

**Performance Evaluation of
Krishi Bhavan Set-up in Kerala**

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Performance Evaluation of Krishi Bahvan Set-up in Kerala

Jinraj P. V *

1. Introduction

The growth and development of the agricultural sector in Kerala is unique in many ways. Over the years, the State has transformed itself from a producer State into a consumer State with respect to major essential agricultural commodities like food grains and vegetables. It is estimated that Kerala depends on the neighbouring States for nearly 60 per cent of the rice and 80 per cent of the vegetables consumed annually. At the same time, the State continues to remain a major producer of commercial and cash crops like pepper, cardamom, ginger, turmeric, coconut, tea, coffee, rubber, and cashew. It still holds near-monopoly in the export of several agricultural commodities in India - 93 per cent in pepper, 47 per cent in cardamom, 90 per cent in ginger, 30 per cent in turmeric, 48 per cent in cashew kernels, 68 per cent in coffee, 43 per cent in tea, and 100 per cent in coir and coir products. Thus, the State contributes a substantial share to the foreign exchange earnings of the country. The cropping pattern of the State has undergone a major shift from food crops towards commercial crops since 1960 (Table 1.1).

Another major feature of Kerala agriculture is the homestead system of cultivation which has taken a variety of forms: Inter-cropping, mixed cropping of perennial and annual crops, and mixed farming of different types such as crop-livestock and crop-livestock-fish. In consequence, the income per unit area of cultivation remains high.

The per capita availability of operational land in the State is small and declining rapidly. According to the latest estimates, about 92 per cent of the operational holdings is of less than one hectare. Only 0.06 per cent of the holdings is larger than 10 hectares in size. The per capita operational holding size is estimated to be about 0.33 hectares. The farm holdings lie fragmented and subdivided due to high population density, rapid population growth, and the laws of inheritance in force. The land reforms legislation, which is believed to be one of the most radical and successful in India, has failed to achieve the objective of augmenting agricultural production as most of the holdings remain economically unviable. Moreover, absentee farming has become widespread as, for most owners of land, cultivation is only a secondary source of income.

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* Jinraj P. V. is working with Agricultural and Rural Development through Rapid Action (ARDRA).

Table 1.1 Cropping Pattern of Kerala: 1960 to 1996

Crops	Percentage Share in Gross Cropped Area					Increase- (+/ Decrease (-) over 1960-61 (% points)
	1960-61	1970-71	1980-81	1990-91	1995-96	
Food Crops						
Rice	33.2	29.8	27.8	18.5	17.3	-15.8
Tapioca	10.3	10.0	8.5	4.9	4.4	-5.9
Pulses	1.9	1.3	1.2	0.8	0.6	-1.3
Total Food Crops	45.4	41.1	37.5	24.2	22.3	-23.0
Annual Cash Crops						
Ginger	0.5	0.4	0.4	0.5	0.4	-0.1
Turmeric	0.2	0.2	0.1	0.1	0.1	-0.1
Banana + Plantain	1.9	1.7	1.7	2.2	2.7	+0.8
Groundnut + Sesamum	2.0	1.5	1.3	1.4	1.6	-0.4
Cotton + Sugarcane						
Total	4.6	3.8	3.5	4.2	4.8	+0.2
Cash Crops						
Coconut	21.3	24.5	22.6	28.8	36.2	+14.9
Arecanut	3.3	2.9	2.1	2.2	2.8	-0.5
Pepper	4.3	4.0	3.7	5.6	7.0	+2.7
Cashew Nut	2.3	3.5	4.9	3.8	4.2	+1.9
Total	31.2	34.9	33.3	40.4	50.2	+20.1
Plantation Crops						
Cardamom	1.2	1.6	2.0	2.2	1.6	+0.4
Tea	1.6	1.3	1.3	1.2	1.3	-0.3
Coffee	0.7	1.1	2.0	2.5	3.0	+2.3
Rubber	5.2	6.1	8.2	12.7	16.5	+11.4
Total	8.7	10.1	13.5	18.6	22.4	+13.8

Note: The data were obtained from various issues of season and crop reports published by Directorate of Economics and Statistics, Kerala Government.

Thus, the major distinguishing features of Kerala agriculture are the following:

- (i) dominance of cash and commercial crops like spices and plantation crops;

- (ii) homestead system of cultivation with mixed cropping of perennial and annual crops and / or integrated farming with combinations such as crops-livestock-fish;
- (iii) rice cultivation in areas of extreme unfavourable production environments like lands below sea level and subjected to inundation by sea water and extreme salinity as seen in Kuttanad and Pokkali lands of Thrissur;
- (iv) (a) coconut-based cropping systems (ie coconut cultivated with a number of inter-crops like pepper, turmeric, cocoa, cardamom, and banana);
- (b) rice-based cropping systems (eg single cropping and double cropping; crop rotation and rice-cum-fish; and
- (v) predominance of small and scattered holdings and absentee farming.

The progressive decline in area under rice and other food crops has formed the central theme of a growing debate among agricultural scientists and economists in recent times. Rice continues to be the major staple food of Keralites. Acute deficit in rice production in the State persists despite the increase in productivity of rice over the years. In recent years, the cost of production of rice has also gone up. Studies suggest that in Kerala, levels of input use and productivity are much below the potential for several crops including rice. It has also been reported that irrigation and rice productivity did not show a meaningful correlation in the State.

Evolution of Agricultural Extension Service in Kerala

Agricultural extension service in Kerala began as an experiment. Strategies and approaches of extension have undergone frequent changes through a process of trial and error. The first coordinated effort for agricultural development was the establishment of the Department of Agriculture in the 1950s. Since then, the pivotal role in the development of the primary sector in the State has remained with this department. Its efforts were supplemented by various agencies like Kerala Agricultural University, Soil Conservation Department, Plantation Corporation, Farming Corporation, Krishi Vigyan Kendras of Indian Council of Agricultural Research (ICAR), and different financial institutions - rural and urban.

A series of schemes sponsored and implemented by the Government tried to achieve the transfer of technology to farmers, which was aimed at augmenting agricultural production and productivity. We attempt to trace the process of the transfer of technology and agricultural extension services in Kerala since the formation of the State in 1956.

The CD Programme

Programmes aimed at agricultural and rural development were based on the Community Development (CD) approach at the time of formation of the Kerala State. The objective of the CD programme was to develop the resources of the rural population. It was initiated during 1951-52 through the establishment of CD blocks. Under the programme, the main carriers of information were the Agricultural Extension Officers (AEO) attached to the CD blocks. The AEOs worked under the immediate administrative control of the Block Development Officers (BDO) and according to the technical guidance given by the District-level Agricultural Officers. The AEO was assisted by the Village Extension Officer (VEO), who was the multi-purpose administrative as well as technical worker at the grass-roots level. These programmes were meant, in addition to increasing the earnings of the cultivators, to serve as a training ground for the extension staff.

The CD programme had many limitations though it had a number of advantages and it served as an important means for augmenting agricultural production. It remained largely a government-sponsored programme and lost its contact with the people who were supposed to be the links in the implementation of the programme. It was not realised that in a democratic set-up, rural development was not merely a matter of plans and statistics, targets and budgets, technologies and methods, material aid and professional staff and agencies and organisations to administer them, but also of using these mechanisms skilfully as an educational tool for changing the mind, heart, and actions of the people to attain improvement economically, socially, politically, and morally. The performance of the CD worker as a guide, enabler, expert, and therapist as perceived by the programme remained far from satisfactory due to lack of involvement and administrative hackles like dual control under which he/she had to work.

These problems forced the Department of Agriculture to go in for specific and targeted schemes and plans for different crops. A long-term perspective for the development of rice was drawn up during the IVth and Vth Plan periods. Thus, for organising rice production, the *Ela* or the *pada-sekharam* (cluster of rice farms) was taken as the basic unit of planning and the implementation of schemes.

The Ela Programme

The *ela* programme, also called the Integrated Paddy Development Programme (IPDP), was launched in 1971 where all the farmers in the *ela* would act jointly in the procurement and timely application of inputs and in the adoption of improved cultivation practices. The State, on its part, would provide necessary assistance and legislative safeguards to the organisation of farmers and smooth functioning of the programme. For this purpose, formation of *ela* committees consisting of progressive cultivators, members of the concerned panchayats, and representatives of local co-operatives was envisaged. The committees were to work under the advice of technical expert to monitor the collective efforts. The success of this scheme inspired the department to extend it to other crops as well. Consequently, intensive development units were adopted for other major crops like coconut and pepper.

Studies on the performance of the IPDP units have come up with widely varying assessments. Samad (1979) studied the response of special package programmes for agricultural development in Kerala and found that as much as 82 per cent of farmers of Intensive Paddy Development Units, 83 per cent of farmers of Coconut Package Units, and 76 per cent of farmers of Pepper Package Units were favourably inclined towards the respective programmes. It was also found that 93 per cent of the Junior Agricultural Officers of Intensive Paddy Development Units, 81 per cent of Junior Agricultural Officers of Coconut Package Units, and 100 per cent of Junior Agricultural Officers of Pepper Package Units had favourable attitude towards the respective programmes.

These crop-wise units later became the basic units of administration for implementing development programmes in the field. But these programmes, owing to their specialised nature, lacked the integrated approach of development. In a State where a multiple cropping system is predominant, an integrated approach of area development was essential. The establishment of crop-wise extension units made it necessary for the farmers to approach different agencies for know-how. Besides, these units could cover only a few crops and only a small section of the farming community.

According to a State Planning Board study, the IPDP units covered only about 25 per cent of the net area under rice, the coconut package units about 15 per cent of the area under coconut, and the pepper package units only 25 per cent of the area under pepper. The area covered by all these units together accounted for only less than 10 per cent of the net area cultivated in the State. There were also complaints of lack of co-ordination among the different units, lack of time for the extension staff to execute their designated functions, and ineffective supervision which mainly arose from the role of the *ela* committees that were only advisory rather than statutory (State Planning Board, 1989).

The T & V System

These drawbacks forced the Department to go in for a major organisational restructuring. It resulted in the initiation of the Kerala Agricultural Extension Programme (KAEP) based on the Training and Visit (T and V) system of extension, prepared by the Government of Kerala with the assistance of the World Bank. The KAEP envisaged early and sustained increase in agricultural production across the State by reorganising and strengthening the extension service of the Department of Agriculture. At the headquarters, one Additional Director of Agriculture (Extension) was appointed exclusively for the purpose. Each district had three to four sub-divisional offices headed by a sub-divisional Agricultural Officer assisted by four Subject Matter Specialists (SMS) in field crops, tree crops, plant protection, and training. In each sub-division, 8-10 agricultural extension units functioned, each with an AEO. Each Agricultural Extension Unit was further divided into five to eight Village Extension Worker (VEW) units based on the number of farm families, cropping intensity, and accessibility.

Together with research, technology development, and training, this system also concentrated on transferring latest technologies evolved by agricultural scientists to the farmers through the VEW. For this purpose, the number of farm families in each area were divided into eight groups. The VEWs were expected to visit each group once in a fortnight under a fixed schedule for dissemination of modern agricultural technology to contact farmers, who in turn, were supposed to transfer them to their fellow farmers in the area. Thus, the contact farmers played a crucial role in this mode of development.

However, this system was not free from drawbacks either. Somasundaram (1983) observed that a major hurdle being encountered by the Agricultural Officers in T & V system was absence of contact farmers during Village Level Workers' (VLWs) visits. Kalaichelvan (1984) studied the technology transfer through T & V system and found that the major constraints encountered by the officials were lack of housing and conveyance facilities and larger jurisdiction assigned to extension workers. Cherian (1984) observed that lack of office facilities in the areas of operation of Village Level Workers and frequent transfers were the important problems perceived by the Village Level Workers, whereas lack of conveyance facilities and heavy work load for time-bound projects were the important problems perceived by the officials working under T & V system in the State.

