



Government of Kerala

REPORT on 9th AGRICULTURAL CENSUS 2010-11



Department of Economics and Statistics

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2014



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PREFACE

In view of the imperative need for detailed data on structure and other characteristics of Agricultural Holdings, Ministry of Agriculture, Department of Agriculture and co-operation, Government of India decided to conduct quinquennial Agriculture census since 1970-71 in collaboration with state governments and Union Territories in conformity with the concepts & definitions used in world Agriculture census. For Agriculture census the land which is actually cultivated/operated by a person/group of persons/institution is considered as a basic unit of enumeration and the expression "Operational Holding" is used collection of data.

The 9th Agriculture census was carried out in Kerala during 2010-11 as the reference year. The field work was done by the investigators of the department supervised by the officers of the department. The data processing was done by the computer division of the Directorate.

The results of 9th Agriculture Census 2010-11 in the state are presented in this report. The first 2 chapters contain introduction, concepts, definitions, methodology. Results are presented with summary findings analytical notes, tables, etc in chapter III. I would like to appreciate the efforts put in by the Agriculture Census division for bringing out this publication had taken the responsibility of preparing the report with the help of Smt. S.C.Soni and K.S Vishvanath Research Assistants ,Sri. P.K Ravi., Statistical Assitant Grade-I ,Sri.B.Nadirsha, Statistical Assistant Grade.II under the guidance of Sri.T.Gorkey Jose,Additional Director,Sri.A.Rajan,Joint Director &State Technical officer and Sri.A Murugan Assistant Director of Agriculture Census Division.

I hope that this publication is capable of throwing light on the structure and pattern of agriculture in the state which in turn helps the planners, policy makers, decision makers, researchers etc.

Suggestions, if any are most welcome.

Thiruvananthapuram
30-08-2014

Sd/-
V.Ramachandran
Director General

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CHAPTER-1

INTRODUCTION

Government of India have been conducting Agriculture census once in five years regularly since 1970-71, following the broad guidelines of the World Agricultural Census. World Agriculture Census is conducted by the FAO of United Nations. Agricultural Census is a large scale statistical operation for the collection and compilation of quantitative information about the structure of agriculture in the country. An agricultural operational holding is the ultimate unit for decision making for development of agriculture at micro level. So an operational holding is taken as the statistical unit of data collection for describing the structure of agriculture.

Agriculture Census is implemented in three distinct Phases which are statistically linked together. Each Phase focus on different aspects of Agricultural Statistics. First phase consists of listing of operational holdings with area and social characteristics of holders. Details of Agricultural characteristics of holding are collected from selected wards in the second phase. In phase 3, data on input use pattern are collected from selected holdings in selected wards. Thus the whole operations of Agricultural Census in India is not really a complete Census. In fact it is a combination of census and Sample Survey.

The first comprehensive country wide Agriculture Census was organized in India by the Ministry of Agriculture during the year 1970-71 which was followed by reference years 1976-77, 1980-81, 1985-86, 1990-91, 1995-96, 2000-01, 2005-06 and 2010-11. This report relates for the 9th Agriculture Census 2010-11. This is a 100% centrally sponsored scheme.

The main objectives of the Census are as follows.

1. To describe Agricultural Statistics and related characteristics of agriculture by providing statistical data on operational holdings, including Land utilization, Live Stock, Agricultural machinery and implements, Use of chemical fertilizers etc.
2. To provide data needed for formulating new agricultural development programmes and for evaluating the progress.
3. To provide basic frames of households and operational holdings for carrying out future surveys.
4. To lay down a basis for developing an integrated programme for current Agricultural Statistics.

As in the former Census the mode of sample survey (Simple Random Method) is used in this round also.

Approach for Data Collection

The basic unit for collecting data on Agricultural Statistics is the operational holding i.e., the holding of the actual cultivator who need not be the owner is the unit for collection of data. As comprehensive land records are not available in the non land record states like Kerala the required data would be collected from the operational holders through sample surveys by adopting enquiry method. The data is collected from the operational holders in selected wards in the prescribed schedules by visiting every house holds/institutions.

Schedules

The following schedules are used for the conduct of Agriculture Census.

- Schedule L1 : List of Households and operational holdings in the sample ward.

