



Women Empowerment as a Component of Social Responsibility in Participatory Varietal Selection

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ABSTRACT

Rural women are key agents for achieving the transformation in terms of economic, environmental and social changes required for sustainable development. However, in developing countries women face a multitude of problems which an otherwise gender blind approach often fails to appreciate or even identify. The unpredictable social, political, economical and personal hardships they face daily are difficult to grasp. The participatory approaches find relevance in a way that they give appropriate weightage to gender differences and recognize the fact that needs of men and women are invariably different. The varietal development process also needs to be integrated into a holistic programme instead a compartmentalised activity where plant scientists, farming system experts, economists, extension persons, farmers and consumers are equally conscious to and contribute through their capacities towards development of varieties that meet the aspirations of small holder farmers in terms of productivity enhancement and livelihood security.

Key Words: Participatory varietal selection, Women empowerment, Rural appraisal.

INTRODUCTION

A critical appraisal of the various national and international breeding programmes reveals that even though the time period for product development has remained more or less same, the product life has declined significantly due to rapid changes in consumer preferences, climatic regimes, and pattern of distribution of stresses. Even more disgusting feature of recent plant breeding programmes has been that by the time a variety is developed and ready for release, it has lost its relevance resulting in little or absolutely no adoption. A major factor for such a situation is that entire process of variety development is centralised and breeder dictated with little or no involvement of different stakeholders especially the farmers.

Participatory approach to research is becoming increasingly recognized as a valuable component of technology generation for heterogeneous agricultural zones where poverty is common. Plant breeding has invariably targeted

favourable environments or a broad range of environments and in doing so has neglected small-holder farming systems with minimal input support as well as complex and heterogenous constraints. Plant breeding programmes, in which farmers select germplasm for their particular environmental niches, offer the hope of providing well-adapted varieties for the poor (Witcombe *et al.*, 2002). Participatory variety selection (PVS) has proved to be highly effective for providing improved varieties which combine agronomic performance and adequate quality traits, in a shorter time and at a lower cost (Joshi and Witcombe, 1996). However, few studies have measured the real effectiveness of decentralized breeding programmes managed by farmers from early selection generations, compared with centralized conventional breeding.

Based on the appraisal of twelve participatory plant breeding (PPB) programmes, Collaboration with farmers at the selection stage globally showed favourable results. Compared with formal

programmes managed on-station by professional breeders, the PPB programmes may seldom produce genotypes with significantly higher yields but more often cultivars with an improved balance of traits such as earliness, yield and grain quality can be identified. PPB has evolved as a socially responsible approach in order to address the growing concerns of loss of agro-biodiversity, loss of traditional landraces, suboptimal adoption rates and increasing marginalisation of small holder farmers due to widening of gap between technological interventions and their end users as well as technologies being unsuitable to the target farmers.

Over a period of time, the varietal development by plant breeders and farmers has got disconnected due to a host of political, institutional and technological reasons. (Cleveland and Soleri, 2002). This disconnection in the crop improvement system brings many risks because products may not reach the farmers, they may not suit farmers' needs and information may not feedback to breeders. Wide geographical separation of the parties and weak rural infrastructure exacerbates these problems. However, these are issues that are fundamental to the achievement of 'impact' of breeding by public sector institutions, a criterion which is being increasingly demanded by those who fund international agricultural research. Another view of this process of variety development is that the advent of a more technological agriculture has seen a progressive separation between crop improvement and the farming system it serves, i.e. away from the traditional 'farmer breeder' and towards research-based breeding. This presents no major problems provided the breeding environment and farming conditions are broadly similar, which is the case in most developed countries. However, where there is a wide gap between the research/selection environment and normal farming conditions, then there is a risk of selecting and releasing inappropriate varieties.

