



ACHIEVEMENTS OF KRISHI VIGYAN KENDRA KAKDWIP

CENTRAL INLAND CAPTURE FISHERIES RESEARCH INSTITUTE : BARRACKPORE



KAKDWIP

BAY OF BENGAL

ACHIEVEMENTS OF KRISHI VIGYAN KENDRA KAKDWIP

FOREWORD



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Achievements of Krishi Vigyan Kendra Kakdwip

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FOREWORD

The concept of vocational training in agriculture and allied fields through Krishi Vigyan Kendra grew substantially owing to greater demand for advancement of technologies and the growing progressiveness of the farmers. Krishi Vigyan Kendra functions to impart need based and skill oriented vocational training to the practising farmers, in-service field level extension workers and the those who wish to go in for self-employment. Keeping these in view, the Krishi Vigyan Kendra, Kakdwip as established in the coastal areas of Sunderbans in West Bengal (District 24 Parganas South) to cater to the needs and to uplift the socio-economic status of the down-trodden populace of the area. The KVK, Kakdwip has been functioning since 1979 and has made significant contributions for the betterment of its clientele. The achievements made by the KVK since inception has been depicted in this bulletin to decipher the information to all.

M. SINHA
DIRECTOR

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INTRODUCTION

The Sunderbans, the biggest delta in India, is situated in the southern most part of West Bengal. The region with a land area of 9629 sq. km and habitation of 42,99,266 has been in an economic deadlock. The main features of Sunderbans are the river Hooghly and a number of rivers, rivulets, canals and creeks surrounding the delta. Major parts of Sunderbans are under saline forests. Obviously, most parts are almost inaccessible. Majority inhabitants of this deltaic areas are resource poor. In this area principal source of livelihood being agriculture, economic stagnation is caused by agricultural backwardness. Apart from high salinity of the soil, a great handicap in agriculture, there are other problems like lack of irrigation facilities, existence of low lying lands and lack of capital. As a natural phenomenon, monocropping has dominated the Sunderbans economy. The farming communities survive on monsoon crops, traditional aquaculture, forest wealth and animal rearing with various impediments. As a result, they live under extreme agro-ecological and socio-economic constraints. Krishi Vigyan Kendra, Kakdwip was established keeping in mind the aforesaid farm families as target group and also non Sunderban blocks (Fig. 1).

The Kendra has been serving the area with five disciplines *viz.* Fishery, Crop Science, Horticulture, Animal Science and Home Science since its inception. Major emphasis has been given on brackishwater aquaculture and crop production by imparting need based, location specific and skill oriented training to the farmers, farm women, farm youths and school drop-outs following the principle of "Learning by doing".

GENESIS

India is an agriculture based country and the economy is basically dependent on agriculture and allied sector. A number of development programmes have been initiated by Govt. of India since independence to boost up country's production and to uplift socio-economic status of the downtrodden population of rural India. The Education Commission (1944-66) constituted by Government of India, has recommended that a large number of Agricultural Polytechniques may be established in the country to prepare Post-matriculates for supportive services in Agriculture. Consequent upon the recommendations, Indian Council of Agricultural Research was advised to establish Krishi Vigyan Kendras. Subsequently following the recommendations of Mohan Sinha Mehta Committee (1974). Krishi Vigyan Kendras were established in the country by ICAR.

The Krishi Vigyan Kendra, Kakdwip was established at Kakdwip (Vide Council's letter no. 22(10)/79-Edn II dated 5.11.79) in November, 1979 under the administrative control of Central Inland Fisheries Research Institute, Barrackpore and continued so till December 31, 1987. As per ICAR policy the Krishi Vigyan Kendra, Kakdwip was transferred under the administrative control of Central Institute of Brackishwater Aquaculture, Madras with effect from January 1, 1988 and continued under its control upto July 31, 1989. Again as per Council's decision the Kendra was transferred to Central Inland Capture Fisheries Research Institute, Barrackpore with effect from August 1, 1989.



Krishi Vigyan Kendra, Kakdwip

OBJECTIVES

The main objectives of Krishi Vigyan Kendra, Kakdwip, as listed below, are to provide a strong support and linkage through training, demonstration and on-farm testing for increasing productivity of fisheries and agricultural crops in deltaic areas of Sunderbans.

- a) to plan and conduct survey on village and farm family of the operational area in order to prepare resource inventory with special reference to identifying the training needs of the farming community.
- b) to plan and conduct production oriented, need based short and long duration training courses, both on-campus and off-campus, for various target groups with priority to weaker and poorer sections.
- c) to extend training facilities of the Kendra to the Extension Personnel within the area of operation with recent advances in agricultural research on regular basis.
- d) to organise front-line demonstrations in various crops to generate production data and feedback information.
- e) to test/trial in collaborative manner with State Agricultural University, State Departments, ICAR Institutes and NGOs for integrated rural development.
- f) to organise non-formal educational programmes like field days, farm visits, farmers' fairs, radio talks, group discussions etc as the follow-up information support to the training courses.
- g) to organise Farm Science Clubs in order to induce the younger generation to develop a liking for agricultural and allied sciences for adopting scientific farming through supervised projects.
- h) to implement the schemes of ICAR and other organisations with collaborative approach for strengthening the training programmes.
- i) to impart general education to rural illiterates and school drop-outs to convert them not only as good farmers but also better citizens.
- j) to extend practical training facilities of the Kendra to the teachers and students of vocational agricultural streams of the school, college and university.
- k) to extend facilities in the area of home making and nutrition for the benefit of rural women folk.

MANDATE

In the context of agricultural development, the participation of farmers and extension agencies has become imperative in the technology generation process. The mandate of the Krishi Vigyan Kendra, thus encompasses on-farm research and frontline demonstrations. The detailed mandate is as follows:

- i) To collaborate with the Subject-Matter-Specialists of the State Agricultural Universities, Scientists of the Regional Research Station, NARP and the State Extension Personnel in "On farm testing", refining and documenting technologies for developing region-specific sustainable land use systems.
- ii) To organise training to update the Extension Personnel within the area of operation with emerging advances in agricultural research on regular basis.
- iii) To organise long-term vocational training courses in agriculture and allied vocation for the rural youths with emphasis on "learning by doing" for generating self-employment through institutional financing.
- iv) To organise front-line demonstrations in various crops to generate production data and feedback information.

BANK ACCOUNT

The fund for Krishi Vigyan Kendra, Kakdwip are received at Institute's headquarters at Barrackpore under the head "CICFRI-ICAR Unit". The disbursement of fund for KVK, Kakdwip is made from the headquarters in the form of demand draft. The Banker of the Institute is State Bank of India, Barrackpore Branch (Code 0029) and the account no. is 01070062004.

BUDGET AND EXPENDITURE

Budget utilization was mainly towards recurring items. Non recurring items of expenditure was for infrastructure development purpose. The details of budget allocation and expenditure incurred since inception till is given below:

Financial Year	Budget allotment	Fund received	Recurring expenditure	Non-recurring expenditure	Works	Total
1979-80	8,38,962	*3,58,435	6,094	1,22,341	2,30,000	3,58,435
1980-81	4,87,134	*2,35,664	86,206	29,458	1,20,000	2,35,664
1981-82	2,57,306	*3,25,636	1,12,715	62,921	1,50,000	3,25,636
1982-83	2,75,178	*1,98,237	1,34,509	63,728	-	1,98,237
1983-84	7,43,000	*7,93,375	2,26,565	(-)10,330	5,77,500	7,93,735
1984-85	3,98,000	*2,98,860	2,68,154	30,706	-	2,98,860
1985-86	8,00,000	*3,28,803	3,20,200	8,603	-	3,28,803
1986-87	2,06,000	*1,97,566	2,01,166	(-)3,600	-	1,97,566
1987-88	1,66,000	1,44,000	4,21,107	-	-	4,21,107

Contd.....

