

## 16. Empowering Women in Agriculture

Women in agriculture play a vital role in wide range of activities, thereby contributing to sustainable agricultural development. To achieve inclusive agricultural growth, empowering women by having comprehensive understanding about work participation, gender issues, drudgery and health and nutritional status is necessary. Further, these issues are to be addressed through gender-friendly technology assessment, refinement and extension methodologies. With this focus, the Directorate of Research on Women in Agriculture is implementing research and capacity-building programmes.

**Gender work participation scenario:** As per men and women work participation rate from the census 2001 data, Mizoram with value 0.093 had the most equitable gender work participation scenario, followed by Manipur (0.094), Nagaland (0.10) and Himachal Pradesh (0.11). Some high gender work participation disparity states include Uttar Pradesh, Bihar, Punjab, Kerala, West Bengal and Odisha.

In Madhya Pradesh, participation of women in rice-based cropping system was 40.51% and that of men was 59.49%. Maximum participation of women was in rice crop (78.18%), followed by wheat (12.76%), field pea (3.22%) and blackgram (2.41%). Tribal women earned on an average 158 woman-days/year and ₹ 150/woman-day of employment in forest produce.

For better marketing system, 62% tribal women suggested market in nearby places, 37% direct sale to consumers to avoid traders, 31% better transport facility, 25% creation of storage facility and 7% minimum support price by government agencies and 2% creation of shelter place. Traders suggested for enhancing knowledge of tribal women in marketing system.

**Access and control over resources:** About 3-4% women had land ownership and almost the same extent had household ownership. Their ownership was restricted mostly to ponds, fallow, pastures or rainfed lands and marginal land-holding. On an average, 2.18% women controlled over family resources as against 48.15% men, and family resources pertaining to backyard were under the control of women. As far access over family resources is concerned, 6.80% was by women and 34.69% was by men. Joint control and access over family resources were 36.37% and 58.52%. Regarding domestic animals, men had more control but as far as access was concerned, both women and men showed almost equal access (12.52% and 12.71%).

**Women's need and preferences under rice-based production system:** Data from five rice-growing districts of Madhya Pradesh revealed 37.51% respondents rating insufficiency of vegetables, 32.68%

of pulses, 20.70% of oilseeds, 5.84% of pseudo-cereals, 2.10% of spices, 0.70% of fodder and 0.47% of fuel-wood under rice-based cropping. Majority of the respondents were willing to produce pulses (84.34%) and vegetables (49.90%). On the basis of the organoleptic properties such as taste, expansion on cooking, texture, colour including marketability, local varieties Madhuri, Menka of rice, and Sujata and WH 147 of wheat were preferred by most women. This may be taken into consideration in breeding/improvement programmes.

### Women work-participation in inland fisheries:

A participatory exercise was conducted to identify the role of women to promote gender equity/equality for sustainable inland fisheries development at Nabadwip and Kalna in upper stretch and Diamond Harbour and Frezarganj in lower stretch of Hooghly estuary. The participation of women in upper stretch was comparatively lower than in lower stretch, where women were actively involved in fish/prawn seed collection and selling; and fish grading, vending, drying and processing. They were also involved in other income generating activities, like agriculture and daily labour.



Women at work in Hooghly estuary

The analysis of their level of participation in fisheries and other income generating activities indicated medium level for 62%, high for 16% and low for the remaining women. This active participation of women led to socio-economic upliftment of their families.

**Scientific livestock management by women:** Major constraints faced by farm women in adopting improved packages of practices were lack of grazing resources (86.7%), lack of awareness about vaccination and deworming (83.3%), inadequate availability of veterinary services (73.3%), and inadequate knowledge and poor appreciation for AI services (66.6%). Women played major role in care and management of animals;

### ICT awareness among Odisha farm-women

Studies on on-farm women for the ICT facilities available in the village indicated that 50% farm-women were aware about the PCO booth in their village, and only 20% farm-women were aware about village information centre /kiosks. Only one woman was aware of toll-free kisan call centre. And among radio programmes *Krushisansar* was the most liked programme (40%), followed by *Nari Mahal* (20%) and *Krushisikhya* (18%) on women, availability of subsidy in on agricultural inputs etc. Among television programmes, *Krishi Darshan* was the most liked programme (36%), followed by *Srimati Kam Nuhanti* (26%) and *Pallishree* (18%). About 70% farm families had television and 75% farmwomen possessed mobile phones.

care during pregnancy (36.7%), care during and after parturition (45%), feeding animals (25%), watering animals (48.3%), care of new borns (50%), churning of milk (56.7%), making dung cake (68.3%), cleaning shed (41.7%) etc. Similarly, the participation of women in goat-rearing overweighed men. However, women were not exposed to training and use of scientific rearing and management of livestock.

### Women-friendly tools

**Plucking maize cobs:** Farm women plucked 669 cobs/hr from standing plants and 492 cobs/hr from harvested plants. Force required in plucking cobs from standing plants was 7.3N. Heart rate of workers was 109 and 97 beats/min during plucking cobs from standing and harvested plants, respectively. Missing cobs (8.1%) were significantly higher in standing plants than harvested plants (0.5%).

**Dehusking maize cobs:** Farm women dehusked 393 cobs/hr. Heart rate during dehusking was 103 beats/min. Force required in removing single layer of outer sheath was 2.94 N and it was 19.7 N when three to four leaves were to be removed. On an average, eight times hand action including nailing and palming was required. Though workload was light, frequency of continuous hand action for dehusking was high.

