the year 1992-93. All the farm women were employed in their own farms. About 46 per cent of the total respondents were engaged as hired labourers in different agricultural operations. Their participation was high in the *kharif* and quite low in the *rabi* season. The average wage earned was approximately Rs. 604 per head per year. Kitchen gardening provided employment to the extent of 84 per cent of the farm women while between 52 and 72 per cent of them were employed in forestry activities. Most of the farm women are found to be engaged themselves in livestock management. Almost all women took active part in decision-making of important farm operations, besides controlling day to day family budget and marketing of farm produce. Women were also willing to cultivate more crops on availability of irrigation and were interested to earn more income even by providing more labour as casual workers.

Collection of forest produce, as was observed, consumed much of the labour time of farm women. As collection of fuel implied cutting down of trees and ultimately leading to deterioration of the ecology, alternative source of employment need to be introduced. Training should be imparted for conservation of forests and for preservation of fruits. Social forestry schemes should be introduced and awareness should be created to protect the forest and prevent environmental degradation.

For raising kitchen gardens, farm women were found to be dependent on rain water and age-old practices of vegetable cultivation. Hence, provision of irrigation water, improved varieties of seeds, fertilisers along with appropriate guidance would help to increase the productivity in kitchen gardens which otherwise proved to be a vocation of depressing low productivity.

As farm women's existing employment in livestock was found to be non-remunerative, crossbred cattle should be provided to them through different rural development programmes. They should also be induced to maintain small animals like sheep, goats, pigs and poultry.

Since most of the farm women are illiterate, educational measures should focus on need-based vocational training which should be more practicable and more relevant to their environment. Furthermore, labour intensive training programmes should be devised and introduced for meaningful employment and utilisation of women labour. Lady village workers should be inducted in order to help and motivate farm women to actively participate in the developmental projects.

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# Temporal Changes in Participation of Women in Different Farm and Non-Farm Activities in Haryana

**V.K. Singh, R.K. Khatkar and A.K. Narang**†

The study attempts to examine the educational status and the extent of participation of men and women in different farm and non-farm activities in three randomly selected cluster of villages in Hisar district of Haryana at two points of time, 1985-86 and 1997-98. The study revealed that 14 per cent of the adult female members and about 10 per cent of the adult male members of sample farms were engaged in wage earning activity. Of the remaining members, 86 per cent of both adult male and female workers participated in own farm activities; about four per cent of the male members were engaged in own farm and wage earning activities. No female member owning land was found doing wage earning activity. The level of education of female members was very low as 92 per cent were illiterates as compared to 85 per cent of male population. Over time there was slight improvement in literacy of both males and females. In addition to crop raising operations, a woman devoted about eleven hours a day on domestic and animal rearing activities against less than five hours by a family male worker. The participation of women in crop operation was quite high ranging from 33 per cent of the total workforce on small farms to 26 per cent on large farms. The trend of working hours remained almost the same with the decline of men labour days for collection of firewood and the decline of both men and women labour days for tending of cattle due to rise in stable feeding and reduction in grazing hours in the field owing to intensive and extensive cropping. Women continued to work 11 hours a day in both the periods. The mechanisation of ploughing and harvesting/threshing operations has reduced the level of employment of both male and female workers by about one-third in 1997-98 as compared to 1985-86.

The study suggests that in regard to extension services, training camps for rural women on different aspects of farm and non-farm activities should be arranged on a large scale so as to improve their technical and socio-economic know-how. For this purpose a co-ordinating committee should be set up at block and district levels to co-ordinate the activities of various organisations engaged in rural women development programmes. Efforts should be made to raise the literacy rate of rural women through adult education programmes. Area-specific cottage/rural industries should be developed wherein rural women could develop their skills and participate in production in order to make them financially self-reliant.

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# Empowerment and Decision-Making by Rural Women - An Economic Study in Karnataka

**K.S. Jyothi, C.P. Gracy and S. Suryaprakash***

The study focuses on the empowerment of rural women and their role in decision-making in farm financial and household activities in Kolar district of Karnataka. From the study district, a block was selected where the Integrated Rural Development Programme (IRDP) and Development of Women and Children in Rural Areas (DWCRA) programmes were in operation. A sample of 90 households was selected and an empowerment index was constructed for each of the sample women. The empowerment of women was quantified by developing an empowerment index considering the variables like woman's education, ownership of land, ownership of other assets, control over the income of the family, savings, access to credit, social participation and earning cash income. It was found that women contributed over 60 per cent of the labour needs in dairy and over 45 per cent of the total labour requirement in sericulture and agricultural activities. It is noted that the wage rates are fixed by taking into account the physical strength needed to carry out the task rather than the drudgery involved in it. As a result, the men were paid higher as they performed jobs needing more stamina. Despite this wage differential, the contribution of women belonging to small farm and agricultural labour category to the household income was higher compared to their male counterparts. The respondents in agricultural labour category maintained mainly sheep and goat as security in times of exigency, while large farms maintained both cows and buffaloes for earning income. The magnitude of the empowerment index of women showed that among large farm category, only 3 per cent had high level of empowerment, while 83 per cent had medium level of empowerment. Women belonging to small farm and agricultural labour categories with high empowerment score formed 20 and 27 per cent of the total respondents respectively. Women belonging to small farm and agricultural labour groups took decisions on important matters as they earned cash income and had control over resources. The mere participation of women in different economic activities of the households does not empower women. They need to have access to assets, income as also needed skills to seek empowerment. The logit analysis performed to identify the socio-economic factors that have a bearing on the decision-making process revealed that women's participation in farm financial decision-making was positively associated with education of the husband and the empowerment index of the woman. But the participation in decision-making process was negatively associated with size of family, land holding and husband as head of the household. Hence, efforts need to be made to educate women and impart skills which directly increase their income earning capacity.