1988-89	Under CIBA details not available					
1989-90	3,42,000	1,17,000	2,92,765	-	-	2,92,765
1990-91	5,97,000	Nil	5,97,448	-	-	5,97,448
1991-92	5,70,000	5,60,000	6,65,421	-	-	6,65,421
1992-93	6,82,000	1,30,000	7,69,364	-	-	7,69,364
1993-94	19,88,000	13,92,000	9,70,672	-	-	9,70,672
1994-95	17,65,000	19,83,000	12,05,289	-	4,94,010	16,99,299
1995-96	27,61,000	27,61,000	13,35,091	-	14,86,360	28,21,451
1996-97	13,90,00	19,00,000	15,22,418	-	-	15,22,418
1997-98	17,50,000	17,50,000	17,99,546	6,79,772	-	24,79,318

* No break-up of funds for KVK received. Thus, actual expenditure taken as fund received for KVK.

UTILIZATION OF FUNDS UNDER FRONTLINE DEMONSTRATION PROGRAMMES

The details of sanctioned and expenditure under frontline demonstration of various crops during various years have been presented below:

Final Year	Oil Seeds				Pulses			
	Opening Closing balance balance	Receipt	Expenditure		Opening Closing balance balance	Expenditure	Receipt	
1990-91	-	23,875	20,662	3,213	-	-	-	-
1991-92	3,213	45,190	38,220	10,183	-	31,000	2,500	28,500
1992-93	10,183	-	7,483	2,700	28,500	36,000	40,200	24,300
1993-94	2,700	70,000	49,850	22,850	24,300	36,750	17,250	43,800
1994-95	22,850	67,000	47,790	42,060	43,800	6,000	15,200	34,600
1995-96	42,060	95,000	1,34,863	2197	34,600	49,800	84,400	-
1996-97	2,197	71,000	7,125	66,072	-	34,900	-	34,900
1997-98	66,072	35,875	88,691	13,256	34,900	47,577	68,561	13,916

INFRASTRUCTURE

The Sunderban development Board, Govt. of West Bengal handed over 42.75 acres of charland for farm construction and 1.72 acres of low homestead land for construction of administrative and hostel building including class rooms and laboratories. The Board has also handed over 11.88 acres of paddy land and 8.61 acres of charland which has been under litigation since 1981. Pursuance with the board is in progress to vacate the litigation. The Board constructed three sluice-gates as per requirement of this Kendra in three separate blocks, which are embanked around 42.75 acres of charland along the estuarine bank of the Murigana-Hooghly river during 1979-80. The construction of marginal dykes of three blocks was undertaken by the Irrigation and Waterways Department, Govt. of West Bengal and was completed in January 1983.

As per the recommendation of Local Management Committee held during September 22, 1996, action has been initiated to return 35.75 acre area of two blocks to the Sunderban Development Board as the same is in excess of the requirement as well as unmanageable. To develop infrastructure facilities in rest 7 acres of land for demonstration of Fishery, Agronomy and Horticultural activities, the planning and designing have already been completed and submitted to CPWD for detailed estimate.

The Kendra took over its own building from PWD during January, 1994. The approximate area of the buildings are:

<i>Administrative building</i>	:	<i>414 m²</i>
<i>Hostel building</i>	:	<i>240 m²</i>
<i>Pump hosue</i>	:	<i>56 m²</i>

DESCRIPTION OF THE DISTRICT

The district South 24 Parganas (Fig. 2) is based on agriculture and situated in the periphery of the Bay of Bengal. It lies between 21° 2' and 22° 6' North latitude and between 88° 1/4' East longitude. The geographical area of the district is 8,12,818 ha haviang the total population more than 58 lakhs of which 70% is rural. The district has got about 9.5% of State's population and 8.4% of its land area. The density of population is about 650 per sq. km.

Subtropical climate prevails in the district and the area is prone to devastating tidal flood due to cyclonic weather condition. The average annual rainfall is around 1800 mm of which 80% rainfall occur within 4 monsoon months. The temperature of the district ranges between 13 °C and 35 °C. Two distinct soil groups (i) Gangetic alluvium and (ii) Coastal saline soils are found to cover the medium to low land situation. The soil texture varies between clay and clay-loam. Impeded drainage, lack of irrigation, ebb and flow of tidal water are the common features of Sundarbans. The rivers Bidyadhari, Harinbhang, Matla, Thakuran, Mridangabhanga and Saptamukti flow through this district. There are some cross connected canals in the north-western blocks of the the main land falling to Ganges. Some bheries and ponds are used to irrigate Rabi crop.

In coastal area, the surface water is generally saline and the salinity is maximum in peak summer (30 m millimhos/cm) and minimum in peak monsoon (6 m mhos/cm). The pH of the soil varies from 4.6 to 8.0. Surface water is unsuitable for drinking as well as domestic uses. Sweet water is confined below the depth ranging from 300-400 metres and its withdrawal is very expensive.

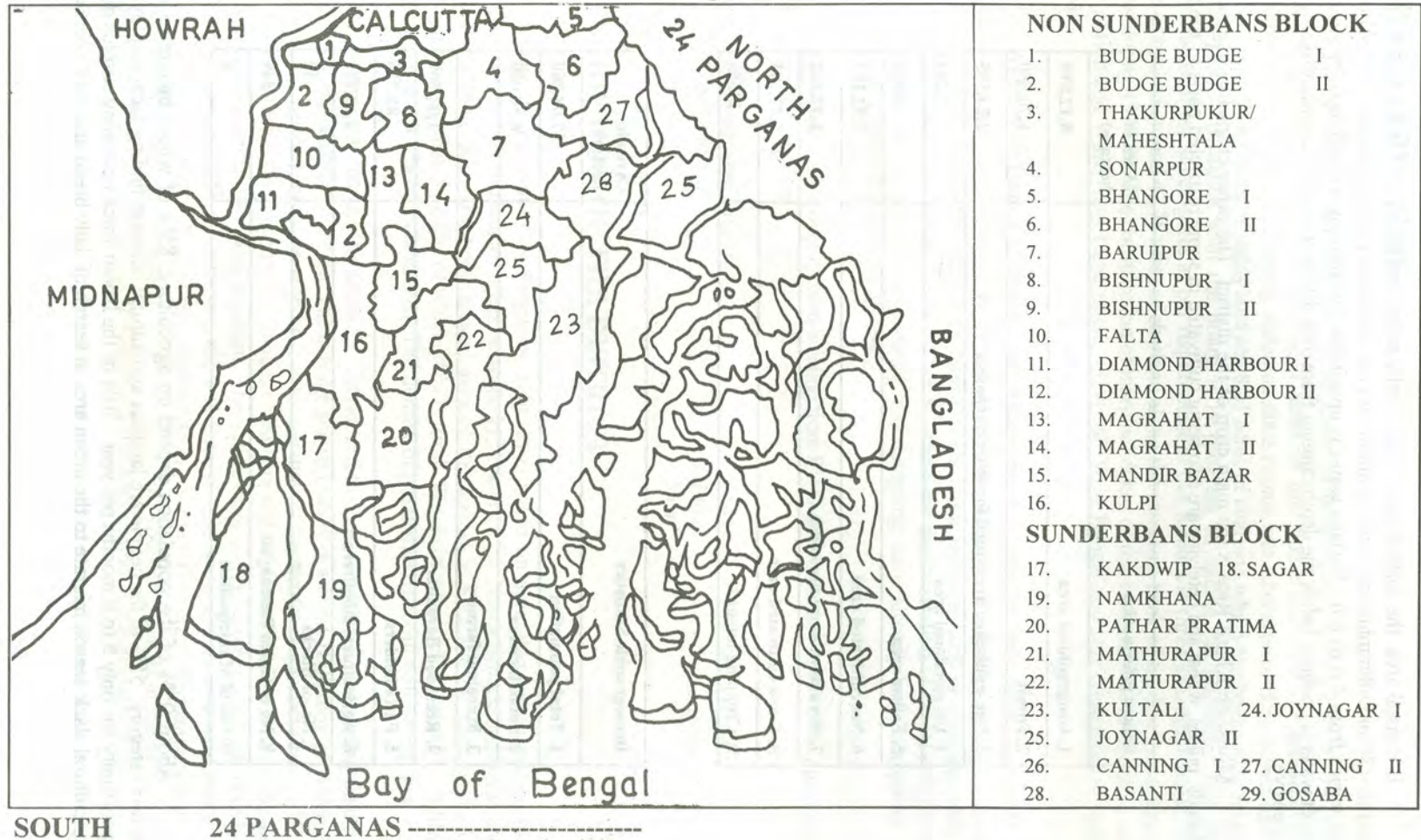
Monsoon Kharif Rice is the main crop of the district. The other crops like vegetables, oilseeds, pulses, wheat and betelvine are also being cultivated in some restricted parts of the area.

