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It is interesting and at the same time startling to note that price significantly and negatively influenced the employment of labour in tea industry in North India as well as at all-India level. It was, however, insignificant for South Indian tea. The area under plantation also appeared to have significant influence on employment in tea industry in North India and at all-India level but it was insignificant for South Indian tea and was, hence, excluded from South Indian model in the final run. The trend variable also turned out to be highly significant with a negative sign for all of the three regions. This reveals an interesting story. Over time, employment in the tea industry has declined. This has been happening possibly because of the adoption of labour replacing technology in the industry. This is partially being confirmed by the negative price coefficients which tell us that employment is declining with a rise in the price of tea and, therefore, leading the owners to higher profit by adopting the labour replacing technology.

CONCLUSION

The study shows that tea planters respond to price not in terms of acreage but in terms of yield. The employment of labourers is surprisingly adversely affected by favourable price position and this perhaps occurs due to labour substituting mechanization.

The result of the study may provide very valuable basis for evaluating suitable policies for the development of the industry. Any effort to increase production should not be conceived through enhanced acreage. The possibility of exploring the avenues of increased production basically lies in yield improvements through intensive use of inputs.

ASHOK CHOWDHURY AND G. S. RAM*

POTENTIALITIES OF INCREASING FARM INCOME AND EMPLOYMENT THROUGH DAIRYING

A Dairy Development Scheme has been initiated in the Phulera tehsil of Jaipur district by the United Commercial Bank, the 'lead Bank' for Jaipur district, in collaboration with S. K. N. College of Agriculture, Jobner (University of Udaipur), Rajasthan. To start with, 20 farmers have been selected and a sum of Rs. 1,74,250 has been advanced as loan to these farmers for the purchase of milch cattle.

The Dairy Development Scheme is likely to be of great economic importance for the area where the majority of the people are vegetarian and ill-nourished. Introduction of dairy enterprise on farms would not only spread the risk but also become a source of continuous income throughout the year. This would also introduce an element of complementarity on the farm. The recipient farmers would, however, need to make necessary adjustments in

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their cropping pattern, farm practices and resource use structure before any advantage is realised from the dairy enterprise. The scheme would require examination of many related issues. The questions which need immediate answers are: what is the optimum number of milch animals that can profitably be kept on these farms? What should be the area under fodder and other crops? What would be the impact of the scheme on farm incomes and employment?

Answers for all such questions would not only help the recipient farmers in realising the full advantage from the scheme but also provide guidelines to the bank officials in financing similar schemes in other areas. This study is an attempt to find answers for all such questions.

Objectives

The specific objectives of the study are as follows: (1) to study the existing cropping pattern and suggest the adjustments in it to incorporate the dairy enterprise optimally; (2) to study the effect of dairy enterprise on employment and farm incomes.

Design of Study

The recipient farmers were divided into three groups on the basis of their size of holdings, *viz.*, small, medium, and large. One farm situation from each size-group was selected randomly for intensive study.

Dairy taken independent of crop farming may not prove profitable. Dairy should be combined as an integrated part of the overall farming business if any income is expected from it. Hence, an attempt has been made in this study to suggest the necessary adjustments, by way of optimum farm plans, which the recipient farmers might be required to make in their farming business. Linear programming technique was used for the purpose.

The optimum plans were developed at two stages. In the stage first, the optimum plans (Plan 1) were developed with the given number of milch animals which the recipient farmers intended to buy. In the second stage, an attempt was made to work out the optimum number of milch animals (Plan 2) which the farmers should keep on their farms if they really want to optimize their incomes.

Linear Programming Model

The mathematical structure of the model used was as follows:

Maximize: $Z_0 = p_1x_1 + p_2x_2 + \ldots\ldots + p_nx_n$

Subject to:

