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Economic quantification of women's work in farming system: A case study of western plain zone of Uttar Pradesh

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ABSTRACT

Women play substantial roles in farming systems and are vigorously involved in farm and livestock management, but their contribution in farming systems is generally overlooked and undervalued which has reflected them as invisible workers. Considering the importance of women's role in farming systems, the present study was conducted to study the extent of work performed by women in pre-dominant farming systems of western plain zone of Uttar Pradesh (WPZ). A total of 60 farm women were selected as respondents through random sampling technique. The results of study reveals that the farm women spent their maximum time (2204 hr) in livestock management activities amongst which fodder collection (574 hrs)was found the most time consuming activity. In crop production, maximum time was spent in detrashing and detopping (290-276 hr) of sugarcane followed by weeding activities (104 hr). Hoeing and weeding (198 hr) were found most time consuming activitiy amongst horticulture.The farm women found solely engaged in household, post-harvest management and processing activities. The status of farm women reported to be low due to her limited access to economic resources, viz. agricultural land, animals, income from farm etc. The study has shown that on an averagea farm woman contributes nearly 5232 hr annually in the pre-dominant farming systems as family worker which has an estimated economic value worth ₹ 10,104,6 whereas, the farm women working as hired labourers contribute 1656 hours annually receives ₹ 33,007 which is 14 to 35% less than the government wage rate.

Key words: Economic quantification, Farming system, Farm women, Western plain zone

Women play significant role in farming systems but they are under-valued as farmers by both men and women at household and community levels (Galie *et al.* 2013). About 36 million women are engaged on farm operations as main workers, from sowing to harvesting, storing in bins and bags, processing, bringing fodder from field, chaff cutting, feeding cleaning of cattle, maintaining cattle shed, compost making etc. in addition to their household and child bearing responsibilities (Mugadur and Hiremath 2014). Despite, women play a significant role in the agriculture production system, most often they are neither legally nor socially recognized as farmers. Women grow half of the world's food and hold 43% share in the agriculture work force sector but have a very little or no ownership rights and men are reluctant to share control with them (Kavita and Sandeep 2014, Chauhan 2011, FAO, 2011). Government of India's current definition of "farmer" recognizes only those as farmers who have legal ownership over land and hence, their valuable contribution is ignored. Land ownership in general and women land ownership in particular play a major role in their credit worthiness. Considerable gender bias exists in the agricultural sector, both in terms of quantities of assets, agricultural inputs and resources that women control. They are unable to apply technology, inputs, credit and various agricultural services and hence, restricts them from reaping the avenues of agricultural growth (Javed and Parveen 2014).

Without land ownership, women mainly work as labourers on lands owned by male members of the family, or on land owned by others as casual wage earners. Thus, feminization of agriculture is more specifically feminization of agricultural labour. The gendered wage disparity is also very high. Women get 60 to 70% of the male wage for agricultural work. The difference between the wages earned by men and women are simply based on unquestioned discriminatory notions on capabilities of women and men. As a result of such deep rooted inequalities such as lack of title to land and or control of land, lower wages, non-existent or little inheritance rights and little influence over family owned resources and incomes, women in farming systems also face limited or no access to extension services and products like

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credit, water supply, seeds, etc. Additionally, as women are not expected to take leadership roles or participate in decision making, accessing knowledge, information and technical trainingis not considered important for them. On the whole, women face a disparaging situation, their contribution to farming system is indispensable but at the same time they face extremely adverse conditions that negatively affect their economic contribution. In order to have a deeper understanding of these issues the study was conducted with the following objectives: i) To study the extent of women's work participation in pre-dominant farming systems of western plain zone of Uttar Pradesh. ii) To understand nature of women'sownership and control over farm resources. iii) To quantifythe economic contribution of women as family workers and wage earners.

MATERIALS AND METHODS

The study was conducted in Meerut district of western plain zone of Uttar Pradesh (WPZ).Three representative blocks from the district, two village from each block and 10 families from each village was selected through random sampling technique. A total of 60 households were selected for the study. A pre-tested structured interview schedule was administered. Data was collected by personal interview method through face to face interaction with the farm men and women using interview schedule. The flow diagram of sample selection has been represented below:

Data was captured on socio-economic profile, extent of involvement, ownership and control over the farm resources and quantification of economic contribution of women working as unpaid family labour or hired wage workers in pre-dominant farming system of western plain zone.