Salient information	(Area in hectare)
1. Geographical area	8,12,818
2. Forest	1,70,580
3. Non-cultivated area (used for other purposes)	2,24,505
4. Un-reclaimed area	3,224
5. Fallow area	5,000
6. Net cultivated area	3,92,119
7. Area sown more than once	1,41,162
8. Gross cultivated area	5,33,281
9. Cropping intensity	145%

Demographic Statistics	(Area in hectare)
1. Total population	57,08,260
2. Small farmers	6,50,000
3. Marginal farmers	
4. Recorded Bargadar	1,04,509
5. Patta holders	85,716
6. Agricultural labourers	3,40,111
7. No. of Blocks	30
8. No of Gram Panchayats	349
9. No. of Municipalities	6

About 95% of the population depend on agriculture, 85% of whom belong to small farmers category. 55% of the people are landless agricultural labourer finding local employment opportunity for only 5 to 6 months per year. 50% of the labour force becoming surplus during agricultural slack season migrate to the urban area in search of daily bread and bare necessities.

Fig. 2



ACHIEVEMENTS

The Krishi Vigyan Kendra, Kakdwip is actively engaged in transferring need based and locally suited technologies to the resource poor farming communities of Sundarbans. The Kendra identified the constraints and training needs on the basis of village and farm families survey in 5 operational blocks viz. Kakdwip, Namkhana, Pathar Pratima, Sagar and Kulpi. Accordingly, training courses and suitable extension measures were formulated to disseminate the appropriate technologies to boost up production from agriculture, fisheries and animal husbandry. As per the follow-up information collected while evaluating the impact of the courses organised at the Kendra, efforts were intensified towards organising field days in different villages round the year. Individuals were contacted as per their need and request to solve their respective problems through farm visit. Farm science clubs were established at the grass root level to help dissemination of improved methods of crop production, fish production, integrated farming system etc. Special emphasis was laid to include the women folk in various activities which enabled them to earn money through self-employment like knitting, hobby-loom, tailoring, embroidery, production of low cost balance diet and value added products from locally available fruits & vegetables. These have made rural women self sustentant.

On-farm trial/testing were conducted on Prawn farming, Mushroom and Pig cum fish farming among the Scheduled caste & Scheduled tribe and other farming communities under integrated farming system for the sake of higher income.

Kisan/Melas/Rural fairs were organised with charts, posters, blown up photographs and live specimens in remote areas to create impact towards modern farming among the rural mass.

SURVEY

The Krishi Vigyan Kendra, Kakdwip is engaged in transferring need based technologies to the farmers following the broad based guidelines and objectives for KVKs. The Kendra surveyed ten villages and eight hundred twenty four farm families. After conducting the survey, the data were analysed and critical needs of the region were assessed. Accordingly, training courses and suitable extension measures were formulated to disseminate the appropriate technologies to boost up agricultural and allied production.

TRAINING

The Kendra organised and conducted vocational training programmes in order to develop knowledge, skill and understanding through work experience of practising farmers. Training for rural youths have been given priority targetting self employment. Inservice training for extension functionaries were organised to develop knowledge, attitude and attributes of change agents for boosting production of fish seed, table size fish and crops. So far, the Kendra has organised 1770 training courses for the benefit of the 26,356 farmers, farm youth, farm women and school dropouts. Details of the training courses are given in the following table.

Training achievements

Year	Discipline	No. of Courses	Duration (day)	SC/ST			Others			Total		
				M	F	T	M	F	T	M	F	T
1980-81	Agronomy	6	2-5	12	-	12	38	-	38	50	-	50
	Horticulture	4	2-5	-	-	-	40	-	40	40	-	40
	Fishery	10	2-5	35	-	35	45	-	45	80	-	80
	Home Science	4	2-5	-	17	17	-	43	43	-	60	60
1981-82	Agronomy	12	2-5	42	-	42	107	-	107	149	-	149
	Horticulture	10	2-5	22	-	22	70	-	70	92	-	92
	Fishery	14	2-5	58	-	58	100	-	100	158	-	158
	Home Science	10	2-5	-	26	26	-	78	78	-	104	104
1982-83	Agronomy	12	2-5	48	-	48	130	-	130	178	-	178
	Horticulture	10	2-5	18	-	18	124	-	124	142	-	142
	Fishery	12	2-5	8	-	8	98	-	98	106	-	106
	Home Science	10	2-5	-	11	11	-	89	89	-	100	100
1983-84	Agronomy	10	2-5	28	-	28	74	-	74	102	-	102
	Horticulture	10	2-5	20	-	20	58	-	58	78	-	78
	Fishery	12	2-5	8	-	8	98	-	98	106	-	106
	Home Science	10	2-5	-	11	11	-	89	89	-	100	100
1984-85	Agronomy	11	2-5	14	-	14	98	-	98	112	-	112
	Horticulture	10	2-5	-	-	-	96	-	96	96	-	96
	Fishery	12	2-5	4	2	6	116	-	116	122	-	122
	Animal Science	2	2-5	-	-	-	20	-	20	20	-	20
	Home Science	10	2-5	-	15	15	-	68	68	-	83	83

Year	Discipline	No. of Courses	Duration (day)	SC/ST			Others			Total		
				M	F	T	M	F	T	M	F	T
1985-86	Agronomy	12	2-5	33	-	33	104	-	104	137	-	137
	Horticulture	9	2-5	-	-	-	98	-	98	98	-	98
	Fishery	10	2-5	8	-	8	88	2	91	99	-	99
	Animal Science	8	2-5	-	-	-	72	-	72	72	-	72
	Home Science	10	2-5	-	17	17	-	81	81	-	98	98
1986-87	Agronomy	10	2-5	-	-	-	108	-	108	108	-	108
	Horticulture	8	2-5	7	2	9	72	1	73	79	3	82
	Fishery	12	2-5	11	-	11	118	-	118	129	-	129
	Animal Science	8	2-5	4	-	4	76	-	76	80	-	80
	Home Science	10	2-5	-	12	12	-	88	88	-	100	100
1987-88	Agronomy	18	2-5	49	32	81	124	38	162	173	70	243
	Horticulture	22	2-5	138	48	186	178	24	202	316	72	388
	Fishery	25	2-5	78	23	101	238	40	278	316	63	379
	Animal Science	10	2-5	44	18	62	69	24	73	113	42	153
1988-89	Agronomy	17	2-5	62	18	80	107	18	125	169	36	205
	Horticulture	19	2-5	103	35	138	122	45	177	225	80	305
	Fishery	22	2-5	94	26	120	218	63	281	312	89	401
	Animal Science	12	2-5	48	16	64	60	12	72	108	28	136
	Home Science	22	2-5	-	108	108	-	209	209	-	317	317

Year	Discipline	No. of Courses	Duration (day)	SC/ST			Others			Total		
				M	F	T	M	F	T	M	F	T
1989-90	Agronomy	22	2-5	72	38	100	143	22	165	215	60	275
	Horticulture	25	2-5	134	52	186	238	42	280	372	94	466
	Fishery	30	2-5	91	33	124	309	78	387	400	111	511
	Animal Science	12	2-5	58	15	73	78	22	100	136	37	173
	Home Science	23	2-5	-	169	169	-	235	235	-	404	404
1990-91	Agronomy	22	2-5	36	24	60	168	44	212	204	68	272
	Horticulture	24	2-5	159	21	180	237	46	283	396	67	463
	Fishery	28	2-5	78	38	116	264	62	326	342	100	442
	Animal Science	8	2-5	24	6	30	58	8	66	82	14	96
	Home Science	28	2-5	-	108	108	-	236	236	-	344	344
1991-92	Agronomy	30	2-5	48	27	75	248	56	304	296	83	379
	Horticulture	28	2-5	75	25	100	183	46	234	263	71	344
	Fishery	37	2-5	52	18	70	283	42	245	255	60	315
	Animal Science	10	2-5	28	4	32	79	5	84	107	9	116
	Home Science	27	2-5	-	128	128	-	202	202	-	330	330
1992-93	Agronomy	30	2-5	5	29	84	148	71	219	203	100	303
	Horticulture	33	2-5	124	57	181	223	133	426	417	190	607
	Fishery	43	2-5	177	85	262	334	183	517	511	268	779
	Animal Science	5	2-5	26	4	30	58	39	97	84	43	127
	Home Science	33	2-5	-	214	214	-	506	506	-	720	720