Puttaswamy (1986) reported that the following are the problems in the T & V system as perceived by VLWs;

- (i) inputs like seeds, fertilisers, pesticides, loans, etc are not made available in time to farmers;

- (ii) farmers are not available for contact at the time of visit by VLWs and they do not co-operate fully with VLWs;
- (iii) proper and timely promotional opportunities for Agricultural Assistants do not exist;
- (iv) supervisors are not co-operative;
- (v) it is not always possible to stick to the fixed schedule of visits; and
- (vi) agricultural assistants are not able to help farmers to obtain financial help.

This programme was continued until 1987, when the Krishi Bhavan concept was introduced.

Other Programmes

Simultaneous with the implementation of the IPDP and KAEP, some other programmes were also initiated by the Government of Kerala such as Kerala Agricultural Development Project (KADP) in 1977 and IDA-assisted Multi-State Cashew Programme (MSCP) from 1981 onwards. Under the KADP, special emphasis was given to plantation crops of the State such as coconut, rubber, tea, cocoa, and pepper. But it is widely believed that the KADP was successful only partially and that it did not contribute much to the agricultural development of the State.

Agricultural development calls for matching progress in the research front also. Increased agricultural production and productivity enhancement will become a reality only if technical solutions for the problems in crop husbandry are developed on a location-specific basis and transferred to the field. The Kerala Agricultural University was formed in 1972 to spearhead this endeavour in the State. The University had the mandate for undertaking research to support the agricultural development process in the State. The University also had another task of supreme importance ie developing the manpower required for agricultural education programmes. The Kerala Agricultural University now has eight educational institutions and over 30 research stations. The research system in Kerala Agricultural University was reorganised under the National Agricultural Research Project (NARP) during the early eighties to conduct location-specific studies on agro-climatic conditions in the State. Five such regional agricultural research stations provide the impetus for research activities in their respective regions. The research projects are categorised into various cropping and farming systems to understand the realities at the grass-roots level.

Besides the Kerala Agricultural University, Central Research Institutions of Indian Council of Agricultural Research (ICAR) such as Central Perennial Crops Research Institute (CPCRI) and Central Tuber Crops Research Institute (CTCRI) are also undertaking problem-oriented research on their mandatory crops. The technology generated from the research pursuits of Kerala Agricultural University and the central research institutes of ICAR in the State are vetted in a State-level Package of Practices (POP) workshop in which scientists and extension workers interact.

The outcome of these deliberations is published periodically as POP (Package of Practices) of crops by Kerala Agricultural University, which serves as a guide to the field extension functionaries of the State.

Krishi Bhavans: Genesis and Functions

The concept of Krishi Bhavan was introduced by the State Government in 1987. The basic premise for the initiation of this concept was the realisation of the authorities about the need to make planning and agricultural development more location-specific by taking the panchayat as the basic unit for all development work. Under this principle, the Department of Agriculture was reorganised with the panchayat as the basic working unit. By establishing one agricultural unit for every panchayat, it was hoped that making production inputs and integrated services available to farmers in time, production and productivity of crops would be enhanced.

All agricultural activities covering extension and development were included under the jurisdiction of these base units. Through this arrangement, provision of a single window approach for agricultural development in the State, by integrating and coordinating the existing agricultural development activities which were scattered under different projects like KADP, MSCP, KAEP and CRS, was also aimed at. Thus, the different individual projects for different crops were brought under one roof with the introduction of Krishi Bhavans (Figure 1).

The integrated approach had also aimed at providing adequate credit to the farmers. Budgetary resources available for agricultural development were quite meagre considering the magnitude of demand. It was realised that the strategy of agricultural development should focus on credit-linked programmes, and provision of credit was accepted as a major activity of the Department. For this purpose, it was decided to utilise the strong rural credit structure available in the State.

The sustainable development of any sector calls for planned, optimum use of the available resources. Keeping this in view, the Krishi Bhavans were expected to ensure the best possible use of the resource endowments of each region by planning and implementing location-specific development programmes with the active involvement of the people. People's participation implied participation at all stages of the programme, viz planning, formulation, implementation, decision-making, sharing the benefits of development, monitoring, and evaluation.

A 10-point programme was accordingly formulated by the Government which consisted of the following:

- (i) planning and implementing programmes for agricultural development, taking the panchayat as the basic unit;
- (ii) involving the farmers in planning and implementation of agricultural programmes;
- (iii) creating the basic infrastructure necessary for improving the production and productivity of crops;
- (iv) planning optimum use of available land, water, and solar energy;
- (v) formulating location-specific programmes for agricultural development and channelling institutional finance;

(vi) ensuring the timely availability of relevant technology, inputs, and credit to farmers and organising community efforts among them for agricultural operations;

(vii) bestowing special interest in the case of crops under cultivation in certain pockets of the State which have not received adequate priority and attention;

(viii) changing the style of functioning of the field officers and the farmers through recognition of outstanding performance;

(ix) enabling the farmers to secure remunerative prices for their produce by promoting collection, storage, processing, and marketing on co-operative basis through organised efforts; and

(x) monitoring the progress of agricultural development in each panchayat based on physical achievement on regular basis.

In the re-organised set-up, each Krishi Bhavan was supposed to be under the control of an Agricultural Officer assisted by three Agricultural Demonstrators. This staff pattern was prescribed for 803 panchayats in which the total number of families were 2,800 or above. In the case of the remaining 198 panchayats, where the total number of families were less than 2,800, the staff pattern would be one Agricultural Officer assisted by two Agricultural Demonstrators. The municipalities (44) and Corporations (3) were also supposed to have an agricultural unit with an Agricultural Assistant in charge and one Agricultural Demonstrator to assist him. The Agricultural Officer was entrusted with the following responsibilities:

(i) transfer of technology relevant to the crops and conditions obtaining in the area;

(ii) organising programmes for the development of infrastructure facilities to improve productivity of the crops;

(iii) arranging the supply of inputs including decentralised production of planting materials in his/her area with the active involvement of farmers and organisations;

(iv) identifying, formulating, and implementing location-specific agricultural development projects availing institutional finance. The objective of such projects will be to increase production, productivity, income, and employment in the crop production sector;

(v) organising community efforts;

(vi) educating the farmers about primary processing of agricultural commodities and motivating them for co-operative marketing;

(vii) implementation of Plan schemes;

(viii) quality control of inputs;

(ix) establishing model gardens and demonstration plots in farmer's fields, including the conduct of farm trials (adaptive trials);

(x) assessment of crop situation from time to time and reporting of crop losses due to natural calamities and disbursement of assistance;

(xi) revitalising existing farmers' organisations like co-operatives and organising new ones for agricultural development;

(xii) to ensure public participation by organising *Karshika Vikasana Samithis*;

(xiii) to keep close surveillance of the pest and disease incidence on crops in the panchayat area and take steps to bring under control the pest and disease outbreaks by providing effective plant protection services; and

(xiv) to study the marketing problems and associating with marketing surveys; to bring tangible progress in agricultural production and productivity in his/her jurisdiction by setting targets for production of each crop and taking stock of the base year levels of production and productivity.

The Agricultural Demonstrator worked under the Agricultural Officer in all the agricultural activities organised in the panchayat. His/her responsibility was to visit the farmers' groups according to a fixed schedule and to educate as many farmers as possible on new techniques and innovative ideas gathered from the fortnightly training courses.

The major functions of *Karshika Vikasana Samithis* as envisaged at the time of their formation were the following:

(i) help the Department of Agriculture in implementing the agricultural programmes successfully;

(ii) offer suggestions to prepare location-specific projects identified by the Agricultural Officer for the development of agriculture in the area and help in the implementation of such projects;

(iii) render necessary assistance for production and distribution of seeds and seedlings, looking into the availability of and the demand for seeds, fertilisers, pesticides etc;

(iv) ensure public participation in agriculture through voluntary services wherever necessary;

(v) organise seminars, *melas*, exhibitions, etc and help in the disbursement as well as repayment of loans;

(vi) suggest minor irrigation and other infrastructural development works required in the area and help in their implementation.

The reorganised set-up of the Department of Agriculture was introduced with the Director of Agriculture at the helm of affairs (Figure 1).

The major functions of the Krishi Bhavan and its associated bodies as envisaged at the time of their formation, are shown in Figure 2. As already mentioned, the Krishi Bhavans act as a link between the research organisations like Kerala Agricultural University and farmers through a number of farmers' organisations like the different crop-based *samithis*.

The Agricultural Officers attend the zonal workshops of the Kerala Agricultural University, thus keeping in touch with the latest findings in the research sector and taking back to the scientists the feedback from the farmers. The *Karshika Vikasana Samithis* act as the major advisory body of the Krishi Bhavans. Direct contact with the farmers also exist through the distribution of subsidies, implements, etc.

One important aspect to be noticed in this context is the absence of the panchayats/local bodies in the development process. In essence, this deficiency alienates people from the planning and implementation process, thus creating several hurdles in the agricultural growth process.

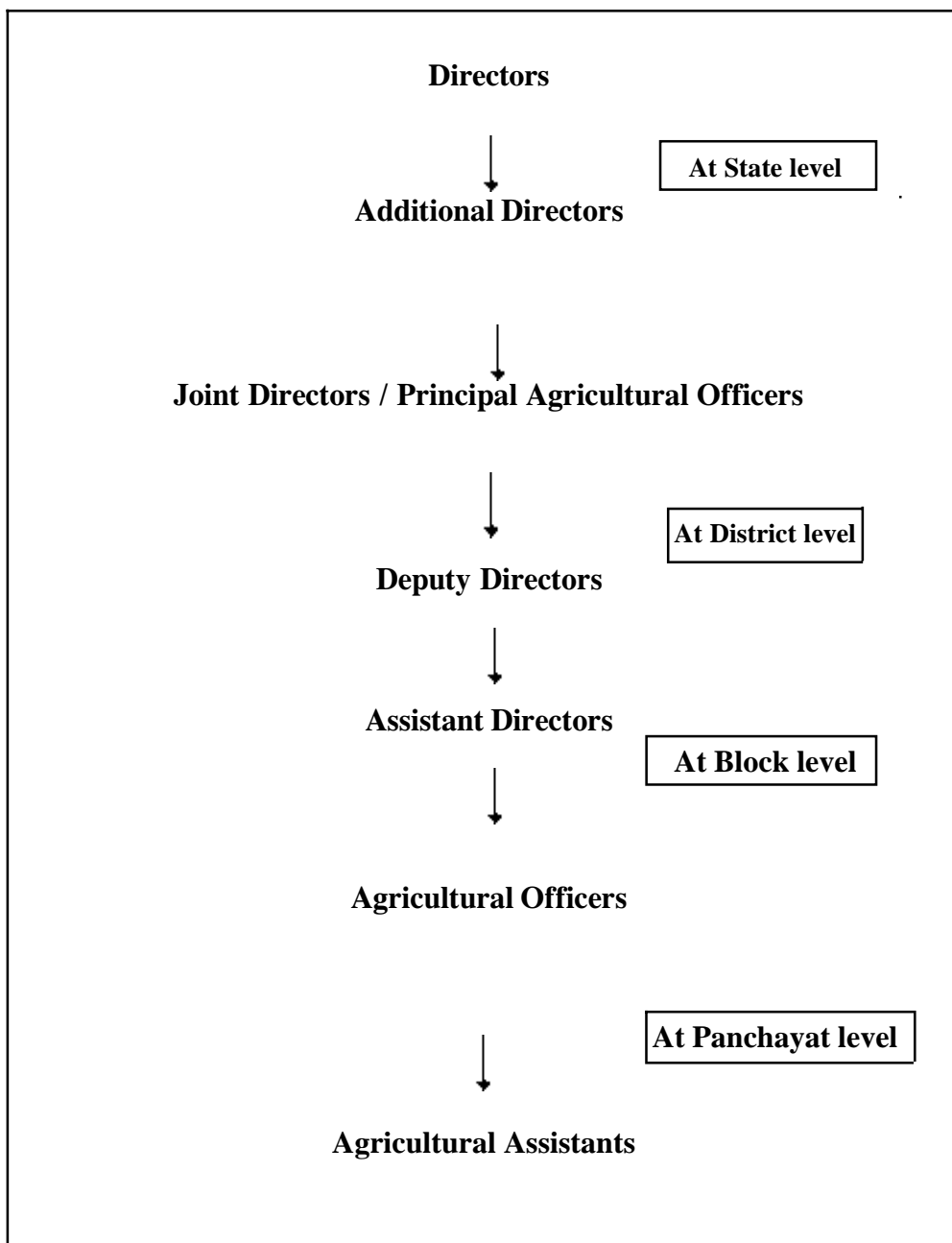
Objectives of the Study

In the light of the preceding discussion, we are attempting to evaluate the existing agricultural extension system in the State. The specific objectives of the study include the following:

