

THE UNIVERSITY OF CHICAGO
LIBRARY
540 EAST 57TH STREET
CHICAGO, ILL. 60637
1974

PN/AAAT-973

Survey Results of Labor and Power
Requirements for the Predominant
Crops and Cropping Patterns at The
Cropping Systems Research Sites

by

B.R. Gurung

R.B. Shrestha

R.K. Subba

and

K.D. Sayre

His Majesty's Government
Ministry of Agriculture
Department of Agriculture
Integrated Cereals Project
Cropping Systems Program

TABLE OF CONTENTS

<u>TITLE</u>	<u>PAGE NO.</u>
List of Tables	11
List of Appendices	111
Crop Abbreviations	1v
Introduction	1
Methodology	3
Discussion	4
Tables 1 - 16	7 to 22
Appendices 1 - 59	23 to 81

(ii)

LIST OF TABLES

<u>TABLE NO.</u>	<u>TITLE</u>	<u>PAGE NO.</u>
1	Description of Cropping Systems Sites in Nepal	7
2	Labor and Power Estimates for Crops Surveyed at Khandbari	8
3	Labor and Power Estimates for Predominant Cropping Patterns at Khandbari	9
4	Labor and Power Estimates for Crops Surveyed at Sukchaina	10
5	Labor and Power Estimates for Predominant Cropping Patterns at Sukchaina	11
6	Labor and Power Estimates for Crops Surveyed at Bahuwari Tube-Well	12
7	Labor and Power Estimates for Predominant Cropping Patterns at Bahuwari Tube-Well	13
8	Labor and Power Estimates for Crops Surveyed at Ratna Nagar	14
9	Labor and Power Estimates for Predominant Cropping Patterns at Ratna Nagar	15
10	Labor and Power Estimates for Crops Surveyed at Pumdi Bhumdi	16
11	Labor and Power Estimates for Predominant Cropping Patterns at Pumdi Bhumdi	17
12	Labor and Power Estimates for Crops Surveyed at Chauri Jahari	18
13	Labor and Power Estimates for Predominant Cropping Patterns at Chauri Jahari	19
14	Labor and Power Estimates for Crops Surveyed at Lele	20
15	Labor and Power Estimates for Predominant Cropping Patterns at Lele	21
16	Comparison of Labor and Power Requirements and Costs for the Rice-Wheat-Fallow Cropping Pattern in the Cropping Systems Sites	22

LIST OF APPENDICES

<u>APPENDIX NO.</u>	<u>TITLE</u>	<u>PAGE NO.</u>
1 - 9	Individual Crop Survey Results for Khandbari	23 to 31
10 - 14	Individual Crop Survey Results for Sukchaina	32 to 36
15 - 23	Individual Crop Survey Results for Bahuwari Tube-well	37 to 45
24 - 35	Individual Crop Survey Results for Ratna Nagar	46 to 57
36 - 45	Individual Crop Survey Results for Pumdi Bhumdi	58 to 67
46 - 53	Individual Crop Survey Results for Chauri Jahari	68 to 75
54 - 59	Individual Crop Survey Results for Lele	76 to 81

CROP ABBREVIATIONS

Ch	= Chickpea
Dh	= Dhaincha (For Green Manure)
DSR	= Direct Seeded Rice
FM	= Finger Millet
M	= Maize
Mg	= Mungbean
Mu	= Mustard
MxC	= Mixed Crops (Lentil, Linseed and Mustard)
R	= Rice
S	= Soybean
W	= Wheat
F	= Fallow

1-

SURVEY RESULTS OF LABOR AND POWER REQUIREMENTS FOR THE PREDOMINANT
CROPS AND CROPPING PATTERNS AT THE CROPPING SYSTEMS RESEARCH SITES

By : B.R. Gurung^{1/}, R.B. Shrestha^{1/}
R.K. Subba^{1/} and K.D. Sayre ^{2/}

INTRODUCTION

The National Cropping Systems Program (CSP) was initiated in Nepal in 1977 within the Division of Agronomy of the Department of Agriculture as part of the HMG/USAID - Supported Integrated Cereals Project. Within the first year of establishing the CSP, four Cropping Systems Research sites in the mid-hills (Pumdi Bhumdi) in Kaski District, Khandbari in Sankhuwasabha District, Lele in Lalitpur District and Chauri Jahari in Rukum District) and two sub-locations in the Terai in Parsa District (Sukchaina - Rainfed and Bahuwari Tube-Well - Irrigated) were in operation. In 1980, an additional site was initiated at Ratna Nagar in Chitwan District in the Inner Terai. All sites are currently in operation and Table 1 presents a general description of each site.

The CSP has followed a research strategy to identify improved and appropriate technologies suitable for farmer adoption within well-defined socio-agroclimatic situations. The approach has involved biological scientists (mainly agronomists), socio-economists and farmers working together as a team in farmers fields^{3/}. It has tried to develop a Farming Systems Perspective to understand the various enterprises that are important to the farm households at each cropping systems site. With this understanding, the approach has allowed both farmers and researchers to evaluate new crop production technologies in the context of how these technologies interact with the farm household resources requirements for the other important farm enterprises.

^{1/} - Socio-Economists of ICP Socio-Economic Unit

^{2/} - Cropping Systems Agronomist, WI/Nepal

^{3/} - See the IRRI publication "A Methodology for On-Farm Cropping Systems Research" by H.G. Zandstra et al for a description of the research methodology that has been followed.

One of the main socio-economic contributions to the CSP has involved labor and power considerations for crop production. Answers to such questions as : "Who in the farm household performs the various crop production tasks, how much time is involved, what is the role of hired or exchanged labor and power and what are the costs of labor and power ?" have been important areas of research by the socio-economists.

This report attempts to provide some information to help answer these questions. It presents the results of surveys that were conducted at each cropping systems site to develop estimates of the labor and power requirements for the predominant crops that have been studied at each site. The surveys were conducted to allow estimates of the contribution of male and female workers to the different tasks involved in the production of the surveyed crops. Estimates of the costs of production for each crop are made based on the prevailing wages for hired labor at each site. These estimates are useful to allow researchers to assign economic cost values involved in the production of different crops to facilitate comparisons between technologies. Since most farms in Nepal, however, provide much of the required labor and power from their own households or through organized exchanges of labor or power with their neighbours, these cost estimates may bear only a nominal relationship with farm decisions concerning which crops to plant and which practices to follow. Farmer reaction or adoption decisions are the best measures of the utility of new production technologies. Economic comparisons of production technologies are simply one of a spectrum of tools that researchers can use to make design decisions.

This report should be viewed by the reader as a reference report or more simply as a data base. The original purpose for conducting the surveys was to improve upon the estimates of labor and power costs that the CSP uses to calculate the total costs of production for different crops and cropping patterns.

However, as the data coming from the surveys were evaluated, the consensus of the CSP was that others could benefit from having access to the survey results. Those that are interested in the labor and power cost estimates for different crops and cropping patterns can easily extract that information. Those interested in comparing labor and power requirement for

specified crops across sites can generate this information. Finally those interested in the roles of men and women for different agricultural tasks for different crops or different sites may find the report valuable.

The remainder of this report, therefore, describes how the surveys were conducted and then how the survey results are organized in the adjoining tables and appendices. No detailed discussion of the results is given or is needed. The reader is free to utilize the data as best fits individual needs.

METHODOLOGY

It is recognized that surveys by interviews that depend upon recall can often lead to dubious results. The methodology, which relied on interviews concerning labor and power requirements, which was carried out at each cropping systems site tried to minimize this problem.

A team of two or three experienced interviewers went to each site for the survey. They worked closely with the CSP staff based at each site to select farm households where the interviews were conducted. Ten farmers were identified who were growing each crop to be surveyed in the appropriate cropping pattern and land type. Each farmer was asked to select one of his fields where the crop was normally grown. Thereafter, the interview questions relating to how much labor and power was required for the crop and who normally participated in each task were asked specific to that field. Other household members were encouraged to provide additional information. The area of each specific field, if not accurately known by the farmer, was measured by the interviewers so that task time estimates could be converted to a common unit area (ha). The estimates obtained from the ten farms for each crop were scrutinized and the extremes, both high and low, were thrown out and averages with standard deviations were calculated for the results of the remaining interview responses to provide the labor and power estimates for each crop. Responses were usually in days or hours per unit area depending on the tasks involved. Responses in hours were converted to days/ha using eight hours equivalent to one working day.

Where power was provided by tractors (in the Terai sites) or irrigation by pumps, estimates were obtained which should reflect the normal use for the sites. In these some sites, bullock carts were commonly used for

transporting compost to fields and the estimates for this should also represent the normal use for the sites.

Labor involved with seed bed establishment and irrigation were extremely difficult to estimate and have not been included for some sites.

Costs of labor and power were estimated based on the prevailing wage or hire rates. In some cases this varied by time of year, task and gender. Where possible, these have been taken into account in the cost estimates. Where wages are normally paid "in kind", estimates of the monetary value of the "in kind" payment are used based on prevailing market prices.

In most situations where labor is hired or exchanged, the owner provides either meals or tiffin or both to the workers. The survey tried to determine what the normal practice was for each task for each crop in each site and assess this "indirect cost".

The survey results were compared to some earlier estimates of labor and power requirements for some selected crops that had been obtained by direct observation and monitoring with stop watches. The survey results compared favorably and offer a more rapid method to estimate labor and power requirements than stop-watch monitoring. However, care must be exercised and well-trained interviewers are needed.

DISCUSSION

As mentioned earlier, this report should be viewed by the reader as a reference or data base to provide estimates of labor and power requirements and costs for the important crops and cropping patterns found at the different cropping systems sites.

The data are presented first in a series of tables with two tables for each site that first present the summarized estimates of labor and power requirements and then costs for the crops surveyed at each site and second the same for the predominant cropping patterns. (Please refer to the List of Tables for the respective table page numbers pertaining to each site.)

In addition, a large number of appendices included which present the labor and power requirement for each crop with a break down of the relevant

agricultural tasks involved with each crop and the involvement of men, women or both for each task. Cost estimates for each task are also included. (See the List of Appendices for page numbers of the appendices relevant to the crops surveyed at each site.)

There was only one surveyed cropping pattern that was common to all of the cropping systems sites. This was the R-W-F pattern. Table 16 presents a comparison of the labor and power requirements and their costs for this pattern at each site.

Some interesting generalizations can be drawn from Table 16. The relative labor contribution by women for the R-W-F cropping pattern is considerably higher in the four mid-hill sites, Pumdi Bhumdi, Khandbari, Chauri Jahari and Lele as compared to the Terai sites at Sukchaina and Bahuwari Tube-Well and the Inner Terai site at Ratna Nagar. This reflects the observation that women in the Terai sites tend to become involved with agricultural tasks from planting onward and do not participate to a great extent in land preparation and compost transport. Women in the hills generally participate in all tasks except plowing and devote much time to carrying compost. Women in Lele, for example, contributed more than twice as much labor to the R-W-F pattern as men.

Concerning bullock use, Bahuwari Tube-Well, Khandbari, Sukchaina and Chauri Jahari had the highest number of days required for bullock power as compared to the other sites. The low use of bullocks at Pumdi Bhumdi reflects their minimal for land preparation for wheat because of shortage of available bullocks and tight turn-around time between the rice and wheat crops. The result is generally poor land preparation for the wheat crop which contributes to low yields.

In Lele, the low use of bullock power reflects the prevailing religious belief forbidding the use of bullocks for plowing. Much land is prepared manually.

The moderate use of bullocks at Ratna Nagar is involved with power substitution for land preparation and threshing by tractors, especially for the wheat crop. There was also nominal use of tractors for land preparation for wheat at Sukchaina.

Bahuwari Tube-Well was the only site where accurate irrigation pump costs could be obtained. Pumps are also used occasionally at Ratna Nagar and Sukchaina but on an "as need" emergency basis.

Bullock carts are normally used to transport compost to fields in the Terai and Inner Terai sites at Sukchaina, Bahuwari Tube-Well and Ratna Nagar. In the mid-hill sites it was carried manually mainly by women.

One other interesting observation from Table 16 is that meals and/or tiffins are more commonly provided to laborers in the mid-hill sites as compared to the Terai sites. If there is much hire or exchange of labor on a farm in the mid-hills site, the costs involved with meals or tiffins can account for a considerable portion of total labor and power costs of crop production. When the cost of meals or tiffins are added to the other labor and power costs, it can be seen in Table 16, that total costs are generally higher in the mid-hill sites.

Table 1.

DESCRIPTION OF CROPPING SYSTEMS SITES IN NEPAL

Sites	Elevation m.a.s.l.	Rainfall (mm)	Rainfall Distri- bution*		Major Land Types	LUI**	Average Farm Size (ha / Farm)
			Months Wet	Months Dry			
Pundi Bhumdi Kaski Dist.	750-1270	4000	6	5	Upland, Rainfed Lowland, Rainfed	56	0.37
Banuwari Tube- Well, Parsa Dist.	150	1500	4	7	Lowland, Irrigated	65	0.85
Sukchaina Parsa Dist.	150	1500	4	7	Lowland, Rainfed	55	0.85
Chauri Jahari Rukum Dist.	700	1250	3	8	Upland, Rainfed Upland, Rainfed in Summer, Irrigated in Winter	61	0.91
Lele Lalitpur Dist.	1300-1500	1600	4	7	Upland, Rainfed Lowland, Rainfed Lowland, Irrigated	71	0.63
Khandbari Sankhuwa- sabha Dist.	460-1100	1500	4	7	Upland, Rainfed Lowland, Rainfed Lowland, Irrigated	48	1.10
Ratna Nagar Chitwan Dist.	350	1900	4	7	Upland, Rainfed Lowland, Rainfed Lowland, Irrigated	60	0.68

* - Months wet refers to those months receiving more than 200 mm rainfall. Months dry means those receiving less than 100 mm rainfall.

** - LUI = Land Utilization Index : The number of days during the year which crops occupy the land divided by 365 and times 100.

Table 2. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND THEIR COSTS FOR EACH CROP IN THE PREDOMINANT CROPPING PATTERNS AT THE KHANDBARI CROPPING SYSTEMS SITE 1/

Crop	Cropping Pattern	Land Type	Working Days Per Hectare				Costs (Rs./ha.)			
			Men	Women	Bullocks	Labor	Bullock Power	Meal/Tiffin	Total	
Rice	R-F-F	Rainfed Lowland	79.8	61.9	28.7	1130	947	716	2793	
1st Rice	R-R-F	Irrig. Lowland	79.1	60.8	25.9	1193	751	623	2570	
2nd Rice	R-R-F	" "	85.5	50.9	24.7	1179	766	637	2582	
Wheat	R-W-F	Rainfed Lowland	73.4	52.7	32.0	849	864	443	2156	
Maize	R-F-M	" "	54.9	79.7	34.2	1006	1061	474	2541	
Maize	M-FM-F	Rainfed Upland	31.0	89.3	26.5	943	795	399	2137	
1st Maize	M-M-F	" "	52.1	60.8	30.0	838	689	410	1937	
2nd Maize	M-M-F	" "	43.4	35.1	29.7	438	684	335	1507	
Finger Millet	M-FM-F	" "	37.0	134.7	13.8	1602	442	426	2470	

1/ - See Appendices 1-9 for detailed task breakdown for each crop.

