

**CHAPTER - XII**  
**PROSPECTS OF AND CONSTRAINTS TO TOBACCO**  
**PRODUCTION IN WEST BENGAL**

With given the technology, price structure and resource supplies available to individual farmers, the possibility of expansion of area under tobacco depends upon the adjustment of available resources with its competing activities. As the possibility of increasing income and mitigating family consumption need of cereals must be taken into account by the farmers, as pointed out earlier, in allocating available resources, the purpose of this chapter is to find out optimum crop plan for the individual farmers vis-a-vis existing one with due consideration of family consumption requirement in order to examine the possibility of future expansion of area under tobacco.

**12.1 Maximum Possible Area Devotable to Tobacco**

The present section of this chapter is attempted to find out maximum possible area that can be devoted to tobacco under alternative sets of assumptions. This exercise is based on data collected from every alternate sample farmers (120 in number) for two points of time i.e. 1983-84 and 1990-91.

**Assumption 1**

land of higher situation is the prerequisite for tobacco cultivation as the crop is very much susceptible to high soil moisture. In view of this, up and medium lands of light textured soil of Coochbehar and Jalpaiguri districts are congenial for the cultivation of tobacco. High water table of these two districts in the one hand, and relatively low water requirement of the crop on the other, make the farmers advantageous to create irrigation facility temporarily for the tobacco crop by indigenous method with minimum cost which is reported to be affordable even by the marginal farmers. Considering all these, the area under up and medium land may be taken as the maximum possible area that can be devoted to tobacco cultivation.

### Assumption 2

It is revealed from the analysis of chapter v that the cereal crop wheat grown by the sample farmers is principally meant for self consumption. Thus, the extent of area that may be available for tobacco cultivation is calculated as the maximum possible area exclusive of area devoted to wheat.

Based upon above two assumptions, the extent of future expansion of area under tobacco calculated on the basis of data obtained from the sample farms is shown in Table 12.1. Technically feasible maximum

**Table 12.1 : Maximum Possible Extent of Area Devotable to Tobacco**

District		Area under up and medium land (ha)	Area under wheat (ha)	Maximum possible extent of area devotable to tobacco [col.(3)-col.(4)]	Actual area under tobacco (ha)	Maximum possible extent of expansion over the actual (per cent)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Coochbehar	Period I	64.03	2.01	62.02	31.62	96.14
	Period II	68.80	7.87	60.93	30.88	97.31
Jalpaiguri	Period I	14.73	0.75	13.98	5.50	154.18
	Period II	17.23	3.14	14.09	5.14	174.12
Two dis- tricts combined	Period I	78.76	2.76	76.00	37.12	104.74
	Period II	86.03	11.01	75.02	36.02	108.27

extent of expansion of area under tobacco over the present level in the two selected districts is found to be 112 per cent for first and 139 per cent for the second reference period. After deducting the area of wheat therefrom, the technically feasible maximum extent of increase in tobacco area is calculated to be a little over than doubled to that of existing level as evinced by Table 12.1. The possibility of

expansion under the above assumptions is, however, noted to be higher in Jalpaiguri district as compared to that in Coochbehar.

## 12.2 Expansion of Area Under Tobacco by Optimally Allocating Farm Resources

This section aims at examining the possibility of further expansion of tobacco area in two selected districts of West Bengal by optimally allocating resources that are existing at the disposal of the selected farmers within the limit present price-structure and production technology. In other words, the purpose in this section is to work out optimum crop plans for each of the individual farms vis-a-vis existing ones and to identify the factors that account for the disparity, if any therein, between the optimum and existing plan.

The optimum plans have been worked out by assuming linear programming model of the form :

$$\text{Maximum } Z = \sum C_i X_i$$

$$\text{subject to } \sum a_{ij} X_i \leq b_j \text{ and } X_i \geq 0$$

Where,

$C_i$  = net price per unit of land for  $i$ th crop activity;

$X_i$  = level of  $i$ th crop activity;

$b_j$  = total availability of  $j$ th resource; and

$a_{ij}$  = input-output coefficient

In farm production a linear programming problem does not exist unless resources are limited. Besides farm land and working capital constraints the farmers are confronted with some special type of restrictions. For instance, food requirement of farm family acts as a limiting factor towards the maximization of farm income. Therefore, it needs to incorporate the minimum requirement of food crops particularly of cereal crops for the family consumption as subsidiary objective function into the linear restrictions of the model. A short discussion on each of the possible restrictions seems worthwhile.

### **Land restriction**

Land of higher situation is suitable for tobacco cultivation as mentioned earlier. Most of the tobacco growers reported to let irrigation by digging 'Kacha' (mudded) well temporarily for the crop season by using family labour and indogenous resources. Since the water table of the area under consideration is found to be quite high the cost involvement to create irrigation facility for relatively low water requiring tobacco crop can not go beyond the reach of the resource poor farmers. Thus, total land of higher and medium situation as such can reasonably be treated as total available land suitable for the cultivation of tobacco.

### **Restriction of cash**

Lacuna of adequate availability of cash is the most limiting factor operative in the farm production. The amount of cash available from various sources meant for crop cultivation is very difficult to work out. In stead, the actual expenditure which a farmer has incurred in raising the crops in the tobacco growing season has been considered to be the total supply of cash for the crops concerned to the farmer. The items that have been included in cash expenditure are given in the following.

- (i) Charges paid for hiring of human and bullock labour;
- (ii) Cash wages paid to permanent attached labourers;
- (iii) Cost of purchased manures;
- (iv) Cost of fertilizers;
- (v) Cost of plant protection chemicals;
- (vi) The irrigation charges paid by the farmer;
- (vii) Running expenses of owned agricultural machinery attributed to the crops during the growing period; and
- (viii) Charges paid for hiring of agricultural implements and machinery attributed to the crops concerned.

As regards cash coefficient per unit of each activity, all the items listed under cash expenditure have been considered.

#### Restriction of labour

In view of limited area devoted to the cultivation of winter crops, restriction of supply of hired, and family labour are not operative. However, hired labour is entered into the programming model in an indirect way through cash constraint.

#### Restriction of food requirement

In view of dichotomy as observed by Dharm Narain<sup>(1)</sup> "between what is meant for the market and what is meant for self-consumption cut across individual crop-areas", it is plausible to assume that "if the farmer wants to produce food for his family consumption should be deducted from the total available resources and the remaining resources should be considered to be available to the farm firm"<sup>(2)</sup>. In the present problems the quantity of resources required to produce the amount of output retained by the farmer for his family consumption has been deducted from total resource supply and the remaining resource level has been assumed to be total available resource of the farm firm.