The responses were tabulated and data were analyzed using descriptive statistical tools viz. frequency, percentage, mean and range. The hours of participation of farm women was converted into 'man days' by dividing total hours of participation by 8 (as 'manday ' is conceived as 8 hours of continuous work) to get the total mandays of participation by farm women per year. Then the man days were multiplied with the government wage rate as per NSSO 2015 resulted into farm women's annual economic value of work.

RESULTS AND DISCUSSION

The salient findings regarding women's work participation in pre-dominant farming systems, ownership, control over and access to resources and economic participation of women as family workers and wage workers are presented as follows:

Socio-economic profile of farm women

Majority of women farmers were illiterate (66.38%) followed by women with primary level of education (20%). Only 14% of farm women were having education up to and above 8th class. Farming (90%) was the major source of livelihood while 10% were found to be working as farm labours with or without landholding. Majority of women (36.66%) were belonged to small size of land holding (1-2 ha) followed by medium (2-4 ha) size of landholding (31.66%). About 28.33% women were belonged to marginal landholding size (> 1 ha), while 3.33% women were not having agricultural land (Table 1).

Extent of women's work participation

Data pertaining to women's involvement among work participation in predominant farming systems, viz. crop (sugarcane-ratoon-wheat/paddy-wheat-sugarcane/ sorghum-wheat-sugarcane) + dairy and crop (sugarcane-ratoon-wheat/paddy-wheat-sugarcane) + dairy + horticulture {vegetables(sorghum-potato-cucurbits)} is represented in Table 2. Among the crop production activities women found dominating in drying and cleaning of seed before sowing depicted by its highest mean value 25 followed by mechanical weeding, harvesting of crops and detrashing and detopping of sugarcane with the means values of 24.95, and 23.7 and 19.0, respectively. Further, it was noticed that all the household activities were independently done by women except water and fuel collection that are jointly done along with the men as family labour. Transplanting of paddy was found to be done by women wage workers (61.6%) though it was also found to be a joint venture in some of the families as family workers. Around 6.6% of women are doing transplanting activity independently as family workers. Weeding activity was jointly done as family workers (45.7%) as well as women wage workers (47.5%). Similarly, sugarcane detopping, detrashing and bundling activities found to be done jointly as family workers (35.5%) followed by solely done as women wage workers (16.9%). Around 8.4 % of women as family workers are independently doing weeding, sugarcane detrashing and

Table 1 Socio-economic profile of farm women of WPZ of UP

Variable	Category	No. of respondents	Percentage (%)
Age	Young	9	15
	Middle age	44	73.33
	Old	7	11.66
Family type	Nuclear	32	53.33
	Joint	28	46.66
Occupation	Farming	54	90
	Agricultural labours	1	1.66
	Farming and Farm labourers	5	8.33
Education	Illiterate	38	63.33
	Primary	12	20
	Middle	7	11.66
	Intermediate	2	3.33
	Graduate	1	1.66
Land holding size	Nil	2	3.33
	Marginal	17	28.33
	Small	22	36.66
	Medium	19	31.66

(n=60)

Table 2 Extent of women's work participation in pre-dominant farming systems of WPZ of UP