$$A^{IK} \geq a_{11}x_1 + a_{12}x_2 + \ldots\ldots + a_{1n}x_n + A^T$$

$$A^{UK} \geq a_{21}x_1 + a_{22}x_2 + \ldots\ldots + a_{2n}x_n - A^T$$

$$A^R \geq a_{31}x_1 + a_{32}x_2 + \ldots\ldots + a_{3n}x_n$$

$$
\begin{aligned}
I^{W1} &\geq a_{41}X_1 + a_{42}X_2 + \ldots\ldots + a_{4n}X_n \\
I^{W2} &\geq a_{51}X_1 + a_{52}X_2 + \ldots\ldots + a_{5n}X_n \\
I^{W3} &\geq a_{61}X_1 + a_{62}X_2 + \ldots\ldots + a_{6n}X_n \\
I^{W4} &\geq a_{71}X_1 + a_{72}X_2 + \ldots\ldots + a_{7n}X_n \\
I^{W5} &\geq a_{81}X_1 + a_{82}X_2 + \ldots\ldots + a_{8n}X_n \\
L^{F1} &\geq a_{91}X_1 + a_{92}X_2 + \ldots\ldots + a_{9n}X_n - L^{H1} \\
L^{F2} &\geq a_{101}X_1 + a_{102}X_2 + \ldots\ldots + a_{10n}X_n - L^{H2} \\
L^{F3} &\geq a_{111}X_1 + a_{112}X_2 + \ldots\ldots + a_{11n}X_n - L^{H3} \\
L^{F4} &\geq a_{121}X_1 + a_{122}X_2 + \ldots\ldots + a_{12n}X_n - L^{H4} \\
L^{F5} &\geq a_{131}X_1 + a_{132}X_2 + \ldots\ldots + a_{13n}X_n - L^{H5} \\
B^{P1} &\geq a_{141}X_1 + a_{142}X_2 + \ldots\ldots + a_{14n}X_n - B^{H1} \\
B^{P2} &\geq a_{151}X_1 + a_{152}X_2 + \ldots\ldots + a_{15n}X_n - B^{H2} \\
B^{P3} &\geq a_{161}X_1 + a_{162}X_2 + \ldots\ldots + a_{16n}X_n - B^{H3} \\
B^{P4} &\geq a_{171}X_1 + a_{172}X_2 + \ldots\ldots + a_{17n}X_n - B^{H4} \\
C^{O} &\geq a_{181}X_1 + a_{182}X_2 + \ldots\ldots + a_{18n}X_n - C^{B} \\
M^{O} &\geq a_{191}X_1 + a_{192}X_2 + \ldots\ldots + a_{19n}X_n - M^{P} \\
P^{L} &= a_{201}X_1 + a_{202}X_2 - a_{20j}X_j \ldots + a_{20n}X_n \\
P^{BG} &= a_{211}X_1 + a_{212}X_2 - a_{21j}X_j \ldots + a_{21n}X_n \\
M^{MAX} &\geq a_{221}X_1 + a_{222}X_2 + \ldots\ldots + a_{22n}X_n \\
Z^{MAX} &\geq a_{231}X_1 + a_{232}X_2 + \ldots\ldots + a_{23n}X_n \\
C^{F} &= a_{241}X_1 + a_{242}X_2 + \ldots\ldots + a_{24n}X_n
\end{aligned}
$$

$$x_j \geq 0, \quad A^T \geq 0, \quad L^H \geq 0, \quad B^H \geq 0, \quad C^B \geq 0, \quad M^P \geq 0$$

where,

Z	=	Total net returns to fixed farm resources.
p_j	=	Net return per hectare of j^{th} real activity ($j=1,\ldots,n$).
A^{IK}	=	*Kharif* irrigated land.
A^{UK}	=	*Kharif* unirrigated land.
A^T	=	Irrigated area transferred to unirrigated crops in *kharif* season.
I^{W1}	=	Irrigation water available: 15 Oct.-14 Nov.
I^{W2}	=	Irrigation water available: 15 Nov.-14 Dec.

I^{W3} = Irrigation water available: 15 Dec.-14 Jan.
I^{W4} = Irrigation water available: 15 Jan.-14 Feb.
I^{W5} = Irrigation water available: 15 April-14 May.
L^{F1} = Family labour: 15 June-14 July.
L^{F2} = Family labour: 1 Aug.-31 Aug.
L^{F3} = Family labour: 1 Oct.-31 Oct.
L^{F4} = Family labour: 1 Nov.-30 Nov.
L^{F5} = Family labour: 15 Mar.-30 Apr.
$L^{H1}, \ldots, L^{H5}$ = Labour hiring activities for the respective peak periods.
B^{P1} = Bullock power available on farm: 15 June-14 July.
B^{P2} = Bullock power available on farm: 1 Oct.-31 Oct.
B^{P3} = Bullock power available on farm: 1 Nov.-30 Nov.
B^{P4} = Bullock power available on farm: 1 Apr.-30 Apr.
$B^{H1}, \ldots, B^{H4}$ = Bullock power hiring activities for the respective periods.
C^{O} = Owned capital.
C^{B} = Borrowed capital.
M^{O} = Manure available on farm.
M^{P} = Manure purchased from outside.
P^{L} = Lucerne produced on farm.
P^{BG} = Green bajra produced on farm.
M^{MAX} = Area restriction on *methi*.
Z^{MAX} = Area restriction on *zeera*.
C^{F} = Area restriction on carrot fodder.
A_{ij} = The input-output coefficient of i^{th} resource and j^{th} activity.
x_j = Level of j^{th} activity.