#### Prices

For the present problem net revenue has been defined to represent surplus of gross revenue over cost  $A_1$  exclusive of land revenue per hectare. The net revenue thus calculated has been used as profit coefficient of the individual crop activities. Actual prices realised by the individual farmers have been taken as the relevant prices of the products. The variation in price of the produce due to varietal difference have not been taken into account for the present purpose. Variation in the yield of individual products from plot to plot within the individual farm has also been assumed away.

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1. Dharm Narain, op. cit. p. 4.

2. D.K. Desai : Increasing Income and Production in Indian Farming, Indian Society of Agricultural Economics, 1963, p. 13.

### Selection of activities for programming

To find out optimum cropping programmes one should select those crop activities that have been undertaken by the farmers in each of the individual villages within the crop season under consideration. In case where a particular crop is not grown on a farm, the average input and profit coefficient of the village concerned have been taken for working out optimum plan for the farm in question.

The linear programming deals with maximization or minimization. In this case the problem is of maximization one subject to some constraints as specified earlier. In the short run, with given level of resources, the problem to the individual farmer is that of maximization of net revenue over cost  $A_1$  exclusive of land revenue<sup>(3)</sup>. With above restrictions duly introduced the optimum solutions have been obtained by using Dantzing Simplex Method.

The programming model in notational form are summed up in the following. The resource position of a farm is presented by Table 12.2.

**Table 12.2 : Position of Resources and Crop Activities of a Particular farm**

Item	Unit	Resource availability
Land	Hectare	$B_1$
Available cash	Rupees.	$B_2$
<b>Crop</b>		<b>Crop Activities*</b>
Tobacco		$X_1$
Potato		$X_2$
Wheat		$X_3$
Mustard		$X_4$
Vegetables		$X_5$

\*Number and type of crop-activities for a particular farm depend upon the cropping pattern of the village

- As opportunity cost of family labour for the crop season under consideration is reported negligible, optimization of net revenue over cost  $A_1$  exclusive of land revenue seems to be the plausible assumption.

The algebraic form of the problem using following notations is furnished below :

$X_j$  = Crop activities in hectares  
where,

$j = 1, 2, \dots, 5$

$X_{ij}$  = Disposal activities;  $i=1, 2$ ;  $j=6, 7$

$B_i$  = Resource supplies;  $i=1, 2$ .

$C_j$  = Price indicating net revenue in rupees over cost A, exclusive of land revenue per hectare of  $j^{\text{th}}$  activity.

$Z_0$  = Total net return of the farm for the season under consideration.

$a_{ij}$  = Input coefficient - physical quantity of  $i^{\text{th}}$  input per unit of  $j^{\text{th}}$  activity.

As there are five competing crops the objective function in this particular case can be defined as :

$$Z_0 = C_1X_1 + C_2X_2 + C_3X_3 + C_4X_4 + C_5X_5$$

The resource restrictions of land and cash can be expressed by the following inequalities :

$$a_{11}X_1 + a_{12}X_2 + a_{13}X_3 + a_{14}X_4 + a_{15}X_5 \leq B_1 - A$$

$$a_{21}X_1 + a_{22}X_2 + a_{23}X_3 + a_{24}X_4 + a_{25}X_5 \leq B_2 - C$$

where,

A = Minimum area needed for meeting domestic consumption requirement of cereal crop wheat;

B = Cash needed for producing the cereal crop wheat required for self consumption.

The linear inequations specified above can be transformed into the following equations by introducing slack variables as under

$$a_{11}x_1 + a_{12}x_2 + a_{13}x_3 + a_{14}x_4 + a_{15}x_5 + 1.x_6 + 0.x_7 = B_1 - A$$

$$a_{21}x_1 + a_{22}x_2 + a_{23}x_3 + a_{24}x_4 + a_{25}x_5 + 0.x_6 + 1.x_7 = B_2 - C$$

where,

$x_6$  = Land disposal

$x_7$  = Cash disposal

The optimum value of  $Z_0$  subject to the resource restrictions outlined above can be obtained for each of the individual farms with the help of Simplex Method. The actual and the optimum crop plans of all individual farms belonging to two selected districts thus obtained are summarised in Table 12.3 for the first and in Table 12.4 for the second reference period. The extent of possible change in area under tobacco in two selected districts by reallocating existing resources under the disposal of each of the individual farms for first and second reference periods are shown respectively in Table 12.5 and 12.6. In the first period about 70 per cent of selected farms accounting for nearly 70 per cent area under tobacco display no deviation of actual crop plans from the optimum ones in the district of Coochbehar. In the second period, however, the farms under this category in Coochbehar district have reduced to about 42 per cent accounting for only 33 per cent of area under tobacco. In Jalpaiguri district the farms showing no change between existing and optimum crop plans are noted to be as low as 25 per cent for the first and 12.5 per cent for the second period. Higher proportion of farms showing change in area under tobacco by reallocating resources (either increase or decrease in area of tobacco) as compared to that of Coochbehar leads to the implication that the vulnerability of tobacco production with respect to its competing crop activities is higher in Jalpaiguri than Coochbehar. And that too has increased from the first period to the second. At the highest aggregate level the farms displaying to reduce tobacco area under optimum plan is noted 21 per cent as against those showing to increase is of the order of only 8 per cent leading to 13 per cent net reduction in area under tobacco in the first period (Table 12.5). In

**Table 12.3 Actual and Optimum Crop Plan for Sample Farms in  
Selected Districts of West Bengal for Period-I (1983-84)**

