Study No. 133

IMPACT OF MACRO MANAGEMENT OF AGRICULTURE SCHEME -A STUDY IN ASSAM

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Study Team

General Guidance
Prof. K. C. Talukdar

Project in-charge & Report writing
Dr. Ranjit Borah

Field Investigation & Data Collection
Dr. Ranjit Borah
Sri Debajit Borah
Dr.(Mrs.) Moromi Gogoi
Sri Rupam Kr. Bordoloi
Sri Nabajit Deka
Mrs. Bobita Hazarika.

Tabulation
Sri Debajit Borah
Dr.(Mrs.) Moromi Gogoi
Sri Rupam Kr. Bordoloi
Sri Nabajit Deka

PREFACE

The study on "Impact of Macro Management of Agriculture Scheme – A Study in Assam" has been undertaken at the instance of Ministry of Agriculture, Government of India. The study has been conducted as per guide line provided by the Co-ordinating Centre, Agricultural Development & Rural Transformation (ADRT), Institute for Social & Economic Change (ISEC),Bangalore.

Macro Management of Agriculture Scheme was initiated during 2000-01 by merging different centrally sponsored schemes leaving the full flexibility to State Governments on the basis of regional priorities. Thus, it was a major step towards achieving decentralization in pursuance of restoring primary of States in agricultural development planning. Since the implementation of Macro Management of Agriculture Scheme in the State, study on the impact of its Integrated Cereal Development Programme for Rice (ICDP Rice) and Special Jute Development Programme (SJDP), Sub- Schemes has not been carried out. Therefore, the present study tried to examine these aspects with some specific objectives.

The present study was conducted in Nagaon district of Assam, as it was more advanced in agriculture development in the State. The field level data indicated that in spite of efforts under the programme the impacts were found not very encouraging as the economic condition of the sample farmers was not improved as expected. The findings of the study under review marginally benefited the sample farmers as the net income after implementation of the scheme was found to be higher by Rs. 728.00/ha in ICDP rice and Rs. 426.00/ha. in SJDP (jute) respectively over the income before implementation of the schemes.

It was observed that the schemes were based on "Work Plan" of the Government, but the study revealed that more emphasis was often put on the targets and achievements without considering the weak points of the schemes and the problems of the farmers. These schemes often did not serve the real purpose. The plan and policies of the Governments were very good. So, for making the agricultural development programmes successful in the State, development of

infrastructural supports are necessary and it also requires efficient planning and sincere execution of the policies by the Government agencies to make the schemes viable.

The study was completed with sincere help and co-operation of the Directorate of Agriculture and Directorate of Economics and Statistics Departments, Government of Assam. I am also thankful to the District Agriculture Officer, Nagaon and Agriculture Extention Officers of Nagaon, Assam for providing necessary secondary level information to incorporate in the report. I would like to express my gratefulness to the sample beneficiaries who rendered spontaneous help and co-operation to the Research Team by providing the field level data.

I extend my sincere thanks to Dr. M. Mahadeva Institute for Social & Economic Change, Bangalore, for his valuable comments on the draft report.

Like all other studies this one is also a joint product of the centre. The report is prepared by Dr. Ranjit Borah, Research Associate of the Centre. I am thankful to Shri Jotin Bordoloi and Dr.Gautam Kakaty for helping in modification and completion of the report. The staff members associated with the study have been mentioned elsewhere in the Report. I am thankful to all of them.

I hope, the report will provide first hand information to the farm planners, policy makers and researchers for development of agriculture in Assam.

July, 2010

(Dr. K. C. Talukdar)
Hony.Director
AERC, Jorhat

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CHAPTER – I

Introduction

Agriculture is considered as the mainstay of the economy of Assam and plays a vital role in the State's economy. As per 2001 Census, the major portion (89.0 per cent) of the total population is living in the rural areas and more than 70.0 per cent of total population is getting their livelihood from agriculture sector. Therefore, agriculture occupies a very important place in the economy of the State and forms the major source of occupation of the people of Assam.

The importance of agriculture in the total economic activities of the State can be observed from the percentage contribution of agriculture and allied activities in the Net State Domestic Product (NSDP). The percentage shares of agriculture in NSDP at current prices were shown in the Table 1.1. Table indicted the shares of agriculture and allied sectors to NSDP were declining from 1990 to 2006 contriniously. It was observed from the Table that the share of agriculture and allied sectors to NSDP and the share of work force were 51.53 per cent and 73.98 per cent in 1991. However, after a decade, the contribution of agriculture and allied sectors to the NSDP and the share of work force were changed. The contribution of agriculture sectors in the State income was 39.92 per cent and the share of work force was 52.36 per cent in 2001. Moreover, in 2006 the contribution of agriculture and allied sectors to State income was 36.55 per cent as indicated in the Table 1.1.

The soil, topography, climate and rainfall in Assam are quite suitable for growing rice crop, which occupies about 71.0 per cent of gross cropped area and more than 90 per cent of the area under food grains. The main food crops grown in Assam are rice, maize, pulses, potato and other root crops. The principal cash crops include tea, jute & mesta, oilseeds, sugarcane etc. Crop cultivation is almost solely dependent on vagaries of monsoon as the status of irrigation facility is very poor. However, for making optimum and efficient use of available resources to maximize the sector's contribution to the NSDP in the State, the emphesis has been laid in all the Five Year

Plans by implementing a number of Centrally Sponsord Schemes and Central Sector Schemes by the State Government.

Table-1.1
Share of agriculture and allied activities in the Net State Domestic Product
(At current price) (in per cent)

Sl. No.	Year	Agriculture and Allied Activities	Work Force
1	1990	50.40	-
2.	1991	51.53	73.98
3.	1992	51.45	-
4.	1993	51.96	-
5.	1994	50.40	-
6.	1995	51.53	-
7.	1996	51.45	-
8.	1997	51.96	-
9.	1998	47.73	-
10.	1999	41.97	-
11	2000	41.10	-
12.	2001	39.92	52.36
13.	2002	38.90	-
14	2003	36.48	-
15	2004	35.75	-
16	2005	35.90	-
17	2006	36.55	-

Source: (1) Statistical Hand Book, Directorate of Economics and Statistics, Govt. of Assam.
(2) Economic Survey, Directorate of Economics and Statistics, Govt. of Assam

Hoewever, the National Agricultural Policy (NAP), Ministry of Agriculture, Government of India was announced in July 2002 which, *inter alia*, underlined the importance of 'reform in the management of agricultural schemes and programmes to give effect to the implementation of various policy prescriptions of the NAP. Therefore, the Macro-Management Mode of Agriculture (MMMA) was an important outcome for the effective implementation of Regionally Differentiated Strategy (RDS). Because of this, the Central Government has moved away from schematic approach to Macro-Management Mode and is assuming thereafter a role of advocacy, articulation and facilitation to help the State Governments in their efforts towards achieving accelerated agricultural development. Under the Macro Management, the Central Government has been supplementing and complementing

the State Governments' efforts through regionally differentiated 'Work Plans' comprising of crop/area/target group and specific interventions, formulated in an inert-active mode implementing a spirit of partnership with States. As a step towards this with effect from 2000-01, 27 Centrally Sponsored Schemes were merged with the umbrella 'Macro Management' leaving the full flexibility to the States to develop and pursue activities because of their regional priorities. With launching of the Technology Mission on Horticulture for the North-Eastern States, 10 other schemes pertaining to horticulture sector were kept out side of this Macro Management Mode of Agriculture Schemes for this region. As such, as far as North-eastern States and thus Assam is concerned, there are 17 important schemes, which have been merged under Macro Management. Thus, a major step towards achieving decentralisation in pursuance of restoring primacy of Sates in agriculture development planning as the Macro Management scheme aims at development in agriculture through Work Plans prepared by the States themselves.

The pattern of assistance under the scheme is in the ratio of 90:10 for the Centre and the States respectively except in the case of North-eastern States where 100 per cent Central assistance were envisaged. The Central assistance consists of Grant and loan in the ratio of 80:20. Subsidy is available under the Scheme on various components including agriculture implements such as Tractor, Power Tiller, Power Thrashers, Sprinklers and Plant Protection Equipments. Subsidy is also available on certified seeds and Integrated Nuritent and Pest Management demonstration schemes. Moreover, the training programmes on different crop cultivation were also introduced in the State.

Schemes merged for formulation of macro-management scheme

As mentioned above, since 2000-01, 27 Centrally Sponsored Schemes were merged with the umbrella Macro-Management permitting the full flexibility to the States to develop and pursue activities because of their regional priorities. For North-Eastern States and as such for Assam 17 such schemes fell under the purview of Macro-Management till the period of study i.e.2006-07. The schemes may be listed as follows:

1. Assistance to Cooperative Weaker Section
2. Assistance to Women Cooperatives
3. Non-overdue Cover Scheme
4. Agricultural Credit Stabilisation Fund
5. Special Scheme for Scheduled Caste/Scheduled Tribes
6. Integrated Cereal Development Programmes in Rice Based Cropping System Areas (ICDP-Rice)
7. Integrated Cereal Development Programmes in Wheat Based Cropping System Areas (ICDP-Wheat)
8. Integrated Cereal Development Programmes in Coarse Cereals Based Cropping System Areas (ICDP-Coarse Cereals)
9. Special Jute Development Programme
10. Sustainable Development of Sugarcane Based Cropping System;
11. Balanced & Integrated Use of Fertiliser
12. Promotion of Agricultural Mechanisation among Small Farmers
13. National Watershed Development Project for Rainfed Areas
14. Scheme for Foundation & Certified Seed Production of Vegetable Crops
15. Soil Conservation in Catchments of River Valley Projects & Flood Prone
16. Reclamation & Development of Alkali Soils and
17. State Land Use Boards

Thus the merger has facilitated free exercise of States to identify the problem and constraint areas and accordingly priorities in the areas of balanced fertiliser consumption, mechanisation, supply of credit for modernisation of farm sector, empowering the women in the agricultural activities etc., due attention can be given for overall development of agriculture in a State like Assam.

Macro Management system in agriculture supported by Regionally Differentiated Strategy (RDS) as distinguished from the uniform schematic approach to agricultural fund management at National level followed by the Central Government till 2000-01. RDS as mentioned above presupposes greater autonomy to the States in preparation of their plans and programmes with specific targets and

focuses according to the local needs and objectives of growth and development. The formulation of schemes and inclusion of different constituent components of the scheme implemented by the States without any interventions by the Central Government is an essential feature of the new mode (macro management) of central assistance. Under the earlier schematic approach, central assistance under the centrally sponsored schemes used to be released under individual schemes on the basis of different criteria such as contribution of a State to the production of a particular crop, coverage of area under the crop, size of area for implementation of a project, number of beneficiaries wherever applicable and the like. In other words, the centre's interventions in the matter of implementation of the scheme and failure of the States to contribute its share to individual schemes limited the role and performance of the financial and physical aspect of the schemes. Under the present dispensation of Macro Management, the States are free to alter their priorities even on annual basis by keeping a watch on different sectors of the agriculture economy and intervene accordingly to accomplish the targets of high growth and sustainable development.

Strength and weakness of agriculture in Assam

The strategies for agricultural development in Assam adopted by the State Government with the Strength, Weakness Opportunity and Threat (SWOT) analysis and therefore due weightage to different thrust areas are given in the State. The sources of strength, support and success, that the State has 25 numbers of plain districts and 2 nos. of hill districts as high potential zone for raising agricultural productivity. After installation of a huge numbers of Shallow Tube Wells (STW) with the assistance of World Bank Project and NABARD for assured irrigation facility in the State for rapid crop diversification and increasing trend of use of high yielding variety of summer rice. All these are arranged by the technical support of the Assam Agricultural University for different agro-climatic situations in the State. Availability of surface water sources for irrigation and natural fishery, water transport is the natural support provided to the State is one of the major strength.

The weaknesses that have constantly kept the State is depressing by the factors like low rate of fertiliser consumption due to pro-longed monsoon and

frequent recurrence of floods, lack of adequate certified seeds, low level of farm mechanisation, non-availability of specific variety of summer rice, lack of suitable technology of rice based cropping system etc. Besides, isolation from the mainland, backwardness of people, low capital formation, poor institutional credit support, market support etc. are the major weaknesses that have been impeding agricultural growth and development.

The opportunities that wait to be exploited for a strategic agricultural growth and development include vast mono-crop area with rich ground water and surface water potential in high rainfall region for raising a second crop (*Rabi* & Pre-*kharif*) by installing shorter gestation period irrigation projects. Moreover, there is potential for introduction of short duration rice crops to raise rice twice before and after the flash floods and introduction of suitable variety of rain fed upland rice for rice based cropping system to raise profitable crop like pulses and oilseeds as second crop. There is potential of agro-based industries by using the local raw materials of horticulture based crops, jute, oilseeds etc. which will generate employment and income to the local enterprising people.

The threats that are and may hinder the agricultural growth in Assam are floods, excessive rainfall, land degradation due to heavy deposition of sand caused by flood and non-remunerative trend of rice cultivation. The majority of farmers cultivated traditionally low valued crops instread of modern high valued crops due to insufficient certified seeds and some other causes in the State.

Considering the above analysis, the State Government has identified the major thrust areas and suitable strategies are adopted for agricultural development. The areas that have been accorded high priority in recent years include development of 'Micro/Minor Irrigation', promotion of agricultural mechanization, crop diversification, and natural resources management through implementation of National Watershed Development Project for Rain fed Areas, sustainable agricultural development through Integrated Pest Management and Integrated Nutrient Management. Adequate credit facility to the needy and progressive farmers through the Kishan Credit Cards and popularisation of crop insurance scheme received the due

attention of the Government as confidence building measures against crops failure due to floods and falling income. The components of the strategy of agricultural development should include integrated farming system approach, soil conservation, watershed development, efficient post harvest management, promotion of non-farm rural enterprises and skill upgradation. The Government also undertakes agricultural marketing through introduction of modern technology and reform in this area.

Scope of the study

Agriculture sector occupies a vital position in the State's economy engaging more than 70 per cent of workers in this sector. Agriculture is the largest unorganized sector, which provides employment and income to the majority of working population in the rural sector. Land resources of Assam are quit a rich. Rainfall and climate are congenial for growing a variety of crops including food crops, cash crop and a host of other horticultural crops. The State has alloted about 71.0 per cent of cultivable land under rice and more than 90 per cent of total land under food grains. Yet, the State has been chronically suffering from food deficit since early 60's due to low productivity of food crops mainly because of unchanged technology of crop cultivation, shortage of infrastructural and institutional support and for high growth of population. Moreover, poor performance of agricultural sector can be attributed to small holdings, low cropping intensity, low level of adoption of new farm technology, inadequate irrigation facility and consequently low productivity of principal crops than the national average.

Considering the importance of agriculture in the economy of the State, top most priority have been given in all the Five Years Plans by the Government on the supportive services for the development of agriculture sector. Achieving self-sufficiency in production of food grains has been the primary objectives of the Government. The efforts have been directed to make optimum and efficient use of available resources to maximize the sector's contribution to the NSDP. Therefore, much emphasis has been laid on enhancing the production and productivity of the crops including the horticultural crops by harnessing the best in frontier technologies through improved farm mechanization and assured irrigation, use of quality certified

seeds of HYV, popularizing the Integrated Nutrient and Pest Management with the special use of bio-fertilizer and bio-pesticides.

Objectives of the study

(1) To assess the impact of the sub-schemes under the Macro Management of Agriculture Scheme on the production and productivity of various crops with minimum cost,

(2) to analyse the impact of efforts made by the State in increasing the seed replacement rates, in terms of ensuring timely availability of sufficient quality of good quality seeds and

(3) to analyse the impact of the activities to promote Balance Integrated Nutrient Management to maintain soil fertility and environment..

Methodology

The study was based on both secondary level as well as primary level data to analyse the impact of Macro Management Mode of Agriculture (MMMA) schemes in Assam. The secondary level informations regarding the population, land resources and crop cultivation, uses of seeds of different crops, IPM, INM, financial target and achievements were obtained from the published and unpublished reports of Directorate of Agriculture, Assam.

In order to draw sample a complete districtwise investment lists under MMMA schemes for the year 2007-08 were collected from the Directorate of Agriculture, Assam. After receiving the lists, Nagaon district of Assam was selected as the district had highest investment under MMMA. Therefore, complete beneficiaries lists of ICDP rice and Special Jute Development Programme were collected from the District Agriculture Office and Sub-Divisional Agricultural Office of the Nagaon district. In consultation with the State Agricultural Department and District Agricultural Office, Nagaon the Community Development Blocks (C.D. Blocks) and sample villages were selected by adopting the following criteria:

(1) Out of 18 (eighteen) nos. of C.D.Blocks of the district, 3 (three) C.D. Blocks were selected considering the highest demonstrations and trainings of different agricultural schemes under MMMA.

(2) From the 3 (three) selected C.D. Blocks, 12 (twelve) villages (4 villages from each C.D.Blocks) were selected depending on the highest beneficiaries (paddy and jute) in the villages.

After selecting the C.D. Blocks as well as the sample villages for the present investigsation, sample of beneficiaries were drawn following two stage random sampling technique. In the first strata, the beneficiaries were stratified according to type of the agricultural schemes. In the second strata, the beneficiaries were selected by random sampling method from each agricultural scheme covering 60 (sixty) samples (5 beneficiary farmers from each village) as representative samples in each agricultural scheme. Details of sampling design for the study were shown in the Table 1.2.

Table-1.2
Sampling design for the study

Sl. No.	Scheme	District	Block	Village	No. of Sample
1	ICDP Rice	Nagaon	Juria	4 Nos.	20
			Lowkhuwa	4 Nos.	20
			Kaliabor	4 Nos.	20
Sub-total					**60**
2.	SJDP	Nagaon	Juria	4 Nos.	20
			Lowkhuwa	4 Nos.	20
			Kaliabor	4 Nos.	20
Sub-total					**60**
Total sample size					**120**

The sizes of the sample were 120 (one hundred twenty) beneficiary farmers. The field level data were collected through personal interview method with the help of a set of specially designed schedules of the Coordinating centre. Information on the socio-economic position of the beneficiaries, nature of agricultural activities as well as uses of seeds of different crops, uses of Integrated Nutrient and Pest Management and constraints were obtained from the individual beneficiaries of the different agricultural schemes.

Reference period

The data incorporated to this report in the year 2007-08.

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and enters Bangladesh. The character of the Brahmaputra River is very complex. It divides Assam into two parts – North bank and South bank. There are about 40 major tributaries on its north Bank and 20 on its south Bank. The rivers and tributaries cover 2.05 lakh hectares of water area. The huge water sources have tremendous scope for irrigation, hydropower, water transport, fishery etc.

Climate and soil

Climate and weather of Assam have a close relation with the socio-economic development of the State. They have very great influence upon the type of crop production within the State. Assam situated in the monsson sub-tropical zone is characterized by hot summer and mild to moderately cold winter. The annual precipitation received in the State comes largely from South-West Monsoon, which sets in around middle of May and continues till October. The average annual rainfall in the State varies from 1,908.95 m.m. to 3,767.10 m.m. in the different Agro Climatic Zones of Assam. In the winter season, rainfall becomes scanty in the State. The average annual maximum temperature (July-August) recorded at 23.51^0 C to 30.90^0 C; while the minimum temperature (December–January) ranges from 10.55^0 C to 25.64^0 C. Humidity is as high as 85.0 to 90.0 per cent in most of the districts (Table – 2.1).

The soils of Assam are rich in organic matter of nutrients status. The new alluvial soils are formed by the floods of the rivers depositing silt near the riverbanks. Generally, this type of soils is found in both the river banks of Branhaputra. The alluvial soils are of old formation and found in flood free areas and more acidic in nature. This type of soil covers a major part of Assam. The non-laterised red soil and laterised soil are found only in the hill regions of Assam. Soils of Assam are broadly classified into four categories as (i) New alluvial soil, (ii) Old mountanance valley alluvial soil, (iii) Non laterised red soil, and (iv) Laterised red soil.

The soil, climate and rainfall in the State are quite suitable for growing rice crop, which occupies about 71.0 per cent of gross cropped area and more than 90 per cent of the land under food grains. The main food crops grown in Assam are rice, wheat, maize, pulses, potato, vegetables and other root crops. The principal cash crops include tea, jute & mesta, oilseeds, sugarcane and cotton.

Table-2.1
Characterstics of Various Agro-Climatic Zones of the State

Sl. No.	Name of the zone	Districts	Annual Rainfall (mm)	Avg. Annual Rainfall (mm)	Temperature (° C)		Principal Crops	
					Minimum	Maximum	Kharif	Rabi
1	Upper Brahmaputra Valley	Tinsukia,	1,900.90	1985.06	19.43	28.45	Rice, Pulse, Oilseed, Sugarcane	Summer rice, Wheat, Pulses, Oilseeds, Vegetables
		Dibrugarh,	1,371.40					
		Jorhat,	2,189.40					
		Sibsagar,	2,178.30					
		Golaghat	2,285.30					
2	Central Brahmaputra Valley	Nagaon	2,184.40	1908.95	21.56	30.73	Rice, Pulse, Oilseed, Maize Sugarcane Vegetables	Summer rice, Wheat, Pulses, Oilseeds, Jute Vegetables Mesta, Cotton
		Marigaon	1,633.50					
3	Lower Brahmaputra Valley	Kamrup,	2,323.00	2883.75	25.64	30.01	Rice, Pulse, Oilseed, Maize Sugarcane Vegetables	Summer rice, Wheat, Pulses, Oilseeds, Jute Vegetables Mesta, Cotton Maize
		Nalbari,	2,064.80					
		Barpeta,	1,879.20					
		Darrang	2,113.60					
		Dhuburi	3,238.90					
		Kokrajhar	4,416.90					
		Bongaigaon	4,524.70					
		Goalpara	2,508.90					
4	Barak Valley	Cachar,	2970.80	3767.10	22.20	30.90	Rice, Pulse, Oilseed, Maize Sugarcane Vegetables	Summer rice, Wheat, Pulses, Oilseeds, Maize Vegetables Cotton
		Karimgang	5487.50					
		Hailakandi	2843.00					
5	North Bank Plain	Lakhimpur,	2466.00	3426.83	18.97	23.68	Rice, Pulse, Oilseed, Maize Sugarcane Vegetables	Summer rice, Wheat, Pulses, Oilseeds, Maize Vegetables Mesta, Jute
		Dhemaji,	5217.70					
		Sonitpur	2596.80					
6	Hill Zone	Karbi Angalang	1111.30	1915.20	10.55	23.51	Rice, Pulse, Oilseed, Maize	Summer rice, Wheat, Pulses, Oilseeds, Maize Vegetables
		North Cachar Hills	2719.10					
7	State Avg.			2647.82	19.73	27.88		

Source: Statistical Hand Book, Assam, Directorate of Research, Assam Agricultural University, Jorhat-13
Department of Meterology, Assam Agricultural University, Jorhat-13

Land use pattern

The concept of 'land use' relates to the fulfillment of human needs like food, shelter, employment and considered more as an absolute asset which provides security. The land resources of the State were classified according to agricultural Census 2002-2003 and presented in the Table 2.2. Table showed that out of the total resorted land area of 78, 50,005 hectares, a significant portion of land i.e. 24.62 per cent was ceovered by the forest. Out of the total land, 18.51 per cent of land was barren and uncultivable land, 13.77 per cent of land was under non-agricultural use, 2.66 per cent of land was under misc. tree crops and groves, 2.04 per cent of land was under pasture and grazing land, 1.57 per cent of land was under current fallow and rest 0.98 per cent of land was under cultivable waste. The net area sown was 35.07 per cent to the total reported area of the reference year.

Table-2.2

Land use pattern of the State

Sl.. No	Classification of Land	Area (Ha.)		Percentage to Total (for 2002-03)
		2001-02	2002-03	
1	Forest	1,932,718	1,932,718	24.62
2	Land put to non agricultural use	1,080,570	1,080,570	13.77
3	Barren and uncultivable land	1,452,749	1,452,812	18.51
4	Pasture and Grazing land	159,968	159,968	2.04
5	Land under misc. tree crops, groves	208,656	208,656	2.66
6	Cultivable waste land	76,631	76,631	0.98
7	Other fallow land	65,628	62,293	0.79
8	Current fallow	98,621	123,363	1.57
9	Net area sown	2,774,464	2,752,994	35.07
10	**Total**	**7,850,005**	**7,850,005**	**100.00**

Source: Economic Survey, Assam 2007-08

Land holdings

The detail of land holdings in Assam was presented in Table 2.3. The average size of land holding in the State varied from 0.39 hectares to 53.02 hectares and the overall average size of holdings was found at 1.15 hectare. It was also observed that

Table- 2.3

Details of land holdings, 2000-01

Land Holding	Nos. of Holdings	Total Operated Area ('000 Ha.)	Average Size of Holding (Ha.)
Marginal	1,699,107	662,780	0.39
% to Total	62.65	21.29	
Small	561,039	730,513	1.30
% to Total	20.69	23.46	
Semi-medium	351,521	957,959	2.73
% to Total	12.96	30.77	
Medium	95,500	498,797	5.22
% to Total	3.52	16.02	
Large	4,970	263,529	53.02
% to Total	0.18	8.46	
Total	**2,712,137**	**3,113,578**	**1.15**
Percentage	100.00	100.00	

Source: Economic Survey, Assam 2007-08

21.29 per cent of households constituted marginal farmers, 23.46 per cent of households constituted small farmers, 30.77 per cent of households constituted semi-medium farmers and 16.02 per cent of households was medium farmers. The number of large farmers was 8.46 per cent having an average size of 53.02 hectares of land holdings.

Cropping pattern

Rice was one of the major crops grown in Assam and it was the staple food of large majority people. It was cultivated both in the kharif and rabi seasons of the year. Besides, jute wheat, sugarcane, pulses, oil seeds, vegetables etc. raised by the farmers both in kharif and rabi season depending upon soil condition, distribution of rainfall and irrigation facilities. Table -2.4 revealed in details the area, production and productivity of

Table- 2.4

Area, Production and Productivity of Crops in Assam

(Area in thousand hectares, production in thousand tonnes and productivity in kg/ha.

Major Crops by Season	2006-07			2007-08		
	Area	Production	Productivity	Area	Production	Productivity
Kharif Season						
1.Autumn Rice	379	336	899	400	402	1005
2. Winter Rice	1498	1950	1321	1800	2880	1600
3. Maize	14	11	744	19	14	760
Total Kharif Cereal	**1891**	**2297**	**988**	**2219**	**3296**	**1122**
% to Total Area	**66.51**			**67.45**		
4.Arahar	7	5	715	8	5.8	725
5. Summer Blackgram	60	32	530	7	3.8	543
6. Summer Greengram	50	28	550	5	2.8	560
Total Kharif Pulses	**117**	**65**	**598**	**20**	**12**	**609**
% to Total Area	**4.12**			**0.61**		
7. Seasmum	10	6	564	12.5	6.5	520
8. Castor	1.3	0.6	421	1.5	0.6	400
9. Soyabean	1	1	1000	1	1	1000
10. Groundnut	1	1	1000	1	1	1000
Total Kharif Oil Seeds	**14**	**9**	**620**	**16**	**9**	**570**
% to Total Area	**0.48**			**0.49**		
Rabi Season						
1. Summer Rice	312	630	2017	350	709	2025
2. Other Cereals	7.5	4	514	12	7	550
3. Maize	5	3	750	9	7	725
4. Wheat	50	67.2	1128	72	86	1200
Total Rabi Cereal	**375**	**704**	**1102**	**443**	**809**	**1125**
% to Total Area	**13.17**			**13.47**		
5. Gram	2	1	511	3	1.7	566
6. Blackgram	37.1	19.1	514	38	20.7	545
7. Greengram	7	4	500	8	4.4	550
8. Pea	19.1	12	612	21	13.8	657
9. Lentil	20.1	10.6	527	21	13	319
10. Other Pulse	8	5	580	9	5.4	600
Total Rabi Pulse	**98**	**53**	**536**	**100**	**59**	**590**
% to Total Area	**3.45**			**3.04**		
11. Rape & Mustard	238	116	486	346	178.5	516
12. Lineseed	8	4	507	13	7	538
13. Sesamum	3	2	567	6	3.5	583
14. Nizer	10	5	506	10	6	600
15. Soyabeen	1	1	1000	1	1	1000
16. Groundnut	2	2	1000	3	3	1000
17. Sunflower	1	1	1000	1	1	1000
Total Rabi Oil Seeds	**264**	**132**	**500**	**380**	**200**	**525**
% to Total Area	**9.27**			**11.55**		
18. Cotton	1	1	80	-	-	-
19. Jute	58	559	1744	76	780	1847
20. Mesta	5	25	913	6	30	900
21. Sugarcane	27	1055	39634	30	1160	38657
Total Rabi Cash Crop	**91**	**1640**	**10593**	**112**	**1970**	**13801**
% to Total Area	**3.00**			**3.40**		
Total Area	**2843**			**3290**		

Note: (i) Production of cotton in thousand bales each of 170 kgs.

(ii) Production of jute and mesta in thousand bales of 180 kgs.

(iii) Production of sugar in terms of cane

Source: Economic Survey, Assam 2007-08

crops in Assam for the year 2006-07 and 2007-08. Table showed that during kharif season of the year 2007-08, 67.45 per cent of Gross Cropped Area covered by kharif cereals, 0.61 per cent covered by kharif pulses and rest 0.49 per cent covered by kharif oil seed in the State.

On the other hand, during the rabi season of the year 2007-08, the rabi cereal crops were cultivated in 443 (13.47 per cent) thousand hectares, rabi pulses were cultivated in 100 (3.04 per cent) thousand hectares and rabi oil seed were cultivated in 380 (11.55 per cent) thousand hectares by the farmers of Assam. In addition to these, the Table also showed that 112 (3.40 per cent) thousand hectares of land were occupied by rabi cash crops cultivation during the reference year.