- Schedule L2 : List of Institutional holdings in the sample ward
(Complete enumeration in the sample ward).

- Schedule L3 : Ward summary.

- Schedule L4 : List of operational holdings in the sample ward and sample
selection of holdings.

- Schedule T1 : Abstract of Number and Area of operational holdings by
different size classes classified according to sex wise, social
group wise Individual/Joint/Institutional wise.

- Schedule SS : Sample Selection Summary.

- Schedule H : Particulars of Operational Holders.

Item coverage

Data on the following main aspects were collected during the Agriculture Census with the agriculture year 2010-11 (July 2010 to June 2011) as the reference year. During Phase 1, viz, the listing phase, data on number and area of operational holdings according to prescribed size classes for different social group and sex were collected. In the 1st phase, data on basic agricultural infrastructure available in the sample wards were also collected. In Phase 2, which is the main census operation, though only for selected holdings in the selected wards, the data on the following five aspects were collected.

1. Dispersal of holdings
2. Tenancy
3. Land utilization
4. Irrigation status and Source wise area irrigated
5. Crop wise area irrigated

All the data were compiled separately for the operational holdings of four groups, viz., Scheduled Caste, Scheduled Tribes, Others and Institutional, and also for the total of this groups. The Priority Table-1, which related to Number and Area of holdings by various size classes was prepared sex wise, social group wise and individual; joined, institutional wise.

Sampling Design

A stratified two stage sampling design is recommended for Agriculture Census in the non-land record states. In view of the increasing demand for Agricultural Census data at Block level, it has been decided that the community Development Block or some other similar homogeneous administrative units (Municipality and Corporation) should be taken as stratum. The first stage unit within the stratum will be the ward and the second stage unit will be the operational holdings.

For the 2010-11 census a stratified two stage sampling design was recommended in the non-land record states like Kerala. The stratum is block. The first stage unit within that was the Panchayat ward and the second stage was the operational holdings. In view of the increasing demand for Agriculture Census data at Block level, it was suggested that the community Development Block should be the stratum in the rural area and Municipalities/Corporation in Urban area. From each stratum 20% of the wards in each block and 20% of the wards/divisions from each Municipality/Corporation area were selected using circular systematic random sampling method. A total of 3847 Wards/Divisions were selected for the survey. In each selected

ward all the operational holders were listed in Schedule L1. A separate list of institutional holdings was also prepared for each sample ward during the time of listing in Schedule L2. During the time of listing some basic agriculture information for the sample ward was also collected in Schedule L3.

For detailed survey 20% of the holdings are selected from the size class 0-246 Cents i.e., below 1 ha, 50% from above 1ha, and below 10 ha, 100% from 10 ha and above. Schedule L4 is used to prepare the sampling frame for the selection of the required number of holdings for collecting detailed information in Schedule H. All the institutional holdings in the selected wards were included in the sample for filling Schedule H, i.e., no sampling has done for institutional holdings.

Primary field work

The primary field work consists of collecting information in respect of resident cultivators in the sample wards. Non-resident cultivators are not be covered in the survey as it may be difficult to approach them. A separate list of institutional holding are also prepared for each sample ward.

Concepts, Definitions and Methodology

In Agriculture Census data is to be collected on the basis of “de-facto” (by fact) position rather than “de-jure” (by right) position.

1. Operational Holdings

All land which is used wholly or partly for agricultural production and is operated as one technical unit by one person alone or with others without regard to title, legal form, size or location.

2. Technical Units

A technical unit has been defined as that unit which is under the same management and has the same means of production such as labour force, machinery and animals.

3. Operated Area

Operated area would include both cultivated and uncultivated area, provided part of it is put to agricultural production during the reference period.

The Operated area may be comprise of

- a) Land owned and self operated
- b) Land Leased in
- c) Land otherwise operated

a) Land owned and self operated

Land for which the cultivator has the right to permanent heritable possession would be considered as owned. This would include.

Land held from Government or others under grant or lease or assignment with right of permanent heritable possession with or without right of transfer.

Land operated under perpetual lease.

Self-operated land would include.

Self cultivation

Land cultivated through members of the family.

Land cultivated with the help of hired labour.