Sl. No. of Farm	Actual Crop activities					Optimum Crop activities						
	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)	Land Unused (ha)	Cash Unused (Rs.)
<b>Coochbehar</b>												
1.	0.66	-	-	-	-	0.6600	0.00	0.00	0.00	-	0.5400	0.00
2.	0.66	-	-	-	-	0.6600	0.00	0.00	0.00	-	0.9404	0.00
3.	0.66	-	-	-	-	0.5088	0.00	0.00	0.1512	-	0.00	0.00
4.	0.26	-	-	-	-	0.2600	0.00	0.00	0.00	-	0.00	0.00
5.	0.33	-	-	-	-	0.3300	0.00	0.00	0.00	-	0.00	0.00
6.	0.20	-	-	-	-	0.2000	0.00	0.00	0.00	-	0.0600	0.00
7.	0.93	-	-	-	-	0.9300	0.00	0.00	0.00	-	0.00	0.00
8.	0.06	-	-	-	-	0.0600	0.00	0.00	0.00	-	0.1400	0.00
9.	0.40	-	-	-	-	0.4000	0.00	0.00	0.00	-	0.2600	0.00
10.	0.66	-	-	-	-	0.00	0.00	0.00	0.9300	-	0.00	1611.3083
11.	0.26	-	-	-	-	0.2600	0.00	0.00	0.00	-	0.00	0.00
12.	0.40	-	-	-	-	0.4000	0.00	0.00	0.00	-	0.00	0.00
13.	0.86	-	0.20	-	-	0.8600	0.00	0.2000	0.00	-	0.0405	0.00
14.	1.13	0.13	-	-	-	0.00	0.00	0.00	2.4000	-	0.00	1713.9617
15.	0.06	0.04	-	-	-	0.00	0.00	0.00	0.1504	-	0.0496	0.00
16.	0.13	-	-	-	-	0.1300	0.00	0.00	0.00	-	0.4000	0.00
17.	0.20	-	-	-	-	0.00	0.00	0.00	0.2555	-	0.0045	0.00
18.	0.73	-	-	-	-	0.5469	0.00	0.00	1.1131	-	0.00	0.00
19.	0.40	-	-	-	-	0.4000	0.00	0.00	0.00	-	0.1300	0.00
20.	0.06	-	-	-	-	0.00	0.0311	0.00	0.0289	-	0.00	0.00
21.	0.08	-	-	-	-	0.0599	0.00	0.00	0.0701	-	0.00	0.00
22.	0.26	-	-	-	-	0.2600	0.00	0.00	0.00	-	0.00	0.00
23.	0.26	-	-	-	-	0.2600	0.00	0.00	0.00	-	0.00	0.0752
24.	0.20	-	-	-	-	0.00	0.1487	0.00	0.0513	-	0.00	0.00
25.	0.03	-	-	-	-	0.0300	0.00	0.00	0.00	-	0.00	0.00
26.	0.26	-	-	-	-	0.2600	0.00	0.00	0.00	-	0.0730	0.00
27.	0.26	-	-	-	-	0.2600	0.00	0.00	0.00	-	1.4699	0.00
28.	0.10	-	-	-	-	0.00	0.0247	0.00	0.1753	-	0.00	0.00
29.	0.26	-	0.26	-	-	0.2600	0.00	0.2600	-	0.00	0.00	0.00

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Table 12.3 Continued.

Sl. No. of Farm	Actual Crop activities					Optimum Crop activities					Land Unused (ha)	Cash Unused (Rs.)
	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)		
30.	0.13	-	-	-	-	0.00	0.00	0.00	-	0.1354	0.00	0.00
31.	0.33	-	-	-	-	0.3300	0.00	0.00	-	0.00	0.00	0.00
32.	0.40	-	0.13	-	-	0.4000	0.00	0.1300	-	0.00	0.0700	0.00
33.	0.10	-	0.26	-	-	0.1000	0.00	0.2600	-	0.00	0.0400	0.00
34.	0.33	-	0.20	-	-	0.3300	0.00	0.2000	-	0.00	0.3400	0.00
35.	0.33	-	-	-	-	0.00	0.00	0.00	-	0.1720	0.2280	0.00
36.	0.20	-	0.06	-	-	0.2000	0.00	0.0600	-	0.00	0.3400	0.00
37.	0.26	-	-	-	-	0.2600	-	-	0.00	0.00	0.00	0.00
38.	0.20	-	-	-	-	0.2000	-	-	0.00	0.00	0.00	0.00
39.	0.13	-	-	-	-	0.1300	-	-	0.00	0.00	0.0700	0.00
40.	0.26	-	-	-	-	0.00	-	-	0.00	0.2278	0.00	0.00
41.	0.20	-	-	-	-	0.00	0.00	0.00	0.00	0.1057	0.0943	0.00
42.	0.40	-	-	-	-	0.4000	0.00	0.00	0.00	0.00	0.00	0.00
43.	0.36	-	-	-	-	0.3600	0.00	0.00	0.00	0.00	0.00	0.00
44.	0.40	-	-	-	-	0.4000	0.00	0.00	0.00	0.00	0.00	0.00
45.	0.18	-	-	-	-	0.1800	0.00	0.00	0.00	0.00	0.00	0.00
46.	0.26	-	-	-	-	0.00	0.00	0.00	0.00	0.0784	0.1816	0.00
47.	0.89	0.05	0.13	-	-	0.7738	0.00	0.1300	0.00	0.1617	0.0185	0.00
48.	0.26	-	-	-	-	0.2600	0.00	0.00	0.00	0.0000	0.00	0.00
49.	0.30	-	-	-	-	0.3000	0.00	0.00	0.00	0.00	0.00	0.00
50.	0.40	-	-	-	-	0.4000	0.00	0.00	0.00	0.00	0.00	0.00
51.	0.20	-	-	-	-	0.2000	0.00	0.00	0.00	0.00	0.00	0.00
52.	0.32	-	-	-	-	0.3200	0.00	0.00	0.00	0.00	0.00	0.00
53.	0.26	-	-	0.35	-	0.9949	0.00	0.00	0.00	0.00	0.00	0.00
54.	0.88	-	-	0.18	-	0.8800	0.00	0.00	0.1800	0.00	0.00	0.00
55.	0.53	-	0.04	0.04	-	0.5300	0.0000	0.0400	0.0400	0.00	0.00	0.00
56.	0.06	-	-	0.13	-	0.00	0.00	0.00	0.3570	0.00	0.00	0.00
57.	0.22	-	-	0.18	-	0.2200	0.00	0.00	0.1800	0.00	0.00	0.00
58.	0.26	-	-	-	-	0.2600	0.00	0.00	0.00	0.00	0.00	0.00
59.	0.13	-	-	0.13	-	0.1300	0.00	0.00	0.1300	0.00	0.00	0.00
60.	0.13	-	-	0.13	-	0.1616	0.00	0.00	0.0984	0.00	0.00	0.00
61.	0.06	-	-	-	-	0.0600	0.00	0.00	0.00	0.0000	0.00	0.00

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Table 12.3 Continued.

