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EFFECT OF PRICE ON CULTIVATION AND DISPOSAL OF PADDY AND JUTE (A CASE STUDY OF NOWGONG DISTRICT IN ASSAM)*

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Agriculture is the mainstay of the people of Assam. It alone accounts for nearly half of the State income and provides livelihood to about 72 per cent of the total population. The vast majority of rural people in the Assam plains depends primarily upon two major crops, paddy and jute. Paddy provides the main staple food to the people of the State and also act as cash crop to those farmers who do not grow any other field crop. The percentage of net area sown under paddy in the State accounts for 72 per cent of the total gross area under crops. While paddy is grown all over Assam (both hills and plains) jute cultivation is mainly confined to five plain districts of Assam, namely, Darrang, Kamrup, Goalpara, Nowgong and Cachar. The district of Nowgong heads the list in both area and production of jute.

The trend of yield rate and area under paddy and jute in Assam State for three successive years are presented in Table I.

TABLE I—AREA AND YIELD OF PADDY AND JUTE

Crops	1967-68		1968-69		1969-70	
	Area (hectares)	Yield per hectare (quintals)	Area (hectares)	Yield per hectare (quintals)	Area (hectares)	Yield per hectare (quintals)
Paddy ..	2,011,000	9·65	2,087,000	10·43	2,089,000	9·27
Jute ..	146,000	12·93	108,000	12·96	128,000	15·98

Source : Economic Survey of Assam 1970, Department of Economics and Statistics, Government of Assam.

Because of the various factors like population growth, transport bottleneck, flood and drought, demand for jute goods abroad, the price of paddy and jute may rise or fall, both in the long and short run, depending on the nature of influence. The price and production of crop is thus influenced by various factors. But the price trend in turn might affect the farmers' decision in

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expanding or contracting acreage under crops. This is particularly true in the case of farmers above the subsistence level, especially when they grow competitive crops like jute and autumn paddy.

In the present paper the results of Farm Management Study in the district of Nowgong in Assam are presented. The acreage, output and yield of the principal crops in Nowgong district for the year 1968-69 are given in Table II.

TABLE II—ACREAGE, OUTPUT AND YIELD OF PRINCIPAL CROPS IN NOWGONG DISTRICT : 1968-69

Crops	Area (hectares)	Production (tonnes)	Average yield (quintals)
1. Autumn paddy (*Ahu*)	46,150	35,850	7·90
2. Winter paddy (*Sali*)	1,65,520	1,88,930	11·60
3. Winter paddy (*Bao*)	5,260	6,210	11·80
4. Jute*	32,580	2,10,120	11·61
5. Sugarcane	3,440	12,100	327·79
6. Rape and mustard	23,470	10,750	4·58

* Production of jute in bales of 1·80 quintals per bale.
Source : Statistical Hand Book of Assam, 1969.

Paddy covers about 67 per cent and jute covers 16.01 per cent respectively of the total cropped area in the district of Nowgong in 1968-69.

The study covers 150 farm families from 15 different villages selected at random, with probability proportional to the cultivating population (1961 Census). The objectives of this paper are two-fold, *viz.*, (1) to probe into the effect of price change over acreage and disposal of paddy and jute for three successive years, *viz.*, 1968-69 to 1970-71, and (2) to examine the effect of price change on autumn paddy (*Ahu*) and its complementary crop, jute.

Appendix 1 shows the monthwise prices for paddy and jute for three years. The price index of paddy for Nowgong district (Base 1968-69=100) rose to 106.93 in 1969-70 and 114.34 in 1970-71. The monthly trend of paddy price varied from Rs. 42.33 per quintal in November, 1968-69 and reached the peak of Rs. 74.16 per quintal in May. The same trend follows in the successive two years also. The steep rise in paddy prices is particularly noteworthy as there is control over paddy market by the Government in the shape of monopoly paddy procurement. The price index of jute (Base 1968-69=100) scaled down to 99.86 in 1969-70 and rose to 104.77 in 1970-71. In case of monthwise trend also jute price is not following a symmetrical trend ; from Rs. 101 per quintal in September, 1968, the price rose to

Rs. 152 in June, 1969. In order to find out a definite relation between price and the net sale proceeds monthwise, the monthly distribution of the sale of these two commodities is given in Table III.