Year	Discipline	No. of Courses	Duration (day)	SC/ST			Others			Total		
				M	F	T	M	F	T	M	F	T
1993-94	Agronomy	18	2-5	20	15	35	201	64	265	221	79	300
	Horticulture	22	2-5	86	47	113	358	230	588	444	278	722
	Fishery	30	2-5	218	94	312	269	234	503	487	328	815
	Animal Science	-	-	-	-	-	-	-	-	-	-	-
	Home Science	74	2-5	-	160	160	-	430	430	-	590	590
1994-95	Agronomy	37	2-5	100	32	132	268	107	375	368	139	507
	Horticulture	34	2-5	50	46	96	369	94	463	419	140	559
	Fishery	29	2-5	96	60	156	236	115	351	332	175	407
	Animal Science	13	2-5	19	19	38	74	42	116	93	61	154
	Home Science	30	2-5	-	120	120	-	308	308	-	428	428
1995-96	Agronomy	35	2-5	277	91	368	399	103	502	676	194	870
	Horticulture	36	2-5	267	43	310	588	88	676	855	131	986
	Fishery	24	2-5	136	62	198	340	84	424	476	1466	22
	Animal Science	18	2-5	58		58	173	165	338	231	165	396
	Home Science	26	2-5	-	191	191	-	454	454	-	645	645
1996-97	Agronomy	45	2-5	154	63	217	387	83	470	541	146	687
	Horticulture	33	2-5	173	15	188	236	48	284	409	63	472
	Fishery	22	2-5	130	36	166	216	62	278	346	98	444
	Animal Science	19	2-5	65	16	81	140	38	178	205	54	259
	Home Science	26	2-5	-	90	90	-	159	159	-	249	249

Year	Discipline	No. of Courses	Duration (day)	SC/ST			Others			Total		
				M	F	T	M	F	T	M	F	T
1997-98	Fishery	26	2-5	298	107	405	167	28	195	465	135	600
	Agronomy	28	2-5	189	157	346	214	70	284	403	227	630
	Horticulture	25	2-5	126	36	162	218	90	308	344	126	470
	Animal Sc.	23	2-15	117	92	209	203	70	273	320	162	482
	Home Sc.	23	2015	-	152	152	-	298	298	-	450	450
	Grand Total	1670		4836	3423	8259	11325	6772	18097	16161	10195	26356

Distribution of participants in various training programmes (1980-1998)

Discipline	No. of Courses	SC/ST		Others		Total		
		M	F	M	F	M	F	T
Agronomy	375	1239	526	3066	676	4305	1202	5507
Horticulture	365	1502	1427	3583	887	5085	1314	6399
Fishery Science	401	1604	584	3516	993	5120	1577	6697
Animal Science	138	491	190	1160	425	1651	615	2266
Home Science	391	-	1696	-	3791	-	5487	5487
Grand Total	1670	4836	2323	11325	6772	16161	10195	26356

AREAS OF TRAINING PROGRAMME

Fisheries

On Campus

1. Carp culture technique
2. Semi-intensive giant freshwater prawn farming
3. Fish pituitary gland collection and its preservation
4. Seed raising of indigenous and exotic carps
5. Seed production through hypophysation
6. Sustainable brackishwater fish/prawn seed collection
7. Polyculture of fin fish and shell fish

Off Campus

1. Use of anaesthetics/antibiotics in fin fish and shell fish seed transportation
2. Method of brackishwater fin fish & shell fish seed collection from river
3. Semi-intensive giant freshwater prawn farming
4. Scampi production through locally available feeds
5. Brackishwater fin fish and shell fish seed collection *vis-a-vis* conservation technique
6. Semi-intensive culture of tiger shrimp



A training session



Fish Farm-Youths are learning by doing



A training session with Farm-Women



Farmers are in discourse with the Scientists



Training sessions on mushroom production



7. Paddy-cum-fish culture
8. Controlled breeding of common carp
9. Live fish (singi & magur) culture
10. Fish health monitoring.

Agronomy

On-Campus

1. Rhizobium inoculation for moong.
2. Integrated nutrients management in HYV and hybrid rice.
3. Betelvine production technique.
4. Integrated pest management in kharif rice.
5. Control of fungal diseases and pests in betelvine.
6. Vermicompost preparation and its use.

Off-Campus

1. Method of transplantation in Aman rice.
2. Application of fertilizer in deep water Aman rice.
3. Vermicompost preparation & its use.
4. Control of aphid in mustard.
5. Harvesting & storage of grain and seed of rice.
6. Water management in mustard & sunflower.

Horticulture

On-Campus

1. Use of improved variety of watermelon in saline tract.
2. Application of nutrients in fruit trees-sapota, coconut and mango.
3. Grafting of mango and sapota.
4. Application of fertilizer in pointed gourd.
5. Control of pests and diseases of hybrid bhindi
6. Control of leaf curl disease of tomato.
7. Use of saline water in chilli cultivation.
8. Cultivation of capsicum and brinjal.

Off-Campus

1. Application of nutrients in coconut.
2. Cultivation of banana in field borders and bundhs of pond.
3. Seed bed preparation of chilli and tomato.
4. Care and management of backyard garden.
5. Fertilizer technique in pointed gourd
6. Application of nutrient management of cauliflower.
7. Improved varieties of papaya cultivation.

8. Control of white mosaic virus in bhindi.
9. Weed control of winter vegetables-chilli, tomato, cauli-flower, cabbage, onion & knol-khol.
10. Control of leaf curl disease of chilli.
11. Application of nutrients in tomato.
12. Seedling raising of vegetables-knol-khol, cauliflower, cabbage, tomato, chilli.

Animal Science

On-Campus

1. Care and management of crossbred calves.
2. Feeding practice of poultry broiler.
3. Brooding management of poultry broiler under intensive system.
4. Disease prevention of pig.
5. Feeding practice of cross bred pig.
6. Care and management of crossbred dairy cattle.
7. Poultry broiler management.