Women farmers in developing countries face a multitude of problems which an otherwise gender blind approach often fails to appreciate, or even identify. The unpredictable social, political, economic and personal hardships they face daily are difficult to grasp. Farm scientists

invariably have severe limitations on the amount of time they can spend with female farmers in the field or at any particular site. This often leads to an inappropriate use of resources and in many cases the failure of research efforts to meet their objectives.

Component of Social Responsibility in PPB

Conventional plant breeding is based on the ability of plant breeder to evaluate varieties for their fitness to different environmental conditions and little emphasis is laid on resources and constraints, market and consumer aspirations. Participatory varietal selection is a holistic approach that encompasses:

- Characterization of the target research site in terms of its biophysical, social and economic attributes and strengths and bottlenecks of farmers, roles of gender
- Understand the fitness of varieties to the existing farming systems and their importance in the livelihood systems
- Identification of landraces and traditional varieties grown by farmers according to specific land types
- Identification of farmers production constraints in adopting released varieties and understand selection criteria of farmers (gender, social groups, ethnicity)
- Identification of the livelihood opportunities of farmers that arise out of niche and comparative advantages
- Facilitating and assessing the levels and extent of farmer participation in decision making, setting breeding goals as well as evaluation of varieties through mother-baby trial approach.
- Facilitating the diffusion of Participatory varietal selection (PVS) lines in the community (scaling up) through strengthening of local seed systems.
- Assessing the impact of farmer/community participatory approach and adoption of lines evaluated through PVS by follow up studies and identify operational constraints.
- Addressing the gender specificities in relation to varietal development and dissemination.

Potential of Women in Farming

Rural women are key agents for achieving the transformation in terms of economic, environmental and social changes required for sustainable development but limited access to education, resources and role in decision making are among the many challenges they face, which are further aggravated by the global food and economic crises and climate change. Empowering them is key not only to the well-being of individuals, families and rural communities but also to overall economic productivity, given their large presence in the agricultural workforce worldwide.

In small holder situations in low income food deficient nations, about 75 per cent women work in agriculture. In developing countries, agriculture provides employment to about 38 per cent of women with the proportion as high as 66 per cent in South East Asia and 63 per cent in Sub Saharan Africa (Chaudhury *et al*, 2012). In rural India, about 84 per cent women are dependent on agriculture for livelihood, about 33 per cent formally participate in farming but only 10 per cent own land and 9.7 per cent are female headed households. Therefore, women as potentially important section of farm workers should have stake in decision making (Galie, 2013). In fact, women are key factors for on farm genetic resource conservation by mainstreaming conservation with production systems. In many cases, neither men nor the market can give better analysis of varietal characteristics as women are key to many operations such as harvesting, storage and cooking quality. An important bottleneck that hampers mainstreaming overall women participation in decision making in India has been the low literacy level of rural women. An estimated 52-75 per cent of Indian women engaged in agriculture are illiterate. Moreover, in all activities there is an average gender wage disparity, with women earning only 70 percent of men's wage. Additionally, many women participate in agricultural work as unpaid subsistence labour. The lack of employment, mobility and education render the majority of women in India vulnerable, as dependents on the growth and stability of the agricultural market.

In India, there are distinct male and female roles in the rural economy. Women and girls engage in a number of agro-oriented activities ranging from seedbed preparation, weeding, horticulture and fruit cultivation to a series of post-harvest crop processing activities like cleaning and drying vegetables, fruits and nuts for domestic use and for market. A disproportionate number of those dependent on land are women: 58 per cent of all male workers and 78 per cent of all female workers, and 86 per cent of all rural female workers are in agriculture. Female-headed households range from 20 to 35 per cent of rural households (widows, deserted women as well as women who manage farming when their men migrate). Although the time devoted by both women and men in agricultural activities may, in several communities and agricultural situations, be taken to be almost equal, women are dominant within the domestic tasks. Rural Indian women are extensively involved in agricultural activities, but the nature and extent of their involvement differs with variations in agro-production systems.