**Hand-operated maize dehusker-sheller:** This dehusker-sheller was assessed ergonomically during dehusking-shelling cobs by feeding the cob one by one at about 2-4 sec intervals with five men as well as women workers. Output capacity was 89.6 kg grain/hr when machine was operated by men workers at hand-cranking speed of 57 rpm, and it was 63.4 kg grain/hr with women workers at hand-cranking speed of 52 rpm. Work pulse of men and women workers was 46 and 51 beats/min, respectively. Dehusking-shelling efficiency was about 99.15% with grain breakage of 0.7%.

### Gender gap in nutritional status

Study conducted in Odisha revealed that about 52% women and 40% men were undernourished with a body mass index (BMI) of less than 18.5, indicating

high prevalence of nutritional deficiency. Gap between both the genders in normal BMI was 15.55%, as 58.88% men and 45.55% women were normal as per BMI. Gap between severe chronic energy deficiency was 6.67%, as 3% men and 7% women were under severe chronic energy deficiency category in the rice-rice cropping pattern. Majority of men and women had normal blood pressure. More than 60% women and about 46% men were anaemic as per haemoglobin count. Gender gap in low haemoglobin count was about 17%.

Value-addition of murels was taught under the NAIP project "A value chain on murrel production in Tamil Nadu and Odisha" for empowering farm women of rural Odisha. They were trained for preparation of murrel pickle, soup, cutlets and balls. Many of the participating farmers have shown a keen interest to take up this technology and improve their income generation and livelihood.

**Brackishwater aquaculture:** In order to identify the potential of aquaculture to empower coastal women, structure and available resources and the developmental activities in villages of Tiruvallur and Kancheepuram districts, were assessed. In 2004, the tsunami destroyed their properties and fishing boats, nets, etc. and therefore, there was a need for an alternative livelihood for the coastal populations. Diversification of livelihoods through the adoption of brackishwater aquaculture technologies with linkages to government institutions, NGOs, banks, research organizations and local community provided the solution to overcome this problem.

**Women's role in aquaculture marketing:** Participation of women in the domestic fish markets, such as road-side markets (4), retail markets (2), wholesale markets (2), in 24 Parganas (South), West Bengal, was studied. The initial investment for beginning the trade ranged from ₹ 200 to 2,400. Loans from private money lenders financed the business for 89.21% of respondents and 10.52% had invested their family funds. Majority (92.10%) of respondents sell fish outside their area of residence. Some of them (5.20%) sell in the surrounding villages and others in rural and urban areas. The study highlighted the need for capacity building required to enhance the benefits that women could derive from such marketing arrangements.

**Gender-specific database:** The disaggregated gender specific data were compiled for 124 agricultural activities such as farming, post-harvest management, horticultural crop production, livestock management, fisheries and homestead resources. Besides these, gender-wise information on participation, roles and responsibilities, access to and control over resources in respect of agriculture, horticulture, livestock management, fisheries and extension services was also collected. In all farming and allied activities, independent and joint participation of farm-women was visible and they had access to resources but control over them was lower.

**Trainers' training modules:** Trainers' training modules on drudgery reducing technology interventions for women in agriculture, were tested for their effectiveness. Selected areas were: care of clothing, entrepreneurship on sisal fibre, designing children-wear, knitting, natural dyeing of wool, rug-making, macrame techniques, block printing with natural dyes, renovation techniques of clothing, creative crafts, stain removal at household level, appropriate clothing practice and garment designing and construction.

**Drudgery reduction:** Adoption of improved sickle and improved *khurpi*, was higher among men, and among women (above 50%) adoption rate was higher for maize sheller and vegetable plucker, besides improved sickle and *khurpi*. Cotton picking apron, groundnut decorticator, hand rake, improved cap, ring and *Trishul* weeder were also adopted by 50% women. Various enterprises such as food processing enterprise, community meal preparation by the self-help groups, bamboo-craft, quilt making, dairy and vegetable-growing were identified as drudgery-prone activities.

**Health and nutritional security:** Motivation campaigns were organized to inspire women for laying nutrition garden in their homestead. To minimize iron deficiency (anaemia), each centre developed an iron-rich product named as *lehyam* by using locally available and underutilized green leafy vegetables. Udaipur centre developed *lehyam* using lotus stem as a major ingredient with or without incorporation of green leafy vegetables, as lotus stem has high iron. Programmes were conducted on aspects such as importance of balanced diet in

daily life, additional food requirements during pregnancy and lactation, importance of breast-feeding, supplementary feeding for young children, preparation of nutritious weaning food at home, importance of kitchen-garden in homesteads.

**Vocational skills:** Skill-oriented trainings were imparted among adolescent girls and young mothers in Crèche management, preparation of educational play materials, soft-toy making, food preservation, preparation of utility items, embroidery and infant garment making.

**Utilization of non-degradable farm-waste:** Degradable farm-waste, mostly from natural fibres such as banana, jute, sisal, hemp, and non-degradable farm wastes such as nylon sarees, waste polyethylene bags were used for preparing files, purse, bags, *asanas*, *durries*, tablemats, footmat, runners and photo-frames.

**Livelihood security:** Efforts were made to strengthen SHGs by conducting group trainings in a systematic manner, providing continuous facilitation support by exchange of information and ideas with successful group members, micro financing strategies by enhanced, mutual trust between banks and SHG groups, promoting saving habit and proper use of loan by SHG members. Members were equipped with entrepreneurial skills such as tie-and-dye, vermi-composting, dairying, flour milling, preparation of handicrafts, embroidered products through demonstrations, video films, mahila mandals (success stories of women entrepreneurs). Micro-enterprise units were established by many SHGs in which their skills were developed.