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# Women Participation in Dairying: Experiences of Intensive Cattle Development Programme in Haryana

**A.K. Chauhan and Smita Sirohi**†

The paper examines the impact on female employment of the Intensive Cattle Development Programme (ICDP), which was initiated for the development of dairying in rural areas. The study is based on the primary data collected from 300 rural households (150 ICDP beneficiaries and 150 non-beneficiaries) selected from three districts of Haryana, namely, Kurukshetra, Bhiwani and Sirsa which adequately represent Haryana in terms of dairy development and agro-climatic situation. The data pertained to the agricultural year 1995-96. The households selected from the villages were divided into three herd size categories, viz., small (up to 2 milch animals), medium (3-4 milch animals), and large (> 4 milch animals) by using cumulative frequency square root method.

The results indicated that in the case of beneficiary households the female participation in dairy farming was 108.50 man-days, 158.37 man-days and 151.42 man-days/year for small, medium and large herd size farm categories, constituting about 50 per cent, 52 per cent and 42 per cent of total man-days of employment respectively. In these households, of the total time devoted to dairy farming, the contribution of females was about 47 per cent while that of males was lower at about 43 per cent. The rest of the labour time was attributed to child labour.

On the other hand, the female participation among the non-beneficiary households was lower at about 96 man-days/year as compared to the beneficiary households. This trend emerged in all the three herd size farm categories. Unlike in the case of the beneficiaries, for the non-beneficiaries, the employment of female labour was less than that of male labour, the former being 43 per cent of the total employment generated by dairying while the latter was around 45 per cent. The results indicate that the female participation in dairying is noteworthy. Secondly, the employment generation in this sector resulting from the implementation of ICDP has benefited the females more than the males, as there has been a higher increase in the number of gainfully employed days for the former as compared to the latter. Hence, extension of ICDP with wider coverage of rural households has a potential to generate more employment particularly for the females, and in improving the socio-economic status of the rural females.

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# The Impact of Development on Rural Women - A Case Study

**Y.L. Inamdar and S.G. Purohit***

The main objectives of this micro level study were to identify the programmes which have direct and indirect bearing on rural women and to study the impact of these programmes through four stages, viz., awareness, availability, accessibility and accrual of benefits of the programmes. In the present study as many as 45 programmes in the field of Education (8), Employment (16), Health and Nutrition (13) and Science and Technology (8) which have bearing on women directly and indirectly are taken into consideration. For the purpose of the study, a sample of 300 women respondents belonging to the age group 14 to 45 years were selected from 15 villages in ten talukas of Dharwad district in Karnataka. Of the selected respondents, one-third belonged to scheduled castes (SC) and scheduled tribes (ST) and the rest were non-SC/ST. The reference period of the study is 1993-94.

The study reveals that the overall impact of these programmes on women is very marginal. Though 62 per cent and 67 per cent of the total women respondents reported awareness and availability of these programmes respectively, accessibility to and accrual of benefits from the different programmes were reported by only 24 per cent and 22 per cent of the women respondents respectively. As regards the different programmes, awareness and availability were reported by as many as 89 per cent and 95 per cent of the women respondents respectively in the case of science and technology programmes, followed by health and nutrition programmes (78 per cent and 73 per cent), education programmes (71 per cent and 61 per cent), and employment programmes (29 per cent and 52 per cent respectively). The impact of health and nutritional programmes in terms of accessibility and accrual of benefits was reported by 51 per cent and 48 per cent of the women respondents and far less in the case of other programmes. The main obstacles are economic, social, political and administrative in nature.

In spite of the existence of advanced mass media, the study revealed that the most important source for awareness has been friends and neighbours. There is need for direct approach. The grassroot level functionaries play an important role. It is suggested that this link between the government and the people at the grassroot level should be strengthened. Availability is even less than awareness. It is realised that availability is a function of resources. With the improvement in the resource position, wider and more effective coverage can be expected. But the task of making programmes available is entrusted to government officials, the efficiency and integrity of which are declining. Hence, populist programmes should be replaced by people's programmes. The impact is further weakened at accessibility and accrual of benefits stages. The remedy lies in involving the community. Target fulfilling approach has led to denial of accessibility to many genuinely needed groups. Social taboos, orthodox ideas and traditional outlook which hinder the accessibility need to be removed by conducting meetings, discussions, inter-personal exchange of views with the rural people in general and women in particular. Mahila mandals and Yuvak mandals can play a significant role in reaching the benefits to the target groups. For reaping benefits permanently,

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there should not be ad hoc and target-oriented programmes. The emphasis should be on curative but not on palliative measures. The programmes which improve skills efficiency, employability and income earning capacity should get priority to enable women especially belonging to the weaker sections to derive the benefits of the development programmes and contribute to the process of economic development.

## Extent of Rural Women Participation in Haryana Agriculture

**U.K. Pandey, K.S. Suhag, Dalvir Singh and K.K. Kundu**[†]

An attempt is made to examine the extent of temporal changes in the pattern of employment of rural women across crop and animal husbandry activities and to study the participation of rural women in decision-making processes as also in other household and related farm activities in Hisar district of Haryana. Based on multi-stage random sampling technique, a sample of 60 farm households was selected from six villages in three tehsils of Hisar district. The selected respondents were classified under small (below 2 ha), medium (2-4 ha) and large (above 4 ha) size-groups. The cross-section data for the years 1984-85 (period I) and 1997-98 (period II) were collected from the selected farmers by the survey method. Tabular analysis such as averages and percentages was done to derive the inferences.