//
8
//

Table 3. ESTIMATE OF TOTAL LABOR AND POWER REQUIREMENTS AND COSTS FOR THE PREDOMINANT CROPPING PATTERNS AT THE KHANDBARI CROPPING SYSTEMS SITE 1/

Cropping Pattern	Total Working Days Per Hectare			Total Costs (Rs./ha.)			
	Men	Women	Bullocks	Labor	Bullock Power	Meal/Tiffin	Total
R-F-F	79.8	61.9	28.7	1130	947	716	2793
R-R-F	164.6	111.7	50.6	2372	1517	1265	5154
R-F-M	134.7	141.6	62.9	2136	2008	1190	5334
R-W-F	153.2	114.6	60.7	1979	1911	1159	5049
M-FM-F	68.0	224.0	40.3	2545	1237	825	4607
M-M-F	95.5	95.9	59.7	1326	1373	745	3436

1/ - Compiled from information in table 2.

Table 4. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND THEIR COSTS FOR EACH CROP IN THE PREDOMINANT CROPPING PATTERNS IN THE RAINFED LOWLANDS AT THE SUKCHANA CROPPING SYSTEMS SITE 1/

Crop	Cropping Pattern	Working Days Per Hectare				Costs (Rs./ha.)				
		Men	Women	Bullocks	Labor	Bullock Power	Tractor Power	Cart Hire	Tiffin	Total
Rice	R-W-F	91.1	58.8	26.3	1411	526	-	72	302	2311
Rice	DSR-W-F	88.2	27.7	26.4	1098	528	-	103	235	1964
Wheat	R-W-F	60.9	18.8	29.8	781	596	48	108	160	1693
Chickpea + Mustard	R-CH+MU-F	66.7	16.8	29.2	816	584	-	138	168	1706
Mixed Crops	R-MXC-F	66.9	8.9	26.0	738	520	-	74	154	1486

1/ - See Appendices 10 - 14 for detailed task breakdown for each crop.

// 10 //

Table 5. ESTIMATE OF TOTAL LABOR AND POWER REQUIREMENTS AND COSTS FOR THE PREDOMINANT CROPPING PATTERNS AT THE SUKCHAINA CROPPING SYSTEMS SITE^{1/}

Cropping Pattern	Total Working Days Per Hectare			Total Costs (Rs./ha.)					
	Men	Women	Bullocks	Labor	Bullocks Power	Tractor Power	Cart Hire	Tiffin	Total
R-W-F	152.0	77.6	56.1	2192	1122	48	180	462	4004
DSR-W-F	149.1	46.5	56.2	1879	1124	48	211	395	3657
R-CP+MU-F	157.8	75.6	55.5	2227	1110	-	210	470	4017
R-MXC-F	158.0	67.7	52.3	2149	1046	-	146	456	3797

1/ - Compiled from Information in table 4.

Table 6. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND THEIR COSTS FOR EACH CROP IN THE PREDOMINANT CROPPING PATTERNS IN THE IRRIGATED LOWLANDS AT THE BAHUWARI TUBE-WELL CROPPING SYSTEMS SITE 1/

Crop	Cropping Pattern	Working Days Per Hectare				Costs (Rs./ha.)				
		Men	Women	Bullocks	Labor	Bullocks Power	Pump Hire	Cart Hire	Tiffin	Total
Rice	R-W-F	113.1	54.9	28.2	1576	564	147	189	336	2812
1st Rice	R-R-W	104.6	56.2	23.9	1447	478	141	235	323	2674
2nd Rice	R-R-W	95.2	72.8	21.7	1553	434	251	-	337	2575
Wheat	R-R-W	76.9	7.3	29.6	819	592	376	111	163	2066
Wheat	R-W-F	80.5	9.8	36.3	873	726	132	153	183	2117
Maize	R-MU-M	118.8	32.4	23.1	1362	462	416	176	302	2718
Mustard	R-MU-M	97.3	6.9	38.3	938	766	163	191	207	2265
Mungbean	R-W-MG	114.3	15.5	33.7	1163	674	197	160	262	2461
Dhaincha	R-W-DH	55.5	1.7	36.1	470	722	314	-	105	1611

1/ - See Appendices 15 - 23 for detailed task breakdown for each crop.

Table 7. ESTIMATE OF TOTAL LABOR AND POWER REQUIREMENTS AND COSTS FOR THE PREDOMINANT CROPPING PATTERNS AT THE BAHUWARI TUBE-WELL CROPPING SYSTEMS SITE 1/

Cropping Pattern	Total Working Days Per Hectare				Total Costs (Rs./ha.)				
	Men	Women	Bullocks	Labor	Bullocks Power	Pump Hire	Cart Hire	Tiffin	Total
R-W-F	193.6	64.7	64.5	2449	1290	329	342	519	4929
R-W-MG	307.9	80.2	98.2	3617	1964	526	502	761	7390
R-W-DH	249.1	66.4	100.6	2919	2012	643	342	624	6540
R-R-W	276.7	136.3	75.2	3819	1504	768	396	823	7315
R-MU-M	329.2	94.2	89.6	3876	1792	726	556	845	7795
R-M-MG	346.2	102.8	85.0	4106	1700	760	525	900	7991

1/ - Compiled from information in table 6.

// 13 //

Table 8. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND THEIR COSTS FOR EACH CROP IN THE PREDOMINANT CROPPING PATTERNS AT THE RAJNA NAGAR CROPPING SYSTEMS SITE 1/

Crop	Cropping Pattern	Working Days Per Hectare				Costs (Rs./ha.)				
		Men	Women	Bullocks	Labor	Bullock Power	Tractor Power	Cart Hire	Tiffin	Total
Rice	R-W-F 2/	81.0	44.5	24.3	1350	802	290	47	252	2741
Wheat	R-W-F 2/	48.4	15.5	23.0	549	759	911	22	128	2369
Mungbean	R-W-MG 2/	62.9	79.0	29.1	1460	960	92	-	285	2797
Dhaincha	R-F-DH 2/	20.9	1.7	16.4	84	542	330	-	47	1003
Rice	R-F-F 2/	71.9	48.3	23.5	1282	778	26	72	256	2714
Maize	R-F-M 2/	47.2	18.7	23.4	567	772	92	104	132	1667
Mustard	R-MU-F 2/	45.6	13.5	19.1	341	630	174	30	122	1497
Lentil	R/L-F 2/	17.6	6.9	-	332	-	119	-	49	500
Maize	M-MU-F 2/	57.6	20.1	24.6	713	311	53	289	155	2021
2nd Maize	M-M/W 2/	84.0	36.1	18.8	1365	620	238	-	240	2463
Wheat	M-M/W 2/	53.1	49.1	-	1358	-	-	-	204	1562
Mustard	M-MU-F 2/	48.5	13.5	20.3	564	670	66	176	127	1603

1/ - See Appendices 24 - 35 for detailed task breakdown for each crop

2/ - Land Type - Irrigated Lowlands

3/ - Land Type - Rainfed Lowlands

4/ - Land Type - Rainfed Uplands

Table 9. ESTIMATE OF TOTAL LABOR AND POWER REQUIREMENTS AND COSTS FOR THE PREDOMINANT CROPPING PATTERNS AT THE RATNA NAGAR CROPPING SYSTEMS SITE 1/

Cropping Pattern	Total Working Days Per Hectare				Total Costs (Rs./ha.)				
	Men	Women	Bullocks	Labor	Bullocks Power	Tractor Hire	Cart Hire	Tiffin	Total
R-W-F	129.4	60.0	47.3	1899	1561	1201	69	380	5110
R-W-MG	192.3	139.0	76.4	3359	2521	1293	69	665	7907
R-W-DH	150.3	61.7	63.7	1983	2103	1531	69	427	6113
R-F-F	71.9	48.3	23.5	1232	778	26	72	256	2414
R-F-M	119.1	67.0	46.9	1849	1550	118	176	333	4081
R-MU-F	117.5	61.8	42.6	1823	1408	200	102	378	3911
R/L-F	39.5	55.2	23.5	1614	778	145	72	305	2914
M-MU-F	106.1	33.6	44.9	1277	1481	119	465	282	3624
M-M/W	194.7	105.3	43.4	3436	1431	291	289	599	6046

// 15 //

1/ - Compiled from information in table 8.

Table 10. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND THEIR COSTS FOR EACH CROP IN THE PREDOMINANT CROPPING PATTERNS AT THE PUMDI BHUMDI CROPPING SYSTEMS SITE 1/

Crop	Cropping Pattern	Working Days Per Hectare				Costs (Rs./ha.)		
		Men	Women	Bullocks	Labor	Bullocks Power	Meal/Tiffin	Total
Rice	R-W-M ²	73.9	74.4	15.3	2296	306	1239	3841
Wheat	R-W-M ^{2/}	50.4	50.7	9.8	1566	196	852	2614
Maize	R-W-M ^{2/}	85.1	93.6	27.1	2731	542	1568	4841
Rice	R-F-F ^{2/}	75.6	72.8	16.4	2313	328	1247	3888
Maize	R-F-M ^{2/}	90.4	70.2	26.3	2580	526	1417	4523
Oat	R-F-O ^{2/}	36.0	18.7	14.6	926	292	511	1729
Maize	M/FM-W ^{3/}	79.6	92.3	23.1	2603	462	1500	4570
Finger Millet	M/FM-W ^{3/}	26.3	195.0	-	2658	-	1773	4431
Wheat	M/FM-W ^{2/}	40.5	61.6	9.3	1457	186	865	2538
Mustard	M/FM-MU ^{3/}	27.8	83.4	13.5	1474	270	953	2697

1/ - See Appendices 36 - 45 for task breakdown for each crop

2/ - Land Type - Rainfed Lowlands

3/ - Land Type - Rainfed Uplands.

Table 11. ESTIMATE OF TOTAL LABOR AND POWER REQUIREMENTS AND COSTS FOR THE PREDOMINANT CROPPING PATTERNS AT THE PUMDI BHUMDI CROPPING SYSTEMS SITE

Cropping Pattern	Total Working Days Per Hectare			Total Costs (Rs./ha.)			
	Men	Women	Bullocks	Labor	Bullocks Power	Meal/Tiffin	Total
R-W-F	124.3	124.8	25.1	3632	502	2091	6455
R-W-M	209.4	218.4	52.2	6593	1044	3659	11,296
R-F-F	75.6	72.8	16.4	2313	328	1247	3888
R-F-M	166.0	143.0	42.7	4893	854	2664	8411
R-F-O	111.6	91.5	31.0	3239	620	1758	5617
M/FM-W	146.4	348.9	32.4	6753	648	4138	11,539
M/FM-MU	133.7	370.7	36.6	6740	732	4226	11,698

1/ -- Compiled from information in table 10.

// 17 //

Table 12. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND THEIR COSTS FOR EACH CROP IN THE PREDOMINANT CROPPING PATTERNS AT THE CHAMLI JAHARI CROPPING SYSTEMS SITE 1/

Crop	Cropping Pattern	Working Days Per Hectare			Costs (Rs./ha.)				Total
		Men	Women	Bullocks	Labor	Bullocks Power	Meals/Tiffin		
Rice	R-W+MU-F ^{2/}	83.3	103.8	19.3	2243	347	713	3303	
Wheat+Mustard	R-W+MU-F ^{2/}	44.6	78.0	36.6	1473	659	541	2673	
Rice	R-W+MU-F ^{3/}	111.6	156.6	28.4	3220	511	1027	4758	
Wheat+Mustard	R-W+MU-F ^{3/}	50.3	90.2	40.6	1686	731	609	3026	
Rice+Maize	R+M-W+MU-F ^{4/}	44.7	182.6	37.7	2729	679	861	4269	
Wheat+Mustard	R+M-W+MU-F ^{4/}	39.2	106.1	36.9	1743	665	589	2997	
Chickpea	R+M-CH-F ^{4/}	24.8	50.5	32.7	905	588	345	1838	
Lentil	R+M-L-F ^{4/}	29.5	40.6	33.6	841	605	321	1767	

// 15 //

- 1/ - See Appendices 46-53 for task breakdown for each crop
 2/ - Land Type - Irrigated Lowland
 3/ - Land Type - Partially Irrigated Lowland
 4/ - Land Type - Partially Irrigated Upland.

Table 13. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR THE PREDOMINANT CROPPING PATTERNS AT THE CHAURI JAHARI CROPPING SYSTEMS SITE 1/

Cropping Pattern	Total Working Days Per Hectare			Total Costs (Rs./ha.)			
	Men	Women	Bullocks	Labor	Bullocks Power	Meal/Tiffin	Total
R-W+MU-F ^{2/}	127.9	181.8	55.9	3716	1006	1254	5976
R-W+MU-F ^{3/}	161.9	246.8	69.0	4906	1242	1636	7784
R+M-W+MU-F ^{4/}	83.9	288.7	74.6	4472	1344	1450	7266
R+M-CH-F ^{4/}	69.5	233.1	70.4	3634	1267	1206	6107
R+M-L-F ^{4/}	74.2	223.2	71.3	3570	1284	1182	6036

1/ - Compiled from information in Table 12.

2/ - Land Type - Irrigated Lowland.

3/ - Land Type - Partially Irrigated Lowland.

4/ - Land Type - Partially Irrigated Upland.

Table 14. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND THEIR COSTS FOR EACH CROP IN THE PREDOMINANT CROPPING PATTERNS AT THE LELE CROPPING SYSTEMS SITE 1/

Crop	Cropping Pattern	Working Days Per Hectare			Costs (Rs./ha.)			
		Men	Women	Bullocks	Labor	Bullock Power	Tiffin	Total
Rice	R-W-F 2/	78.2	190.1	13.1	2432	367	1610	4409
Wheat	"	54.6	109.3	16.5	1407	462	982	2851
Maize	M+S-MU-F 3/	53.9	124.5	13.6	1561	381	1070	3012
Soybean	M+S-MU-F 2/	1.8	33.3	-	291	-	211	502
Mustard	M+S-M-F 3/	40.4	121.8	11.6	1377	325	973	2675
Finger Millet	M/FM-F 2/	49.3	146.0	-	1858	-	1174	3032

1/ - See Appendices 54 - 59 for detailed task breakdown for each crop.

2/ - Land Type - Irrigated Lowland.

3/ - Land Type - Rainfed Upland.