Factors for Disadvantaged Situation of Women

Women constitute approximately 70 per cent of the agricultural labour force, and perform more than 70 per cent of farm labour in less industrialised areas. A general pattern observed is that the poorer the area, the higher the contribution of women, largely as subsistence farmers who work on small pieces of land of less than 0.2 ha.

The problems of women in agriculture relate to resource ownership, decisions of resource use as well as land management issues in terms of agriculture and the support systems it requires. Barely are there any special programmes for enhancing women's agricultural skills and most of the training programmes have negligible female participation. While rural males have opportunities in construction, trade, transport, storage, and services, these are mostly denied to rural females.

Hence, opportunities must be created to enable them to acquire the skills necessary for entering these newly emerging opportunities. Gender inequality comes at a huge cost, not just for

women, but society as a whole. Discrimination against women can undermine economic development by limiting food security for families and preventing women and girls from achieving greater opportunities in education. In addition, many agricultural research and development programs ignore the needs and hopes of women farmers.

Issues in Gender Analysis

While we are designing the research programmes aimed at creating an empowering ambience for women in farming, it is essential to characterise our clientele. We should consider key issues of gender analysis in terms of the roles and responsibilities that women can be assigned in participatory research. It is essential to consider:

- a. **Role and Stage of participation:** What, when and where is women's contribution required and truly rewarding? This includes both on- and off-farm activities related to crop and animal husbandry especially the crop production management and postharvest operations as well as livestock.
- b. **Access to resources and decision control:** Who has access to or control over the resources? Access refers to those resources that may be available but women lack freedom of choice related to the timing or amount of use. Control means having decision-making authority concerning a resource.
- c. **Benefits accruing from new roles:** In many parts of the world it is the women who are responsible for food security, yet rural women farmers have little access to the benefits of research and innovation. Therefore an important issue is that what are the incentives and disincentives for managing or for making changes to them? The question of who benefits from these is closely related to roles and responsibilities, equity, and issues of access and control.

Gender Issues in Participatory Varietal Selection

Participatory rural appraisal

Participatory rural appraisal is the first level of effective contact with farmers. Participation of

farmers potentially serves two broad purposes both as an instrument of change, a process by which development initiatives can be more effectively implemented by incorporating people's ideas in the development plans, and development or research activities) as well as scaling up the participation stakeholders (By empowering the people by helping them to acquire skills, knowledge and experience to take greater responsibility as well as ownership for their development).

Empowerment and gender specificities

Empowering women in most developing countries with science is the key to achieving food security. We should communicate with them on what new plant varieties and new technology is being developed in order for them to improve their crop production. Participatory Variety Selection (PVS) should seek to mainstream the participation of woman in the breeding programs to capture the gender differential requirements in varieties in view of the fact that in many of the traits such as cooking, storage, quality, the opinion of women holds greater weight. This will enhance acceptance of a particular variety by a wider stakeholder group. It is being widely accepted that women are an important component of small holder farming system not only in terms of varied farm based operations in view of limited income avenues but also have better understanding of various varietal attributes such as storage, post harvest parameters etc, thereby empowering women by appreciating their aspirations will motivate proactive role of women in small holder farming. A large percentage of farmers in such systems use their own seeds, or seeds obtained from other farmers in their communities. Women play a key role in seed management that includes selection, cleaning, conditioning, preservation, sharing and use (Amri and Kimaro, 2010). It is therefore imperative that strategies and interventions to improve the "seed system" value chain must bring a woman into the equation.