The analysis of data revealed that the average levels of female labour employment varied across farm categories from 32 to 39 per cent in period I and from 31 to 37 per cent in period II. Female labour employment increased with the increase in the size of holding in period I but a reverse trend was observed in period II. Cotton, paddy, wheat and *rabi* fodder are the major crops while weeding and hoeing, harvesting/picking, threshing and winnowing as well as transportation are the major operations which absorbed female labour in Haryana. Temporal changes in the female labour employment in oilseeds has considerably increased across farm categories due to greater emphasis being given to yellow revolution in Haryana during the nineties. A typical wife of the Haryana farmer associates herself with animal husbandry more particularly in dairying, and she considers owning a milch buffalo as a prestige so as to serve the guests milk and ghee which are not borrowed or purchased. Rural women's participation in making of agricultural decisions has substantially changed over the period.

The policy implications of the above findings are that concerted efforts are needed to develop better technologies for agricultural operations such as transplanting, weeding, harvesting/picking and cleaning of farm produce to reduce the physical burden and drudgery for the women. Likewise, operations such as cleaning of cattle byre, collection of refuse, compost, bio-gas production in which the women are actively involved need to be more

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skill-based rather than labour oriented. They should also be involved actively in making agricultural decisions. Furthermore, appropriate arrangements may also be made to impart training to the rural women to learn about modern agricultural technologies so as to endow them with more skill.

## Women's Access to and Management of Natural Resources: A Case Study for Kenya

**Kunwar Devendra Singh***

In Kenya, women play a vital role in agricultural production (which is the backbone of the economy), and in achieving household food security through agricultural and livestock production, trade and commercial activities. They also provided about 75 per cent of the labour force on small holdings. The paper attempts to analyse women's access to and management of natural resources, based on data collected from a sample of 200 farm women in Inoi North Location in Kiriniyaga district of Kenya, where the main crops grown are coffee and tea. Small scale farming is the main occupation of the farm respondents. The mode of production is labour intensive. The pattern of ownership of land showed that only 5 per cent of the women respondents owned land. Only 25 per cent of the 200 women interviewed have direct access to cash proceeds while 30 per cent controlled the proceeds from food crops. Older women and more educated rural women exercised a greater role in making decisions relating to household and farm activities.

The study reveals that although women have access to land, they have limited control over the output from land. This limits their access to support services such as credit facilities. The land use/control problems have led to environmental degradation via deforestation and soil erosion. In spite of their crucial role, women continue to be marginalised with inadequate involvement in decision-making and control over resources.

The study suggests the need to initiate projects to facilitate and assure women's entitlement to natural resources; creation of awareness among women's through agricultural extension services; targetting women through women groups, co-operatives, schools, etc.; establishing special credit schemes for women and expanding existing credit facilities; allocation of more resources to research and development of appropriate labour enhancing and drudgery-reducing technologies; improvement of agricultural planning and project implementation to ensure more support for women and finally to broaden the existing water supply projects so as to increase household's access to safe drinking water.

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# Impact of Changing Cropping Pattern on Women's Participation in Crop Production

**Babu Singh, V. Prasad, Shashi Prabha and Birendra Kumar**†

The paper attempts to study the impact of changing cropping pattern on women's participation in crop production in Farrukhabad district of Uttar Pradesh. Specifically, it seeks to examine the socio-economic structure of the selected farm workers' households, and the rate of participation of farm women workers in various field operations for different crops under changing conditions and to work out the level of employment of female farm workers engaged in crop production on per household basis. For the purpose of the study, data were collected from a random sample of 100 farm labour households, selected from ten villages in two blocks of Farrukhabad district pertaining to the years 1993-94 and 1998-99. The sample households comprised 155 male workers and 125 female workers and the ratio of female workers to total workers was 0.45. The main crops of the study area in 1993-94 were maize, potato, wheat and pumpkin, and the intensity of cropping was 204 per cent. Against this situation, in 1998-99, the intensity of cropping increased to 248 per cent due to readjustment of area and introduction of sunflower, late potato and late wheat as third crops in the crop rotations. The total employment of agricultural labourers in 1993-94 worked out at 176.36 days per farm, which increased to 236.29 days in 1998-99. The share of female workers in the total employment increased from 84 days to 112 days per farm during the corresponding periods. The higher employment in the latter period was due to increase in intensity of cropping and production of new crops like sunflower, late potato and late wheat in the cropping pattern of farms. As regards different farm operations, participation of females was the highest in sowing, interculture, threshing and winnowing and harvesting. It was higher than that of male workers in sowing (78 per cent) and interculture operation (62 per cent) in 1993-94 and 79.23 per cent and 63 per cent in the corresponding operations in 1998-99. The female labour employment in the cultivation of maize, potato, wheat and sunflower varied from 45 to 49 per cent of the total labour days employed. Sowing, interculture and harvesting were the main farm operations. The rate of participation of female workers was higher than that of male workers for both the periods. The study concludes that with the increase in intensity of cropping and introduction of labour intensive crops in the cropping pattern of the farmers, the rate of participation of female workers has increased to a considerable extent.

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# Employment Pattern of Women with special reference to Agriculture in Maharashtra

**K.S. Birari, D.S. Nawadkar and B.K. Mali***

The paper attempts to examine the pattern of employment and partcipation of women in agricultural activities in Maharashtra. The study is based on data collected from 300 farm families from Western Maharashtra, Marathwada and Vidarbha regions of Maharashtra State under the Comprehensive Scheme for Studying the Cost of Cultivation of Principal Crops, pertaining to the agricultural year 1997-98. Simple analytical tools like averages and percentages were employed for the analysis.