TABLE III—MONTHLY DISTRIBUTION OF THE NET SALE PROCEEDS OF PADDY AND JUTE : 1968-69 (NOWGONG SAMPLE 150 FARMS)

Months	Paddy (quintals)		Jute (quintals)	
June, 1968	16·90	(1·78)	1·60	(0·50)
July	73·46	(7·74)	12·09	(3·76)
August	34·28	(3·62)	35·90	(11·18)
September	37·51	(3·96)	70·75	(22·02)
October	40·64	(4·28)	94·78	(29·50)
November	61·43	(6·47)	31·14	(9·69)
December	172·21	(18·15)	32·32	(10·06)
January, 1969	128·97	(13·57)	11·84	(3·69)
February	111·07	(11·70)	19·32	(6·02)
March	97·85	(10·30)	6·40	(1·99)
April	78·32	(8·27)	4·60	(1·43)
May	96·53	(10·16)	0·50	(0·16)
Total sale	949·17	(100·00)	321·24	(100·00)

Note: Figures within brackets indicate percentages.

The highest sale of paddy was during the months of December, January and February. From the price list, it is seen that paddy price declines to the minimum level during this period. Thereafter the sale gradually declines. The slight increase of sale in the month of July is due to the harvesting of autumn paddy. In the case of jute also the highest percentage of sale proceeds is during the months of September and October, when the price falls to the minimum level. The net sale is gradually decreasing until it reaches 0.16 per cent in the month of May when the market price is the highest.

From the figures of monthly disposal of paddy and jute by farm producers, it is clear that disposal has little relation with the rise in prices. Disposal is invariably highest just after the harvest when the market price is the lowest. The majority of the post-harvest disposals might be distress sales. This will be evident from the analysis of monthly disposal by size-groups of operational holding (Table IV). Because of higher quantity of disposable surplus, the farmers in the higher size-groups try to get the benefit of higher prices in lean months by holding such sale of a larger quantity. In the case of jute although major portion of disposal is after the harvest, this tendency is more pronounced

TABLE IV—PERCENTAGE DISTRIBUTION OF SEASONAL SALE OF PADDY AND JUTE : 1968-69 (NOWGONG SAMPLE: 150 FARMS)

Farm size-groups (hectares)	Paddy		Jute	
	Post-harvest period : January, February and March (3 months)	Rest of the year (9 months)	Post-harvest period : September, October and November (3 months)	Rest of the year (9 months)
0·01 — 1·82	48·98	51·02	84·24	15·76
1·83 — 2·43	37·42	62·58	63·86	36·14
2·44 — 3·24	36·98	63·02	58·41	41·55
3·25 — 4·45	35·12	64·88	60·74	39·26
Above 4·45	32·39	67·61	56·67	43·33

in the case of smaller farms. For farmers growing autumn paddy (*Ahu*) there is another harvesting season in July and August and the disposal will be increased in the households in August and September.

In this analysis we have only shown figures for one year, *i.e.*, 1968-69 only. Similar trend is evident from the monthly disposal figures for succeeding two years also, *i.e.*, 1969-70 and 1970-71. This leads us to only one conclusion that the subsistence and marginally surplus farmers' decision to grow field crop and sell the surplus is not motivated by price factor greatly. But the farmers in the highest size-groups are always influenced by price change, especially when they grow two complementary crops as autumn paddy and jute.

Appendix 2 shows the area under winter paddy (*Sali*), autumn paddy (*Ahu*) and jute along with the corresponding trend of yield rate for the last three years size-groupwise. It is to be pointed out that winter paddy (*Sali*) is grown as the primary crop which follows *Ahu* and its substitutable crop jute as the double crop in the second season. It reveals that the per family area in the case of the primary crop *Sali* gradually scales down from 1.59 hectare in 1968-69 to 1.44 hectare in 1969-70 and to 1.36 hectare in 1970-71. But in the case of double crop *Ahu* the per family area increased from 0.82 hectare in 1968-69 to 0.91 hectare in 1969-70 and 0.91 hectare in 1970-71. The substitutable crop jute shows a more profound increasing trend of area per family, *i.e.*, 0.36 hectare in 1968-69 to 0.49 hectare in 1969-70 and to 0.55 hectare in 1970-71. This increased area per family under *Ahu* and jute indicates the increasing trend of intensity of cropping.

