

# Gender Issues for Technological Empowerment of Women in Agriculture

The Directorate of Research on Women in Agriculture through in-house, network and inter-institutional projects as well as AICRP on Home Science and NAIP on V-PAGE, generated gender related information on different sectors of agriculture.

**Gender Knowledge Centre:** Gender Knowledge Centre portal ([knowledgecentre.drwa.org](http://knowledgecentre.drwa.org)) was developed to provide information on theoretical and conceptual background of gender concepts, approaches, and analytical framework for gender analysis.

**Database on women in agriculture:** A database on women in agriculture was created on the basis of Databook of AICRP Home Science. Data pertain to state-, landholding- and activity-wise participation profile and decision-making profile of men and women. Data were collated to create more meaningful tables on the extent of women's participation in different activities in farming and livestock management and involvement in different types of decision making.

**Reference system:** To create a repository of the studies conducted in different parts of the world and provide stakeholders access to such studies, references were collected and 1,038 were entered into the database. Sources comprise annual report, journals, proceedings, thesis and books. A user friendly interface was developed to help access the theme-wise and year-wise references.

**Small scale entrepreneurship in livestock production:** The study on resource base, traditional knowledge and participation of farm women in livestock production conducted in Orissa, Uttar Pradesh, Asom and Nagaland revealed that rural women spent more than 3 hr/day on performing activities related to livestock management such as feeding, watering, cleaning of shed and removal of cow dung. Mix species of animals were reared by them based on the socio-economic and natural

resources in the region. The constraints involved in rearing small ruminants were high cost of feed and medicine, inadequate knowledge of scientific feeding, housing and health cover measures. Women belonging to nuclear families were more involved in rearing cattle and buffaloes and were better in adoption of improved technologies. Azolla production provided new options for resource poor women as a source of protein rich feed and could replace 100% groundnut cake to reduce the feed cost up to 40–50% in duck ration without any deleterious effect on palatability and growth performance. Improved strains of 4–5 week-old chicks were provided to women self help group after vaccination for rearing under backyard. The contribution of backyard poultry to overall household income varied widely ranging from Rs 1,000 to 3,170/women from 6 to 8 birds over a period of 5 to 6 months. Varieties of improved forage crops were maintained at the DRWA farm for evaluation in gender perspective.

With a view to gender mainstreaming in aquaculture, in collaboration with CIBA, Chennai crab fattening was introduced for the first time among WSHG members in two sites in Chilika lake of Orissa. Bamboo, locally available material,

#### Documentation of women specific ITKs

Popular techniques of household storage of cereals and pulses practiced by farmwomen were documented, which helped to save up to 70% foodgrains from grain weevils. Rice storage with garlic saved the rice from insect pest up to one year while use of 500 g turmeric per 75 kg rice saved stored rice from insect pest up to three years. Storage practices of ginger, chilli and fenugreek were also identified. Puduga made from paddy straw is very common to store cereals and pulses in Bhanjnagar area of Ganjam district in Orissa.

was used to fabricate pens. During the fattening period of 5 months a profit of about Rs 2,000 was earned.

**Gender sensitive extension model:** The Village level Para Extension Worker (VPEWs) approach tested various capacity building methods such as pre-seasonal training, review meetings, exposure visits, method demonstrations, result demonstrations, diagnostic visits, field days and farm literature. The changes were observed in VPEWs in the attributes like message delivery, technology performance and organizational abilities. The model was very effective in creating general awareness on scientific farming methods, and demand for farm information and technology.

Group approach and low cost methods suitable for resource poor women in agriculture labourers (WALs) was followed in developing agro-based enterprises namely mushroom cultivation, rice processing, *baddi* making, bee keeping and backyard. Mushroom cultivation proved to be highly suitable enterprise in terms of average

#### **Mushroom – An Intervention for Women Empowerment**

Self help group named 'Jai Sriram' in Salepur Block of Cuttack district in Orissa, has emerged as a path finder for women empowerment. The process of empowerment of farm women in straw and oyster mushroom cultivation was initiated. The scientists endeavoured best to maintain group cohesiveness through motivation, focus group discussions, exposure to successful units, regular advisory services and sharing of experiences of successful farmers. Training-cum-demonstration was organized followed by the support of critical inputs like spawn and polyethylene. Regular follow-up was also arranged to help women achieve competency. The first phase started with the enterprise of 30 beds of oyster mushroom. The investment was Rs 450, total yield was 50 kg, out of which they consumed 30 kg at home, and total income was Rs 800 with a profit of Rs 350.

The enterprise has now branched into individual enterprises with 10 – 30 beds in each household to enable easy marketing. The male counterparts appreciate the farmwomen in this type of endeavour, as it did not disturb the household activities. The women used their leisure time for about 2 hr/per day and earned good income. The farmwomen felt that oyster mushroom is more profitable with lesser investment compared to straw mushroom. Regarding leadership development, the SHG President Smt Sabitri Rout took initiative to train a group of members and out of them three have become trainers in mushroom cultivation. The nearby villages were covered in conducting training-cum-demonstration and now more women has come forward to take up the enterprise in a large scale. Gramya Bank, Tangi sanctioned a loan of Rs 2.5 lakh.

production and profit and use of leisure time.