Table 15. ESTIMATE OF TOTAL LABOR AND POWER REQUIREMENTS AND COSTS FOR THE PREDOMINANT CROPPING PATTERNS AT THE LELE CROPPING SYSTEMS SITE 1/

Cropping Pattern	Total Working Days Per Hectare			Total Costs (Rs./ha.)			
	Men	Women	Bullocks	Labor	Bullock Power	Tiffin	Total
R-W-F	132.8	299.4	29.6	3839	829	2592	7260
M+S-MU-F	96.1	279.6	25.2	3229	706	2254	6189
M/FM-F	103.2	270.6	13.6	3419	381	2244	6044

1/ - Compiled from information in table 14.

Table 16. COMPARISON OF THE LABOR AND POWER REQUIREMENTS AND COSTS FOR THE R-W-F CROPPING PATTERN IN THE CROPPING SYSTEMS SITES

Site	Working Days Per Hectare			Costs (Rs./ha.)						
	Men	Women	Bullocks	Labor	Bullock Power	Tractor Power	Irrigation Pump	Cart Hire	Meal/Tiffin	Total
Khandbari	153.2	114.6	60.7	1979	1911 ^{1/}	-	-	-	1159	5049
Sukchaina	152.0	77.6	56.1	2192	1122	48	-	180	462	4004
Bahuwari Tube-Well	193.6	64.7	64.5	2449	1290	-	329	342	519	4929
Ratna Nagar	129.4	60.0	47.3	1899	1561 ^{1/}	1201	-	69	380	5110
Pumdi Bhundi	124.3	124.8	25.1	3862	502	-	-	-	2091	6455
Chauri Jahari ^{2/}	127.9	181.8	55.9	3716	1006	-	-	-	1254	5976
Lele	132.8	299.4	29.6	3839	829 ^{1/}	-	-	-	2592	7260

1/ - Cost of plowman included.

2/ - Compared cropping pattern is R-W+Mu-F and therefore also includes labor and power requirements for mustard crop.

Appendix 1. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE RICE CROP IN THE R-F-F CROPPING PATTERN IN RAINFED LOWLANDS AT THE KHANDBARI CROPPING SYSTEMS SITE

Task	Labor/Power (Days/ha) ^{1/}			Cost (Rs./ha) ^{2/}					
	Men	Women	Bullocks plus Plowman	Men	Women	Bullock	Meal	Tiffin	Total
Plowing	28.7 (4.6)	-	28.7 (4.6)	-	-	947	172	57	1176
Land Shaping	17.9 (13.1)	11.5 (11.6)	-	179	115	-	176	59	529
Compost Application	0.1 (0.4)	2.7 (5.0)	-	1	27	-	-	6	34
Transplanting	2.4 (2.8)	23.7 (4.7)	-	24	237	-	-	52	313
Weeding	8.7 (4.7)	11.4 (6.4)	-	87	114	-	-	40	241
Harvesting	7.8 (6.1)	12.6 (7.5)	-	78	126	-	-	41	245
Threshing	14.2 (4.9)	-	-	142	-	-	85	28	255
Total	79.8 (16.5)	61.9 (23.3)	28.7 (4.6)	511	619	947	433	283	2793

^{1/} - Figures in parenthesis are standard deviations

- ^{2/} - a) Average wage rate for men during 1984 was Rs.10/day (range 9-12)
 b) Average wage rate for women during 1984 was Rs.10/day (range 9-11)
 c) Average rate for hire bullock pair including plow man during 1984 was Rs.33.00/day (range 30 - 40)
 d) Average cost of a meal supplied to hired labor (men or women) was Rs. 6/day
 e) Average cost of a tiffin supplied to hired labor (men or women) was Rs.2/day.
 Please note that some tasks involve both meal and tiffin and some only tiffin for hired laborers.

// 23 //

Appendix 2. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE FIRST RICE CROP IN THE R-R-F CROPPING PATTERN IN IRRIGATED LOWLANDS AT THE KHANDBARI CROPPING SYSTEMS SITE

Task	Labor / Power (Days/ha) ^{1/}			Costs (Rs./ha) ^{2/}					Total
	Men	Women	Bullocks	Men	Women	Bullocks	Meal	Tiffin	
Plowing	25.9 (4.9)	-	25.9 (4.9)	-	-	751	155	52	958
Land Shaping	13.2 (9.1)	7.3 (9.1)	-	145	73	-	123	41	382
Compost Application	-	12.0 (5.7)	-	-	120	-	-	24	144
Transplanting	8.2 (3.2)	22.0 (3.7)	-	90	220	-	-	60	370
Weeding	9.2 (4.6)	11.5 (9.0)	-	101	115	-	-	41	257
Harvesting	10.7 (8.6)	8.6 (6.9)	-	118	80	-	-	37	235
Threshing	11.9 (3.5)	-	-	131	-	-	71	24	226
Total	79.1 (15.6)	60.8 (21.6)	25.9 (4.9)	585	608	751	349	279	2572

1/ - Figures in parenthesis are standard deviations

- 2/ - a) Average wage rate for men during 1984 was Rs.11/day (Range 8-15)
 b) Average wage rate for women during 1984 was Rs. 10/day (Range 8-12)
 c) Average rate for hiring a bullock pair plus plowman during 1984 was 29 Rs/day (Range 25-30)
 d) Average cost of a meal supplied to hired labor (men or women) was Rs. 6/day
 e) Average cost of a tiffin supplied to hired labor (men or women) was Rs. 2/day. Please note that some tasks involve both meal and tiffin and some only tiffin for hired laborers.

Appendix 3. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE SECOND RICE CROP IN THE R-R-F CROPPING PATTERN IN IRRIGATED LOWLANDS AT THE KHANDBARI CROPPING SYSTEMS SITE

Task	Labor / Power (Days/ha) 1/			Costs (Rs/ha) 2/					
	Men	Women	Bullocks	Men	Women	Bullocks	Meal	Tiffin	Total
Plowing	24.7 (8.3)	-	24.7 (8.3)	-	-	766	148	49	963
Land Shaping	13.7 (8.0)	6.0 (8.5)	-	151	60	-	118	39	368
Compost Application	-	5.7 (5.2)	-	-	57	-	-	11	68
Transplanting	9.1 (5.2)	23.6 (2.8)	-	100	236	-	-	65	401
Weeding	9.5 (5.4)	8.4 (2.8)	-	105	84	-	-	36	225
Harvesting	11.9 (6.9)	7.2 (7.3)	-	131	72	-	-	38	241
Threshing	16.6 (3.8)	-	-	183	-	-	100	33	316
Total	85.5 (16.3)	50.9 (20.7)	24.7 (8.3)	670	509	766	366	271	2582

1/ - Figures in parenthesis are standard deviation.

- 2/ - a) Average wage rate for men during 1984 was Rs. 11/day (Range 8-15)
 b) Average wage rate for women during 1984 was Rs. 10/day (Range 8-12)
 c) Average rate for hiring a bullock pair plus plowman during 1984 was Rs. 31/day (Range 25-40)
 d) Average cost of a meal supplied to hired labor (men or women) was Rs. 6/day
 e) Average cost of a tiffin supplied to hired labor (men or women) was Rs. 2/day. Please note that some tasks involve both meal and tiffin and some only tiffin for hired laborers.

Appendix 4. ESTIMATE OF LABOR AND POWER REQUIREMENT AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE WHEAT CROP IN THE R-W-F CROPPING PATTERN IN RAINFED LOWLANDS AT THE KHANDBARI CROPPING SYSTEMS SITE

Task	Labor / Power (Days/ha) ^{1/}			Cost (Rs./ha) ^{2/}					
	Men	Women	Bullocks	Men	Women	Bullocks	Meal	Tiffin	Total
Plowing	32.0 (6.1)	-	32.0 ^{2/} (6.1)	-	-	864	192	64	1120
Land Shaping	4.2 (9.4)	23.5 (10.3)	-	38	212	-	-	55	305
Compost Application	-	11.5 (20.4)	-	-	104	-	-	23	127
Transplanting	1.2 (0.7)	-	-	11	-	-	-	2	13
Applying Chemical Fertilizer	1.7 (1.1)	-	-	15	-	-	-	3	18
Harvesting	17.5 (10.8)	8.2 (4.9)	-	158	74	-	-	51	283
Threshing	16.8 (11.4)	9.5 (7.8)	-	151	86	-	-	53	290
Total	73.4 (24.4)	52.7 (27.8)	32.0 (6.1)	373	476	864	192	251	2156

^{1/} - Figures in parenthesis are standard deviations

- ^{2/} - a) Average wage rate for men during 1984 was Rs. 9/day (Range 7-10)
 b) Average wage rate for women during 1984 was Rs. 9/day (Range 7-10)
 c) Average rate for hiring a bullock pair plus plowman was Rs. 27/day (Range 20-30)
 d) Average cost of a meal supplied to hired labor (men or women) was Rs. 6/day
 e) Average cost of a tiffin supplied to hired labor (men or women) was Rs. 2/day. Please note that some tasks involve both meal and tiffin and some only tiffin for hired laborers.

^{3/} - Plowing involved for planting is included.

Appendix 5. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MAIZE CROP IN THE R-F-M CROPPING PATTERN IN RAINFED LOWLANDS AT THE KHANDBARI CROPPING SYSTEMS SITE

Task	Labor / Power (Days/ha) ^{1/}			Costs (Rs./ha) ^{2/}					Total
	Men	Women	Bullocks	Men	Women	Bullocks	Meal	Tiffin	
Plowing	27.6 (10.1)	-	27.6 ^{3/} (10.1)	-	-	856	166	55	1077
Land Shaping	7.5 (10.1)	21.9 (6.7)	-	75	219	-	-	59	353
Compost Application	-	23.7 (18.1)	-	-	237	-	-	47	284
Planting	2.3 (5.0)	2.9 (4.3)	-	23	29	-	-	10	62
Weeding	17.7 (11.9)	21.0 (5.5)	6.6 (3.3)	111	210	205	40	77	643
Harvesting	-	10.2 (3.7)	-	-	102	-	-	20	122
Total	54.9 (28.6)	79.7 (22.1)	34.2 (11.6)	209	797	1061	206	268	2541

1/ - Figures in parenthesis are standard deviations

- 2/ - a) Average wage rate for men during 1984 was Rs. 10/day (Range 9-12)
 b) Average wage rate for women during 1984 was Rs. 10/day (Range 9-11)
 c) Average rate for hiring a bullock pair plus plowman during 1984 was Rs. 31/day (Range 30-35)
 d) Average cost of a meal supplied to hired labor (men or women) was Rs. 6/day
 e) Average cost of a tiffin supplied to hired labor (men or women) was Rs. 2/day. Please note that some tasks involve both meal and tiffin and some only tiffin for hired laborers.

3/ - Plowing involved for planting is included.

Appendix 6. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MAIZE CROP IN THE M-FM-F CROPPING PATTERN IN RAINFED UPLANDS AT THE KHANDBARI CROPPING SYSTEMS SITE.

Task	Labor / Power (Days/ha) ^{1/}			Costs (Rs./ha) ^{2/}					Total
	Men	Women	Bullocks	Men	Women	Bullocks	Meal	Tiffin	
Plowing	14.7 (4.2)	-	14.7 (4.2)	-	-	441	88	29	558
Land Shaping	-	22.3 (4.29)	-	-	223	-	-	45	268
Compost Application	-	15.7 (7.1)	-	-	157	-	-	31	188
Planting	8.0 (5.2)	2.1 (2.8)	6.9 (4.9)	12	21	207	41	20	301
Applying Chem. Fert.	0.5 (1.3)	-	-	6	-	-	-	2	8
Weeding	7.8 (5.1)	34.3 (5.1)	4.9 (2.9)	32	343	147	29	84	635
Harvesting	-	14.9 (5.5)	-	-	149	-	-	30	179
Total	31.0 (8.8)	89.3 (13.5)	26.5 (8.7)	50	893	795	158	241	2137

1/ - Figures in parenthesis are standard deviations

- 2/ - a) Average wage rate for men during 1984 was Rs. 11/day (Range 10-15)
 b) Average wage rate for women during 1984 was Rs. 10/day (Range 10-12)
 c) Average rate for hiring a bullock pair plus plowman during 1984 was Rs. 30/day (Range 25-35)
 d) Average cost of a meal supplied to hired labor (men or women) was Rs. 6/day
 e) Average cost of a tiffin supplied to hired labor (men or women) was Rs. 2/day. Please note that some tasks involve both meal and tiffin and some only tiffin for hired laborers.

Appendix 7. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE FIRST MAIZE CROP IN THE M-M-F CROPPING PATTERN IN THE RAINFED UPLANDS AT THE KHANDBARI CROPPING SYSTEMS SITE

Task	Labor / Power (Days/ha) ^{1/}			Costs (Rs./ha) ^{2/}					Total
	Men	Women	Bullocks	Men	Women	Bullocks	Meal	Tiffin	
Plowing	17.8 (4.7)	-	17.8 (4.7)	-	-	409	107	36	552
Land Shaping	0.5 (1.6)	8.8 (3.4)	-	5	88	-	-	19	112
Compost Application	-	15.1 (5.7)	-	-	151	-	-	30	181
Planting	8.6 (0.8)	1.9 (2.9)	8.4 (0.7)	2	19	193	50	21	285
Applying Chem. Fert.	0.4 (1.36)	-	-	4	-	-	-	2	6
Weeding	23.3 (3.2)	22.0 (5.4)	3.8 (0.8)	195	220	87	23	91	616
Harvesting	1.5 (3.2)	13.9 (5.6)	-	15	139	-	-	31	185
Total	52.1 (6.9)	60.8 (10.8)	30.0 (5.0)	221	617	689	180	230	1937

^{1/} - Figures in parenthesis are standard deviations

- ^{2/} - a) Average wage rate for men during 1984 was Rs. 10/day (Range 10-12)
 b) Average wage rate for women during 1984 was Rs. 10/day (Range 8-10)
 c) Average rate for hiring a bullock pair plus plowman was Rs.23/day (Range 20-30)
 d) Average cost of a meal supplied to hired labor (men or women) was Rs. 6/day
 e) Average cost of a tiffin supplied to hired labor (men or women) was Rs. 2/day. Please note that some tasks involve both meal and tiffin and some only tiffin for hired laborers.