The study revealed that women labour both owned and hired had contributed 61.58 per cent of the total employed days required in the process of crop production per farm at the state level. Among the various regions of the state, it was noted that Western Maharashtra region provided the highest per farm employment of 311 days during the year for both the male and female workers. The proportion of family women labour was the highest, being 14.20 per cent of the total labour use in Western Maharashtra as compared to the other regions, while the proportion of hired women labour was the maximum at 65 per cent in Vidarbha region. Women accounted for 18 per cent of the total labour employment in livestock management in the state as a whole and their contribution was the highest (31.42 per cent) in Western Maharashtra. The share of women in total employment under special activities such as wage earning, incidental farm work, farm work other than crop production, etc., was about 35 per cent. It was maximum at 49 per cent in the Vidarbha region, followed by Marathwada and Western Maharashtra regions. On the whole, nearly 50 per cent of the labour requirement for agricultural activities was contributed by women in the study area.

# Impact of Agro-Climatic Regions on Women's Participation in Agriculture in Rajasthan

**K.A. Varghese,‡ Nisha Varghese,‡ and Puran Singh Jaitawat†**

An attempt has been made in this paper to assess the magnitude and direction in the participation of rural women in agriculture in Rajasthan and also the operationwise labour use in crop production according to different agro-climatic regions of the state. The analysis of census data for the years 1971,1981 and 1991 was made according to the nine agro-climatic regions known as National Agricultural Research Project zones, which are widely used by the state department of agriculture for devising strategies for transfer of agricultural technologies and also accepted by the State Agricultural University for the purpose of generating location-specific agricultural technologies. The rate of change of female participation in

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agriculture in eight out of the nine agro-climatic regions of the state was higher for the decade 1981-91 as compared to the previous decade 1971-81. The rate of change in female participation in agriculture in 1981 over 1971 was about 47 per cent at the state level which varied from 5.28 per cent in North-Eastern region (zone III-B) to 102.48 per cent in the South-Eastern region (zone V). Similarly, the rate of change in female participation in 1991 over 1981 was 90.65 per cent at the state level which varied between 58.20 per cent in zone II-A and 220 per cent in zone I-B which is a canal irrigated belt. During these two decades, the change in male participation in agriculture was only 16 per cent in 1981 over 1971 and 21 per cent in 1991 over 1981. Inter-regional disparities in the share of female labour use for various operations for the production of coarse cereals and wheat were evident. However, when all the operations are put together, the share of females in labour use in different regions was close to that at the state level. Inter-culture and harvesting are the two operations where the share of females in labour use was higher than that of males for both coarse cereals and wheat in Rajasthan. The increased participation of female work force in agriculture when linked with managerial and decision-making process may facilitate to achieve the goal of sustainable development of agriculture with more ease and certainty.

## Contribution of Farm Women in Decision-Making with respect to Investment and Farm and Non-Farm Activities in Punjab

**Bant Singh, Narinder Kumar and Sarabjit Kaur Dhaliwal***

The study attempts to examine the extent of contribution of farm women in the decision-making and their physical involvement in farm and non-farm activities of the households in Punjab State. The study covered a sample of 80 farm households of different size categories selected from eight villages, one each from eight districts of Punjab, under the "Comprehensive Scheme to Study the Cost of Cultivation of Principal Crops in Punjab". The data pertained to the year 1998-99. The study noted that besides income from crop production, farmers earned sufficient income from other sources also. More than 80 per cent of the households from all farm size-groups earned sufficient income from dairying. Many households earned income from service and business, rent from properties in cities and towns and even from abroad. Small farmers earned more than 60 per cent and large farmers nearly 30 per cent of their income from sources other than crop production. Farm women, in addition to attending to their main responsibility of domestic chores like cooking food and child care (76 to 90 per cent of total labour use), also lend support in farm work relating to tending of cattle, sale and handling of milk and light farm operations as hoeing and picking, etc. The extent of participation of farm women in decision-making with respect to different activities varied between zero and 80 per cent. In farm activities like sale and purchase of land, machinery and implements, purchase of fertilisers and weedicides-insecticides, and taking of loans and advances, women's decision on the whole was less than 30 per cent. As regards non-farm activities such as purchase of household goods like

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TVs, refrigerators and furniture, etc., social and religious ceremonies and in farm activity of sale and purchase of milch animals, the women's participation in decision-making was higher than 50 to 80 per cent. The impact of women's education which explained more than 67 per cent of the variations in farm income of the households turned out to be significant as compared to adult males where it was non-significant and even negative on large farms.

## Women's Role in Rice-Wheat Farming in Uttar Pradesh

**R.K. Singh, G.N. Singh and A. Patel†**

The paper attempts to examine the nature and pattern of employment of men and women farmers in rice-wheat production system, based on data collected from a random sample of 160 households (consisting of 155 male headed and 5 women headed households) from seven villages of Kada block in Kausambi district of Uttar Pradesh, adopting rapid rural appraisal procedure. The data pertained to the year 1997-98. The study revealed that in spite of larger number of workers per household (4.66) on an average, in small size-groups, the number of dependents was less (1.54) due to their finding off-farm work, as against high dependency ratio (1.70) in large size-groups of holdings. The gender division of labour as well as participation in rice-wheat farming is not pronounced. Women farmers were intensively involved in crop and livestock production and in processing of farm produce such as cleaning, drying, grinding and shelling of rice and wheat. The off-farm employment pattern reveals that outside village employment is negatively associated with the size of holding. The introduction of technology in rice-wheat farming system has led to a reduction in the male labour demand and increased the use of hired female labour. The differential pattern of wage structure between women and men was largely determined by the nature and duration of agricultural task. The study suggests that there is a need to evaluate technologies for reducing women's drudgery and to increase labour saving-gender-adjustable technology in agricultural development in future.