During the period 2007–2009, ICARDA scientists and women farmers developed a conceptual framework to focus on social impact assessment (SIA) determining the empowerment aspect of the practice of Participatory varietal

selection with women in Syria for barley improvement through a network of women farmers that subsequently continued working and enhancing the initial effort (Galie, 2013). Women involvement in the determination of varieties adapted to their unique environments was considered an important achievement in an agricultural practice that has been dominated by male farmers. The researchers and women farmers held meetings and formed a network of women (due to cultural barriers) and they opened the door to the participation to young women farmers in the selection of varieties that were particularly suitable to their needs. The women's prevalent selection criteria included length and flexibility of plant stems, because they used straw to make handicrafts and sold them later at the market for needed income (this is in direct contrast to men's dominant consideration of yield). Another aspect of this work determined that the women selected varieties that possessed suitable culinary traits (cooking time, palatability, etc.) for them and their families. These qualities are not normally taken into account in relation to commercial varieties. The research also included the study of important changes in the world view of the women farmers and a change of attitude about their self-confidence/self-esteem. They possessed the knowledge and a unique understanding when selecting better crop varieties that are suitable to their environment and needs.

Case Study: PVS in Rajmash in Kashmir valley:

Rajmash is the most important summer season pulse crop that enjoys niche status in Kashmir valley. However, the crop has not received just attention. Since the crop is mostly grown under marginal low input hilly farming systems, that inherently suffer from marginality, fragility, inaccessibility and lack of adaptive capacity (Sofi *et al*, 2012). The women farmers have significant role in farm operations as well as cooking, storage and even trade. SKUAST-Kashmir initiated the participatory varietal selection in *Rajmash* in 2012 with the emphasis on revitalising the niche status of this valuable crop as well as help identify and disseminate better varieties that could meet the farmers criteria and are able to overcome the production constraints being faced by the farmers.

Structured questionnaires were designed to get an insight into the farmer's constraints, varietal specifications as well as opportunities associated with *Rajmash*. The rural appraisal was done with a greater focus on gender specificity in light of the important role of women in *Rajmash* based farming systems. In fact female respondents gave some valuable suggestions in case of traits such as culinary and cooking quality, threshability, storage while as men respondents were more interested in yield determinants, marketability and stresses. During 2012-15, the focal group discussions with females in PRA exercises as well as farm walks (Figures 1,2) indicated that females possessed adequate wisdom to identify constraints, varietal specifications as well as varietal ranking in paired or group comparisons (Sheikh, 2014; Umar Gul, 2015).

CONCLUSION

Plant breeders have, without any argument, significantly contributed to the agricultural and economic development of societies by creating a broad spectrum of improved varieties that have responded to prevailing demands of enhanced productivity, better nutrition, resilience and sustainability and consequently improved the profitability of farming and economic condition of farmers and rural communities. However, there is no denying the fact that the large chunk of economically deprived small holder farmers have somehow not reaped the benefits as compared to high input systems. One of the reasons identified for such differential impacts of plant breeding efforts across farming systems is the lack of consideration of the situations and needs assessment. Therefore, as socially responsible plant breeders, while we shape our participatory research strategies, we should keep in mind the fact that our clientele is largely small holder farmers many of whom are poor, have resource constraints, limited productive assets and are invariably net buyers of food, cannot buy food in case of higher prices, lack education and information, as well as represent the vulnerable segment of society that lack adaptive capacities to environmental, economic and political instabilities. There is an obvious polarisation in thought process in reorienting crop improvement

programmes from gender-blind to gender sensitive and participatory approaches find relevance in a way that they give appropriate weightage to gender differences and recognize the fact that needs of men and women are invariably different. In fact in some cases the varietal development programmes can be termed as gender-transformative in a way that they seek to promote more gender-equitable roles and engagements. Let us keep in mind that there is more to varietal development than mere research and academic output. The fruits of green revolution have not reached a large class of small holder farmers due to inaccessibility, heterogeneity of farming systems and inherent complexities. The varietal development process needs to be integrated into a holistic programme instead a compartmentalised activity where plant scientists, farming system experts, economists, extensionists, farmers and consumers are equally conscious to and contribute through their capacities towards development of varieties that meet the aspirations of small holder farmers in terms of productivity enhancement and livelihood security.

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