Note: Land owned and self-operated should not include land leased out to others.

b) Leased in

Area leased in is defined as land taken on lease from others without any permanent right of possession for the lessee. Land may be leased in for.

- I. Fixed money
- II. Fixed produce
- III. Share of produce
- IV. Usufructuary mortgage

Under (iv), the ownership of the property is with the mortgager but the possession is with the mortgage (i.e. The person to whom the mortgage is made or given), income from the property accrues to the Mortgage and the mortgage is terminated as soon as the full amount is released.

c) Area otherwise operated

An operational Holder is the person who has the responsibility for the operation of the agricultural holding and who exercise the technical initiative and is responsible for its operation. He may have full economic responsibility or may share it with others.

4. Operational Holder

An operational holder is the person who has the responsibility for the operation of the agricultural holdings and who exercise the technical initiative and is responsible for its operation. He may have full economic responsibility or it may share with others. The operational holder may be individual/Joint/Institutional.

- I. Individual:** If the holding is being operated either by one person alone or by group of persons who are the members of the same households, it will be considered as an individual holdings.
- II. Joint:** If two or more persons belonging to different households share jointly as partners in the economic and technical responsibility for the operation of an agricultural holding, such holding would be considered as joint.

III. Institutional: Holding such as government farms, sugarcane factories farms, co-operative farms, lands managed by trust would be treated as institutional.

5) Agricultural Production

Agricultural production includes growing of field crops, fruits, seeds, tree nurseries (except those of forest trees) vegetables and flowers, production of coffee, tea, cocoa, rubber, jute, oil seeds, fodder grass etc. If efforts is made for raising grass, it will be treated as agricultural operation.

6) Resident and Non-resident operational holder

All the cultivators residing in particular Panchayat, Municipality/Corporation ward cultivating some land are resident cultivators of that sample ward irrespective of fact whether they are cultivating land within that village or outside. A resident cultivator may have (i) entire area of the holding located in the sample ward of his residence, (ii) partly within the sample ward of residence and partly outside; and (iii) entirely outside the ward of residence.

7) Complete/Part Holding

A holding is said to be complete holding if the entire operated area of that holding is located in the same ward. If the operated area spread over in more than one ward, it would be considered as part holding.

8) Wholly irrigated, partly irrigated and wholly unirrigated holdings.

If the entire net area sown in an operational holding is equal to net area irrigated, such holding is considered as wholly irrigated holding. In case part of the net sown area is irrigated, it will be partly irrigated; and if the entire sown area has not received any irrigation during the year of reference, such holding would be wholly un irrigated.

9. Land Utilisation

Operated area would be classified in to six broad categories:

- i. Net area sown
- ii. Current fallow
- iii. Fallow land other than current fallow
- iv. Other uncultivated land excluding fallow
- v. Cultivable waste
- vi. Not available for cultivation

I. Net area sown

Total area sown with crops and orchards, counting area sown more than once in the same year, only once.

II. Current fallow

Cropped areas, which are kept fallow during the current year. For example, if any seedling area is not cropped in the same year, it may be treated as current fallow:

III. Fallow other than current fallow

All lands which are taken up for cultivation but area temporarily out of cultivation for a period of not less than one year and not more than five years. The reasons for keeping such lands fallow may be one or more of the following.

- i. Poverty of the cultivator
- ii. Inadequate supply of water.
- iii. Malarial climate
- iv. Silting of canals and river
- v. Un-remunerative nature of farming

IV. Other uncultivated land excluding fallow

This will include

- a) All grazing lands, whether they are permanent pastures and meadows or not. Village common grazing lands would, however, be excluded.
- b) Land under miscellaneous tree crops

Cultivable land which is not included in the net area sown but is put to some agricultural use. Land under casuarina trees, thatching grasses, Bamboo bushes and other groves for fuel which are not included under 'orchards' would be covered under this category.

V. Cultivable Waste

All lands available for cultivation, whether or not taken up for cultivation once but not cultivated during the current year and last five years or more in succession for one reason or the other. Such lands may be either wholly or partly covered with shrubs and jungles, which are not put to any use. Land once cultivated but not cultivated for five years in succession would also be included.