Percentage change in the cropping pattern

In the State significant changes in cropping pattern has been observed during the period from 1990-91 to 2006-07 (Table 2.5). It was observed that the rice was the dominating crop among the cereal as it was cultivated in three seasons viz. autumn,

Table-2.5

Changes in cropping pattern of principal crops in Assam

(Percent to GCA)

Crop	TE 1990-91 to 1994-95	TE 1995-96 to 2000-01	TE 2001-02 to 2006-07
Rice	64.66	63.64	62.40
Wheat	2.02	2.06	1.89
Maize	0.49	0.49	0.59
Total Cereal	67.42	66.46	67.09
Total Pulses	2.86	2.96	2.81
Total Oil Seed	8.09	8.03	7.24
Total Food Grains	69.87	69.36	66.52
Sugarcane	0.95	0.76	0.64
Jute and Mesta	2.52	2.22	1.74
GCA	100.00	100.00	100.00

Source: 1. Statistical Hand Book, Assam, Directorate of Economics and Statistics, Govt. of Assam.
2. Economic Survey Assam, Directorate of Economics & Statistics, Govt. of Assam.

winter and summer in the State followed by wheat and maize. Pulses and oil seeds were two major dominating crops. Sugarcane was also an important cash crop of Assam. However, its' area was largely decreasing due to shifting of sugarcane area to small tea gardens. The percentage share of area to total gross cropped area under different crops showed slight variation during all the periods of observation. However, the percentage of area to GCA were decreasing for all the crops, which was matter of concerned as the State was deficit in food-grains, pulses and oilseeds.

Area under high yielding varieties of Assam

The High Yielding Varieties of rice are grown in Assam in three different seasons viz..autum, summer and winter. Kharif rice is known as winter rice occupies a dominant place in Assam since time immemorial. Ranjit, Masuri, Lakhimi, Kushal, Ketaki Joha, IR – 36, IR – 54, Luit, etc. are a few of High Yielding Varieties having high yield potential with quality along with resistance to biotic stresses. The area under high yielding varieties of rice was shown in Table 2.6. It was indicated from the Table that during 1990-91 to 2006-07 the area under HYV of rice was marginally changed. The

Table- 2.6

Area under HYV of rice in Assam

(Area in Lakh Hectare)

Particulars	TE 1990-91 to 1994-95	TE 1995-96 to 2000-01	TE 2001-02 to 2006-07
Total Rice Area	25.20	25.39	24.72
HYV Rice Area	11.57	12.93	13.91
Percentage of HYV Rice Area to Total Rice Area	45.93	50.95	56.27

Sources: 1. Statistical Hand Book of Assam, Directorate of Economics & Statistics, Govt. of Assam.
2. Economic Survey Assam, Directorate of Economics & Statistics, Govt. of Assam.

Table also showed that during TE 1990 to1994 the percentage of HYV rice area increased 45.93 per cent to 50.95 per cent during TE 1995-96 to 2000-2001. Again, the

area under HYV rice shifted to 56.27 per cent during TE 2001-02 to 2006-07. This showed that HYV rice area in the State had shifted annually at the rate of 17.00 per cent.

Sources of seeds and their prices

Seed is a critical input for production of any crop. It is said that seed sets the limit of production. Seed of every variety of crops has certain inherent production potentiality and this potentiality can be exploited by adopting the recommended production technology, provided the seed has of the right variety and of the right quality. The use of improved seeds in increasing crop production has been recognized as the basic technology.

However, the State is not able to produce quality seeds to meet their requirements in full. It is only because of unsuitable agro-climatic condition for production and storage of good quality seeds. On the other hand, infrastructural facilities for production of good quality seeds in the State are not adequate. As a result, the State is too dependent mostly on the National Seed Corporation (NSC), Seed Farm Corporation of India (SFCI) and Tarai Development Corporation (TDC). Almost entire certified seeds are supplied by these Agencies. Moreover, some registered growers of seeds appointed by the State Seed Certification Agency are producing certified seeds under the supervision of the State Agricultural Department and Assam Seed Corporation.

The State Seed Cerfication Agency holds the responsibility of certifying the seeds produced by the registered growers. The variety of certified seeds like Rice, Wheat, Maize, Millet, Oil Seeds, Pulses, Jute, Vegetable etc are purchased by the Assam Seed Corporation (ASC). The ASC is the sole Agency to produce and supply certified seeds to the farmers according to demands placed by the State Agricultural Department. Table 2.7 revealed the details of source and quantities of seeds and their prices. Table showed that during 2006-07 and 2007-08, under the Rice variety of seeds Ranjit, Mashuri, Jaha, IR – 36, Luit, etc.were supplied by the ASC. Moreover, JRO 524 as Jute variety of seed was supplied by the ASC during 2006-07 and 2007-08. It was also observed in the Table that during 2006-07, overall 52,073 qtl. of rice seed @ Rs. 1,700/- per quintal and during 2007-08, 51,470 qtls. rice seed @ Rs. 1,974/- per quintal were

supplied by the ASC.. Similarly, during 2006-07, 144.00 qtls. of jute seed @ Rs. 7,500/- and during 2007-08, 852.00 qtls of jute seed @ Rs. 7,700/- per quintal were supplied by the ASC.

Table- 2.7

Details of source of seeds and their prices

Seed	Year	Source of Procurement (Qtl.)				Total Quantity	Price Rs./Qtl.
		Seed Corporation	Retail Shops	Open Market	Domestic		
1. Rice Variety							
Ranjit, Mashuri, Joya,IR-36, Luit	2006-07	52,073	-	-	-	52,073	1,700
Ranjit, Mashuri, Joya,IR-36, Luit	2007-08	51,470	-	-	-	51,470	1,974
2. Jute Variety							
JRO-524	2006-07	144	-	-	-	144	7,500
JRO-524	2007-08	852	-	-	-	852	7,700

Source: Directorate of Agriculture, Govt. of Assam

Procurement and consumption of fertilizers

The importance of inorganic fertilizer as soil nutrients is well established in the field of new agricultural technology. The new agricultural technology has substituated the organic components by inorganic fertilizer. The use of chmical fertilizer as soil nutrients has brought out change in the production pattern of all crops. Fertilizers, HYV seeds and irrigation have played the key role in stabilizing and enhancing production of all crops.

In the State of Assam, the differnt fertilizers were supplied by different manufacturers/suppliers. These were BVFCL, IFFCO, TAI, IPL, PPL, SCF, AGRO-Industries and TATA Chemical Ltd. These manufacturers/suppliers distribute fertilizers through some mixed channels. The main channels were NAFED, Agro-Industries, Cooperatives, GPSS and private dealers. As reported by the State Agricultural Officials, out of the total number of outlets/sale points there were 332 in cooperatives, 113 in Agro-

Industries/ASC/STATFED, 2 in other established agency and 5,015 numbers in private outlets in the State. Out of the total sales proceeds, 70 per cent sales were done by private dealers, 20 per cent by NAFED and 10 per cent by STATFED, Agro-Industry and GPSS. There were 5,462 nos. of outlets through which was distributed during 2007-08.

Table- 2.8

Source of procurement and consumption of fertilizer in the State

Fertilizers	Total Quantity (MT)			Source of Procurement				
	2005-06	2006-07	2007-08	Govt. Outlets	Retail Shops	Seed Cor-porations	Open Markets	Other
Urea	172,606	194,405	222,020	-	-	-	-	BVFCL, IFFCO
DAP	78,978	70,544	81,008	-	-	-	-	IFFCO, IPL, TCL, PPL
Sufala	-	-	-	-	-	-	-	-
Indfra-5	-	-	-	-	-	-	-	-
20-20	-	-	-	-	-	-	-	-
19-19	-	-	-	-	-	-	-	-
SSP	118,012	109,675	104,576	-	-	-	-	IPL, TCL, TAI,SFC,
MOP	80,948	82,865	89,127	-	-	-	-	IPL, TCL, SFC, PPL
Others	-	-	-	-	-	-	-	-
Total	450,544	457,489	496,731					

Source: Directorate of Agriculture, Govt. of Assam

Note: BVFCL = Brahmaputra Valley Fertilizer Corporation Ltd.

IFFCO = Indian Farmer's Fertilizer Corporation

IPL = Indial Potash Ltd.

TCL = Tata Chemical Ltd.

TAI = Tista Agriculture Industries

PPL = Paradic Phosphet Ltd.

SFC = Snyam Fertilizer and Chemical Ltd.

Table 2.8 showed the detail of sources of procurement and consumption of fertilizer in the State. The Table indicated that Urea, DAP, SSP and MOP were the main fertilizers that were supplied by the different Agencies of the State. During 2005-06, 2006-07 and 2007-08, 4,50,544 kgs., 4,57,489 kgs. and 4,96,731 kgs. were consumed respectively in the State.

Per hectare consumption of fertilizer in Assam, increased from 3.08 kg in 1965-66 to 57.49 kg in 2007-08. The area and consumption of NPK in the State was shown in the Table 2.9. The Table showed that per hectare consumption of fertilizer were 50.07 kg in 2005-06, 51.69 kg. in 2006-07 and 57.49 kg. in 2007-08. This showed that per hectare fertilizer cvonsumption was very low in Assam in comparison to the other States of the Country.

Table- 2.9

Area and consumption of NPK in the State

GCA & NPK	Consumption (MT) in			Total Consumption (MT)	Consumption per Hectare (Kg/Ha.)		
	2005-06	2006-07	2007-08		2005-06	2006-07	2007-08
GCA ('000Ha.)	3,957	3,940	3,935				
N	93,513	102,610	116,691	312,814	23.63	26.04	29.65
P	56,036	51,077	56,048	163,161	14.16	12.96	14.24
K	48,569	49,990	53,476	152,035	12.27	12.69	13.59
Total	**198,118**	**203,677**	**226,215**	**628,010**	**50.07**	**51.69**	**57.49**

Source: Directorate of Agriculture, Govt. of Assam.

GCA= Gross Cropped Area

It was also observed that there were wide variation in consumption of fertilizers in the two seasons – kharif and rabi seasons. In kharif season, per hectare consumption of fertilizer was 38.94 kg while it was 98.52 kg in rabi season during the year 2007-08. During rabi season, the farmers of Assam cultivated vegetables and some rabi pulses, in which more quantity of fertilizer was used by the farmers. This might be a factor of gradual upward trend of per hectare consumption of fertilizers in the State.

Integrated pest management

In view of the worldwide concern of the harmful impact of use of pesticides in the environment, the Government of India recognized the benefits of Integrated Pest Management (IPM) programmes during 1985 and adopted IPM as the cardinal principle and main plank of plan protection strategy in the overall crop production. The scheme includes pest-monitoring, promotion of biological control of pest, organising demonstration, training and awareness of IPM technology.

Assam with a diverse ecosystem having sub-tropical climate has encountered many pest and diseases causing substantial yield loss from 10 per cent to 30 per cent and more. Consequent upon commissioning of one lakh STW under SKY and ARIASP to brost up production of crops especially of summer rice and vegetables through area expansion and intensive cultivation led to high incidence of pests and dieses. The present system of pest control is uneconomic, problematic and difficult. Hence, the State Bio-Control Laboratory has released some Bio-Control Agent/Pest to effective control of pest in different crops in the State. The detail of bio-control agents and quantity in the State during 2007-08 was shown in the Table – 2.10.

Table- 2.10

Pests used in the State during 2007-08

Crops	Bio-Control Agents	Quantity
Paddy, Sugarcane, Brinjal, Vegetables, Pulses, Banana, Zinger	*Trichoderma japonicum*	31.25 Million Nos., for 125 ha.
	T. chillonis	14.25 Million Nos.,for 57 ha.
	T. viridae	9.44 Qtls. for 397 ha.
	Pseudomonous fluroscenes	1.50 Qtls., for 20.09 ha.
	C. carnia	0.2225 Million Nos.., for 11 ha.

Source: Directorate of Agriculture, Govt. of Assam.

The Table 2.10 revealed that the State Bio-Control Laboratory produced 31.25 million nos. of Trichoderma Japonicum covering of 125 hectares and 1,4.25 million nos. of Trichoderma Chillonis covering of 57 hectares for control of stem borer and leaf folder of rice, sugarcane, brinjal and different vegetable crops. Moreover, 9.44 quintal of Trichoderma viridae covered 397 hectares and 1.50 quintal of Pseudomonous fluroscenes

covering of 20.09 hectares were released by the laboratory for control of soil born pathogen in the area of pulses, banana and zinger crops.

The State is trying to popularize the bio-pesticides and other methods of IPM in place of chemical pesticides by organizing different training and demonstration programme. Table 2.11 showed the pest management approach in the State during 2007-08. Table revealed that only 110 nos. of demonstration of balanced fertilizer use was for imparted 110 farmers in each of one hectare of Sali rice land. The officials of Agriculture Department did not report other demonstration.

Table- 2.11

Pest management approach in the State, 2007-08

Name of Demonstrations	No. of Demonstrations	No. of Farmers Participated	Frequency of Demonstrations
Resistant Varieties	-	-	-
Timely Planting	-	-	-
Plant Population	-	-	-
Balanced fertilizer use	110	110	N.A.
Weed Control	-	-	-

Note: All the demonstration were in one hectare of land and each demonstration contained one farmer in Sali paddy N.A. – Not Available

Source: Directorate of Agriculture, Govt. of Assam.

Farmers participation in IPM demonstrations /training

Under the IPM programme, the farmers were trained by the Master Trainers along with their associates right from the seed treatment upto harvesting stage to effectively control pest and diseases by adopting eco-friendly devices. During 2007-08, altogether 11,010 nos. of farmers participated in the IPM training (Table 2.12) covering all districts of the State. Out of total farmers, 6,000 nos of farmers were trained in Farmers Field School (FFS) and Field Day Demonstration, 2,910 nos. of farmers were trained in one-day farmers' Awareness Training and the rest of 2,100 nos. of farmers were trained in Farmers Awareness Training on Rodent Pest Management. The Table 2.12 showed that the total expenditure involved in the training was Rs. 37,78,700 with cent per cent Central Assistance. It was found in the Table that average costs per

participant varied from Rs. 70.00 to Rs. 567.00 with an average expenditure of Rs. 343.00.

Table- 2.12

Details of farmer's participation and expenditure of IPM demonstration cum training during 2007-08

Name of the Training/Demonstration → / Particulars ↓	FFS and Field Day Demonstration	One Day Farmer's Awearness Training	Farmer's Awearness Training on Rodent Pest Management	Total
District	Covering all Districts of the State			
Total Nos. of Training/demonstration	200	10	7	217
Total Nos.of farmers participated	6,000	2,910	2,100	11,010
Total Expenditure	3,400,000	203,700	175,000	3,778,700
Central	3,400,000	203,700	175,000	3,778,700
State	-	-	-	-
Average cost of Training/Demonstration	17,000	21,000	25,000	17,413
Average expenditure per participant	567	70	83	343

Source: Directorate of Agriculture, Govt. of Assam

Crop production technology

With the introduction of the ICDP rice under MMMA schemes, 2007 - 08 in the State of Assam, a serious attempt was made to introduce modern crop production technology. This was encouraged by the demonstration of new varieties of rice and jute. (Table 2.13). As reported by the Govt. official of the Agriculture Department, Mala, IR-36, Masuri, Jaha, Ranjit etc. as new varieties of rice and JRO-524 as new varieties of jute were introduced. The new varieties of rice covered 1,750 hectares of rice area and 2,057 hectares of jute area benefiting of 5,145 nos. of rice cultivators and 41,140 nos. of jute cultivators respectively in the State during 2007-08 (Table – 2.13). The Table also showed that under bio-fertilizer demonstration, 10,000 rice cultivators were benefited covering 5,000 hectares of land in the State. Line sowing of rice was practised

Table- 2.13

Crop production technology in the State during ,2007-08

Demonstration	Crop	Area (Ha.)	No. of Farmers	Assistant (Rs.Lakh)		-Total Cost (Rs)	Frequency of Demonstration	Supervisor
				Central	State			
New Varieties	Rice	1,750	5,145	22.22	Nil	22.22	One Year	By field functionaries
	Wheat	Nil	Nil	Nil	Nil	Nil	-	-
	Jute	2,057	41,140	11.52	Nil	11.52	One Year	By field functionaries
Use of Micro	Rice	Nil	Nil	Nil	Nil	Nil	-	-
	Wheat	Nil	Nil	Nil	Nil	Nil	-	-
	Jute	Nil	Nil	Nil	Nil	Nil	-	-
Water	Rice	Nil	Nil	Nil	Nil	Nil	-	-
	Wheat	Nil	Nil	Nil	Nil	Nil	-	-
	Jute	Nil	Nil	Nil	Nil	Nil	-	-
Soil Ameliorants	Rice	Nil	Nil	Nil	Nil	Nil	-	-
	Wheat	Nil	Nil	Nil	Nil	Nil	-	-
	Jute	Nil	Nil	Nil	Nil	Nil	-	-
Green Manuring	Rice	Nil	Nil	Nil	Nil	Nil	-	-
	Wheat	Nil	Nil	Nil	Nil	Nil	-	-
	Jute	Nil	Nil	Nil	Nil	Nil	-	-
Bio-Fertilizer	Rice	5,000	10,000	2.50	Nil	2.50	One Year	By field functionaries
	Wheat	Nil	Nil	Nil	Nil	Nil	-	-
	Jute	Nil	Nil	Nil	Nil	Nil	-	-
Line sowing	Rice	1,200	4,500	-	-	-	-	-
	Wheat	Nil	Nil	Nil	Nil	Nil	-	-
	Jute	Nil	Nil	Nil	Nil	Nil	-	-

Note: 1. The above data are related only with cereal development programme under MMMA, 2006-07
2. Line showing was practised as demonstartion of crop which were shown in the table

Source: Directorate of Agriculture, Govt. of Assam.

as demonstration plot during the reference year. The Table also showed that all expenditures were as control assistance.

Training programmes in the State

Table – 2.14 indicated the training programme for the farmers in the State. As reported by the Agriculture Department Officials, except IPM training programme no other training programme like Improved Cultivation Operation, Use of Organics, and

Table- 2.14

Training programmes for the farmers in the State

Programme	Year	No. of days	Assistance		Total	No. of Farmers	Women Labour	Farm Labour	Total
			Central	State					
Improved Cultivation Operation	2005-06	-	-	-	-	-	-	-	-
	2006-07	-	-	-	-	-	-	-	-
	2007-08	-	-	-	-	-	-	-	-
Integrated Pest Management	2005-06	100	5,272,000	-	5,272,000	21,575	-	-	21575
	2006-07	100	3,316,200	-	3,316,200	23,480	-	-	23480
	2007-08	107	1,820,000	-	1,820,000	7,800	-	-	7800
Use of organics	2005-06	-	-	-	-	-	-	-	-
	2006-07	-	-	-	-	-	-	-	-
	2007-08	-	-	-	-	-	-	-	-
Water Management	2005-06	-	-	-	-	-	-	-	-
	2006-07	-	-	-	-	-	-	-	-
	2007-08	-	-	-	-	-	-	-	-

Source: Directorate of Agriculture, Govt. of Assam.

Water Management was organized during the last three years. Table 2.14 showed that during 2005-06 the IPM training programme was organized for 100 days in which 21,575 farmers were trained. Similarly, during 2006-07 altogether 23,480 farmers were trained in 100 days IPM training programme. Again, during 2007-08, the IPM training pgoramme was arranged for 107 days where 7,800 farmers were trained. Table also showed that the expenditures for the IPM training programme were found as Central Assistance.

Farm implements

A major thrust has been given on mechanization of agriculture through distribution of Power Tiller in the farm Sector under subsidy of the centrally sponsored Scheme under MMMA. The subsidy coverage for the power tiller was 50 per cent subject to minimum of Rs. 30,000.00 per unit. Under the scheme, 866 nos. of Power Tillers were distributed upto 2007-08 (Table- 2.15). Table also revealed that the actual cost of Power Tiller per unit was Rs. 1,42,350.00. Moreover, altogether 16,061 nos. of other implements like Mould Board Plough, Paddy weeder, Garden Rake, Wheel Hoe, Dryland Weeder, etc. were distributed (Table-2.15). Average cost of implement per unit was also shown in the Table.

Table- 2.15

Assistance under the schemes for various implements in the year 2007-08

Sl. No.	Name of the Implements	Type						
		Manully Operated	Power Driven	Bullock Drawn	Total No. of Impliments	Actual Cost per impliment	Assistant Received	
							Center	State
1	Power Tiller	-	√	-	866	142,350	100%	-
2	Mould Board Plough	-	-	√	}16061	179	100%	-
3	Paddy Weeder	√	-	-		508	100%	-
4	Garden Rake	√	-	-		183	100%	-
5	Wheel Hoe	√	-	-		330	100%	-
6	Dryland Weeder	√	-	-		450	100%	-
7	Oil Expeller	-	√	-		-	100%	-
8	Hand Sprayer	√	-	-		1,092	100%	-

Source: Executive Engineer (Agri), Directorate of Agriculture, Guwahati

Farmer's information centres

Table 2.16 showed the strengthening and creating Farmers Informations Centre. As information provided by the officials Department of Agriculture, Government of Assam, except Books/Periodicals, no other farmer's awareness information were reportd. Table 2.16 also showed that covering all districts of Assam, Rs. 15.60 lakhs were

spent for Books/Periodicals. This showed that farmer's awareness programme under the MMMA schemes in Assam was very limited.

Table- 2.16
Strengthening and creating farmer's information centre

Resources	Panchyat	Amount Spent (Rs.in Lakh)	Percentage to Total
Farmers Centre			-
On Book, Periodicals	All districts of Assam	15.60	N.A.
Video Films	-	-	-
Projectors	-	-	-
Tube wells	-	-	-
Water bodies	-	-	-

Note: N.A. - Not Available
Source: Directorate of Agriculture, Govt. of Assam.

Physical and financial target and achievements

The physical targets and achievements; financial targets and achievements under MMMA schemes were shown in details in the APPENDIX – I and in the APPENDIX – II respectively.

The utilisation status of the allocated fund under Macro Management scheme during 2000-01 to 2006-07 had been shown in the Table – 2.17. Table revealed that the utilisation status against fund released by Government of India was Rs 5,441.00 lakhs under Macro Management Scheme, of which about cent (99.79%) percent was utilised, the remaining 0.21 per cent of the fund was unutilised. Since the State's share was not hurdle any more (100 per cent central funding) in the fund utlisation. Other reasons like timely release of funds and finalisation of schemes and programmes were responsible for non-utilisation of cent percent of funds allocated or released under Macro Management Mode of Agriculture schemes.

Table - 2.17

Financial status of macro management of agriculture
(Since 2000-01 to 2006-07)

(Rs. in Lakh)

Year	Unspent of Previous Year	Fund Released by GOI	Fund Received	Fund Utilised	Unspent Fund
(1)	(2)	(4)	(5)	(6)	(7)
2000-01	Nil	409.47	409.47	409.47	Nil
2001-02	Nil	523.50	523.50	523.50	Nil
2002-03	Nil	350.00	350.00	409.47	Nil
2003-04	Nil	350.00 325.16 (Revalidated amount of earlier CSS Merged with MMA)	675.16	606.358	68.802
2004-05	68.802	400.00 (1st Instalment) 55.00 (Additional) 240.00 (2nd Instalment) 923.35 (Additional) 4.10 (Additional against NWDPRA) 1.03 (Additional against NWDPRA)	1692.282	1623.480	68.802
2005-06	68.802	660.00(1st Instalment) 200.00 (Balance of 1st Instalment)	928.802	Nil	928.802
2006-07	928.802	800.00 (1st Instalment) 200.00 (Balance of 1st Instalment)	1928.802	1917.6325 (being utilized)	11.1695
Total	-	**5441.61**	-	**5430.4405 (99.79)**	**11.1695 (0.21)**

Note: (1) The balance unspent amount of Rs. 11.1695 lakh as on 1.4.2007 is yet to be lized for want of State Govt. sanction. The Finance EC-(1) did not conquered sanction for want of copies of release order from Govt. of India against the merged scheme with Macro Management of Agriculture.

(2) The figures in brackets (in bold) are the percentages to total fund available.

Source: Directorate of Agriculture, Govt. of Assam.

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Tribe (ST) community. The average family size was 5.80 which was marginally higher than that of the State average being 5.42 persons as per 2001 Census.

Table- 3.1
Financial target and achievement of Integrated Cereal Development Programme for rice.(ICDP-rice) in Assam

(amount in Lakh.)

Sl. No.	Schemes	2002-03		2003-04		2004-05		2005-06		2006-07	
		T	A	T	A	T	A	T	A	T	A
	ICDP - Rice										
1	Technology Demonstration	√	√	-	-	-	-	-	-	√	√
2	Distribution of Power Tillers	√	√	-	-	-	-	-	-	-	-
3	Demo on Hybrid Rice	-	-	√	√	-	-	-	-	√	√
4	Demo on HYV	-	-	√	√	-	-	-	-	√	√
5	Distribution of Rice Seed @ Rs. 200/- per Qtl.	-	-	-	-	-	-	-	-	√	√
6	Contingency: Office Expense	-	-	-	-	-	-	-	-	-	-
7	**Total amount** (in Lakh)	70.00	70.00	15.00	15.00	-	-	-	-	32.00	32.00

Note: 1. ' T ' -Target, ' A ' – Achievement
2. '√ ' -Indicates some amount spent in the particular Scheme.

Table 3.2
Socio - economic profile of the sample rice farmers.

Sl. no.	Particulars	Marginal	Small	Semi-Medium	Medium	Large	Total
No. of House Holds		16	29	9	6	-	60
1	SC	12.50	10.34	33.33	33.33	-	16.67
2	ST	6.25	6.90	22.22	50.00	-	13.33
3	OBC	18.75	17.24	22.22	16.67	-	18.33
4	General	62.50	65.52	22.22	0.00	-	51.67
5	Average family Size	5.63	5.79	5.78	6.33	-	5.80

Note: Figures indicate in percentage

Demographic profile

The demographic profile of the sample households was classified by age and farm size category and it was presented in Table 3.3. The Table showed that out of total population, 37.07 per cent of population were lesser than 18 years of age, 57.47 per cent

Table - 3.3

Demographic profile of the sample rice farmers by farm size category.

Category of	No. of	Lesser than 18 Years			18 - 60 Years			Greater than 60 Years			Total		
	HH	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Marginal	16	17	15	32	28	24	52	4	2	6	49	41	90
Percentage											**14.08**	**11.78**	**25.86**
Small	29	33	30	63	50	47	97	5	3	8	88	80	168
Percentage											**25.29**	**22.99**	**48.28**
Semi Medium	9	11	8	19	16	14	30	2	1	3	29	23	52
Percentage											**8.33**	**6.61**	**14.94**
Medium	6	9	6	15	11	10	21	2		2	22	16	38
Percentage											**6.32**	**4.60**	**10.92**
Large	0	0	0	0	0	0	0	0	0	0	0	0	0
Percentage											0	0	0
Total	60	70	59	129	105	95	200	13	6	19	188	160	348
Percentage		**20.11**	**16.95**	**37.07**	**30.17**	**27.30**	**57.47**	**3.74**	**1.72**	**5.46**	**54.02**	**45.98**	**100.00**

HH: House Hold

were in between 18 – 60 years of age and only 5.46 per cent were greater than 60 years of age. The total population of the sample households was 348 persons, of which 188 (54.02 per cent) persons were males and 160 (45.98 per cent) persons were females (Table 3.3).

Educational status

The educational status of the population of the sample households was classified by age-groups and was presented in Table 3.4. It was observed from the Table that 77.59 per cent of population was literate, which was much higher than that of the State average being 64.28 per cent as per 2001 census. Taking both males and females together there were 57.47 per cent population with primary education and read up to class- X, 14.08 per cent HSLC passed, 3.16 per cent PU/HS passed and only 2.30 per cent were Degree holders. It was also evident from the Table that although the educational attainment was satisfactory but the higher educational attainment was not satisfactory as there was only one (0.29 per cent) person Diploma holder (Technical education) and one (0.29 per cent) person P.G. degree holder. Sex wise distribution of educational status of the population indicates that women (45.98 per cent) in general were lagging behind their male counterparts. Educational attainment of population in the sample has great significance in the context of adoption of new farm technology, new seed varieties, and appropriate uses of INM and IPM etc. in the field agriculture development.

Economic status

Distribution of population of the sample rice growers are classified as cultivator, agricultural labours, animal husbandry, business, salaried job etc. by farm size groups which has been shown in Table 3.5. It was observed that out of total working population, 156 (78.00 per cent) were cultivators comprising of all the farm size groups in the sample. Table also showed that taking all the farm size groups there were 7.50 per cent as agricultural labours, 1.00 per cent engaged in animal husbandry, 7.00 per cent engaged in business and 6.50 per cent were salaried job. Moreover, there were a few as helpers below the age of 18 years which were not considered as full time workers. This category was mostly school going children, who participate in the family farms in their off-time and contributed as subsidiary work force to the farmers family.

Table- 3.4

Distribution of population according to the educational status of the rice sample farmers by sex.

Sl. No.	Particulars	Lesser than 18 Years			18 - 60 Years			Greater than 60 Years			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Primery Edu.upto class X	33	38	71	64	58	122	5	2	7	102	98	200
	Percentage												**57.47**
2	HSLC holders	17	6	23	17	9	26	0	0	0	34	15	49
	Percentage												**14.08**
3	PU/ H.S. Holders	0	0	0	6	5	11	0	0	0	6	5	11
	Percentage												**3.16**
4	Degree holders	0	0	0	5	3	8	0	0	0	5	3	8
	Percentage												**2.30**
5	Diploma holders/ITI	0	0	0	1	0	1	0	0	0	1	0	1
	Percentage												**0.29**
6	P.G.holders	0	0	0	1	0	1	0	0	0	1	0	1
	Percentage												**0.29**
7	Illiterate	2	0	2	11	20	31	8	4	12	21	24	45
	Percentage												**12.93**
8	Children Below 5 Years	18	15	33	0	0	0	0	0	0	18	15	33
	Percentage												**9.48**
9	Total	70	59	129	105	95	200	13	6	19	188	160	348
	Percentage	**20.11**	**16.95**	**37.07**	**30.17**	**27.30**	**57.47**	**3.74**	**1.72**	**5.46**	**54.02**	**45.98**	**100.00**

Table -3.5
Occupation of the sample rice farmers by farmer's category

Sl. No.	Particulars	Marginal	Small	Semi-Medium	Medium	Large	Total	Percentage
	No. of H.H.--->	16	29	9	6	0	60	
1	Agri./ Cultivator	29	86	24	17	0	156	**78.00**
2	Agri. Labour	13	2	0	0	0	15	**7.50**
3	Animal Husbandry	0	2	0	0	0	2	**1.00**
4	Business	8	3	2	1	0	14	**7.00**
5	Salaried Job.	2	4	4	3	0	13	**6.50**
6	Horticulture	0	0	0	0	0	0	**0**
7	Total	52	97	30	21	0	200	**100.00**

Land resources

Agriculture is the mainstay of livelihood of the majority sample households. So, land is the main resource which determines the economic condition of the sample family and provided employment opportunity to the family members. Therefore, it is

Table -3.6
Distribution of land ownership of the sample rice farmers according to farm size group.