In the *rabi* season only irrigated land was considered as a restriction since no crop was taken on unirrigated land in the *rabi* season in the study area.

Fodder is an important constraint in mixed farming. Dry fodder is not a problem in the study area. All the farmers are able to produce more than the required quantity of dry fodder on their own farms. It is also available easily in the market. However, green fodder, which is the most important input for the dairy enterprise, is not available in the market and farmers are required to produce it on their own farms. Since, there is a scarcity of irrigation water and green fodder crops like lucerne, green bajra, etc., require comparatively more and frequent irrigation, green fodder is always an important constraint on the number of milch animals which a farmer can keep. Hence, green fodder was considered a constraint in the model.

Irrigation water, human labour and bullock labour have periodical effects as constraints. There are certain periods in the year when the supply of these resources put a restriction on the choice of and area under different crops. In other periods their supply is ample in relation to demand. Hence, in the model the supplies of these resources only in peak periods were considered as restrictions.

The details of various resources and their supplies on the different farm situations, considered for analysis, are given in the Appendix.

Optimum Farm Plans

The optium farm plans developed for the three farm situations are presented in Table I.

Small farm: This particular farmer was sanctioned a loan for the purchase of two buffaloes. However, his resources have been found insufficient to maintain two buffaloes properly. His existing irrigated land (0.50 ha.) is not sufficient to produce green fodder in the required quantity. Hence, an optimum plan with the number of buffaloes which the recipient farmer intended to buy (P_1) could not be developed. Plan 2, with opitimum number of milch animals (P_2), is discussed below.

The cropping pattern indicates changes of some significance due to the introduction of dairy enterprise. Local irrigated bajra (for grain) has completely been replaced by green bajra fodder in the optimum plan. However, as against 0.19 hectare under local irrigated bajra (for grain), green bajra fodder has occupied only 0.07 hectare. It is because green bajra fodder required more number of irrigations than bajra for grain. In the *rabi* season, the area under farmy wheat and barley has completely been replaced by Mexican wheat and lucerne. In the existing plan there was no area under green fodder crops. In the optimum plan about 19 per cent of the total cropped area has gone under these crops.

The cropping intensity in the optimum plan has slightly gone down because of transfer of area from cereals to fodder crops which require comparatively more resources, specially irrigation.

Medium farm: This particular farmer also received a loan for the purchase of two buffaloes only. The optimum plan developed with two buffaloes (P_1) shows significant change in the crop-mix. The area under lucerne which was only 0.06 hectare in the existing plan has increased to 0.50 hectare. However, the area under green bajra has virtually remained unchanged. Two local *desi* cows, which the farmer was having at the time of enquiry have been replaced by two buffaloes which he would buy.

In Plan 2, which has been developed without the restriction on the number of milch animals, hybrid bajra has to make room for lucerne. Although lucerne is a *rabi* crop it is usually sown in the middle of the *kharif* season. Thus in a field in which lucerne is grown no *kharif* crop is usually taken. Although land is available but because of scarcity of irrigation water no area could go under other irrigated *kharif* crops. Since the area under green bajra fodder has also increased from 0.12 hectare in P_1 to 0.29 hectare in P_2, the area under chillies has decreased from 0.54 hectare to 0.05 hectare. The area under farmy wheat has also reduced from 2.36 hectares in P_1 to 2.23 hectares in P_2 to release some water for lucerne.

The two buffaloes, which the farmer intended to buy from the given amount of loan, could not find any place in Plan 2. In case the farmer wants to optimize returns he should rather buy nine *desi* cows of improved breeds.