Off-Campus

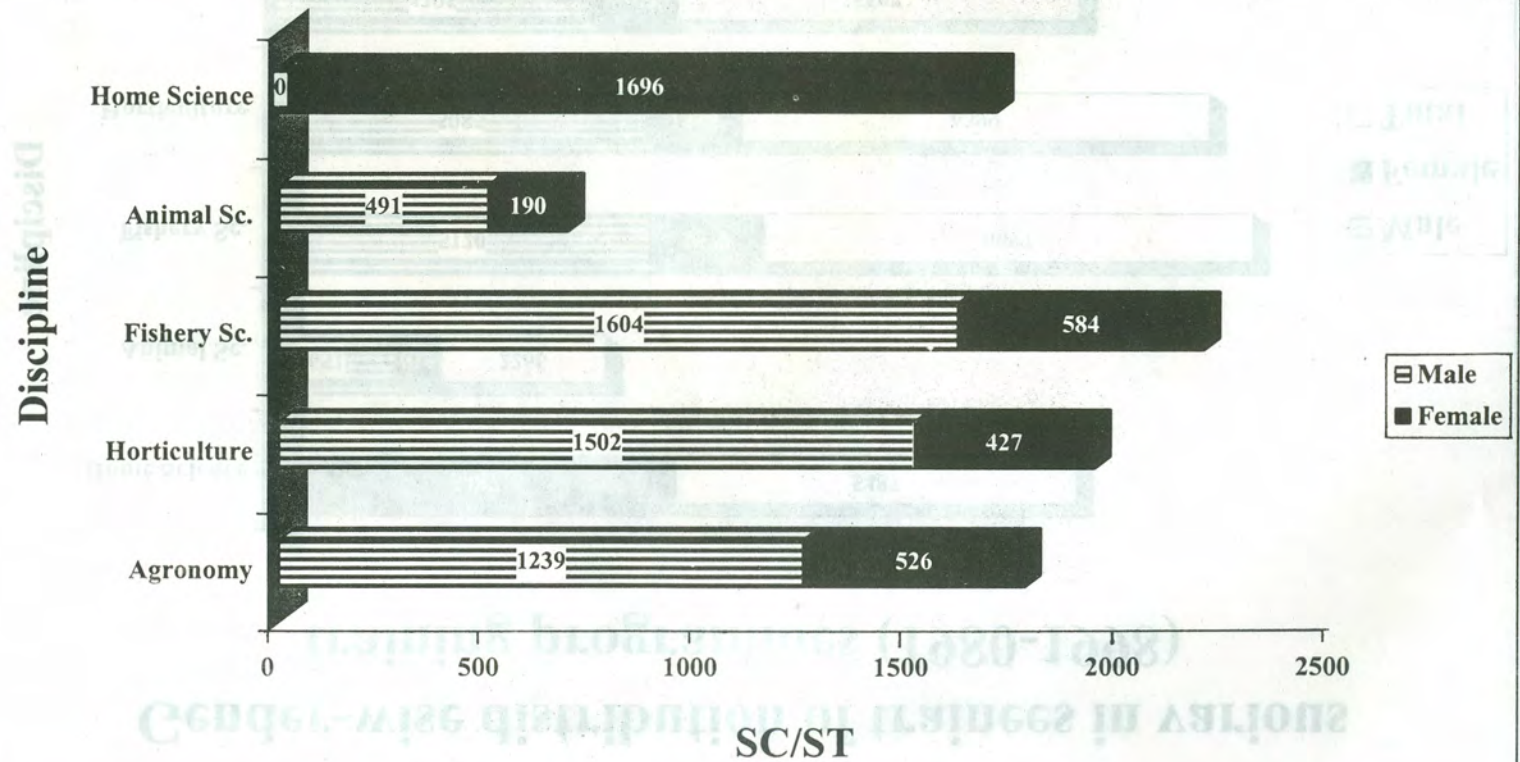
1. Deworming of crossbred dairy cattle.
2. Perennial fodder cultivation in kharif season (hybrid napier & paragrass)
3. Grading up of deshi cattle through artificial insemination.
4. Supplementary feeding, deworming and vaccination practice of goat.
5. Vaccination of cattle for prevention of common diseases like FMD, BQ, H.S., Anthrax and Rinderpest.
6. Preparation of balanced feed for crossbred dairy cattle with locally available feed ingredients.
7. Health care and feeding practice of Garole sheep.
8. Backyard poultry rearing for higher production.
9. Flashing technique of pig.
10. Techniques to improve the nutritive value of paddy straw.
11. Duck rearing in duck-cum-fish farming.

Home Science

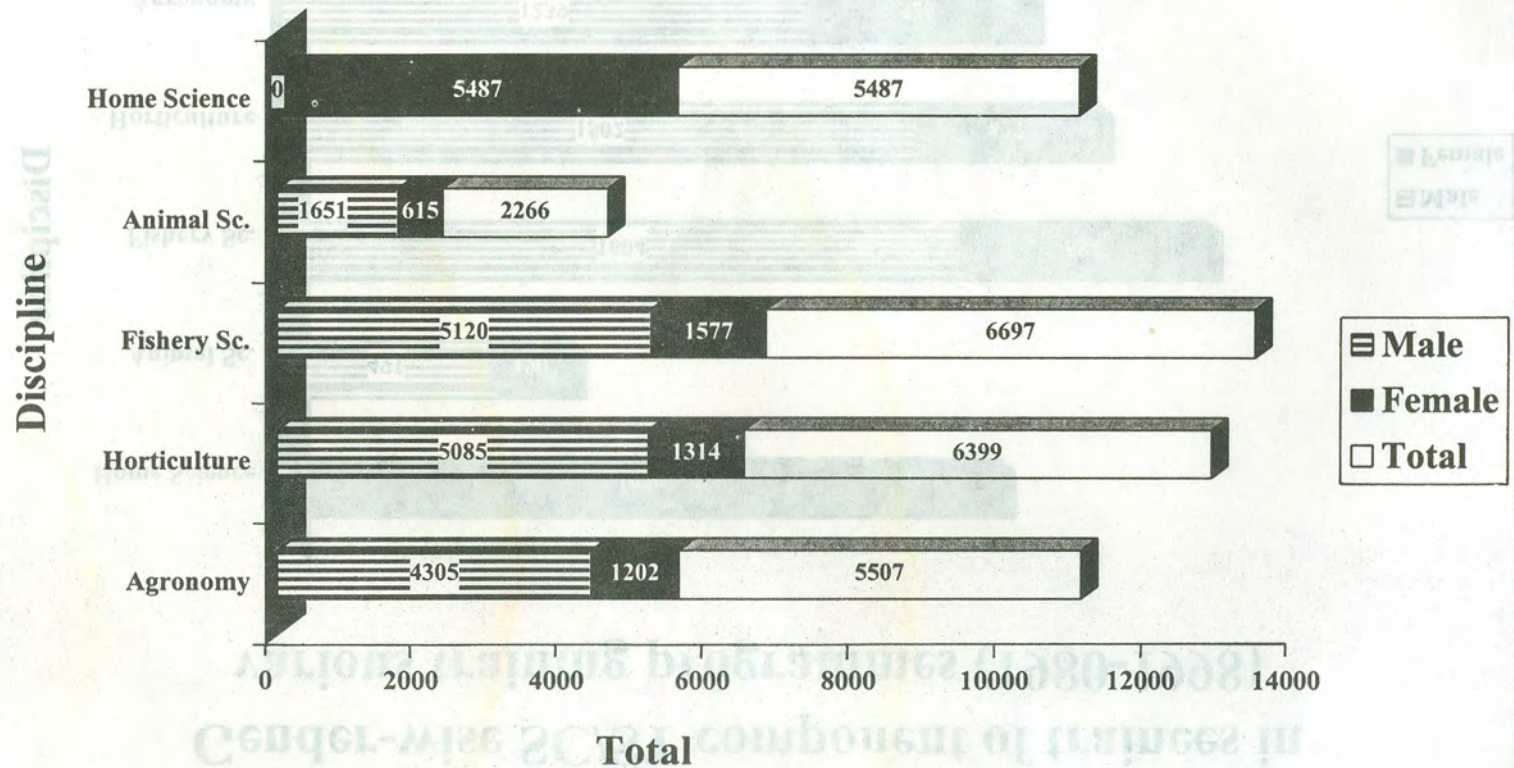
On-Campus

1. Mushroom cultivation techniques
2. Nutritional garden in homestead area.
3. Value addition to fibre products.
4. Craft products.
5. Subsidiary income generation through tailoring.
6. Value addition to wool products.
7. Post harvest fruit process products from surplus lemon, guava and mango.
8. Backyard poultry.

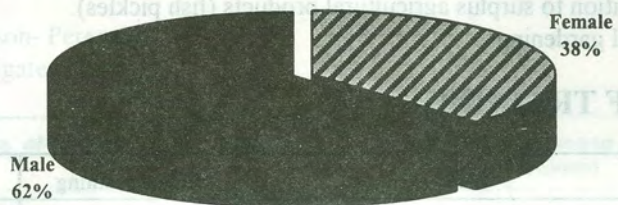
Gender-wise SC/ST component of trainees in various training programmes (1980-1998)



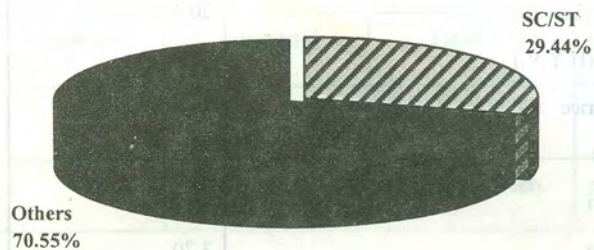
Gender-wise distribution of trainees in various training programmes (1980-1998)



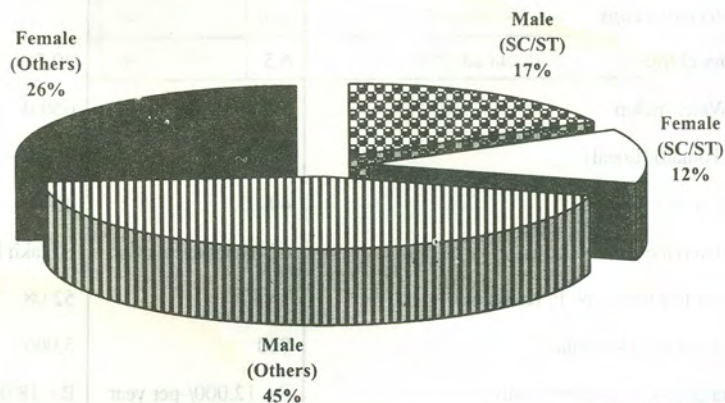
Gender-wise distribution of trainees (1980-1998)



Gender-wise distribution of trainees (1980-1998)



Overall Distribution of Trainees



Off-Campus

1. Post harvest tomato preservation from surplus stock.
2. Value addition to surplus agricultural products (fish and vegetable pickles)
3. Value addition to surplus agricultural products (fish pickles).
4. Nutritional gardening.