(Area in hectare)

Farm Size Groups	No. of H.H.	Land Ownership Particulars				
		Cultivable	Homestead	Garden Land	Cultivable Waste	Total
Marginal	16	11.05	0.64	0	0	11.69
Small	29	40.69	1.45	2.47	0.00	44.61
Semi-medium	9	24.70	0.59	1.17	0.63	27.09
Medium	6	32.63	0.43	1.17	1.56	35.79
Large	0	-	-	-	-	-
Total	60	109.07	3.11	4.81	2.19	119.18
		(91.52)	(2.61)	(4.03)	(1.84)	(100.00)

Note: Figures in the parentheses indicate percentage to the total.

essential to study their land holdings and land use pattern in the context of generation of employment as well as family income. The land resource of the sample farmers is classified according to the ownership holding by farm size groups and is presented in Table 3.6.

It was found from the Table 3.6 that 119.18 hectares were owned land of the sample households. Out of total area, 109.07 (91.52 per cent) hectares were cultivable land, 3.11 (2.61 per cent) hectares were under homestead, 4.81 (4.03 per cent) hectares were covered by garden and the rest of 2.19 (1.84 per cent) hectares were cultivable waste land. It was observed at the time of field investigation that all the sample farmers cultivated both rabi and kharif crops in their cultivable land in rotation practiced double cropping.

It was also found from the Table 3.6 that, out of the total sample farmers 26.67 per cent were marginal, 48.33 per cent were small, 15.00 per cent were semi medium and only 10.00 per cent were medium farmers. There was no large farmer in the study area.

However, land ownership alone does not clearly indicate the economic condition of a family. The operation holding is the key factor of economic condition of family as it largely determines the extent of farm economy due to cultivation. Table 3.7 showed the distribution of operation holdings of the sample rice farmers.

Table 3.7 indicated that the total area of operational holding in the sample was 113.23 hectares. Out of the total operational holdings 107.25 (94.72 per cent) hectares were owned land, 4.68 (4.13 per cent) hectares were leased-in land and 1.30 (1.15 per cent) hectares were taken on mortgage by the sample farmers for crop cultivation. Out of total operational area 86.45 (76.35 per cent) hectares were irrigated land and the rest of 26.78 (23.65 per cent) hectares were un-irrigated land.

The average size of operational holding in the sample varied from 0.84 hectares to 5.31 hectares and the overall average size of operational holding was worked out at 1.89 hectares which was slightly higher than that of State average of 1.15 hectares in 2001 Census.

Table -3.7
Distribution of operational holdings of the sample rice growers

(Area in hectare)

Farm Size Groups	No. of H.H.	Own Land under Personal Cultivation			Leased in Land			Leased out Land			Mortgaged in Land			Mortgaged out Land			Total Operational Holding			Average size of Holding
		IR	UR	T	IR	UR	T	IR	UR	T	IR	UR	T	IR	UR	T	IR	UR	T	
Marginal	16	7.15	3.90	11.05	0.91	1.43	2.34										8.06 (60.19)	5.33 (39.18)	13.39 (100.00)	**0.84**
Small	29	30.55	10.14	40.69	1.30	0.52	1.82										31.85 (74.92)	10.66 (25.08)	42.51 (100.00)	**1.47**
Semi-medium	9	18.33	5.85	24.18	0.39	0.13	0.52				0.65	0.13	0.78	0.52	0.00	0.52	19.37 (76.02)	6.11 (23.98)	25.48 (100.00)	**2.83**
Medium	6	26.65	4.68	31.33				0.65	0.13	0.78	0.52	0.00	0.52	0.39	0.13	0.52	27.17 (85.31)	4.68 (14.69)	31.85 (100.00)	**5.31**
Large	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total %	60	82.68 (73.02)	24.57 (21.70)	107.25 (94.72)	2.60 (2.30)	2.08 (1.84)	4.68 (4.13)	0.65	0.13	0.78	1.17 (1.03)	0.13 (0.11)	1.30 (1.15)	0.91	0.13	1.04	86.45 (76.35)	26.78 (23.65)	113.23 (100.00)	**1.89**

Note: Figures in the parentheses indicate percentage to the total.
IR= Irrigated, UR= Unirrigated

Area, production and productivity of rice

Rice was the major agricultural field crop of the sample farmers and different varieties of rice were found to cultivate during kharif and rabi seasons of the year. It was reported during field investigation that in kharif season of the year the sample farmers cultivated Ahu (autumn rice) and Sali (winter rice) depending upon soil condition, distribution of rainfalls and irrigation facilities. On the other hand, during rabi season the farmers raised Boro (summer rice) considering the soil condition, irrigation facilities and rainfalls.

Table -3.8

Area, production and productivity of rice in the selected sample farmers

Farm Size	No. of H.H.	Name of the Crops	Area (in Hectares)	Production (in Quentals)	Productivity (in Kg / ha.)
Marginal	16	Ahu	0.00	-	-
		Sali	9.05	295.75	3,268
		Boro	3.51	223.69	6,373
		Average	12.56	519.44	4,136
Small	29	Ahu	0.65	21.40	3,292
		Sali	34.83	1,145.91	3,290
		Boro	20.50	1,327.79	6,477
		Average	55.98	2,495.10	4,457
Semi Medium	9	Ahu	0.00	-	-
		Sali	20.39	659.41	3,234
		Boro	11.65	741.99	6,369
		Average	32.04	1,401.40	4,374
Medium	6	Ahu	1.04	33.12	3,185
		Sali	27.77	892.81	3,215
		Boro	12.42	780.35	6,283
		Average	41.23	1,706.28	4,138
Large	0	Ahu	0.00	-	-
		Sali	0.00	-	-
		Boro	0.00	-	-
		Average	0.00	-	-
Total	60	Ahu	1.69	54.52	3,226
		Sali	92.04	2,993.88	3,253
		Boro	48.08	3,073.82	6,393
		Average	141.81	6,122.22	4,317

Note: The production and productivity are worked out in paddy form.

Table 3.8 shows the distribution of area, production and productivity of different rice crops grown by the sample farmers according to farm size. Rice was the principal crop grown by the sample farmers. It covered 141.81 hectares of land both in kharif and rabi seasons of the reference year.

Table 3.8 showed that Ahu and Sali crops were cultivated by the sample farmers during kharif season. The sample farmers cultivated Ahu rice in 1.69 hectares and Sali rice in 92.04 hectares of land. The average productivity of these crops were found at 3,226 kg/ha and 3,253 kg/ha respectively. During rabi season the sample farmers raised Boro rice depending upon the soil condition and irrigation facilities (Table 3.8). They cultivated Boro rice in 48.08 hectares of land with productivity of 6,393 kg/ha. It was noticed from the Table that the yield of Boro rice was higher than that of Ahu and Sali rice. Taking all the rice crops together the per hectare yield of rice of the sample farmers was 4,317 kgs which were much higher than that of the State's average yield of 2,017 kgs/ha in 2007-08. However, productivities of all varieties of rice crops showed some variations in different farm size groups. It was observed from the Table 3.8 that a significant part of the rice cropped area was double cropped area increasing the cropping intensity of the farmers.

Sources of seed and seed rates of rice

In Assam, seed production is mainly done at farm level, as organized seed industry is not coming up in the State. For the major crops like rice, wheat, mustard, pulses, potato etc. farm production is the principal source of seed. The Assam Seed Corporation produces different kinds of seeds in the 12 Seed Farms while Assam State Seed Certification Agency (ASSCA) plays the role in supplying quality certified seeds of major crops to the farming community.

Assam Agricultural University produces breeder seeds of rice, pulses, mustard etc. based on indents received from State Department of Agriculture. As per estimate of the State Department of Agriculture, the requirement of breeder seeds of rice is 28.40

Table -3.9

Sources of seed and seed rate of rice of the sample farmers

(Quantity in kgs.)

Category of the Farmers	No. of H.H.	Seed Corpo-ration	Seed Rate (kg/ha)	Open Market	Seed Rate (kg/ha)	Domestic	Seed Rate (kg/ha)	Agri. Depart-ment	Seed Rate (kg/ha)	Retail Shop	Seed Rate (kg/ha)	Total	Seed Rate (kg/ha)
Marginal	16	180	48.91	0	-	503	56.64	-	-	0	-	683	54.38
Small	29	400	50.83	160	55.17	2,010	57.04	-	-	525	52.71	3,095	55.29
Semi Medium	9	280	47.30	200	56.50	1,032	58.04	-	-	250	51.98	1,762	54.99
Medium	6	180	39.05	0	0.00	2,092	57.13	-	-	0	0.00	2,272	55.11
Large	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	60	1,040	47.10	360	55.90	5,637	57.22	-	-	775	52.47	7,812	55.09
		(13.31)		(4.61)		(72.16)		-		(9.92)		(100.00)	

Note: 1.Figures within brackets indicate percentages to total

2. The quantities are in the form of Paddy.

quintals for each of the years 2006-07, 2007-08 and 2008-09, while for the pluses the requirement is 4 qtls of black gram, 3 qtls of green gram in three years.

It was observed during the field investigation that the sample farmers were very much interested to adopt new variety of rice seeds over the traditional one. However, the Government as well as the Agriculture Department of the State has unable to supply the new variety rice seeds as per requirement of the farmers. As a result the seed replacement rate for rice was not satisfactory in Assam as it was 17.30 per cent only during 2007-08 indicating farmers' practice of using the existing varieties. The availability of certified seeds during 2007-08 was 51,470 qtls of rice and 852 qtls of jute in the State

Details source of seed and seed rates were shown in the Table 3.9. The Table revealed that out of total requirement of rice seed, a dominant portion i.e. 72.16 per cent of seed was produced at home (Domestic) while 13.31 per cent of seed was purchased from Seed Corporation at a subsidy rate by the sample farmers. Besides, 9.92 per cent and 4.61 per cent of rice seed were directly purchased from nearby retail shops and open markets respectively by the sample farmers.

Table-3.9 also showed the source-wise seed rates of rice for the sample farmers. The Table revealed that source wise average seed rates of rice was 55.90 kg/ha. in Open Markets, 57.22 kg/ha. in Domestic, 47.10 kg/ha. in Seed Corporation, and 52.47 kg/ha in Retail Shop. In aggregate, the seed rate of rice was found at 55.09 kg/ha. It was also observed in Table-3.9 that source wise required seed rates of rice was lowest in Seed Corporation (47.10 kg/ha.) and the highest in Domestically produced (57.22 kg/ha) seed. It was reported by the sample farmers that they purchased certified seed of rice from the Seed Corporation and hence per hectare requirement seed rate of rice was low in the source.

Consumption of fertilizers

The importance of inorganic fertilizer as soil nutrients was well established in the field of new agricultural technology. However, it is fact that consumption of fertilizers in the State is still lower in comparison to the other States. It is also observed that there is no uniformity in consumption of fertilizers among the farmers in Assam.

Table -3.10

Use of fertilizers by the sample rice farmers

(Quantity in Kgs.)

Category of the Farmers	No.of H.H.	2005-06					2006-07					2007-08				
		Urea	SSP	MOP	DAP	Total	Urea	SSP	MOP	DAP	Total	Urea	SSP	MOP	DAP	Total
Marginal	16	270	115	45	35	465	260	110	40	30	440	243	94	30	20	387
Small	29	1,445	655	270	105	2,475	1,435	650	265	100	2,450	1410	621	251	90	2,373
Semi Medium	9	805	445	180	95	1,525	798	435	167	90	1,490	779	412	151	80	1,422
Medium	6	1,050	425	205	65	1,745	1,034	410	190	55	1,689	998	384	179	46	1,607
Large	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	60	3570	1640	700	300	6210	3527	1605	662	275	6069	3430	1511	612	236	5789
Per Ha.	-	-	-	-	-	41.85	-	-	-	-	41.79	-	-	-	-	40.82

A wide variation is found within the districts of Assam and even in different size groups of operational holdings of the sample farmers.

Table 3.10 revealed the use of fertilizers by the sample rice farmers. It was seen in the Table that the sample farmers generally used Urea, SSP, MOP and DAP as soil nutrients. It was observed that overall consumption of fertilizers was 6,210.00 kg in 2005-06, 6,069.00 kg in 2006-07 and 5,789.00 kg in 2007-08 by the sample farmers (Table 3.10). Moreover, the Table also showed that the average consumption of fertilizers was 41.85 kg/ha in 2005-06, 41.79 kg/ha in 2006-07 and 40.82 kg/ha in 2007-08. This showed that per hectare consumption of fertilizers was much lower than that of the State average (57.49 kg. during 2007-08). It was found during the field investigation that most of the sample farmers used bio-fertilizer/organic manure to minimize the chemical fertilizers in their crop cultivation. They reported that the bio-fertilizer/organic manure helped to provide all the nutrients required by the plants and helped to improve the quality of the soil as well as product of crops with a natural environment.

It was also reported that the costs of chemical fertilizers were much higher than the bio-fertilizer/organic manure. Therefore, they used bio-fertilizer/organic manure as major portion of plan nutrients.

Comparative analysis of income, expenditures and net return

The agricultural operation, adoption of technology, crop variety, quantum and types of inputs used determine the cost and return from any type of crop cultivation. A farmer gets the highest benefit from his cultivation when he can produce enough crops with minimum expenditure in inputs. Expenditure on some of the items of rice cultivation is inevitable. But in some other items expenditure may vary depending upon the technology adopted and quality of soil. As for example, a plot of fertile land does not require additional chemical fertilizers or organic manure. Similarly, farmers in a pest free area need not invest any money for purchasing pesticides. But, when necessary one must apply chemical fertilizers and pesticides by spending money to harvest a good crop then the farmer can not produce enough crops with minimum expenditure.

The parameters used in determining the costs involved in rice crop cultivation were based on reports of the respondents. In estimating the cost of cultivation in rice the value of output of rice crop has been taken at post harvest prices.

The cost of cultivation of rice crop of the sample cultivators was estimated by adopting cost accounting method. The items of the cost of cultivation were taken for both variable costs and the fixed costs. The items under variable cost were taken like human labours (family and hired), machine labours, bullock labours, seeds/seedling, fertilizers, pesticides, farm yard manure (FYM) (owned or purchased)), interest on variable cost etc. The imputed value of family labour was taken at Rs. 80/- per day per worker which was the prevailing wage rate in the study area. The imputed values on organic manure and seed were worked out on the basis of rates prevailing in the study area.

The items under fixed cost were worked out by adopting (i) depreciation on tools and implements & farm house @ 10%, (ii) land revenue as fixed by the land legislation of the State, (iii) interest on fixed cost charged @ 4%, (iv) rental value of land @ 25% of total income and (vi) interest on total costs @ 2% was charged as managerial expenses.

For comparative analysis considering before and after implementation of the scheme some records like investment and return in rice production were collected from the sample farmers. The income, expenditures and net returns of the sample rice farmers was shown in Table 3.11.

Table 3.11 showed that overall per hectare incomes was Rs. 20,020/- and expenditures was Rs.18,565/- with a net return of Rs. 1,454/- before implementation of the scheme On the other hand, Rs. 22,143/- , Rs. 19,960 and Rs. 2,182/- were found as overall per hectare income, expenditure and net return respectively after implementation of the scheme. The net profit were varied from Rs. 624/- (in small farms) to Rs. 876/- (in semi medium farms) with an overall average of Rs. 728/- before and after implementation of the schemes.

Table -3.11

Income, expenditures and net returns of the sample rice farmers

(in Rupees)

Sl. No.	Category of the Farmers	No. of H.H.	Total Income		Total Expenditure		Net returns		Per hectare net profit (in after)
			Before	After	Before	After	Before	After	
1	Marginal	16	240,063	271,135	215,839	237,330	24,224	33,805	-
	Per Ha.		19,840	21,587	17,838	18,896	2,002	2,691	689
2	Small	29	1,161,087	1,271,649	1,042,595	1,117,715	118,492	153,934	-
	Per Ha.		20,834	22,716	18,708	19,996	2,126	2,750	624
3	Semi Medium	9	669,580	715,502	625,377	645,031	44,203	70,470	-
	Per Ha.		20,047	22,332	18,724	20,132	1,323	2,200	876
4	Medium	6	871,347	881,754	844,550	830,506	26,797	51,249	-
	Per Ha.		19,054	21,386	18,468	20,143	586	1,243	657
5	Large	0	-	-	-	-	-	-	-
	Per Ha.		-	-	-	-	-	-	-
6	Over all	60	2,942,076	3,140,040	2,728,361	2,830,582	213,715	309,458	-
	Per Ha.		20,020	22,143	18,565	19,960	1,454	2,182	728

Note: Estimation of Cost of cultivation have been done at C3* and detail costing structures are given in APPENDIX –III & IV.

The analysis indicated that after implementation of the scheme the sample farmers were marginally benefited than prior to implementation of the scheme. It may be noted here that the agriculture development schemes under ICDP for rice actually could create a marginal impact in the rice production of the sample farmers.

Demonstrations, training, organizations etc. under ICDP rice

The basic aim of introduction of Macro Management Mode of Agriculture scheme is to accelerate economic viability of agriculture to obtain optimum output with minimum input for the benefit of the concerned farmers. Therefore, the sample farmers have been thoroughly trained by the Master Trainers and their associates with some demonstrations. The degree of adoption of the different schemes under ICDP rice cultivation depends, to a great extent, on the understanding of the training materials by the farmers. It also depends on how much they are convinced of the efficiency or usefulness of the demonstrations for rice cultivation as well as for maintenance of ecological balance and safety of the health of human beings and the animal world also.

Participation of the sample rice farmers in the demonstration programmes has been shown in Table 3.12. The Table showed that the attendance of sample farmers in the Hybrid Rice Demonstration was cent per cent in case of marginal, small, semi medium and medium farmers. On the other hand, in case of Crop Demonstration Technology, 86.67 per cent of the sample farmers attended the programme.

Table -3.12
Participation of the sample rice farmers in the demonstration programmes

Sl. No.	Demonstrations	Marginal	Small	Semi-Medium	Medium	Large	Total
	Total No.of H.H.--->	16	29	9	6	0	60
1	Hybrid Rice Technology Demonstration	16	29	9	6	0	60
	Rate of participants %						100.00
2	Crop Demonstration Technology	14	25	8	5	0	52
	Rate of participants %						86.67

Note: The number of days for each Demonstration
(a) Hybrid Rice Technology Demonstration 3 Days
(b) Crop Demonstration Technology 3 Days.

Integrated Pest Management (IPM) demonstration was held for 2 days only during 2007-08 for rice crop cultivation. In these demonstrations, out of the total sample farmers, 55 farmers (91.67 per cent) participated in the training programme (Table 3.13).

Table -3.13
Participation of farmers in the integrated pest management demonstration (IPM)

Sl. No.	Category of the Farmers	No. of H.H.	Crop	Year	No. of Farmers Attended	No. of Days Held
1	Marginal	16	Rice	2007	14	2
2	Small	29	Rice	2007	26	2
3	Semi Medium	9	Rice	2007	9	2
4	Medium	6	Rice	2007	6	2
5	Large	-	Rice	2007	-	2
6	Total	60	Rice	2007	55	2
Percentage					**91.67**	

Table 3.14 indicated different training programmes attended by the sample farmers. The Table showed that out of total sample farmers, 52 (86.67 per cent) farmers

Table - 3.14
Different training programmes attended by the sample rice farmers.

Sl. No.	Category of the Farmers	No. of H.H.	Training - 1 on Production Technology	Training - 2 On IPM Farmer's Awareness	Training - 3 On Organic Farming	Training - 4
1	Marginal	16	14	14	16	-
2	Small	29	25	26	29	-
3	Semi Medium	9	8	9	9	-
4	Medium	6	5	6	6	-
5	Large	-	-	-	-	-
6	Total	60	52	55	60	-
	Percentage		**86.67**	**91.67**	**100.00**	-

attended in the training on crop production technology, 55 (91.67 per cent) farmers attended the training on IPM farmer's awareness and 60 (100.00 per cent) farmers attended the training on organic farming in aggregate. This showed that a few of sample farmers did not participate in all the training programmes.

Reasons perceived by the farmers for not attending all the demonstrations have been shown in Table 3.15. The Table showed that out of the total 60 sample farmers only 8 farmers did not attend all the demonstrations. Out of not attending sample farmers, 5 (62.50 per cent) farmers reported that they engaged with pre-occupied works. Another 2 (25.00 per cent) farmers opined that they were not interested and the rest of 1 (12.50 per cent) farmer was not award about the demonstrations programme.

Table -3.15

Reasons perceived by the sample farmers for not attending all the demonstrations.

Sl. No.	Category of the Farmers	No. of H.H.	No. of Farmers Not Attending all the Demonstration	Not interested	Not known	Other
1	Marginal	16	2	0	1	1
2	Small	29	4	2	0	2
3	Semi Medium	9	1	0	0	1
4	Medium	6	1	0	0	1
5	Large	-	-	0	0	0
6	Total	60	8	2 **(25.00)**	1 **(12.50)**	5 **(62.50)**

Note: 1.Other column includes the loss of wage, preoccupied with other works etc.
2. Figures within brackets indicates percentage to the total nos. of Farmers who did not attend the demonstrations.

As reported by the officials of District Agricultural office (DAO) as well as the sample farmers, all demonstration programmes were organized by the DAO for the sample farmers (Table 3.16). Moreover, they reported that 100.00 per cent of the costs involved for the sample farmers in attending demonstration were borne by the organizer (Table 3.17).

Table - 3.16

Organizations involved in the demonstrations (percentages)

Sl. No.	Authorities	Marginal	Small	Semi - Medium	Medium	Large	Total
1	Gram Panchayath	0.00	0.00	0.00	0.00	-	0.00
2	District ADO	100.00	100.00	100.00	100.00	-	100.00
3	State Agricultural Officers	0.00	0.00	0.00	0.00	-	0.00
4	ICAR	0.00	0.00	0.00	0.00	-	0.00
5	Others	0.00	0.00	0.00	0.00	-	0.00

Note: 1. ADO Agriculture Development Officer
2. ICAR= Indian Council of Agricultural Research

Table -3.17

Cost involved for sample rice farmers in attending the Demonstrations (percentages)

Sl. No.	Category of the Farmers	No. of H.H.	Organizers	Self Finance	Others
1	Marginal	16	100.00	0.00	0.00
2	Small	29	100.00	0.00	0.00
3	Semi Medium	9	100.00	0.00	0.00
4	Medium	6	100.00	0.00	0.00
5	Large	-	-	-	-
6	Total	60	100.00	0.00	0.00

Constraints for not attending the demonstrations

Constraints, which prevented in attending different demonstrations by the sample farmers, were identified as distance from the village, costs involved in other agricultural works, lack of transport, loss of wage, pre-occupation with other agricultural works etc, (Table 3.18). The Table showed that among all other problems, costs with other agricultural works were the major problems faced by 53.33 per cent of sample farmers. Moreover, other problems like distance from the village, no transport, pre-occupied with

Table - 3.18

Difficulties faced in attending the demonstrations by the sample rice farmers.

Sl. No.	Category of the Farmers	No. of H.H.	Too far	Costs other Agril. Works	No Transport	Other
1	Marginal	16	7	12	8	8
2	Small	29	12	18	11	13
3	Semi Medium	9	2	1	2	4
4	Medium	6	3	1	1	0
5	Large	0	-	-	-	-
6	Total	60	24	32	22	25
	Percentages to total		**(40.00)**	**(53.33)**	**(36.67)**	**(41.67)**

Note: Other column includes the loss of wage, preoccupied with other works etc.

other works and loss of wage were encountered by 40.00 per cent, 36.67 per cent and 41.67 per cent of the farmers respectively. In addition to these, some general problems like late supply of rice seed, inadequate level of subsidy amount, insufficient extension services, institutional credit, etc. were considered as major problems by majority of the farmers.

Suggestions

Some suggestions were offered by the sample farmers for the effective use of these demonstrations and trainings (Table 3.19).

(1) Infrastructural development like the road communication net work, marketing facility, input distribution agencies etc. were the major shortcoming in the study area. Therefore, 58.33 per cent of sample farmers suggested for infrastructural development in the sample area (Table – 3.19).

(2) The agricultural inputs like HYV certified seed, fertilizers, plant protection chemicals etc. should be made available at the farmers door step and the present extension services should be improved to change the cropping pattern based on agricultural research and field trials which was suggested by 55.00 per cent of sample farmers (Table – 3.19).

(3) Again, 56.67 per cent of sample farmers suggested that more training programme should be organized by the Officials for adoption of modern technologies and water management at different strategies of plan growth (Table – 3.19).

(4) Another 50.00 per cent of sample farmers opined that all the essential inputs required for crop protection under the IPM programme should be made available to the farmers at easy reach (Table – 3.19).

Table - 3.19
Suggestion put forward by the sample rice farmers for the effectiveness of the demonstrations and training

Category of the farmers -->	Marginal	Small	Semi - Medium	Medium	Large	Total	Percentage to total
No. of House Holds -->	16	29	9	6	0	60	
Suggestion -1 - Development of infrastructure.	8	18	5	4	-	35	58.33
Suggestion - 2 -Supply of inputs timely & improvement of extension services.	9	14	6	4	-	33	55.00
Suggestion -3 -Training programmes should be extended.	6	17	6	5	-	34	56.67
Suggestion -4 – Inputs required under IPM should be made available.	7	15	5	3	-	30	50.00
Suggestion -5 - Irrigation facilities should be extended.	2	4	8	6	-	20	33.33
Suggestion -6 -Soil testing services should be made easily available.	16	29	6	3	-	54	90.00
Suggestion -7 -Supply of institutional credit.	7	10	1	0	-	18	30.00

(5) The study revealed that altogether 76.35 per cent areas were irrigated and 23.65 per cent of areas were unirrigated. It was observed that, 33.33 per cent of sample farmers suggested for extending the present irrigation facilities in the district (Table – 3.19).

(6) The study also showed that soil testing services were not available in the sample areas and 90.00 per cent of the farmers felt it indispensable for appropriate use of plant nutrients (Table – 3.19).

(7) Majority of small and marginal farmers (30.00 per cent) suggested to provide easy institutional credit to purchase modern inputs (Table – 3.19). In addition to these, most of the sample farmers opined that the present subsidy amount on rice seeds should be increased.

Use of soil ameliorates

Soil ameliorates are considered to be indispensable in the present day soil structure as quality of soil deteriorates after prolonged use of chemical fertilizers. But, in the study area it was showed that the uses of soil ameliorate was quit low. Item wise use of soil ameliorates by the selected sample farmers have been presented in Table 3.20. The Table showed that among the different items of soil ameliorates, only 1,150 kgs. of lime were used by the sample farmers, out of which 350 kgs. (30.43 per cent) were purchased from nearby retail shops and the rest of 800 kgs. (69.57 per cent) of lime were supplied by the Government to the sample farmers freely.

Table - 3.20
Use of soil ameliorates by the selected samples

(Quantity in Kg.)

Sl. No.	Category of the Farmers	Gypsum	Pyrite	Lime	Zinc	Source	
						Retail Shops	Other Free Govt supply
1	Marginal	-	-	280	-	80	200
2	Small	-	-	480	-	130	350
3	Semi Medium	-	-	270	-	70	200
4	Medium	-	-	120	-	70	50
5	Large	-	-	-	-	-	-
6	Total	-	-	1150		350	800
	Percentages to total	-	-	**100.00**		**30.43**	**69.57**

Application of plant nutrients on the soil depends upon the nutrients available on the soil. Soil testing is inevitable for judicious and rational application of plant nutrients on the soil for enhancing crop productivity. It was observed that there was soil testing facility

at the initial stage. Hence, only 3 farmers (5 per cent) were found to test their soil in their own initiative.

Table -3.21
Number of selected sample farmers who got their soil tested

Sl. No.	Category of the Farmers	No. of HH	Department of Agriculture	Self	Other
1	Marginal	16	0	0	0
2	Small	29	0	0	0
3	Semi Medium	9	0	2	0
4	Medium	6	0	1	0
5	Large	0	-	-	-
6	Total	60	0	3	0
	Percentages to total		-	**5.00**	-

Table 3.22 indicated the reasons for not testing their soil. The Table showed that 55 (91.67 per cent) sample farmers did not test their soil as the soil testing services were

Table -3.22
Reasons forwarded by the sample farmers for not testing their soil

Sl. No.	Category of the Farmers	No. of HH	Not interested	Not known	Not Easily Available	Other
1	Marginal	16	2	0	14	0
2	Small	29	3	0	26	0
3	Semi Medium	9	0	0	9	0
4	Medium	6	0	0	6	0
5	Large	0	-	-	-	-
6	Total	60	5	0	55	0
	Percentages to total		**8.33**	**0.00**	**91.67**	**0.00**

not easily available, while only 5 (8.33 per cent) sample farmers opined that they were not interested with the services of soil testing. As per official records, State had 11 soil testing laboratories up to 2006-07, out of which 2 of them are in private sector. This shows that soil testing services in the State were not uniform in every district for soil testing.

Changes in area, production, productivity and seed rates of rice

Examination of changes in area, production, productivity and seed rates of rice are important to study the effects of the farmers in before and after implementation of the schemes. Changes in area, production, productivity and seed rates of rice as observed by the sample farmers were shown in Table 3.23. The Table showed that after implementation of the scheme the total area under rice cultivation was slightly decreased by 5.15 hectares due to some obvious reasons like extenuation of homestead, erosion by floods etc. However, the productivity of rice was slightly increased by 412 kgs. per hectare after implementation the scheme.

Table 3.23 also showed that before implementation of the scheme per hectare seed rate was 66.84 kgs., while after implementation of the scheme, it was came down to 55.09 kgs. This showed that per hectare seed rate had reduced by 11.75 kgs. after implementation of the scheme. This might be the impact of the HYV/Hybrid Rice Demonstration Technology under ICDP Rice.

Farmers' response towards the best variety of rice was presented in the Table 3.24. The Table revealed that opinion of the sample farmers towards the best varieties of rice were Ranjit (60.00 per cent), Masuri (46.67 per cent), Luit (45.00 per cent), Jaya (36.67 per cent) and IR – 36 (20.00 per cent). They reported that the productivities of these varieties were satisfactory. It was also reported that the post harvest prices in the market were also remunerative.

Table -3.23

Changes in area, production, productivity and seed rates as observed by the sample farmers.