TABLE I—OPTIMUM FARM PLANS FOR DIFFERENT FARM SITUATIONS

(*area in hectares*)

Enterprises	Small farm			Medium farm			Large farm		
	P_0	P_1	P_2	P_0	P_1	P_2	P_0	P_1	P_2
Kharif									
Hybrid bajra (irri.)	—	—	—	—	2·22	—	—	—	—
Local bajra (irri.)	0·19	—	—	1·12	—	—	2·50	4·98	2·12
Local bajra (unirri.)	1·60	—	2·10	2·00	—	—	2·50	3·08	15·07
Guar (irri.)	—	—	—	0·63	—	—	0·75	—	—
Guar (unirri.)	—	—	—	0·25	—	—	1·00	—	—
Pulses	0·50	—	—	1·62	5·80	5·71	2·75	—	—
Chillies	—	—	—	—	0·54	0·05	—	0·62	—
Green bajra	—	—	0·07	0·13	0·12	0·29	0·25	0·25	0·42
Rabi									
Farmy wheat	0·19	—	—	—	2·36	2·23	0·75	—	—
Mexican wheat	—	—	0·07	0·62	—	—	3·00	3·10	2·97
Wheat + barley	—	—	—	0·88	—	—	—	—	—
Barley	0·31	—	—	0·19	—	—	1·00	—	—
Carrot	—	—	—	0·06	0·10	0·10	0·12	0·15	0·15
Lucerne	—	—	0·43	0·06	0·50	1·12	—	1·00	1·70
Other crops	—	—	—	0·38	—	—	0·75	—	—
Milch animals									
Local cows	1	—	—	2	—	—	3	—	—
Desi cows	—	—	2	—	—	9	3	—	14
Murrah buffaloes	—	—	—	—	2	—	—	4	—
Total cropped area (ha.)	2·79	—	2·67	7·94	11·64	9·50	15·37	13·18	22·43
Cropping intensity (%)	132·86	—	127·14	85·38	125·16	102·15	78·82	67·59	115·02
Total returns (Rs.)	3,375	—	5,218	10,348	22,521	28,857	23,729	30,038	40,410
Capital required for purchase of animals (Rs.)	—	—	2,200	—	3,500	9,900	—	7,000	15,400
Capital available with the farmer (Rs.)	—	—	500	—	1,500	1,500	—	950	950
Capital borrowed from bank (Rs.)	—	—	3,000	—	2,000	2,000	—	9,000	9,000
Additional capital required (Rs.)	—	—	Nil	—	Nil	6,400	—	Nil	5,450

P_0=Existing plan; P_1=Optimum plan with given number of buffaloes; P_2=Optimum plan without any restriction on the number of milch animals.

The cropping intensity in the existing plan was only 85.38 per cent as against 125.16 and 102.15 per cent in Plan 1 and Plan 2 respectively.

Large farm: Plan 1, developed in optimum combination with four buffaloes, does not show any significant change in the *kharif* season. In the *rabi* season, the area under Mexican wheat has practically remained unchanged in the optimum plan. However, other crops like farmy wheat, barley, *methi* and *zeera*, which occupied significant area in the existing plan, have not appeared in the optimum plan. Rather the resources used by these crops have gone to grow one hectare of lucerne. Two local cows and one local buffalo which the farmer was having at the time of enquiry, have made room for four Murrah buffaloes which the farmer has proposed to buy.

Plan 2, developed to work out the optimum number of animals in combination with optimum cropping pattern, shows significant changes in the existing plan and Plan 1. The area under local unirrigated bajra has increased significantly. It has occupied 2.57 hectares more area than the 12.5 hectares available area of unirrigated *kharif* land. This excess area of 2.57 hectares has come from the available supply of *kharif* irrigated land. The area under chillies has disappeared altogether to make available the resources, specially irrigation water, for the increased area under green bajra and lucerne.

The four Murrah buffaloes which the farmer proposed to buy could not retain their place in Plan 2. In their place, 14 *desi* cows of improved breeds have come into the plan.

The cropping intensity was 78.82 per cent in the existing plan as against 67.59 and 115.02 per cent in Plan 1 and Plan 2 respectively.

Farm Income

Farm incomes, for each of the three farm situations selected for detailed study, for the existing as well as optimum farm plans are discussed below.

Small farm: Table II reveals that before the introduction of dairy enterprise this particular farmer was producing crops and livestock products only worth Rs. 5,914.80. As has been stated earlier, though this farmer has proposed to buy two buffaloes, his resources are not sufficient to maintain them properly. The feasible thing for this farmer is to buy two *desi* cows of improved breeds. This will give him gross returns of Rs. 9,713.30.