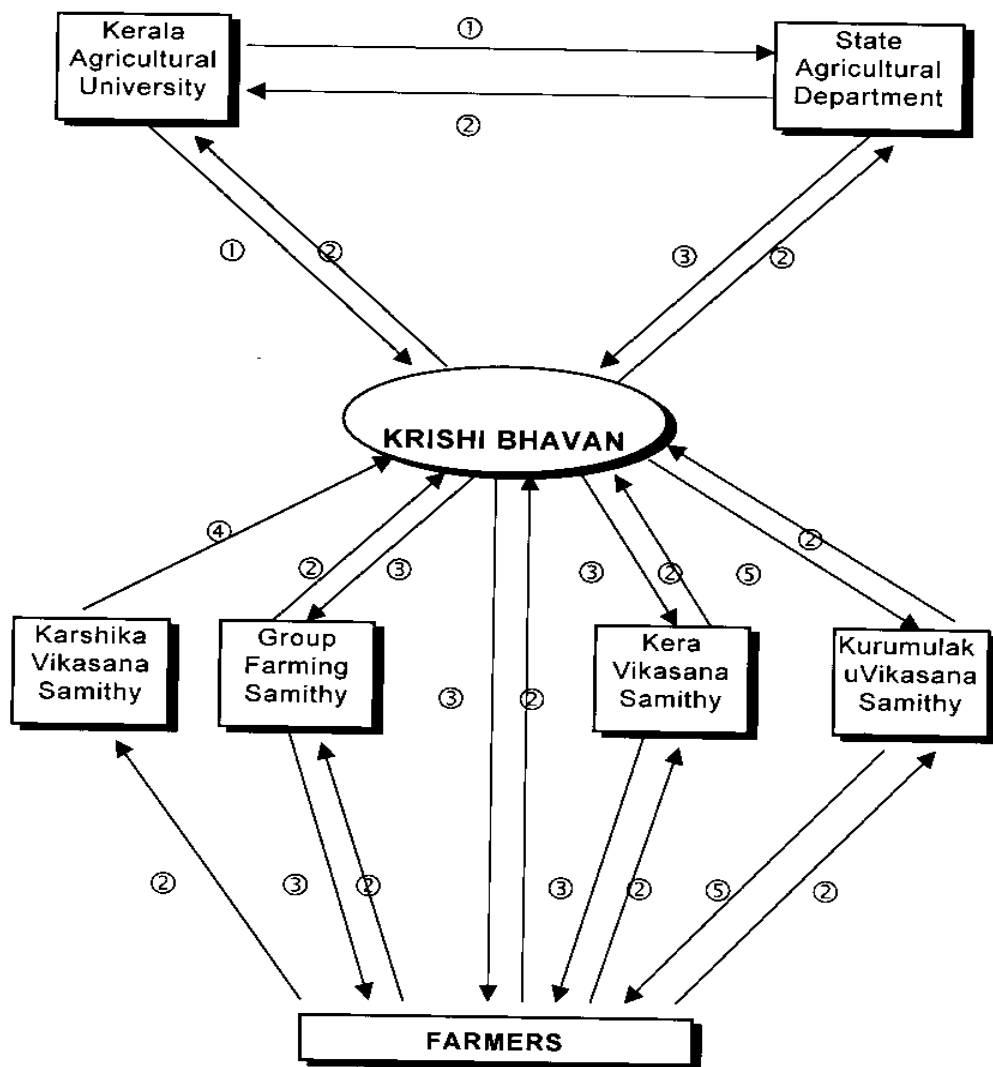
- (i) to evaluate the performance of Krishi Bhavans as a governmental agency for the transformation of the agricultural sector in Kerala;
- (ii) to study the role played by Krishi Bhavans as an agency for supplying various inputs to farmers in terms of quantity as well as quality;
- (iii) to evaluate the efficacy of extension activities being implemented by Krishi Bhavans with that of other existing agencies in the field of agriculture;
- (iv) to evaluate the role of the advisory committees (*Karshika Vikasana Samithis*) and the extent of participation of people in planning, implementation, and evaluation of agricultural development activities in Krishi Bhavans; and
- (v) to explore the constraints, if any, experienced by the agricultural development personnel in Krishi Bhavans and the people, in respect of transfer of technology, resource use, and participatory planning for agricultural development.

The southern and the northern districts of Kerala differ from each other significantly with respect to climate, cropping pattern, and cultural and social attributes. Since the study aims at an in-depth analysis of the agricultural extension system, two panchayats (two Krishi Bhavans) are selected as sample areas. Krishi Bhavans so selected were Kudali of Kannur district and Anad of Thiruvananthapuram district.

Figure 1
Organisational Set-up of the Department of Agriculture



**Fig 2. Functions envisaged for Krishi Bhavans and associated organisations in the pre-Panchayati Raj system:
A Diagrammatic Representation**



- ① Modern technology
- ② Feedback
- ③ Modern technology, inputs, and funds
- ④ Advisory support
- ⑤ Modern technology and inputs

2. Design of the Study

Profile of Selected Panchayats

Anad

The Anad Krishi Bhavan is located in the Anad village of the Nedumangadu Block in Thiruvananthapuram district. It lies about 40 km away south east of Thiruvananthapuram city. Its jurisdiction is spread over 24.15 sq. km. The total population in the panchayat was about 27,367 as per the 1991 census. The region is characterised by undulating plains running across as part of the Western Ghats. The Killi river starting from Thirthankara flows through the panchayat in the form of tributaries and sub-tributaries in its southward course and joins the Karamana river.

The panchayat is divided into 11 wards, namely, Panachakkad, Thirichittur, Venkavila, Vellarikonam, Kundarakuzhi, Kulappalli, Chandramangalam, Mandapam, Cheruvelli, Chullimanoor, and Sasthampara. The farming community is predominated by small farmers with holding size of less than one hectare who represent 98.6 per cent of the total number of farmer households. The major crops cultivated are rubber, coconut, tapioca, rice, pepper, and pulses. The cropping pattern of the region along with the expenditure for different crops is presented in Table 2.1.

There are four minor irrigation projects in the panchayat, namely, Vettampally Thodu, Meenmoodu Tiringium Thodu, Edavattam-Theerthamkara, and Eranadumoozhi projects. The fifth one - Anad *Valiyathodu* - is under construction. The inputs for cultivation like fertilisers and plant protection chemicals are supplied by co-operative depots and some private depots. There are seven *Padasekhara* (Group Farming) *Samithis* for rice, one *Keravikasana* (coconut development) *Samithi*, and one *Karshika Vikasana Samithi*. Two watershed projects - Anad watershed coming under NWDPRA and Irinjium watershed coming under WGDP - are operating under the Krishi Bhavan. The Anad Krishi Bhavan is in ward number eight of the panchayat.

Kudali

Kudali panchayat is situated in Kannur, a northern district of the State. It lies along the Mysore road, 20 km east of Kannur town and 8 km from Mattannur town situated in Iritty block. It consists of two villages viz Kudali and Patanur. It has 11 wards spread over an area of 4,027 hectares. The major crops cultivated there are rice, coconut, arecanut, pepper, banana, rubber, cashew, tapioca, vegetables, ginger, and turmeric (Table 2.1).

Of the 5,320 farmers in the panchayat, 4,810 are marginal and 424 are small farmers. There are 13 *samithis* operating in this panchayat. Group Farming *samithis* -10, *Kera* (coconut) *Vikasana Samithi*-1, and *Kurumulaku* (pepper) *Vikasana Samithi* -2. The supply and service agencies serving the farming community are the Kudali Co-operative Bank and the Patanur

Table 2.1 Crop-wise Expenditure Incurred by Krishi Bhavans in Anad and Kudali

Crops	Anad				Kudali			
	Area (ha)	% Share in Total Area	Average Expenditure	% Share in Total Expenditure	Area (ha)	% Share in Total Area	Average Expenditure	% Share in Total Expenditure
Rice	129	5.7	263025	29.5	205	5.6	139077	21.0
Pulses	15	0.7	2809	0.3	60	1.7	-	-
Ginger	12	0.5	5700	0.6	NA	-	-	-
Vegetables	30	1.3	27750	3.1	30	0.8	3790	0.6
Coconut	595	26.4	523250	58.8	2055	56.5	306117	46.3
Banana	220	9.8	42017	4.7	65	1.8	-	1
Tapioca	232	10.3	667	0.1	40	1.1	850	0.1
Pepper	22	1.0	7300	0.8	105	2.9	112033	16.9
Cashew	3	0.1	640	0.1	820	22.6	91843	13.9
Fruits	3	0.1	-	-	45	1.2	-	-
Rubber	991	44.0	3333	0.4	42	1.2	-	-
Turmeric	NA	NA	1670	0.2	NA	-	-	-
Betelvine	NA	NA	5917	0.7	NA	-	-	-
Arecanut	NA	NA	-	-	160	4.4	5086	0.8
Cocoa	NA	NA	5333	0.6	NA	-	-	-
Bush Jasmine	NA	NA	1000	0.1	NA	-	-	-
Sesamum	NA	NA	-	-	2	0.1	-	-
Jack	NA	NA	-	-	6	0.2	-	-
Nutmeg	NA	NA	-	-	NA	-	267	-
Total	2252	100.0	890411	100.0	3635	100.0	661280	100.0

Source: Records of the Anad and Kudali Krishi Bhavans

Co-operative Bank. Both these banks have fertiliser depots functioning under them. The water requirements of the panchayat are met by 4,250 wells and 105 ponds. To aid agriculture, there is a canal system of 24.5 km length. The panchayat is blessed with a 6 km-long river. The Krishi Bhavan of the panchayat is located in ward number five.

Sampling Procedure

Primary and secondary data were made use of for the study. A detailed survey was conducted to collect primary data for evaluation of the development schemes implemented by the Krishi Bhavans. The following types of respondents were selected for the study:

- (i) staff of the Krishi Bhavan (one Agricultural Officer and three Agricultural Assistant from

each of the Krishi Bhavans);

(ii) members of the *Karshika Vikasana Samithis* of the selected panchayats;

(iii) all Group Farming *Samithis* of the selected Krishi Bhavans;

(iv) all supply and service agencies functioning in the selected panchayats (fertiliser dealers, pesticide dealers, and banks); and

(v) selected farmers from the two panchayats.

Period of Study

The study was conducted during the agricultural years of 1996-'97 and 1997-'98. A detailed survey of households was undertaken during March-August 1997.

Stratification of the Sample of Farmers

The farmer-respondents were divided into two categories - beneficiaries and non-beneficiaries. Separate analysis was done for each category. Beneficiaries were defined as those farmers who had availed any benefit - in cash or in kind - from the Krishi Bhavan during the past three years. Non-beneficiaries were defined as those farmers who had not availed any benefit - in cash or kind - from the Krishi Bhavan during the past three years.