Appendix 8. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE SECOND MAIZE CROP IN THE M-M-F CROPPING PATTERN IN THE RAINFED UPLANDS AT THE KHANDBARI CROPPING SYSTEMS SITE

Task	Labor / Power (Days/ha) 1/			Costs (Rs./ha) 2/					
	Men	Women	Bullocks	Men	Women	Bullocks	Meal	Tiffin	Total
Plowing	17.2 (5.2)		17.2 (5.2)	-	-	396	103	3	533
Land Shaping	-	6.1 (4.7)	-	-	61	-	-	12	73
Planting	8.7 (0.2)	1.0 (2.7)	8.6 (0.004)	1	10	198	52	19	280
Applying Chemical Fertilizer	0.3 (0.9)	0.3 (0.9)	-	3	3	-	-	2	8
Weeding	16.5 (3.1)	14.5 (4.3)	3.9 (1.6)	126	145	90	23	62	446
Harvesting	0.7 (2.0)	13.2 (4.8)	-	7	132	-	-	28	167
Total	43.4 (4.9)	35.1 (9.0)	29.7 (4.8)	137	351	684	178	157	1507

1/ - Figures in parenthesis are standard deviations.

- 2/ - a) Average wage rate for men during 1984 was Rs. 10/day (Range 10-12)
 b) Average wage rate for women during 1984 was Rs. 10/day (Range 8-12)
 c) Average rate for hiring a bullock pair plus plowman was Rs. 23/day (Range 20-30)
 d) Average cost of a meal supplied to a hired laborer (men or women) was Rs. 6/day
 e) Average cost of a tiffin supplied to a hired labor (men or women) was Rs. 2/day. Please note that some tasks involve both meal and tiffin and some only tiffin for hired laborers.

// 30 //

Appendix 9. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE FINGER MILLET CROP IN THE M-FM-F CROPPING PATTERN IN THE RAINFED UPLANDS AT THE KHANDBARI CROPPING SYSTEMS SITE

Task	Labor / Power (Days/ha) ^{1/}			Costs (Rs./ha) ^{2/}					
	Men	Women	Bullocks	Men	Women	Bullocks	Meal	Tiffin	Total
Plowing	13.8 (4.0)	-	13.8 (4.0)	-	-	442	83	28	553
Land Shaping	14.6 (4.5)	8.6 (9.5)	-	161	86	-	-	46	293
Uprooting Seedlings	4.3 (2.5)	5.8 (2.5)	-	47	58	-	-	20	125
Transplanting	1.1 (3.1)	72.4 (22.4)	-	12	724	-	-	147	883
Harvesting	-	32.1 (10.8)	-	-	321	-	-	64	385
Threshing	3.2 (6.4)	15.8 (7.8)	-	35	158	-	-	38	231
Total	37.0 (7.5)	134.7 (44.6)	13.8 (4.0)	255	1347	442	83	343	2470

// 31 //

1/ - Figures in parenthesis are standard deviations

- 2/a) Average wage rate for men during 1984 was Rs.11/day (Range 10-15)
 b) Average wage rate for women during 1984 was Rs. 10/day (Range 8-12)
 c) Average rate for hiring a bullock pair plus plowman was Rs. 32/day (Range 30-40)
 d) Average cost of a meal supplied to a hired labor (men or women) was Rs. 6/day
 e) Average cost of a tiffin supplied to a hired labor (men or women) was Rs. 2/day. Please note that some tasks involve both meal and tiffin and some only tiffin for hired laborers.

Appendix 10. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE TRANSPLANTED RICE CROP IN THE R-W-F CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE SUKCHAINA CROPPING SYSTEMS SITE

Task	Labor/Power (Days/ha) 1/			Cart 1/ Trips/ha	Costs (Rs./ha) 2/					
	Men	Women	Bullocks		Men	Women	Bullocks	Cart Hire	Tiffin	Total
Plowing	26.3 (9.5)	-	26.3 (9.5)	-	237	-	526	-	53	816
Land Shaping	3.6 (1.3)	-	-	-	32	-	-	-	7	39
Compost Application	1.5 (1.5)	-	-	5.5 (6.5)	14	-	-	72	4	90
Applying Chemical Fertilizer	0.8 (0.5)	-	-	-	7	-	-	-	2	9
Uprooting Seedlings	15.4 (1.8)	-	-	-	139	-	-	-	31	170
Transplanting	-	28.8 (2.8)	-	-	-	259	-	-	58	317
Weeding	16.2 (8.0)	17.0 (8.1)	-	-	146	153	-	-	66	365
Harvesting and Threshing	27.3 (6.7)	13.0 (6.1)	-	-	287	137	-	-	81	505
Total	91.1 (15.3)	58.8 (11.5)	26.3 (9.5)	5.5 (6.5)	862	549	526	72	302	2311

// 32 //

1/ - Figures in parenthesis are standard deviations

- 2/ - a) Average wage rate for both men and women during 1984 was Rs. 9/day (Range 8-10) for all tasks except harvesting which was Rs. 10.50/day for both men and women.
 b) Average rate for hiring a bullock pair only was Rs. 20/day (Range 17-25). Plowman received Rs. 9/day.
 c) Average cost of tiffin supplied to hired men and women labors was Rs. 2/day
 d) Average rate to hire bullock cart was Rs. 13/trip.

Appendix 11. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE DIRECT SEEDED RICE CROP IN THE DSR-W-F CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE SUKCHAINA CROPPING SYSTEMS SITE

Task	Labor/Power(Days/ha) ^{1/}			Cart ^{1/} Trips/day	Costs (Rs./ha) ^{2/}					
	Men	Women	Bullocks		Men	Women	Bullocks	Cart Hire	Tiffin	Total
Plowing	26.4 (8.2)	-	26.4 ^{2/} (8.2)	-	238	-	528	-	53	319
Land Shaping	3.7 (1.7)	-	-	-	33	-	-	-	7	40
Compost Application	4.2 (4.5)	-	-	7.9 (9.4)	38	-	-	103	8	149
Applying Chemical Fertilizer	0.4 (0.2)	-	-	-	4	-	-	-	2	6
Planting	0.4 (0.2)	-	-	-	4	-	-	-	2	6
Weeding	28.4 (9.6)	20.5 (8.5)	-	-	256	185	-	-	98	539
Harvesting and Threshing	25.1 (7.5)	7.2 (6.9)	-	-	264	76	-	-	65	405
Total	88.2 (20.3)	27.7 (14.7)	26.4 (8.2)	7.9 (9.4)	837	261	528	103	235	1964

^{1/} - Figures in parenthesis are standard deviations

^{2/} - a) Average wage rate for both men and women during 1984 was Rs. 9/day (Range 8-10) for all tasks except harvesting which was Rs. 10.50/day for both men and women.
 b) Average rate for hiring a bullock pair only was Rs. 20/day (Range 17-25). Plowman received Rs. 9/day
 c) Average cost of tiffin supplied to hired men and women was Rs. 2/day.
 d) Average rate to hire bullock-cart was Rs. 13/trip.

^{2/} - Includes use of bullocks for plowing while planting.

Appendix 12. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE WHEAT CROP IN THE R-W-F CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE SUKCHAINA CROPPING SYSTEMS SITE

Task	Labor/Power (Days/ha) ^{1/}			Tractor ^{1/} hr/ha	Cart ^{1/} Trips/ha	Costs (Rs./ha) ^{2/}						
	Men	Women	Bullocks			Men	Wo- men	Bull- ocks	Trac- tor	Cart Hire	Tiffin	Total
Plowing	29.8 (11.7)	-	29.8 ^{3/} (11.7)	0.5 (1.1)	-	268	-	596	48	-	60	972
Land Shaping	3.0 (1.1)	-	-	-	-	27	-	-	-	-	6	33
Compost Application	1.6 (1.7)	-	-	-	8.3 (9.7)	14	-	-	-	108	3	125
Applying Chem. Fertilizer	0.7 (0.4)	-	-	-	-	6	-	-	-	-	2	8
Planting	0.9 (1.3)	-	-	-	-	8	-	-	-	-	2	10
Harvesting and Threshing	24.9 (8.4)	18.3 (6.9)	-	-	-	261	197	-	-	-	87	545
Total	60.9 (19.1)	18.3 (6.9)	29.8 (11.7)	0.5 (1.1)	8.3 (9.7)	584	197	596	48	108	160	1693

// 34 //

1/ - Figures in parenthesis are standard deviations.

- 2/ - a) Average wage rate for both men and women during 1984 was Rs. 9/day (Range 8-10) for all tasks except harvesting which was Rs. 10.50/day for both men and women.
 b) Average rate for hiring a bullock pair only was Rs.20/day (Range 17-25). Plowman received Rs. 9/day.
 c) Average rate for tractor hire was Rs. 95/hr. (Range 80-116).
 d) Average rate to hire bullock-cart was Rs. 13/trip.
 e) Average cost of tiffin supplied to hired men and women was Rs. 2/day.

3/ - Includes use of bullocks for plowing while planting.

Appendix 13. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE CHICKPEA+MUSTARD CROPS IN THE R-CH+MU-F CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE SUKCHAINA CROPPING SYSTEMS SITE

Task	Labor/Power (Days/ha) ^{1/}			Cart ^{1/} Trips/ha	Costs (Rs./ha) ^{2/}					
	Men	Women	Bullocks		Men	Women	Bullocks	Cart Hire	Tiffin	Total
Plowing	29.2 (12.0)	-	29.2 ^{3/} (12.0)	-	263	-	584	-	58	905
Land Shaping	2.5 (1.2)	-	-	-	23	-	-	-	5	28
Compost Application	7.2 (7.0)	-	-	10.6 (10.3)	65	-	-	138	14	217
Applying Chemical Fertilizer	0.6 (0.2)	-	-	-	5	-	-	-	2	7
Planting	0.6 (0.2)	-	-	-	5	-	-	-	2	7
Harvesting and Threshing	26.6 (6.2)	16.8 (6.9)	-	-	279	176	-	-	87	542
Total	66.7 (22.6)	16.8 (6.9)	29.2 (12.0)	10.6 (10.3)	640	176	584	138	168	1706

// 35 //

- 1/ - Figures in parenthesis are standard deviations.
- 2/ - a) Average wage rate for both men and women during 1984 was Rs. 9/day (Range 8-10) for all tasks except harvesting which was Rs. 10.50/day for both men and women.
 b) Average rate for hiring a bullock pair only was Rs.20/day (Range 17-25). Plowman received Rs. 9/day.
 c) Average rate to hire a bullock cart was Rs. 13/trip.
 d) Average cost of tiffin supplied to hired men and women was Rs. 2/day.
- 3/ - Includes use of bullocks for plowing while planting.

Appendix 14. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MIXED CROPS IN THE R-MXC-F CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE SUKCHAITNA CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha) ^{2/}			Cart ^{2/} Trips/ha	Costs (Rs./ha) ^{3/}					
	Men	Women	Bullocks		Men	Women	Bullocks	Cart Hire	Tiffin	Total
Plowing	26.0 (8.6)	-	26.0 ^{4/} (8.6)	-	234	-	520	-	52	806
Land Shaping	4.3 (1.3)	-	-	-	39	-	-	-	8	47
Compost Application	7.6 (5.3)	-	-	5.7 (9.2)	68	-	-	74	15	157
Applying Chemical Fertilizer	0.3 (0.3)	-	-	-	3	-	-	-	2	5
Planting	0.5 (0.1)	-	-	-	5	-	-	-	2	7
Harvesting	15.4 (2.9)	8.9 (5.8)	-	-	162	93	-	-	49	304
Threshing	12.8 (3.1)	-	-	-	134	-	-	-	26	160
Total	66.9 (13.0)	8.9 (5.8)	26.0 (8.6)	5.7 (9.2)	645	93	520	74	154	1486

1/ - Mixed Crops include lentil, linseed and mustard.

2/ - Figures in parenthesis are standard deviations.

3/ - a) Average wage rate for both men and women during 1984 was Rs. 9/day (Range 8-10) for all tasks except harvesting and threshing which was Rs. 10.50/day for both men and women.

b) Average rate to hire a bullock pair only was Rs.20/day (Range 17-25).

c) Average rate to hire a bullock-cart was Rs. 13/trip.

d) Average cost of tiffin supplied to hired men and women was Rs. 2/day.

4/ - Includes use of bullocks for plowing while planting.

Appendix 15. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE RICE CROP IN THE R-W-F CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE BAHUWARI TUBE-WELL CROPPING SYSTEMS SITE

Task	Labor/Power(Days/ha) ^{1/}			Irriga- tion Pump 1/ (hr/ha)	Cart 1/ Trips/ha	Costs (Rs./ha) ^{2/}					Total	
	Men	Wo- men	Bullocks			Men	Wo- men	Bull- ocks	Irrig. Pump	Cart Hire		Tiffin
Plowing.	28.2 (5.3)	-	28.2 (5.3)	-	-	254	-	564	-	-	56	874
Land Shaping	4.6 (2.0)	-	-	-	-	41	-	-	-	-	9	50
Compost Transport	4.9 (4.5)	-	-	-	14.5 (9.5)	44	-	-	-	189	10	243
Compost Application	3.8 (2.5)	-	-	-	-	34	-	-	-	-	8	42
Applying Chemical Fertilizer	1.1 (0.5)	-	-	-	-	10	-	-	-	-	2	12
Uprooting Seedlings	12.5 (3.8)	-	-	-	-	113	-	-	-	-	25	138
Transplanting	-	29.4 (4.0)	-	-	-	-	265	-	-	-	59	324
Irrigation	1.4 (1.4)	-	-	9.2 (9.3)	-	13	-	-	147	-	3	163
Weeding	23.5 (11.1)	17.2 (14.4)	-	-	-	212	155	-	-	-	81	448
Harvesting and Threshing	33.1 (8.9)	8.3 (8.5)	-	-	-	348	87	-	-	-	83	518
Total	113.1 (22.1)	54.9 (20.6)	28.2 (5.3)	9.2 (9.3)	14.5 (9.5)	1069	507	564	147	189	336	2812

1/ - Figures in parenthesis are standard deviations.

- 2/ - a) Average wage rates for men and women during 1984 was Rs.9/day (Range 8-10) for all tasks except harvesting which was Rs. 10.50/day.
 b) Hire of bullock pair only was Rs.20/day. Plowman Rs. 9/day.
 c) Hire of bullock-cart was Rs. 13/trip.
 d) Pump hire was Rs. 16/hour.
 e) Average cost of tiffin was Rs. 2/day for both men and women.