Sl. No.	Category of the Farmers	Area (Ha.)		Production (Qtls.)		Yield (Kg/Ha.)		Seed Rate (Kg/Ha.)		Source of Seed	
		Before	After	Before	After	Before	After	Before	After	Before	After
1	Marginal	12.10	12.56	457.41	519.45	3,780	4,136	63.77	54.38	-	-
2	Small	55.73	55.98	2,281.23	2,495.09	4,093	4,457	66.88	55.29	-	-
3	Semi Medium	33.40	32.04	1,314.97	1,401.40	3,937	4,374	67.39	55.01	-	-
4	Medium	45.73	41.23	1,684.82	1,706.28	3,684	4,138	67.2	55.11	-	-
5	Large	0.00	-	-	-	-	-	-	-	-	-
6	Over all	146.96	141.81	5,738.43	6,122.22	3,905	4,317	66.84	55.09	-	-

Table -3.24

Farmer's responses towards the best varieties of rice

Sl. No.	Category of the Farmers	No. of HH	Variety 1 (Ranjit)	Variety 2 (Masuri)	Variety 3 (Jaya)	Variety 4 (IR-36)	Variety 5 (Lui)	Reason for the choice
1	Marginal	16	8	8	7	-	9	Productivity, Quality, Post harvest price etc.
2	Small	29	18	12	10	7	12	Productivity, Quality, Post harvest price etc.
3	Semi Medium	9	7	5	3	3	3	Productivity, Quality, Post harvest price etc.
4	Medium	6	3	3	2	2	3	Productivity, Quality, Post harvest price etc.
5	Large	0	-	-	-	-	-	Productivity, Quality, Post harvest price etc.
6	Total	60	36	28	22	12	27	Productivity, Quality, Post harvest price etc.
	Percentage		60.00	46.67	36.67	20.00	45.00	

Summing-up

The ICDP for rice was launched in Assam during 2000 – 01 under MMMA. The analysis of financial achievements was found satisfactory as cent per cent financial achievements were made by the implementing agencies. The results of the study under review marginally benefited the sample farmers as the scheme provided higher net return of Rs. 728.00 per hectare in comparison to the net return obtained before implementation of the scheme. Similarly, the seed rates of rice were found to be reduced by 11.75 kgs. per hectare due to implementation of the scheme over the seed rate before implementation of the scheme. It was found during the field investigation that the farmers were generally unable to reap the benefits of the scheme due to late supply of seed. It was also observed that some insect damaged a significant portion of rice production of the sample farmers due to non availability of inputs required for crop protection under IPM. Therefore, the sample farmers suggested that seed should be provided to the farmers well before the sowing season. It was also suggested by the farmers that all the essential inputs required for crop protection under the IPM should be made available to the farmers at easy reach. The farmers opined that different provisions under the scheme were not adequate especially IPM demonstration. Moreover, it was also suggested that subsidy under all components of the scheme must be given due weightage.

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CHAPTER – IV

Special Jute Development Programme

Introduction

Jute is one of the important commercial crops in India. Jute occupies about 0.8 million hectares of land and produces about 6.80 million bales annually in mainly from the eastern and north eastern states of India. Jute is a traditional fiber crop from which fiber is extracted and is used to produce textiles, ropes, twines, threads and more recently, a range of paper products. The crop needs a warm and humid climatic condition. Jute cultivation in country's economy plays a significant role of which more than four million farm families are involved in jute cultivation and majority of them belong to marginal and small categories.

Jute is also a major fiber crop in Assam which occupies a significant role in economy of the State. The climatic condition of the State is suitable for growing of jute in Assam. The State produced 101 thousand metric tones of jute out of an area of 58 thousand hectares during 2006-07 and 140 thousand metric tones out of an area of 76 thousand hectares during 2007-08 respectively. Out of 27 districts of Assam, Dhuburi district has the highest area (16,150 hectares) under jute, but Nagaon district has been reached first place in case of production (24,872 metric tones) and productivity (2,605 kg/ha) during 2007-08. Considering the production and productivity of the district, the Special Jute Development Programme (SJDP) was implemented in a few jute growing Blocks of the sample district. In present study an attempt has been made to evaluate the impact of Special Jute Development Programme under MMMA scheme. For this purpose a total of 60 sample jute farmers were selected as per methodology of the study in Nagaon district of Assam.

Financial targets and achievements

Scheme wise financial targets and achievements of Special Jute Development Programme have been shown in the Table 4.1. It was observed that the aggregate achievements were found satisfactory as different schemes were fully implemented by the implementing agencies.

Table-4.1
Financial target and achievement of special jute development programme under MMMA in Assam

Sl. No.	Schemes	2002-03		2003-04		2004-05		2005-06		2006-07	
		T	A	T	A	T	A	T	A	T	A
	Special Jute Development Programme										
1	Construction of Pucca Retting Tank (Cost Limited to Rs.20,000/- per tank)	-	-	-	-	√	√	-	-	√	√
2	Distribution of Jute Minikit 2 kg/kit	-	-	-	-	√	√	-	-	√	√
3	Distribution of Fungal Culture @ Rs.12/- per Packet	-	-	-	-	√	√	-	-	√	√
4	Farmers Training (one day) 30 farmers in each batch	-	-	-	-	√	√	-	-	√	√
5	Distribution of Hand Spryer @ Rs.700/- Subsidy (nos)	-	-	-	-	-	-	-	-	√	√
6	Office Expenses including Transportation	-	-	-	-	√	√	-	-	√	√
7	**Total amount** (in Lakh)	-	-	-	-	25.85	25.85	-	-	19.00	18.996

Note: 1. **T** - Target **A** - Achievements.
2. '√' -Indicates target and achievements in the particular scheme.

Social aspects of the sample farmers

The study was undertaken in Nagaon district of Assam and it covered 60 sample farmers under SJDP. The caste profiles of population of the selected sample according to farm size groups have been presented in Table - 4.2. The sample farmers

Table 4.2
Socio - Economic profile of the sample Jute farmers.

Sl. no.	Particulars	Marginal	Small	Semi-Medium	Medium	Large	Total
	No. of H.H.--->	14	24	15	7	-	60
1	SC	14.29	12.50	13.33	71.43	-	20.00
2	ST	0.00	0.00	0.00	0.00	-	0.00
3	OBC	21.43	29.17	26.67	28.57	-	26.67
4	General	64.29	58.33	60.00	0.00	-	53.33
5	Avg. family Size	6.14	5.87	6.13	6.57	-	6.08

Note: Figures indicates in percentage

mostly belonged to General Category and majority of them were Muslim by religion. Table 4.2 showed that out of total sample farmers 53.33 per cent were General Caste, followed by 26.67 per cent OBC and 20.00 per cent Scheduled Caste (SC) population. The average family size was 6.08 persons which were higher than that of the State average of 5.42 persons as per 2001 Census.

Demographic profile

Table 4.3 showed the demographic profile of the sample farmers by age and farm size category. The total populations of the sample households were 365 persons, of which 195 (53.42 per cent) persons were males and 170 (46.58 per cent) persons were females in aggregate (Table 4.3). It was found from the Table that out of total population, 35.07 per cent of population were lesser than 18 years of age, 58.36 per cent were in between 18 – 60 years of age and only 6.58 per cent were over 60 years of age.

Educational status

Educational attainment of population has a great significance in the context of adoption of new farm technology like new varieties of crops, appropriate uses of fertilizers and pesticides etc. which are most essential for development of agriculture. The educational status of the population of the sample farmers was classified according to age-groups (Table 4.4). The Table indicated that 71.24 per cent of population were literate and was marginally higher than that of the State average of 64.28 per cent as per 2001 census. The Table showed that there were 58.36 per cent population with primary education and read up to class- X, 8.49 per cent HSLC passed, 2.47 per cent PU/HS passed and 1.92 per cent was Degree holders covering of both males and females in the sample. It was also observed that although the average educational status was found satisfactory but the higher educational attainment was not at all satisfactory. Sex wise distribution of educational status of the population indicated that women (46.58 per cent) in general were lagging behind their male counterparts.

Table- 4.3

Demographic profile of the sample jute farmers by farm size category.

Category of Farmer	No. of HH	Lesser than 18 Years			18 - 60 Years			Greater than 60 Years			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Marginal	14	17	14	31	26	23	49	4	2	6	47	39	86
Percentage											**12.88**	**10.68**	**23.56**
Small	24	28	22	50	43	41	84	5	2	7	76	65	141
Percentage											**20.82**	**17.81**	**38.63**
Semi Medium	15	15	17	32	27	26	53	5	2	7	47	45	92
Percentage											**12.88**	**12.33**	**25.21**
Medium	7	7	8	15	15	12	27	3	1	4	25	21	46
Percentage											**6.85**	**5.75**	**12.60**
Large	-	-	-	-	-	-	-	-	-	-	-	-	-
Percentage											-	-	-
Total	60	67	61	128	111	102	213	17	7	24	195	170	365
Percentage		**18.36**	**16.71**	**35.07**	**30.41**	**27.95**	**58.36**	**4.66**	**1.92**	**6.58**	**53.42**	**46.58**	**100.00**

Table- 4.4

Distribution of population according to the educational status of the jute beneficiary sample household by sex.

Sl. No.	Particulars	Lesser than 18 Years			18 - 60 Years			Greater than 60 Years			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
1	Primery Edu.upto class X	34	37	71	69	65	134	6	2	8	109	104	213
	Percentage												**58.36**
2	HSLC holders	12	7	19	8	4	12	0	0	0	20	11	31
	Percentage												**8.49**
3	PU/ H.S. Holders	0	0	0	6	3	9	0	0	0	6	3	9
	Percentage												**2.47**
4	Degree holders	0	0	0	5	2	7	0	0	0	5	2	7
	Percentage												**1.92**
5	Diploma holders/ITI	0	0	0	0	0	0	0	0	0	0	0	0
	Percentage												**0.00**
6	P.G.holders	0	0	0	0	0	0	0	0	0	0	0	0
	Percentage												**0.00**
7	Illiterate	2	2	4	23	28	51	11	5	16	36	35	71
	Percentage												**19.45**
8	Below 5 Years	19	15	34	0	0	0	0	0	0	19	15	34
	Percentage												**9.32**
9	Total	67	61	128	111	102	213	17	7	24	195	170	365
	Percentage	**18.36**	**16.71**	**35.07**	**30.41**	**27.95**	**58.36**	**4.66**	**1.92**	**6.58**	**53.42**	**46.58**	**100.00**

Economic status

Table 4.5 indicates the occupations of the sample farmers by farm size groups. The occupations were classified as cultivator, agricultural labours, animal husbandry, business, salaried job and horticulture. It was found that out of total working population, 163 (76.53 per cent) populations were cultivators. Moreover, there were 8.45 per cent agricultural labours, 1.88 per cent engaged in animal husbandry, 7.98 per cent engaged in business and only 5.16 per cent worked as salaried job.

Table 4.5
Occupation of the sample jute farmers by farmer's category.

Sl. No.	Particulars	Marginal	Small	Semi-Medium	Medium	Large	Total	Percentage
	No. of H.H. --->	14	24	15	7	0	60	
1	Agri./ Cultivator	35	69	38	21	0	163	76.53
2	Agri. Labour	14	4	0	0	0	18	8.45
3	Animal Husbandry	0	1	2	1	0	4	1.88
4	Business	0	6	8	3	0	17	7.98
5	Salaried Job	0	4	5	2	0	11	5.16
6	Horticulture	0	0	0	0	0	0	0
7	Total	49	84	53	27	0	213	100.00

Land resources

The economy of Assam is predominantly an agrarian economy. About 99 per cent area of total land mass of the State is rural area of which almost 50 per cent of the total land are used for cultivation. Therefore, land is the main natural resource which determines the economic condition of the farm families and provided employment opportunity to the family members. Thus, it is most essential to study the land holdings and land use pattern in the context of generation of employment as well as family income. Table 4.6 showed the land use pattern of the sample farmers according to the ownership holdings.

Table 4.6 revealed that overall 129.51 hectares of land were owned by the sample farmers. Out of the total area, 121.80 (94.05 per cent) hectares were cultivable land, 3.08 (2.38 per cent) hectares were under homestead, 3.91 (3.02 per cent) hectares

covered by garden land and the rest of 0.72 (0.56 per cent) hectares of land were cultivable waste. It was also observed that out of the total sample farmers 23.33 per cent were marginal farmers, 40.00 per cent were small farmers, 25.00 per cent were semi medium farmers and only 11.67 per cent were medium farmers. Large farmers were not found during the field investigation.

Table-4.6
Distribution of land ownership of the sample jute growers according to farm size group.

(Area in ha.)

Sl. No.	Farm Size Groups	No of H.H.	Land Ownership Particulars				
			Cultivable	Homestead	Garden Land	Cultivable Waste	Total
1	Marginal	14	8.30	0.56	0.00	0.00	8.86
2	Small	24	32.40	1.20	0.70	0.27	34.57
3	Semi Medium	15	46.80	0.90	1.95	0.00	49.65
4	Medium	7	34.30	0.42	1.26	0.45	36.43
5	Large	0	-	-	-	-	-
6	Total	60	121.80	3.08	3.91	0.72	129.51
			(94.05)	**(2.38)**	**(3.02)**	**(0.56)**	**(100.00)**

Note: Figures in the parentheses indicate percentage to the total.

The operational holding is the main factor of economic condition of farm families as it determines the overall economic condition of the families. So, the distribution of operational holdings of the sample families was worked out according to farm size groups (Table - 4.7).

Table 4.7 showed that in overall 124.75 hectares of land were operational holdings of the sample farmers, out of which 117.10 (93.87 per cent) hectares of land were owned land, 4.50 (3.61 per cent) hectares were leased-in land and 3.15 (2.53 per cent) hectares of land were taken on mortgage by the sample farmers. Out of the total operated area 61.45 (49.26 per cent) hectares were irrigated land and the rest of 63.30 (50.74 per cent) hectares were un-irrigated land.

The average size of operational holdings varied from 0.77 hectares in marginal farmers to 4.90 hectares in medium farmers. In overall, average size of operational

Table- 4.7

Distribution of operational holdings of the sample jute growers.

(Area in ha.)

Sl. No.	Farm Size Groups	No. of H.H.	Own Land under Personal Cultivation			Leased in Land			Leased out Land			Mortgaged in Land			Mortgaged out Land			Total Operational Holding			Average size of Holding
			IR	UR	T	IR	UR	T	IR	UR	T	IR	UR	T	IR	UR	T	IR	UR	T	
1	Marginal	14	2.80	5.50	8.30	0.50	2.00	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.30 (30.56)	7.50 (69.44)	10.80 (100.00)	**0.77**
2	Small	24	15.20	17.20	32.40	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.20 (44.19)	19.20 (55.81)	34.40 (100.00)	**1.43**
3	Semi Medium	15	20.50	24.10	44.60	0.00	0.00	0.00	0.00	1.00	1.00	0.65	0.00	0.65	0.00	1.20	1.20	21.15 (46.74)	24.10 (53.26)	45.25 (100.00)	**3.02**
4	Medium	7	20.60	11.20	31.80	0.00	0.00	0.00	1.00	1.50	2.50	1.20	1.30	2.50	0.00	0.00	0.00	21.80 (63.56)	12.50 (36.44)	34.30 (100.00)	**4.90**
5	Large	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- -	- -	- -	- -
6	Total	60	59.10 (47.37)	58.00 (46.49)	117.10 (93.87)	0.50 (0.40)	4.00 (3.21)	4.50 (3.61)	1.00	2.50	3.50	1.85 (1.48)	1.30 (1.04)	3.15 (2.53)	0.00	1.20	1.20	61.45 (49.26)	63.30 (50.74)	124.75 (100.00)	**2.08**

Note: Figures in the parentheses indicate percentage to the total.
IR= Irrigated, UR= Unirrigated

holding was found at 2.08 hectares which was higher than that of State average of 1.15 hectares in 2001 Census.

Area, production and productivity of jute

Area under cultivation of jute crop was 22.10 hectares which constituted only 17.71 per cent to the total operational holding (124.75 hectares). Rice was the principal crop for the sample farmers. So, major portion of operational holdings were allocated for rice crop cultivation.

Table 4.8 showed that in the sample only 22.10 hectares were utilized for jute crop cultivation by 60 sample farmers. Per household average size of land under jute crop cultivation in the sample was not encouraging. The average size of land varied from 0.17 hectare for the marginal farmers to 0.92 hectare in the medium size group with an average

Table 4.8

Area, production and productivity of jute in the selected sample farmers

Sl. No.	Farmer Size Groups	No. of H.H.	Area (in Hectares)	Production (in Quintals)	Productivity (in Kg / ha.)
1	Marginal	14	2.50 (0.17)	63.40	2,536
2	Small	24	6.36 (0.26)	164.70	2,590
3	Semi Medium	15	6.79 (0.45)	177.80	2,619
4	Medium	7	6.45 (0.92)	166.50	2,581
5	Large	0	-	-	-
6	Total	60	22.10 (0.36)	572.40	2,590

Note: Figures in parentheses indicate the average cultivated area of jute per household.

of 0.36 hectare. This may be because of the fact that some of the sample jute farmers have converted a portion of their jute land into rice land owing to comparative advantages. They reported during field investigation that rice was comparatively more profitable than jute. Another distressing point of discarding jute cultivation was that, jute prices were

fluctuating abnormally in some years and for marketing the growers had to depend almost entirely on the mercy of the private traders. It was also reported that the volume of trade by the Jute Corporation of India (JCI) was very nominal.

Table 4.8 indicates the production and productivity of jute according to the farm size groups. Per hectare average productivity of jute varied from 2,536 kg. in the marginal group to 2,619 kg against the semi-medium group. The average productivity for the sample was found at 2,590 kg/ha. Its productivity in semi-medium farmers was at higher than that of the medium farmers. The semi-medium farmers showed the highest productivity because of application of more inputs and better cultural operation.

Sources of seed and seed rate of jute

The production and productivity of a certain crop depends upon the variety of seed used in cultivation and judicious use of inputs. Proper attention has also been paid by the Union Government during the plan periods in timely supply of adequate quantities of quality seeds to the farmers. Both the Union and State Governments have set up some Agencies for supplying agricultural inputs to the farmers. However, these Agencies were failed to supply adequate quantity of quality seed in time and place to the farmers in Assam. So, most of the farmers had to depend either on retail shop or open market for their seeds.

The sources of seed and seed rates of jute were shown in the Table - 4.9 for the sample farmers. Table showed that out of total requirement of jute seed, 120 kgs. (41.52 per cent) of seed were purchased from the Seed Corporation in subsidy by the 60 sample farmers and a major portion of jute seed i.e. 169 kgs. (58.48 per cent) were purchased from retail shop by the sample farmers.

Source wise seed rates of jute for the sample farmers were also shown in the Table - 4.9. Table indicated that average seed rates of jute were 12.26 kg/ha. for the seed farm of Seed Corporation and 14.82 kg/ha from retail shop and the average seed rate was found at 13.08 kg/ha. This showed that source wise seed rates of jute were lowest for seed farm of Seed Corporation and the highest from retail shop.

Table- 4.9

Sources of seed and seed rate of jute of the sample farmers

(Quantity in kgs.)

Sl. No.	Farm size groups	No. of H.H.	Seed corpo -ration	Seed Rate (kg/ha)	Open Market	Seed Rate (kg/ha)	Domestic	Seed Rate (kg/ha)	Agri. Depart -ment	Seed Rate (kg/ha)	Retail Shop	Seed Rate (kg/ha)	Total	Seed Rate (kg/ha)
1	Marginal	14	28	11.20	-	-	-	-	-	-	0	-	28	11.20
2	Small	24	48	11.27	-	-	-	-	-	-	31	14.76	79	12.42
3	Semi Medium	15	30	11.19	-	-	-	-	-	-	61	14.84	91	13.40
4	Medium	7	14	11.20	-	-	-	-	-	-	77	14.81	91	14.11
5	Large	0	-	-	-	-	-	-	-	-	-	-	-	-
6	Total	60	120	12.26	-	-	-	-	-	-	169	14.82	289	13.08
			(41.52)								(58.48)		(100.00)	

Note: Figures within brackets indicates percentages to total

Use of fertilizers

Table 4.10 reveals the use of fertilizers by the sample jute farmers. The sample farmers generally used Urea and SSP as soil nutrients in jute crop cultivation. The Table showed that the consumptions of fertilizers were 755.00 kg. in 2005-06, 680.00 kg. in 2006-07 and 820.00 kg. in 2007-08 by the sample jute farmers. Per hectare average consumption of fertilizers for the reference years was 34.09 kg/ha in 2005-06, 32.69 kg/ha in 2006-07 and 37.10 kg/ha in 2007-08. This showed that per hectare consumption of fertilizers was not encouraging. It was observed during the field investigation that most of the sample farmers used cow dung as a major soil nutrients in jute area.

Comparative analysis of income, expenditure and net return

An attempt had been made for a comparative analysis before and after implementation of SJDP scheme in jute crop cultivation in the sample. The agricultural operation, adoption of technology, crop variety, quantum and types of inputs used determine the cost and return from any type of crop cultivation. The parameters used in determining the costs involved in jute crop cultivation were based on reports of the respondents. In estimating the cost of cultivation in jute the value of output of jute crop was taken at post harvest prices. The analysis was made at the aggregate level for all farms. Details of income, expenditures and net returns thereof for all farms had been worked out and presented in Table 4.11.

The cost accounting method was used to estimate the cost of cultivation of jute crop. The items of the cost of cultivation were taken both variable costs and the fixed costs. The items under variable cost were hired human labour, expenses on material inputs such as seeds, fertilizers, pesticides, farm yard manure (FYM) (owned or purchased), hired bullocks/machine labour etc. The imputed value of family labour was taken at Rs. 80/- per day per worker which was the prevailing wage rate in the study area. The imputed values on organic manure and seed were worked out on the basis of rates prevailing in the study area.

Table- 4.10

Use of fertilizers by the sample jute farmers

(Quantity in Kgs.)

Sl. No.	Category of the farmers	No.of H.H.	2005-06					2006-07					2007-08				
			Urea	SSP	MOP	DAP	Total	Urea	SSP	MOP	DAP	Total	Urea	SSP	MOP	DAP	Total
1	Marginal	14	60.00	20.00	0.00	0.00	80.00	50.00	15.00	0.00	0.00	65.00	60.00	20.00	0.00	0.00	80.00
2	Small	24	160.00	40.00	0.00	0.00	200.00	150.00	50.00	0.00	0.00	200.00	190.00	50.00	0.00	0.00	240.00
3	Semi Medium	15	180.00	45.00	0.00	0.00	225.00	160.00	65.00	0.00	0.00	225.00	200.00	60.00	0.00	0.00	260.00
4	Medium	7	200.00	50.00	0.00	0.00	250.00	150.00	40.00	0.00	0.00	190.00	200.00	40.00	0.00	0.00	240.00
5	Large	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	Total	60	600.00	155.00	0.00	0.00	755.00	510.00	170.00	0.00	0.00	680.00	650.00	170.00	0.00	0.00	820.00
7	**Per Ha.**	-	-	-	-	-	**34.09**	-	-	-	-	**32.69**	-	-	-	-	**37.10**

Table- 4.11

Income, expenditure and net return of the sample jute farmers

(in Rupees)

Sl. No.	Category of the farmers	No. of H.H.	Total Income		Total Expenditure		Net returns		Per hectare net profit (in after)
			Before	After	Before	After	Before	After	
1	Marginal	14	72,713	77,205	64,843	67,917	7,879	9,288	-
	Per Ha.		29,085	30,882	25,934	27,117	3,151	3,765	614
2	Small	24	194,975	200,407	174,714	176,915	20,261	23,491	-
	Per Ha.		29,542	31,510	26,472	27,817	3,070	3,694	624
3	Semi Medium	15	197,190	216,246	178,453	194,421	18,737	21,824	-
	Per Ha.		28,999	31,848	26,243	28,633	2,755	3,214	459
4	Medium	7	138,235	202,380	127,569	186,433	10,666	15,947	-
	Per Ha.		28,211	31,377	26,035	28,904	2,177	2,472	296
5	Large	0	-	-	-	-	-	-	-
	Per Ha.		-	-	-	-	-	-	-
6	Over all	60	603,113	696,237	545,570	625,686	57,542	70,551	-
	Per Ha.		28,996	31,504	26,229	28,312	2,766	3,192	426

Note: Estimation of Cost of cultivation has been done at C3* and detail costing structures are given in APPENDIX –V & VI.

The items under fixed cost were (i) depreciation on tools and implements and livestock - @ 10% (ii) land revenue – as fixed by the land legislation of the State (iii) interest on fixed capital @ 4% (v) rental value of land @ 25% of total income and (v) 2% on total costs was charged as managerial expenses.

Table 4.11 showed that overall per hectare incomes was Rs. 28,996/- and expenditures was Rs. 26,229 /- with a net return of Rs. 2776/- before implementation of the scheme On the other hand, Rs. 31,504/-, Rs. 28,312/- and Rs. 3,192/- were found as per hectare income, expenditure and net return respectively in overall after implementation of the scheme.

From the Table 4.11, it was also observed that per hectare net profit was lowest in medium farms (Rs. 296/-) while it was highest in small farms (Rs. 624/-) and the overall net return was found at Rs. 426/-.

The analysis showed that after implementation of the SJDP scheme the sample farmers were marginally benefited in respect of income.

Demonstrations, training, organizations etc. under SJDP

Participation in the demonstrations by the sample jute farmers has been presented in the Table 4.12. The Table showed that all the sample farmers including of

Table- 4.12

Participation of the sampled jute farmers in the demonstrations programme

Sl. No.	Demonstrations	Marginal	Small	Semi-Medium	Medium	Large	Total
	Total No.of H.H.--->	**14**	**24**	**15**	**7**	**0**	**60**
1	Technology Demonstration	14	24	15	7	0	60
	Percentage						**(100.00)**
2	Production Technology	6	12	13	6	0	37
	Percentage						**(61.67)**

Note: The number of days for each Demonstration
(a) Technology Demonstration 1 Day
(b) Production Technology 1 Day.

marginal, small, semi-medium and medium farmers attended in technology demonstrations under SJDP. In case of Production Technology demonstrations, 61.67 per cent of the sample farmers attended it. This showed that a significant portion of sample farmers did not attend the demonstration of Production Technology under SJDP scheme.

For jute crop cultivation Integrated Pest Management (IPM) demonstrations were held for 2 days only during 2007-08. In these demonstrations, out of the total sample farmers 56 farmers (93.33 per cent) attended the demonstrations (Table 4.13).

Table- 4.13

Participation of selected sample in the integrated pest management demonstration (IPM)

Sl. No.	Category of farmers	No. of H.H.	Crop	Year	No. of Farmers Attended	No. of Days Held
1	Marginal	14	Jute	2007	13	2
2	Small	24	Jute	2007	22	2
3	Semi Medium	15	Jute	2007	14	2
4	Medium	7	Jute	2007	7	2
5	Large	-	Jute	2007	-	-
6	Total	60	Jute	2007	56	2
	Percentage				**(93.33)**	

Table- 4.14

Different training programmes attended by the sample jute farmers

Sl. No.	Category of the farmers	No. of H.H.	Training - 1 on Production Technology	Training - 2 On IPM Farmer's Awareness	Training - 3	Training - 4
1	Marginal	14	6	13	-	-
2	Small	24	12	22	-	-
3	Semi Medium	15	13	14	-	-
4	Medium	7	6	7	-	-
5	Large	-	-	-	-	-
6	Total	60	37	56	-	-
	Percentage		**(61.67)**	**(93.33)**	-	-

Different training programmes attended by the sample farmers had been shown in Table 4.14. The Table showed that out of total sample farmers, 37 (61.67 per cent) farmers attended in the training on crop production technology and 56 (93.33 per cent) farmers attended in the training on IPM farmer's awareness programme.

Table 4.15 indicated the reasons provided by the farmers for not attending all the demonstrations. The study covered 60 sample jute farmers of which 23 sample farmers did not attend all the demonstrations. The farmers who did not attend all the demonstrations, some of them reported that they were engaged with pre occupation and some of them reported loss of wage etc.

Table 4.15
Reasons provided by the farmers for not attending all the demonstrations

Sl. No.	Category of the farmers	No. of H.H.	No. of Farmers Not Attending all the Demonstration	Not interested	Not known	Other
1	Marginal	14	8	0	0	8
2	Small	24	12	0	0	12
3	Semi Medium	15	2	0	0	2
4	Medium	7	1	0	0	1
5	Large	-	-	0	0	0
6	Total	60	23	0 (0.00)	0 (0.00)	23 (100.00)

Note: 1.Other column includes the loss of wage, preoccupied with other works etc.
2. Figures within brackets indicate percentage to the no. of farmers not attending all the Demonstration

As reported by the officials of District Agriculture Office (DAO) as well as the sample farmers, all demonstration programmes were organized by the DAO for the sample farmers (Table 4.16). It was also reported that total costs were borne by the organizer (DAO) for the sample farmers in attending different demonstrations (Table 4.17).

Table- 4.16

Organizations involved in the demonstrations (percentages)

Sl. No.	Authorities	Marginal	Small	Semi - Medium	Medium	Large	Total
1	Gram Panchayath	0.00	0.00	0.00	0.00	-	0.00
2	District ADO	100.00	100.00	100.00	100.00	-	100.00
3	State Agricultural Officers	0.00	0.00	0.00	0.00	-	0.00
4	ICAR	0.00	0.00	0.00	0.00	-	0.00
5	Others	0.00	0.00	0.00	0.00	-	0.00

Note: 1. ADO = Agriculture Development Officer
2. ICAR= Indian Council of Agricultural Research

Table- 4.17

Cost involved for sample jute farmers in attending the demonstrations

(In percentages)

Sl. No.	Category of the farmers	No. of H.H.	Organizers	Self Finance	Others
1	Marginal	14	100.00	-	-
2	Small	24	100.00	-	-
3	Semi Medium	15	100.00	-	-
4	Medium	7	100.00	-	-
5	Large	-	-	-	-
6	Total	60	100.00	-	-

Nature of problems faced in attending demonstrations

The sample jute growers pointed out a number of problems that they encountered in attending the demonstrations of jute cultivation. It was observed during the field investigation that different demonstration programmes were organized in the different training centre in the jurisdiction of Community Development Blocks. However, the sample farmers living in the remote villages in the riverside areas of Brahmaputra River

where did not have all weather road and communication facilities. The opinion on difficulties faced in attending the demonstrations by the sample farmers were presented in Table 4.18. Table showed that out of the total, 48.33 per cent of farmers opined that it was too far from the village to the demonstrations point and 30.00 per cent of farmers opined no transport facility like public bus, taxi, etc. So, they had to travel a long way on bicycle to attend the demonstrations. Another, 45.00 per cent of farmers reported that cost involved with other agricultural works was one of the important problems to them.