## Impact of Changes in Cropping Pattern on the Employment and Economic Status of Women Workforce in Punjab - A Study around Ludhiana City

**Inder Sain and Meenu Aggarwal***

An attempt has been made in the paper to examine the impact of changes in the cropping enterprise on the employment and economic status of the women workforce in the periphery of Ludhaina city in Punjab. The data pertained to the year 1995-96. The study presents a comparative analysis of labour employment and earnings in the cultivation of winter vegetables and wheat. The results of the analysis highlighted that the status of women labour force employed tilted highly in their favour when the cropping pattern undergoes change

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from wheat to winter vegetable production. Among women workforce, hired women labour force accounted for more than four-fifths of the total women workers employed in winter vegetable enterprise. As regards the employment of male and women hired labour, women hired labour was employed in vegetable enterprise accounting for 38 to 60 per cent of the total labour force employed as against 87 per cent of male workforce in wheat enterprise. The earnings of the women workforce are more than double in some important winter vegetables as compared to those of their male counterparts while in wheat enterprise the earnings of male workforce are about five times that of the women labour force engaged in this enterprise. Thus the implications of the analysis highlight that a change in the cropping pattern in favour of winter vegetables from wheat not only provides large opportunities of employment but yields higher earnings also. This shift from the cereals to vegetable production improves the status of women workers particularly of the wage earners. Therefore, it is suggested that a small proportion of area may be allocated towards vegetable enterprises particularly around the cities so as to improve the economic condition of the poor women by providing them gainful employment.

## Energy Utilisation Pattern of Farm Women for Household Activities in Indore District of Madhya Pradesh - A Case Study

**C.L. Thakur, N.K. Khandelwal and V.C. Singh**†

The paper attempts to study the pattern of utilisation of energy in household activities in rural areas of Indore district of Madhya Pradesh with a view to saving energy use and introducing other effective and cheap sources of energy. The study covered 450 rural households with a population 2,410 in Jamburdi Hapsi village in the district, pertaining to the year 1995-96. Among the selected households, the landless, marginal, small, medium and large categories constituted 22.2, 35.0, 10.5, 19.5 and 12.8 per cent of the total respectively. The majority of the households (89 per cent) were poor with an average monthly income of less than Rs. 1,000. Farm women were also engaged in farm operations in addition to their heavy and busy schedule of work in household activities. Out of the total energy (39,733 GJ/year) consumed in household activities in the surveyed village, about 80 per cent of the energy was consumed in cooking of food, which included energy used for gathering of firewood and collection and use of cow-dung. The distribution of energy consumption in other household activities, viz., lighting, animal care, child care, cloth washing, house cleaning, utensils cleaning and fuel gathering was 4.5, 3.2, 1.1, 2.9, 3.0, 1.3 and 4.5 per cent respectively. Use of improved *chulhas*/bio-gas fuel/smokeless stove for cooking of meal was negligible in the surveyed village. Encouraging farm women to use improved equipment for cooking of meal would help to conserve the energy in the village.

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# Role of Women in Groundnut and Wheat Production in South Saurashtra Zone of Gujarat

**R.L. Shiyani and S.B. Vekariya***

The paper attempts to examine the gender differences and the role of women in groundnut and wheat production in South Saurashtra Zone of Gujarat. The study is based on data collected from 60 groundnut growers selected from six villages in two villages of Junagadh district and 48 wheat growers selected from four villages, one each from four talukas in Junagadh and Amreli districts. The data on operationwise groundnut and wheat production were collected by survey method for the year 1998-99. The results of the study indicated that the women played a greater role in the production of groundnut and wheat. The share of female labour used in groundnut and wheat production was 46 per cent and 31 per cent respectively of the total human labour utilisation. Harvesting and hand weeding were the two major operations performed predominantly by women in the cultivation of both the crops accounting for 49 per cent and 55-61 per cent respectively. The women also played a very supportive role in many other farm activities, viz., sowing, primary tillage, application of manures and chemical fertilisers, and irrigation in both the crops. There was a greater demand for hired female workers particularly for weeding and harvesting operations in the case of groundnut production, and for irrigation, harvesting and weeding activities in respect of wheat production. Timely completion of these activities enhanced the productivity of the crops. It is, therefore, suggested that the new technologies should address the needs not only of the male farmers but also address the requirement and skills of women in the farm sector.

# Invisible and Visible Contributions of Rural Women in Tamil Nadu

**A. Gunamalai,† R. Mohan‡ and S. Chandra Singh†**

An attempt has been made in this paper to empirically estimate the visible and invisible contributions of women in rural areas and the impact of women's visible income on their families. The study is based on data collected from a random sample of 100 households out of 194 households which depended on the money earned by women in Thoppupatty village which is 30 km away from Dindigul on the way to Karur. The selected women were classified into women working in their own land, women working in own as well as others' land, landless labourers and self-employed.