Sl. No. of Farm	Actual Crop activities					Optimum Crop activities						
	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)	Land Unused (ha)	Cash Unused (Rs.)
62.	0.40	0.06	0.06	0.13	-	0.8533	0.00	0.0600	0.00	0.00	0.0167	0.00
63.	0.13	0.06	0.06	-	-	0.2000	0.00	0.0600	0.00	0.00	0.00	104.5420
64.	0.70	0.04	0.13	0.28	-	0.5505	0.00	0.1300	1.5795	0.00	0.00	110.4248
65.	0.40	-	-	-	-	0.00	0.3299	0.00	0.0701	0.00	0.00	0.00
66.	0.40	-	0.10	-	-	0.4000	-	0.1000	-	-	0.00	0.00
67.	0.40	-	-	-	-	0.4000	-	0.0	-	-	0.00	0.00
68.	0.53	-	-	-	-	0.5300	-	0.0	-	-	0.0	0.0
69.	0.20	-	-	-	-	0.2000	-	0.0	-	-	0.0	0.0
70.	0.13	-	-	-	-	0.1300	-	0.0	-	-	0.0	0.0
71.	0.66	-	0.26	-	-	0.6600	-	0.2600	-	-	0.0	0.0
72.	0.33	-	-	-	-	0.3300	-	0.0	-	-	0.0	0.0
73.	0.07	-	0.04	-	-	0.0	-	0.1201	-	-	0.0	0.0
74.	0.26	0.02	-	-	-	0.3406	0.0	0.0	-	-	0.0	0.0
75.	0.70	0.03	-	-	-	0.0	0.0	1.0651	-	-	0.0	0.0
76.	0.26	-	-	-	-	0.2600	0.0	0.0	-	-	0.0	0.0
77.	0.20	-	-	-	-	0.2000	0.0	0.0	-	-	0.0	0.0
78.	0.26	-	-	-	-	0.0	0.0	0.2650	-	-	0.0	0.0
79.	0.12	-	0.08	-	-	0.0548	0.0	0.2052	-	-	0.0	0.0
80.	0.88	-	-	-	-	0.8800	0.0	0.0	-	-	0.0	0.0
81.	0.07	-	-	-	-	0.0700	0.0	0.0	-	-	0.0	0.0
82.	0.53	-	-	-	-	0.5300	0.0	0.0	-	-	0.0	0.0
83.	0.33	-	-	-	-	0.3300	0.0	0.0	-	-	0.0	0.0
84.	0.26	-	-	-	-	0.2600	-	0.0	-	-	0.0	0.0
85.	0.26	-	-	-	-	0.2600	-	0.0	-	-	0.0	0.0
86.	0.40	-	-	-	-	0.4000	-	0.0	-	-	0.0	0.0
87.	0.20	-	-	-	-	0.2000	-	0.0	-	-	0.0	0.0
88.	0.26	-	-	-	-	0.2600	-	0.0	-	-	0.0	0.0
89.	0.20	-	-	-	-	0.2000	-	0.0	-	-	0.0	0.0
90.	0.08	-	-	-	-	0.0800	-	0.0	-	-	0.0	0.0
91.	0.08	-	-	-	-	0.0800	-	0.0	-	-	0.0	0.0
92.	0.26	-	-	-	-	0.2600	-	0.0	-	-	0.0	0.0
93.	0.07	-	-	-	-	0.00	-	0.0317	-	-	0.0	0.0
94.	0.80	-	-	-	-	0.8000	-	0.0	-	-	0.0	0.0
95.	0.13	-	-	-	-	0.1300	-	0.0	-	-	0.0	0.0
96.	0.53	-	-	-	-	0.5300	-	0.0	-	-	0.0	0.0

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Table 12.3 Continued.

Sl. No. of Farm	Actual Crop activities					Optimum Crop activities						
	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)	Land Unused (ha)	Cash Unused (Rs.)
<b>Jalpiguri</b>												
97.	0.06	-	0.13	-	-	0.0	0.0	0.1300	0.0	0.0280	0.0320	0.0
98.	0.13	0.04	-	-	-	0.1700	0.0	0.0	0.0	0.0	0.0	0.0
99.	0.13	0.06	-	0.06	-	0.0	0.0	0.0	0.0	0.2890	0.0	0.0
100.	0.26	-	0.04	0.06	-	0.2833	0.0	0.0400	0.0	0.0	0.0366	0.0
101.	0.20	-	-	-	-	0.0	0.0	0.0	0.0	0.1276	0.0	0.0
102.	0.20	-	0.06	-	-	0.0	0.0	0.0600	0.0	0.2000	0.0	208.6896
103.	0.13	0.06	-	-	-	0.2593	0.0	0.0	0.0	0.0	0.0	0.0
104.	0.26	-	-	0.13	-	0.0	0.0	0.0	0.7636	0.0364	0.0	0.0
105.	0.13	-	0.26	-	-	0.1300	0.0	0.2600	0.0	0.0	0.0	0.0
106.	0.26	0.03	0.13	-	-	0.0	0.0	0.1300	0.0	0.4016	0.0	0.0
107.	0.20	-	-	0.26	-	0.5344	0.0	0.0	0.0	0.0	0.0	0.0
108.	0.26	-	0.13	-	-	0.2600	0.0	0.1300	0.0	0.0	0.0	0.0
109.	0.13	-	-	-	-	0.0	0.0	0.0	0.0	0.0733	0.0569	0.0
110.	0.13	-	-	-	0.13	0.0	0.0	0.0	0.0	0.2335	0.0	0.0
111.	0.26	-	-	-	-	0.2600	0.0	0.0	0.0	0.0	0.0	0.0
112.	0.66	0.06	-	-	-	1.0600	0.0	0.0	0.0	0.0	0.0	0.0
113.	0.40	-	-	-	-	0.4000	0.0	0.0	0.0	0.0	0.0	0.0
114.	0.26	-	-	-	-	0.2600	0.0	0.0	0.0	0.0	0.0	0.0
115.	0.26	-	-	0.13	-	0.0	0.0	0.0	0.3773	0.0227	0.0	0.0
116.	0.26	-	-	-	-	0.0	0.0	0.0	0.1427	0.0	0.0	0.0
117.	0.40	-	-	0.26	0.40	1.0000	0.0	0.0	0.0	0.0	0.0	0.0
118.	0.13	0.03	-	-	-	0.1962	0.0	0.0	0.0	0.0	0.0	0.0
119.	0.26	-	-	-	-	0.2600	0.0	0.0	0.0	0.0	0.0	0.0
120.	0.13	-	-	-	-	0.0	0.0	0.0	0.1341	0.0	0.0	0.0

