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Gender issues in pigeonpea cultivation in selected districts of Bihar

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ABSTRACT

A base line survey was undertaken in selected districts (Bhagalpur and Banka) of Bihar under the collaborative efforts of ICRISAT, Hyderabad and Bihar Agricultural University (BAU), Sabour during the year 2011-12. In each district a cluster of 3 villages from two different blocks were selected as adopted village and 3 villages from surrounding areas with comparable agro ecological and market condition were chosen to serve as control villages for conducting base line survey. Purposive multistage sampling technique based on probability proportion to farm size was employed for selection of sample farmers. From each of the adopted villages a sample of 30 farmers were interviewed and from each control villages a sample of 15 farmers were interviewed. Thus, a total of 135 from each district totaling to 270 farmers were interviewed. In this way a total of 180 beneficiaries from 6 adopted villages to whom the technology was disseminated and 90 non-beneficiaries from the control villages were surveyed purposively. The results of the study indicates that ownership of assets mainly belongs to male in both the districts, assets wise ownership on acquisition indicated that ownership of implement, machinery and livestock's were mainly belong to male in adopted villages, while decision relating to land, machinery and labour use are largely taken by men. Majority of decisions relating to household maintenance, education and marriages of children are jointly taken by both men and women. It is also reported that harvesting, pod separation and storage are mainly done by female, while selection of variety, land preparation and fertilizer application mainly done by men in both of districts.Thus, the present study shows the gender wise involvement in the various operations in pigeonpea cultivation. It involves the ownership of assets, decision making about use of assets, gender wise performance of operation, and family related decisions such as children's education and marriage. Men assert their supremacy and dominant in remaining household decisions even in social matters. Involvement of female is substantial in all the activities except application of plant protection chemical and irrigation. Intercultural operations, weeding, harvesting and threshing weremainlydone by women in both the districts of the state.

INTRODUCTION

Pulses occupy a unique position in Indian agriculture and play an important role in maintaining nutritional security. Red gram or pigeonpea [*Cajanus cajan* (L.) *Millspaugh*] is an important annual pulse crop, cultivated

for its sweet taste which is consumed as a popular staple diet in many countries (Chopra, 1982; Singh and Swarup, 1982 and Patil, 2015). India is the world's largest pigeonpea producer and grows over 77 per cent of the total world production (F.A.O., 2009 and Rani, 2011). Though, pigeonpea is also an important pulse crop grown in Bihar but area and production has been declining over the period from 1985 to 2012 by 33 thousand hectare (Ranjan Kumar, 1996 and GOB, 2013). It was estimated about 22 thousand hectare area and 42 thousand metric tons production during same periodhowever productivity has been improved as it has been estimated1901kg/ha (DES, 2015). In Bihar, there is a huge variability in area and production of pigeonpea during 2000-2009 has been observed, however the productivity during the same period is more stable which indicates that there is a scope to increase production potential of pigeonpea in the state if adequate policy measures are taken (ICAR, 2010). Women constitute approximately 50 per cent of population but in a male dominated society like India, they have very few ownership rights (Suhasini *et al.*, 2013). Therefore, it is important to recognize women participation in agriculture. It is utmost important due to the decrease in size in size of holding and male migrated from the farming, thus female have to recognize to do all type of activities in agriculture (Gopalan, 1995 and Bairwa *et al.*, 2015).In India, women play key rolein decision making as well as farm operations such as nursery preparation, seeding, uprooting, transplanting, fertilizer application, weeding, threshing, cleaning are under taken by women (Bala, 1992; Ali, 1995 and Bairwa *et al.*, 2015). The present study will analyse the gender wise participation in pigeonpea cultivation in Bihar state. Gender analysis includes the various roles of men and women in different activities, decision making, drudgery perceived, source of information, adoption of modern technologies and constraints perceived in production and marketing of pigeonpea cultivation. It also includes the participation of women in various activities carried out from land preparation to crop harvesting along with marketing of produce. In India, with special reference to Bihar, women play a predominant role in agriculture along with the men but they have very little command on the ownership right and decision-marking because ownership of asset was mostly belong to men due to fact that property has been transferred to next generation through son and son's son.

MATERIAL AND METHODS

The target districts and communities for conducting baseline survey on "pigeonpea cultivation in Bihar" under TL2 project was mainly based on the technology intervention (PVST of pigeonpea on farmer field) under the collaborative efforts of ICRISAT and Bihar Agricultural University (BAU), Sabour during the year 2011-12. In this regard two districts of Bihar were selected purposively. In each district a cluster of 3 villages from two different blocks were selected as adopted village and 3 villages from surrounding areas with comparable agro ecological and market condition were chosen to serve as control villages. Selection of control village would enable the team to do a comparable counter factual analysis in impact evaluation. In total, a cluster of 3 villages from adopted and 3 villages from control *i.e.* 6 villages in each district were identified for conducting base line survey.