The rural women working in their own land and those who work both in own land and others' land contributed more or less equally between household chores and production activities. But their capabilities are not fully available as they have less work during the off-season. Hence, it is suggested that development projects like sericulture, floriculture

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and poultry farming should be introduced to enhance their contribution. The other two groups of landless and self-employed women have started to enter into different agricultural and non-farm jobs. The visible contribution made by them in monetary terms is around two-thirds of their total contribution. This contribution can be enhanced by way of improving their technical skills and by giving them training and hands-on-experience in the area of cottage and household industries. In the work effort of supplementing the family income, the landless and self-employed women devoted less attention to child care which needs to be taken care of by the integrated child development programme. With the empowerment of women in earning pursuits, there is need to create awareness among them about increased saving, investment and sustained improvement in their contribution with the help of voluntary organisations.

## Changing Educational-cum-Employment Status of Female Labourers in Rural Areas of District Amritsar (Punjab)

**J.S. Chawla***

The paper attempts to examine the changes in educational and employment status of female labour in rural areas of Amritsar district of Punjab at two points of time, i.e., 1990-91 and 1997-98. Based on three-stage random sampling procedure, the data on different aspects were collected through a well-structured schedule canvassed to 200 female workers spread over two villages of Verka block in Amritsar district. The study revealed that holdings below 2 hectares contributed 85 per cent of the labour force in 1997-98 compared to 79 per cent in 1990-91. The share of land holders above 2 hectares in female labour force diminished from 21 per cent in 1990-91 to 15 per cent in 1997-98. The share of landless households increased from 35 per cent in 1990-91 to 37 per cent in 1997-98. Educational status of female workers improved over the period of the study. The number of illiterate female workers declined from 44 per cent to 39 per cent between 1990-91 and 1997-98 with a proportionate increase in the number of literate female workers. The number of illiterate workers decreased across the categories and that of literate workers increased. Similar trends were noticed when the educational level of female workers was correlated with the holding size (which is a proxy for income). The employment of female labour in the primary sector declined from 60 per cent to 53.5 per cent but it showed upward shifts in secondary and tertiary sectors, providing thereby clues to the diversification of the economy. Their share in the family income from primary, secondary and tertiary activities showed increase from 12, 15 and 18 per cent in 1990-91 to 15, 17 and 20 per cent in 1997-98. These changes in educational status and employment were not unmixed blessings and were accompanied by rising incidence of divorce and separation.

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# Women Participation in Tribal Economy

**S.K. Chauhan**†

The paper seeks to examine the contribution of *Gaddi* tribal women in farm and household economy vis-a-vis their participation in decision-making of various activities. The study is based on data collected from 100 households chosen from 13 villages of Bharmaur block in Chambal district of Himachal Pradesh through proportional allocation method, pertaining to the year 1996-97. To examine the rate of participation of women in decision-making the recorded activities were measured on a three-point continuum Likert-type scale and finally clubbed into high, medium and low groups. The findings of the study revealed that the contribution of women was more than that of men in the activities performed near to their dwellings, which is reflected through more labour days put in crop production, cattle rearing and handloom weaving, though the contribution of males was more in tending of small ruminants (sheep and goats) which are migrated to plains in winter and high altitude of alpine pastures for summer grazing. The share of women in farm and off-farm income came to the extent of 27 per cent and 12 per cent of the total household income respectively, making an overall contribution of 24 per cent on an average in the household income which did not include their contribution as home maker. In decision-making process the participation of women was found to be higher in activities which were to be performed near their living places and required the involvement of their family members. On the other hand, their participation in making decisions on activities such as purchase of land, infrastructure development, financial allocation and credit through involvement of outside members/institutions was low. Matters relating to storage of foodgrains, feeding of livestock, preparation of food for family and health care of children, utilisation of woollen products at home, their form and design, were mainly decided by women.

# Impact of Central Sector Scheme "Women in Agriculture" on Rural Women in Haryana

**K.N. Rai, A.C. Gangwar and Indu Grover***

Despite the strong presence of women in all walks of life, no programme to support their skill upgradation in primary, secondary and tertiary sectors of economic activities has been undertaken in a big way exclusively for women except one or two components within a major scheme. The Government of India launched a Central Sector Scheme of "Women in Agriculture" in 1993-94 to motivate and mobilise women farmers through group approach. These groups would form an effective network for channelling agricultural development programmes and other support system such as input support, technological and extension support, etc. This scheme is in operation in Hisar district of Haryana since 1993-94 in 30 villages, 10 each from the three sub-divisions of Hisar, Hansi and Tohana, catering to the

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needs of 600 women farmers - 20 each from the selected villages. Since the scheme is in operation for the last six years, an attempt has been made in the paper to examine the impact of the scheme on different aspects of rural women's lives.

Based on the findings derived from the information collected on different activities of the scheme, it could be concluded that the scheme was found to be very effective with respect to increase in knowledge regarding various agricultural components and adoption of improved agricultural production technologies by the farm women. On an average, about 60 per cent of the women farmers adopted improved varieties of seeds. All the women farmers adopted seed treatment, weed control, use of fumigants, rat control measures and kitchen gardening. The use of correct seed rate and rhizobium culture was reported by 97 per cent of women farmers. The adoption of plant protection measures, balanced use of fertilisers and soil and water testing were reported by 78 per cent, 65 per cent and 55 per cent of the selected women farmers. Their involvement in the decision-making process with regard to the selection of crops, construction of storage bins and marketing of agricultural produce has also increased after the implementation of the scheme. Recognition of the importance of women in the family has also increased their urge for maintaining good health, thereby leading to progressively increased consumption of nutritive food items which hitherto were consumed less by them. Similarly, the male members happily share the family income with women whenever they need money for some specific purpose as the women are now actively equal partners in the income generation activities.