**Table 12.4** Actual and Optimum Crop Plan for Sample Farms in Selected Districts of West Bengal for Period-II (1990-91)

Sl. No. of Farm	Actual Crop activities					Optimum Crop activities					Land Unused (ha)	Cash Unused (Rs.)
	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)		
<b>Coochbehar</b>												
1.	0.70	-	-	-	-	1.6000	0.0	0.0	0.0	-	0.0	0.0
2.	0.59	0.13	-	-	-	0.7000	0.0	0.0	0.0	-	0.0	0.0
3.	0.58	0.08	-	-	-	0.6600	0.0	0.0	0.0	-	0.0	0.0
4.	0.26	-	-	-	-	0.2600	0.00	0.0	0.0	-	0.0	0.0
5.	0.33	-	-	-	-	0.3300	0.00	0.0	0.0	-	0.0	0.0
6.	0.20	-	-	-	-	0.2000	0.0	0.0	0.0	-	0.0	0.0
7.	0.73	0.20	-	-	-	0.9300	0.0	0.0	0.0	-	0.0	0.0
8.	0.10	-	-	-	-	0.1000	0.0	0.0	0.0	-	0.0	0.0
9.	0.36	-	-	-	-	0.3600	0.0	0.0	0.0	-	0.0	0.0
10.	0.50	-	0.43	-	-	0.0	0.0	0.4300	0.5300	-	0.0	614.0087
11.	0.26	-	0.20	-	-	0.2600	0.0	0.2000	0.0	-	0.0	0.0
12.	0.40	-	-	-	-	0.4000	0.0	0.0	0.0	-	0.0	0.0
13.	0.75	-	-	0.13	-	0.7296	0.0	0.0	0.2004	-	0.0	0.0
14.	1.09	0.39	0.15	0.30	-	0.0	0.0	0.1500	2.2500	-	0.0	1061.2275
15.	0.06	0.06	-	-	-	0.2000	0.0	0.0	0.0	-	0.0	0.0
16.	0.20	-	0.07	-	-	0.0	0.0	0.0700	0.4028	-	0.0	0.0
17.	0.20	-	0.06	-	-	0.0	0.0	0.0600	0.1133	-	0.0867	0.0
18.	0.80	-	-	-	-	0.3463	0.0	0.0	1.5157	-	0.0	0.0
19.	0.26	0.20	0.06	-	-	0.4700	0.0	0.0600	0.0	-	0.0	877.5659
20.	0.06	-	-	-	-	0.0600	0.0	0.0	0.0	-	0.0	0.0
21.	0.10	-	0.06	-	-	0.1000	0.0	0.0600	0.0	-	0.0	0.0
22.	0.26	-	-	-	-	0.0	0.0	0.0	0.2153	-	0.0447	0.0
23.	0.20	-	0.06	-	-	0.2000	0.0	0.0600	-	-	0.0	0.0
24.	0.20	-	-	-	-	0.0	0.0676	0.0	0.1324	-	0.0	0.0
25.	0.03	-	-	-	-	0.0300	0.0	0.0	0.0	-	0.0	0.0
26.	0.20	0.08	0.13	-	-	0.0	0.3200	0.1300	0.0	0.0	0.0	114.7347
27.	0.40	-	-	-	-	0.4000	0.0	0.0	0.0	-	0.0	0.0
28.	0.10	-	-	0.10	-	0.1000	0.0	0.0	0.1000	-	0.0	0.0
29.	0.26	-	0.26	-	-	0.2600	-	0.2600	-	0.0	0.0	0.0

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Table 12.4 Continued.

Sl. No. of Farm	Actual Crop activities					Optimum Crop activities					Land Unused (ha)	Cash Unused (Rs.)
	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)		
30.	0.20	-	-	-	-	0.0	0.0	0.0	-	0.0702	0.1298	0.0
31.	0.25	-	0.13	-	-	0.0	0.0	0.3201	-	0.0	0.0599	0.0
32.	0.30	0.13	0.26	-	0.13	0.0	0.0	0.2600	-	0.6079	0.0	0.0
33.	0.30	-	-	-	-	0.3000	0.0	0.0	-	0.0	0.0	0.0
34.	0.33	0.20	0.20	-	0.04	0.0	0.0	0.2000	-	0.5201	0.0491	0.0
35.	0.25	0.04	0.20	-	-	0.0	0.0	0.2000	-	0.1605	0.1295	0.0
36.	0.20	-	0.10	-	-	0.0	0.0	0.1000	-	0.0581	0.1419	0.0
37.	0.20	-	-	0.13	-	0.0	-	-	0.3722	0.0278	0.0	0.0
38.	0.20	-	-	-	0.13	0.5151	-	-	0.0	0.0149	0.0	0.0
39.	0.13	-	-	-	-	0.0	-	-	0.0	0.1397	0.0	0.0
40.	0.30	-	-	0.26	-	0.0	-	-	0.0	0.4699	0.0	0.0
41.	0.20	-	-	-	-	0.2000	0.0	0.0	0.0	0.0	0.0	0.0
42.	0.37	-	-	0.13	-	0.3748	0.0	0.0	0.1252	0.0	0.0	0.0
43.	0.45	-	-	-	-	0.4500	0.0	0.0	0.0	0.0	0.0	0.0
44.	0.40	0.09	0.07	-	-	0.1068	0.6378	0.0700	0.0	0.0	0.0	0.0
45.	0.13	-	-	-	0.17	0.2784	0.0	0.0	0.0	0.0	0.0216	0.0
46.	0.26	0.06	-	-	-	0.5300	0.0	0.0	0.0	0.0	0.0	0.0
47.	0.50	0.10	0.26	-	-	0.0	0.3415	0.2600	0.0	0.2585	0.0	0.0
48.	0.33	-	-	-	-	0.3300	0.0	0.0	0.0	0.0	0.0	0.0
49.	0.26	-	0.13	-	-	0.2600	0.0	0.1300	0.0	0.0	0.0	0.0
50.	0.40	-	0.29	-	-	0.0	0.0	0.8830	0.0	0.3163	0.0	0.0
51.	0.20	-	-	-	-	0.0	0.0	0.0	0.5274	0.0	0.0	0.0
52.	0.26	-	0.26	-	-	0.2600	0.0	0.2600	0.0	0.0	0.0	0.0
53.	0.26	-	-	0.40	-	1.2000	0.0	0.0	0.0	0.0	0.0	0.0
54.	1.00	-	-	-	-	0.2700	0.0	0.0	0.7300	0.0	0.0	0.0
55.	0.50	0.13	0.13	-	-	0.8300	0.0	0.1300	0.0	0.0	0.0	0.0
56.	0.13	-	0.07	0.13	-	0.1300	0.0	0.0700	0.1300	0.0	0.0	0.0
57.	0.26	-	0.18	-	-	0.2600	0.0	0.1800	0.0	0.0	0.0	0.0
58.	0.26	-	0.06	-	-	0.2600	0.0	0.0600	0.0	0.0	0.0	0.0
59.	0.26	-	0.26	-	-	0.2600	0.0	0.2600	0.0	0.0	0.0	0.0
60.	0.13	0.10	-	0.13	-	0.4000	0.0	0.0	0.0	0.0	0.0	0.0
61.	0.06	-	-	0.06	-	0.0837	0.0	0.0	0.0	0.0	0.0363	0.0