Activities	Independent participation of women as family worker	Joint participation of women as family worker	Independent participation of women as hired wage worker	Joint participation of women as hired wage worker	Mean (Range)
I. Household activities					
Food preparation	60(100)				25 (0-100)
Food serving	60(100)				25 (0-100)
Dish washing	60(100)				25 (0-100)
Washing of clothes	60(100)				25 (0-100)
Cleaning and housekeeping	60(100)				25 (0-100)
Collection of water	1(1.6)	58 (96.6)			24.55 (0-96.6)
Collection of fuelwood	2(10)	4(20)			7.5 (0-20)
II. Crop production activities					
Drying and cleaning of seed	60 (100)				25 (0-100)
Sowing				7(11.8)	2.95 (0-11.8)
Transplanting (Paddy)	3(5)	4(6.6)	37(61.6)	-	18.3 (0-61.6)
Sett cutting (sugarcane)		3 (5.0)		-	1.25 (0-5)
Sett carrying				5 (8.4)	2.1 (0-8.4)
Sett spreading				5 (8.4)	2.1 (0-8.4)
Sett planting and covering				5 (8.4)	2.1 (0-8.4)
FYM preparation		8 (13.5)			3.75 (0-13.5)
Carrying of manure (FYM)		11 (18.6)			4.65 (0-18.6)
Manure (FYM) application		12 (20.3)		4 (6.7)	6.75 (0-20.3)
Mechanical weeding	5 (8.4)	27 (45.7)	27 (45.7)		24.95 (0-45.7)
Detrashing and Detopping (Sugarcane)	5 (8.4)	21 (35.5)	9 (15.2)	10 (16.9)	19 (0-35.5)
Bundling (Sugarcane)		23 (44.2)	3 (5.7)	10 (19.2)	17.27 (0-44.2)
Harvesting	3 (5.0)	16 (27.1)		37 (62.7)	23.7 (0-62.7)
Carrying of crop from field to threshing place		8 (13.5)		31 (52.5)	16.5 (0-52.5)
Threshing and winnowing (Paddy)		12 (20.3)	32 (54.2)		18.62 (0-54.2)
III. Livestock					
Fodder Collection	3 (5)	34 (56.6)	11 (18.33)		19.98(0-56.6)
Fodder preparation,	6 (10)	45 (75)			21.25(0-75)
Feeding and watering to animals	12(20)	41(68.33)			22.08(0-68.33)
Shed cleaning	39(65)	17(28.33)			23.33(0-65)
Dung collection	48(80)	6(10)			22.5(0-80)
Dung carrying as head load	36 (60)	13 (21.66)			20.41(0-60)
Dung cake preparation	57(95)				23.75(0-95)
Milking	38 (63.33)	15(25)			22.08(0-63.3)
Care of infant animals	4 (6.66)	49 (81.66)			22.08(0-81.66)
IV. Horticulture					
Sowing		2 (3.33)		4 (6.66)	2.49 (0-6.6)
Hoeing and weeding	2 (3.33)	5 (8.33)	4 (6.66)		4.55(0-8.3)
Thinning and gap filling		4 (6.66)			1.65(0-6.6)
Earthing up (potato)		-	7(11.66)		2.9(0-11.6)
Picking of vegetables/fruits		8 (13.33)	2 (3.33)	1 (1.66)	4.56(0-13.3)
Carrying of fruits and vegetables to home		2 (3.33)			0.82(0-3.3)
V. Post-harvest management					
Grading (fruits/vegetables/cereals)	60 (100)				25 (0-100)
Cleaning (fruits/vegetables/ cereals)	60 (100)				25 (0-100)

Contd.

Table 2 (*Concluded*)

Activities	Independent participation of women as family worker	Joint participation of women as family worker	Independent participation of women as hired wage worker	Joint participation of women as hired wage worker	Mean (Range)
Sieving (pulses/cereals/spices)	60 (100)				25 (0-100)
Milling/grinding (spices)	60 (100)				25 (0-100)
Peeling and cutting vegetables/ fruits	57 (95)				23.75 (0-95)
Drying (vegetables/fruits)	54 (90)				22.5(0-90)
Storage for consumption	60 (100)				25 (0-100)
Processing of fruits/vegetables at household level					
Pickles	57 (95)				23.75 (0-95)
RTS	50 (83.3)				20.82 (0-83.3)
Chips	7 (11.6)				2.9 (0-11.6)
Processing of milk at household level					
Curd, butter, buttermilk, ghee, khoya, sweets	54 (90)				22.5 (0-90)
Packaging of preservative products					
Pickles	57 (95)	-	-	-	23.75 (0-95)

(n=60) *Values in parenthesis represent percentage involvement in each activity.

detopping activities. Harvesting (all crops), was found to be done jointly as wage workers (62.7%) and (27.1%) as family workers. Threshing and winnowing of paddy was found to be done solely by women wage workers (54.2%) followed to be done jointly or solely as family workers. For some of the activities like sett cutting of sugarcane, FYM preparation, carrying and application to the field few amount of women work participation as family workers was found in conjunction with their male counter parts. Also, sett carrying, spreading, planting and covering activities in sugarcane production were done by the women wage workers.