Moreover, almost all the sample farmers expressed some general problems in selling their jute. They reported that fluctuation of jute price has been mainly in negative

Table- 4.18
Difficulties faced in attending the demonstrations by the sample jute farmers.

Sl. No.	Category of the farmers	No. of H.H.	Too far	Costs other Agril. Works	No Transport	Other
1	Marginal	14	6	5	8	9
2	Small	24	11	10	7	14
3	Semi Medium	15	9	8	3	10
4	Medium	7	3	4	0	5
5	Large	-	-	-	-	-
6	Total	60	29	27	18	38
	Percentage		**48.33**	**45.00**	**30.00**	**63.33**

Note: Other column includes some general problems like transportation, marketing , price etc.

side in jute cultivation. It was also reported by the sample farmers that there was no jute processing unit in the district. Thus, they became half-hearted in jute cultivation and was the major reason of declining jute area in the State.

The sample jute growers pointed out a number of constraints encountered in jute marketing. The important constraints were offering of low price by the village ferials, frequent fluctuations in price of the jute and exploitative role of middlemen discouraged the farmers for jute cultivation.

Suggestions

Considering the problems faced by the sample farmers the following suggestions were offered by the farmers for better effectiveness of the demonstrations under of the scheme. The opinions on suggestions were presented in Table 4.19.

(1) Lack of good road communication and transport facilities in the village centers were the major bottleneck in attending the demonstrations by the sample farmers as well as transportation of jute to the markets. So, 45.00 per cent of sample farmers suggested that all weather road connections to the agriculturally advanced area may be made to encourage the producer to produce more (Table 4.19).

(2) Supply of inputs within easy reach of the farmers is necessary. So, 53.33 per cent of sample farmers expressed their views on inputs like certified jute seed, fertilizers, plan protection chemicals etc. should be made available at the farmers door step (Table 4.19).

(3) The Government may establish more number of Jute Mills in Assam. This will solve the marketing problem of the farmers to a great extent. It will also generate employment and income to the needy educated youths of the State. Therefore, 71.67 per cent of sample farmers opined to establish more number of Jute Mills and processing units in the State (Table 4.19).

(4) A significant portion of sample farmers (78.33 per cent) suggested announcing the MSP on jute before sowing season. This may help the jute growers to increase or decrease their areas under crop without incurring loss (Table 4.19).

(5) The JCI should continue its effort in the field of marketing of jute which was suggested by 60.00 per cent of sample farmers. With a view to checking private traders in their attempt to exploit the growers with lower price. Only thing is that the regional officers of JCI may be given some liberty to go beyond MSP when the situations demand. They should also be provided with sufficient fund well ahead of time to procure jute and this will facilitate them to operate in the market right from the beginning of season (Table 4.19).

Table - 4.19

Suggestion given by the sample jute farmers for the effectiveness of the demonstration and training

Category of the farmers -->	Marginal	Small	Semi - Medium	Medium	Large	Total	Percentage to total
No. of House Holds -->	14	24	15	7	0	60	
Suggestion -1 - Development of infrastructure.	5	10	8	4	-	27	**45.00**
Suggestion - 2 -Supply of inputs timely and easy reach	8	15	6	3	-	32	**53.33**
Suggestion -3 -Establishment of more numbers of Jute Mills and processing unit.	8	18	10	7	-	43	**71.67**
Suggestion -4 - Announcement of MSP on jute before sowing season.	10	16	15	6	-	47	**78.33**
Suggestion -5 - JCI should continue in the field of marketing of jute vigorously.	7	12	11	6	-	36	**60.00**

Assistance under the scheme

Scheme wise details of assistance given for the agricultural implements under the scheme were presented in the Table 4.20. During the field investigation, the sample farmers viewed that except Sprayer, no other implements were found from the Agricultural Department under the scheme. The Table showed that out of the total sample farmers, 5.00 per cent of small farmers, 3.33 per cent of semi–medium farmers and 1.67 per cent of medium farmers obtained Sprayer in subsidy under the scheme. In overall, 10.00 per cent of sample farmers were benefited under the scheme. The rate of subsidy was 50 per cent of the total scheme value in case of all categories of farmers.

Sources of obtaining subsidy of the agricultural implements were shown in the Table 4.21. The Table showed that out of the total sample farmers, only 6 (10.00 per cent) sample farmers obtained Sprayer in subsidy from the District Agricultural Office through Agricultural Engineering Branch.

Table 4.20
Assistance given for the agricultural implements under the scheme (percentage)

Implements	Marginal	Small	Semi - Medium	Medium	Large	Total
Total No.of H.H.--->	**14**	**24**	**15**	**7**	**0**	**60**
Bullock Drawn						
Puddler	-	-	-	-	-	-
Seed cum Fertilizer Drill	-	-	-	-	-	-
Cultivator	-	-	-	-	-	-
Disk/Blade						
Multi purpose tool Bars	-	-	-	-	-	-
Maize Planter	-	-	-	-	-	-
Bund Farmer	-	-	-	-	-	-
Manually Operated						
Paddy Planter	-	-	-	-	-	-
Thresher	-	-	-	-	-	-
Low lift water devices	-	-	-	-	-	-
Maize Shelter	-	-	-	-	-	-
Tractor	-	-	-	-	-	-
Sprayer	-	3 (5.00)	2 (3.33)	1 (1.67)	-	6 (10.00)
Power driven						
Multi crop thresher	-	-	-	-	-	-
Maize Shelter	-	-	-	-	-	-
Power Tiller	-	-	-	-	-	-

Note: Figures within brackets indicate the percentages to total no. of households

Table- 4.21
Sources of obtaing subsidy of the agricultural implements

Sl. No.	Category of the Farmers	No. of H.H.	Panchayath Officers	Local Agri. Officer	Assistant Agri. Officer	District Agri. Officer	Others
1	Marginal	14	-	-	-	-	-
2	Small	24	-	-	-	3	-
3	Semi Medium	15	-	-	-	2	-
4	Medium	7	-	-	-	1	-
5	Large	0	-	-	-	-	-
6	Total	60				6	
	Percentage to total		**0.00**	**0.00**	**0.00**	**10.00**	**0.00**

Soil ameliorates

It was observed that the sample farmers were deprived from the soil testing facility due to lack of soil testing laboratory in the study area and hence the farmers did not use soil ameliorates although it was indispensable for soil structure.

Table 4.22 revealed reasons given by the sample farmers for not getting their soil tested. The reasons were classified as not interested, not known, not easily available etc. The Table showed that out of the total sample farmers, 52 (86.67 per cent) farmers

Table- 4.22
Reasons given by the sample farmers for not getting their soil tested

Sl. No.	Category of the Farmers	No. of HH	Not interested	Not known	Not Easily Available	Other
1	Marginal	14	3	0	11	0
2	Small	24	5	0	19	0
3	Semi Medium	15	0	0	15	0
4	Medium	7	0	0	7	0
5	Large	0	-	-	-	-
6	Total	60	8	0	52	0
	Percentage to total		**13.33**	**0.00**	**86.67**	**0.00**

viewed as not easily available the soil testing services while only 8 (13.33 per cent) farmers opined that they were not interested for the services of soil testing. As per official source, the State has 11 soil testing laboratories up to 2006-07. Of the total laboratories, 2 of them are in private sector. This shows that soil testing services in the State is very limited.

Changes in area, production, productivity and seed rate in jute crop

An attempt has been made for comparison in between before and after implementation of the SJDP scheme in the study area. So, some records like area, production and productivity and seed rate for before and after implementation the SJDP scheme were collected from the sample farmers. Changes in area, production, productivity and seed rate in jute crop as observed by the sample farmers were presented in the Table 4.23. The Table indicated that after implementation of the scheme, the total area under jute

crop cultivation has marginally increased by 1.30 hectares. Similarly, the productivity of jute was also slightly increased by 133.00 kgs. per hectare after implementation of the scheme. This showed that the scheme has marginal impact in jute production of the sample farmers.

Before implementation of the scheme per hectare seed rate was 14.95 kgs. while after implementation of the scheme per hectare seed rate was 13.08 kgs. as indicated in the Table 4.23. This indicated that seed rate was reduced by 1.87 kgs/ha. only after implementation of the scheme in the sample.

Table-4.23

Changes in area, production, productivity and seed rate in jute crop as observed by the sample farmers

Sl. No.	Category of the Farmers	Area (Ha.)		Production (Qtls.)		Yield (Kg/Ha.)		Seed Rate (Kg/Ha.)		Source of Seed	
		Before	After	Before	After	Before	After	Before	After	Before	After
1	Marginal	2.50	2.50	62.25	63.40	2,490	2,536	14.94	11.20	-	-
2	Small	6.60	6.36	162.80	164.70	2,467	2,590	14.85	12.42	-	-
3	Semi Medium	6.80	6.79	167.50	177.80	2,463	2,619	14.98	13.40	-	-
4	Medium	4.90	6.45	118.50	166.50	2,418	2,581	15.05	14.11	-	-
5	Large	0.00	-	-	-	-	-	-	-	-	-
6	Over all	20.80	22.10	511.05	572.40	2,457	2,590	14.95	13.08	-	-

Table 4.24 showed the farmers' response towards the best variety of jute in the sample. The Table revealed that the variety JRO – 524 was the best variety of jute as observed by the sample farmers in the study. They reported that the productivity of this variety was highly satisfactory and the demand of this fiber was also high in the market. It was also reported that the post harvest price of this fibers in the market was also found remunerative.

Table- 4.24
Farmer's responses towards the best variety of jute

Sl. No.	Category of the farmers	No. of HH	Variety 1 (JRO-524)	Variety 2	Variety 3	Reason for the choice
1	Marginal	14	14	0	0	Getting Seed in Subsidized Rate.
2	Small	24	24	0	0	Resistant, Productivity, Quality.
3	Semi Medium	15	15	0	0	Resistant, Productivity, Quality.
4	Medium	7	7	0	0	Resistant, Productivity, Quality.
5	Large	0	-	-	-	Resistant, Productivity, Quality.
6	Total	60	60	0	0	Resistant, Productivity, Quality.
	Percentage to total		**100.00**	**0**	**0**	

Summing-up

The Special Jute Development Programme was launched in Assam during 2000 – 01 under MMMA scheme. The analysis showed that cent per cent financial achievements were observed during the reference year under review. The analysis of production and productivity of jute showed that after implementing the scheme the growth of productivity of jute had marginally increased. The results of the present study marginally benefited the sample farmers as the scheme provided per hectare net return was found to be higher by Rs. 426.00 in comparison to the before implementation of the scheme. Similarly, the seed rate of jute was found to be reduced by 1.87 kgs/ha after implementation of the scheme in comparison to before implementation of the scheme. It was reported by the sample farmers during the field investigation that they generally were not able to reap the benefits of the scheme due to late supply of seed. In addition to this, transportation, marketing, fluctuation of price etc were also the obstacles in obtaining the higher benefit of the scheme. Therefore, the sample farmers offered some remedies that seed should be provided to the farmers well before the sowing season. It was also suggested by the sample farmers that establishment of more jute mills and processing units, announcement of MSP on jute before sowing season will encourage the needy farmers to increase or decrease their areas under crop without incurring loss. The farmers opined that the subsidy under the all components of the scheme must be given due importance for better effectiveness of all demonstrations and training under the scheme.

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CHAPTER - V

Summary and Conclusions

Agriculture is considered as the mainstay of the economy of Assam and plays a vital role in the State's economy. As per 2001 Census, the major portion (89.0 per cent) of the total population is living in the rural areas and more than 70.0 per cent of total populations are getting their livelihood from agriculture sector. Therefore, agriculture occupies a very important place in the economy of the State and forms the major source of occupation of the people of Assam.

Agriculture is the largest unorganized sector, which provides employment and income to the majority of working population in the rural sector. Land resources of Assam are quite a rich. Rainfall and climate are congenial for growing a variety of crops including food crops, cash crops and a host of other horticultural crops. The State has allotted about 71.0 per cent of cultivable land under rice and more than 90 per cent of total land under food grains. Yet, the State is deficit in food front since early 60's due to low productivity of food crops mainly because of low adoption of technology for crop cultivation, shortage of infrastructural and institutional support and for high growth of population. Moreover, poor performance of agricultural sector can be attributed to small holdings, low cropping intensity, low level of adoption of new farm technology, inadequate irrigation facility and consequently low productivity of principal crops below the national average.

Under the Macro Management, the Central Government has been supplementing and complementing the State Governments' efforts through regionally differentiated 'Work Plans' comprising of crop/area/target group and specific interventions, formulated in an inert-active mode implementing a spirit of partnership with States. As a step towards this with effect from 2000-01, 27 Centrally Sponsored Schemes were merged with the umbrella 'Macro Management' leaving the full flexibility to the States to develop and

pursue activities because of their regional priorities. With launching of the Technology Mission on Horticulture for the North-Eastern States, 10 other schemes pertaining to horticulture sector were kept out side of this Macro Management Mode of Agriculture Schemes for this region. In North-Eastern States of India and Assam in particular, about 17 important schemes have been merged under Macro Management.

The pattern of assistance under the scheme is in the ratio of 90:10 for the Centre and the States respectively except in the case of North-eastern States where 100 per cent Central assistance was envisaged. The Central assistance consists of Grant and loan in the ratio of 80:20. Subsidy is available under the scheme on various components including agriculture implements. Training programmes on different crop cultivation were also introduced in the State.

Considering the importance of agriculture in the economy of the State, top most priority was put in all the Five Years Plan by the Government on the supportive services for the development of agriculture sector. Achieving self-sufficiency in production of food grains has been the primary objectives of the Government. The efforts have been directed to make optimum and efficient use of available resources to maximize the sector's contribution to the NSDP. Therefore, much emphasis has been laid on enhancing the production and productivity of the crops including the horticultural crops by harnessing the best in frontier technologies through improved farm mechanization and assured irrigation, use of quality certified seeds of HYV, popularizing the Integrated Nutrient and Pest Management with the special use of bio-fertilizer and bio-pesticides.

Objectives of the Study

To assess the impact of the sub-schemes under the Macro Management of Agriculture Scheme on the production and productivity of various crops with minimum cost, the following objectives were framed.

(1) To assess the impact of the sub-schemes under the Macro Management of Agriculture Scheme on the production and productivity of various crops with minimum cost,

(2) to analyse the impact of efforts made by the State in increasing the seed replacement rates, in terms of ensuring timely availability of sufficient quality of good quality seeds and

(3) to analyse the impact of the activities to promote Balance Integrated Nutrient Management to maintain soil fertility and environment..

Methodology

The study was based on both secondary level as well as primary level data to analyse the impact of Macro Management Mode of Agriculture (MMMA) schemes in Assam. The secondary level data were collected from the published and unpublished reports of Directorate of Agriculture, Assam.

In order to draw sample a complete district wise investment lists under MMMA schemes for the year 2007-08 was collected from the Directorate of Agriculture, Assam. After receiving the lists, Nagaon district of Assam was selected as the district had the highest investment under MMMA. A complete beneficiaries list of ICDP rice and Special Jute Development Programme was collected from the District Agriculture Office and Sub-Divisional Agricultural Office of the Nagaon district. In consultation with the State Agricultural Department and District Agricultural Office, Nagaon the Community Development Blocks (C.D. Blocks) and sample villages were selected by adopting the following criteria:

(1). Out of 18 (eighteen) C.D.Blocks of the district, 3 (three) C.D. Blocks were selected considering the highest demonstrations and trainings of different agricultural schemes under MMMA.

(2). From the 3 (three) selected C.D. Blocks, 12 (twelve) villages (4 (four) villages from each C.D.Blocks) were selected depending on the highest beneficiaries (rice and jute) in the villages.

After selecting the C.D. Blocks as well as the sample villages for the present investigation, samples of beneficiaries were drawn following two stage random sampling technique. In the first strata, the beneficiaries were stratified according to type of the agricultural schemes. In the second strata, the beneficiaries were selected by random

sampling method from each agricultural scheme covering 60 (sixty) samples (5 (five) beneficiary farmers from each village) as representative samples in each agricultural scheme. Thus, a total of 120 (one hundred twenty) beneficiary farmer households. The field level data were collected through personal interview method with the help of a set of specially designed schedules by the Coordinating centre. Information on the socio-economic position of the beneficiaries, nature of agricultural activities as well as uses of seeds of different crops, uses of Integrated Nutrient and Pest Management and constraints were obtained from the individual beneficiaries of the different agricultural schemes.

Reference Period

The primary data were related to the crop year 2007-08.

Physical and financial target and achievements

The study showed that the utilization status against fund released by Government of India was Rs 5,441.00 lakhs under Macro Management Scheme since 2000-01 till 2006-07 and was found to be almost fully unutilized. A marginal amount of fund could not be utilized due to untimely and late release of fund under Macro Management Mode of Agriculture scheme.

Integrated Cereal Development Programme for Rice (ICDP Rice)

Agriculture is the backbone of the rural economy as it is main source of employment and income of the majority of people living in the rural area. Nagaon district was selected, as it was more advanced in agricultural development in the State for growing of different crops. The physiological characteristics like topography, rainfall, soil type, water resources of the sample district were congenial for growing of different food crops, cash crops, root crops, etc. The low land of the sample district is suitable for rice cultivation while the high land offers excellent scope for pulse, vegetables, banana, citrus and other horticultural crops. Moreover, potato, pulses, mustard, jute, sugarcane, etc. were the other major crops grown in the district. Different varieties of vegetable were cultivated on a high scale in the district.

Scheme wise financial targets and achievements of ICDP rice were found satisfactory as the schemes were fully achieved.

It was found that out of total sample families, 51.67 per cent of sample families belonged to the General Caste, 18.33 per cent belonged to OBC, 16.67 per cent belonged to Scheduled Caste (SC) and the rest of 13.33 per cent of sample households belonged to the Scheduled Tribe (ST) community. The average family size was 5.80 persons (Table 3.2).

The demographic profile of the sample households showed that out of total population, 37.07 per cent of population were lesser than 18 years of age, 57.47 per cent were in between 18 – 60 years of age and only 5.46 per cent were greater than 60 years of age. The total population of the sample households was 348 persons, of which 188 (54.02 per cent) persons were males and 160 (45.98 per cent) persons were females (Table 3.3).

The educational status of the population was higher, as 77.59 per cent of population was literate. Considering both males and females together there were 57.47 per cent population with primary education and read up to class X, 14.08 per cent HSLC passed, 3.16 per cent PU/HS passed, 2.30 per cent Degree holders, 0.29 per cent Diploma holder (technical degree education) and only 0.29 per cent had P.G. education (Table 3.4)..

Distribution of working population of the sample rice farmers was found that out of total working population, 156 (78.00 per cent) were cultivators, 7.50 per cent were agricultural labours, 1.00 per cent engaged in animal husbandry, 7.00 per cent engaged in business and 6.50 per cent worked as salaried job (Table 3.5).

Possession of land ownership holding showed that there were 26.67 per cent marginal farmers, 48.33 per cent small farmers, 15.00 per cent semi medium farmers and only 10.00 per cent were medium farmers. There was no large farmer in the study area.

The total operational holding in the sample was 113.23 hectares. Out of the total operational holdings, 107.25 (94.72 per cent) hectares were own land, 4.68 (4.13 per cent) hectares were leased-in land and 1.30 (1.15 p er cent) hectares were taken on mortgage. Moreover, there were 86.45 (76.35 per cent) hectares irrigated land and the rest of 26.78 (23.65 per cent) hectares were un-irrigated land. The average size of operational holding in the sample was 1.89 hectare (Table 3.7).

Rice was the principal crop, cultivated in141.81 hectares by the sample farmers. Ahu rice and Sali rice were cultivated in 1.69 hectares and in 92.04 hectares of land respectively by the sample farmers during kharif season. The average productivities of these crops were found at 3,226 kg/ha and 3,253 kg/ha respectively. They cultivated Boro rice in 48.08 hectares of land and the productivity was found at 6,393 kg/ha. It was observed that the yield of Boro rice was higher than that of Ahu and Sali rice. Taking all varieties of rice crops together, per hectare yield of rice of the sample farmers was 4,317 kgs (Table 3.8).

The study showed that out of total requirement of rice seed of the sample farmers, a dominant portion i.e. 72.16 per cent of seed was produced at home (domestic) while 13.31 per cent of seed was purchased from Seed Corporation at a subsidized rate by the sample farmers. Besides, the sample farmers directly purchased from 9.92 per cent and 4.61 per cent of rice seed nearby retail shops and open markets respectively.

Source wise average seed rates of rice were 55.90 kg/ha. in open markets, 57.22 kg/ha. in domestic, 47.10 kg/ha. in Seed Corporation and 52.47 kg/ha were in retail shop. In aggregate, the seed rate of rice was found at 55.09 kg/ha. It was also observed that source wise required seed rates of rice were lowest in Seed Corporation (47.10 kg/ha.) and the highest in domestic produced (57.22 kg/ha) (Table 3.9).

Urea, SSP, MOP and DAP were main fertilizers which were used as soil nutrients by the sample farmers. It was observed that overall consumption of fertilizers was 6,210.00 kg in 2005-06, 6,069.00 kg in 2006-07 and 5,789.00 kg in 2007-08 by the sample farmers (Table 3.10). Moreover, the average consumption of fertilizers was 41.85 kg/ha in 2005-06, 41.79 kg/ha in 2006-07 and 40.82 kg/ha in 2007-08.

The analysis of investment and return showed that overall per hectare income were Rs. 20,020/- and Rs. 22,143/- before and after implementation of the scheme respectively. Per hectare expenditures in rice cultivation were Rs.18,565/- and Rs. 19,960/- before and after implementation of the scheme respectively. Similarly, per hectare net return from rice production was found at Rs. 1,454/- before implementation of the scheme and it was Rs. 2,182/- after implementation of the scheme respectively. Per hectare net

profits varied from Rs. 624/- in small farms to Rs. 876/- in semi medium farms and in overall Rs. 728/- per hectare (Table 3.11).

The analysis indicated that after implementation of the scheme, the sample farmers were marginally benefited than in before implementation of the scheme. It may be noted here that the agriculture development schemes under ICDP rice actually could create a marginal impact in the rice production of the sample farmers.

Participation of the sample rice farmers in the Hybrid Rice Demonstration were cent percent in case of marginal, small, semi medium and medium farmers. In case of Crop Demonstration Technology, 86.67 per cent of the sample farmers attended in the programme.

Integrated Pest Management (IPM) demonstration was held for 2 days only during the reference year under study. Out of the total sample farmers, 55 farmers (91.67 per cent) participated in the IPM demonstration programme (Table 3.13).

Out of total sample farmers, 52 (86.67 per cent) farmers attended in the training on crop production technology, 55 (91.67 per cent) farmers attended the training on IPM farmer's awareness and 60 (100.00 per cent) farmers attended the training on organic farming in aggregate.

The farmers who did not participate in all the demonstrations, they reported that majority of them (62.50 per cent) were engaged with pre-occupied works, 25.00 per cent farmers were not interested and the rest of 1 (12.50 per cent) farmer was not aware about the demonstrations programme.

It was found that the District Agricultural Office (DAO) (Table 3.16) organized all demonstration programmes and the total cost of attending demonstration was borne by the DAO (Table 3.17).

The study showed that among all other problems, costs with other agricultural works were the major problems faced by 53.33 per cent of sample farmers. Moreover, other problems like distance from the village, lack of transport facilities, pre occupied with other works and loss of wage were encountered by 40.00 per cent, 36.67 per cent and 41.67 per cent of the farmers respectively. In addition to these, majority of the farmers (Table

3.18) considered some general problems like late supply of rice seed, inadequate level of subsidy amount, insufficient extension services, institutional credit, etc..

The sample farmers for the effective use of these demonstrations and trainings offered some suggestions. The suggestions were:

(1) Infrastructural development like the road communication net work, marketing facility, input distribution agencies etc. were the major shortcoming in the study area. Therefore, 58.33 per cent of sample farmers suggested for infrastructural development in the sample area (Table – 3.19).

(2) The agricultural inputs like HYV certified seed, fertilizers, plant protection chemicals etc. should be made available at the farmers door step and the present extension services should be improved to change the cropping pattern based on agricultural research and field trials which was suggested by 55.00 per cent of sample farmers (Table – 3.19).

(3) Again, 56.67 per cent of sample farmers suggested that more training programme should be organized by the Officials for adoption of modern technologies and water management at different strategies of plan growth (Table – 3.19).

(4) Another 50.00 per cent of sample farmers opined that all the essential inputs required for crop protection under the IPM programme should be made available to the farmers at easy reach (Table – 3.19).

(5) The study revealed that altogether, 76.35 per cent of areas were irrigated and 23.65 per cent of areas were unirrigated. It was observed that, 33.33 per cent of sample farmers suggested for extension of the present irrigation facilities in the district (Table – 3.19).

(6) The study also showed that soil-testing services were not available in the sample areas and 90.00 per cent of the farmers felt it indispensable for appropriate use of plant nutrients (Table – 3.19).

(7) Majority of small and marginal farmers (30.00 per cent) suggested to provide easy institutional credit to purchase modern inputs (Table – 3.19). In addition to

these, most of the sample farmers opined that the present subsidy amount on rice seeds should be increased.

Use of soil ameliorates in the study area was quite low. The study showed that among the different items of soil ameliorates, only 1,150 kgs. of lime were used by the sample farmers, out of which 350 kgs. (30.43 per cent) were purchased from nearby retail shops and the rest of 800 kgs. (69.57 per cent) of lime were supplied by the Government to the sample farmers freely (Table 3.20).

It was observed that soil testing facility was at the initial stage in the study area. Hence, only 3 farmers (5 per cent) were found to test their soil in their own initiative. Due to limited soil testing laboratories in the State, majority of farmers were deprived from the facilities of soil testing. As per official records, State has 11 soil testing laboratories up to 2006-07, out of which 2 of them were in private sector (Table 3.21).

The total area under rice cultivation was slightly decreased by 5.15 hectares due to some obvious reasons like increases of number of households, erosion by floods etc. (Table 3.23). However, the productivity of rice was slightly increased by 412 kgs. per hectare after implementation of the scheme.

It was observed that before implementation of the scheme per hectare seed rate was 66.84 kgs., while after implementation of the scheme per hectare seed rate came down to 55.09 kgs. This showed that per hectare seed rate was reduced by 11.75 kgs. after implementation of the scheme (Table 3.23).

The study revealed that farmer's response towards the best varieties of rice was Ranjit (60.00 per cent), Masuri (46.67 per cent), Luit (45.00 per cent), Jaya (36.67 per cent) and IR – 36 (20.00 per cent) (Table 3.24). They reported that the productivities of these crops were satisfactory. It was also reported that the post harvest prices in the market were also remunerative.

Special Jute Development Programme

Jute is a major fiber crop in Assam, which occupies a significant role in economy of the State. The climatic condition of the State is suitable for growing of jute in Assam. The State produced 101 thousand metric tones of jute out of an area of 58 thousand

hectares during 2006-07 and 140 thousand metric tones out of an area of 76 thousand hectares during 2007-08 respectively. Out of 27 districts of Assam, Dhuburi district has the highest area (16,150 hectares) under jute, but Nagaon district has taken first place in case of production (24,872 metric tones) and productivity (2,605 kg/ha) during 2007-08. Considering the production and productivity of the district, the Special Jute Development Programme (SJDP) was implemented in a few jute-growing Blocks of the sample district.

Scheme wise financial targets and achievements of SJDP were found satisfactory as about cent percent achievements were made by the implementing agencies in the different schemes (Table - 4.1).

The majority of sample farmers were Muslim by religion. The study showed that out of total sample farmers 53.33 per cent were General Caste, followed by 26.67 per cent OBC and 20.00 per cent Scheduled Caste (SC) population (Table - 4.2). The average family size was 6.08 persons.

The total populations of the sample households were 365 persons, of which 195 (53.42 per cent) persons were males and 170 (46.58 per cent) persons were females (Table 4.3). It was found that out of total population, 35.07 per cent of population were lesser than 18 years of age, 58.36 per cent were in between 18 – 60 years of age and only 6.58 per cent were greater than 60 years of age.

The study showed that overall literacy rate of the population was 71.24 per cent which was marginally higher than that of the State average. It was found that 58.36 per cent population had primary education and read up to class- X, 8.49 per cent were HSLC passed, 2.47 per cent were PU/HS passed and 1.92 per cent was Degree holders covering of both males and females in the sample (Table 4.4). Sex wise distribution of educational status of the population indicated that women (46.58 per cent) in general were lagging behind their male counterparts.

The study depicted that out of total working population, 163 (76.53 per cent) populations were cultivators, 8.45 per cent were agricultural labours, 1.88 per cent were engaged in animal husbandry, 7.98 per cent were engaged in business and only 5.16 per

cent worked as salaried job comprising of all the farm size groups in the sample (Table 4.5).

The study showed that out of the total sample farmers, 23.33 per cent were marginal farmers, 40.00 per cent were small farmers, 25.00 per cent were semi medium farmers and only 11.67 per cent were medium farmers. Large farmers were not found during the field investigation (Table 4.6).

The total operational holding of the sample farmers was 124.75 hectares. Out of the total operational holdings, 117.10 (93.87 per cent) hectares of land were own under personal cultivation, 4.50 (3.61 per cent) hectares were leased-in and 3.15 (2.53 per cent) hectares were taken on mortgage by the sample farmers. Out of the total operated area 61.45 (49.26 per cent) hectares were irrigated land and the rest of 63.30 (50.74 per cent) hectares were un-irrigated land (Table 4.7). Overall, average size of operational holding was found as 2.08 hectares.

Area under jute crop cultivation was 22.10 hectares, which constituted only 17.71 per cent to the total operational holding (124.75 hectares). The average size of land varied from 0.17 for the marginal farmers to 0.92 hectares in the medium size group with an average of 0.36 hectare in the sample. Rice was the principal crop for the sample farmers. So, major portion of operational holdings was allocated for rice crop cultivation.

The study indicated that per hectare average productivity of jute varied from 2,536 kg. in the marginal group to 2,619 kg against the semi-medium group. In overall, the average productivity for the sample was found at 2,590 kg/ha (Table 4.8). In case of jute, productivity in semi-medium farmers was at higher level and was more than the medium farmers. The farmers of semi-medium group showed the highest productivity because of their rational use of input.

The study revealed that out of total requirement jute seed, 120 kgs. (41.52 per cent) were purchased by the 60 sample farmers from the Seed Corporation at subsidized rate and a major portion of jute seed i.e. 169 kgs. (58.48 per cent) was purchased from retail shop.