11 / 37 / 11

Appendix 16. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE FIRST RICE CROP IN THE R-R-W CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE BAHUWARI TUBE WELL CROPPING SYSTEMS SITE

Task	Labor/Power(Days/ha.) ^{1/}			Irriga- tion Pump 1/ (hr/ha)	Cart 1/ Trips/ ha.	Costs (Rs./ha.) ^{2/}						
	Men	Wo- men	Bull- ocks			Men	Wo- men	Bull- ocks	Irrig. Pump	Cart Hire	Tiffin	Total
Plowing	23.9 (7.0)	-	23.9 (7.0)	-	-	215	-	478	-	-	48	741
Land Shaping	3.2 (1.1)	-	-	-	-	29	-	-	-	-	6	35
Compost	4.7 (1.5)	-	-	-	21.9 (8.4)	42	-	-	-	285	10	337
Transport	3.9 (1.1)	-	-	-	-	35	-	-	-	-	8	43
Applying Chemical	1.1 (0.5)	-	-	-	-	10	-	-	-	-	2	12
Fertilizer	13.2 (3.0)	-	-	-	-	119	-	-	-	-	26	145
Uprooting Seedlings	-	32.0 (5.3)	-	-	-	-	288	-	-	-	64	352
Transplanting	1.6 (1.8)	-	-	8.8 (11.3)	-	14	-	141	-	-	4	159
Irrigation	23.2 (14.7)	12.2 (8.2)	-	-	-	209	110	-	-	-	71	390
Weeding	29.8 (12.8)	12.0 (8.2)	-	-	-	268	108	-	-	-	84	460
Harvesting and Threshing	104.6 (28.3)	56.2 (15.6)	23.9 (7.0)	8.8 (11.3)	21.9 (8.4)	941	506	478	141	285	323	2674

1/ - Figures in parenthesis are standard deviations.

- 2/ - a) Average wage rate for men and women during 1984 was Rs. 9/day for all tasks except harvesting which was Rs. 10.50/day.
 b) Hire of bullock pair only was Rs. 20/day. Plowman was Rs. 9/day.
 c) Hire of bullock-cart was Rs. 13/trip.
 d) Pump hire was Rs. 16/hour.
 e) Average cost of tiffin was Rs. 2/day for both men and women.

Appendix 17. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE SECOND RICE CROP IN THE R-R-W CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE BAHUWARI TUBE-WELL CROPPING SYSTEMS SITE

Task	Labor/Power (Days/ha) ^{1/}			Irrigation Pump ^{1/} (hr/ha)	Costs (Rs./ha) ^{2/}					
	Men	Women	Bullocks		Men	Women	Bullocks	Irrig. Pump	Tiffin	Total
Plowing	21.7 (5.9)	-	21.7 (5.9)	-	195	-	434	-	43	672
Land Shaping	4.0 (1.6)	-	-	-	36	-	-	-	8	44
Applying Chemical Fertilizer	1.7 (1.4)	-	-	-	15	-	-	-	4	19
1st Uprooting of Seedlings	9.6 (3.7)	-	-	-	86	-	-	-	19	105
2nd Uprooting of Seedlings	18.1 (6.8)	-	-	-	163	-	-	-	36	199
1st Transplanting	-	14.8 (7.1)	-	-	-	133	-	-	30	163
2nd Transplanting	-	40.7 (8.9)	-	-	-	366	-	-	81	447
Irrigation	2.2 (1.8)	-	-	15.7 (11.3)	20	-	-	251	5	276
Weeding	16.0 (8.5)	10.8 (9.3)	-	-	144	97	-	-	54	295
Harvesting and Threshing	21.9 (9.2)	6.5 (7.8)	-	-	230	68	-	-	57	355
Total	95.2 (24.8)	72.8 (18.2)	21.7 (5.9)	15.7 (11.3)	889	664	434	251	337	2575

1/ - Figures in parenthesis are standard deviations.

- 2/ - a) Average wage rate for men and women during 1984 was Rs. 9/day for all tasks except harvesting which was Rs. 10.50/day.
 b) Hire of bullock pair only was Rs. 20/day. Plowman was Rs. 9/day.
 c) Pump hire was Rs. 16/hour.
 d) Average cost of tiffin was Rs. 2/day for both men and women.

Appendix 18. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE WHEAT CROP IN THE R-R-W CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE BAHUWARI TUBE-WELL CROPPING SYSTEMS SITE

Task	Labor/Power (Days/ha) 1/			Irrigation Pump 1/ (hr/ha)	Cart 1/ Trips/ha	Costs (Rs./ha) 2/						
	Men	Women	Bullocks			Men	Wo- Men	Bull- ocks	I.P.*	C.H.x	Ti-ffin	Total
Plowing	29.6 (9.1)	-	29.6 2/ (9.1)	-	-	266	-	592	-	-	59	917
Land Shaping	3.7 (1.6)	-	-	-	-	33	-	-	-	-	7	40
Compost	2.6 (3.7)	-	-	-	8.5 (10.9)	23	-	-	-	111	5	139
Applying Compost	1.1 (1.4)	-	-	-	-	10	-	-	-	-	2	12
Applying Chemical Fertilizer	1.5 (1.0)	-	-	-	-	14	-	-	-	-	4	18
Planting	1.1 (1.3)	-	-	-	-	10	-	-	-	-	2	12
Irrigation	3.9 (1.5)	-	-	23.5 (8.9)	-	35	-	-	376	-	8	419
Harvesting and Threshing	33.4 (15.8)	7.3 (5.9)	-	-	-	351	77	-	-	-	81	509
Total	76.9 (21.3)	7.3 (5.9)	29.6 (9.1)	23.5 (8.9)	8.5 (10.9)	742	77	592	376	111	168	2066

// 40 //

1/ - Figures in parenthesis are standard deviations.

- 2/ - a) Average wage rate for men and women during 1984 was Rs. 9/day for all tasks except harvesting which was Rs. 10.50/day.
 b) Hire of bullock pair only was Rs. 20/day. Plowman was Rs. 9/day.
 c) Pump hire was Rs. 16/hour.
 d) Bullock-cart hire was Rs. 13/trip.
 e) Average cost of tiffin was Rs. 2/day for both men and women.

3/ - Plowing involved with planting is included.

* - I.P. = Irrigation Pump

x - C.H. = Cart Hire

Appendix 19. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE WHEAT CROP IN THE R-W-F CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE BAHUWARI TUBE-WELL CROPPING SYSTEMS SITE

Task	Labor/Power (Days/ha) ^{1/}			Irrigation Pump 1/ (hr/ha.)	Cart 1/ Trips/ ha.	Costs (Rs./ha) ^{2/}						
	Men	Women	Bullocks			Men	Wo-men	Bull-ocks	Irrig. Pump	Cart Hire	Ti-ffin	Total
Plowing	36.3 (9.1)	-	36.3 2/ (9.1)	-	-	327	-	726	-	-	73	1126
Land Shaping	4.3 (2.0)	-	-	-	-	39	-	-	-	-	9	48
Compost	1.8	-	-	-	11.8 (17.2)	16	-	-	-	153	4	173
Transport	(2.4)	-	-	-	-	18	-	-	-	-	4	22
Applying Compost	2.0	-	-	-	-	9	-	-	-	-	2	11
Applying Chemical Fertilizer	1.0 (0.6)	-	-	-	-	9	-	-	-	-	2	11
Planting	2.8 (2.4)	-	-	-	-	25	-	-	-	-	6	31
Irrigation	1.8 (1.0)	-	-	11.4 (6.5)	-	16	-	-	182	-	4	202
Harvesting and Threshing	30.5 (14.9)	9.8 (7.7)	-	-	-	320	103	-	-	-	81	504
Total	80.5 (13.1)	9.8 (7.7)	36.3 (9.1)	11.4 (6.5)	11.8 (17.2)	770	103	726	182	153	183	2117

1/ - Figures in parenthesis are standard deviations.

2/ - a) Average wage rate for men and women during 1984 was Rs. 9/day for all tasks except harvesting which was Rs. 10.50/day.

b) Hire of bullock pair only was Rs. 20/day. Plow man was Rs. 9/day.

c) Pump hire was Rs. 16/hour.

d) Bullock-cart hire was Rs. 13/trip.

e) Average cost of tiffin was Rs. 2/day for men and women.

3/ - Plowing involved in planting is included.

// 41 //

Appendix 20. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MAIZE CROP IN THE R-MU-M CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE BAHUWARI TUBE-WELL CROPPING SYSTEMS SITE

Task	Labor/Power(Days/ha) ^{1/}			Irrigation Pump ^{1/} (hr/ha)	Cart ^{1/} Trips/ha.	Costs (Rs./ha.) ^{2/}					Total		
	Men	Women	Bullocks			Men	Wo-men	Bull-ocks	Irrig. Pump	Cart Hire		Tiffin	
Plowing	23.1 (11.0)	-	23.1 (11.0)	-	-	208	-	462	-	-	46	716	
Land Shaping	6.2 (3.2)	-	-	-	-	56	-	-	-	-	12	68	
Compost	2.9 (0.8)	-	-	-	13.5 (4.7)	26	-	-	-	-	176	6	203
Applying Compost	3.2 (1.1)	-	-	-	-	29	-	-	-	-	6	35	
Applying Chemical Fertilizer	1.4 (1.2)	-	-	-	-	13	-	-	-	-	3	16	
Planting	23.8 (6.3)	4.5 (9.1)	-	-	-	214	41	-	-	-	57	312	
Irrigation	4.0 (1.2)	-	-	26.0 (7.8)	-	36	-	-	416	-	8	460	
Weeding	29.4 (4.5)	23.8 (10.0)	-	-	-	265	214	-	-	-	106	585	
Harvesting and Threshing	24.8 (8.9)	4.1 (8.2)	-	-	-	223	37	-	-	-	58	318	
Total	118.8 (20.0)	32.4 (12.8)	23.1 (11.0)	26.0 (7.8)	13.5 (4.7)	1070	292	462	416	176	302	2718	

^{1/} - Figures in parenthesis are standard deviations.

- ^{2/} - a) Average wage rate for men and women for all involved tasks was Rs. 9/day
 b) Hire of bullock pair only was Rs. 20/day. Plow man was Rs. 9/day.
 c) Pump hire was Rs. 16/hour.
 d) Bullock-cart hire was Rs. 13/trip.
 e) Average cost of tiffin was Rs. 2/day for both men and women.

// 42 //

Appendix 21. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MUSTARD CROP IN THE R-MU-M CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE BAHUWARI TUBE-WELL CROPPING SYSTEMS SITE

Task	Labor/Power (Days/ha) ^{1/}			Irrigation Pump ^{1/} (hr/ha)	Cart ^{1/} Trips/ha.	Costs (Rs./ha.) ^{2/}					Total	
	Men	Women	Bullocks			Men	Wo-men	Bull-ocks	Irrig. Pump	Cart Hire		Tiffin
Plowing	38.3 (16.7)	-	38.3 ^{2/} (16.7)	-	-	345	-	766	-	-	77	1188
Land Shaping	8.1 (1.4)	-	-	-	-	73	-	-	-	-	16	89
Compost	3.9 (1.5)	-	-	-	14.7 (4.9)	35	-	-	-	191	8	234
Applying Compost	4.8 (2.5)	-	-	-	-	43	-	-	-	-	10	53
Applying Chemical Fertilizer	1.5 (0.9)	-	-	-	-	14	-	-	-	-	4	18
Planting	1.2 (0.4)	-	-	-	-	11	-	-	-	-	2	13
Irrigation	1.6 (1.1)	-	-	10.2 (7.0)	-	14	-	-	163	-	-	177
Harvesting and Threshing	37.9 (17.7)	6.9 (11.0)	-	-	-	341	62	-	-	-	90	493
Total	97.3 (29.0)	6.9 (11.0)	38.3 (16.7)	10.2 (7.0)	14.7 (4.9)	876	62	766	163	191	207	2265

^{1/} - Figures in parenthesis are standard deviations.

- ^{2/} - a) Average wage rate for men and women for all tasks was Rs. 9/day
 b) Hire of bullock pair only was Rs. 20/day. Plow man was Rs. 9/day.
 c) Pump hire was Rs. 16/hour.
 d) Bullock-cart hire was Rs. 13/trip.
 e) Average cost of tiffin was Rs. 2/day for both men and women.

^{3/} - Plowing for planting is also included.

// 43 //

Appendix 22. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MUNGBEAN CROP IN THE R-W-MUNG CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE BAHUWARI TUBE-WELL CROPPING SYSTEMS SITE

Task	Labor/Power(Days/ha) 1/			Irrigation Pump 1/ (hr./ha.)	Cart 1/ Trips/ ha.	Costs (Rs./ha.) 2/					Total	
	Men	Women	Bullocks			Men	Wo-men	Bull-ocks	Irrig. Pump	Cart Hire		Tiffin
Plowing	33.7 (14.3)	-	33.7 3/ (14.3)	-	-	303	-	674	-	-	67	1044
Land Shaping	9.8 (0.6)	-	-	-	-	88	-	-	-	-	20	108
Compost	3.4 (2.9)	-	-	-	12.3 (14.7)	31	-	-	-	160	7	198
Applying Compost	2.7 (3.1)	-	-	-	-	24	-	-	-	-	6	30
Applying Chemical Fertilizer	1.6 (1.0)	-	-	-	-	14	-	-	-	-	4	18
Planting	1.3 (0.8)	-	-	-	-	12	-	-	-	-	3	15
Irrigation	1.9 (1.9)	-	-	12.3 (12.3)	-	17	-	-	197	-	4	218
Harvesting	59.9 (38.4)	15.5 (13.2)	-	-	-	539	140	-	-	-	-	830
Total	114.3 (35.9)	15.5 (13.2)	33.7 (14.3)	12.3 (12.3)	12.3 (14.7)	1028	140	674	197	160	262	2461

1/ Figures in parenthesis are standard deviations.

- 2/ - a) Average wage rate for both men and women for all tasks was Rs. 9/day.
 b) Hire of a bullock pair only for plowing was Rs. 20/day. Plow man was Rs. 9/day.
 c) Pump hire was Rs. 16/hour.
 d) Bullock-cart hire was Rs. 13/trip.
 e) Average cost of tiffin was Rs. 2/day for both men women.

3/ - Includes plowing involved with planting.

Appendix 23. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE DRAINAGE CROP IN THE R-W-DH CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE BAHUWARI TUBE WELL CROPPING SYSTEMS SITE

Task	Labor/Power (Days/ha) ^{1/}			Irrigation Pump ^{1/} (hr./ha.)	Costs (Rs./ha.) ^{2/}					
	Men	Women	Bullocks		Men	Women	Bullocks	Irrig. Pump	Tiffin	Total
Plowing	24.1 (8.3)	-	24.1 ^{3/} (8.3)	-	217	-	482	-	48	747
Land Shaping	7.6 (9.0)	-	-	-	68	-	-	-	15	83
Planting	0.8 (0.5)	-	-	-	7	-	-	-	2	9
Irrigation	3.0 (2.1)	-	-	19.6 (13.9)	27	-	-	314	6	347
Incorporation	15.1 (8.6)	1.7 (3.7)	12.0 (7.0)	-	136	15	240	-	34	425
Total	55.5 (19.1)	1.7 (3.7)	36.1 (8.3)	19.6 (13.9)	455	15	722	314	105	1611

^{1/} - Figures in Parenthesis are standard deviations.

- ^{2/} - a) Average wage rate for both men and women was Rs. 9/day.
 b) Hire of a bullock pair only for plowing was Rs. 20/day. Plow man was Rs. 9/day.
 c) Pump hire was Rs. 16/hour.
 d) Average cost of tiffin was Rs. 2/day for both men and women.