VI. Not available for cultivation

This would include forest, area under non agricultural use, barren and uncultivable land

a) Forest

All lands classed as 'Forest' under any legal enactment dealing with forests or administered as forests, whether State owned private and whether wooded or maintained as potential forest. The area of crops raised in the forest and grazing lands or areas open for grazing within the forest would be under the forest area. Only private forest would be covered for the purpose of Agricultural Census.

b) Area under non-agricultural use

All lands occupied by buildings or ponds, or lands put to uses other than agriculture, such lands within the cultivated holdings should be covered in the Census.

c) Barren and uncultivable land

All barren and uncultivable land within the cultivated holding

Methodology

The basic unit for the collection of data in Agriculture Census is the operational holding. The holding of the actual cultivator, not the owner is the unit for collection of data. The data for the entire land operated by the cultivator were collected and no outer limit was fixed for pooling all the parcels of an operational holding. As there are no comprehensive land records in the non-land record states, like Kerala, the required data were collected through sample survey by adopting enquiry method, from the operational holders of the selected sample wards.

Limitations

The main problem encountered during the analysis of data was under reporting. This was visible in the area reported under the operational holdings as well as under various crops. This is mainly due to the enquiry method adopted for the survey. The cultivators, the majority of them not keeping any account, were furnishing information from their memory. This resulted in incorrect information especially in the case of fertilizers and pesticides, crops for different seasons for the year etc. Any how much care has been taken in collecting correct information through probing by investigators. The ceiling provisions of an individual family under the Kerala Land Reforms Act were another reason for under reporting by the holder of the land. In the case of mixed cropping pattern, area under cultivation of different crops can be written only by counting the number of trees and then converting the same into area using standard conversion factors. This trend of under reporting is a common feature in a census of this type since it is the only method of collection of data at micro level at lesser cost. Data can be made use of after giving proper allowance to the estimates knowing the limitation and deficiencies of the census data.

CHAPTER – II
9th AGRICULTURE CENSUS

The Ninth Agriculture Census 2010-11 was conducted in Kerala during the period August 2011. The field work of the 9th census was carried out by the investigators of the Economics and statistics department. The whole census operations were supervised by the nucleus staff at state headquarters consisting of

Joint Director	1
Assistant Director	1
Administrative Assistant	1
Research Assistant	2
Confidential Assistant	1
Typist	1
Statistical Assistant Grade-I	1
Statistical Assistant Grade-II	1
Peon	1

Government of Kerala vide GO (Rt) No. 201/11/plg dated 30.06.2011 had issued, sanction for the implementation of this Centrally Sponsored Scheme with 100% Central Assistance. The field work of the Census was completed by 2011. The tabulation and processing of data was done in the computer division of the department. The personnel from the Agricultural Census division had rendered all assistance during data entry work especially during concurrent clarification of doubts regarding filled in schedules. The first sets of tables were forwarded to Government of India by March 2011. The final tables were forwarded to the Director of Agriculture Census, Government of India by 2013-14. The final tables were approved by the Government of India by 2014, as per D.O No.11015/05/2013-ACU (T) dated 03/01/2014 .The CD containing final tables of 2010-11 agriculture census was handed over to the state during the end of 2013 from the Director of Agriculture Census, Government of India.

The final Table are generated block wise, district wise and for the state for all the social groups Institutional and scheduled caste, scheduled tribes and other categories separately.

Field organization at State Level

The field work was done by the Investigators of this Department. Statistical Inspectors/Taluk Statistical Officers/Additional District Officers/Price Supervisory Officers and Deputy Directors of the districts provided the leadership at the district level under the technical guidance from the Head Office.

Before the commencement of the 2010-11 census, intensive training was given to all personnel involved in the field work. Wide publicity through media was also given for dispelling the fear of the farmers that they can furnish correct information to the enumerators. It was also made clear that individual information about operational holding would not be released. For the accuracy of the data intensive periodical inspections were conducted by the supervisors. Senior officers from headquarters also conducted intensive inspection.