In livestock, women work participation was found to be significant in all the activities. However, maximum involvement was noticed in dung cake preparation described by its highest mean value 23.75 followed by shed cleaning and dung collection milking with the mean values of 23.33, 22.5, respectively. Further, it was observed that fodder collection was jointly done by women along with their male counterparts as family workers (56.6%) followed by women wage workers. Fodder preparation was again found to be jointly done (75%) followed to be independently done by women as family workers (10%). Similarly, in majority of families feeding and watering to animals (68.33 %) including care of infant animals found to done jointly (81.6%) followed by women working as independent family labour. Whereas, milking, dung collection and carrying dung as head load was found to be done independently by women as family workers followed to be done jointly by women in conjunction with their male counterparts. Dung cake preparation found to be solely done by women as family workers.

In horticultural activities women's work participation was found maximum in picking of vegetables depicted by its mean value 4.56 followed by hoeing and weeding (mean value 4.55). Further, it was found that hoeing and weeding activities are independently done by women as family worker amongst 3.3% of families whereas in 8.33% families it was found to be done jointly. However in 6.66% families it was found to be practiced by hired wage workers. Other horticultural activities, viz. picking of vegetables, thinning and gap filling were found to be done jointly by family workers as well as women wage workers, whereas earthing up in potato was solely being done by women wage workers. Sowing of seeds was found to be a joint activity which has been done as family worker and wage worker.

Activities related to post-harvest management of crops, fruits and vegetables found to be independently done by women as family worker. Women were solely responsible for storage of crop produce and were also having the knowledge regarding natural disinfectants for safe storage, e.g. they were using neem leaves, matchsticks for storage of wheat grains and rubbing the paddy with hands using mustard oil. Women were found involved in processing for household purpose. They process pickles using mango and chilly and used to pack into glass jars. Also, they process chips using potato as well as RTS (ready to serve) by using mango and lemon. Women of western plain zone of Uttar Pradesh were immensely involved in processing of milk into curd, butter, buttermilk, *ghee, khoya* and sweets for household consumption (90%).

Ownership and control over uses and access to farm resources

Ownership and control over the land resources was in the hands of men being the head of the household. It was found that maximum land including orchard land found to be owned by the men, whereas only on an average 0.11 ha land was owned by women that are due to female-headed

Table 3 Women's ownership and control over the land resource in pre-dominant farming systems of WPZ of Uttar Pradesh.

Average cropping area (ha)		Average orchard area (ha)		Leased in land area (ha)	
Men ownership	Women ownership	Men ownership	Women ownership	Men's control	Women's control
1.42	0.11	0.008	Nil	0.45	Nil

(n=60).

families because of the death of their husbands. Also, some women owned fraction of land as 2% rebate has been given by the government on registration of land under the name of women. Land taken on lease for cultivation found under men's control (Table 3). The reason for lack of access of women to land is culture, i.e., that it is not considered culturally appropriate for women to inherit the property.

Women's ownership and control over uses of the resources was found on few of the resources in female headed families (Fig 1 a, b). Women owned only 5% of agricultural land and irrigation resources as sole ownership being head of the family, whereas they owned 11% agricultural land, 6% livestock (cow/buffalo) 8% agricultural implementsand 3% irrigation resources as joint ownership with male members (Fig 1 a). 11% of women were having control over uses on irrigation resources whereas 5% on loan. This was observed

Table 4 Economic contribution of farm women working as family workers in pre-dominant farming systems of WPZ of Uttar Pradesh.

Activities	Time spent (hours)/ year	Economic value of work (₹)
Household activities		
Food preparation	290	5727[1]
Food serving	80	1580[1]
Dish washing	97.5	1925[1]
Washing of cloths	180	3555[1]
Cleaning and housekeeping	195	3851[1]
Collection of water	150	2962[1]
Collection of fuel wood	40	846[2]
Total	1032.5	20446
Crop production activities		
Drying and cleaning of seed	12	254[2]
Transplanting (Paddy)	96	2067[3]
Sett cutting (sugarcane)	24	508[2]
Carrying of manure (FYM)	96	3173[2]
Manure application	12	254[2]
Mechanical weeding	104	2239[3]
Detrashing and Detopping (Sugarcane)	276	5838[2]
Bundling (Sugarcane)	13	275[2]
Harvesting	88	1957[4]
Carrying of crop from field to threshing place	33	698[2]
Threshing and winnowing (Paddy)	54	1200[4]
Total	862	18463
Livestock[5]		
Fodder collection	574	10005
Fodder preparation,	240	4183
Feeding and watering to animals	180	3137
Shed cleaning	250	4357
Dung collection	275	4793
Dung carrying as head load	250	4357
Dung cake preparation	186	3242
Milking	89	1551
Care of infant animals	160	2789
		Contd.