It was also found from the study that average seed rates of jute were 12.26 kg/ha. in Seed Corporation and 14.82 kg/ha in Retail Shop and in aggregate the seed rate was found at 13.08 kg/ha (Table - 4.9). It was also observed that source wise required seed rates of jute was lowest in Seed Corporation and the highest in Retail Shop.

The sample farmers generally used Urea and SSP as soil nutrients in jute crop cultivation. It was observed that the consumption of fertilizers was 755.00 kg. in 2005-06, 680.00 kg. in 2006-07 and 820.00 kg. in 2007-08 by the sample jute farmers. Per hectare average consumption of fertilizers for the reference years was 34.09 kg/ha in 2005-06, 32.69 kg/ha in 2006-07 and 37.10 kg/ha in 2007-08 (Table 4.10). This showed that per hectare consumption of fertilizers was significantly low in the study area.

The study indicated that overall income from jute cultivation were Rs. 28,996.00/ha. and Rs. 31,504.00/ha. before and after implementation of the scheme respectively. Per hectare cost involved in jute cultivation were Rs. 26,229.00 and Rs. 28,312.00 before and after implementation of the scheme respectively. Similarly, per hectare net return from jute cultivation was found at Rs. 2,766.00 before implementation of the scheme and it was Rs. 3,192.00 after implementation of the scheme (Table 4.11). It was observed that per hectare net profit was the lowest in medium farms (Rs. 296.00) while it was the highest in small farms (Rs. 624.00) and the overall net return was found at Rs. 426.00/ha. for all farms.

The analysis showed that after implementing the SJDP scheme, the sample farmers were marginally benefited in respect of income than before implementation of the scheme.

The study showed that all the sample farmers including marginal, small, semi-medium and medium farmers attended the technology demonstrations under SJDP. In case of the demonstrations Production Technology, 61.67 per cent of the sample farmers attended the demonstrations (Table 4.12).

For cultivation jute crop, Integrated Pest Management (IPM) demonstrations were held for 2 days only during 2007-08. In these demonstrations, out of the total sample

farmers,56 farmers attended which constituted 93.33 per cent to the total farmers (Table 4.13).

The study showed that out of total sample farmers, 37 (61.67 per cent) farmers attended in the training on crop production technology and 56 (93.33 per cent) farmers attended in the training on IPM farmer's awareness in aggregate level. The farmers who did not attend all the demonstrations, some of them reported that they engaged with preoccupied works and some of them reported loss of wage etc.

District Agriculture Office (DAO) organized all demonstration programmes and the entire costs were borne by the organizer (DAO) for the sample farmers in attending demonstration (Table 4.17).

The sample jute growers pointed out a number of problems they had been facing in attending the demonstrations of jute cultivation. The study showed that out of the total, 48.33 per cent of farmers expressed that the demonstrations point was far away from the village, 30.00 per cent of farmers opined that there was no transport facility and 45.00 per cent of farmers reported that cost involved with other agricultural works were important problems to them (Table 4.18).

Moreover, fluctuation of jute price, lack of jute processing unit in the district, lack of organized market for selling of jute were some general problems for the sample farmers in the district.

Some suggestions were offered by the farmers for better effectiveness of the demonstrations under the scheme. These were:

1. Lack of good road communication and transport facilities in the village centers were the major bottleneck in attending the demonstrations by the sample farmers as well as transportation of jute to the markets. So, 45.00 per cent of sample farmers suggested that all weather road connections to the agriculturally advanced area may be made to encourage the producer to produce more (Table 4.19).
2. Supply of inputs within easy reach of the farmers is necessary. Therefore, 53.33 per cent of sample farmers expressed their views on inputs like

certified jute seed, fertilizers, plan protection chemicals etc. should be made available at the farmer's doorstep (Table 4.19).

3. The Government may establish more number of Jute Mills in Assam. This will solve the marketing problem of the farmers largely. It will also generate employment and income to the needy educated youths of the State. Therefore, 71.67 per cent of sample farmers opined to establish more number of Jute Mills and processing units in the State (Table 4.19).
4. A majority of sample farmers (78.33 per cent) suggested announcing the MSP on jute before sowing season. This may help the jute growers to increase or decrease their areas under crop without incurring loss (Table 4.19).
5. The JCI should continue its effort in the field of marketing of jute, which was suggested by 60.00 per cent of sample farmers with a view to checking private traders in their attempt to exploit the growers with lower price. There should be flexibility of procurement price during the year. Sufficient fund should be provided to JCI in time to procure jute and to facilitate them to operate in the market right from the beginning of season (Table 4.19).

It was reported by the farmer at the time of field investigation that except sprayer, no other implements were provided from the Agricultural Department under the scheme. It was observed that out of the total sample farmers, 5.00 per cent of small farmers, 3.33 per cent of semi–medium farmers and 1.67 per cent of medium farmers obtained sprayer in subsidy under the scheme (Table 4.20).

The study indicated that after implementation of the scheme, the total area under jute crop cultivation has marginally increased by 1.30 hectares in the project area. Similarly, the productivity of jute was also slightly increased by 133.00 kgs. per hectare after implementation of the scheme (Table 4.23). This showed that the scheme has marginal impact in jute production front of the sample farmers.

Before implementation of the scheme, seed rate was 14.95 kgs./ha. while after implementation the scheme seed rate came down to 13.08 kgs./ha. This indicated that seed

rate was reduced by 1.87 kgs/ha. only after implementation of the scheme (Table 4.23). The variety JRO – 524 was considered as best variety of jute by the sample farmers.

Conclusions

The present study on the impact of ICDP rice and SJDP (jute) under MMMA scheme on field level data indicated that in spite of efforts under the programmes the impacts were not found very encouraging as the economic condition of the sample farmers were not improved as expected. The results of the study under review marginally benefited the sample farmers as the scheme provided net return of Rs. 728.00/ha in ICDP for rice and Rs. 426.00/ha. in SJDP (jute) respectively in comparison to the prior implementation of the schemes.

It was observed that the schemes were based on "Work Plan" of the Government, but the study revealed that more emphasis was often put on the targets and achievements without considering the weak points of the schemes and the problems of the farmers. These schemes often did not serve the real purpose of the needy farmers. The plan and policies of the Governments were very good. So, for making the agricultural development programmes successful in the State, development of infrastructural supports are necessary and it also requires efficient planning, monitoring and sincere execution of the policies by the Government agencies to make the schemes viable.

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APPENDIX - I

Physical Target and Achievement of Macro Management of Agriculture in Assam

Sl. No.	Schemes	2002-03 (as on 21st July'2007)		2003-04 (as on 21st July'2007)		2004-05 (as on 21st July'2007)		2005-06 (as on 21st July'2007)		2006-07 (as on 21st July'2007)	
		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
1	**Agricultural Extantion**	As per Scheme	I.P.	As per Scheme	√						
	a. Broadcasting of Agricultural Programme through Doordarshan	50 Episides	I.P.	-	-					-	-
	b. Agricultural Extension through Publicity Cell	-	-	1 No.	1 No.					-	-
2	Agricultural Information and Publicity			As per Scheme	I.P.			As per scheme	√	As per Scheme	-
	a. Production T.V. Serial on Agriculture	-	-	6 Nos.(1 Yr.)	6 Nos.					-	-
	b. Quickies for AIR, Guwahati	-	-	40 Nos.	I.P.					-	-
	c. Kishan Mela	-	-	23 Nos.	I.P.					-	-
	d. Exibition	-	-	5 Nos.	I.P.					-	-
	e. Printing of Booklets, Leaflets etc.	-	-	65,000 Nos.	I.P.					-	-
	f Orgenizing Exhibition / Kishan Melas and Technical Bulletiens etc	-	-	-	-			√	√	-	-
	g. Publishing Agril. News Letter (copies)	-	-	-	-					20,000 Nos.	20,000 Nos.
	h. Publishing Agriculture at a Glance (copies)	-	-	-	-					5,000 Nos.	5,000 Nos.
	i. Publishing Agriculture Schemes in Boucher format (copies)	-	-	-	-					10,000 Nos.	10,000 Nos.
	j. Publishing Improved packages of practices for cultivation along with Economic Cultivation (copies)	-	-	-	-					50,000 Nos.	50,000 Nos.
	k. Crop Statistics (Book Format) (Copies)	-	-	-	-					2,000 Nos.	2,000 Nos.
	l. Advertisement and Publicity	-	-	-	-					√	√
3	Agricultural Marketing							As per scheme	√		
	a. Transport Assistance through Auto Van @ 25% Subsidy for markting of perishables (Nos)	-	-	-	-			100 Nos.	100 Nos.	-	-
4	Agricultural Mechanization	As per Scheme	I.P.	As per Scheme	I.P.			As per scheme	√	As per Scheme	-
	a. Distribution of Power Tillers	70 Nos	70 Nos	84 Nos.	84 Nos.			60 Nos	60 Nos.		
	b. Power Tiller with Subsidy @ Rs. 30,000/- each (nos)	-	-	-	-					200.00	200.00
	b. Distribution of Wheat Thresher	150 Nos.	I.P.	-	-					-	-
	c. Production of Small Agril. Implements	4,500 Nos.	4,500 Nos	2,400 Nos.	I.P.					-	-
	d. Training	800 Nos.	800 Nos.	-	-					-	-
	e. Self Propelled Reaper @ 5 nos. in each district	-	-	115 Nos.	I.P.					-	-
	f. Rice Transplanter	-	-	21 Nos.	I.P.					-	-
	g. Zero Tillage Planter	-	-	280 Nos.	160 Nos.					-	-
	h. Power Paddy Thresher (Nos.)	-	-	-	-			10 Nos	-	-	-
	i. Oil Expeller (nos.) @ Rs.20,000/- Subsidy (nos)	-	-	-	-			13 Nos.	-	25.00	-
	j. O.E.	-	-	-	-			-	-	-	-
5	Agril. Training Programme & Farmers Conference (no of Farmers)	-	-	2,11,600 Nos.	I.P.					-	-
6	Computerisation of State Land Use Board	-	-	1 No.	1 No.					-	-

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		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
7	**Certified Seed Production Programme**	As per Scheme	I.P.	As per Scheme	I.P.			As per Scheme	-	As per Scheme	-
	a. Production of Certified Seed (through RSG)- Paddy	7,500 qtls.	1048.88 qtls.					6,000 qtls.	6,000 qtls.	-	-
	b. Infrastructure Development of Departmantal Seed Farm	8 Nos.	I.P.							-	-
	c. Purchase of Breeder Seeds of Cereal Crops	40 qtls.	30.6 qtls.							-	-
	d. Production of Foundation Seeds	80 Ha.	38.50					175 Ha.	175 Ha.	-	-
	e. Director of ASSCA for G.O.T.	1 No.	1 No.							-	-
	f. Strengthing of Seed Testing Laboratory under ASSCA	1 No.	1 No.							-	-
	g. Cost of Breeder Seed (Ha.)	-	-					55 qtls.	-	-	-
	h. Mobility etc.	-	-					-	-	-	-
	i. Cost of Breeder Seed (qtl.)	-	-							-	-
	1. Paddy	-	-	-	-					41.0 qtls.	41.0 qtls.
	2. Oil Seed	-	-	-	-					6.2 qtls.	6.2 qtls.
	3. Pulses	-	-	-	-					5.7 qtls.	5.7 qtls.
	4. Fiber Crop (Jute)	-	-	-	-					0.3 qtls.	0.3 qtls.
	J. Cultivation Cost of Foundation seed to Certified Seed (ha.)	-	-	-	-					515.5 Ha.	-
	k. Two days Workshop (State Level) for both Kharif & Rabi (nos.)	-	-	-	-					2 Nos.	-
	l. Two days Training Programme for Seed Growers (30 Farmers in each batch) (no of batches)	-	-	-	-	-	-	-	-	2 Nos.	2 Nos.
	m. Exposure Visit of Seed Growers outside State (20 farmer in each batch) (No. of batches)	-	-	-	-	-	-	-	-	6 Nos.	-
8	**Co-operation Development**	As per Scheme		As per Scheme	I.P.						
	a. Assistance to Women Co-operative Society	48 Nos.	48 Nos.	-	-			450 Ha.	-	-	-
	b. Incentives to the West Assam Milk Producers, Co-op. Union Ltd	-	-	-	-			450 Ha.	-	-	-
9	**Crop Acreage & Production Estimation Survey**	-	-	-	-			450 Ha.	-	-	-
10	**Crop Divercification Programme**	-	-	As per Scheme	I.P.			As per scheme	I.P.	As per Scheme	-
	A. Field Demonstration with Wheat, Oilseed and Fodder Crops			1112 Nos.	I.P.						
	1. Field Demonstration with Sunflower (5 Bighas), Mustard, Oat and Berseem (each in 1 bigha area) @ Rs. 1,800/- per Demo	-	-	3112 Nos.	I.P.			-	-	-	-
	2. Two days Training of farmers @ Rs.50/- per day/ Farmer	-	-	9819 Nos.	I.P.			-	-	-	-
	3. Contingency for District H.Q.	-	-	23 Nos.	I.P.			-	-	-	-
	B. Crop Development										
	1. Crop Sequence Demonstration. Of 1 Ha. Size Kharif Paddy Variety- Lachit/ Luit IR50 (nos)	-	-	-	-	-	-	450 Nos.	450 Nos.	-	-
	2. Rape & Mustard, Variety- M-27/ TS-36/ TS-38 (Ha.)	-	-	-	-			450 Ha.	-	-	-
	3. Black Grame Variety- T-9/Pu-19 (Ha.)	-	-	-	-			200 Ha.	-	-	-
	4. Nizer Variety- GA-10 (Ha.)	-	-	-	-			100 Ha.	-	-	-

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		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
	5. Summer Paddy (Hybrid) Variety PAC-832 (Ha.)	-	-	-	-			300 Ha.	-	-	-
	6. 25% Subsidy Sale of Bio-fertilizer (Ha.)	-	-	-	-			5,000 Ha.	5,000 Ha.	-	-
	7. 25% Subsidy Sale of Micro Nutrient (Ha.)	-	-	-	-			8,725 Ha.	8,725 Ha.	-	-
	8. Summer Paddy HYV demonstration (Ha.)	-	-	-	-			750 Ha.	750 Ha.	-	-
	8. Summer Paddy Hybrid demonstration (Ha.)	-	-	-	-			500 Ha.	500 Ha.	-	-
	9. Black Gram demonstration (Ha.)	-	-	-	-			500 Ha.	-	-	-
	10. Nizer demonstration (Ha.)	-	-	-	-			500 Ha.	-	-	-
	11. Technology Demonstration (Ha.)										
	a. Wheat	-	-	-	-					600 Ha.	-
	b. Rape and Mustard Seed	-	-	-	-					750 Ha.	-
	c. Black Gram	-	-	-	-					600 Ha.	-
	d. Green Gram	-	-	-	-					400 Ha.	-
	12. Micronutrients for Pulses, Oilseeds and Wheat @ 25% Subsidy Limited to Rs. 200/- per Hectare.	-	-	-	-					5000 Ha.	-
	13. Soil Ameliorants i.e. Agril. Limes at 100% subsidy (Ha)	-	-	-	-					570 Ha.	-
	14. Office Expense	-	-							-	-
11	**Development of Sugarcane**			As per Scheme	I.P.			As per scheme	I.P.	As per Scheme	-
	a. Demonstration of Newly Released Variety 1 Ha. Size	-	-	70 Nos.	I.P.			90 Nos.	-	-	-
	b. Farmers' Training (2 days duration) (50 Farmers per batch)	-	-	15 Nos.	~ do ~			30 Nos.	30 Nos.	-	-
	c. Bullock Drown Cane Crusher	-	-	100 Nos.	~ do ~					-	-
	d. Bullock Drown Implements	-	-	100 Nos.	~ do ~					-	-
	e. Mobility etc.	-	-	-	-	-	-	-	-	-	-
	f Hand Sprayer/ other implements with Subsidy @ Rs. 800/- each(nos)	-	-							200 Nos.	-
12	**Empowerment of Women in Agriculture**			-	-			As per scheme	I.P.		
	a Vermi Compost Unit (no) including Horticulture Crop / Duckary / Poultry in different Districts.	-	-	-	-	-	-	46.00 127 Nos.	-	-	-
	b. Exposure Visit within the State (30 nos./batch)	-	-	-	-	-	-	46 batch	46 batch	-	-
	c. Training Programme (30 nos./batch)	-	-	-	-	-	-	26 batch	26 batch	-	-
	d. 2 days training Programme for farm Women 30 farmers per batch	-	-	-	-	-	-	29 Nos.	29 Nos.	-	-
	e. Misc. including Mobility etc.	-	-	-	-	-	-	-	-	-	-
13	**Horticulture Development**	As per Sgheme	I.P.								
	a. Development of Spices (Training)	1 No.	1 No.	-	-	-	-	-	-	-	-
	b. Commercial Floriculture			-	-	-	-	-	-	-	-
	1.Gladiolus Demonstration	0.3 Ha.	0.3 Ha.	-	-	-	-	-	-	-	-
	2. Gerbera (Hybrid) Demonstration	6 Units.	ASC fails	-	-	-	-	-	-	-	-
	3. Iris Demonestration	2 Units.	to Supply	-	-	-	-	-	-	-	-

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		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
	4. Jasmin, Mosanda Demonstration	-	the planting	-	-	-	-	-	-	-	-
	5. Rose Demonestration	1500 Nos.	Meterials	-	-	-	-	-	-	-	-
	c. Development of Root & Tuber Crops										
	1. T.P.S. Demonstration	105 Ha.	do	-	-	-	-	-	-	-	-
	d. Production & Supply of Vegetable Seeds (Minikit Demo.)	1333 Nos.	1333 Nos.	-	-	-	-	-	-	-	-
	e. Development of Cashewnut	-	-	-	-	-	-	-	-	-	-
	1. Area Expansion	100 Ha.	100 Ha.	-	-	-	-	-	-	-	-
	2. Farmers Training	200 Nos.	200 Nos.	-	-	-	-	-	-	-	-
	f. Betelvine Cultivation										
	1. Demonstration on Betelvine Cultivation	30 Units.	30 Units.	-	-	-	-	-	-	-	-
	2. Training	30 Nos.	30 Nos.	-	-	-	-	-	-	-	-
14	ICDP - Rice	As per Sgheme	√	As per Sgheme	I.P.					As per Scheme	-
	a. Technology Demonstration	2,500 Nos.	2,500 Nos.	-	-	-	-	-	-	-	-
	b. Distribution of Power Tillers	150 Nos.	150 Nos.	-	-	-	-	-	-	-	-
	c. Demo on Hybrid Rice	-	-	1,000 Nos.	I.P.	-	-	-	-	-	-
	d. Demo on HYV	-	-	250 Nos.	do	-	-	-	-	-	-
	e. Distribution of Rice Seed @ Rs. 200/- per Qtl.	-	-	-	-					15,875 qtls	-
	f. Contingency: Office Expense	-	-	-	-	-	-	-	-	-	-
15	ICDP - Wheat	As per Scheme	√								
	a. One acre size Technology Demonstration	2,000 Nos.	2,000 Nos.	-	-	-	-	-	-	-	-
	b. Distribution of Wheat seeds	10,000 qtls.	I.P.	-	-	-	-	-	-	-	-
	c. Conducting of Farmers' Training	100 Nos.	100 Nos.	-	-	-	-	-	-	-	-
16	Information Technology	As per Scheme	√	As per Scheme	I.P.						
	a. Installation of Computers in the branches/cells of the Directorate of Agriculture	10 Nos.	10 Nos	-	-	-	-	-	-	-	-
	b. Installation of Computers, Software etc. in Agril.Sub-Div.	-	-	-	-	-	-	-	-	-	-
	c. Installation of Computers with all accessories at Zonal and Dist. office	-	-	10 Nos.	10 Nos.	-	-	-	-	-	-
17	INM										
	A. Pilot Scheme on Orgenic Farming (Joha Rice)			1 in each District				As per Scheme	√	As per Scheme	-
	1. Exposure Visit (outside the State)										
	a. For Officers (20 nos.)	-	-	1 Team	I.P.	-	-	-	-	-	-
	b. For Farmers (40 nos. with 4 officers)	-	-	2 Teams	- do -	-	-	-	-	-	-
	2. Exposure Visit (inside the State) for farmers to Maruachowki vill	-	-	280 Nos.	- do -	-	-	-	-	-	-
	3. Farmers Training (2 days) on INM (batch)	-	-	50 Nos.	- do -					20 Nos.	-
	4. Allowances to experienced farmers of Maruachowki vill. for training to other FMCs (2 days)	-	-	20 Nos.	- do -	-	-	-	-	-	-

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		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
	5. Payments to consultant	-	-	LS	-	-	-	-	-	-	-
	6. Payment to Inspectors for 2 visit to Assam	-	-	4 Nos.	~ do ~	-	-	-	-	-	-
	7. Meterials and Supplies-										
	a. Seed 32 qtls. @ Rs. 1,500/- per qtl.	-	-	32 qtls.	~ do ~	-	-	-	-	-	-
	b Bio-dynamic preparations	-	-	-	-	-	-	-	-	-	-
	c Expenditure for compost making by bio-dynamic method	-	-	160 Nos.	~ do ~	-	-	-	-	-	-
	8. Marketing Support	-	-	LS	-	-	-	-	-	-	-
	B. Strenthening of Soil Testing Laboratory (nos)	-	-	2 Nos.	2 Nos.			7 Nos.	7 Nos.	14 Nos.	14 Nos.
	C. Strenthening of Quality Control Laboratory (nos)	-	-	-	-			1 Nos.	1 Nos.	2 Nos.	2 Nos.
	D. Distribution of Polythene Bag for collection of Soil Sample (qtl)	-	-	-	-			10 qtls.	-	8 qtls.	-
	E. Distribution of Information Sheet (nos.)	-	-	-	-					100,000 Nos.	-
	F. Sali Paddy Demonstration 1 Ha. Size (nos)	-	-	-	-	-	-	110 Nos.	110 Nos.	-	-
	G. Orientation Training for Officers (2 Days) in INM (nos)	-	-	-	-			50 Nos.	-	50 Nos.	-
	H. Orientation Training of Soil Testing Staff (2 Days) (nos)	-	-	-	-			25 Nos.	-	25 Nos.	-
	I. Training Programme	-	-	-	-					-	-
	J. Distribution of Booklets/Leaflets for Publicity/Awareness on INM & Orgenic Farming	-	-	-	-					25,000 Nos.	-
	K. Distribution of Agricultural Lime for amelioration of acid Soil.	-	-	-	-					260 MT	260 MT
	L. Distribution of Bio-fertilizer (Biozyme) for Sali Paddy (qtl.)	-	-	-	-					120 qtls.	120 qtls.
18	IPM	As per Scheme	√	As per Scheme	I.P.					As per Scheme	-
	A. Training and Demonstration										
	1. Conducting FFS Training	30 Nos	30 Nos	-	-	-	-	-	-	-	-
	2. Conducting Farmers' Training for Awareness Creation	20 Nos.	20 Nos.	-	-	-	-	-	-	-	-
	3. Follow-up Training of FFS	60 Nos.	60 Nos.	-	-	-	-	-	-	-	-
	4. Trainers Training Programme on Rice and Vegetable IPM	-	-	4 Nos.	I.P.	-	-	-	-	-	-
	5. Village Level one day Training for Creating Awareness	-	-	230 Nos.	~ do ~					115 Nos.	115 Nos.
	6. Training of Pesticide Agent, Dealers etc. one in each sub-Div.	-	-	62 Nos.	~ do ~					120 Nos.	120 Nos.
	7. State Level Workshop (nos.)	-	-	-	-					2 Nos.	-
	8. State Level Trainners' Training Programme on Rice & Veg. IPM	-	-	-	-					3 Nos.	3 Nos.
	9. State Level VLEWs" Training Programme on Rice & Veg. IPM	-	-	-	-					2 Nos.	2 Nos.
	10. Farmers Field School and Field Day (batches)	-	-	-	-					150 Nos.	150 Nos.
	B. Popularising of Bio-pesticides, Bio Agent for demonstrative use in FFS & Non-FFS Farmers									-	-
	1. Distribution of Bio-pesticides	-	-	-	-						
	a. Kg	320 Kg.	320 Kg.	-	-					1490 kg.	1490 kg.
	b. Lit	-	-	-	-					1008 lits.	1008 lits.

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		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
	c. Bottle	-	-	-	-					1300 bottles	1300 bottles
	2. Trichoderma @ Rs.220/- per Kg.	-	-	1000 Kg.	I.P.	-	-	-	-	-	-
	3. Bicillus Thurengenisis @ Rs. 1,320/- per Kg.	-	-	150 Kg.	~ do ~	-	-	-	-	-	-
	4. NPV (Spodo) @ Rs.2,000/- per lit.	-	-	75 Lit.	~ do ~	-	-	-	-	-	-
	5. NAV (Heli) @ Rs.2,000/- per lit.	-	-	75 Lit.	~ do ~	-	-	-	-	-	-
	6. Naeuveria bassiana @ Rs. 210/- per Kg.	-	-	750 Kg.	~ do ~	-	-	-	-	-	-
	7. Neem based Pesticides @ 270/- per lit.	-	-	750 Lit.	~ do ~	-	-	-	-	-	-
	8. Recurring expenditure of State Bio-control Laboratory	-	-	-	-					√	√
	9. Recurring expenditure of State Pesticide Testing Laboratory	-	-	-	-					√	√
	C. Distribution of Maha Neem Seedlings, LS	-	-	10,000 Nos.	~ do ~	-	-	-	-	-	-
	D. Rodent Control Measures	-	-	-	-	-	-	-	-	-	-
19	IPNM							As per Scheme	√		
	a. Demonstration (Early Ahu Seeds & Other implements)	-	-	-	-	-	-	100 Nos.	100 Nos.	-	-
	b. Farmers Field School & Field Day (nos.)	-	-	-	-	-	-	276 Nos.	276 Nos.	-	-
	c. Village Level 1 day Training on Rice & Vegetable (batch)	-	-	-	-	-	-	230 batch	230 batch	-	-
	d Village Level 1 day Training on Rodent Pest Management (batch)	-	-	-	-	-	-	150 batch	150 batch	-	-
	e. Subsidy Sale of HC Sprayer (nos.)	-	-	-	-	-	-	3,000 Nos.	3,000 Nos.	-	-
	f. Recurring Expenditure of State Bio-control Lab. (nos.)	-	-	-	-	-	-	1 No.	1 No.	-	-
	g. Recurring Expenditure of State Pesticide Testing Lab. (nos.)	-	-	-	-	-	-	1 No.	1 No.	-	-
	h Transportation Charges for carrying IPM materials to Districts (nos)	-	-	-	-	-	-	26 Nos.	26 Nos.	-	-
	i. Administrative Expenditure	-	-	-	-	-	-	-	-	-	-
20	Jute / Ramie Development Programme			As per Scheme	I.P.						
	a. Technology Demonstration (2 Ha. Size)	-	-	200 Nos.	I.P.	-	-	-	-	-	-
	b. Farmers' Training	-	-	200 Nos.	do	-	-	-	-	-	-
21	Modern Fresh Fruit, Vegetable & Dairy Products Outlets			As per Scheme	I.P.						
	a. Premises (Approx. 400 Sq. ft.)	-	-	-	-	-	-	-	-	-	-
	b. Equiptments-	-	-	-	-	-	-	-	-	-	-
	1. Refrigerated Stainless Steel Counters	-	-	2 Nos.	I.P.					-	-
	2. Air Conditioner (1.5 ton x 1)	-	-	-	-					-	-
	3. Weighing Scales (Digital Table Top)	-	-	-	-					-	-
	4. Utensils for Sorting & Washing	-	-	-	-					-	-
	5. Electric Heat Sealing Machine	-	-	-	-					-	-
	6. Diesel Generator (5 KVA with accessories)	-	-	-	-					-	-
22	New Initiative										
	1. Subsidy Sale of Micronutrients for maintaining Soil Health with assistance to farmers at 25% subsidy limited to Rs. 200/-/ha(Ha.)									**9,000 Ha.**	-

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		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
	2. Exposure visit (outside the State) on orgenic farming (30 farmers, 3 VLEWs & 3 Officers)	-	-	-	-	-	-	-	-	36 Nos.	-
	3. Empowerment of Women:	-	-	-	-					√	√
	a. Costruction of Vermi Compost Pit (SHG)	-	-							200 Nos.	-
	b. Exposure visit with in the State (nos.)	-	-							30 Nos.	30 Nos.
	c. Training Programme (nos.)	-	-							30 Nos.	30 Nos.
	4. Agricultural Development in Char Areas	-	-	-	-					As per Scheme	-
	a. Crop Demonstration : 1. Oil Seeds (nos.)	-	-							300 Nos.	-
	2. Black Gram (nos.)	-	-							400 Nos.	-
	3. Lentil (nos.)	-	-							400 Nos.	-
	4 Crop Production training of farmers (nos)	-	-							50 Nos.	50 Nos.
	5. Rodent Pest Management	-	-	-	-					As per Scheme	-
	a Three days Training Programme of Officres on Rodent Control (nos)	-	-							80 Nos.	80 Nos.
	b. Village Level One day Farmers Training Programe (nos)	-	-							40 Nos.	40 Nos.
	c Surveillance of Rodent in Jhum field, foothills, Crop field near by forest	-	-							√	√
	d. Distribution of Rodenticides	-	-							√	√
	6. Strengthening of Workshop Machinery (modernization) including purchage of Raw materials for production and distribution of improved Small implements (nos workshop)	-	-	-	-	-	-	-	-	24 Nos	-
	7. Exebition and Kishan Mela	-	-	-	-						
	a. National Level Exhibition (nos)	-	-							2 Nos.	-
	b. State Level Exhibition (nos)	-	-							3 Nos.	-
	c. Kishan Mela / Training for 23 districts (nos)	-	-							23 Nos.	-
23	NWDPRA	103 Projects	I.P.	103 Projects	I.P.			35 Projects	35 Projects	As per Scheme	-
	A. Management Component										
	1. Administrative Cost	-	-	-	-					√	√
	2. Community Organisation	-	-	-	-					√	√
	3. Training	-	-	-	-					√	√
	B. Development Component										
	1. Natural Resource Development	-	-	-	-					√	√
	2. Land Based Enterprise	-	-	-	-					√	√
	3. Non Land Based Enterprise	-	-	-	-					√	√
24	**Soil Conservation**	As per Scheme	√	As per Scheme	I.P.			As per Scheme	-		
	a. Pagladia RVP	-	-	-	-	-	-	-	-	-	-
	b. Singla FPR	-	-	-	-	-	-	-	-	-	-
	c. State Land Use Board	-	-	-	-	-	-	-	-	-	-
	d. Soil Conservation measures in Singla FPR	-	-	1412 Ha.	I.P.	-	-	-	-	-	-
	e. River Velly Project as per GOI approved Schemes	-	-	-	-	-	-	-	-	-	-
	f. Flood Prone River as per GOI approved Schemes	-	-	-	-	-	-	-	-	-	-
	g. FPR Project	-	-	-	-	-	-	-	-	-	-