^{3/} - Includes plowing involved with planting.

// 45 //

Appendix 24. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE RICE CROP IN THE R-W-F CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE RATNA NAGAR CROPPING SYSTEMS SITE 1/

Task	Labor/Power(Days/ha) 2/			Tractor Hire 2/ (hr/ha)	Cart 2/ Trips/ha.	Costs (Rs./ha.) 3/					Total	
	Men	Women	Bullocks			Men	Wo-men	Bull-ocks	Tractor Hire	Cart Hire		Tiffin
Plowing	24.3 (14.7)	-	24.3 (14.7)	2.2 (4.7)	-	-	-	802	290	-	49	1141
Land Shaping	7.6 (6.6)	-	-	-	-	106	-	-	-	-	15	121
Compost Application	1.9 (2.9)	0.7 (2.3)	-	-	3.9 (9.1)	27	9	-	-	47	5	88
Applying Chemical Fertilizer	0.6 (0.4)	-	-	-	-	8	-	-	-	-	2	10
Uprooting Seedlings	6.2 (2.1)	0.5 (1.2)	-	-	-	87	6	-	-	-	13	106
Transplanting	-	22.5 (3.7)	-	-	-	-	281	-	-	-	45	326
Weeding	12.1 (8.5)	13.9 (8.0)	-	-	-	169	174	-	-	-	52	395
Harvesting	13.4 (4.7)	6.9 (6.4)	-	-	-	188	86	-	-	-	41	315
Threshing	14.9 (7.9)	-	-	-	-	209	-	-	-	-	30	239
Total	81.0 (37.1)	44.5 (11.8)	24.3 (14.7)	2.2 (4.7)	3.9 (9.1)	794	556	802	290	47	252	2741

1/ - Please note that following footnotes apply to Appendices 24 - 36.

2/ - Figures in parenthesis are standard deviations.

- 3/ - a) Average wage rate for men was Rs. 14/day and for women Rs. 12.50/day
 b) Hire of bullock pair plus plowman averaged Rs. 33/day
 c) Tractor hire averaged Rs. 132/hour.
 d) Hire of bullock-cart averaged Rs. 12/trip.
 e) Average cost of tiffin was Rs. 2/day for both men and women.

Appendix 25. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE WHEAT CROP IN THE R-W-F CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE RATNA NAGA, CROPPING SYSTEMS SITE 1/

Task	Labor/Power(Days/ha)			Tractor Hire (hr/ha)	Cart Trips/ha.	Costs (Rs./ha.)					Tiffin	Total
	Men	Women	Bullocks			Men	Wo-men	Bull-ocks	Tractor Hire	Cart Hire		
Plowing	23.0 (15.9)	-	23.0 2/ (15.9)	2.9 (5.1)	-	-	-	759	383	-	46	1188
Land Shaping	2.2 (3.0)	-	-	-	-	31	-	-	-	-	4	35
Compost Application	0.6 (2.0)	-	-	-	1.8 (5.8)	8	-	-	-	22	2	32
Applying Chemical Fertilizer	1.6 (2.1)	-	-	-	-	22	-	-	-	-	4	26
Planting	1.4 (2.1)	-	-	-	-	20	-	-	-	-	2	22
Harvesting	12.0 (2.4)	14.4 (6.6)	-	-	-	168	180	-	-	-	53	401
Threshing	7.6 (8.6)	1.1 (2.4)	-	4.0 (2.2)	-	106	14	-	528	-	17	665
Total	48.4 (26.9)	15.5 (7.0)	23.0 (15.9)	6.9 (6.8)	1.8 (5.8)	355	194	759	911	22	128	2369

1/ - See footnotes in Appendix 24 for explanations.

2/ - Includes plowing involved with planting.

Appendix 26. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MUNG-BEAN CROP IN THE R-W MG CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE RATNA NAGAR CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Tractor Hire (hr/ha)	Cart Trips/ha.	Costs (Rs./ha.)					Total	
	Men	Women	Bullocks			Men	Wo-men	Bull-ocks	Tractor Hire	Cart Hire		Tiffin
Plowing	29.1 (6.1)	-	29.1 ^{2/} (6.1)	0.7 (1.5)	-	-	-	960	92	-	58	1110
Land Shaping	5.5 (5.9)	-	-	-	-	77	-	-	-	-	11	88
Compost Application	-	9.4 (13.2)	-	-	-	118	-	-	-	-	19	137
Applying Chemical Fertilizer	-	1.7 (2.9)	-	-	-	-	21	-	-	-	4	25
Planting	3.2 (3.6)	-	-	-	-	45	-	-	-	-	6	51
Weeding	9.1 (12.6)	15.3 (17.5)	-	-	-	127	191	-	-	-	49	367
Harvesting	14.0 (26.1)	41.3 (33.6)	-	-	-	196	516	-	-	-	111	823
Threshing	2.0 (4.4)	11.3 (5.6)	-	-	-	28	141	-	-	-	27	196
Total	62.9 (32.1)	79.0 (60.3)	29.1 (6.1)	0.7 (1.5)	-	473	987	960	92	-	285	2797

1/ - See footnotes in Appendix 24 for explanations.

2/ - Includes plowing involved with planting.

Appendix 27. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE DHAINCHA CROP IN THE R-W-DH CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE RATNA NAGAR CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Tractor Hire (hr/ha)	Costs (Rs./ha.)					
	Man	Women	Bullocks		Men	Women	Bull-ocks	Tractor Hire	Tiffin	Total
Plowing	9.5 (7.3)	-	9.5 ^{2/} (7.3)	1.2 (2.51)	-	-	314	158	19	491
Land Shaping	0.8 (1.3)	-	-	-	11	-	-	-	2	13
Planting	0.5 (0.4)	-	-	-	7	-	-	-	2	9
Incorporation	10.1 (8.6)	1.7 (3.7)	6.9 (7.0)	1.3 (1.5)	45	21	228	172	24	410
Total	20.9 (15.8)	1.7 (4.0)	16.4 (13.7)	2.5 (3.5)	63	21	542	330	47	1003

// 49 //

1/ - See footnotes in Appendix 24 for explanations.

2/ - Includes plowing involved with planting.

Appendix 28. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE RICE CROP IN THE R-F-F CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE RATNA NAGAR CROPPING SYSTEMS SITE 1/

Task	Labor/Power(Days/ha)			Tractor Hire (hr/ha)	Cart Trips/ha.	Costs (Rs./ha.)					Tiffin	Total
	Men	Women	Bullocks			Men	Wo-men	Bull-ocks	Tractor Hire	Cart Hire		
Plowing	23.5 (12.1)	-	23.5 (12.1)	0.2 (0.5)	-	-	-	778	26	-	47	851
Land Shaping	4.7 (3.7)	-	-	-	-	66	-	-	-	-	9	75
Compost Application	1.4 (2.4)	-	-	-	6.0 (10.5)	20	-	-	-	72	3	95
Uprooting Seedlings	5.0 (1.0)	0.3 (0.9)	-	-	-	70	4	-	-	-	11	85
Transplanting	-	23.7 (4.7)	-	-	-	-	296	-	-	-	47	343
Weeding	10.8 (2.8)	11.1 (5.1)	-	-	-	151	139	-	-	-	44	334
Harvesting	11.3 (3.7)	13.2 (5.3)	-	-	-	158	165	-	-	-	65	388
Threshing	15.2 (8.2)	-	-	-	-	213	-	-	-	-	30	243
Total	71.9 (1.2)	48.3 (12.2)	23.5 (12.1)	0.2 (0.5)	6.0 (10.5)	678	604	778	26	72	256	2414

1/ - See footnotes in Appendix 24 for explanations.

// 50 //

Appendix 29. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MAIZE CROP IN THE R-F-M CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE RATNA NAGAR CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Tractor Hire (hr/ha)	Cart Trips/ha.	Costs (Rs./ha.)						
	Men	Women	Bullocks			Men	Women	Bull-ocks	Tractor Hire	Cart Hire	Tiffin	Total
Plowing	20.8 (6.8)	-	20.8 2/ (6.8)	0.7 (1.7)	-	-	-	686	92	-	42	820
Land Shaping	2.9 (2.0)	-	-	-	-	41	-	-	-	-	6	47
Compost Application	4.3 (3.7)	0.5 (1.2)	-	-	8.7 (9.7)	60	6	-	-	104	10	180
Planting	1.5 (1.7)	3.7 (3.6)	-	-	-	21	46	-	-	-	10	77
Weeding	12.5 (4.6)	9.6 (3.4)	2.6 (2.0)	-	-	139	120	86	-	-	44	389
Harvesting	5.2 (1.7)	4.9 (1.8)	-	-	-	73	61	-	-	-	20	154
Total	47.2 (12.5)	18.7 (5.9)	23.4 (8.3)	0.7 (1.7)	8.7 (9.7)	334	233	772	92	104	132	1667

// 51 //

1/ - See footnotes in Appendix 24 for explanations.

2/ - Includes plowing involved with planting.

Appendix 30. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MUSTARD CROP IN THE R-MU-F CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE RATNA NAGAR CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Tractor Hire (hr/ha)	Cart Trips/ha.	Costs (Rs./ha.)					Tiffin	Total
	Men	Women	Bullocks			Men	Wo-men	Bull-ocks	Tractor Hire	Cart Hire		
Plowing	19.1 (10.7)	-	19.1 ^{2/} (10.7)	1.32 (2.9)	-	-	-	630	174	-	38	842
Land Shaping	1.2 (2.3)	-	-	-	-	17	-	-	-	-	2	19
Compost Application	1.4 (2.3)	0.6 (1.9)	-	-	2.5 (5.3)	20	8	-	-	30	4	62
Applying Chemical Fertilizer	0.4 (0.2)	-	-	-	-	6	-	-	-	-	2	8
Planting	0.4 (0.2)	-	-	-	-	6	-	-	-	-	2	8
Harvesting	9.5 (4.2)	12.9 (6.2)	-	-	-	133	161	-	-	-	47	341
Threshing	13.6 (6.0)	-	-	-	-	190	-	-	-	-	27	217
Total	45.6 (14.0)	13.5 (6.3)	19.1 (10.7)	1.32 (2.9)	2.5 (5.3)	372	169	630	174	30	122	1497

1/ - See footnotes in Appendix 24 for explanations.

2/ - Includes plowing involved with planting.

Appendix 31. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE RELAYED LENTIL CROP IN THE R/L-F CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE RATNA NAGAR CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Tractor Hire (hr/ha)	Cart Trips/ha	Costs (Rs./ha.)					Tiffin	Total
	Men	Women	Bullocks			Men	Wo-men	Bull-ocks	Tractor Hire	Cart Hire		
Plowing	0.5 (0.4)	-	-	-	-	7	-	-	-	-	2	9
Harvesting	8.6 (3.7)	5.7 (5.3)	-	-	-	120	71	-	-	-	29	220
Threshing	8.5 (8.8)	1.2 (2.8)	-	0.9 (1.2)	-	115	15	-	119	-	18	271
Total	17.6 (10.6)	6.9 (5.4)	-	0.9 (1.2)	-	246	86	-	119	-	49	500

1/ - See footnotes in Appendix 24 for explanations.

Appendix 32. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MAIZE CROP IN THE M-MU-F CROPPING PATTERN IN THE RAINFED UPLANDS AT THE RATNA NAGAR CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Tractor Hire (hr/ha)	Cart Trips/ha.	Costs (Rs./ha.)					Tiffin	Total
	Men	Women	Bullocks			Men	Wo-men	Bull-ocks	Tractor Hire	Cart Hire		
Plowing	22.8 (8.5)	-	22.8 2/ (8.5)	0.4 (0.9)	-	-	-	752	53	-	46	851
Land Shaping	1.1 (1.6)	-	-	-	-	15	-	-	-	-	2	17
Compost Application	4.8 (3.2)	-	-	-	24.1 (15.7)	67	-	-	-	289	10	366
Applying Chemical Fertilizer	0.1 (0.2)	-	-	-	-	2	-	-	-	-	-	2
Planting	4.0 (3.9)	1.2 (1.9)	-	-	-	56	15	-	-	-	10	81
Weeding	16.8 (7.3)	12.9 (5.9)	1.8 (2.2)	-	-	210	161	59	-	-	59	489
Harvesting	8.0 (4.7)	6.0 (5.0)	-	-	-	112	75	-	-	-	28	215
Total	57.6 (18.7)	20.1 (8.9)	24.6 (8.8)	0.4 (0.9)	24.1 (15.7)	462	251	811	53	289	155	2021

1/ - See footnotes in Appendix 24 for explanations.

2/ --Includes plowing involved for planting.

Appendix 33. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE SECOND MAIZE CROP IN THE M-M/W CROPPING PATTERN IN THE RAINFED UPLANDS AT THE RATNA NAGAR CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Tractor Hire (hr/ha)	Costs (Rs./ha.)					
	Men	Women	Bullocks		Men	Women	Bull-ocks	Tractor Hire	Tiffin	Total
Plowing	18.8 (12.3)	-	18.8 (12.3)	1.8 (2.2)	-	-	620	238	38	896
Land Shaping	1.2 (2.5)	-	-	-	17	-	-	-	2	19
Compost Application	1.4 (1.6)	4.2 (5.6)	-	-	20	53	-	-	11	84
Applying Chemical Fertilizer	2.3 (2.0)	-	-	-	32	-	-	-	5	37
Planting	12.3 (6.1)	3.7 (4.4)	-	-	172	46	-	-	32	250
Weeding	40.1 (12.8)	26.0 (17.9)	-	-	561	325	-	-	132	1018
Harvesting	7.9 (2.3)	2.2 (4.4)	-	-	111	28	-	-	20	159
Total	84.0 (33.4)	36.1 (24.3)	18.8 (12.3)	1.8 (2.2)	913	452	620	238	240	2463

1/ - See footnotes in Appendix 24 for explanations.

// 55 //

Appendix 34. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE RELAYED WHEAT CROP IN THE M-M/W CROPPING PATTERN IN THE RAINFED UPLANDS AT THE RATNA NAGAR CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)				Total
	Men	Women	Bullocks	Men	Women	Bullocks	Tiffin	
Land Preparation	7.5 (10.2)	3.5 (7.9)	-	105	44	-	22	171
Applying Chemical Fertilizer	4.5 (8.5)	-	-	63	-	-	9	72
Planting	11.1 (16.2)	8.4 (14.0)	-	155	105	-	39	299
Harvesting	20.0 (12.2)	21.0 (13.3)	-	280	263	-	82	625
Threshing	10.0 (7.6)	16.2 (10.6)	-	140	203	-	52	395
Total	53.1 (23.5)	49.1 (28.6)	-	743	615	-	204	1562

1/ - See footnotes in Appendix 24 for explanations.