Two wards were selected from each panchayat to collect information from farmers for the study. Distance from the Krishi Bhavan was considered a criterion for the selection of wards. Two wards, one where the Krishi Bhavan is situated and another, a distant one, were selected. Based on a preliminary survey, separate lists of beneficiaries and non-beneficiaries were prepared for each ward. Ten per cent of the farmers were selected from the lists following stratified random sampling procedure, in which one stratum represents the beneficiaries and the other represents the non-beneficiaries of the Krishi Bhavan schemes. Thus, a total sample size of 233 was fixed for the study. Among the sample size of 233, 120 farmers were from Anad and 113 from Kudali (Table 2.2).

Table 2.2 Details of the Sample

Name of the panchayat	Ward No.	Total No. of Respondents	Selected Farmers	
			Beneficiaries	Non-beneficiaries
Anad	8 (W1)	60	40	20
	11 (W2)	60	19	41
Kudali	5 (W1)	63	30	33
	2 (W2)	50	23	27
Total		233	112	121

W1-Nearest Ward from Krishi Bhavan; W2-Distant Ward from Krishi Bhavan

Secondary data pertaining to different activities of the Krishi Bhavan were collected from Agricultural Department, Krishi Bhavans, and the concerned panchayat offices.

Variables Selected for the Study

- (i) basic information about the farmers;
 - Family size
 - Educational status
 - Employment status
 - Income level
 - Land ownership pattern
 - Crops cultivated
- (ii) exposure to agricultural literature;
- (iii) membership in different *samithis*;
- (iv) source of information about agricultural practices;
- (v) awareness about scientific agricultural practices;
- (vi) adoption of scientific agricultural practices;
- (vii) perception about activities of the Krishi Bhavan; and
- (viii) perception about performance of different *samithis*.

Tools of Analysis

Average, Percentage, and Growth Rate

The data collected from the respondents were tabulated and analysed using suitable statistical tools. Simple tools like mean and percentage were used to examine the data and draw meaningful inferences. The basic objective behind the formation of the Krishi Bhavan was to improve the overall agricultural performance of the State. In order to verify whether there has been a significant change in the agricultural scenario, we tried to compare the compound growth rates (CGR) for different crops during two decades - pre-Krishi Bhavan and post-Krishi Bhavan periods. The CGRs were calculated using the following equations:

$$\ln Y = a + bt$$

$$g = (\text{Antilog } b - 1) * 100$$

where, Y - area / production / yield

t - trend term

a, b - co-efficients

g - compound growth rate

Awareness / Adoption Index

An index method was used to estimate the awareness and adoption levels of the farmers about scientific agricultural practices. After classifying the farmers into beneficiaries and non-beneficiaries, a list of questions were prepared in consultation with extension personnel and experts. The responses to the questions were collected in two steps: (i) whether the farmer is aware of the practice, and (ii) whether he has adopted it in his farm. Sources were given for each answer as follows:

Not aware / adopting	-	0
Aware / adopting	-	1

Awareness indexes were estimated for each category on the basis of scores (maximum score being one) given for the different levels of awareness of the farmers as per the following equation.

$$\text{Index} = \frac{\text{Actual score obtained}}{\text{Maximum possible score}}$$

Performance Rating

A scoring procedure was used to judge the overall performance of the different *samithis* and the Krishi Bhavans. Different functions of these organisations were listed and the farmers were asked to judge whether the performance with regard to functions was good, average or poor. Scores of 3, 2, and 1 were given for these three ratings. Weights were given for each of these functions based on their relative importance and the mean of the products of ratings and the weights were taken as the overall score of the organisation. The perfect functioning of the organisation would be indicated by a score of 3, which is the maximum. The minimum score of 1 would indicate poor performance of the organisation.

3. Socio-economic Characteristics of the Sample

A brief account of the socio-economic characteristics of the sample areas is presented in this section. In Anad, 51.7 per cent of the households had less than five members each; in Kudali the corresponding figure was 37.2 per cent. The average size of the family in Kudali was found higher (5.1 members) than in Anad (4.5 members). Both the panchayats had about 29.4 per cent of the population as work force. Households of Kudali had a slightly larger number of workers (1.5 per family) than Anad (1.3 per family) (Table 3.1).

In Anad, there was 52.2 per cent of the workers having their primary occupation in non-agricultural sectors; in the case of Kudali the corresponding figure was 73.2 per cent (Table 3.2). In Anad, 64.8 per cent and in Kudali 91.2 per cent of the workers were having agriculture as their secondary occupation.

Table 3.1 Basic Details of Sample Households

Category	Anad	Kudali	Total
<5 Members	62 (51.7)	42 (37.2)	104 (44.6)
>5 Members	58 (48.3)	71 (62.8)	129 (55.4)
Total	120 (100.0)	113 (100.0)	233(100.0)
Total PopulationCovered	540	572	1112
Total Workforce	159 (29.4)	168 (29.4)	327 (29.4)
Average Size of Families	4.5	5.1	4.8
Average No. of Workers Per Family	1.3	1.5	1.4

Figures in parentheses denote percentages

Table 3.2 Employment Status of the Workforce by Panchayat

Employment in	Anad		Kudali		Total	
	Primary	Secondary	Primary	Secondary	Primary	Secondary
Agriculture	76 (47.8)	46 (64.8)	45 (26.8)	62 (91.2)	121 (37.0)	108 (78.3)
Non-agriculture	83 (52.2)	25 (35.2)	123 (73.2)	6 (8.2)	206 (63.0)	30 (21.7)
Total	159 (100)	71 (100)	168 (100)	68 (100)	327 (100)	138 (100)

Figures in parentheses indicate percentage

Average annual income per household was Rs 37,325 (Rs 39,792 in Anad and Rs 34,705 in Kudali). Nearly 90 per cent of the income accrues from the main source, either agriculture or non-agriculture. Little difference exists between the income accruing to a household as between agriculture or non-agriculture, each contributing to about half of the total. However, on a comparative basis, the average household income from agriculture is found lower in Kudali (Table 3.3).

Table 3.3 Average Annual Income per Household by Panchayat

Source of Income	Anad (Rs.)	Kudali (Rs.)	Total
Agriculture	20883.30 (52.5)	15469.61 (44.6)	18260.35 (48.9)
Non-agriculture	18903.77 (47.5)	19235.40 (55.4)	19064.61 (51.1)
Income From:			
Primary Sources	35394.80 (88.9)	31386.12 (90.4)	33450.70 (89.6)
Secondary Sources	4397.27 (11.1)	3318.85 (9.6)	3874.26 (10.4)
Total	39792.07 (100.0)	34704.97 (100.0)	37324.96 (100.0)

Figures in parenthesis denote percentage of the total

Little difference is observed in the proportions of income accruing from agriculture and non-agriculture and between income from primary sources and secondary sources, as between beneficiary and non-beneficiary households (Table 3.4).

Table 3.4 Average Annual Income per Household: Beneficiaries and Non-beneficiaries

Source of Income	Beneficiaries		Non-beneficiaries	
	Rs.	Percent	Rs.	percent
Agriculture	17795.87	48.1	18690.28	49.7
Non-agriculture	19237.26	51.9	18904.79	50.3
Primary	33534.85	90.6	33372.80	88.8
Secondary	3498.28	9.4	4222.27	11.2
Total	37033.13	100.0	37595.07	100.0

It was found that in Anad, 13.3 per cent of the sample did not have any formal education, whereas in Kudali it was only 5.3 per cent. The difference could be attributed to the higher share of tribesfolk in the sample in Anad. But with respect to college-level education, 16.7 per cent of the respondents in Anad had college-level education whereas it was only 5.3 per cent in Kudali. (Table 3.5).

Table 3.5 Education Level of Respondents by Panchayat

Category	Anad	Kudali	Total
Illiterate	16 (13.3)	6 (5.3)	22(9.4)
Primary Level	39 (32.5)	34 (30.1)	73 (31.3)
Middle School Level	10 (8.3)	37 (32.7)	47 (20.2)
High School Level	35 (29.2)	30 (26.6)	65 (27.9)
College Level	20 (16.7)	6 (5.3)	26 (11.2)
Total	120 (100.0)	113 (100.0)	233 (100.00)

Figures in parentheses denote percentage

The number of illiterates were higher among the non-beneficiaries than among the beneficiaries; but it is among the beneficiaries that the proportion of college educated is higher.

This may be an indication that beneficiaries were able to utilise the benefits of the Krishi Bhavans. As the level of education rose, the number of people who acquired benefits from the Krishi Bhavans also increased (Table 3.6).

In Anad, 44.2 per cent of sample respondents were owning land of less than 50 cents in size and only 13.3 per cent of respondents had holdings of more than 200 cents. In Kudali, these values were 34.5 per cent and 13.3 per cent respectively (Table 3.7).

Table 3.6 Education Level of Respondents: Beneficiaries & Non-beneficiaries

Category	Beneficiaries		Non-beneficiaries		Total
Illiterate	8	7.1	14	11.5	22 (100.0)
Primary Level	35	31.3	38	31.4	73 (100.0)
Middle School Level	21	18.8	26	21.5	47 (100.0)
High School Level	31	27.7	34	28.1	65 (100.0)
College Level	17	15.1	9	7.5	26 (100.0)
Total	112	100.0	121	100.0	233(100.0)

Table 3.7 Details of Land Holdings of Respondents by Panchayat

Holding Size (cents)	Anad		Kudali	
	Number	Percent	Number	Percent
<50	53	44.2	39	34.5
51-100	34	28.3	34	30.1
101-150	8	6.7	18	15.9
151-200	9	7.5	7	6.2
>200	16	13.3	15	13.3
Total	120	100.0	113	100.0

Among the respondents with less than 50 cents of land, there was a larger proportion of non-beneficiaries than beneficiaries. However, among the respondents with more than 200 cents of land, the proportion of beneficiaries exceeded that of non-beneficiaries (Table 3.8).

Table 3.8 Details of Land Holdings of Respondents: Beneficiaries & Non-beneficiaries

Holding Size (cents)	Beneficiaries		Non-Beneficiaries		Total	
	No.	%	No.	%	No.	%
<50	37	40.2	55	59.8	92	100.0
51-100	31	45.6	37	54.4	68	100.0
101-150	21	80.8	5	19.2	26	100.0
151-200	5	31.3	11	68.7	16	100.0
>200	18	58.1	13	41.9	31	100.0
Total	112	48.1	121	51.9	233	100.0

The cropping pattern of the sample respondents is given in Table 3.9. In Anad, the major crop grown was rubber which occupies two fifths of the cropped area. It was followed by coconut (36.6 per cent). In Kudali, the major crop was coconut which accounted for about

half of the cropped area. Rice accounted for slightly more than one-eighth of the area. The other main crops were cashew (12.6 per cent) and pepper (10.7 per cent).

Table 3.9 Cropping Pattern in Anad and Kudali

(area in percentage)

Crop	Anad	Kudali	Total
Rice	5.7	13.1	6.2
Coconut	36.6	49.0	30.3
Tapioca	4.6	1.5	2.1
Rubber	40.9	-	14.6
Pepper	1.4	10.7	36.8
Cashew	0.1	12.6	4.0
Banana	8.5	7.1	3.3
Others	2.1	6.0	2.6
Total	100.0	100.0	100.0

In the case of rice, banana, and tapioca (74.6 per cent, 59.4 per cent, and 52.5 per cent), the major proportion of the cultivated area belonged to the beneficiaries. However, the case was the reverse in the case of cash crops (Table 3.10).

Table 3.10 Cropping Pattern: Beneficiaries and Non-beneficiaries

Crop	Beneficiaries	Non-beneficiaries	Total
Rice	74.6	25.4	100.0
Coconut	51.9	48.1	100.0
Tapioca	52.5	47.5	100.0
Rubber	42.3	57.7	100.0
Pepper	43.7	55.3	100.0
Cashew	40.9	59.1	100.0
Banana	59.4	40.6	100.0
Others	48.7	51.3	100.0

4. Discussions and Findings

In this section, an attempt is made to examine critically some of the achievements of the Krishi Bhavans with respect to the major objectives formulated at the time of their establishment.