By size-groups of operational holding the area devoted to the primary crop *Sali* in the lower size-groups (Group I and II) increased along with an increase in the price level. Groups III and IV show somewhat static results. But in the fifth size-group the area decreased by nearly 17 per cent in 1969-70. In the case of *Ahu* also, the area devoted under the crops increased in the

second, third and fourth groups and decreased by nearly 4 per cent in the fifth group (may be due to higher increase of area under jute).

The decrease in area under paddy in the highest size-group is explained by an increase of acreage under jute in this group. In fact, there is an increase of acreage under jute in all the size-groups. The increasing trend under jute area in all the size-groups vindicates the general propensity of the farm families towards jute cultivation. This is so because of the fact that the return per hectare is greater in the case of jute than in the case of *Ahu* paddy, which is shown in Table V. As seen from the table, the slight decrease of jute prices in comparison to paddy prices cannot affect the farmers' decision unless there is a continuous declining trend in jute price.

TABLE V—COST-RETURN RATIO OF *Ahu* AND JUTE PER HECTARE

(*Rupees*)

Crop	Net return	Variable cost	Net profit/ loss	Cost-return ratio
Ahu paddy	740·80	250·95	+ 489·85	1 : 2·95
Jute	1,817·48	268·32	+1,549·16	1 : 6·77

Although the cost-return ratio indicates that the cash crop jute is more paying than its complementary crop *Ahu* paddy, the analysis of variable costs under different heads for both the crops (Appendix 3) shows that the volume of physical strain involved in jute cultivation is much more higher than that in *Ahu* paddy. It is also evident that the higher size-groups give higher priority to jute cultivation than the smaller size-groups (Appendix 2). This may mainly be due to the fact that farmers in the higher size-groups after ensuring the supply of the output to meet their requirements of paddy for home consumption divert their productive efforts to jute cultivation. As farmers in the smaller size-groups are uncertain about the production of the necessary quantity of paddy from their own farms, they are hesitant to devote a larger proportion of their paddy land to jute cultivation.

From the above analysis we can conclude that in the short run price fluctuation does not affect the farmers' decision to increase or decrease the acreage under the main staple crops unless they are sure of a permanent increasing trend, as the last year's price may not continue in the current year when the new crop will be harvested. Secondly, farmers divert their attention to grow commercial or cash crop only after ensuring supply of their food crops. Thirdly, there is little scope for the farmers in the lower size-groups to increase or decrease the area under the principal crops. Only the big farmers are able to do this and take advantage of the higher prices in lean months by holding back the sale of surplus crops.

APPENDIX 1

PRICE OF PADDY AND JUTE IN NOWGONG DISTRICT

(*Rs. per quintal*)

Months	1968-69		1969-70		1970-71	
	Paddy	Jute	Paddy	Jute	Paddy	Jute
June	52·50	147·66	57·76	152·00	65·12	145·20
July	50·83	138·33	56·00	154·00	60·20	140·00
August	51·00	116·66	55·60	120·50	58·32	132·25
September	51·66	101·33	53·00	103·00	55·66	125·40
October	48·00	113·16	51·07	104·15	54·50	130·00
November	42·33	107·50	48·07	108·65	56·00	133·00
December	46·66	114·00	48·20	114·75	51·45	115·25
January	47·33	126·66	53·40	122·27	59·50	115·00
February	54·00	137·33	58·25	128·20	61·45	125·65
March	57·83	128·13	65·35	132·50	67·00	140·00
April	69·50	137·33	69·17	130·00	72·25	135·00
May	74·16	136·83	74·75	132·80	77·25	140·00
Average	53·82	125·41	57·55	125·24	61·54	131·40

Note : The above price is the average of the village and market price in 15 sample villages inhabited by 150 sample households.