IMPACT OF TRAINING

Sl. No.	Item	Before training	After training
1.	Crop intensity	116.0%	145%
2.	Productivity (q/ha)		
	<i>a) Fish products</i>	6	18
	<i>b) Cereal crops</i>		
	i) Aus (Local)	18.5	19.5
	Aus (H.Y.V)	35.40	36.46
	ii) Aman (Local)	20.91	27.37
	Aman (H.Y.V.)	36.96	37.70
	iii) Boro rice	39.51	44.00
	<i>c) Pulses</i>		
	i) Khesari	16.0	11.0
	ii) Moong	3.70	6.0
	<i>d) Oil Seeds</i>		
	i) Mustard	5.67	6.5
	ii) Sunflower	6.0	7.0
	iii) Sesamum	6.68	16.5
	<i>e) Over-all crops</i>		
	i) Dry chillies	6.5	20.5
	ii) Water melon	625.0	650.0
	iii) Tomato (Local)	180.0	200.0
	iv) Tomato (Hybrid)	400.0	450.0
	v) Betelvine	60 lakh leaves/yr/ha	80 lakh leaves/yr/ha
3.	Use of fertilizers (N. P. K, Kg/ha)	35.40	52.08
4.	No. of Boroj/Betelvine	800	5,000
5.	Average income of the family	Rs. 12,000/-per year	Rs. 18,000/-per year

FRONTLINE DEMONSTRATION PROGRAMMES

The Kendra adopted Oil seeds and Pulses demonstration programmes under Front Line Demonstration system for the benefit of the downtrodden farming communities of Sunderbans. Under this programme the Kendra has demonstrated oilseeds programme in 9 villages viz., Narayanpur, Nandabhanga, Shibrapur, Debnibash, Rajnagar, Gobindarampur, Jugalpur, Mundapara and Belpukur and under pulses villages viz., Narayanpur, Nandabhanga, Namkhana, Debnibash and Belpukur. Various measures have been taken to make the programme more effective viz., training, field days and group discussion. The details of oilseeds and pulses demonstrations are given below:

Mustard

Crop year/ situation	Mustard		Season Area (ha)	Rabi Yield (q/ha) Demonstration			Local	Inc- rease yield (%)	Cost of input (Rs.)		poten- tial yield
	Variety	No. of farmers		Highest	Lowest	Av.			Dem.	L. Check	
1992-93 -irrigated	i)Bhagirathi	56	03	17.0	10.5	13.5	7.9	70.9	1492	942	14.0
	ii) Jhumka	30	02	14.0	9.5	12.5	8.5	47.1	1492	992	14.0
1993-94 -irrigated	i)Bhagirathi	100	15	15.0	13.0	14.0	9.0	56.0	1867.40	1100	13.0
	ii) Jhumka	63	05	14.0	13.0	13.5	9.0	50.0	1867.40	1100	14.0
1994-95 -irrigated	i)Seeta	136	20	8.0	6.0	7.0	4.0	75.0	2182.50	1250	14.0
1995-96 -irrigated	i) Seeta	117	20	5.3	4.8	5.2	4.0	30.0	1927.25	1370	14.0
1996-97 -irrigated	i) Seeta	70	5.6	10.0	8.0	9.5	6.5	46.2		1450	14.0
	ii) Binoy	100	14.4	9.6	7.2	8.0	6.5	23.08		14.50	15.0
1997-98	Binoy	150	15.0	10.0	7.0	9.0	7.0	22.2	1315.0	1500	14.0

Sesamum

Crop year/ situation	Sesamum		Season Area (ha)	Summer Yield (q/ha) Demonstration			Lo- cal	Inc- rease yield (%)	Cost of input (Rs.)		poten- tial yield
	Variety	No. of farmers		Highest	Lowest	Av.			Dem.	L. Check	
1992-93 Rainfed	Roma	113	10	9.0	6.5	8.0	5.0	60	1047.75	700	12.0
1993-94	Roma	171	20	9.0	8.0	8.5	5.0	70	1104.03	750	12.0
1994-95 Rainfed	Tilottoma (B ₆₇)	122	20	9.0	8.0	9.0	6.0	50	1299.52	950	10.0
1995-96 Rainfed	Roma	172	20	8.5	7.5	8.0	7.0	14.29	19447.5 2	1000	12.0
1996-97 Rainfed	Tilottoma (B ₆₇)	120	10.0	9.0	7.5	8.0	6.5	23.08	-	1150	10.0
1997-98	Tillotoma	150	20.0	10.0	7.0	9.0	6.5	24.2	1504.00	1200	10
1992-93	Mordem	113	9.33	13.2	12.6	13.0	9.0	44.4 %	80625	500	12.0

PULSES

Crop year/ situation	Moong		Season Area (ha)	Summer Yield (q/ha)			Lo- cal	Inc- rease yield (%)	Cost of input (Rs.)		poten- tial yield
	Variety	No. of farmers		Demonstration					Dem.	L. Check	
				Highest	Lowest	Av.					
1992-93 irrigated	k-851	113	10.0	9.5	8.0	8.0	20	215125	1650.0	10.0	
1993-94 irrigated	K-851	286	20.0	9.5	8.0	9.0	7.0	30	207150	1800	10.0
1994-95 irrigated	Nonali (B-1)	186	20	10.0	7.0	8.0	6.0	34	209325	1850	9.0
1995-96 irrigated	Pusa Baisakhi	230	20.0	8.5	7.0	8.0	5.0	60	339006	1500	10.0
1996-97 irrigated	K-851	880	14.0	9.0	6.5	7.0	6.0	16.70	-	1900	10.0
1997-98	K-851	220	20	9.5	7.0	8.0	7.5	20.8	2506.0	1975	10
CROP	ARHAR	SEASON		SUMMER							
1992-93	UPAS-120	123	10	14.0	12.0	13.5	9.5	42.1	186875	100	16.0

LAB TO LAND PROGRAMME

Lab to Land Programme has been implemented in the villages viz., Namkhana, Narayanpur, Nandabhanga, Pukurberia, Moinapara, Fraserganj, Dabnibash, Belpukur, Lakhipasha, Provabatipur, Arunagar, Nischintapur and Kakdwip, adopting 100 farm families. The kendra has been engaged towards transfer of technologies relating to multiple disciplines depending on the local need and available resources. The dissemination of various technologies in fish culture and crop production had brought out radical change in yield rate. The Kendra has transferred different appropriate technologies to farmers and farm women covering five disciplines, viz., Fisheries, Agronomy, Horticulture, Animal Science and Home Science. The productions obtained under Lab to Land Programme is given in the following table.