The basic objective of initiating the Krishi Bhavan concept was to improve the production and productivity of crops in the State. In order to examine to what extent this objective has been fulfilled, we examine the growth in area, production, and productivity of major crops in the State during the two decades ie pre-Krishi Bhavan decade and the post-Krishi Bhavan decade. An improved growth performance in the latter decade could be a reflection of the success of the Krishi Bhavans.

The Krishi Bhavan Era - An Era of Improvement?

The compound growth rates calculated for some major crops for the two periods are given in Table 4.1. The area under rice cultivation declined more rapidly during the second period. The rate of decline in production has remained unchanged. Although the yield has shown some increase, it has not reflected in production due to the rapid decline in the cultivated area.

Table 4.1 Compound Growth Rates of Major Crops

Crop	Pre-Krishi Bhavan Period (prior to 1987)			Post-Krishi Bhavan Period (since 1987)		
	Area	Prod.	Yield	Area	Prod.	Yield
Rice	-5.38	-2.92	2.6	-7.15	-2.62	4.88
Coconut	1.71	1.37	-0.34	5.59	14.48	8.51
Pepper	4.54	3.09	-1.38	7.45	7.27	-0.17
Cashew	5.96	10.06	-1.44	-4.29	-1.68	2.75
Banana	11.68	10.06	-1.44	7.14	9.49	2.35
Tapioca	-8.77	-5.74	3.31	-11.97	-9.41	2.91
Rubber	14.02	11.68	-1.91	7.65	26.50	17.43
Tea	-1.28	0.46	1.76	0.24	3.07	2.83
Coffee	5.98	-17.18	-21.86	7.69	15.01	6.78-
Arecanut	-2.26	-2.79	-0.55	5.99	14.72	8.23
Ginger	6.99	10.92	3.67	-5.96	-2.63	3.54
Turmeric	1.19	-6.08	-5.51	2.49	6.18	7.50

Source: Season and Crop Report (various issues), Directorate of Economics and Statistics, Government of Kerala

Coconut presents an entirely different picture. Area, production, and yield have gone up. Pepper also has shown rapid improvements in area, production, and yield. The trends have not been favourable, however, for cashew, banana, and tapioca. In the case of cashew and banana, the increase in yield has had no effect on production due to decline in area just as in the case of rice. For tapioca, area, production, and yield have declined.

Despite negative trends in rice, tapioca, cashew, and banana, overall improvement in the agricultural scenario of the State is found to have taken place during the Krishi Bhavan period. But, can the improvement be attributed to the efficiency of the Krishi Bhavans? During the Krishi Bhavan period, a comprehensive and targeted channelisation of resources and inputs to the farmers has occurred. This is evident from the large number of schemes being implemented through the Krishi Bhavan by the Department of Agriculture which looks after various crops specifically. During the earlier systems that existed before the formation of Krishi Bhavans, crop-wise emphasis was not given in the development activities.

In the *ela* programme, that was functional from 1971-'72 to 1980-'81, there were only three crop-wise schemes - for rice, coconut, and pepper. The situation remained the same during the T & V system period also. But with the initiation of Krishi Bhavans, crop-wise emphasis spread to other crops like spices (other than pepper), cashew, arecanut, and cocoa as well. This approach has resulted in a regulated flow of financial resources on to the farms; the improved performance of the agricultural sector during the Krishi Bhavan period might have been the result of such crop-specific flows of funds. The poor performance of rice during the Krishi Bhavan period cannot be attributed to Krishi Bhavan performance alone, as many other social and economic factors are also associated with the performance of this crop.

Unfortunately, these data do not provide adequate ground to judge the overall performance of Krishi Bhavans. An improved agricultural performance does not necessarily depend on a single factor such as finance, but on a large number of complex and inter-related factors. Whether it is the channelisation of inputs through Krishi Bhavans which has led to this situation is a question which cannot be examined within the scope and objectives of the present study.

The improved crop performance was envisaged to be achieved by the Krishi Bhavans through a better system of transfer of modern technology to the farmers. Transfer of technology to the farmers was to be channelised through a series of programmes and schemes undertaken by the Krishi Bhavans. The most important among them was the input-linked extension activity. The Krishi Bhavans supplied a variety of inputs like fertilisers, planting materials, plant protection chemicals, and machinery to the farmers at subsidised rates. The Agricultural Officer conducts frequent field visits and training programmes to equip the farmers with the latest advances in the field of crop husbandry. During the visits, he/she helps the farmers in clearing their doubts and misgivings about different cultivation practices. He/she conducts demonstrations, training sessions, and seminars for the farmers in order to give an exposure to them to innovative cultivation practices. It is through these channels that the technologies developed in the research centres are expected to pass on to the farming community for adoption in the fields. For a clear and detailed understanding of the activities of the Krishi Bhavans, we discuss the efficiency in the execution of its important functions under the following categories:

- (i) effectiveness of technology transfer;
- (ii) activities of the crop-based Farming *Samithis*;
- (iii) performance of *Karshika Vikasana Samithis*;
- (iv) infrastructural development;
- (v) channelisation of institutional finance;
- (vi) quality of inputs supplied;
- (vii) constraints of scheme implementation; and

(viii) overall performance of the Krishi Bhavans.

Effectiveness of Technology Transfer

The effectiveness of the transfer of technology is studied based on the following parameters:

- (i) sources of information about major cultivation practices;
- (ii) awareness and adoption level of farmers;
- (iii) participation of farmers in agricultural seminars; and
- (iv) exposure to agricultural literature.

Sources of Information about Major Cultivation Practices

The source of information is the starting point in the process of adoption of new technology. To understand the effectiveness of the Krishi Bhavans in the technology dissemination process, the farmers were asked about their sources of information about the major aspects of crop cultivation (Table 4.2).

Only in the case of soil testing that a majority of respondents pointed to the Krishi Bhavan as their main source of information. It was also noticed that Krsihi Bhavan was acting as an information source for almost all the aspects except marketing. But it is ironic to note that only less than 20 per cent of the farmers were utilising this source. This information gap may have serious consequences. There is a chance that farmers do not receive full and correct information or they get misinformed about some of the technical aspects of cultivation. The absence of a technical guidance mechanism may lead to improper and unscientific cultivation practices in the field which in turn may lead to depletion of natural resources like soil and overuse of pesticides leading to increased pesticide resistance in pests and related environmental and ecological problems.

We have observed that it is the fellow farmers who pass on information among one another with respect to almost all the other aspects. Fertiliser depots and pesticide dealers constitute the other major source of information for clearing doubts and securing information regarding fertilisers and pesticides. Their style of work was not on a level with extension activity; they are interested only in sales promotion of fertilisers and pesticides available with them.

The performance of Group Farming *Samithis* as an information source was found far from satisfactory. This is one of the clear indications of poor performance of Group Farming *Samithis* as a link between Krishi Bhavan and farmers.

Though one of the major objectives of the Krishi Bhavan was securing of remunerative prices to farmers by providing better marketing facilities to them, Krishi Bhavans were not found playing any such function in the study areas. The marketing aspect is extremely significant in

Table 4.2 Sources of Information about Major Cultivation Practices

No.	Aspects	Sources of Information				
		Krishi Bhavan	Group Farming Samithi	Farmers	Radio/T-V/Print Media	Fertilize / Pesticides Dealers
1	Soil Conservation					
	B	19.6	5.4	24.1	4.5	4.5
	NB	9.1	3.3	19.0	12.4	2.5
	All	14.2	4.3	21.5	8.6	3.4
2	New Seeds					
	B	20.5	0.9	31.3	6.3	1.8
	NB	6.6	0.8	35.5	4.1	1.7
	All	13.3	0.9	33.5	5.2	1.7
3	Soil Testing					
	B	28.6	5.4	13.4	5.4	-
	NB	9.9	3.3	5.8	9.9	2.5
	All	18.9	4.3	9.4	7.7	1.3
4	Modern Cultivation					
	B	20.5	7.1	28.6	20.5	1.8
	NB	5.8	8.3	24.8	22.3	4.1
	All	12.9	7.7	26.6	21.5	3.0
5	Name of Fertilisers					
	B	22.3	3.6	44.6	8.9	34.8
	NB	6.6	5.8	40.5	10.7	35.5
	All	14.2	4.7	42.5	9.9	35.2
6	Application of Fertilisers					
	B	19.6	1.8	47.3	11.6	43.8
	NB	5.7	0.8	46.3	9.1	43.8
	All	12.5	1.3	46.8	10.3	43.8
7	Plant Protection: Name of Chemicals					
	B	17.9	2.7	28.6	9.8	26.8
	NB	4.9	5.0	26.5	10.7	31.4
	All	11.2	3.9	27.5	9.9	29.2
8	Plant Protection: Use of Chemicals					
	B	17.9	3.6	27.7	12.5	19.6
	NB	5.7	0.8	32.2	8.3	31.1
	All	11.6	2.2	30.0	10.3	26.6
9	Marketing					
	B	-	-	30.4	-	-
	NB	-	0.8	31.4	3.3	-
	All	-	0.4	30.9	1.7	-

Aspects which do not have any specific source of information are excluded;

B= Beneficiaries, NB = Non-beneficiaries

Kerala agriculture considering the predominance of cash or commercial crops. That in such an important field, the role of Krishi Bhavans is wide off the mark presents a very disappointing picture.

It is evident that there are marked differences between beneficiaries and non-beneficiaries in utilising Krishi Bhavan as a source of information. Krishi Bhavan acts as a source of information for 17.8 to 28.5 per cent of the beneficiaries while only less than 10 per cent of the non-beneficiaries utilise this source of information. There was no such disparity between beneficiaries and non-beneficiaries in the matter of utilisation of other sources of information.

Awareness and Adoption Level of Farmers

Awareness about scientific cultivation practices is an important indicator of extension activities of the Krishi Bhavans. The awareness level of the farmers in both the panchayats followed a similar pattern. The majority in Anad (66 per cent) had poor or very poor awareness levels. A similar pattern emerged in Kudali (79 per cent) also. It was found that 15 per cent of the farmers in Anad possessed good awareness level whereas in Kudali it was only less than three per cent.

This observed difference may be due to better exposure of Anad farmers to agricultural literature and their participation in seminars (Table 4.3).

Table 4.3 Awareness Levels of Farmers by Panchayat Nearness to Krishi Bhavan and Beneficiary Status

Awareness Levels	Panchayat		Nearness to Krishi Bhavan		Beneficiary Status	
	Anad	Kudali	Near	Distant	Beneficiary	Non-Beneficiary
Very Poor >0.25	44.2	46.0	36.6	54.5	39.3	50.4
Poor (0.25-0.50)	21.7	32.7	29.3	24.5	28.6	25.6
Fair (0.50-0.75)	19.2	18.6	21.9	15.5	21.4	16.5
Good (0.75-1.00)	15.0	2.7	12.2	5.5	10.7	7.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

The farmers of the nearest ward to Krishi Bhavan had higher awareness level than farmers living in distant wards. About 34 per cent of the farmers from the nearest ward had 'Average' and 'Good' levels of awareness, whereas it was only 21 per cent in the case of distant wards. We find that services from Krishi Bhavans percolate deeper into the nearby wards than to the distant wards.

There were no significant differences between the awareness levels of beneficiaries and non-beneficiaries although the non-beneficiaries had on the whole, marginally lower awareness levels. The farmers who fall under the categories 'Fair' and 'Good' together contributed 32 per cent of beneficiaries while for non-beneficiaries it was 24 per cent. This substantiates the argument that the contribution of Krishi Bhavans to the dissemination of information to farmers has not been extensive.

The awareness of the farmers about modern cultivation practices alone is not enough; awareness has to be translated into adoption. It is evident from Table 4.4 that the majority of the farmers fall under the category 'Very Poor' followed by 'Poor' in both Anad and Kudali panchayats and the farmers coming under the categories 'Fair' or 'Good' were found meagre. It is also indicated that many of the farmers who were aware of the modern cultivation practices were not adopting them properly. A similar pattern was noticed when the analysis was made according to beneficiary and non-beneficiary status. These results suggest that Krishi Bhavans were not able to motivate farmers adequately for adopting scientific cultivation practices.