APPENDIX 2

AREA, PRODUCTION AND YIELD OF PADDY AND JUTE IN NOWGONG DISTRICT

Farm size-groups (hectares)	1968-69					1969-70					1970-71*		
	No. of house-holds	Area under the crop (hectares)	Area under the crop per house-hold (hectares)	Yield per hectare (quintals)	Total value (Rs.)	No. of house-holds	Area under the crop (hectares)	Area under the crop per house-hold (hectares)	Yield per hectare (quintals)	Total value (Rs.)	No. of house-holds	Area under the crop (hectares)	Area under the crop per house-hold (hectares)
Winter paddy (*Sali*)													
0·01 — 1·82 ..	26	17·94	0·69	22·98	1,236·78	26	20·45	0·79	17·57	1,011·15			
1·83 — 2·43 ..	26	29·99	1·11	18·94	1,019·35	31	31·10	1·03	15·71	904·11			
2·44 — 3·24 ..	30	40·85	1·36	19·70	1,060·25	34	40·55	1·19	15·82	910·44			
3·25 — 4·45 ..	29	52·58	1·81	19·92	1,072·09	30	52·32	1·74	14·41	829·29			
Above 4·45 ..	25	64·81	2·59	20·45	1,100·62	22	53·99	2·45	14·25	820·09			
Overall	137	206·17	1·59	20·11	1,097·82	143	198·41	1·44	15·55	895·01	144	196·00	1·36
Summer paddy (*Ahu*)													
0·01 — 1·82 ..	25	14·35	0·57	14·90	801·92	25	13·81	0·55	13·23	761·38			
1·83 — 2·43 ..	24	17·67	0·73	13·39	720·65	29	23·47	0·81	13·91	800·52			
2·44 — 3·24 ..	27	20·14	0·74	14·35	772·32	29	21·39	0·74	12·61	725·70			
3·25 — 4·45 ..	25	24·11	0·96	13·21	710·96	25	25·93	1·03	13·92	801·09			
Above 4·45 ..	23	27·36	1·18	13·77	741·10	17	25·37	1·49	10·89	626·71			
Overall	124	103·63	0·82	13·85	749·39	125	109·97	0·91	12·91	743·80	125	113·50	0·91
Jute													
0·01 — 1·82 ..	22	3·88	0·17	13·21	1,656·57	22	5·38	0·24	12·08	1,512·89			
1·83 — 2·43 ..	23	7·47	0·32	11·71	1,468·55	29	9·77	0·34	15·74	1,971·28			
2·44 — 3·24 ..	26	9·52	0·36	12·14	1,522·48	25	13·72	0·55	13·29	1,664·44			
3·25 — 4·45 ..	25	9·40	0·37	10·24	1,284·20	24	15·24	0·64	17·32	2,169·16			
Above 4·45 ..	18	11·30	0·63	11·39	1,428·42	20	13·43	0·67	16·13	1,769·64			
Overall	114	41·65	0·36	11·54	1,472·06	120	57·54	0·49	14·91	1,817·48	120	66·63	0·55

* The detailed data for 1970-71 are not yet available.

APPENDIX 3

Comparison of Labour Cost (*Ahu* Paddy and Jute): 1968-69

(*Rupees*)

Farm size-groups (hectares)	*Ahu* paddy							Jute						
	Labour				Material		Total	Labour				Material		Total
	Plough-ing	Weed-ing	Carry-ing and harvest-ing	Thresh-ing	Manures and fertili-zers	Seed		Plough-ing	Weed-ing	Harvest-ing and carry-ing	Retting and drying	Manures and fertili-zers	Seed	
0·01 — 1·82 ..	66·56	35·67	29·27	3·58	8·36	93·36	240·35	77·49	55·01	42·56	53·35	52·83	29·39	310·62
1·83 — 2·43 ..	54·89	30·55	36·72	3·13	16·92	112·05	254·26	71·89	49·86	33·77	46·99	47·52	26·07	276·10
2·44 — 3·24 ..	58·95	25·96	40·73	3·69	7·84	111·19	247·36	62·05	51·39	40·81	56·41	41·05	28·07	279·78
3·25 — 4·45 ..	56·79	26·04	35·00	3·90	18·87	99·62	240·32	60·37	49·93	35·75	44·36	31·49	31·12	243·02
Above 4·45 ..	50·26	32·08	30·10	3·15	5·88	100·96	222·45	53·65	38·90	44·89	47·36	23·72	22·12	230·64
Overall ..	57·53	29·72	34·62	3·48	11·51	103·48	250·95	62·57	45·46	39·68	49·28	36·42	27·06	268·32

Source : Sample villages from field investigation by the Farm Management Centre, Jorhat.