The returns to fixed farm resources which were only Rs. 3,374.80 in the existing plan increased to Rs. 5,218.10 in the optimum plan. In the existing plan the contribution of livestock in the farm income was below 40 per cent. In the optimum plan the share of livestock in the farm income increased by more than 65 per cent.

Medium farm : Table II reveals that the purchase of two buffaloes on the farm with suitable adjustments in the cropping pattern would increase the returns from Rs. 16,537.90 (in the existing plan) to Rs. 35,622.46. Similarly, the returns to fixed farm resources would also increase from Rs. 10,348.40 to Rs. 22,521. In case the farmer decides to go in for an optimum number of cows instead of two buffaloes, which he proposed to buy, his gross returns as well as the returns to fixed farm resources would increase further.

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TABLE II—GROSS RETURN AND RETURNS TO FIXED FARM RESOURCES ON DIFFERENT FARM SITUATIONS

(*Rs.*)

Particulars	Gross returns			Returns to fixed farm resources		
	P_0	P_1	P_2	P_0	P_1	P_2
Small farm (2·6 ha.) ..	5,915	—	9,713	3,375	—	5,218
Crops	3,795	—	2,247	2,540	—	1,852
Livestock	2,120	—	7,466	835	—	3,366
Medium farm (9·3 ha.) ..	16,538	35,622	49,537	10,348	22,521	28,857
Crops	10,288	23,198	15,940	7,998	16,788	11,937
Livestock	6,250	12,424	33,597	2,350	5,733	16,920
Large farm (19·5 ha.) ..	35,889	53,611	77,548	23,729	30,038	40,410
Crops	30,163	28,763	25,286	22,032	18,249	13,454
Livestock	5,726	24,848	52,262	1,697	11,789	26,956

P_0 = Existing plan; P_1 = Optimum plan with given number of buffaloes; P_2 = Optimum plan without any restriction on the number of milch animals.

The contribution of dairy enterprise in the farm incomes in the existing plan was only 38 per cent and less. The share of dairy enterprise in the farm incomes in the optimum plan (P_1), unlike on the small farm, also remained more or less unchanged. This was because this farmer, who has farm resources much more than on the small farm, also proposed to buy only two buffaloes. The requirement of the resources for two buffaloes in comparison to their availability is low and the bulk of the resources remained available for crop production.

Large farm: Table II shows that the gross returns increased from Rs. 35,880.80 in the existing plan to Rs. 53,611.50 in the optimum plan P_1 and to Rs. 77,547.80 in the optimum plan P_2. Similarly, the returns to fixed farm resources also increased from Rs. 23,729.40 in the existing plan to Rs. 30,038 in the optimum plan P_1 and to Rs. 40,409.80 in the optimum plan P_2. However, the gross returns as well as the returns to fixed farm resources from crop production decreased as the number of milch animals increased on the farm. This clearly shows that farm resources are better utilized by the livestock enterprises than on crop enterprises.

The contribution of dairy enterprise in farm income was only about 16 per cent in the existing plan. In the optimum plan P_1, the contribution of dairy enterprise in the farm income increased to about 40 per cent and in optimum plan P_2 about 67 per cent.

Labour Employment

Table III reveals that introduction of dairy enterprise coupled with the optimum combination of crop enterprises in general, would increase the requirement of human labour per farm as well as per hectare of the operational holding on farms of all sizes. On the small farm the human labour requirement increased from 845 man-days in the existing plan to 1,306 man-days in the optimum plan P_1 and to 1,384 man-days in the optimum plan P_2. The requirement of human labour on the large farm too increased continuously as the number of milch animals increased.

TABLE III—HUMAN LABOUR REQUIREMENT IN THE EXISTING AND OPTIMUM PLANS

(*man-equivalent days*)

Selected farms	Particulars	P_0	P_1	P_2
Small farm	Per farm ..	227	305	305
(2·6 ha.)	Per hectare (of operational holding)	87·31	117·31	117·31
Medium farm	Per farm ..	845	1,036	1,384
(9·3 ha.)	Per hectare (of operational holding)	90·86	140·43	148·82
Large farm	Per farm ..	1,610	1,705	2,387
(19·5 ha.)	Per hectare (of operational holding)	82·56	87·43	122·41

P_0 = Existing plan; P_1 = Optimum plan with given number of buffaloes; P_2 = Optimum plan without any restriction on the number of milch animals.