Table 4.4 Adoption of Farmers by Panchayat and Beneficiary Status

Adoption Levels	Panchayat		Beneficiary Status	
	Anad	Kudali	Beneficiary	Non-Beneficiary
Very Poor >0.25	61.7	62.8	55.4	68.6
Poor (0.25-0.50)	36.7	34.5	43.8	28.1
Fair (0.50-0.75)	1.7	1.8	0.9	2.5
Good (0.75-1.00)	0.0	0.9	0.0	0.8

Participation in Seminars

Transfer of technology to farmers is an important function of the Krishi Bhavan. Krishi Bhavans arrange seminars and training programmes for the farmers with this end in view. Thus, participation of the respondents in agricultural seminars is taken as a reflection of the effectiveness of the Krishi Bhavan in the transfer of technology. Table 4.5 shows that taking both the panchayats together, about 80 per cent of the respondents have not participated in agricultural seminars conducted by Krishi Bhavan during the past three years. In Anad, respondents abstaining from seminars were calculated to be 75 per cent and in Kudali, 84 per cent.

Table 4.5 Participation in Seminars by Panchayat and Beneficiary Status

Participation in Agricultural Seminars and Training	Panchayat			Beneficiary Status		
	Anad	Kudali	Total	Beneficiary	Non-Beneficiary	Total
Participated	25.0	15.9	20.6	32.1	10.7	21.0
Not Participated	75.0	84.1	79.4	67.9	89.3	79.0

Nearly 90 per cent of the non-beneficiaries did not participate in any of the seminars. Even among the beneficiaries, only two-thirds of the total proportion attended the seminar. The low level of participation in agricultural seminars by farmers, especially the beneficiaries of Krishi Bhavan, indicates that the effectiveness of transfer of technology, which is the main objective of Krishi Bhavan, has remained low.

Exposure to Agricultural Literature

An important source of getting information about new developments in agriculture and modern cultivation practices is agricultural literature. This source is very important as far as Kerala is concerned because of the higher literacy level of the State. The Agricultural Department, the Kerala Agricultural University, and various other organisations and firms publish agricultural literature for the benefit of farmers. Moreover, all the major newspapers do have weekly agricultural columns. The present study shows that exposure to agricultural literature was very poor for both Anad and Kudali panchayats (Table 4.6).

Table 4.6 Exposure to Agricultural Literature by Panchayat and Beneficiary Status

Categories	Panchayat			Beneficiary Status		
	Anad	Kudali	Total	Beneficiary	Non-Beneficiary	Total
Newspapers	17.5	7.1	12.5	16.1	9.1	12.5
Agri. Magazines	0.0	9.7	1.3	1.8	0.8	1.3
Newspaper and Magazines	4.2	2.7	3.4	1.8	5.0	3.4
Not Reading	78.3	87.6	82.8	80.3	85.1	82.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

The level of exposure to agricultural literature was not found to have had any significant difference between beneficiaries and non-beneficiaries. Although the number of farmers reading agricultural literature was marginally higher among the beneficiaries, it is not high enough to show any significant favourable impact of the activities of the Krishi Bhavans. Further, any concerted move by the Agricultural Officers to encourage this habit among farmers was also found lacking in these Krishi Bhavans.

It is evident from the foregoing discussion that in terms of the transfer of technology, one of its basic objectives, the performance of Krishi Bhavan has remained poor. Even though it acts as an agency for disseminating innovative agricultural technologies, only a marginal proportion of farmers was motivated by the Krishi Bhavans. This clearly indicates the lower awareness and adoption levels of the respondents in scientific cultivation practices. Moreover, the participation in agricultural seminars and exposure to agricultural literature were poor.

Activities of the Crop-based Farming Samithis

The formation of Group Farming *Samithis* was meant to promote collective action among farmers in the purchase of inputs and use of implements and machinery as well as in selling their produce. Krishi Bhavans are expected to encourage the formation of such *samithis* in order to bring down the cost of cultivation and to monitor farmers' actions with a view to bringing down costs and maximising benefits. This scheme was mainly targeted towards rice cultivation which calls for comparatively large inputs of labour and field operations.

Some items of information about the activities of Paddy Group Farming *Samithis* in Anad and Kudali are given in Table 4.7. The activities of these *samithis* were found poor in both the panchayats. According to the Government directives, all the rice farmers should be brought under the Group Farming *Samithis*. Out of the total area cultivated, however, only 68.6 per cent of the area in Anad and 81.8 per cent in Kudali were covered by these *samithis* and out of the total number of rice farmers, only 66.9 per cent in Anad and 60.6 per cent in Kudali were covered by Group Farming *Samithis*.

In Anad, almost all the Group Farming *Samithis* except one were found inactive. In Kudali, the activities of the *samithis* were confined mainly to distribution of production bonus and issue of sprayers on rent to farmers. One *samithi* each in Anad and Kudali had power tillers. These two *samithis* were getting some amount as rent on the use of the tillers. The functioning of these two *samithis* was found a little more effective than the other ones. Four *samithis* in Anad and six *samithis* in Kudali owned knapsack power sprayers. None of these *samithis* had office space and their equipment and machinery were kept in private buildings, the houses of the conveners or the presidents of the *samithis* concerned.

Samithis for coconut and pepper also were in existence in the study area. A coconut cultivators' committee (*Kera Samithi*) functioned in each panchayat, while in Kudali there were two other societies - *Kurumulaku* (Pepper) *samithis* - in operation. These *samithis* collected plant protection chemicals and fertilisers supplied from the Krishi Bhavan and distributed them among the farmers.

Table 4.7 Performance Status of Paddy Group Farming *Samithis* in Anad and Kudali

Particulars	Anad	Kudali
Total Number of Samithis	7	9
Total Area (ha)	129	110
Area Operated (ha)	88.5	90
Percentage Area Covered to the Total Area Operated	68.6	81.8
Total Number of Farmers	393	665
No. of Farmers Who Cooperate with Samithis	263	403
Percentage of cooperating Farmers to Total Farmers	66.9	60.6
Number of Sprayers	5	6
Number of Power Tillers	1	1

Membership may be used as one of the indicators of performance of the *samithis*. Out of the 233 farmers surveyed, only 72 (30.9 per cent) were found to be the members of the different *samithis* (Table 4.8).

Table 4.8 Membership Status of Farmers in Paddy Group Farming Samithis

Membership Status	Beneficiaries	Non-beneficiaries	Total
Members	23.6	7.3	30.9
Non-members	24.5	44.6	69.1
Total	48.1	51.9	100.0

The performance of the existing *samithis* was found far from satisfactory (Table 4.9). When 57 per cent of the members of the members felt that the *samithis* conducted regular meetings, only 21 per cent participated regularly in the meetings held; 19 per cent never participated in any of the meetings conducted. The opinion of the farmers, members, and non-members taken together about the *samithis* was also poor. Nearly 90 per cent felt that the working of these *samithis* was not satisfactory. That the existence of these *samithis* was of no use to farmers was the view of about 77 per cent among them.

Table 4.9 Performance of Crop Farming Samithis by Panchayat

Particulars	Anad	Kudali	Total
A. Members			
1. Number of Members	27	45	72
2. Percentage of Members who are of the view that Samithi meetings are			
(a) Held Regularly	12.5	45	56.9
(b) Not Held Regularly	25.0	18.1	43.1
3. Percentage of members who attend Samithi meetings			
(a) Regularly	5.5	15.3	20.8
(b) Not Regularly	18.1	41.7	59.7
(c) Never	13.9	5.5	19.5
4. Percentage which considers working of Samithis			
(a) Satisfactory	0.6	9.8	10.4
(b) Not Satisfactory	48.1	17.1	22.0
5. Percentage which considers Samithis			
(a) Of no use	42.1	35.4	77.4
(b) Of some use	4.8	17.1	22.0
(c) Highly useful	-	0.6	0.6

A scoring procedure was used to judge the overall performance of various Group Farming/ Management *Samithis*. Different functions of the *samithis*, as per their bye-law, were listed and the farmers were asked to judge whether the performance of these functions was good, average or poor. The final rating was 1.182 which places the performance of the *samithis* between average and poor (Table 4.10). From the results, it is also evident that group activities are not effectively taking place in various stages of crop production. Lack of technical and financial support from the Krishi Bhavan, lack of farmers' co-operation, and inadequate financial position were the reasons for the poor performance of these *samithis*.

Table 4.10 Performance of Group Farming Samithis by Activities

Sl.No.	Functions	Weightage	Average Rating	Score
1	Scientific studies of field problems and finding solutions for better production	0.13	1.14	0.148
2	Supply of quality seeds/planting materials	0.12	1.30	0.157
3	Helping farmers for scientific application of fertilisers and chemicals	0.10	1.25	0.125
4	Group effort in water management	0.09	1.21	0.109
5	Making available the PP equipment and machinery to the farmers	0.08	1.78	0.142
6	Group effort in harvesting and marketing	0.07	1.00	0.070
7	Processing activities of samithi	0.065	1.07	0.069
8	Group effort in plant protection	0.06	1.11	0.067
9	Localised seed production	0.05	1.08	0.054
10	Soil testing activities	0.045	1.06	0.048
11	Soil conservation activities	0.04	1.13	0.045
12	Preparation of common nursery	0.035	1.02	0.0357
13	Training to farmers	0.03	1.26	0.0370
14	Making available the different benefits from government and other agencies	0.025	1.68	0.042
15	Supplementing the Krishi Bhavan activities	0.02	1.64	0.033
		1.00		1.182

1 = Poor, 2 = Average, 3 = Good

Performance of *Karshika Vikasana Samithis*

To ensure public participation in agricultural development, panchayat-level *Karshika Vikasana Samithis* (Agricultural Development Committees) were formed in each panchayat. The performance of these *samithis* which were expected to act as the pivot of agricultural development of the concerned regions was also found disappointing. These *samithis* formed in 1987 were restructured in 1996 when the Panchayati Raj institutions were established in the State.

were expected to hold monthly meetings. However, it was found that these *samithis* met only four times during the past one year in Anad and five times in Kudali. The level of participation in these meetings was also found very low. No member of these *samithis* in Anad and Kudali participated regularly in the meetings. These factors have affected the functioning of the *samithis* adversely rendering them of little use to the agricultural development of the region.

Several reasons could be attributed to the inefficient functioning of *Karshika Vikasana Samithis*. Most important among them is its status as a mere advisory body rather than a statutory body. The contents of the discussions in the *samithis* were confined to only the advisory role in the implementation of different schemes. They have no say in the planning of these schemes. Also, the advice rendered by them may not always be respected by the Krishi Bhavans as the latter are guided by the directions of the panchayat. The opinions of the *Karshika Vikasana Samithis* and of the panchayat seldom agree with each other due to differences in their membership patterns. Only a few members are common to these two bodies (there are only three common members - the panchayat president, the panchayat vice-president, and the panchayat standing committee chairperson). This itself justifies the conflicting positions taken by the two bodies.

Channelisation of Institutional Finance

The availability of timely and adequate finance for farming is an important factor that influences investment and capital formation in agriculture and facilitates adoption of advanced agricultural technology. It is expected that maximum use would be made of the strong rural credit structure available in the study through a network of co-operative and other lending institutions.

Through it is envisaged that the Agricultural Officer and the financial institutions in the area would work in tandem, such co-ordination was found lacking at the field level. There was a Block Level Banking Committee which comprised branch managers of the various banks and other financial institutions and officials of all the departments working in the field of rural development including Agricultural Officers in the block. The committee was expected to meet once in three months and discuss the different development activities to be undertaken in the block. Based on the decisions taken at these meetings, banks would prepare their annual credit plans. The financial assistance according to these plans was to be made available for implementing location-specific programmes for agriculture development.