## Extent and Proportion of Women's Participation in Paddy Cultivation - A Study of Kymore Plateau and Satpura Hill of Madhya Pradesh

**P.K. Mishra,† R.M. Sahu† and G.P. Agrawal‡**

An attempt has been made in the paper to examine the extent and proportion of women labour participation in paddy cultivation and the gap in wages between men and women labour in Kymore plateau and Satpura hill region of Madhya Pradesh. The analysis is based on the data collected under the project "Comprehensive Scheme for Studying Cost of Cultivation of Principal Crops in Madhya Pradesh", during the year 1996-97, covering 60 cultivators grouped in five size-classes, i.e., marginal (0-1 ha), small (1-2 ha), semi-medium (2-4 ha), medium (4-6 ha) and large (6 ha and above). The area under paddy decreased as the size the size of operational holding increased and about 36 per cent of the total operated area was covered under paddy in the study region. The participation of women labour was higher in transplanting of paddy, interculture and harvesting while operations like preparatory tillage, sowing, manuring and fertiliser application, irrigation and threshing operations were performed jointly with men. The use of women labour (both family and hired) in paddy cultivation constituted 53 per cent of the total human labour employment. The participation of family women decreased as the size of farm increased but the total

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employment hours of women increased as the size of farm increased. The hiring of women labour was highly associated with the increase in the size of farm. The results of the study also showed that lower wages were paid to women for all the operations as compared to men and the wage gap was more than 71 per cent. It is suggested that diversified farming such as dairy, poultry, etc., can help to increase the employment opportunities of women.

## Contributions of Women in Dairy Enterprises with special reference to Middle Gangetic Plain Region of Bihar

**Anjani Kumar,* J.N. Gupta,† A.K. Jha* and N.P. Singh†**

An attempt has been made in the paper to examine the existing female labour force, its status and utilisation in dairy enterprises and other activities and the magnitude of their contribution in family labour income from dairy enterprise in the middle Gangetic plain region of Bihar. The study is based on data obtained from a pre-determined sample of 100 New Milk Production Technology (NMPT) households and 100 Old Milk Production Technology (OMPT) households, randomly drawn from nine selected villages based on probability proportion to the number of households in each village, selected from three blocks, one each from three districts from the study area. The data pertained to the year 1994-95. Positive association was observed between the family size and the size of land holding. The average size of the operational holding in the case of households rearing crossbred cattle was 2.94 hectares while in the case of households rearing local cows, it was 2.43 hectares. An average investment of Rs. 18,626 per household for three milch animals and an investment of Rs. 12,755 for two milch animals were observed in the households keeping crossbred and local cattle respectively, showing a marked difference in the total investment made by NMPT and OMPT households.

Female labour participation in dairying enterprises revealed an average use of 48 man-days of female labour per milch animal in NMPT households while it was 34 man-days in OMPT on per annum basis. However, the extent of contribution of female labour in total labour remained almost constant under both groups of technology households. With regard to the magnitude of participation of women in different economic activities, the dairying accounted for almost 30 per cent of the total time spent by rural women while crop enterprises accounted for 22 per cent in the case of NMPT households. The corresponding figures for OMPT households were 21 and 22 per cent respectively. However, rural women remained occupied for about 3,378 hours in the case of NMPT households and 3,069 hours in the case of OMPT

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households including domestic chores. It was further observed that female employment rate decreased slightly with the increase in the farm size.

The assessment of women's contribution in dairy enterprises was done by working out costs and returns along with female and family labour income obtained from local and crossbred cattle. The analysis revealed that total family labour income from crossbred cow and local cow was about Rs. 25 and Rs. 16 per animal per day, of which the share of female labour in the total labour income was about Rs. 5.39 and Rs. 1.55 respectively, which accounted for about 34 per cent of the total family labour income in the group of sample households. Thus the contribution of rural women was considerable in total human labour employment and family labour income from dairy enterprise. Considering the perceptible importance of rural women in agrarian economy especially in dairying, the policies must be oriented towards enhancing the skills and training of farm women in various technologies of milk production and processing in order to increase productivity and income of the households.

## Women's Contribution in Paddy Cultivation: A Case Study of a Village of Chhatisgarh Region of Madhya Pradesh

**B.B. Beohar,† A.K. Sarawgi† and A.K. Chaudhari‡**

The paper attempts to study the contribution of women in paddy cultivation, based on data collected from a sample of 50 farmers in Sendari village which is purposively selected from the Chhatisgarh region of Madhya Pradesh. The data pertained to the year 1998-99. The selected farmers were grouped under five categories, less than one hectare, 1.01-2 ha, 2.01-4 ha, 4.01-6 ha and more than 6.01 ha. It is observed that 70 per cent of the women in the first two size-groups (less than one hectare and 1.01-2 ha) were engaged in paddy cultivation as against none in the large size-group (over 6.01 ha). Female labour use, both family and hired, formed 9 per cent of the total female labour hours used in the size-groups below 2 ha and it was about 16 per cent of the total in the size-group 2.01 to 4 ha and 23 per cent in the size-group 4.01-6 ha. In the large size-group (6 ha and above) where no female family labour was employed, the hired female labour constituted 52 per cent of the total female labour used, and 38 per cent of the hired female labour was used in sowing and transplanting. Both family and hired women labour are mainly engaged in sowing, transplanting, interculture, harvesting, transporting and winnowing. With the increase in the

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farm size, the involvement of family women labour in paddy cultivation decreased but it was the reverse for hired women labour. In operations like transplanting, interculture and harvesting the use of female labour hours was more than that of male labour. The share of women's wage earnings in their total income constituted 0.72 and 3.83 per cent in the first two size-groups respectively as against 17.87, 13.21 and 21.50 per cent in the size-groups 2.01-4 ha, 4.01-6 ha and above 6.01 ha respectively. If the imputed value of family female labour was added, their share of wage earnings would be much higher.