Two districts (Banka and Bhagalpur) were selected for the study. The top three villages in Bhagalpur districts (close to Bihar Agricultural University, Sabour or research station were selected as adopted and control villages *i.e.* Khankitta, Rajpur and Jichho. The adopted villages in the Banka district were Kotwal, Kotwali and Surajkoshma and villages those served as control were Gurudwara, Padampur and Babura. Purposivemultistage sampling technique based on probability proportion to farm size was used to select the sample farmer for the interview. From each of the adopted villages,a sample of 30 farmers was interviewed and from each control villages, samples of 15 farmers were interviewed. Thus, a total of 270 farmers were interviewed from both the districts. In this way, a total of 180 beneficiaries from the 6 adopted villages to whom the technology was provided and 90 non-beneficiaries from the control village to whom the technology was not provided were surveyed purposively.

OBSERVATIONS AND ANALYSIS

In selected district, not a single women farmer had own land out of 270 farmers. In general, ownership by women is largely confined to women headed household in the study. Ownership of livestock was mainly with women. With respect to utilization of asset like implement, machinery and investment is also owned by male however in case of credit both male and female have responsibility to pay the loan. Due to male dominating society and

cultural belief, the opinion of women was not considered much in day to day decision-making activities. Decision relating to land, machinery and labour use are largely taken by men. Women have some share in decision-making related to livestock farming but all about household management such as education and marriages of children's, they took joint decisions. Due to their preoccupation with household work, woman took part in

Table 1 : Gender wise ownership of assets in selected districts in Bihar during 2011-12

Resource	Gender	Banka		Bhagalpur		Pooled	
		Adopted	Control	Adopted	Control	Adopted	Control
Land	Female (No.)	0	0	5	6	2.50	3.00
	Male (No.)	90	45	72	29	81.00	37.00
	Both	0	0	13	10	6.50	5.00
Livestock	Female (No.)	22	14	47	25	34.50	19.50
	Male (No.)	23	20	43	15	33.00	17.50
	Both	45	1	1	5	23.00	3.00
Credit	Female (No.)	0	0	0	0	0.00	0.00
	Male (No.)	0	1	2	0	1.00	0.50
	Both	90	44	88	45	89.00	44.50
Implements	Female (No.)	5	4	5	5	5	4.5
	Male (No.)	65	40	83	32	74.00	36.00
	Both	20	1	2	8	11.00	4.50
Machinery	Female (No.)	2	2	8	7	5.00	4.50
	Male (No.)	82	41	78	37	80.00	39.00
	Both	6	2	4	1	5.00	1.50
Investments	Female (No.)	0	0	1	2	0.50	1.00
	Male (No.)	0	0	1	0	0.50	0.00
	Both	90	45	88	43	89.00	44.00

Source: Field survey, 2011-12

Table 2 : Gender wise utilization of assets in selected districts of Bihar during 2011-12

Resource	Gender	Banka		Bhagalpur		Pooled	
		Adopted	Control	Adopted	Control	Adopted	Control
Land	Female (No.)	90	44	81	45	85.50	44.50
	Male (No.)	0	1	4	0	2.00	0.50
	Both	0	0	5	0	2.50	0.00
Livestock	Female (No.)	15	1	2	5	8.50	3.00
	Male (No.)	25	14	13	10	19.00	12.00
	Both	50	30	65	30	57.50	30.00
Credit	Female (No.)	4	3	30	12	17.00	7.50
	Male (No.)	11	12	58	13	34.50	12.50
	Both	75	35	2	20	38.50	27.50
Implements	Female (No.)	5	6	20	3	12.50	4.50
	Male (No.)	65	35	1	28	33.00	31.50
	Both	20	4	69	14	44.50	9.00
Machinery	Female (No.)	5	5	10	2	7.50	3.50
	Male (No.)	75	15	65	33	70.00	24.00
	Both	10	25	15	10	12.50	17.50
Investments	Female (No.)	1	5	1	5	1.00	5.00
	Male (No.)	24	10	9	5	16.50	7.50
	Both	65	30	80	35	72.50	32.50

Source: Field survey, 2011-12

less intensive agricultural activities compared to its counterparts. The selection of variety was mainly concentrated towards men, however some operation like hand weeding and storage were the major responsibility of women during the crop season.

In Table 1, gender analysis indicates that ownership of assets mainly belongs to male in both of districts, assets wise ownership on acquisition indicated that ownership of implement, machinery and livestock's were mainly belong to male in adopted villages However on credit acquisition both male and female were also agree to take loan from financing institutes.These results are quite similar as obtained under AICRP (2011).

Table 2 indicates the decision relating to land, machinery and labour use are largely taken by men. Women have a little edge only in case of decision relating to live stock but majority of decisions relating to household maintenance, education of children and marriages of children are jointly taken by men and women. It is due to maximization of family welfare and usually both/working together develop confidence and feel well equipped to take any risk associated with farming or non- farming activities (Simtowe, 2009).