Table 4 (*Concluded*)

Activities	Time spent (hours)/ year	Economic value of work (₹)
Total	2204	38414
Horticulture[6]		
Sowing	60	1238
Hoeing and weeding	198	4085
Thinning and gap filling	54	1114
Earthing up (potato)	32	660
Picking/harvesting of vegetables/fruits	96	1981
Carrying of fruits and vegetables to home	96	1981
Total	458	11059
Post-harvest management[2]		
Grading (fruits/vegetables/cereals)	42	888
Cleaning (fruits/vegetables/cereals)	50	1057
Sieving (pulses/cereals/spices)	12	254
Milling/grinding (spices)	14	296
Peeling and cutting vegetables/fruits	12	254
Drying (vegetables/fruits)	12	254
Storage for consumption	13	275
Total	155	3278
Processing of fruits/vegetables at household level[2]		
Pickles, RTS, Chips	76	1607
Processing of milk at household level[5]		
Curd, butter, buttermilk, ghee, khoya, sweets	439	7652
Packaging of preservative products[2]		
Pickles	6	127
Grand total	5232	1 01046

[1]Economic value of ₹ 158.00/- for eight hours sweeping and cleaning work for women of UP, [2]Economic value of ₹ 169.23 for eight hours general agriculture work for women of UP , [3]Economic value of ₹ 172.25 for eight hours sowing (planting)/ transplanting/weeding work for women of UP, [4]Economic value of ₹ 177.92 for eight hours harvesting/threshing/winnowing work for women of UP, [5]Economic value of ₹ 139.45 for eight hours animal husbandry work for women of UP, [6] Economic value of ₹ 165.09.45 for eight hours horticulture work for women of UP, (Source: NSSO 2015).