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Table 12.4 Continued.

Sl. No. of Farm	Actual Crop activities					Optimum Crop activities						
	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)	Land Unused (ha)	Cash Unused (Rs.)
62.	0.50	-	0.13	-	-	0.5000	0.0	0.1300	0.0	0.0	0.0	0.0
63.	0.13	0.13	0.06	-	0.13	0.5869	0.0	0.0600	0.0506	0.0	0.0	0.0
64.	0.70	0.27	0.26	0.28	-	1.5179	0.0	0.2600	0.4902	0.0	0.0	0.0
65.	0.33	0.09	-	-	-	0.0	0.0	0.0	0.0455	0.5045	0.0	0.0
66.	0.40	-	0.19	-	-	0.4000	0.0	0.1900	0.0	-	0.0	0.0
67.	0.50	0.19	-	0.26	-	1.0600	0.0	0.0	0.0	-	0.0	0.0
68.	0.50	0.26	0.40	-	-	1.0013	0.0	0.4000	0.0	-	0.0	0.0
69.	0.20	-	0.14	0.13	-	0.2000	0.0	0.1400	0.1300	-	0.0	0.0
70.	0.13	-	-	-	-	0.1300	0.0	0.0	0.0	-	0.0	0.0
71.	0.66	0.40	0.33	-	-	1.8538	0.0183	0.3300	0.0	-	0.0	0.0
72.	0.33	-	-	0.13	-	0.2319	0.0	0.0	0.5681	-	0.0	0.0
73.	0.07	-	0.07	-	-	0.0700	0.0	0.0700	0.0	-	0.0	0.0
74.	0.26	0.26	0.26	0.26	-	1.1278	0.0	0.2600	0.0	-	0.0	0.0
75.	0.66	0.13	0.26	0.13	-	0.0	0.0	1.2000	0.0	-	0.0	0.0
76.	0.26	-	-	-	-	0.2600	0.0	0.0	0.0	-	0.0	0.0
77.	0.20	-	-	0.13	-	0.2654	0.0	0.0	0.0	-	0.0	0.0
78.	0.26	0.18	-	0.19	-	0.8880	0.0	0.0	0.0	-	0.0	0.0
79.	0.13	-	-	-	-	0.0	0.0	0.1387	0.0	-	0.0	0.0
80.	0.86	0.33	0.40	0.26	-	2.0856	0.0	0.4000	0.0	-	0.0	0.0
81.	0.07	-	0.10	-	-	0.0700	0.0	0.1000	0.0	-	0.0	0.0
82.	0.53	-	-	0.13	-	0.3990	0.0	0.0	0.4010	-	0.0	0.0
83.	0.30	-	-	-	-	0.3000	0.0	0.0	0.0	-	0.0	0.0
84.	0.26	-	-	0.13	-	0.2474	0.0	0.0	0.1826	-	0.0	0.0
85.	0.26	-	0.18	0.20	-	0.2600	0.0	0.1800	0.2000	-	0.0	0.0
86.	0.40	-	0.13	-	-	0.4000	0.0	0.1300	0.0	-	0.0	0.0
87.	0.20	-	-	0.10	-	0.2999	0.0	0.0	0.0	-	0.0	0.0
88.	0.26	0.13	0.20	0.20	-	0.7318	0.0	0.2000	0.0	-	0.0	0.0
89.	0.20	-	-	-	-	0.2000	0.0	0.0	0.0	-	0.0	0.0
90.	0.08	-	-	-	-	0.0800	0.0	0.0	0.0	-	0.0	0.0
91.	0.10	-	0.09	-	-	0.1000	0.0	0.0900	0.0	-	0.0	0.0
92.	0.26	0.13	-	0.13	-	0.2600	0.0	0.1300	0.1300	-	0.0	0.0
93.	0.13	-	-	-	-	0.0697	0.0	0.0	0.1903	-	0.0	0.0
94.	0.66	0.16	0.26	0.26	-	1.1326	0.0	0.2600	0.0	-	0.0	0.0
95.	0.13	-	-	-	-	0.1300	0.0	0.0	0.0	-	0.0	0.0
96.	0.50	0.26	0.33	0.40	-	1.3690	0.0468	0.3300	0.0	-	0.0	0.0

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Table 12.4 Continued.