Table 3 shows the performance of operation like harvesting, pod separation and storage are mainly done by female, whereas selection of variety, land preparation and fertilizer application mainly done by men in both of districts as indicated below. However, data pertaining to

Table 3 : Gender wise performance of operations in pigeonpea cultivation in Bihar

Operation	Gender	Banka		Bhagalpur		Pooled	
		Adopted	Control	Adopted	Control	Adopted	Control
Selection of crop	Female (%)	0	0	0	0	0.00	0.00
	Male (%)	96.33	100	100	100	98.17	100.00
	Jointly (%)	3.33	0	0	0	1.67	0.00
Selection of variety	Female (%)	0	4.44	2.22	0	1.11	2.22
	Male (%)	3.33	2.22	1.11	0	2.22	1.11
	Jointly (%)	96.66	93.33	96.66	100	96.66	96.67
Field cleaning	Female (%)	96.66	88.88	93.33	97.77	95.00	93.33
	Male (%)	3.33	2.22	4.44	2.22	3.89	2.22
	Jointly (%)	0	8.88	2.22	0	1.11	4.44
Land preparation	Female (%)	0	6.66	16.66	6.66	8.33	6.66
	Male (%)	97.77	93.33	82.22	93.33	90.00	93.33
	Jointly (%)	0	0	1.11	0	0.56	0.00
Sowing seed	Female (%)	85.55	66.66	97.77	97.77	91.66	82.22
	Male (%)	2.22	4.44	2.22	2.22	2.22	3.33
	Jointly (%)	12.22	8.88	0	0	6.11	4.44
Hand weeding	Female (%)	10	13.2	31.11	6.66	20.56	9.93
	Male (%)	1.11	20	1.11	0	1.11	10.00
	Jointly (%)	88.88	66.66	67.88	93.33	78.38	80.00
Fertilizer application	Female (%)	0	2.22	1.11	0	0.56	1.11
	Male (%)	93.33	77.78	97.66	97.77	95.50	87.78
	Jointly (%)	16.66	20	1.11	2.22	8.89	11.11
Plant protection measures	Female (%)	3.33	2.22	2.22	0	2.78	1.11
	Male (%)	96.66	97.77	97.77	100	97.22	98.89
	Jointly (%)	0	0	0	0	0.00	0.00
Harvesting main crop	Female (%)	0	2.22	0	0	0.00	1.11
	Male (%)	2.22	6.66	16.66	2.22	9.44	4.44
	Jointly (%)	97.77	91.12	83.34	97.77	90.56	94.45
Seed selection and storage	Female (%)	46.66	97.77	0	4.44	23.33	51.11
	Male (%)	4.44	2.22	1.11	15.56	2.78	8.89
	Jointly (%)	48.90	0	98.89	80	73.90	40.00

Source: Field survey, 2011-12

operation of these assets was concerned both were reported to maximum utilization of credit followed by land, livestock's and machinery under study. However women contribution is limited in case of other operation such as land preparation and plant protection. A study on gender analysis in pulses production conducted by IIPR (2012-13) and reported that the majority of decisions are taken jointly, except selection of variety, crop rotation, spray of weedicide, harvesting of crop and selling of produce, which are carried out by men belonging to medium category. Majority of women belonging to small and medium farmers category perform activities as land preparation (38%), seed sowing (60%), weeding (72%), harvesting (70%), plucking of pods (80%) and storage (68%), whereas men participate in weedicide spray (75%), land preparation (36%), harvesting of crop (52%) and selling of produce in market (80%). The *dal* making is exclusively done by the women. Majority (78%) of decisions are taken jointly except purchase of seeds, selection of varieties and selling of bulk produce in market. Women belonging to small category contribute 60 to 70 per cent in decision making on different aspects of pulse production. Majority of women perceived very high level drudgery in sowing (75%), hand weeding (100%), harvesting and threshing (70%), whereas men perceived very high level drudgery in land preparation, harvesting and threshing. The majority of women (90%) depend for information on their husbands related to agriculture, while men get information from KVK, market and neighbors and progressive farmers. It was expressed by the farmers that they get information from training programme and farmers' fairs organized by KVKs and state department of agriculture. Due to pre- occupied with many household activities, women play a least role in primary activities in agriculture compared to men.

Conclusion and policy implications:

The ownership of assets lay entirely with men in case of man headed households and ownership of non-land assets such as livestock and machinery by women is only a shade better than in the case of land assets in both (Banka and Bhagalpur) districts of state. Decision making about use of assets also revolve around men, women decide only when they are heading the households. Family related decisions such as children education and marriage are generally taken jointly. Men assert their supremacy and dominant in remaining household decisions even in social matters. The present study also shows the gender wise involvement in the various operations in pigeonpea cultivation. Involvement of female is substantial in all the activities except application of plant protection chemical and irrigation. Intercultural operations, weeding, harvesting and threshing were dominated by women. The work participation of women depends on the knowledge and skills. There is need toemphasize on the women education and entrepreneurship development in order to make empowered and awakedabout the opportunities available to them.

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