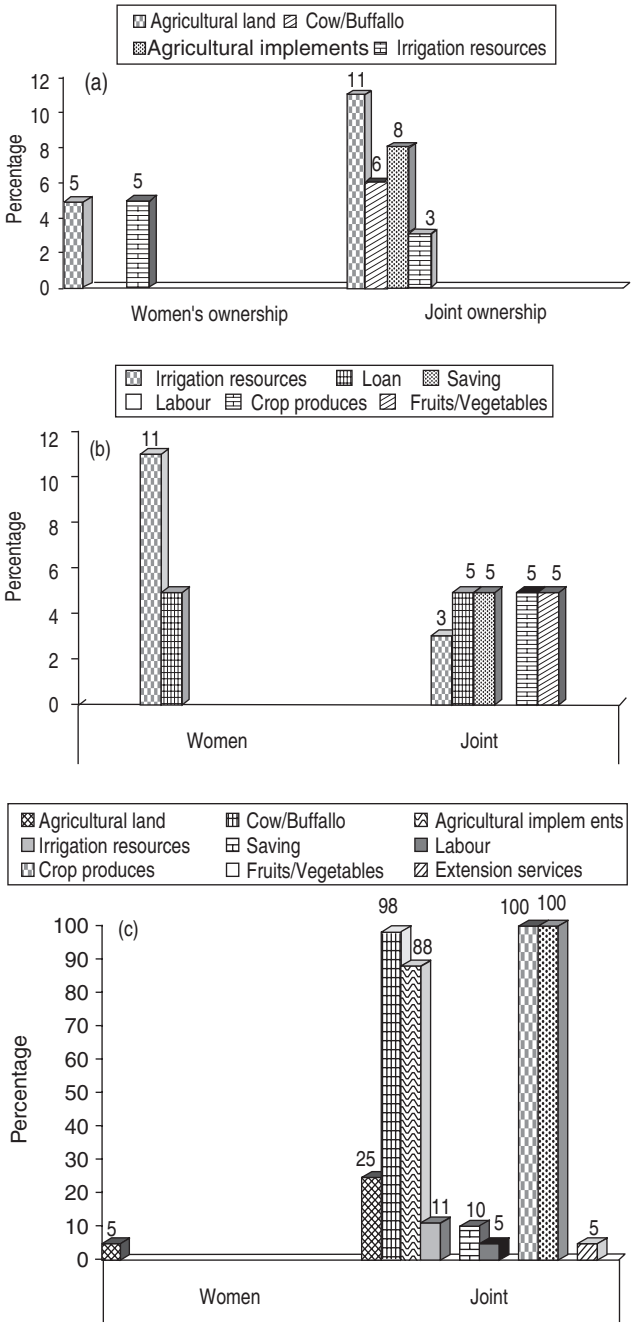

Fig 1 Nature of women's ownership, control over uses and access to farm resources in pre-dominant farming systems of WPZ of Uttar Pradesh (1a ownership), (1b control over uses) (1c access to uses)

in female headed families. Very few amount of joint control was also observed on savings, labour, crop produces, fruits and vegetables (Fig 1 a). Joint access of women to some extent on resources was observed, i.e. on cow/buffalo, agricultural land, agricultural implements and crop produces. Very little access of women to extension services, labour, and savings was observed. In spite of women's belonging to female headed families their accessibility to some of the resources was not found viz. seeds, fertilizers, insecticides and transportation (Fig 1 c). This is due to the reason that women were not involved in the activities related these resources."Lands are for men and they only can use it as they want. They know more about fertilizers, pesticides and when to do what in farming so they can only make right decisions" (female farmer, Kharkhoda block, 05.06.2014). Furthermore, accessibility to services, viz. credit and training was not observed. This is due to the absence of ownership over the land and livestock as well as sociocultural barrier coupled with lack of understanding of programs and schemes. Men have the control and they should decide, they don't like it when women work and control, women can only help. They are the breadwinner for the family. This is the way men think, (female farmer, Jani block, 29.05.2014). Kumar and Prajapati (2011) reported that women performed almost all the activities in relation to animal husbandry and dairying but their voices were suppressed by their male counterparts during decision making of sale and purchase of animals. Further, they are having very little access to saving though in few households they keep record of money but without taking permission of their husbands they are not allowed to spend the money (Fig 1 c). We have to ask for even ₹ 10 for going to market, if they refuse we can't go. (female farmer, Jani block, 24.05.2014). Ideology, religion, economics and culture are the limiting factors in terms of the provision of gender specific services and opportunities (Moser 1989).

Economic contribution of farm women

The 'economic contribution' is conceived as the annual economic value of work generated by the farm women themselves by participating in agriculture as well as working as hired labour in the pre-dominant farming systems of WPZ of UP. From Table 4 it can be observed that the farm women participated for 5232 hrs annually in the pre-dominant farming systems out of which maximum time was spent in livestock activities (2204 hrs) followed by household, agricultural, post-harvest management and horticultural activities. Fodder collection was most time consuming activity found amongst livestock followed by dung collection, dung disposal (carrying as head load of 40-45 kg weight) and shed cleaning. Sugarcane detrashing and detopping were found as the most time consuming activities followed by weeding, paddy transplanting and carrying of FYM among agricultural activities. Kavita (2014) reveals that women's contribution in sugarcane is only 8.3% even though they spend about 65% of their labour time in sugarcane cultivation. Hoeing and weeding was found the most time consuming activity followed by picking and carrying vegetables/fruits to home amongst horticultural activities. Food preparation and processing of milk into curd, butter, buttermilk, *ghee, khoya*, sweets found to be the most time consuming activities among household work and post-harvest management and processing activities respectively.They contribute around ₹ 20 446, ₹ 18 463, ₹ 38 414, ₹ 11 059 and ₹ 12 664 / - through participating in household, agriculture, livestock, horticulture, post-harvest management and storage activities respectively. A total economic value of work ₹ 10 104 6 was observed as an annual economic contribution by farm women