Sl. No.	Schemes	2002-03 (as on 21st July'2007)		2003-04 (as on 21st July'2007)		2004-05 (as on 21st July'2007)		2005-06 (as on 21st July'2007)		2006-07 (as on 21st July'2007)	
		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
	2. Exposure visit (outside the State) on orgenic farming (30 farmers, 3 VLEWs & 3 Officers)	-	-	-	-	-	-	-	-	36 Nos.	-
	3. Empowerment of Women:	-	-	-	-					√	√
	a. Costruction of Vermi Compost Pit (SHG)	-	-							200 Nos.	-
	b. Exposure visit with in the State (nos.)	-	-							30 Nos.	30 Nos.
	c. Training Programme (nos.)	-	-							30 Nos.	30 Nos.
	4. Agricultural Development in Char Areas	-	-	-	-					As per Scheme	-
	a. Crop Demonstration : 1. Oil Seeds (nos.)	-	-							300 Nos.	-
	2. Black Gram (nos.)	-	-							400 Nos.	-
	3. Lentil (nos.)	-	-							400 Nos.	-
	4. Crop Production training of farmers (nos)	-	-							50 Nos.	50 Nos.
	5. Rodent Pest Management	-	-	-	-					As per Scheme	-
	a. Three days Training Programme of Officres on Rodent Control (nos)	-	-							80 Nos.	80 Nos.
	b. Village Level One day Farmers Training Programe (nos)	-	-							40 Nos.	40 Nos.
	c. Surveillance of Rodent in Jhum field, foothills, Crop field near by forest	-	-							√	√
	d. Distribution of Rodenticides	-	-							√	√
	6. Strengthening of Workshop Machinery (modernization) including purchage of Raw materials for production and distribution of improved Small implements (nos workshop)	-	-	-	-	-	-	-	-	**24 Nos**	-
	7. Exebition and Kishan Mela	-	-	-	-						
	a. National Level Exhibition (nos)	-	-							2 Nos.	-
	b. State Level Exhibition (nos)	-	-							3 Nos.	-
	c. Kishan Mela / Training for 23 districts (nos)	-	-							23 Nos.	-
23	NWDPRA	103 Projects	I.P.	103 Projects	I.P.			35 Projects	35 Projects	As per Scheme	-
	A. Management Component										
	1. Administrative Cost	-	-	-	-					√	√
	2. Community Organisation	-	-	-	-					√	√
	3. Training	-	-	-	-					√	√
	B. Development Component										
	1. Natural Resource Development	-	-	-	-					√	√
	2. Land Based Enterprise	-	-	-	-					√	√
	3. Non Land Based Enterprise	-	-	-	-					√	√
24	**Soil Conservation**	As per Scheme	√	As per Scheme	I.P.			As per Scheme	-		
	a. Pagladia RVP	-	-	-	-	-	-	-	-	-	-
	b. Singla FPR	-	-	-	-	-	-	-	-	-	-
	c. State Land Use Board	-	-	-	-	-	-	-	-	-	-
	d. Soil Conservation measures in Singla FPR	-	-	1412 Ha.	I.P.	-	-	-	-	-	-
	e. River Velly Project as per GOI approved Schemes	-	-	-	-	-	-	-	-	-	-
	f. Flood Prone River as per GOI approved Schemes	-	-	-	-	-	-	-	-	-	-
	g. FPR Project	-	-	-	-	-	-	-	-	-	-

Sl. No.	Schemes	2002-03 (as on 21st July'2007)		2003-04 (as on 21st July'2007)		2004-05 (as on 21st July'2007)		2005-06 (as on 21st July'2007)		2006-07 (as on 21st July'2007)	
		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
	e. TSP- 1. Oil Seed Demonstration (Nos)	-	-	-	-	-	-	4,920 Nos	1,170 Nos.	-	-
	2. Pulse Demonstration (Nos)	-	-		-	-	-	4,218 Nos	1,170 Nos.	-	-
	f. SCCP- 1.Oil Seed Demonstration (Nos)	-	-	-	-	-	-	4,920 Nos	1,170 Nos.	-	-
	2. Pulse Demonstration (Nos)	-	-	-	-	-	-	4,218 Nos	1,170 Nos.	-	-
	g. Minor Flow Irrigation Project (Ha.)	-	-	-	-	-	-	1,200 Ha.	-	-	-
	h. Misc. Expenditure	-	-	-	-	-	-	-	-	-	-
	i. Distribution of Powtertiller at 25% subsidy (nos)	-	-	-	-					286 Nos.	286 Nos.
	j. Distribution of Hand Sprayer at 25% subsidy limited to Rs.800/- in each	-	-	-	-					3350 Nos.	3350 Nos.
31	**Waste Land Development Programme**			As per Scheme	I.P.			As per Scheme	-		
	a. Pub-na-bhanga water harvest cum gully control project (Nagaon)	-	-	-	-	-	-	-	-	-	-
	b. Gopal Pathar land Development Project (Dist.-Kamrup)	-	-	-	-	-	-	-	-	-	-
	c. Tihu Nala Development Project, Patacharkuchi (Borpeta)	-	-	-	-	-	-	-	-	-	-
	d. Puthimari land Development Project, Sorbhog (Borpeta)	-	-	-	-	-	-	-	-	-	-
	e. Sandhya Paikarkuchi Project, Kamarkuchi (Nalbari)	-	-	-	-	-	-	-	-	-	-
	f. Project at Hojai and Tamulpur	-	-	-	-	-	-	-	-	-	-
	g. Land development (Hact.)	-	-	-	-	-	-	1147 Ha.	-	-	-

APPENDIX - II

Financial Target and Achievement of Macro Management of Agriculture in Assam

(Rupees in Lakh)

Sl. No.	Schemes	2002-03 (as on 26st July'2004)		2003-04 (as on 26st July'2004)		2004-05 (as on 25th July, 2005)		2005-06 (as on 21st July'2007)		2006-07 (as on 21st July'2007)	
		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
1	**Agricultural Extantion**	**15.16**	15.16 (I.P.)	5.84	**5.84**	-	-	-	-	-	-
	a. Broadcasting of Agricultural Programme through Doordarshan	√	√	x	x			-	-	-	-
	b. Agricultural Extension through Publicity Cell	x	x	5.84	5.84			-	-	-	-
2	**Agricultural Information and Publicity**			24.956	**24.000**	-	-	**5.75**	5.75	**10.62**	**10.62**
	a. Production T.V. Serial on Agriculture			√	√			x	x	x	x
	b. Quickies for AIR, Guwahati			√	√			x	x	x	x
	c. Kishan Mela			√	√			x	x	x	x
	d. Exibition			√	√			x	x	x	x
	e. Printing of Booklets, Leaflets etc.			√	√			x	x	x	x
	f. Orgenizing Exhibition / Kishan Melas and Technical Bulletiens etc.			x	x			5.75	5.75	x	x
	g. Publishing Agril. News Letter (copies)			x	x			x	x	√	1.40
	h. Publishing Agriculture at a Glance (copies)			x	x			x	x	√	1.20
	i. Publishing Agriculture Schemes in Boucher format (copies)			x	x			x	x	√	1.20
	j. Publishing Improved packages of practices for cultivation along with Economic Cultivation (copies)			x	x			x	x	√	2.50
	k. Crop Statistics (Book Format) (Copies)			x	x			x	x	√	0.20
	l. Advertisement and Publicity			x	x			x	x	√	4.12
3	**Agricultural Marketing**					-	-	**31.50**	31.50	-	-
	a. Transport Assistance through Auto Van @ 25% Subsidy for markting of perishables (Nos)							31.50	31.50		
4	Agricultural Mechanization	56.00	56.00	109.37	91.32	30.00	NA	24.95	18.00	65.00	60.00
	a. Distribution of Power Tillers	√	√	√	√			√	18.00	x	x
	b. Power Tiller with Subsidy @ Rs. 30,000/- each (nos)	x	x	x	x			x	x	60.00	60.00
	b. Distribution of Wheat Thresher	√	√	x	x			x	x	x	x
	c. Production of Small Agril. Implements	√	√	√	√			x	x	x	x
	d. Training	√	√	x	x			x	x	x	x
	e. Self Propelled Reaper @ 5 nos. in each district	x	x	√	√			x	x	x	x
	f. Rice Transplanter	x	x	√	√			x	x	x	x
	g. Zero Tillage Planter	x	x	√	√			x	x	x	x
	h. Power Paddy Thresher (Nos.)	x	x	x	x			√	x	x	x
	i. Oil Expeller (nos.) @ Rs.20,000/- Subsidy (nos)	x	x	x	x			√	x	5.00	-
	j. O.E.	x	x	x	x			x	x	x	x
5	**Agricultural Training Programme & Farmers Conference**			39.043	13.800						
6	**Computerisation of State Land Use Board**			5.00	N.S.						

(Rupees in Lakh)

Sl. No.	Schemes	2002-03 (as on 26st July'2004)		2003-04 (as on 26st July'2004)		2004-05 (as on 25th July, 2005)		2005-06 (as on 21st July'2007)		2006-07 (as on 21st July'2007)	
		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
7	**Certified Seed Production Programme**	60.92	63.92 (I.P.)	34.00	N.S.	35.00	NA	24.20	20.25	89.63	5.60
	a. Production of Certified Seed- Paddy	√	√	-	-			√	12.00	x	x
	b. Infrastructure Development of Departmantal Seed Farm	√	√	-	-			-	-	x	x
	c. Purchase of Breeder Seeds of Cereal Crops	√	√	-	-			-	-	x	x
	d. Production of Foundation Seeds	√	√	-	-			√	8.25	x	x
	e. Director of ASSCA for G.O.T.	√	√	-	-			-	-	x	x
	f. Strengthing of Seed Testing Laboratory under ASSCA	√	√	-	-			-	-	x	x
	g. Cost of Breeder Seed (Ha.)	x	x	-	-			√	-	x	x
	h. Mobility etc.	x	x	-	-			-	-	x	x
	i. Cost of Breeder Seed (qtl.)									x	x
	1. Paddy	x	x	-	-			-	-	√	0.9840
	2. Oil Seed	x	x	-	-			-	-	√	0.2852
	3. Pulses	x	x	-	-			-	-	√	0.2820
	4. Fiber Crop (Jute)	x	x	-	-			-	-	√	0.0450
	J. Cultivation Cost of Foundation seed to Certified Seed (ha.)	x	x	-	-			-	-	√	-
	k. Two days Workshop (State Level) for both Kharif & Rabi (nos.)	x	x	-	-			-	-	√	-
	l. Two days Training Programme for Seed Growers (30 Farmers in each batch) (no of batches)	x	x	-	-			-	-	√	4.00
	m. Exposure Visit of Seed Growers outside State (20 farmer in each batch) (No. of batches)	x	x	-	-			-	-	√	-
8	**Co-operation Development**	15.84	15.84	10.00	10.00	-	-	-	-	-	-
	a. Assistance to Women Co-operative Society	√	√							x	x
	b. Incentives to the West Assam Milk Producers, Co-op Union Ltd.	x	x							x	x
9	**Crop Acreage & Production Estimation Survey**			6.00	4.70	-	-			-	-
10	**Crop Divercification Programme**			67.500	20.016	-	-	130.60	66.45	89.99	-
	A. Field Demonstration with Wheat, Oilseed and Fodder Crops										
	1. Field Demonstration with Sunflower (5 Bighas), Mustard, Oat and Berseem (each in 1 bigha area) @ Rs. 1,800/- per Demo.			√	√					x	x
	2. Two days Training of farmers @ Rs.50/- per day/ Farmer			√	√			x	x	x	x
	3. Contingency for District H.Q.			√	√					x	x
	B. Crop Development										
	1. Crop Sequence Demonstration. Of 1 Ha. Size Kharif Paddy Variety- Lachit/ Luit/ IR50 (nos)			-	-			√	13.50	x	x
	2. Rape & Mustard, Variety- M-27/ TS-36/ TS-38 (Ha.)			x	x			√	-	x	x
	3. Black Grame Variety- T-9/Pu-19 (Ha.)			x	x			√	-	x	x
	4. Nizer Variety- GA-10 (Ha.)			x	x			√	-	x	x

(Rupees in Lakh)

Sl. No.	Schemes	2002-03 (as on 26st July'2004)		2003-04 (as on 26st July'2004)		2004-05 (as on 25th July, 2005)		2005-06 (as on 21st July'2007)		2006-07 (as on 21st July'2007)	
		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
	5. Summer Paddy (Hybrid) Variety PAC-832 (Ha.)			x	x			√	-	x	x
	6. 25% Subsidy Sale of Bio-fertilizer (Ha.)			x	x			√	2.50	x	x
	7. 25% Subsidy Sale of Micro Nutrient (Ha.)			x	x			√	17.45	x	x
	8. Summer Paddy HYV demonstration (Ha.)			x	x			√	21.00	x	x
	8. Summer Paddy Hybrid demonstration (Ha.)			x	x			√	12.00	x	x
	9. Black Gram demonstration (Ha.)			x	x			√	-	x	x
	10. Nizer demonstration (Ha.)			x	x			√	-	x	x
	11. Technology Demonstration (Ha.)			x	x			x	x		
	a. Wheat			-	-					√	-
	b. Rape and Mustard Seed			-	-					√	-
	c. Black Gram			-	-					√	-
	d. Green Gram			-	-					√	-
	12. Micronutrients for Pulses, Oilseeds and Wheat @ 25% Subsidy Limited to Rs. 200/- per Hectare.			x	x			x	x	√	-
	13. Soil Ameliorants i.e. Agril. Limes at 100% subsidy (Ha)			x	x			x	x	√	-
	14. Office Expense			x	x			x	x	x	-
11	**Development of Sugarcane**			16.48	16.48	-	-	19.20	4.50	1.60	-
	a. Demonstration 1 Ha. Size			√	√			√	-	x	x
	b. Farmers' Training (2 days duration) (50 Farmers per batch)			√	√			√	4.50	x	x
	c. Bullock Drown Cane Crusher			√	√			x	x	x	x
	d. Bullock Drown Implements			√	√			x	x	x	x
	e. Mobility etc.			x	x			x	x	x	x
	f. Hand Sprayer/ other implements with Subsidy @ Rs. 800/- each(nos)			x	x			x	x	1.60	-
12	**Empowerment of Women in Agriculture**							31.11	7.91	-	-
	a. Verm Compost Unit (no) including Horticulture Crop / Duckary Poultry in different Districts.							√	-		
	b. Exposure Visit within the State (30 nos. batch)							√	4.80		
	c. Training Programme (30 nos. batch)							√	1.40		
	d. 2 days training Programme for farm Women 30 farmers per batch							√	1.57		
	e. Misc. including Mobility etc.							√	0.13		
13	**Horticulture Development**	28.21	25.43			-	-	-	-		
	a. Development of Spices (Training)	0.10	0.10								
	b. Commercial Floriculture	5.50	7.35								
	1.Gladiolus Demonstration	√	√								
	2. Gerbera (Hybrid) Demonstration	√	√								
	3. Iris Demonestration	√	√								

(Rupees in Lakh)

Sl. No.	Schemes	2002-03 (as on 26st July'2004)		2003-04 (as on 26st July'2004)		2004-05 (as on 25th July, 2005)		2005-06 (as on 21st July'2007)		2006-07 (as on 21st July'2007)	
		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
	4. Jasmin, Mosanda Demonstration	-	-								
	5. Rose Demonestration	√	√								
	c. Development of Root & Tuber Crops	4.63	I.P.								
	1. T.P.S. Demonstration	√	√								
	d. Production & Supply of Vegetable Seeds (Minikit Demo.)	2.00	2.00								
	e. Development of Cashewnut	13.40	13.40								
	1. Area Expansion	√	√								
	2. Farmers Training	√	√								
	f. Betelvine Cultivation	2.58	2.58								
	1. Demonstration on Betelvine Cultivation	√	√								
	2. Training	√	√								
14	**ICDP - Rice**	**70.00**	**70.00**	**15.00**	**15.00**	-	-			**32.00**	**32.00**
	a. Technology Demonstration	√	√	x	x					√	√
	b. Distribution of Power Tillers	√	√	x	x					-	-
	c. Demo on Hybrid Rice	x	x	√	√					√	√
	d. Demo on HYV	x	x	√	√					√	√
	e. Distribution of Rice Seed @ Rs. 200/- per Qtl.	x	x	x	x					√	√
	f. Contingency: Office Expense	x	x							-	-
15	**ICDP - Wheat**	**50.00**	**30.00**			-	-				
	a. One acre size Technology Demonstration	√	√								
	b. Distribution of Wheat seeds	√	√								
	c. Conducting of Farmers' Training	√	√								
16	**Information Technology**	**13.00**	**13.00**	**44.00**	**44.00**	**45.00**	N.A.				
	a. Installation of Computers in the branches/cells of the Directorate of Agriculture	√	√	x	x						
	b. Installation of Computers, Software etc. in Agril.Sub-Div.	x	x	30.00	30.00						
	c. Installation of Computers with all accessories at Zonal and Dist. office	x	x	14.00	14.00						
17	**INM**			**56.185**	**20.00**	-	-	**30.89**	**15.97**	**48.67**	**33.39**
	A. Pilot Scheme on Orgenic Farming (Joha Rice)			**20.00**	**20.00**	-	-				
	1. Exposure Visit (outside the State)							x	x		
	a. For Officers (20 nos.)			√	√					x	x
	b. For Farmers (40 nos. with 4 officers)			√	√					x	x
	2. Exposure Visit (inside the State) for farmers to Maruachowki vill.			√	√			x	x	x	x
	3. Farmers Training (2 days) on INM (batch)			√	√			x	x	-	-
	4. Allowances to experienced farmers of Maruachowki vill. for training to other FMCs (2 days)			√	√			x	x	x	x

(Rupees in Lakh)

Sl. No.	Schemes	2002-03 (as on 26st July'2004)		2003-04 (as on 26st July'2004)		2004-05 (as on 25th July, 2005)		2005-06 (as on 21st July'2007)		2006-07 (as on 21st July'2007)	
		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
	5. Payments to consultant							x	x	x	x
	6. Payment to Inspectors for 2 visit to Assam			√	√			x	x	x	x
	7. Meterials and Supplies-							x	x	x	x
	a. Seed 32 qtls. @ Rs. 1,500/- per qtl.			√	√					-	-
	b. Bio-dynamic preparations									-	-
	c. Expenditure for compost making by bio-dynamic method			√	√					-	-
	8. Marketing Support							x	x	x	x
	B. Strenthening of Soil Testing Laboratory (nos)			36.185	-	-	-	√	√	√	16.49
	C. Strenthening of Quality Control Laboratory (nos)			x	x			√	√	√	-
	D. Distribution of Polythene Bag for collection of Soil Sample (qtl)			x	x			√	√	√	-
	E. Distribution of Information Sheet (nos.)			x	x			x	x	x	-
	F. Sali Paddy Demonstration 1 Ha. Size (nos)			x	x			√	√	x	x
	G. Orientation Training for Officers (2 Days) in INM (nos)			x	x			√	x	√	√
	H. Orientation Training of Soil Testing Staff (2 Days) (nos)			x	x			√	x	√	√
	I. Training Programme			x	x			x	x	-	-
	J. Distribution of Booklets/Leaflets for Publicity/Awareness on INM & Orgenic Farming			x	x			x	x	√	-
	K. Distribution of Agricultural Lime for amelioration of acid Soil.			x	x			x	x	√	9.10
	L. Distribution of Bio-fertilizer (Biozyme) for Sali Paddy (qtl.)			x	x			x	x	√	7.80
18	IPM	24.10	24.10	70.30	20.00	-	-			46.05	45.12
	A. Training and Demonstration										
	1. Conducting FFS Training	√	√	x	x					x	x
	2. Conducting Farmers' Training for Awareness Creation	√	√	x	x					x	x
	3. Follow-up Training of FFS	√	√	x	x					x	x
	4. Trainers Training Programme on Rice and Vegetable IPM	x	x	√	√					x	x
	5. Village Level one day Training for Creating Awareness	x	x	√	√					√	4.37
	6. Training of Pesticide Agent, Dealers etc. one in each sub-Div.	x	x	√	√					√	0.60
	7. State Level Workshop (nos.)	x	x	x	x					√	-
	8. State Level Trainners' Training Programme on Rice & Veg. IPM	x	x	x	x					√	1.29
	9. State Level VLEWs" Training Programme on Rice & Veg. IPM	x	x	x	x					√	0.86
	10. Farmers Field School and Field Day (batches)	x	x	x	x					√	25.50
	B. Popularising of Bio-pesticides, Bio Agent for demonstrative use in FFS & Non-FFS Farmers									√	10.00
	1. Distribution of Bio-pesticides			x	x						
	a. Kg	√	√	-	-	-	-	-	-	-	-
	b. Lit	x	x	-	-	-	-	-	-	-	-

(Rupees in Lakh)

Sl. No.	Schemes	2002-03 (as on 26st July'2004)		2003-04 (as on 26st July'2004)		2004-05 (as on 25th July, 2005)		2005-06 (as on 21st July'2007)		2006-07 (as on 21st July'2007)	
		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
	c. Bottle	x	x	-	-	-	-	-	-	-	-
	2. Trichoderma @ Rs.220/- per Kg.	x	x	√	√					x	x
	3. Bicillus Thurengenisis @ Rs. 1,320/- per Kg.	x	x	√	√					x	x
	4. NPV (Spodo) @ Rs.2,000/- per lit.	x	x	√	√					x	x
	5. NAV (Heli) @ Rs.2,000/- per lit.	x	x	√	√					x	x
	6. Naeuveria bassiana @ Rs. 210/- per Kg.	x	x	√	√					x	x
	7. Neem based Pesticides @ 270/- per lit.	x	x	√	√					x	x
	8. Recurring expenditure of State Bio-control Laboratory	x	x	√	√					√	1.50
	9. Recurring expenditure of State Pesticide Testing Laboratory	x	x	x	x					√	1.00
	C. Distribution of Maha Neem Seedlings, LS	x	x	x	x					x	x
	D. Rodent Control Measures	x	x	x	x					x	x
19	IPNM					244.00	N.A.	76.75	76.75		
	a. Demonstration (Early Ahu Seeds & Other implements)							√	√		
	b. Farmers Field School & Field Day (nos.)							√	√		
	c. Village Level 1 day Training on Rice & Vegetable (batch)							√	√		
	d. Village Level 1 day Training on Rodent Pest Management (batch)							√	√		
	e. Subsidy Sale of HC Sprayer (nos.)							√	√		
	f. Recurring Expenditure of State Bio-control Lab. (nos.)							√	√		
	g. Recurring Expenditure of State Pesticide Testing Lab. (nos.)							√	√		
	h. Transportation Charges for carrying IPM materials to Districts.(nos.)							√	√		
	i. Administrative Expenditure							√	√		
20	**Jute / Ramie Development Programme**			52.00	14.198	-	-	-	-		
	a. Technology Demonstration			√	√						
	b. Farmers' Training			√	√						
21	**Modern Fresh Fruit, Vegetable & Dairy Products Outlets**			15.90	15.90	-	-	-	-		
	a. Premises (Approx. 400 Sq. ft.)			x	x						
	b. Equiptments-			x	x						
	1. Refrigerated Stainless Steel Counters			√	√						
	2. Air Conditioner (1.5 ton x 1)			x	x						
	3. Weighing Scales (Digital Table Top)			x	x						
	4. Utensils for Sorting & Washing			x	x						
	5. Electric Heat Sealing Machine			x	x						
	6. Diesel Generator (5 KVA with accessories)			x	x						
22	**New Initiative**									155.88	20.86
	1. Subsidy Sale of Micronutrients for maintaining Soil Health with assistance to farmers at 25% subsidy limited to Rs. 200/-/ha(Ha.)									18.00	-

(Rupees in Lakh)

Sl. No.	Schemes	2002-03 (as on 26st July'2004)		2003-04 (as on 26st July'2004)		2004-05 (as on 25th July, 2005)		2005-06 (as on 21st July'2007)		2006-07 (as on 21st July'2007)	
		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
	2. Exposure visit (outside the State) on orgenic farming (30 farmers, 3 VLEWs & 3 Officers)									**2.02**	-
	3. Empowerment of Women:									**22.20**	**9.60**
	a. Costruction of Vermi Compost Pit (SHG)									-	-
	b. Exposure visit with in the State (nos.)									√	6.90
	c. Training Programme (nos.)									√	2.70
	4. Agricultural Development in Char Areas					-	-	-	-	**29.36**	**1.30**
	a. Crop Demonstration : 1. Oil Seeds (nos.)									√	-
	2. Black Gram (nos.)									√	-
	3. Lentil (nos.)									√	-
	4. Crop Production training of farmers (nos)									√	1.30
	5. Rodent Pest Management					-	-	-	-	9.96	9.96
	a. Three days Training Programme of Officres on Rodent Control (nos)									0.86	0.86
	b. Village Level One day Farmers Training Programe (nos)									1.20	1.20
	c. Surveillance of Rodent in Jhum field, foothills, Crop field near by forest									5.40	5.40
	d. Distribution of Rodenticides									2.50	2.50
	6. Strengthening of Workshop Machinery (modernization) including purchage of Raw materials for production and distribution of improved Small implements (nos workshop)					-	-	-	-	65.50	-
	7. Exebition and Kishan Mela									8.85	-
	a. National Level Exhibition (nos)									√	-
	b. State Level Exhibition (nos)									√	-
	c. Kishan Mela / Training for 23 districts (nos)									√	-
23	NWDPRA	100.00	100 (I.P.)	90.00	45.00	125.00	N.A.	287.80	287.80	341.47	341.47
	A. Management Component										
	1. Administrative Cost									√	22.50
	2. Community Organisation									√	5.00
	3. Training									√	22.50
	B. Development Component										
	1. Natural Resource Development									√	256.47
	2. Land Based Enterprise									√	20.00
	3. Non Land Based Enterprise									√	10.00
24	**Soil Conservation**	46.74	46.74	103.00	10.00	65.00	N.A.	88.40	-		
	a. Pagladia RVP			x	x						
	b. Singla FPR			x	x						
	c. State Land Use Board			x	x						
	d. Soil Conservation measures in Singla FPR			√	√						
	e. River Velly Project as per GOI approved Schemes			x	x			√	-		
	f. Flood Prone River as per GOI approved Schemes			x	x			√	-		
	g. FPR Project			x	x			√	-		

(Rupees in Lakh)

Sl. No.	Schemes	2002-03 (as on 26st July'2004)		2003-04 (as on 26st July'2004)		2004-05 (as on 25th July, 2005)		2005-06 (as on 21st July'2007)		2006-07 (as on 21st July'2007)	
		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
25	**Special Jute Development Programme**					25.85	N.A.	-	-	19.00	18.996
	a. Constraction of Pucca Retting Tank (Cost Limited to Rs.20,000/- per tank) (nos)									√	4.00
	b. Distribution of Fungal Culture @ Rs.12/- per Packet (nos)									√	-
	c. Farmers Training (one day) 30 farmers in each batch									√	2.49
	d. Distribution of Hand Sparyer @ Rs.700/- Subsidy (nos)									√	1.50
	e. Office Expenses including Transportation									-	-
	f. Subsidy Sale of Jute Seed @ Rs. 800/- per qtl.									√	-
26	**Strengthening of AGMARK Laboratory**			10.200	10.200	-	-			-	-
	a. Renovation and repairing of existing buildings used for AGMARK Laboratories			√	√					x	x
	b. Repairing of Laboratory furnitures @ Rs. 2,500/- for each lab.			√	√					x	x
	c. Purchase of Furniture for Laboratories			√	√					x	x
	d. Purchase of Chamicals for Laboratories yearly requirment			√	√					x	x
	e. Purchase of Glass Wares for Laboratories			√	√					x	x
	f. Cost of Electrical arrangement @ Rs. 500/- for each Lab.			√	√					x	x
	g. Cost of Water Supply arrangement @ Rs. 30,000/- fer each			√	√					x	x
	h. Officer training and Farmers Training on AGMARK & Grading			-	-	-	-			x	x
	i. On going expenditure for Laboratory @ Rs. 30,000/- per month / lab.			√	√					x	x
27	**Strengthening of Field Trial Stations & Seed Farms**					-	-	-	-	1.78	1.38
	a. Purchase of Farm Bullock (Pairs)									√	0.80
	b. Mobility & Contingencies for FTS & HQ									√	0.58
28	**Strengthening of (Four) Seed Testing Laboratory**			3.16	3.16	-	-	-	-	-	-
	a. Seed Germinator			√	√					x	x
	b. Bag Closing Machine			√	√					x	x
	c. Illuminated working Table			√	√					x	x
29	**Strengthening of Fruit Preservation Trainig Centre**			15.00	15.00	-	-	-	-	-	-
	a. Machineries and Equipments			√	√					x	x
	b. Chamicals and Preservatives			√	√					x	x
30	**TSP & SCCP Scheme**	30.00	30.00	49.766	20.284	105.00	N.A.	68.70	13.20	98.30	98.30
	a. Vegetable Cultivation in Poly House	√	√	x	x			x	x	x	x
	b. Four Auto Van to the ST and Three Auto Van to the SC group/ FMC/ SHG at the rate of 25% subsidy, Rs. 30,600/-	x	x	x	x			x	x	x	x
	c. 92 TSP and 69 group of farmers	x	x	√	√			x	x	x	x
	d. Contingencies	x	x	x	x			x	x	x	x

(Rupees in Lakh)