**Tribal women in agriculture and allied activities:** The tribal women were engaged in crop and livestock production in a limited manner and depended on collection of non-timber forest products and wage labour for meeting the needs of food, fuel and fodder. Farm based occupations accounted for primary source of income for 55% tribal households while for 35% it was secondary occupation.

Participatory evaluation of low cost weaning mix formulated based on protein and vitamin rich sweet potato was carried out with 138 mothers/farmwomen from different villages. Ninety-seven participants accepted the technology.

#### **All India Coordinated Research Project on Home Science**

**Gender database:** The gender disaggregated data from 1,760 households from Haryana, Punjab, Karnatak, Rajasthan, Andhra Pradesh, Asom, Uttarakhand, Himachal Pradesh and Maharastra revealed that women have better control over homestead land and off home land.

**Drudgery reduction:** Drudgery involved in different farm operations was assessed and suitable tools and equipment including mechanical winnower, mat nursery, spreading tool, improved sickle, harvest bag, ring and piler cutter, improved hand weeders, hand rake, row seeder, neem seed pulverizer, clod breaker, fodder collector, paddy thresher, gopal khore, stubble collector, trishul weeder, cotton stalk puller, *jowar* harvester, groundnut stripping frame, maize sheller, naveen dibbler, bamboo hand hoe set, fertilizer broadcaster, wheel hoe, potato picker, saral khurpa, groundnut decorticator, cot bag, dibble, fertilizer trolley, improved cap and capron were introduced.

Ergonomic assessment of head load manager revealed that it was useful in relieving pressure on neck and back by shifting the load on heads to shoulder and back muscles.

**Ensuring food and nutritional security:** A base line study conducted to identify the food consumption pattern and nutrient intake of farm families, revealed that majority of children and adolescent girls have various grades of malnutrition. Iron deficiency anemia was prevalent among farmwomen and to address this iron rich product named as '*lehyam*' was formulated using underutilized green leafy vegetables like the leaves of amaranth, colocasia, kondhra, knoll khol, *bathua*, coriander, drumstick, phenugreek, mint, spinach, radish and curry leaves. The products are under trial and refinement. Nutrition education was imparted to women in 45 adopted villages covered by AICRP Centres in different states. Entrepreneurship development was promoted by

conducting training programmes on food processing and preservation and preparation of value added products from locally available foods. Nutrition gardens were established in 30 households from the adopted villages by each Centre.

Vocational skills among adolescent girls were promoted through training in crèche management, early childhood education, preparation of educational and play materials, nursery raising of vegetables and fruits, vermicompost preparation, identification of colour yielding medicinal plants and mushroom cultivation.

**Utilization of under-utilized agro- and animal based-resources:** Availability and prevalent practices of utilization of under-utilized agro- and animal- based fibre resources in different agro-climatic zones were accessed. This study included jute, pati doi, mesta, banana, coir, palmyra, babbar grass, paddy straw, hemp (Bast), cane, palm leaves, cotton (pod), moong, sunn, ambadi, linseed, dhentha, dadun, eri silk, muga silk, mulberry silk, deccani wool and fibre from goat and sheep hairs. All the fibers were used for textile purpose whereas, coir and palmyra were mainly used for ropes, floor mats, baskets, yarn, durrie, khes and bed sheets.

Natural dyes developed and standardized into natural dye colour concentrates. Natural dye printing procedure on silk was standardized. Preliminary tests were conducted to optimize the dye and mordant concentrations. Shade cards were developed and fastness test is in progress. Printed shade catalogues for silk samples by using the natural dye sources were developed for commercialization among artisans.

The degradable and non-degradable farm wastes such as sisal (*Agave americana*), which are grown as edge plant around the field and is usually thrown as agricultural waste, were identified as good raw

### **Visioning, policy analysis and gender in agriculture**

Training-cum-workshop on strengthening gender perspective in agricultural research and extension was organized for KVK professionals, wherein issues like gender concepts, gender in agriculture, gender analysis, work participation rate and importance of gender in agriculture were dealt with. Fifteen years gender-wise data on students' enrolment for UG and PG courses on various disciplines in the Orissa University of Agriculture and Technology indicated an upward trend in girls' enrolment — in agricultural subjects it increased from 37% in 1993-94 to 58% in 2009-10, and similarly in UG courses in veterinary and animal husbandry it increased from 7.6% in 1994-95 to 37.3% in 2009-10.

material for hand-made paper. Young men and women were imparted training on preparation of hand-made paper, envelopes, carry bags and big shopper bags from sisal fibre. Fibre was extracted from the plant by machine to ensure the quality of the fibre to suit the purpose of hand-made papermaking. The non-degradable farm waste such as polyethylene was utilized and value added products such as hand bags, rain coat, kids wear, diapers, bibs, baby sheets, baby-hood, refrigerator covers, table mats, apron, gloves and mattress were prepared by bonding process. Mode of pesticide application by women in different farming systems was studied, and protective clothing for each crop was designed.

Training modules were developed for alternate care of young children of agricultural labourers, quality learning environment for pre-schools and early intervention for prevention of developmental delays.

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