The tabulation of the census data was done in the computer division of the department. The Senior Officers of the scheme provided necessary technical guidance in this regard. The concept and definitions adopted for the conduct of the census with detailed explanation have been included in instructions to the Investigators prepared in Malayalam. Analysis of data has been made separately for Scheduled Caste, Scheduled Tribes and other categories

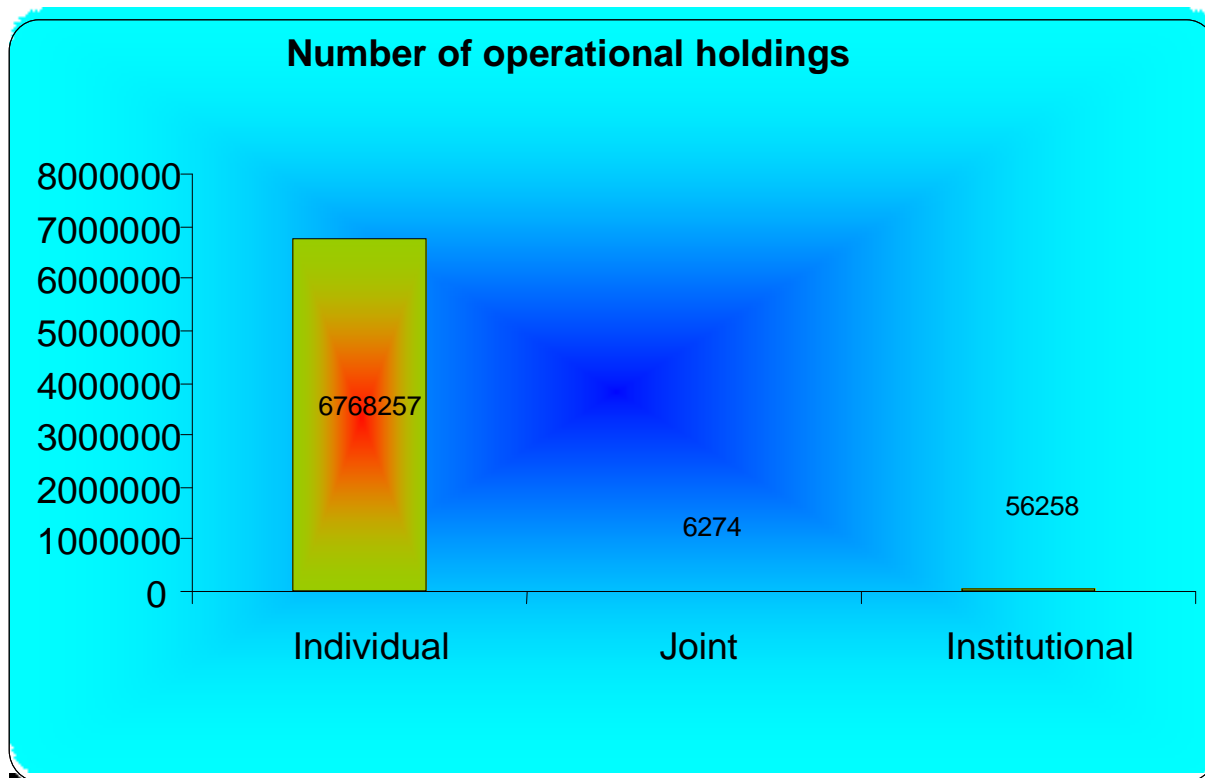
CHAPTER III

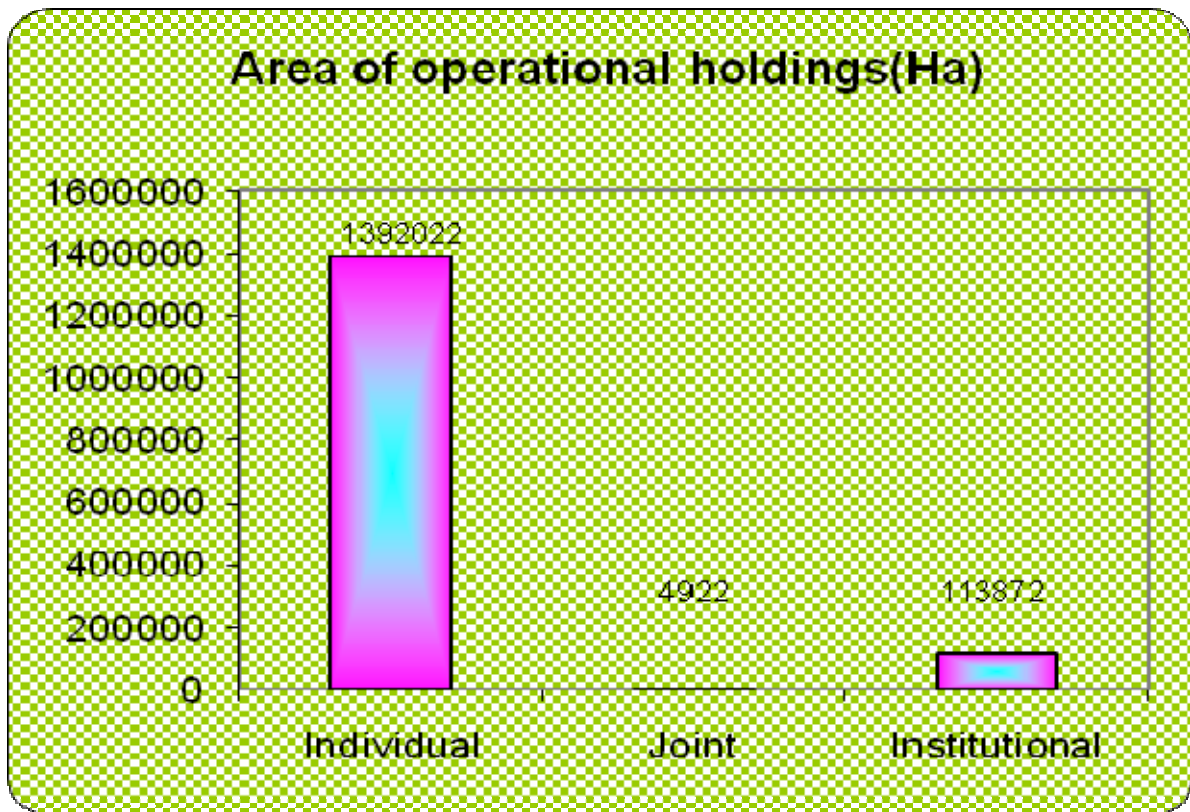
RESULTS OF THE CENSUS

According to the Agricultural Census 2010-11 the total number of operational holdings in Kerala has been estimated 68.31 lakhs out of which individual holdings accounted for 67.68 lakhs. This accounted for 99.08%. The remaining 0.92% are institutional and joint holdings. There are 6274 joint holdings reported during 2010-11 Census.

Table-1

Type of operational holdings	No. of operational holdings	Area operated (Ha)
Individual	6768257	1392022
Joint	6274	4922
Institutional	56258	113872
Total	6830789	1510816