Sl. No. of Farm	Actual Crop activities					Optimum Crop activities						
	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)	Tobacco (ha)	Potato (ha)	Wheat (ha)	Mustard (ha)	Veg. (ha)	Land Unused (ha)	Cash Unused (Rs.)
<b>Jalpaiguri</b>												
97.	0.13	-	0.20	0.26	-	0.0	0.0	0.2000	0.5705	0.0093	0.0	0.0
98.	0.13	-	-	-	-	0.0	0.0	0.0	0.0	0.1066	0.0234	0.0
99.	0.13	-	0.26	0.13	-	0.0	0.0	0.2600	0.0	0.0841	0.1759	0.0
100.	0.26	0.26	-	0.17	-	0.0	0.0	0.0	0.2002	0.5298	0.0	0.0
101.	0.17	-	0.13	0.19	-	0.0	0.0	0.1300	0.4420	0.0293	0.0	0.0
102.	0.09	-	-	-	0.08	0.2225	0.0	0.0	0.0	0.0375	0.0	0.0
103.	0.10	0.45	0.20	0.40	-	0.1325	0.0	0.2000	0.0	1.0135	0.0	0.0
104.	0.26	0.19	-	-	0.20	0.0	0.0	0.0	0.0	0.8000	0.0	0.0
105.	0.13	-	-	-	-	0.1300	0.0	0.0	0.0	0.0	0.0	0.0
106.	0.26	0.20	0.26	0.26	-	0.0	0.0	0.2600	0.0	1.1372	0.0	0.0
107.	0.20	0.13	0.20	0.26	-	0.4421	0.0	0.2000	0.0	0.4702	0.0	0.0
108.	0.26	-	0.26	0.16	-	0.0	0.0	0.2600	0.5497	0.0946	0.0	0.0
109.	0.13	-	-	-	0.23	0.0	0.0	0.0	0.0	0.4608	0.0	0.0
110.	0.06	0.06	-	-	-	0.0	0.0	0.0	0.0	0.2342	0.0	0.0
111.	0.20	-	0.13	-	0.13	0.2792	0.0	0.1300	0.0	0.0830	0.0	0.0
112.	0.66	0.26	0.26	0.26	0.20	0.0	0.0	0.2600	0.0	1.4189	0.0	0.0
113.	0.40	0.07	0.06	0.13	-	0.7405	0.0	0.0600	0.0	0.0901	0.0	0.0
114.	0.26	-	-	0.26	-	0.0	0.0	0.0	0.0	0.1691	0.3509	0.0
115.	0.23	-	0.13	-	-	0.2300	0.0	0.1300	0.0	0.0	0.0	0.0
116.	0.16	-	0.26	-	0.10	0.0	0.0	0.2600	0.0	0.1672	0.0928	0.0
117.	0.40	0.13	0.40	0.26	-	0.9642	0.0	0.4000	0.0	0.1729	0.0	0.0
118.	0.13	-	0.13	0.13	-	0.0	0.0	0.1300	0.0	0.1348	0.1252	0.0
119.	0.26	-	0.13	-	-	0.2600	0.0	0.1300	0.0	0.0	0.0	0.0
120.	0.13	0.09	0.13	0.19	-	0.4028	0.0	0.1300	0.0	0.1973	0.0	0.0

**Table 12.5** Extent of expansion of area under tobacco by optimal allocation of resources Period-I (1983-84)

District	The farm showing no difference between existing and optimal plans		The farms where tobacco area will be increased by optimal allocation of resources		The farms where tobacco area will be reduced by optimal allocation of resources		Change in area under tobacco by optimal allocation of resources (in hectare)
	Number	Area (in hectare)	Number	Increase in area (in hectare)	Number	Decrease in area (in hectare)	
Coochbehar	67 (69.79)	22.03 (69.67)	5 (5.21)	1.37 (4.33)	24 (25.00)	5.84 (18.47)	(-)4.47 (-14.14)
Jalpaiguri	6 (25.00)	1.57 (28.55)	7 (29.17)	1.59 (28.91)	11 (45.83)	2.02 (36.73)	(-)0.43 (-7.82)
Two districts combined	73 (60.83)	23.60 (63.58)	12 (10.00)	2.96 (7.97)	35 (29.17)	7.86 (21.17)	(-)4.90 (-13.20)

Note : Figure in the parenthesis indicates the percentage of respective totals

Table 12.6 Extent of expansion of area under tobacco by optimal allocation of resources Period-II (1990-91)

District	The farm showing no difference between existing and optimal plans.		The farms where tobacco area will be increased by optimal allocation of resources		The farms where tobacco area will be reduced by optimal allocation of resources		Change in area under tobacco by optimal allocation of resources (in hectare)
	Number	Area (in hectare)	Number	Increase in area (in hectare)	Number	Decrease in area (in hectare)	
Coochbehar	40 (41.67)	10.07 (32.61)	25 (26.04)	10.20 (33.03)	31 (32.29)	8.59 (27.82)	1.61 (5.21)
Jalpaiguri	3 (12.50)	0.62 (12.06)	7 (29.17)	1.66 (32.30)	14 (58.33)	3.00 (58.37)	(-)1.34 (-26.07)
Two districts combined	43 (35.83)	10.69 (29.68)	32 (26.67)	11.86 (32.93)	45 (37.50)	11.59 (32.18)	0.27 (0.75)

Note : Figure in the parenthesis indicate the percentage of respective totals

the second period, the extent of possible reduction in area under tobacco is found to be at par with that of expansion resulted to be unchanged in tobacco area by reallocating of resources. It is noted, at this juncture, that the possibility of contraction in tobacco area in Jalpaiguri district is revealed while examining Table 12.5 and 12.6. On the basis of the foregoing discussion one may contend that under present price structure, production technology, and resource position the possibility of tobacco area expansion appears to be gloomy.

The possibility of change in area under competing crops on tobacco growing farms by resource reallocation is summarized in Table 12.7 for Period I and in Table 12.8 for Period II. Area under the competing crops by optimum resource allocation is exhibited an increase to order of 151 per cent over the existing level in the first period while that observed in second period is only 36.5 per cent. For both the period in both districts vegetables and mustard exhibit a considerable expansion. Extent of expansion in area under mustard is noted spectacular in the first period while that of vegetables in the second period as revealed from Table 12.7 and 12.8. In tobacco growing farms prospect of vegetables appears to be more promising in Jalpaiguri district in comparison with than in Coochbehar.

One may raise the question of validity of the optimum crop-plans prepared on the basis of cost, yield and price data of the present year while the farmer's allocative decision is influenced by the cost, yield and price of the preceding year. In view of irrelevance of lagged relative prices and lagged relative profitabilities to acreage allocation of tobacco as has been elicited in Chapter IX the above argument as to the question of validity of optimum plan is ruled out.