Sl. No.	Schemes	2002-03 (as on 26st July'2004)		2003-04 (as on 26st July'2004)		2004-05 (as on 25th July, 2005)		2005-06 (as on 21st July'2007)		2006-07 (as on 21st July'2007)	
		Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement	Target	Achivement
	e. TSP- 1. Oil Seed Demonstration (Nos)	x	x	x	x			√	3.03849	x	x
	2. Pulse Demonstration (Nos)	x	x					√	3.55446	x	x
	f. SCCP- 1.Oil Seed Demonstration (Nos)	x	x	x	x			√	3.03849	x	x
	2. Pulse Demonstration (Nos)	x	x					√	3.55446	x	x
	g. Minor Flow Irrigation Project (Ha.)	x	x	x	x			√	-	x	x
	h. Misc. Expenditure	x	x	x	x			√	0.01410	x	x
	i. Distribution of Powtertiller at 25% subsidy (nos)	x	x	x	x			x	x	√	71.50
	j. Distribution of Hand Sprayer at 25% subsidy limited to Rs.800/- in each	x	x	x	x			x	x	√	26.80
31	**Waste Land Development Programme**			**51.10**	**51.10**	**22.00**	**N.A.**	**40.15**	**N.S.**		
	a. Pub-na-bhanga water harvest cum gully control project (Nagaon)									x	x
	b. Gopal Pathar land Development Project (Dist.-Kamrup)									x	x
	c. Tihu Nala Development Project, Patacharkuchi (Borpeta)									x	x
	d. Puthimari land Development Project, Sorbhog (Borpeta)									x	x
	e. Sandhya Paikarkuchi Project, Kamarkuchi (Nalbari)									x	x
	f. Project at Hojai and Tamulpur									x	x
	g. Land development (Hact.)									x	x
Total		**509.97**	**490.19**	**893.80**	**470.00**	**696.85**	**N.A.**	**860.00**	**548.08**	**1,000.00**	**667.73**

APPENDIX - III

Cost of cultivation of Paddy before MMMA

Useses of Inputs	Over all									
	below 1 Ha.		1 - 2 Ha.		2 - 4 Ha.		4 and above		Total	
	12.1	Per Ha.	55.73	Per Ha.	33.4	Per Ha.	45.73	Per Ha.	146.96	Per Ha.
A. Variable Cost										
Human Labour										
1. Family: Mandays	1,205.01	99.59	3,673.74	65.92	1,151.59	34.48	684.12	14.96	6,714.46	45.69
Amount in Rs.	84,350.70	6,971.13	257,161.70	4,614.42	80,611.55	2,413.52	47,888.08	1,047.19	470,012.03	3,198.23
2.Hired: Mandays	0.00	0.00	2,005.25	35.98	2,179.17	65.24	3,730.17	81.57	7,914.60	53.86
Amount in Rs.	0.00	0.00	140,367.82	2,518.71	152,541.99	4,567.13	261,112.05	5,709.86	554,021.85	3,769.88
Machine Labour										
1. Owned	0.00	0.00	0.00	0.00	7,158.54	214.33	37,437.44	818.66	44,595.97	303.46
2. Hired	1,712.00	141.49	12,087.23	216.89	2,766.72	82.84	10,503.29	229.68	27,069.23	184.19
FYM application										
1. Owned	522.25	43.16	2,623.29	47.07	1,564.66	46.85	2,142.74	46.86	6,852.94	46.63
2. Hired	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fertilizer application										
1. Owned	756.17	62.49	4,202.48	75.41	3,036.06	90.90	3,618.17	79.12	11,612.88	79.02
2. Hired	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Insectiside/Pesticide application										
1. Owned	183.64	15.18	1,854.79	33.28	0.00	0.00	0.00	0.00	2,038.42	13.87
2. Hired	0.00	0.00	0.00	0.00	1,092.07	32.70	2,094.07	45.79	3,186.13	21.68
Labour Charges										
In irrigation (In Rs.)	121.88	10.07	941.55	16.89	619.71	18.55	755.82	16.53	2,438.96	16.60
Transplating (In Rs.)										
1. Owned	5,542.50	458.06	20,283.16	363.95	10,781.11	322.79	5,159.98	112.84	41,766.75	284.20
2. Hired	0.00	0.00	8,736.61	156.77	7,263.09	217.46	20,522.61	448.78	36,522.31	248.52
Harvesting & threshing (In Rs.)										
1. Owned	5,397.45	446.07	18,114.99	325.05	9,583.93	286.94	4,407.92	96.39	37,504.29	255.20
2. Hired	0.00	0.00	7,710.48	138.35	6,351.54	190.17	17,842.98	390.18	31,905.00	217.10
Total Human Labour amount in Rs.	98,586.58	8,147.65	474,084.10	8,506.80	283,370.96	8,484.16	413,485.12	9,041.88	1,269,526.76	8,638.59
Bullock Labour										
1. Owned	29,963.47	2,476.32	137,462.08	2,466.57	65,374.79	1,957.33	90,392.75	1,976.66	323,193.10	2,199.19
2. Hired	812.50	67.15	4,539.83	81.46	20,908.48	626.00	614.64	13.44	26,875.45	182.88
Input Expenditure										
1. Seed: Quantity (Kg.)	771.65	63.77	3,727.41	66.88	2,250.93	67.39	3,073.07	67.20	9,823.05	66.84
Value (Rs.)	7,387.08	610.50	38,092.96	683.53	22,972.29	687.79	30,183.89	660.05	98,636.22	671.18
2. F.Y.M.: Quantity (qtls.)	43.49	3.59	206.09	3.70	126.52	3.79	179.80	3.93	555.90	3.78
Value (Rs.)	2,174.38	179.70	10,304.50	184.90	6,326.05	189.40	8,990.00	196.59	27,794.92	189.13
3. Fertilizer: Quantity (Kg.)	435.51	35.99	2,233.25	40.07	1,466.83	43.92	1,999.80	43.73	6,135.39	41.75
Value (Rs.)	2,789.10	230.50	14,239.05	255.50	9,382.70	280.92	12,852.93	281.06	39,263.78	267.17
4. Micro Nutrient (in Rs.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.Plant Protection Measures (in Rs.)	1,504.80	124.36	8,269.65	148.39	5,946.54	178.04	8,659.24	189.36	24,380.24	165.90
6. Fuel Charges (irri.) in Rs.	487.50	40.29	4,010.40	71.96	2,996.40	89.71	3,603.60	78.80	11,097.90	75.52
7. Interest on Variable Costs @ 3.5%	5,080.82	419.90	24,181.09	433.90	14,604.74	437.27	19,902.10	435.21	63,768.75	433.92
Total Variable Cost	148,786.23	12,296.38	715,183.67	12,833.01	431,882.95	12,930.63	588,684.27	12,873.04	1,884,537.13	12,823.47
B.Fixed Costs										
1. Depreciation on Tools & Implements & Farm House @ 10%	1,593.00	131.65	7,617.98	136.69	6,298.76	188.59	9,781.37	213.89	25,291.11	172.10
2. Land Revenue	451.94	37.35	2,081.52	37.35	1,247.49	37.35	1,708.02	37.35	5,488.96	37.35
3. Interest on Fixed Costs @ 4%	759.64	62.78	6,997.46	125.56	6,290.56	188.34	9,980.12	218.24	24,027.77	163.50
4. Rental value of Land @ 25% of TI	60,015.66	4,959.97	290,271.75	5,208.54	167,394.92	5,011.82	217,836.69	4,763.54	735,519.02	5,004.89
5. Managerial Cost @ 2% of TC	4,232.13	349.76	20,443.05	366.82	12,262.29	367.13	16,559.81	362.12	53,497.28	364.03
Total Fixed Cost at C2:	2,804.57	231.78	16,696.95	299.60	13,836.81	414.28	21,469.50	469.48	54,807.83	372.94
Total Fixed Cost at C3*:	67,052.36	5,541.52	327,411.75	5,874.96	193,494.02	5,793.23	255,866.00	5,595.15	843,824.13	5,741.86
Total Cost (A+B) at C2:	151,590.81	12,528.17	731,880.62	13,132.61	445,719.76	13,344.90	610,153.77	13,342.53	1,939,344.96	13,196.41
Total Cost (A+B) at C3*:	215,838.60	17,837.90	1,042,595.42	18,707.97	625,376.97	18,723.86	844,550.27	18,468.19	2,728,361.26	18,565.33
Production: Quantity (Qtls.)	457.41	37.80	2,281.23	40.93	1,314.97	39.37	1,684.82	36.84	5,738.43	39.05
Value (Rs.)	232,545.15	19,218.61	1,127,415.81	20,229.96	649,741.65	19,453.34	844,869.28	18,475.16	2,854,571.88	19,424.14
By-product: Value (Rs.)	7,517.50	621.28	33,671.19	604.18	19,838.02	593.95	26,477.50	579.00	87,504.21	595.43
Total Income (Rs.)	240,062.65	19,839.89	1,161,087.00	20,834.15	669,579.67	20,047.30	871,346.78	19,054.16	2,942,076.09	20,019.57
BCR at C2		1.58		1.59		1.50		1.43		1.52
BCR at C3*		1.11		1.11		1.07		1.03		1.08

APPENDIX - IV

Cost of cultivation of Paddy after MMMA

Useses of Inputs	Over all (*Ahu, Boro* and *Sali*)									
	below 1 Ha.		1 - 2 Ha.		2 - 4 Ha.		4 and above		Total	
	12.56	Per Ha.	55.98	Per Ha.	32.04	Per Ha.	41.23	Per Ha.	141.81	Per Ha.
A. Variable Cost										
Human Labour										
1. Family: Mandays	1,189.55	94.71	3,575.10	63.86	1,087.17	33.93	669.34	16.23	6,521.16	45.99
Amount in Rs.	95,164.20	7,576.77	286,008.06	5,109.11	86,973.95	2,714.54	53,546.98	1,298.74	521,693.18	3,678.82
2.Hired: Mandays	0.00	0.00	1,943.62	34.72	2,041.65	63.72	3,279.55	79.54	7,264.82	51.23
Amount in Rs.	0.00	0.00	155,489.83	2,777.60	163,331.69	5,097.74	253,272.28	6,142.91	572,093.80	4,034.23
Machine Labour										
1. Owned	0.00	0.00	0.00	0.00	9,466.00	295.44	47,982.39	1,163.77	57,448.39	405.11
2. Hired	1,833.25	145.96	12,228.66	218.45	4,369.00	136.36	8,837.73	214.35	27,268.64	192.29
FYM application										
1. Owned	447.00	35.59	3,627.36	64.80	2,519.45	78.63	3,436.55	83.35	10,030.36	70.73
2. Hired	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fertilizer application										
1. Owned	749.08	59.64	4,380.75	78.26	2,807.05	87.61	3,486.69	84.57	11,423.56	80.56
2. Hired	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Insectiside/Pesticide application										
1. Owned	377.77	30.08	2,561.89	45.76	0.00	0.00	0.00	0.00	2,939.65	20.73
2. Hired	0.00	0.00	0.00	0.00	1,619.82	50.56	2,476.10	60.06	4,095.93	28.88
Labour Charges										
In irrigation (In Rs.)	105.30	8.38	949.97	16.97	640.75	20.00	798.66	19.37	2,494.68	17.59
Transplating (In Rs.)										
1. Owned	5,834.65	464.54	21,097.62	376.88	10,595.32	330.69	4,753.67	115.30	42,281.26	298.15
2. Hired	0.00	0.00	8,953.82	159.95	7,136.45	222.74	18,781.39	455.53	34,871.66	245.90
Harvesting & threshing (In Rs.)										
1. Owned	5,618.24	447.31	18,450.31	329.59	9,363.04	292.23	4,146.46	100.57	37,578.05	264.99
2. Hired	0.00	0.00	7,986.55	142.67	6,135.72	191.50	16,870.00	409.17	30,992.27	218.55
Total Human Labour amount in Rs.	110,129.49	8,768.27	521,734.81	9,320.02	304,958.23	9,518.05	418,388.89	10,147.68	1,355,211.43	9,556.53
Bullock Labour										
1. Owned	31,360.38	2,496.85	140,386.15	2,507.79	60,760.15	1,896.38	83,953.12	2,036.21	316,459.80	2,231.58
2. Hired	902.07	71.82	4,791.21	85.59	20,101.28	627.38	327.81	7.95	26,122.38	184.21
Input Expenditure										
1. Seed: Quantity (Kg.)	682.98	54.38	3,094.90	55.29	1,762.40	55.01	2,272.00	55.11	7,812.28	55.09
Value (Rs.)	6,512.64	518.52	30,981.68	553.44	17,580.20	548.70	22,042.48	534.62	77,116.99	543.81
2. F.Y.M.: Quantity (qtls.)	46.41	3.70	213.85	3.82	123.73	3.86	176.18	4.27	560.17	3.95
Value (Rs.)	2,320.47	184.75	10,692.36	191.00	6,186.64	193.09	8,809.06	213.66	28,008.53	197.51
3. Fertilizer: Quantity (Kg.)	518.73	41.30	2,372.69	42.38	1,421.74	44.37	1,606.56	38.97	5,919.72	41.74
Value (Rs.)	3,328.24	264.99	15,153.60	270.70	9,042.11	282.21	10,282.11	249.38	37,806.06	266.60
4. Micro Nutrient (in Rs.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5.Plant Protection Measures (in Rs.)	1,604.26	127.73	8,519.75	152.19	5,875.20	183.37	7,981.21	193.58	23,980.42	169.10
6. Fuel Charges (irri.) in Rs.	554.58	44.15	3,998.00	71.42	2,619.15	81.75	3,160.66	76.66	10,332.40	72.86
7. Interest on Variable Costs @ 3.5%	5,229.94	416.40	24,277.85	433.69	14,131.98	441.07	19,138.43	464.19	62,778.18	442.69
Total Variable Cost	161,942.08	12,893.48	760,535.40	13,585.84	441,254.94	13,772.00	574,083.76	13,923.93	1,937,816.18	13,664.88
B.Fixed Costs										
1. Depreciation on Tools &										
Implements & Farm House @ 10%	1,663.22	132.42	8,026.66	143.38	4,874.53	152.14	8,988.44	218.01	23,552.85	166.09
2. Land Revenue	469.12	37.35	2,090.85	37.35	1,196.69	37.35	1,539.94	37.35	5,296.60	37.35
3. Interest on Fixed Costs @ 4%	820.18	65.30	7,254.86	129.60	6,160.56	192.28	9,178.69	222.62	23,414.29	165.11
4. Rental value of Land @ 25% of TI	67,783.81	5,396.80	317,912.15	5,679.03	178,875.38	5,582.88	220,438.60	5,346.56	785,009.94	5,535.65
5. Managerial Cost @ 2% of TC	4,652.06	370.39	21,894.91	391.12	12,669.14	395.42	16,276.28	394.77	55,492.39	391.32
Total Fixed Cost at C2:	2,877.32	229.09	16,297.97	291.14	13,326.43	415.93	19,291.73	467.91	51,793.46	365.23
Total Fixed Cost at C3*:	75,388.39	6,002.26	357,179.44	6,380.48	203,776.30	6,360.06	256,421.95	6,219.31	892,766.08	6,295.51
Total Cost (A+B) at C2:	164,819.40	13,122.56	776,833.37	13,876.98	454,581.38	14,187.93	593,375.50	14,391.84	1,989,609.64	14,030.11
Total Cost (A+B) at C3*:	237,330.47	18,895.74	1,117,714.83	19,966.32	645,031.24	20,132.06	830,505.72	20,143.24	2,830,582.26	19,960.39
Production: Quantity (Qtls.)	519.45	41.36	2,495.09	44.57	1,401.40	43.74	1,706.28	41.38	6,122.22	43.17
Value (Rs.)	263,326.24	20,965.46	1,237,916.15	22,113.54	696,571.76	21,740.69	857,933.80	20,808.48	3,055,747.94	21,548.18
By-product: Value (Rs.)	7,809.02	621.74	33,732.45	602.58	18,929.75	590.82	23,820.60	577.75	84,291.82	594.40
Total Income (Rs.)	271,135.26	21,587.20	1,271,648.60	22,716.12	715,501.51	22,331.51	881,754.40	21,386.23	3,140,039.76	22,142.58
BCR at C2		1.65		1.64		1.57		1.49		1.58
BCR at C3*		1.14		1.14		1.11		1.06		1.11

APPENDIX - V

Cost of cultivation of jute Before MMMA

Useses of Inputs	Jute									
	below 1 Ha.		1 - 2 Ha.		2 - 4 Ha.		4 and above		Total	
	2.5	Per Ha.	6.6	Per Ha.	6.8	Per Ha.	4.9	Per Ha.	20.80	Per Ha.
A. Variable Cost										
Human Labour										
1. Family: Mandays	405.93	162.37	599.21	90.79	445.20	65.47	125.69	25.65	1,576.02	75.77
	30,444.38	12,177.75	44,941.05	6,809.25	33,389.70	4,910.25	9,426.38	1,923.75	118,201.50	5,682.76
2.Hired: Mandays	0.00	0.00	469.26	71.10	627.91	92.34	628.87	128.34	1,726.04	82.98
Amount in Rs.	0.00	0.00	37,540.80	5,688.00	50,232.96	7,387.20	50,309.28	10,267.20	138,083.04	6,638.61
Machine Labour										
1. Owned	0.00	0.00	0.00	0.00	1,020.00	150.00	6,495.69	1,325.65	7,515.69	361.33
2. Hired	312.50	125.00	1,980.00	300.00	1,700.00	250.00	0.00	0.00	3,992.50	191.95
FYM application										
1. Owned	112.50	45.00	363.00	55.00	442.00	65.00	392.00	80.00	1,309.50	62.96
2. Hired	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fertilizer application										
1. Owned	100.00	40.00	297.00	45.00	340.00	50.00	254.80	52.00	991.80	47.68
2. Hired	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Insectiside/Pesticide application										
1. Owned	50.00	20.00	165.00	25.00	0.00	0.00	0.00	0.00	215.00	10.34
2. Hired	0.00	0.00	0.00	0.00	204.00	30.00	147.00	30.00	351.00	16.88
Labour Charges										
In irrigation (In Rs.)	62.50	25.00	165.00	25.00	170.00	25.00	122.50	25.00	520.00	25.00
Sowing/weeding (In Rs.)										
1. Owned	388.90	155.56	660.00	100.00	340.00	50.00	0.00	0.00	1,388.90	66.77
2. Hired	0.00	0.00	396.00	60.00	749.90	110.28	810.07	165.32	1,955.97	94.04
Harvesting (cutting, carrying, rating & drying etc.in Rs.)										
1. Owned	2,688.00	1,075.20	3,493.00	529.24	1,360.00	200.00	0.00	0.00	7,541.00	362.55
2. Hired	0.00	0.00	3,573.00	541.36	5,990.00	880.88	5,390.00	1,100.00	14,953.00	718.89
Total Human Labour amount in Rs.	34158.78	13663.51	93573.85	14177.86	95938.57	14108.61	73347.71	14968.92	297018.90	14,279.75
Bullock Labour										
1. Owned	5,375.00	2,150.00	12,179.38	1,845.36	0.00	0.00	0.00	0.00	17,554.38	843.96
2. Hired	0.00	0.00	0.00	0.00	10,786.98	1,586.32	2,887.62	589.31	13,674.60	657.43
Input Expenditure										
1. Seed: Quantity (Kg.)	37.35	14.94	98.01	14.85	101.86	14.98	73.75	15.05	310.97	14.95
Value (Rs.)	2241.00	896.40	5880.60	891.00	6111.84	898.80	4424.70	903.00	18,658.14	897.03
2. F.Y.M.: Quantity (qtls.)	8.75	3.50	27.72	4.20	30.60	4.50	24.50	5.00	91.57	4.40
Value (Rs.)	437.50	175.00	1386.00	210.00	1530.00	225.00	1225.00	250.00	4,578.50	220.12
3. Fertilizer: Quantity (Kg.)	65.00	26.00	200.00	30.30	225.00	33.09	190.00	38.78	680.00	32.69
Value (Rs.)	617.50	247.00	1900.00	287.88	2137.50	314.34	1805.00	368.37	6,460.00	310.58
4.Plant Protection Measures (in Rs.)	313.50	125.40	907.17	137.45	1,268.61	186.56	973.92	198.76	3,463.20	166.50
5. Fuel Charges (irri.) in Rs.	134.62	175.00	542.50	175.00	589.75	175.00	306.25	175.00	1,573.12	75.63
6. Interest on Variable Costs @3.5%	1,514.73	605.89	4,072.93	617.11	4,142.71	609.22	2,973.96	606.93	12,704.33	610.79
Total Variable Cost	44,792.62	17,917.05	120,442.43	18,248.85	122,505.96	18,015.58	87,944.16	17,947.79	375,685.16	18,061.79
B.Fixed Costs										
1. Depreciation on Tools & Implements & Farm House @10%	346.40	138.56	1,059.83	160.58	1,667.56	245.23	1,349.85	275.48	4,423.64	212.68
2. Land Revenue	93.38	37.35	246.51	37.35	253.98	37.35	183.02	37.35	776.88	37.35
3. Interest on Fixed Costs @4%	152.13	60.85	795.76	120.57	1,229.03	180.74	1,032.19	210.65	3,209.10	154.28
4. Rental value of Land @ 25% of TI	18,178.13	7,271.25	48,743.75	7,385.42	49,297.50	7,249.63	34,558.75	7,052.81	150,778.13	7,248.95
5. Managerial Cost @ 2% of TC	1271.2528	508.50113	3425.7656	519.05539	3499.0806	514.57068	2501.3592	510.48147	10,697.46	514.30
Total Fixed Cost at C2:	591.90	236.76	2,102.10	318.50	3,150.58	463.32	2,565.05	523.48	8,409.63	404.31
Total Fixed Cost at C3*:	20,041.28	8,016.51	54,271.62	8,222.97	55,947.16	8,227.52	39,625.16	8,086.77	169,885.21	8,167.56
Total Cost (A+B) at C2:	45,384.52	18,153.81	122,544.53	18,567.35	125,656.53	18,478.90	90,509.21	18,471.27	384,094.79	18,466.10
Total Cost (A+B) at C3*:	64,833.89	25,933.56	174,714.04	26,471.82	178,453.11	26,243.10	127,569.32	26,034.55	545,570.37	26,229.34
Production: Quantity (Qtls.)	62.25	24.90	162.80	24.67	167.50	24.63	118.50	24.18	511.05	24.57
Value (Rs.)	71,587.50	28,635.00	192,104.00	29,106.67	194,300.00	28,573.53	136,275.00	27,811.22	594,266.50	28,570.50
By-product: Value (Rs.)	1,125.00	450.00	2,871.00	435.00	2,890.00	425.00	1,960.00	400.00	8,846.00	425.29
Total Income (Rs.)	72,712.50	29,085.00	194,975.00	29,541.67	197,190.00	28,998.53	138,235.00	28,211.22	603,112.50	28,995.79
BCR at C2		1.60		1.59		1.57		1.53		1.57
BCR at C3*		1.12		1.12		1.10		1.08		1.11

APPENDIX - VI

Cost of cultivation of jute after MMMA

Useses of Inputs	Jute									
	below 1 Ha.		1 - 2 Ha.		2 - 4 Ha.		4 and above		Total	
	2.5	Per Ha.	6.36	Per Ha.	6.79	Per Ha.	6.45	Per Ha.	22.10	Per Ha.
A. Variable Cost										
Human Labour										
1. Family: Mandays	404.85	161.94	605.47	95.20	381.80	56.23	164.15	25.45	1,556.28	70.42
Amount in Rs.	32,388.00	12,955.20	48,437.76	7,616.00	30,544.14	4,498.40	13,132.20	2,036.00	124,502.10	5,633.58
2.Hired: Mandays	0.00	0.00	414.04	65.10	708.47	104.34	831.02	128.84	1,953.52	88.39
Amount in Rs.	0.00	0.00	33,122.88	5,208.00	56,677.49	8,347.20	66,481.44	10,307.20	156,281.81	7,071.58
Machine Labour										
1. Owned	0.00	0.00	0.00	0.00	2,037.00	300.00	14,512.50	2,250.00	16,549.50	748.85
2. Hired	250.00	100.00	3,498.00	550.00	3,055.50	450.00	0.00	0.00	6,803.50	307.85
FYM application										
1. Owned	112.50	45.00	349.80	55.00	509.25	75.00	516.00	80.00	1,487.55	67.31
2. Hired	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fertilizer application										
1. Owned	100.00	40.00	286.20	45.00	1,018.50	150.00	335.40	52.00	1,740.10	78.74
2. Hired	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Insectiside/Pesticide application										
1. Owned	100.00	40.00	763.20	120.00	0.00	0.00	0.00	0.00	863.20	39.06
2. Hired	0.00	0.00	0.00	0.00	543.20	80.00	516.00	80.00	1,059.20	47.93
Labour Charges										
In irrigation (In Rs.)	62.50	25.00	159.00	25.00	169.75	25.00	161.25	25.00	552.50	25.00
Sowing/weeding (In Rs.)										
1. Owned	388.90	155.56	636.00	100.00	339.50	50.00	0.00	0.00	1,364.40	61.74
2. Hired	0.00	0.00	381.60	60.00	748.80	110.28	1,066.31	165.32	2,196.72	99.40
Harvesting (cutting, carrying, rating & drying etc.in Rs.)										
1. Owned	2,750.00	1,100.00	4,005.00	629.72	0.00	0.00	0.00	0.00	6,755.00	305.66
2. Hired	0.00	0.00	2,810.00	441.82	8,484.00	1,249.48	8,516.00	1,320.31	19,810.00	896.38
Total Human Labour amount in Rs.	36151.90	14460.76	94449.44	14850.54	104127.12	15335.36	105237.10	16315.83	339965.57	15,383.06
Bullock Labour										
1. Owned	5,176.13	2,070.45	11,736.49	1,845.36	0.00	0.00	0.00	0.00	16,912.61	765.28
2. Hired	0.00	0.00	0.00	0.00	12,126.94	1,786.00	7,026.05	1,089.31	19,152.99	866.65
Input Expenditure										
1. Seed: Quantity (Kg.)	28.00	11.20	79.00	12.42	91.00	13.40	91.00	14.11	289.00	13.08
Value (Rs.)	1820.00	728.00	5135.00	807.39	5915.00	871.13	5915.00	917.05	18,785.00	850.00
2. F.Y.M.: Quantity (qtls.)	11.50	4.60	31.80	5.00	33.95	5.00	35.48	5.50	112.73	5.10
Value (Rs.)	575.00	230.00	1590.00	250.00	1697.50	250.00	1773.75	275.00	5,636.25	255.03
3. Fertilizer: Quantity (Kg.)	80.00	32.00	240.00	37.74	260.00	38.29	240.00	37.21	820.00	37.10
Value (Rs.)	920.00	368.00	2760.00	433.96	2990.00	440.35	2760.00	427.91	9,430.00	426.70
4.Plant Protection Measures (in Rs.)	301.88	120.75	864.01	135.85	1,246.92	183.64	1,260.78	195.47	3,673.58	166.23
5. Fuel Charges (irri.) in Rs.	153.85	200.00	620.00	200.00	674.00	200.00	350.00	200.00	1,797.85	81.35
6. Interest on Variable Costs @3.5%	1,578.46	631.38	4,100.42	644.72	4,507.21	663.80	4,351.29	674.62	14,537.38	657.80
Total Variable Cost	46,677.20	18,670.88	121,255.36	19,065.31	133,284.69	19,629.56	128,673.98	19,949.45	429,891.23	19,452.09
B.Fixed Costs										
1. Depreciation on Tools &										
Implements & Farm House	356.40	142.56	1,053.66	165.67	1,715.63	252.67	1,843.28	285.78	4,968.97	224.84
2. Land Revenue	93.38	37.35	237.55	37.35	253.61	37.35	240.91	37.35	825.44	37.35
3. Interest on Fixed Costs	157.13	62.85	798.12	125.49	1,293.77	190.54	1,423.84	220.75	3,672.85	166.19
4. Rental value of Land @ 25% of TI	19,301.25	7,720.50	50,101.65	7,877.62	54,061.44	7,961.92	50,595.00	7,844.19	174,059.34	7,875.99
5. Managerial Cost @ 2% of TC	1331.707	532.68282	3468.9267	545.42872	3812.1826	561.44073	3655.5401	566.7504	12,268.36	555.13
Total Fixed Cost at C2:	606.90	242.76	2,089.32	328.51	3,263.00	480.56	3,508.03	543.88	9,467.25	428.38
Total Fixed Cost at C3*:	21,239.86	8,495.94	55,659.90	8,751.56	61,136.62	9,003.92	57,758.57	8,954.82	195,794.95	8,859.50
Total Cost (A+B) at C2:	47,284.10	18,913.64	123,344.68	19,393.82	136,547.69	20,110.12	132,182.00	20,493.33	439,358.48	19,880.47
Total Cost (A+B) at C3*:	67,917.06	27,166.82	176,915.26	27,816.86	194,421.31	28,633.48	186,432.54	28,904.27	625,686.17	28,311.59
Production: Quantity (Qtls.)	63.40	25.36	164.70	25.90	177.80	26.19	166.50	25.81	572.40	25.90
Value (Rs.)	76,080.00	30,432.00	197,640.00	31,075.47	213,360.00	31,422.68	199,800.00	30,976.74	686,880.00	31,080.54
By-product: Value (Rs.)	1,125.00	450.00	2,766.60	435.00	2,885.75	425.00	2,580.00	400.00	9,357.35	423.41
Total Income (Rs.)	77,205.00	30,882.00	200,406.60	31,510.47	216,245.75	31,847.68	202,380.00	31,376.74	696,237.35	31,503.95
BCR at C2		1.63		1.62		1.58		1.53		1.58
BCR at C3*		1.14		1.13		1.11		1.09		1.11

MMA

Tuesday, 29 June, 2010 11:53 AM

From: "keshav@isec.ac.in" <keshav@isec.ac.in>

To: kctalukdar@yahoo.co.in

Dear Professor Talukdar.

Thank You for your letter.

It is surprising that the comments we had sent on your report has not been reached you yet.Infact,we had sent the comments as soon as we received the report.
However, as the report has been systematically prepared and clearly presented according to our common table formats, we do not have much

Director.
P.C.Mahapatro.
Council of Ama
Sabar Shg
Koraput-764020.
Orissa.

comments to offer from our end excepting a few discrapancies in the selection of the schemes for evaluation. As it was mentioned in the project proposal Assam falls under the category of states that have implemented four schemes for the imapct assesment so four schemes should have been considerd for the impact assessment (Please refer project proposal).But in the report only two schemes have been evaluated ignoring another two.So it is suggested to reconsider this aspect and strictly comply with our methodology to capture the ground realities.

We once again thank you for your sincere efforts in conducting the study and assessing the impact at the grass root level.We also request you to send the final copy of the same(Both hard and Soft copies)at your earliest to consolidate and prepare a comprehensive report.

Looking for your kind cooperation and continued association.

With regards.
Dr.M Mahadeva.
Associate professor and Project Co-ordinator.
ADRTC,ISEC.
Bangalore

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