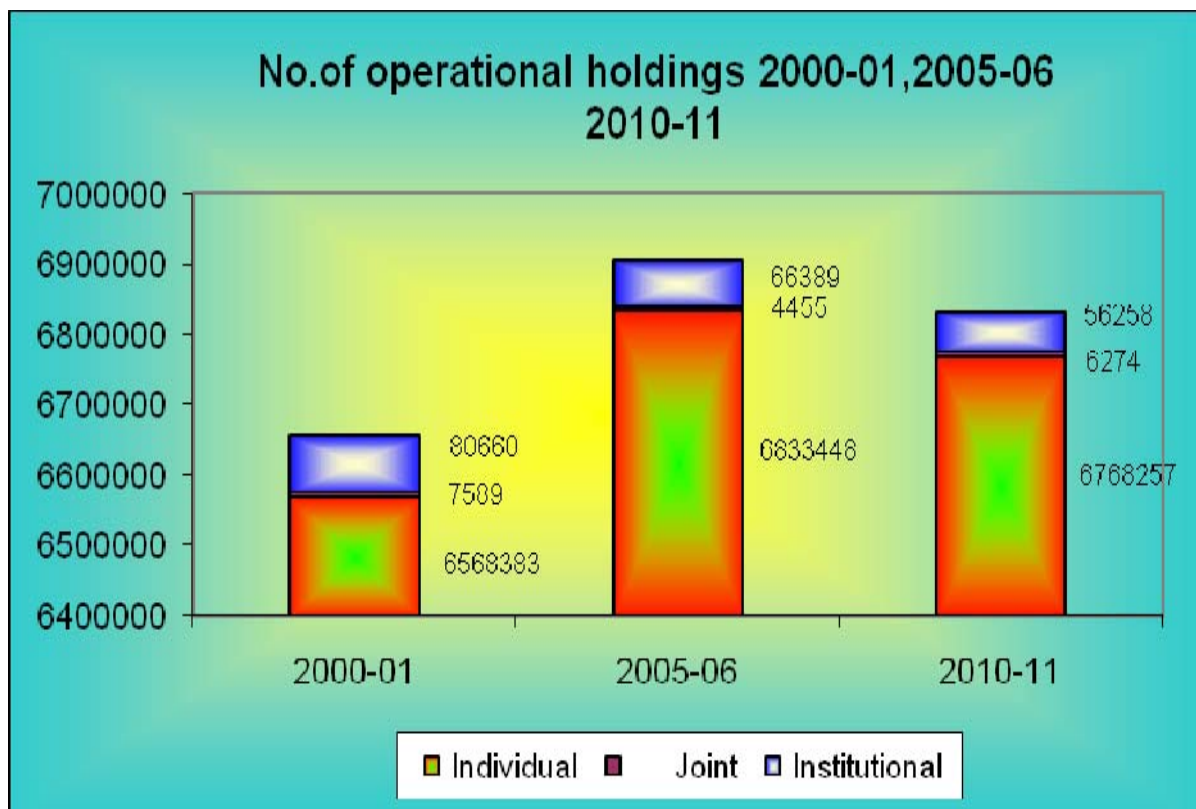
The 68.31 lakhs operational holdings accounted for an operated area of 15.11 lakhs hectares out of which 13.92 lakhs hectares were the operational area of individual holdings. Institutional holdings, accounted for 0.82% of the total number of holdings accounted for an area of 7.54% of the total operated area in the state; showing a comparatively very high average size of the holding for them. With regard to joint holdings, 0.09% of the total number of holdings, have accounted for an area of 0.33% of the total operated area in Kerala.