Achievements under Lab to Land Programme

Category of farmer	No. of families	Name of the enterprise/crops	Package of practices	Annual production	
				Traditional	with intervention
Small	3	Rice-vegetables-moong	Moong seeds, Rhizobium culture	Moong: 5 qtl/ha	7 qtl/ha
	4	Duck-cum-fish farming	K. C. duck	90 eggs	200 eggs
	4	Backyard poultry	RIR chick	100 eggs	180 eggs
	2	Rice-cum-fish farming	HYV rice, N.P.K.	Rice: 28 qtl/ha Fish: 2 qtl/ha	36.6 qtl/ha 5 qtl/ha
	8	Composite fish culture	M.O.C., Lime, feed	6 qtl/ha	32 qtl/ha
Marginal	2	Nursery & rearing pond management	Spawn, feed & fertilizer	40% survivility	80% survivility
	10	Rice-chillies	Urea, NPK	Chilli: 7.5 qtl/ha	20 qtl/ha
	2	Rice-pulse farming (paira crop)	Improved seeds of lentil	Lentil: 1.5 qtl/ha	2.5 qtl/ha
	2	Rice-mustard farming	Jhumka, fertilizer	Mustard: 3q/ha	4.5 qtl/ha
	4	Live fish culture	feed	70 kg/ha	500 kg/ha
	3	backyard poultry	RIR chicks	100 eggs	180 eggs
Landless	3	Duck-cum-fish farming	K.C. duck		200 eggs & fish 25 qtl/ha
	5	Mushroom cultivation	Spawn		800 gm/sq.ft. In flushes

EXTENSION ACTIVITIES

With view to speeding up the process of transfer of technology a large number of extension activities were undertaken by the Kendra. Exhibition were organised with charts, posters, blown up, photographs, live specimens, farm products and value added products to create awareness towards modern farming system among the rural mass. The Kendra has also organised farm science club, film show, slide show to support the extension activities. Details of such extension activities and estimate of beneficiaries by each is given in following table.

Activities	Numb er	Beneficiary number						
		SC/ST		Others		Total		
		-----		-----		-----		
		Male	Female	Male	Female	Male	Female	Grand total
Field days/fish farmers' day/oil seeds & pulses day	89	1235	312	3448	588	4683	900	5583
Kisan mela/rural fair	38	4812	3887	14603	12980	19415	16867	36282
Film show/slide show	256	778	142	2808	750	3586	892	4478
Farm science club	22	163	45	432	186	595	231	826
Advisory service	12887	3696	2356	4200	2635	7896	4991	12887
Diagnostic service/scientists visits to farmers' field	965	180	150	470	165	650	315	969
Publication & distribution	25	1800	1200	4200	2800	6000	4000	10,000
Crop clinic/centre	18	1170	780	2730	1820	3900	2600	6500
Mass media coverage (radio talk)	25	Mass	Mass	Mass	Mass	Mass	Mass	Mass

ON-FARM RESEARCH

Understanding the reasons for non adoption of various technologies by the resource poor farming communities of Sunderbans, where farming systems are complex, emphasis was laid for participation of farmers in technology management process for generation of appropriate technologies.

In farmers' field, on-farm research on various aspects were conducted with farming system perspective. The basic steps viz. Problem diagnosis, Research design, Experimentation and Recommendation & Extrapolation were implemented. The farmers were exposed to gradual



Freshwater prawn in a farmer's pond under Lab to Land Programme



Fish production in a farmer's pond under Lab to Land Programme



**Input is being distributed to the adopted farmers under
Lab to Land Programme**



Visitors at Krishi Mela organised at Krishi Vigyan Kendra, Kakdwip



Demonstration on production of 'Beet' in farmer's field



**Demonstration on production
of tomato (high-yielding variety) in farmer's field**



Production of Betel-Vine in farmer's field.



Demonstration on production of sweet gourd in KVK campus



Demonstration on fish production in farmer's field



learning process of the technologies through participatory research and location specific adaptability of the innovations

The following programmes on on-farm trials were undertaken.

Crop : Betelvine. Season- Perennial

Farming situation- Irrigated

Treatment	No. of farmers	Area (ha)	Yield	Increase in yield over control
i) Vermicompost	10	0.2	1.9 million/ha/yr	17.8%
ii) Integrated N management	10	0.2	1.95 million/ha/yr	20%
iii) Mustard oil cake	10	0.2	1.56 million/ha/yr	control

Crop: Mushroom, Season : perennial, farming situation: Irrigated

(Productivity depends on quality of straw)

Treatment	No. of farmers	Area (ha)	Yield	Increase in yield over control
i) High quality straw	9	180 ft ²	800 g/ft ² in flush	40%
ii) Low quality straw	9	180 ft ²	480 g/ft ² in flush	control

Crop: Giant freshwater prawn in low saline water body

Season: Seasonal

Farming situation: Irrigated

Treatment	No. of farmers	Area (ha)	Yield	Increase in yield over control
i) Pen	16	0.3	493 kg/ha/140 day	30%
ii) Pond	16	0.3	356 kg/ha/140 day	Control

EFFICACY OF EXTENSION METHODS FOR TRANSFER OF TECHNOLOGY PROGRAMME

Effectiveness of various extension techniques used in in Sunderbans was determined. Five extension techniques viz. Demonstration, farmers' day, fields visit, group discussion, farmers visit to Kendra and distribution of literature were tried to assess their effectiveness. Levels of knowledge and adoption score on farmers were determined by pre and post application of the extension techniques. Demonstration was found to be the most effective tool to motivate the farmers. Correlation worked out between knowledge gained and adoption practices indicated that proper programme implementation plays a key role in improving productions and as a result in gain of knowledge.

PARTICIPATION OF WOMEN FOLK

Rural women of Sunderbans play an important role in performing a variety of tasks in farm as well as in home with the family as an economic unit of rural community. The Kendra has made improvement of their existing skill by imparting training and through demonstration for their gainful employment. It is happy situation that there appears to be a lot of wide spread enthusiasm about increasing their capabilities and contribution. This has not only been reducing the drudgery of women but also enabling them to utilize their time for development. Emphasis has been laid for a steady flow of technical know-how through appropriate extension approaches and media to bridge gap between the technology available and its adoption by the farm women.

Participation of rural women of Sunderbans in decision making process related to fishery

A study was carried out in Sunderbans to know how far rural women participated in decision making process. A total of fourteen practices related to culture and capture fisheries were identified in which women of Sunderbans actively participated. There are five ways in which fishermen generally take decisions about various practices. Husbands only consulted their wives in respect of the practices viz. Liming, manuring, feeding, netting and taking loan. Women belonging to fisherman by caste with lower socio-economic status, less education and having less urban contact performed various practices in better manner. Whereas women belonging to middle aged group, fishermen by caste having less formal education and possessing nuclear family performed better role in decision making process than other women.



Members of the Social-Audit Committee (ICAR) addressing the farmers of Mundapara- an adopted Tribal Village



Hon'ble members of Social-Audit Committee (ICAR) observing the net weaving of the trainee Farm Women

**Off-campus training
on Net-weaving**



Trained Farm-Women Participate in irrigation

Nature and extent of women participation in crop production (Determined through PRA)

The contribution of women in agriculture in Sunderbans is roughly estimated to be 30-40%. They participate in most of the operations like seed selection, seed treatment, sowing, transplantation, weeding, harvesting, threshing and processing of produce for storage/marketing consumption/seed. With the intervention of the Kendra the farm women are skillfully participating in various activities in crop production.

Participation of farm women in crop production

Participation rate	Farm operation
100%	Bird scaring, care of storage structure, separating seed, parboiling, dehusking.
80%	Weeding, threshing, Winnowing, drying and cleaning of produce, storage.
45%	Seed cleaning, sowing, transplanting, harvesting.
25%	Clod breaking and cleaning of fields, seed selection, repairing of bundhs.

Nature and extent of women participation in fishery activities (Determined through PRA)

Rural women of Sunderbans also participate in various practices of aquaculture and fisheries. With the advent of the activities of the Kendra, the rural society is witnessing unprecedented changes in fishery sector also. It has been observed that the fishery activities has now been considered as a family enterprise in which husband and wife have been participating to share work and pleasure both.