Appendix 35. ESTIMATES OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MUSTARD CROP IN THE M-MU-F CROPPING PATTERN IN THE RAINFED UPLANDS AT THE RATNA NAGAR CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Tractor Hire (hr/ha)	Cart Trips/ha	Costs (Rs./ha.)					Tiffin	Total
	Men	Women	Bullocks			Men	Wo-men	Bull-ocks	Tractor Hire	Cart Hire		
Flowing	20.3 (11.0)	-	20.3 2/ (11.0)	0.5 (1.2)	-	-	-	670	66	-	41	777
Land Shaping	0.7 (1.1)	-	-	-	-	10	-	-	-	-	2	12
Compost Application	2.4 (3.2)	-	-	-	14.7 (20.4)	34	-	-	-	176	5	215
Applying Chemical Fertilizer	0.5 (0.4)	-	-	-	-	7	-	-	-	-	2	9
Planting	0.6 (0.5)	-	-	-	-	8	-	-	-	-	2	10
Harvesting	12.7 (2.9)	11.5 (3.1)	-	-	-	178	144	-	-	-	48	370
Threshing	11.3 (4.3)	2.0 (4.8)	-	-	-	158	25	-	-	-	27	210
Total	48.5 (15.0)	13.5 (5.6)	20.3 (11.0)	0.5 (1.2)	14.7 (20.4)	395	169	670	66	176	127	1603

1/ - See footnotes in Appendix 24 for explanations.

2/ - Includes plowing involved with planting.

11 57 11

Appendix 36. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE RICE CROP IN THE R-W-M CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE PUMDI BHUMDI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha) 2/			Costs (Rs./ha.) 3/					Total
	Men	Women	Bullocks	Men	Women	Bullocks	Meals	Tiffin	
Plowing	15.3 (6.1)	-	15.3 (6.1)	306	-	306	153	46	811
Land Shaping	9.6 (7.3)	-	-	192	-	-	48	29	269
Compost Application	1.3 (3.5)	1.2 (3.8)	-	26	13	-	13	8	60
Uprooting Seedlings	-	7.9 (3.4)	-	-	87	-	40	24	151
Transplanting	6.0 (9.7)	26.0 (9.0)	-	120	236	-	160	96	662
Weeding	4.5 (7.6)	23.3 (5.2)	-	90	256	-	139	83	568
Harvesting	12.1 (6.8)	13.3 (5.2)	-	242	146	-	127	51	566
Threshing	25.1 (9.2)	2.7 (4.7)	-	502	30	-	139	83	754
Total	73.9 (21.9)	74.4 (13.4)	15.3 (6.1)	1478	818	306	819	420	3841

1/ - Footnotes are applicable for Appendices 36 to 45.

2/ - Figures in parenthesis are standard deviations.

3/ - a) Average wage rate for men was Rs. 20/day and for women was Rs. 11/day.
 b) Hire of bullock pair only was Rs. 20/day. Plowman received Rs. 20/day.
 c) Both hired men and women received a meal worth Rs. 5 and a tiffin worth Rs. 3 for each. A plowman received two meals worth Rs.5 per day plus tiffin worth Rs. 3.

Appendix 37. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE WHEAT CROP IN THE R-W-M CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE PUMDI BHUMDI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)					Total
	Men	Women	Bullocks	Men	Women	Bullocks	Meals	Tiffin	
Plowing	9.8 (1.4)	-	9.8 2/ (1.4)	196	-	196	98	29	519
Land Shaping	5.6 (6.8)	7.9 (9.5)	-	112	87	-	68	41	308
Compost Application	2.5 (2.1)	15.5 (11.8)	-	50	171	-	90	54	365
Applying Chemical Fertilizer	0.5 (0.9)	-	-	10	-	-	-	-	10
Planting	1.8 (0.8)	-	-	36	-	-	10	6	52
Harvesting	11.7 (8.2)	16.1 (7.2)	-	234	177	-	135	83	629
Threshing	18.5 (6.2)	11.2 (6.0)	-	370	123	-	149	89	731
Total	50.4 (14.3)	50.7 (23.3)	9.8 (1.4)	1008	558	196	550	302	2614

// 59 //

1/ - See footnotes in Appendix 36 for details.

2/ - Includes plowing involved with planting.

Appendix 38. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MAIZE CROP IN THE R-W-M CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE PUMDI BHUMDI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)					
	Men	Women	Bullocks	Men	Women	Bullocks	Meals	Tiffin	Total
Plowing	27.1 (6.3)	-	27.1 2/ (6.3)	542	-	542	271	51	1436
Land Shaping	15.4 (3.9)	22.1 (7.3)	-	308	243	-	133	113	852
Compost Application	5.0 (6.9)	35.6 (21.2)	-	100	392	-	203	122	817
Planting	9.6 (1.2)	1.3 (3.5)	-	192	14	-	55	33	294
Weeding	19.2 (13.2)	28.3 (15.5)	-	384	311	-	238	143	1076
Harvesting	8.8 (6.7)	6.3 (11.9)	-	176	69	-	76	45	366
Total	85.1 (29.0)	93.6 (24.9)	27.1 (6.3)	1702	1029	542	1031	537	4841

1/ - See footnotes in Appendix 36 for details.

2/ - Includes plowing involved with planting.

// 09 //

Appendix 39. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE RICE CROP IN THE R-F-F CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE PUMDI BHUMDI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)					Total
	Men	Women	Bullocks	Men	Women	Bullocks	Meals	Tiffin	
Plowing	16.4 (5.6)	-	16.4 (5.6)	328	-	328	164	49	869
Land Shaping	13.4 (6.7)	-	-	268	-	-	67	40	375
Compost Transport	-	4.4 (9.0)	-	-	48	-	22	13	83
Compost Application	1.0 (2.2)	-	-	20	-	-	5	3	28
Applying Chemical Fertilizer	0.2 (0.4)	-	-	4	-	-	-	-	4
Uprooting Seedlings	3.3 (7.1)	6.7 (4.8)	-	66	74	-	50	30	220
Transplanting	5.3 (9.0)	25.2 (3.6)	-	106	277	-	153	92	628
Weeding	5.2 (6.8)	21.4 (6.4)	-	104	236	-	133	80	553
Harvesting	11.4 (6.1)	13.0 (7.8)	-	228	143	-	122	73	566
Threshing	19.4 (10.4)	2.1 (3.4)	-	388	23	-	108	43	562
Total	75.6 (25.1)	72.8 (16.5)	16.4 (5.6)	1512	801	328	824	423	3888

// 61 //

1/ - See footnotes in Appendix 36 for details.

Appendix 40. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MAIZE CROP IN THE R-F-M CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE PUMDI BHUMDI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)					
	Men	Women	Bullocks	Men	Women	Bullocks	Meals	Tiffin	Total
Plowing	26.3 (7.4)	-	26.3 2/ (7.4)	526	-	526	263	79	1394
Land Shaping	12.4 (6.4)	20.3 (2.9)	-	248	223	-	164	98	733
Compost Application	12.0 (11.6)	23.8 (14.1)	-	240	262	-	179	107	788
Planting	7.2 (3.6)	-	-	144	-	-	36	22	202
Weeding	20.8 (12.9)	23.8 (16.9)	-	416	262	-	223	134	1035
Harvesting	11.7 (8.2)	2.3 (4.2)	-	234	25	-	70	-	371
Total	90.4 (35.9)	70.2 (21.2)	26.3 (7.4)	1808	772	526	935	482	4523

1/ - See footnotes in Appendix 36 for details.

2/ - Includes plowing involved for planting.

Appendix 41. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE OAT CROP IN THE R-O-F CROPPING PATTERN IN THE RAINFED LOWLANDS AT THE PUMDI BHUMDI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)					
	Men	Women	Bullocks	Men	Women	Bullocks	Mials	Tiffin	Total
Plowing	14.6 (7.0)	-	14.6 2/ (7.0)	292	-	292	146	44	774
Land Shaping	10.0 (9.4)	3.8 (7.6)	-	200	42	-	69	41	352
Applying Chemical Fertilizer	0.1 (0.3)	0.1 (0.3)	-	2	1	-	-	-	3
Planting	1.8 (0.8)	-	-	36	-	-	10	6	52
Harvesting 3/	9.5 (14.8)	14.8 (18.0)	-	190	163	-	122	73	548
Total	36.0 (25.9)	18.7 (20.7)	14.6 (7.0)	720	206	292	347	164	1729

1/ - See footnotes in Appendix 36 for details

2/ - Includes plowing involved with planting

3/ - Used as fresh fodder.

Appendix 42. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MAIZE CROP IN THE M/M-W CROPPING PATTERN IN THE RAINFED UPLANDS AT THE PUMDI BHUMDI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)					
	Men	Women	Bullocks	Men	Women	Bullocks	Meals	Tiffin	Total
Plowing	23.1 (8.6)	-	23.1 2/- (8.6)	462	-	462	231	69	1224
Land Shaping	10.7 (8.0)	20.9 (12.0)	-	214	230	-	158	95	697
Compost Application	5.1 (4.4)	31.7 (11.2)	-	102	349	-	184	118	753
Planting	6.1 (4.1)	1.3 (2.8)	-	122	14	-	37	22	195
Weeding	25.9 (11.5)	30.6 (14.7)	-	518	337	-	283	170	1308
Harvesting	8.7 (9.3)	7.8 (8.4)	-	174	86	-	83	50	393
Total	79.6 (21.8)	92.3 (16.4)	23.1 (8.6)	1592	1016	462	976	524	4570

// 64 //

1/ - See footnotes in Appendix 36 for details

2/ - Includes plowing involved for planting.

Appendix 43. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE FINGER MILLET CROP IN THE M/FM-W CROPPING PATTERN IN THE RAINFED UPLANDS AT THE PUMDI BHUMDI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)					
	Men	Women	Bullocks	Men	Women	Bullocks	Meal	Tiffin	Total
Land Preparation	24.9 (7.7)	-	-	498	-	-	125	75	698
Transplanting	-	66.4 (17.5)	-	-	730	-	332	199	1261
Weeding	-	67.5 (15.5)	-	-	743	-	338	203	1284
Harvesting	-	34.0 (10.9)	-	-	374	-	170	102	646
Threshing	1.4 (3.8)	27.1 (11.1)	-	15	298	-	143	86	542
Total	26.3 (9.5)	195.0 (43.3)	-	513	2145	-	1108	665	4431

1/ - See footnotes in Appendix 36 for details.

// 65 //

Appendix 44. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE WHEAT CROP IN THE M/FM-W CROPPING PATTERN IN THE RAINFED UPLANDS AT THE PUMDI BHUMDI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)					
	Men	Women	Bullocks	Men	Women	Bullocks	Meals	Tiffin	Total
Plowing	9.3 (2.3)	-	9.3 2/ (2.3)	186	-	186	93	28	493
Land Shaping	4.8 (5.9)	2.2 (3.6)	-	96	23	-	31	21	175
Compost Application	1.6 (3.3)	15.6 (14.4)	-	32	172	-	86	52	342
Planting	2.6 (3.8)	4.9 (6.8)	-	52	54	-	38	23	167
Harvesting	11.8 (9.4)	19.9 (15.2)	-	236	219	-	159	95	709
Threshing	10.4 (8.7)	19.0 (12.2)	-	208	209	-	147	88	652
Total	40.5 (17.4)	61.6 (35.0)	9.3 (2.3)	810	677	186	558	307	2538

// 66 //

1/ - See footnotes in Appendix 36 for details

2/ - Includes plowing involved for planting.

Appendix 45. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MUSTARD CROP IN THE M/FM-MU CROPPING PATTERN IN THE RAINFED UPLANDS AT THE PUMDI BHUMDI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)					
	Men	Women	Bullocks	Men	Women	Bullocks	Meal	Tiffin	Total
Plowing	13.5 (4.6)	-	13.5 (4.6)	270	-	270	135	41	716
Land Shaping	7.3 (7.0)	8.0 (8.0)	-	146	88	-	77	46	357
Compost Application	4.3 (3.7)	31.5 (18.9)	-	86	347	-	179	107	719
Planting	0.4 (0.5)	0.3 (1.7)	-	8	3	-	-	-	11
Harvesting	-	25.9 (4.7)	-	-	285	-	130	78	493
Threshing	2.3 (5.0)	17.7 (6.4)	-	46	195	-	100	60	401
Total	27.8 (12.6)	83.4 (22.4)	13.5 (4.6)	556	918	270	621	332	2697

1/ - See footnotes in Appendix 36 for details.

// 67 //

Appendix 46. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE RICE CROP IN THE R-W+MU-F CROPPING PATTERN IN IRRIGATED LOWLANDS AT THE CHAURI JAHARI CROPPING SYSTEMS SITE

Task	Labor/Power (Days/ha) 1/			Costs (Rs./ha.) 2/				
	Men	Women	Bullocks	Men	Women	Bullocks	tiffin	Total
Plowing	19.3 (3.0)	-	19.3 (3.0)	231	-	347	169	747
Land Shaping	9.2 (5.9)	-	-	110	-	-	30	140
Compost Transport	-	15.7 (13.2)	-	-	183	-	51	239
Compost Application	3.3 (5.3)	-	-	40	-	-	11	51
Applying Chemical Fertilizer	0.4 (0.4)	-	-	5	-	-	-	5
Uprooting Seedlings	15.5 (8.1)	-	-	186	-	-	50	236
Transplanting	-	35.2 (16.3)	-	-	422	-	114	536
Irrigation	17.1 (12.6)	-	-	205	-	-	56	261
Weeding	-	30.7 (9.4)	-	-	363	-	100	463
Harvesting	-	22.2 (7.1)	-	-	266	-	72	338
Threshing	18.5 (7.7)	-	-	222	-	-	60	282
Total	83.3 (33.8)	103.3 (38.1)	19.3 (3.0)	999	1244	347	713	3303

1/ - Figures in parenthesis are standard deviations

- 2/ - a) Average wage rate for men and women was Rs.12/day
 b) Average hire rate for bullock pair only was Rs.18/day. Plow man received Rs.12/day.
 c) Tiffin valued at Rs.3.25 was provided to both men and women hired labors each day. A hired plow man was also provided a meal each day valued at Rs.5.50.