This programming exercise has been framed on profit maximizing hypothesis. The relative yield and price risk of tobacco and its competing crops have not been incorporated into the model and hence risk aversion production decision is not reflected in the optimum crop plan. If one consider risk factors in the process of farmer's acreage allocation decision he may plausibly think of better prospect of tobacco than what has been obtained from optimum plan based on hypothesis of profit maximization only as production and price risk of

**Table 12.7** Extent of expansion of area under competing crops  
by optimal allocation of resources : Period-I (1983-84)

	Potato		Wheat		Mustard		Vegetables		Total change in area under competing crops by optimal allocation of resources (hectare)
	The farm where potato area will be changed by optimal allocation of resources		The farm where wheat area will be changed by optimal allocation of resources		The farm where mustard area will be changed by optimal allocation of resources		The farm where vegetables area will be changed by optimal allocation of resources		
	Number	Change area (hectare)	Number	Change area (hectare)	Number	Change area (hectare)	Number	Change area (hectare)	
<b>Coochbehar</b>									
Increase in area	3 (37.50)	0.43 (100.00)	5 (33.33)	1.54 (75.12)	12 (133.33)	6.67 (430.32)	6 Total	0.88 Total	9.52 (236.23)
Decrease in area	5 (62.50)	0.31 (72.09)	-	-	3 (33.33)	0.51 (32.90)	-	-	0.82 (20.35)
Net change in area	(-)2 (-25.00)	0.12 (27.91)	5 (33.33)	1.54 (75.12)	9 (100.00)	6.16 (397.42)	6 Total	0.88 Total	8.70 (215.88)
<b>Jalpaiguri</b>									
Increase in area	-	-	-	-	4 (66.67)	1.16 (128.89)	9 (450.00)	1.21 (228.30)	2.37 (96.34)
Decrease in area	5 (83.33)	0.22 (78.57)	-	-	4 (66.67)	0.64 (71.11)	1 (50.00)	0.40 (75.47)	1.26 (51.22)
Net change in area	(-)5 (-83.33)	(-)0.22 (-78.57)	-	-	0.00	0.52 (57.77)	8 (400.00)	0.81 (152.83)	1.11 (151.16)

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Table 12.7 Continued.

	Potato		Wheat		Mustard		Vegetables		Total change in area under competing crops by optimal allocation of resources (hectare)
	The farm where potato area will be changed by optimal allocation of resources		The farm where wheat area will be changed by optimal allocation of resources		The farm where mustard area will be changed by optimal allocation of resources		The farm where vegetables area will be changed by optimal allocation of resources		
	Number	Change area (hectare)	Number	Change area (hectare)	Number	Change area (hectare)	Number	Change area (hectare)	
<b>Two Districts Combined</b>									
Increase in area	3 (28.57)	0.43 (60.56)	5 (23.81)	1.54 (55.00)	16 (76.19)	7.83 (319.59)	15 (750.00)	2.09 (394.34)	11.89 (183.20)
Decrease in area	10 (71.43)	0.53 (74.65)	-	-	7 (33.33)	1.15 (46.94)	1 (50.00)	0.40 (75.47)	2.08 (32.04)
Change in area	(-)7 (-53.85)	(-)0.10 (-14.08)	5 (23.81)	1.54 (55.00)	9 (42.86)	6.68 (272.65)	14 (700.00)	1.69 (318.87)	9.81 (151.16)

Note : Figures in the parenthesis indicates the percentage of respective totals.

**Table 12.8** Extent of expansion of area under competing crops by optimal allocation of resources : Period-II (1990-91)

	Potato		Wheat		Mustard		Vegetables		Total change in area under competing crops by optimal allocation of resources (hectare)
	The farm where potato area will be changed by optimal allocation of resources		The farm where wheat area will be changed by optimal allocation of resources		The farm where mustard area will be changed by optimal allocation of resources		The farm where vegetables area will be changed by optimal allocation of resources		
	Number	Change area (hectare)	Number	Change area (hectare)	Number	Change area (hectare)	Number	Change area (hectare)	
<b>Coochbehar</b>									
Increase in area	4 (13.79)	1.10 (22.40)	4 (9.30)	1.86 (23.63)	17 (62.96)	6.70 (131.63)	11 (220.00)	2.96 (493.33)	12.62 (68.33)
Decrease in area	22 (75.86)	3.67 (74.75)	- -	- -	13 (48.15)	2.59 (50.88)	2 (40.00)	0.29 (48.33)	6.55 (35.47)
Net change in area	(-)18 (-62.07)	(-)2.57 (-52.35)	4 (9.30)	1.86 (23.63)	4 (14.81)	4.11 (80.75)	9 (180.00)	2.67 (445.00)	6.07 (32.86)
<b>Jalpaiguri</b>									
Increase in area	-	-	-	-	4 (28.57)	0.98 (32.03)	19 (316.67)	6.39 (679.79)	7.37 (82.07)
Decrease in area	10 (100.00)	1.04 (56.52)	-	-	10 (71.43)	2.28 (74.51)	2 (33.33)	0.09 (9.57)	3.41 (37.97)
Net change in area	(-)10 (-100.00)	(-)1.04 (-56.52)	-	-	(-)6 (-42.86)	(-)1.30 (-42.48)	17 (283.34)	6.30 (670.22)	3.96 (44.10)

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Table 12.8 Continued.

	Potato		Wheat		Mustard		Vegetables		Total change in area under competing crops by optimal allocation of resources (hectare)
	The farm where potato area will be changed by optimal allocation of resources		The farm where wheat area will be changed by optimal allocation of resources		The farm where mustard area will be changed by optimal allocation of resources		The farm where vegetables area will be changed by optimal allocation of resources		
	Number	Change area (hectare)	Number	Change area (hectare)	Number	Change area (hectare)	Number	Change area (hectare)	
<b>Two Districts Combined</b>									
Increase in area	4 (10.26)	1.10 (16.30)	4 (6.78)	1.86 (16.89)	21 (51.22)	7.68 (94.23)	30 (272.73)	9.35 (607.14)	19.99 (72.82)
Decrease in area	32 (82.05)	4.71 (69.78)	- -	- -	23 (56.10)	4.87 (59.75)	4 (36.36)	0.38 (24.68)	9.96 (36.28)
Net change in area	(-)28 (-71.79)	(-)3.61 (-53.48)	4 (6.78)	1.86 (16.89)	(-)2 (-4.88)	2.81 (34.48)	26 (236.37)	8.97 (582.46)	10.03 (36.54)

Note : Figures in the parenthesis indicates the percentage of respective totals

tobacco are reported to be lower as compared to that of vegetables and potato. Risk aversion decision taking into account if one allot net increase of area under potato and vegetable to tobacco the extent of additional extension of tobacco area over the existing plan is calculated as about 4 per cent in the first and 14 per cent in the second reference period. It is revealed from Table 12.7 and 12.8 that the vegetable crops have emerged as promising competing activities from early eighties and the farmers are being well versed with its technology package of practices to combat relatively high production risk associated with it. Considering all these, one can hardly find any possibility of future expansion of area under tobacco to a notable extent within the limit of present technology, price structure and resource constraints.