Participation of women in fishery activities

Participation rate	Area of operation
25%	Fish culture
80%	Net weaving.
23%	Fishing.
85%	Fin fish and shell fish seed collection
10%	Fish sale

LITERATURE DEVELOPMENT

The Kendra developed following extension literature in the regional language for the benefit of the farming communities of Sunderbans

<u>Bengali Fisheries</u>	<u>Meaning in English</u>
<u>Fisheries</u>	
1. Lalan pukur Parichalan Paddhati	(Rearing pond management)
2. Antur pukur parichalana	(Nursery pond Management)
3. Pukur Sansanskar Paddhati	(Renovation procedure of ponds)
4. Chhoto Machh ke dekhe chinte shikhun	(How to identify the early fry)
5. Bagda chingrir chass	(Tiger shrimp culture)
6. Magur 'O Singee Machher chass	(Live fish culture)
7. Mishra Machher chass	(Composite fish culture)
<u>Home Science</u>	
1. Khadya Sangrakshan	(Food preservation)
2. Swastha O Suswastha Bidhi	(Health & Hygiene)
3. Darjibidhi O Suchisilpa	(Tailoring & Embroidary)
4. Sushama Khadya	(Balanced Diet)
<u>Crop Production</u>	
1. Pratham Samikshya	(Pre-course evaluation)
2. Boro Dhaner Chas	(Cultivation of Boro Paddy)

**Villagers participating
in PRA**



Dr. S. P. Singh, Principal Scientist, ICAR headquarters visits Home Science Lab

3. <i>Dhan Chaser Sartabali</i>	(A key note on the condition of paddy cultivation)
4. <i>Mati Parikshar Jannya Matir Namuna Kibhabe Sangraha Kariben</i>	(How to collect soil samples for soil testing)
5. <i>Mati parikshar Jannya Tathyabalir Talika</i>	(Information schedule for soil testing)
6. <i>Lanka Chas a</i>	(Cultivation of Chillies)
7. <i>Lanka Kshete Agacha Daman</i>	(Weed management in Chillies)
8. <i>Umnata Prathay Tarmuj chas</i>	(Improved method of Water melon cultivation)
9. <i>Paner Roag O Poka Daman</i>	(Pest and Disease management of betelvine)
10. <i>Kon Tailabije Shatkara Katabhag Tel Achhe</i>	(Percentage of oil in different oil seeds)
11. <i>Mool Phasale Bhadahsrya Angser Amupat</i>	(Edible portion of different main crop produce)
12. <i>Bivinnya Shashya chsser upayogi Amlata ba Kharer sima</i>	(Suitable pH range of different crop cultivation)
13. <i>Moong chas</i>	(Cultivation of Moong)
14. <i>Mitha Alur Chas</i>	(Cultivation of sweet potato)
15. <i>Adhik falansil gamer chass</i>	(Cultivation of H.Y.V. Wheat)
16. <i>Pan chass</i>	((Cultivation of Betelvine)
17. <i>Sugarbeeter chas</i>	(Cultivation of Sugarbeet)
18. <i>Sarissar chass</i>	(Cultivation of Mustard)
19. <i>Patal chass</i>	(Cultivation of pointedgourd)
20. <i>Suryamukhir chas</i>	(Cultivation of Sunflower)
21. <i>Mati Pariksher Bhattite Saar Prayog</i>	(Fertilizer schedule base on soil test)
22. <i>Prayojan Bhattik Sheet O Grisma Morsume Shashya Parikalpana</i>	(Need based Agronomic Programmes for Rabi and Summer crops)
23. <i>Dhan Mathe Maschh Chass</i>	(Paddy-cum-fish culture)
24. <i>Dhan mathe Bagdachingri chas</i>	(Rice-cum-Shrimps farming)
25. <i>Nilche Sabuz Saola Chass</i>	(Production of Blue green algae)

INDIGENOUS TECHNOLOGY

The scientists have collected information about indigenous technologies practised by the farmers of south 24 Parganas district. Some of the technologies are found to be extremely useful and economically feasible. Some of the such indigenous technologies are mentioned below:

1. Catechew and Marybalam decoction mixture is used by the fish hatchery operators to enhance incubation period so that survivability of hatchlings increases.
2. Use of stem of banana plant in the pond to rectify water quality.
3. Use of burnt straw in the pond when surfacing of fish takes place which stops surfacing.
4. Use of palm or date palm leaves in the water body where prawn farming is adopted. It provides shelter to the prawns after moulting and thus increases survivability.
5. Use of Pulverised red earth in the water while carrying fish seed which increases survivability.

CONSTRAINTS

The Kendra has identified the following main constraints which prevail in Sunderban. Efforts are always made by the Kendra to do something for the benefit of the resource poor farming communities of the area despite of these constraints.

1. The Kendra could not develop its infrastructure to the extent due to non cooperation of CPWD as well as the paucity of huge fund required for construction of boundary wall of the farm and maintenance of buildings.
2. Subtropical climate prevails in the area and thus it is prone to devastating tidal flood due to cyclonic weather. As a result often breach of bundh takes place and some areas get inundated with saline waters of the estuary affecting the total crops. This affects the work programme of the Kendra.
3. Poaching and poisoning of the water bodies to destroy fish crops due to enmity often affects demonstration programmes.
4. Impeded drainage during rainy season, causing water logging followed by restriction of adoption of short statured HYV rice.
5. Lack of irrigation facility during winter and summer months.

6. Increase of soil salinity during winter and summer months, hampering crop growth and production.
7. Inundation of land during high tides resulting in crop damage due to increase of soil salinity.
8. High ground water table with saline water.
9. Indiscriminate destruction of forest resources causing break down of riverine embankments.
10. Communication from the village to market is mostly through water ways.
11. The area has no regulated market. Cold Storage specially for Betelvine, fish and other perishable farm products are lacking

COLLABORATION

The Kendra maintain active collaboration with various organisations for the benefit of the farming communities.

Sl. No.	Name of the organisation	Nature of Linkage
i)	Bidhan Chandra Krishi Viswavidyalaya (NARP), Kakdwip & Mohanpur Extension Wing	Frequent visit of University Lecturer, Professor, Scientists for team visit & collaborative research programme specific to Sunderbans.
ii)	PAO, SAO, ADO, Deptt. of Agriculture, Govt. of West Bengal	Adaptive trial, demonstration & training of farmers & inservice training & collaborative agricultural development programme.
iii)	DARD & PA, AD, BLDO, VS.ASL of Animal Resources Dev. Deptt., Govt. of West Bengal	Training of farmer, technical support & collaborative animal husbandry development programme
iv)	West Bengal University of Animal & Fishery Science, Calcutta	Technical, research and extension support.
v)	University of Calcutta, University College of Agriculture	Collaborative research & Training programme, technology oriented on farm research.
vi)	Sundarban Development Board, Govt. of West Bengal	Training & extension programme in Sundarban area in Agriculture & fisheries.
vii)	Department of Forest, Govt. of West Bengal	Natural resource management & biosphere reserve.
viii)	Panchayat bodies	Client oriented & need based programme in field of training & demonstration.
ix)	Sri Ramkrishna Ashram, KVK, Nimpith	Training & Extension support

x)	Central Institute of Brackishwater Aquaculture, Kakdwip Research Centre	Training & farm trial on brackishwater aquaculture
xi)	Central Soil Salinity Research Institute, R. R. Station, Canning Town	Transfer of technology and research oriented programme.
xii)	NGO's of South 24 Parganas & some other districts.	Training & technical support
xiii)	Bharat Chamber of Commerce Standing Committee for Rural Development	Training & extension programme.

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Sl. No.	Name of the organisation	Nature of Linkage
i)	Bidhan Chandra Krishi Viswavidyalaya (ICAR), Kakdwip & Mohanpur Extension Wing	Frequent visit of University Lecturers, Professor, Scientists to the Kendra for collaborative research programme, transfer of technology, etc.
ii)	PAO, BAO, DDO, Dept. of Agriculture, Govt. of West Bengal	Advisive and demonstration training of farmers & extension workers in agricultural development programme.
iii)	DARD, P.A.D, B.D.O, V.S.A.L of Animal Resources Dev. Dept, Govt. of West Bengal	Training of farmer, technical support & collaborative (animal husbandry) research programme.
iv)	West Bengal University of Animal & Fisheries Science, Calcutta	Technical, research and extension support in the Kendra.
v)	University of Calcutta, University College of Agriculture	Collaborative research & training programme, technology oriented in the Kendra.
vi)	Sundarban Development Board, Govt. of West Bengal	Training & extension programme in Sundarban area in Agriculture & Fisheries.
vii)	Department of Forest, Govt. of West Bengal	Natural resource management & bio-diversity.
viii)	Panchayat bodies	Field oriented & need based programme of training & demonstration.
ix)	Sh Ramkrishna Ashram, KVK, Nimrodhi	Training & Extension support.