For this, the Agricultural Officer should study the availability and the potential resources of the area, prepare plans for exploiting them and make available the required finance. However, such a determined effort as envisaged was found lacking on the part of the Agricultural Officers. The meetings of the Block-level Banking Committees were found to be held in the absence of the Agricultural Officers. Discussions with the Agricultural Officers showed that though they realised the urgency and the significance of such an effort, lack of time was a serious hindrance to its effective implementation. Though the financial institutions in the area supply credit for agricultural purposes, the Krishi Bhavans seemed to have no say in the matter. The results of the study, clearly show that neither the Krishi Bhavan nor the Agricultural Officer had any role at all in arranging and directing the flow of credit to the farmers.

Infrastructural Development

Creation of basic infrastructure for augmenting production and productivity involves several activities under irrigation, soil conservation, and engineering. The Krishi Bhavans supplied pump sets, provided facilities for construction of tube wells, and dug wells for irrigation purposes under different schemes and for different crops. Tractors, tillers, sprayers for plant protection operations, coconut climbing devices, etc were supplied to farmers and some soil conservation measures like terracing, contour bunding, and construction of check dams were undertaken under different watershed programmes through Agricultural Officers and Soil Conservation Department officials. Targets were given to Agricultural Officers in terms of financial allocations to be met by supplying these to the needy farmers. These were accurately met by the Agricultural Officers of the two Krishi Bhavans under study because they had to attend the high level, periodical review meetings and report the number of inputs and amount spent on each of them. There was no follow up action from the part of Agricultural Officers to make sure that the inputs supplied to the farmers were being used for the purposes for which they were supplied though strict monitoring ensured that the financial targets were met.

The majority of farmers who had received pump set from Krishi Bhavan at subsidised rate were not using them mainly for agricultural purposes. Rather than using them for irrigation purposes, the pump sets were used for pumping water from wells for non-agricultural and household purposes. Thus, there existed a high degree of misutilisation of essential and costly inputs, by the farmers. This could have been avoided if proper follow-up action on the supply of valuable infrastructural facilities were arranged.

Quality of Inputs Supplied

The Krishi Bhavan supplied various inputs like seeds, planting materials, and plant protection chemicals to farmers at subsidised rates under various schemes and also at market rates. It gave permits to farmers for purchasing fertilisers at subsidised rates from nearby fertiliser dealers and the subsidy amount was disbursed by the Krishi Bhavan to the fertiliser dealer after collecting the permits back from them. The seeds and planting materials were raised in farms and nurseries of the Agricultural Department. To meet the demand, Agricultural Department also collects seeds from National Seed Corporation and from private nurseries and supplies them through Krishi Bhavans. Fungicides and insecticides are also distributed through Krishi Bhavans at subsidised rates and market rates.

Farmers' perceptions on the quality of inputs supplied through Krishi Bhavans are shown in Table 4.11. Out of the farmers surveyed, 16.7 per cent opined that the inputs received from the Krishi Bhavan were of poor quality and only 27 per cent said that they were of good quality.

In Kudali panchayat, 36.3 per cent of the farmers were of the view that the inputs supplied were of good quality whereas in Anad it was only 8.3 per cent which reported good quality.

Compared to non-beneficiaries, beneficiaries had more faith in the quality of inputs supplied

through Krishi Bhavans. The number of farmers who believed that the quality of inputs was good was more among beneficiaries (48.2 per cent) than among non-beneficiaries (7.4 per cent), whereas the proportion of farmers who said that the inputs were of poor in quality was more among non-beneficiaries (28.1 per cent) than among beneficiaries (4.5 per cent).

Seeds and planting materials were supplied in specific quantities to Krishi Bhavans by the Agricultural Department for distribution among farmers. There was a widespread complaint that many of these planting materials were of poor quality and that farmers were reluctant to buy them. The Agricultural Officer did not have the option to test for the quality of planting materials on their arrival at the Krishi Bhavan and to reject those that were of low quality.

Table 4.11 Perception of Farmers About Quality of Inputs Supplied through Krishi Bhavan: By Panchayat and Beneficiary Status

Perception Categories	Panchayat			Beneficiary Status		
	Anad	Kudali	Total	Beneficiary	Non-beneficiary	Total
Poor	12.5	21.2	16.7	4.5	28.1	16.7
Average	63.4	40.7	52.4	41.1	62.8	52.4
Good	8.3	36.3	27.0	48.2	7.4	27.0
No Comments	5.8	1.8	3.9	6.2	1.7	3.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

Constraints in Scheme Implementation

Constraints of Farmers

It was found that 55.8 per cent of the respondents were of the view that lack of awareness among the farmers about the schemes was one of the drawbacks of Krishi Bhavan scheme. An equal proportion of the farmers said that benefits extended through Krishi Bhavans are not made available in time. Improper selection of beneficiaries as a drawback of Krishi Bhavans was seen by more than half of the farmers. About 65 per cent of the non-beneficiaries and 24 per cent of the beneficiaries pointed out that the benefits provided through the Krishi Bhavans were inadequate. Lack of people's participation in formulation and execution of schemes, complex procedures involved in getting the benefits, and lack of location-specific schemes were found to be the other major drawbacks of Krishi Bhavan (Table 4.12).

Constraints of Agricultural Extension Personnel

Lack of Time

Lack of time was the most important factor cited by Agricultural Extension personnel for poor performance. The Agricultural Officers admitted that the activities of the Krishi Bhavans

were at present limited to implementation of State and Central Plan schemes. Their major concern was the distribution of scheme benefits, attaining of physical targets, routine office correspondence, and attending high-level departmental meetings. In consequence, little time is available for them for extension work. The monthly time-disposition schedule of Agricultural Officers and Agricultural Demonstrators is presented in Table 4.13.

Table 4.12 Shortcomings of the Krishi Bhavan as Perceived by Sample Farmers

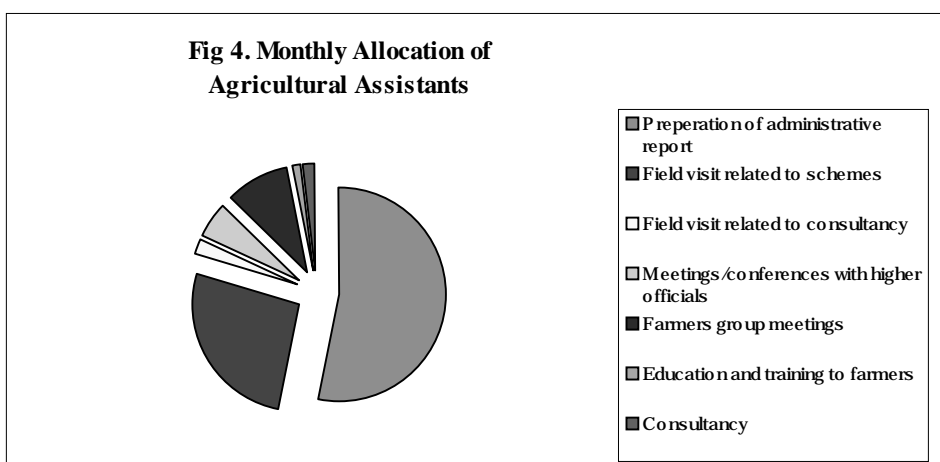
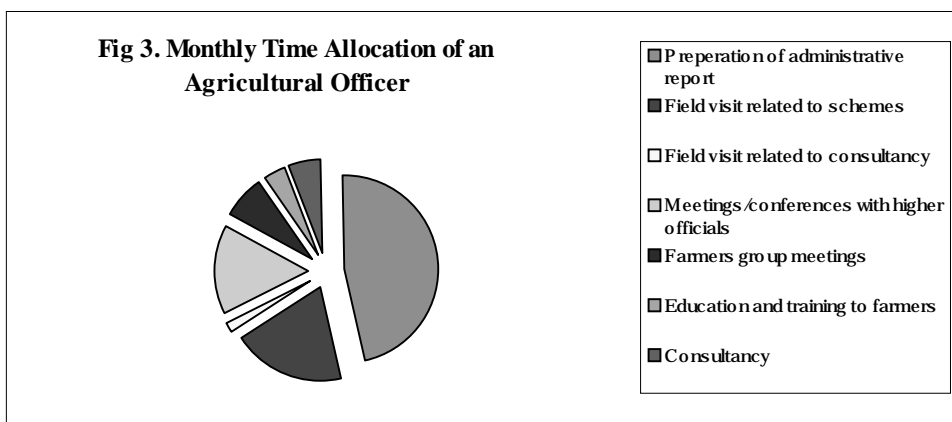
Sl. No.	Drawbacks	Number of Farmers		
		Beneficiaries	Non-beneficiaries	Total
1	Lack of awareness about schemes	59 (52.7)	71 (58.7)	130 (55.8)
2	Benefits not available in time	64 (57.1)	61 (50.4)	125 (53.6)
3	Improper selection of beneficiaries	55 (49.1)	66 (54.5)	121 (51.9)
4	Benefits are inadequate	27 (24.1)	79 (65.3)	106 (45.5)
5	Lack of peoples participation in formulation and execution of schemes	51 (45.5)	51 (42.2)	102 (43.8)
6	Complex procedure to get benefits	39 (34.7)	48 (39.7)	87 (37.3)
7	Schemes are not location specific	52 (46.4)	17 (14.1)	69 (29.6)

(Figures in parentheses denote percentage to the total number of farmers in each category)

Table 4.13 Average Monthly Time Allocation of Agricultural Officers

Sl. No.	Fuction	Time Allocation (per cent)	
		Agri. Officer	Agri. Assistant
A	Administrative Work		
1	Preparation of administrative report	46.2	53.6
2	Meetings/conferences with higher officials	15.6	5.6
	Total	61.6	59.2
B	Extension Work		
3	Field visit in conenction with schemes	19.2	26.9
4	Field visit related with consultancy	1.9	1.9
5	Farmers group meetings	7.7	9.8
6	Education and training of farmers	3.8	1.2
7	Consultancy	5.8	1.9
	Total	38.4	40.8

Krishi Bhavan staff were found busy during most of their working time with routine administrative work leaving little time to visit farms, to get acquainted with the farmers and their problems and to offer solutions. As neglect of administrative work invited the wrath of the officialdom, Agricultural Officers gave, as a rule, maximum attention to administrative work. Further, we have observed that they are, in general, reluctant to put in any extra effort for meeting the extension service requirements (Figure 3 and Figure 4).



Spending of Funds

The improper timing of arrival of funds was another major problem faced by the Agricultural Officers. The funds set aside for different schemes seldom arrive in time so that the Agricultural Officer would not get time to identify the real and needy beneficiaries. Belated arrival of funds force them to hurry with spending of funds before the end of the financial year. The result has been that in a majority of cases, the benefits elude the deserving and the needy. Much of the funds, thus, misses the target.

Transfers

Frequent transfers of Agricultural Officers were yet another important problem. In Kudali Krishi Bhavan, 24 Agricultural Officers came and went during the past 10 years. Of the 24 Agricultural Officers, 13 had only additional charge of the Kudali Krishi Bhavan. This meant that the average period of service of an Agricultural Officer in the Krishi Bhavan at Kudali was only five months. Out of the total period, 36 per cent was filled with Agricultural Officers having additional charge. In Anad, eight Agricultural Officers served during the past 10 years with one of them having held additional charge. In this Krishi Bhavan, the average working period of an Agricultural Officer was 15 months. Needless to say, frequent change of the officer has affected adversely the smooth functioning of the Krishi Bhavan. By the time an Agricultural Officer gets to know about a new place, the people, the resources and their potential, he /she finds transferred to another Krishi Bhavan. An Agricultural Officer needs to be given much longer periods of service in a given panchayat than is the case at present in order to enable him/her to deliver the goods. But the government rules that restrict the period of service of an Agricultural Officer in any area to three years makes this proposition difficult. Senior officials of the Department indicated that in many cases, transfers were the result of serious complaints about corruption charges and ineffective functioning of the Agriculture Officer.