Requirement of Bullock Labour

Table IV reveals that introduction of dairy enterprise combined with adjustments in the crop enterprises in the optimal direction would decrease the requirement for bullock power on farms of all sizes except on the medium farm. On the small farm, which uses hired bullock power, the bullock power use decreased from 27 pair-days in the existing plan to 18 pair-days in the optimum plan. Similarly, the bullock power requirement decreased with the introduction of dairy enterprise on the large farm also. On the medium farm the bullock power requirement increased from 190 pair-days in the existing plan to 288 pair-days in the optimum plan P_1, but it decreased to 246 pair-days in the optimum plan P_2. However, the bullock power requirement in Plan 2 was still greater than the existing plan.

TABLE IV—BULLOCK LABOUR USE IN THE EXISTING AND OPTIMUM FARM PLANS

(bullock pair-days)

Selected farms	Particulars	P_0	P_1	P_2
Small farm	Per farm ..	27	18	18
(2·6 ha.)	Per hectare (of operational holding)	10·38	6·92	6·92
Medium farm	Per farm ..	190	288	244
(9·3 ha.)	Per hectare (of operational holding)	20·43	30·96	26·45
Large farm	Per farm ..	262	213	233
(19·5 ha.)	Per hectare (of operational holding)	13·43	10·92	11·95

P_0 = Existing plan; P_1 = Optimum plan with given number of buffaloes; P_2 = Optimum plan without any restriction on the number of milch animals.

The decrease in the requirement of bullock power with the introduction of dairy enterprise was due to transfer of substantial area from crops like wheat, irrigated bajra, chillies, etc., which require comparatively more bullock labour to green fodder crops like lucerne and green bajra which need the bullock power only for land preparation and sowing.

Conclusions

1. The results of the study show that the recipient farmers who want to introduce dairy enterprise on their farms, shall be required to make suitable adjustment in their cropping pattern and divert a significant area from grain crops to fodder crops.

2. Green fodder is the limiting factor in the area. Although net returns per animal are more in the case of buffaloes than the *desi* cows of improved breeds, however, the returns per unit of green fodder fed are more in *desi* cows of improved breeds than the buffaloes and hence *desi* cows of improved breeds are comparatively more profitable for the farmers of the area.

3. Introduction of dairy on the arable farm will prove to be the most profitable proposition and it will increase farm incomes to a great extent.

4. The results of the study show that introduction of dairy enterprise on the crop farms shall create more work opportunities and provide work to family labour even in the lean periods.

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APPENDIX

LIMITING RESOURCES AND THEIR SUPPLIES ON DIFFERENT FARM SITUATIONS

Sr. No.	Particulars	Small	Medium	Large
	Land (hectares)			
1.	*Kharif* irrigated land	0·50	3·50	7·50
2.	*Kharif* unirrigated land	2·10	5·80	12·50
3.	*Rabi* irrigated land	0·50	3·50	7·00
	Irrigation (hours)			
4.	15th Oct.-14th Nov.	186	341	248
5.	15th Nov.-14th Dec.	180	330	240
6.	15th Dec.-14th Jan.	186	341	248
7.	15th Jan.-14th Feb.	186	341	248
8.	15th April-14th May	180	330	240
	Human labour (man-days)			
9.	15th June-14th July	60	65	100
10.	1st Aug.-31st Aug.	61	67	104
11.	1st Oct.-31st Oct.	61	67	104
12.	1st Nov.-30th Nov.	60	65	100
13.	15th March-30th April	94	102	156
	Bullock labour (pair-days)*			
14.	15th June-14th July	—	90	60
15.	1st Oct.-31st Oct.	—	93	62
16.	1st Nov.-30th Nov.	—	90	60
17.	1st April-30th April	—	90	60
	Other restrictions			
18.	Working capital (Rs.)	2,877	6,510	21,776
19.	Farmyard manure	0	0	0
20.	Lucerne	0	0	0
21.	Green bajra	0	0	0
	Maximum area restrictions			
22.	*Methi*	0·10	0·50	0·50
23.	*Zeera*	0·10	0·50	0·50
24.	Carrot (equality)	0	0·10	0·15

* All the farms except small had their own bullock power. On the small farm, its own supply of bullock labour was nil. Therefore, hiring of bullock labour was permitted for this farm situation.