## Women in Agriculture and Rural Development

**S. Bhuvaneswari and Kavitha Kannan***

The paper seeks to study the extent of participation of women and their role in decision-making process in farm and off-farm activities and the experiences of specific programme meant for increasing the participation of women in agriculture and generation of employment opportunities for them. The study is based on data obtained from a random sample of 100 women respondents, selected by the key informant technique in Lalgudi block of Tiruchirapalli district of Tamil Nadu and the data pertained to the year 1997-98. Of the total labour time spent by women on various activities, their active participation in farm operations accounted for more than 80 per cent.

Females (wives) alone took decisions on par with their husbands on operations like selection of seed (39 per cent), seed storage (28 per cent), sowing (23 per cent), application of manures (24 per cent) and taking care of animals (34 per cent). The farm women's active participation in these operations was due to effective skill and knowledge gained through training organised by the government and non-governmental organisations (NGOs). With regard to decisions taken by husband and wife together, the responses were the highest in regard to plant protection chemicals (61 per cent) and care fo animals (58 per cent), followed by sowing and seed storage (55 per cent) and use of fertilisers (48 per cent). This equal participation of women along with their husbands in these operations is a welcome situation. The women should be empowered with more knowledge such that they take part in decision-making in all farm operations in the near future. TANWA (Tamil Nadu Women in Agriculture) and NGOs encourage the rural women to form self-help groups to undergo various training programmes in agriculture and allied activities.

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# A Comparative Study on the Efficiency of Women Labour in Agriculture in Haryana

**B.S. Panghal, Himmat Singh and M.S. Luhach**†

The main objective of this study was to find out and compare the efficiency of men and women labour in performing different crop operations in major crops of Haryana. The study is based on the primary data taken from the "Comprehensive Scheme to Study the Cost of Cultivation of Principal Crops in India - Haryana", operating in the Department of Agricultural Economics of Haryana Agricultural University during the year 1997-98. A random sample of 200 farmers was selected representing three agro-climatic zones of the state and different size of farms. Comparative working efficiency of men and women labour in performing different farm operations was calculated on the basis of time taken per hectare to perform only those operations where the participation of women labour exists. The study has concluded that women labour participation is quite high in some of the crop operations like transplanting, weeding and picking. The total women labour participation increases with the size of the farm. Women labour was also found relatively more efficient than men labour in these operations. There was no participation of women labour in irrigation and ploughing operations in all the zones of Haryana and almost in all the crops.

# Participation of Women vis-a-vis Men in Labour Force in Farm and Non-Farm Sectors in Himachal Pradesh

**Prem S. Dahiya,* S.P. Saraswat‡ and Amresh Sharma‡**

This study of Himachal Pradesh focuses critically on the participation of women in various farm and non-farm activities vis-a-vis such participation by men in labour force in rural areas of the low, mid and high hill zones of the state. The various activities have been classified broadly into farm work and non-farm work. The study covers a sample of 120 households selected from twelve villages with a proportional sample of ten farming households from each village and 40 households from each zone. Non-farming households are precluded from the sample and the reference year is 1996-97. The data were collected under cost accounting method. The participation of women is consistently higher vis-a-vis men in labour force in the farm sector because of occupational shift by men towards secondary sector and territory sector, low literacy rate and poor skill levels of women constraining them to stay in the farm sector. Social taboos and household work also constrain

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women to continue in primary sector occupations. Women participation in subsidiary rural occupations was negligible in all the three zones. The participation of a woman worker in productive economic activities was 155 days per annum as against 182 days for a male worker in low zone; it was higher at 225 days for woman labour in mid hills as against 176 days for male worker. In the high hill zone, the participation by both sexes was at par per annum. Women outperformed men in tending animals and attending to the household work. Their participation in crop production was below 2 hours per day in all three zones except during October and November on large farms. The participation of women in paid economic activities was 4 to 5 hours and considering the unpaid household work the total working hours were 8 to 10 hours, with nil participation in farm activities during January to March in mid and high hills. The study suggests the need for launching extensive outreach programmes for upgradation of technological skill for both women and men, acquiring newer skills by women, improving their literacy levels, for imparting training to women in subsidiary occupations in the non-farm sector and for stricter enforcement of public policies in the country for ensuring gender equity and women empowerment.

## Women Participation in IPM Technology - The Case of Cotton Production

**Sant Kumar***

The paper attempts to discuss the role of women in the adoption of integrated pest management (IPM) technology in cotton. The study is based on primary data collected from a random sample of 80 farmers (40 each under IPM and non-IPM practice) selected from Astha village in the tribal belt of Kinwat, Nanded district of Maharashtra. The data pertained to the year 1998-99.

The participation of farm women in the activities like weeding, harvesting and hand picking (only in IPM) was 100 per cent. Their participation in fertilising the fields, seed sowing and field preparation in IPM practice was 71, 76 and 65 per cent respectively and the corresponding figures in non-IPM practice were 76, 78 and 57 per cent. The study showed that two-thirds of farm operations in cotton were done by farm women.

With regard to participation of women in terms of total labour days employed, they contributed 93 per cent in IPM practice and 88 per cent in non-IPM practice. IPM adoption has doubled the opportunity for employment due to increase in productivity of cotton.

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