// GA //

Appendix 47. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE WHEAT-MUSTARD CROPS IN THE R-W+MU-F CROPPING PATTERN IN IRRIGATED LOWLANDS AT THE CHAURI JAHARI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)				
	Men	Women	Bullocks	Men	Women	Bullocks	Tiffin	Total
Plowing	25.5 (10.1)	-	25.5 2/ (10.1)	306	-	459	223	988
Land Shaping	-	8.6 (5.8)	-	-	103	-	28	131
Compost Transport	-	11.9 (13.3)	-	-	143	-	39	182
Compost Application	-	2.0 (2.8)	-	-	24	-	7	31
Applying Chemical Fertilizer	0.8 (0.6)	-	-	10	-	-	3	13
Planting	0.6 (0.5)	-	-	7	-	-	3	10
Irrigation	8.9 (5.9)	-	-	107	-	-	29	136
Harvesting	Mustard	-	10.5 (4.3)	-	126	-	34	160
	Wheat	-	29.8 (15.1)	-	358	-	97	455
Threshing	Mustard	-	7.3 (1.6)	-	94	-	25	119
	Wheat	8.8 (4.3)	7.4 (2.6)	11.1 (3.9)	106	89	200	53
Total	44.6	78.0	36.6	536	937	659	541	2673

1/ - See footnotes in Appendix 46 for details

2/ - Includes plowing involved for planting.

// 69 //

Appendix 48. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE RICE CROP IN THE R-W+MU-F CROPPING PATTERN IN PARTIALLY IRRIGATED LOWLANDS AT THE CHAURI JAHARI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)				Tiffin	Total
	Men	Women	Bullocks	Men	Women	Bullocks			
Plowing	28.4 (5.2)	-	28.4 (5.2)	341	-	511	249	1101	
Land Shaping	13.3 (5.5)	-	-	160	-	-	43	203	
Compost Transport	-	16.8 (6.1)	-	-	202	-	55	257	
Compost Application	5.6 (4.2)	-	-	67	-	-	18	85	
Applying Chemical Fertilizer	1.2 (1.2)	-	-	14	-	-	3	17	
Uprooting Seedlings	21.0 (1.3)	-	-	252	-	-	62	320	
Transplanting	-	52.8 (15.9)	-	-	634	-	172	806	
Irrigation	10.3 (10.5)	-	-	124	-	-	33	157	
Weeding	-	50.5 (18.3)	-	-	606	-	164	770	
Harvesting	-	36.5 (14.3)	-	-	433	-	119	557	
Threshing	31.8 (2.5)	-	-	382	-	-	103	485	
Total	111.6 (12.2)	156.6 (40.5)	28.4 (5.2)	1340	1830	511	1027	4758	

1/ - See footnotes in Appendix 46 for details.

Appendix 49. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE WHEAT-MUSTARD CROPS IN THE R-W+MU-F CROPPING PATTERN IN PARTIALLY IRRIGATED LOWLANDS AT THE CHAJURI JAHARI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)				Total
	Men	Women	Bullocks	Men	Women	Bullocks	Tiffin	
Plowing	27.5 (4.3)	-	27.5 2/ (4.3)	330	-	495	241	1066
Land Shaping	-	13.6 (2.8)	-	-	163	-	44	207
Compost Transport	-	11.3 (10.6)	-	-	136	-	37	173
Compost Application	-	5.8 (4.0)	-	-	70	-	19	89
Applying Chemical Fertilizer	0.1 (0.2)	-	-	1	-	-	-	1
Planting	0.7 (0.3)	-	-	8	-	-	3	11
Irrigation	12.2 (16.7)	-	-	146	-	-	40	186
Harvesting	Mustard	-	12.0 (3.3)	-	144	-	39	183
	Wheat	-	29.0 (7.3)	-	343	-	94	442
Threshing	Mustard	-	8.7 (2.5)	-	104	-	28	132
	Wheat	9.8 (2.0)	9.8 (2.0)	13.1 (6.1)	118	118	236	64
Total	50.3 (15.7)	90.2 (7.7)	40.6 (9.7)	603	1083	731	609	3026

1/ - See footnotes in Appendix 46 for details

2/ - Includes plowing involved with planting.

Appendix 50. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE RICE+MAIZE CROPS IN THE R+M-W+MU-F CROPPING PATTERN IN PARTIALLY IRRIGATED UPLANDS AT THE CHAURI JAHARI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)				Total
	Men	Women	Bullocks	Men	Women	Bullocks	Tiffin	
Flowing	19.6 (8.3)	-	19.6 2/ (8.3)	235	-	353	172	700
Land Shaping	-	29.9 (34.2)	-	-	359	-	97	456
Compost Transport	-	23.4 (6.8)	-	-	281	-	76	357
Compost Application	-	4.6 (2.3)	-	-	55	-	15	70
Planting	0.9 (0.4)	-	-	11	-	-	3	14
Weeding	6.0 (8.3)	58.2 (37.8)	2.6 (2.4)	72	693	47	223	1040
Harvesting	Maize	-	8.8 (5.0)	-	106	-	29	135
	Rice	-	34.5 (16.5)	-	41	414	123	578
Threshing	Maize	-	11.8 (8.9)	-	142	-	38	180
	Rice	14.8 (8.8)	11.4 (10.8)	15.5 (17.7)	178	137	279	85
Total	44.7 (17.9)	182.6 (38.5)	37.7 (22.8)	537	2192	679	861	4269

1/ - See footnotes in Appendix 46 for details

2/ - Flowing involved for planting is included.

// 72 //

Appendix 51. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE WHEAT+MUSTARD CROPS IN THE R+M+W+MU-F CROPPING PATTERN IN PARTIALLY IRRIGATED UPLANDS AT THE CHAURI JAHARI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)			Tiffin	Total
	Men	Women	Bullocks	Men	Women	Bullocks		
Plowing	22.2 (7.6)	-	22.2 2/ (7.6)	266	-	400	189	855
Land Shaping	-	19.2 (10.6)	-	-	230	-	62	292
Compost Transport	-	14.9 (15.1)	-	-	179	-	48	227
Compost Application	-	4.2 (3.1)	-	-	50	-	14	64
Planting	1.4 (1.3)	-	-	17	-	-	5	22
Irrigation	6.4 (4.4)	-	-	77	-	-	21	98
Harvesting	Mustard	-	16.0 (11.8)	-	192	-	52	244
	Wheat	-	32.4 (11.5)	-	339	-	105	494
Threshing	Mustard	-	9.8 (5.3)	-	118	-	32	150
	Wheat	9.2 (5.2)	9.6 (5.1)	14.7 (9.4)	110	115	265	61
Total	39.2 (12.4)	106.1 (51.3)	36.9 (14.3)	470	1273	665	589	2997

1/ - See footnotes in Appendix 46 for details

2/ - Includes plowing involved with planting.

117311

Appendix 52. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE CHICKPEA CROP IN THE R+M-CH-F CROPPING PATTERN IN PARTIALLY IRRIGATED UPLANDS AT THE CHAURI JAHARI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)				Total
	Men	Women	Bullocks	Men	Women	Bullocks	Tiffin	
Plowing	17.8 (2.9)	-	17.8 2/ (2.9)	214	-	320	156	690
Compost Transport	-	7.9 (13.7)	-	-	95	-	26	121
Compost Application	0.7 (1.1)	-	-	8	-	-	3	11
Planting	1.4 (1.1)	-	-	17	-	-	5	22
Harvesting	-	27.3 (12.7)	-	-	328	-	89	417
Threshing	4.9 (8.1)	15.3 (7.7)	14.9 (11.5)	59	184	263	66	577
Total	24.8 (7.4)	50.5 (18.9)	32.7 (11.5)	298	607	583	345	1838

1/ - See footnotes in Appendix 46 for details

2/ - Includes plowing involved with planting.

Appendix 53. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE LENTIL CROP IN THE R+M-L-F CROPPING PATTERN IN PARTIALLY IRRIGATED UPLANDS AT THE CHAURI JAHARI CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)				Total
	Men	Women	Bullocks	Men	Women	Bullocks	Tiffin	
Plowing	16.6 (2.3)	-	16.6 2/ (2.3)	199	-	299	145	643
Compost Transport	-	2.5 (5.6)	-	-	30	-	8	38
Compost Application	0.3 (0.4)	-	-	10	-	-	3	13
Planting	0.6 (0.5)	-	-	7	-	-	3	10
Harvesting	-	29.4 (8.5)	-	-	353	-	96	449
Threshing	17.5 (7.5)	8.7 (5.7)	17.0 (3.3)	138	104	306	66	614
Total	29.5 (7.9)	40.6 (3.6)	33.6 (5.3)	354	487	605	321	1767

// 75 //

1/ - See footnotes in Appendix 46 for details
 2/ - Includes plowing involved for planting.

Appendix 54. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE RICE CROP IN THE R-W-F CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE LELE CROPPING SYSTEMS SITE

Task	Labor/Power (Days/ha) 1/			Costs (Rs./ha.) 2/				
	Men	Women	Bullocks	Men	Women	Bullocks	Tiffin	Total
Plowing	13.1 (3.6)	-	13.1 (3.6)	-	-	367	79	446
Land Shaping	15.6 (5.6)	-	-	218	-	-	94	312
Compost Application	5.4 (6.0)	18.2 (12.0)	-	76	146	-	142	364
Applying Chemical Fertilizer	2.1 (1.0)	-	-	29	-	-	12	41
Uprooting Seedlings and Transplanting	10.4 (11.9)	58.3 (6.1)	-	146	466	-	412	1024
Weeding	4.6 (11.2)	91.2 (44.0)	-	64	730	-	575	1369
Harvesting and Threshing	27.0 (12.5)	22.4 (19.8)	-	378	179	-	296	853
Total	78.2 (16.5)	190.1 (64.7)	13.1 (3.6)	911	1521	367	1610	4409

1/ - Figures in parenthesis are standard deviations

- 2/ - a) Average wage rate for men was Rs.14/day and for women was Rs. 8/day.
 b) Average rate to hire a bullock pair plus plowman was Rs. 28/day.
 c) Both men and women hired laborers were provided tiffin with an average value of Rs. 6/day for all tasks.

// 76 //

Appendix 55. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE WHEAT CROP IN THE R-W-F CROPPING PATTERN IN THE IRRIGATED LOWLANDS AT THE LELE CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)			Tiffin	Total
	Men	Women	Bullocks	Men	Women	Bullocks		
Plowing	16.5 (8.4)	-	16.5 2/ (8.4)	-	-	462	99	561
Land Shaping	11.7 2/ (9.5)	39.2 2/ (16.2)	-	164	314	-	305	783
Compost Application	2.1 (2.5)	26.8 (16.0)	-	29	214	-	173	416
Applying Chemical Fertilizer	2.1 (2.4)	-	-	29	-	-	12	41
Planting	1.6 (1.7)	1.7 (3.0)	-	22	14	-	20	56
Harvesting	6.5 (8.3)	37.2 (25.4)	-	91	298	-	262	651
Threshing	14.1 (3.4)	4.4 (6.9)	-	197	35	-	111	343
Total	54.6 (12.1)	109.3 (51.4)	16.5 (8.4)	532	875	462	982	2851

1/ - See footnotes in Appendix 54 for details.

2/ - Includes plowing and hand labor involved with planting.

Appendix 56. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MAIZE CROP IN THE M+S-MU-F CROPPING PATTERN IN THE RAINFED UPLANDS AT THE LELE CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)				Total
	Men	Women	Bullocks	Men	Women	Bullocks	Tiffin	
Plowing	13.6 (2.9)	-	13.6 ^{2/} (2.9)	-	-	381	82	463
Land Shaping	10.3 ^{2/} (6.7)	35.9 ^{2/} (28.7)	-	144	287	-	277	708
Compost Application	1.9 (2.7)	28.4 (9.2)	-	27	227	-	182	436
Applying Chemical Fertilizer	3.2 (3.0)	3.2 (5.7)	-	45	26	-	38	109
Planting	3.1 (3.9)	5.0 (7.4)	-	43	40	-	48	131
Weeding	11.9 (16.2)	38.6 (24.3)	-	167	309	-	303	779
Harvesting	9.9 (13.5)	13.4 (10.2)	-	139	107	-	140	386
Total	53.9 (30.7)	124.5 (34.8)	13.6 (2.9)	565	996	381	1070	3012

1/ - See footnotes in Appendix 54 for details.

2/ - Includes plowing and hand labor involved with planting.

// 78 //

Appendix 57. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE SOYBEAN CROP IN THE M+S-MU-F CROPPING PATTERN IN THE RAINFED UPLANDS AT THE LELE CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)			Total
	Men	Women	Bullocks	Men	Women	Bullocks	
Planting	-	11.6 (11.7)	-	-	93	-	70
Harvesting	0.8 (1.8)	12.4 (7.1)	-	11	99	-	79
Threshing	1.0 (2.5)	9.3 (7.8)	-	14	74	-	62
Total	1.8 (2.6)	33.3 (23.6)	-	25	266	-	211

// 79 //

1/ - See footnotes in Appendix 54 for details.

Appendix 58. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE MUSTARD CROP IN THE M+S-MU-F CROPPING PATTERN IN THE RAINFED UPLANDS AT THE LELE CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)				
	Men	Women	Bullocks	Men	Women	Bullocks	Tiffin	Total
Plowing	11.6 (11.7)	-	11.6 (11.7)	-	-	325	70	395
Land Shaping	21.0 (19.6)	32.4 (19.4)	-	294	259	-	320	873
Compost Transport	2.0 (6.2)	26.8 (22.9)	-	28	214	-	173	415
Compost Application	0.3 (0.8)	6.0 (4.2)	-	4	48	-	38	90
Applying Chemical Fertilizer	1.4 (2.8)	1.0 (3.1)	-	20	8	-	14	42
Planting	1.5 (2.8)	8.4 (9.3)	-	21	67	-	59	147
Harvesting	-	36.1 (24.6)	-	-	289	-	217	506
Threshing	2.6 (3.4)	11.1 (13.2)	-	36	89	-	82	207
Total	40.4 (25.0)	121.8 (51.0)	11.6 (11.7)	403	974	325	973	2675

1/ - See footnotes in Appendix 54 for details.

// 08 //

Appendix 59. ESTIMATE OF LABOR AND POWER REQUIREMENTS AND COSTS FOR AGRICULTURAL TASKS INVOLVED FOR THE FINGER MILLET CROP IN THE M/FM-F CROPPING PATTERN IN THE RAINFED UPLANDS AT THE LELE CROPPING SYSTEMS SITE 1/

Task	Labor/Power (Days/ha)			Costs (Rs./ha.)			Tiffin	Total
	Men	Women	Bullocks	Men	Women	Bullocks		
Land Preparation	31.5 (6.2)	-	-	441	-	-	189	630
Applying Chemical Fertilizer	0.5 (0.8)	-	-	8	-	-	6	14
Transplanting	-	64.7 (31.1)	-	-	518	-	388	906
Weeding	-	27.0 (26.6)	-	-	216	-	162	378
Harvesting	-	41.8 (11.5)	-	-	334	-	251	585
Threshing	17.2 (16.1)	12.5 (17.6)	-	241	100	-	178	519
Total	49.3 (21.1)	146.0 (31.9)	-	690	1168	-	1174	3032

// 31 //

1/ - See footnotes in Appendix 54 for details.