Training for Agricultural Officers and Agricultural Assistants

As extension services form an integral part of the functioning of Krishi Bhavans, Agricultural Officers are expected to undergo periodical training to get themselves updated with cultivation practices. Training is provided either at the Institute of Management in Government, Thiruvananthapuram or at the zonal centres of Regional Agricultural Technology Training Centres (RATTC). Discussions with Agricultural Officers revealed that though they attend training sessions regularly, they did not find the courses need-oriented.

At times, Agricultural Officers attended training sessions about crops which they may not have any possibility for introduction in the areas under their jurisdiction. Hence, there was a need to transform these training sessions to more problem-oriented ones. Currently a field-orientation is lacking in these courses. Training indoors should give way to a programme with proper integration of theory with practical sessions to make the Agricultural Officers more confident in facing the real life situations.

Lack of Proper Database

Lack of proper data base was a serious drawback in preparing plans and schemes for an area. The data available at the two Krishi Bhavans currently are the ones prepared a decade ago. The annual area and production details sent by the Agricultural Officers are not based on any reliable basis and hence could be termed only as wild guesses. The sad part of the story is that it is based on these reports that the State Government publishes annual data on area and production of crops. The data created by agencies like Land Use Board and Remote Sensing Organisation were found either unavailable or unutilised at the Krishi Bhavan for planning and implementing agricultural development.

Overall Perception about Krishi Bhavans

To judge the overall perception of the farmers about the functioning of the Krishi Bhavan, the scoring was done on the same basis as in the case of Group Farming/Management *Samithis* (Table 4.14). The final score was found to be 1.144 which indicates a performance level that lies in between 'average' and 'poor', but closer to 'poor'.

Table 4.14 Performance of Krishi Bhavan by Activities

Sl. No.	Functions	Weightate	Average Rating	Score
1	Locaion specific planning	0.15	1.262	0.190
2	Assessing pests and diseases and giving advice to farmers about control	0.14	1.130	0.160
3	Quality of inputs from Krishi Bhavan	0.12	1.180	0.140
4	Formation and encouraging activities of group farming samithies	0.11	1.080	0.120
5	Cooperative marketing activities	0.10	1.040	0.104
6	Performance of Agricultural Officer	0.09	1.330	0.120
7	Performance of Agricultural Assistants	0.08	1.370	0.110
8	Performance of Karshika Vikasana Samithy and Group Farming Samithies	0.07	1.094	0.070
9	Water and Soil conservation activities	0.06	1.090	0.070
10	Classes on new agricultural practices	0.05	1.110	0.060
		1.00		1.144

1=Poor, 2=Average, 3=Good

Major Findings of the Study

Krishi Bhavans did not perform all their designated functions. The major constraints identified in their functioning are the following:

- (i) the functioning of the Krishi Bhavans is confined largely to routine administrative work and implementation of schemes;
- (ii) the extension activities of the Krishi Bhavans are of poor quality;
- (iii) The activities of the Group Farming *Samithis* are not effective enough to encourage collective efforts among farmers;
- (iv) the Karshika Vikasana *Samithis* do not serve the purpose for which they were constituted, namely to function as an advisory body in the reorganised Panchayati Raj System;
- (v) the monitoring and evaluation of the schemes is not conducted properly;

(vi) the role that the Krishi Bhavans play in the credit-linked local level planning is not adequate;

(vii) the training given to the Agricultural Officers is neither adequate nor adequately need-oriented;

(viii) lack of time for extension activities, untimely arrival of funds, frequent transfers, and poor quality of planting materials supplied are severe constraints on the effective functioning of Krishi Bhavans.

Policy Implications

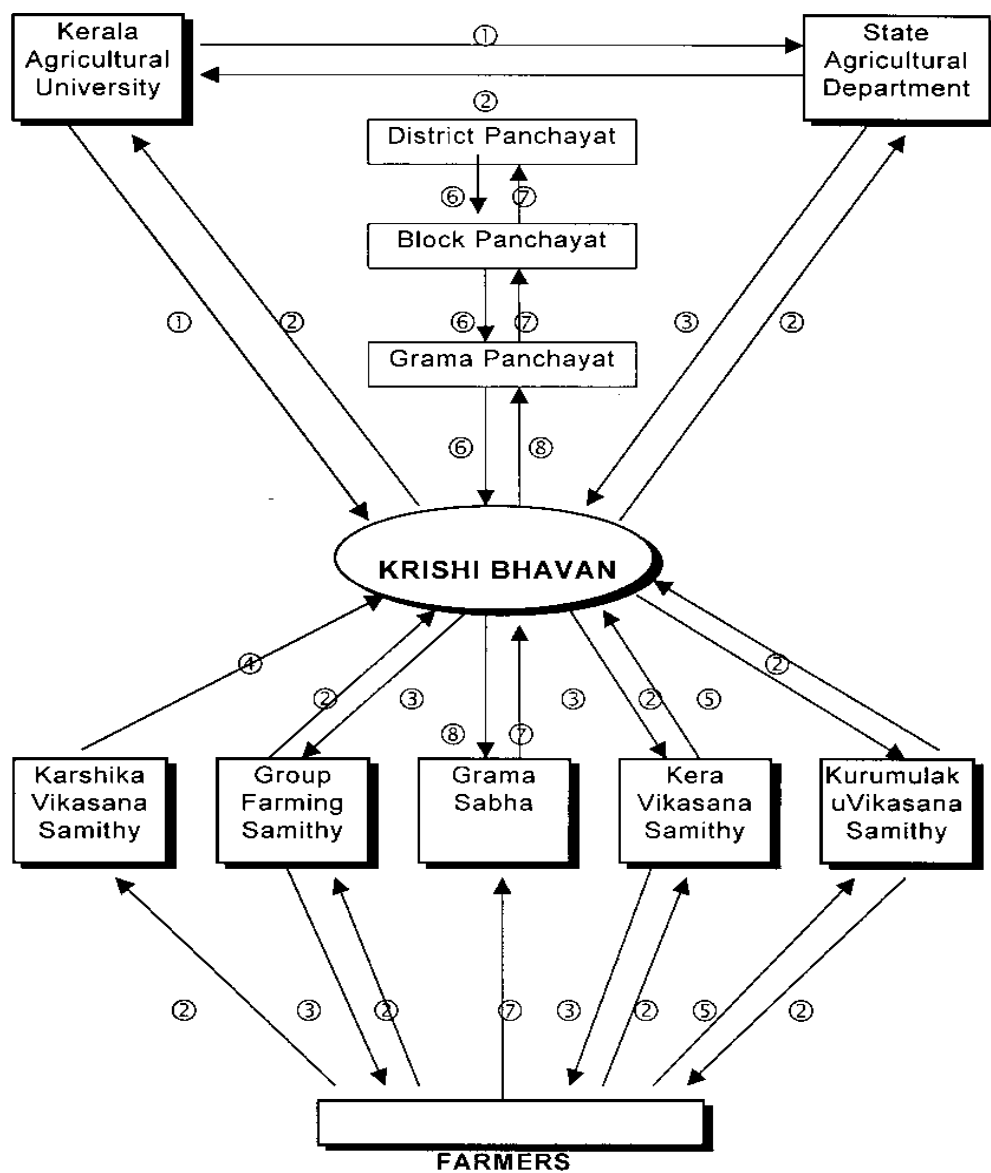
The basic prerequisite for effective functioning of the Krishi Bhavan is its administrative autonomy in day-to-day work. Currently, the Agricultural Officer is so heavily burdened with routine office work that he/she does not get any time for carrying out other productive responsibilities. Thus, there is need to free Krishi Bhavan activities from the shackles of excessive administrative controls. Paper work that consumes the bulk of the working time of Agricultural Officers need to be reduced drastically.

This will help them to spare more time for other activities like extension services and preparation of regional plans. She/he will, thus, be in a comfortable position to act more effectively as the sole technical person in the field of agriculture at the panchayat level.

It is essential to increase the staff strength of the Krishi Bhavans. The appointment of a clerk-cum-typist will help to reduce the burden of paper work personally handled by the Agricultural Officer. It is also felt that classification of the panchayats into grade A and grade B based on the area and production of different crops as well as the agricultural production potential of the region would be desirable. The type of crops being grown should also be given weightage in deciding on the grades. More weightage may be given to food grains such as rice, coconut, tapioca, banana, and vegetables. The A grade Krishi Bhavans will have larger amount of work to do and larger scope for agricultural development. Such panchayats may require the services of an additional agricultural officer, for attending the extension work in the area.

A drastic administrative restructuring is going on in the State in connection with the massive decentralisation programme of the Ninth Five-Year Plan (Figure 5). More statutory powers are being transferred to the panchayat, block, and district levels. Local bodies had little role in the planning, implementation, and administrative control of the agricultural development plans of the regions. In the revised set-up, the Agricultural Officer comes under the direct control of the concerned panchayat. The Ninth Plan lays great emphasis on location-specific plans prepared by the people themselves for implementation by the local bodies. Each panchayat in the State receives under the new dispensation, large amounts for preparing new crop development projects under Plan schemes. The State Government is also planning to introduce massive vegetable development programmes in every panchayat. In all these efforts of Agricultural Officer, who is expected to act as a technical hand and a training person in the new set-up, will have

Figure 5. Functions of Krishi Bhavan and Associated Organisations in the Panchayati Raj System: A Diagrammatic Representation



- | | |
|---------------------------------------|--------------------------------|
| ① Modern technology | ⑤ Modern technology and inputs |
| ② Feed back | ⑥ Funds and control |
| ③ Modern technology, inputs and funds | ⑦ Planning process |
| ④ Advisory support | ⑧ Technical support |

a larger burden, a fact which emphasises the urgency of the suggested changes in the staff pattern and of the introduction of the graded system.

The *Karshika Vikasana Samithis* at the grass-roots level are not at all functioning effectively. In the decentralised set-up, the *Karshika Vikasana Samithis* have no place as the preparation and implementation of plans and schemes are handled entirely by the newly-formed Task Force. The advisory role of the *Karshika Vikasana Samithis* is also insignificant due to conflict of opinions between *Karshika Vikasana Samithis* and the panchayats which often result in the non-acceptance of the opinions of the former. In this context, there is little justification for keeping *Karshika Vikasana Samithis* in the present form. Yet, the need for an advisory body in the development process can not be overlooked. Hence an advisory body with a new set-up should be thought of. The new advisory body should have representatives from *grama sabhas* and other popular bodies. This would help solutions for conflicts of ideas between *Karshika Vikasana Samithis* and panchayats and enhance the level of performance of Krishi Bhavans.

The study has brought to light the weak linkage existing between Krishi Bhavans and financial institutions. In the place of the existing Block Level Bankers' Committee, Panchayat Level Bankers' Committees should be established with the concerned Agricultural Officer, Veterinary Surgeon, panchayat president, and the managers of the different banks and other financial institutions having jurisdiction over the panchayat area, as members. This would help strengthen the linkages between Krishi Bhavan and financial institutions.

The weakness of the training system under the existing structure arises primarily from the lack of co-ordination between the research and the extension systems in the agricultural sector. Moreover, the Agricultural assistants are found practically excluded from the training net. In order to overcome this problem, the relationship among the Kerala Agricultural University, the Krishi Vigyan Kendras, and the Agricultural Department needs to be strengthened. Together with the setting up of one Krishi Vigyan Kendra in each district, intensive district-level training programmes for Agricultural Officers and Assistants should also be organised.

There is need to transform the Krishi Bhavans into Regional Agro-clinics in order to develop them into centres which can effectively tackle the problems of pest and disease outbreaks. Recent times have witnessed frequent outbreaks of pests and diseases - like Gall fly of rice (in the Kuttanad region), Quick wilt of pepper, and Root wilt and Bud rot of coconut - which have posed serious threats to the agricultural sector of Kerala. Krishi Bhavans have not been able to contribute much either to preventing or suppressing these outbreaks.

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