Table 5 Economic contribution of hired women as casual paid labour

Activities	Time spent (hours)/year	Actual wage received (₹/day)	Govt. wage rate (₹/day)	Annual wages paid	Economic value of work(₹)	Percentage difference
Crop production activities						
Sowing	60	130	172.25	975	1292	24.53
Transplanting (Paddy)	96	130	172.25	1560	2103	25.82
Sett carrying, spreading, planting and covering	24	120	172.5	360	517.5	30.43
Manure application	12	120	169.23	180	254	29.13
Mechanical weeding	104	130	172.25	1690	2239	24.51
Detrashing, detopping, cane cutting and bundling	290	120*	169.23	4350	6134.5	29.09
Harvesting	88	117**, 140***	177.92	1287, 1540	1957	34.23, 21.30
Threshing and winnowing (Paddy)	54	120	177.92	810	1200	32.5
Livestock activities						
Fodder collection	574	120****	139.45	8610	10005	13.94
Horticulture activities						
Sowing	60	120	165.09	900	1238	27.30
Hoeing and weeding	198	120	165.09	2970	4086	27.31
Earthing up (potato)	32	120	165.09	480	660	27.27
Picking of vegetables/fruits	96	120	165.09	1440	1981	27.30
Total	1656	-		25258	33007	-

*30 ₹ / quintal detrashing, detopping, cane cutting and bundling is being given that generally takes two hours, ** 1 quintal wheat has been given for harvesting of 0.26 hectare field. *** 30 kg, of wheat has been for harvesting 0.06 ha field. Current price of wheat = 1,400 ₹/Quintal, ****10 kg fodder/120 ₹ has been given for fodder collection. Current price of green fodder=1,200 ₹/quintal.

as family worker in the pre-dominant farming systems of western plain zone of U.P.

Pertaining to the data presented in Table 5, it was found that a total of 1656 hrs in a year a hired woman was working as casual paid labour who contributed ₹ 33 007 in pre-dominant farming systems but actually she got ₹ 25 258 for her participation in farming systems. Findings are similar to the results reported by Moktanand Mukhopadhey (2012) who found mean annual participation hour of farm women in agricultural activities was 1366 hrs who made economic contribution upto ₹ 15 000. Another study conducted by Kavita and Sandeep (2014) resulted into ₹ 46,412 and 57,427 as farm women's share in household income of Muzaffarnagar and Baghpat from all the economic resources.

Major difference was noticed in the economic value of work and the annual wages actually paid to the hired women working as casual paid labour. Around 32% difference in wages paid was observed in threshing and winnowing activities (paddy) followed by harvesting (21 to 34%) for all crops. Around 29-30% difference in wages paid was observed in manure application (all crops), sett carrying, spreading, planting and covering, detrashing, detopping, cane cutting and bundling activities (sugarcane production). A substantial amount of difference in horticultural activities was observed in actual wages paid to the hired labour and economic value of work (27%).

It has been concluded from the present study that contribution of women in farming systems is often overlooked in management, economics and in policy decision. Here, women's involvement is quantified. Their roles range from production to processing activities irrespective of the household work. In the pre-dominant farming system of western plain zone maximum involvement of farm women was found in livestock, household, crop production and milk processing activities depicted by their time involvement. Maximum time was spent in livestock management activities (2204 hr/year). Amongst these, collection and preparation of fodder were the most time consuming activities (574 hr/year) followed by dung collection and its disposal (275 hr/year). Among crop production activities maximum time was spent by farm women in sugarcane detrashing and detopping, activities (276 hr/year) Food preparation (290 hr/year) and milk processing (439 hr/year) were the most time consuming activities among household work and processing activities respectively. A farm woman contributes nearly 5232 hr annually in the pre-dominant farming systems as family worker which has an estimated economic value worth ₹ 101 046. Further, in case of hired women workers the percentage difference between government wage rate and actual wage received was found 14 to 35%. Farm women have no access to training and extension services. Women farmers had limited access to economic resources,

viz. agricultural land, animals, income etc. Farm women have found very little access to training and extension services (5%). Farming systems research and extension must consider multiple roles and time involvement of women in farm enterprise. Quantifying and fully recognizing this contribution will promote the empowerment of women, increase their participation in management, stewardship, and address issues of food security and development.

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