Comparison with 2000-01,2005-06,2010-11 Census

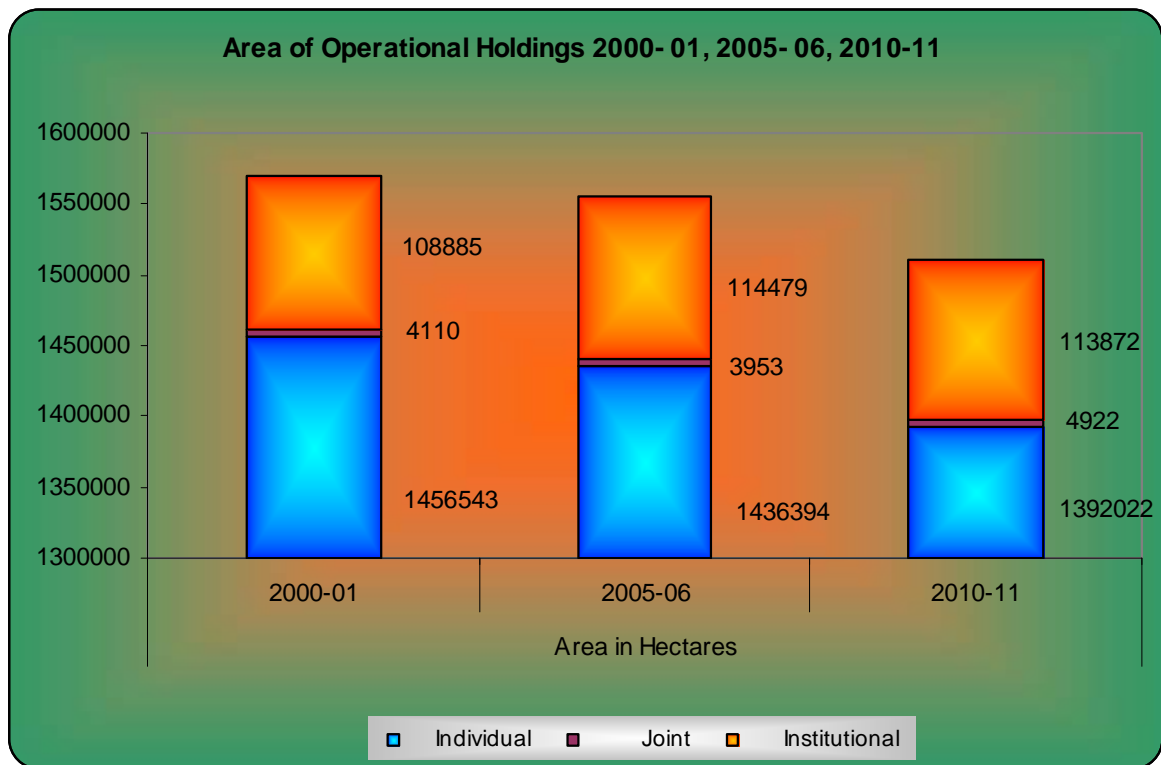
TABLE-1I

**NUMBER AND AREA OF OPERATIONAL HOLDINGS DURING
2000-01, 2005-06, 2010-11**

Type	Number of Operational holdings			Area in Hectares		
	2000-01	2005-06	2010-11	2000-01	2005-06	2010-11
Individual	6568383	6833448	6768257	1456543	1436394	1392022
Joint	7589	4455	6274	4110	3953	4922
Institutional	80660	66389	56258	108885	114479	113872
Total	6656632	6904292	6830789	1569538	1554826	1510816



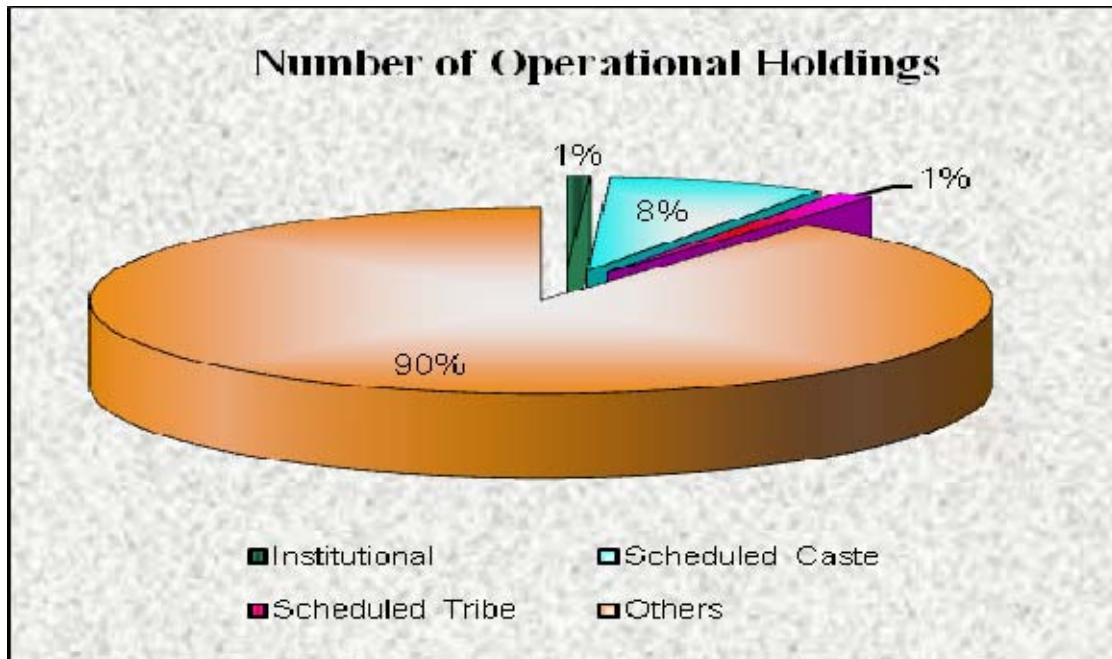
A comparative analysis of 2000-01, 2005-06 and 2010-11 Census figures shows that the total number of holdings under all categories together as increased from 66.57 lakhs in 2000-01 to 69.04 lakhs in 2005-06 and decreased to 68.31 lakhs in 2010-11 recording a percentage increase of 3.72 in 2005-06 and a percentage decrease of 1.1 in 2010-11.



As far as the number of individual holdings are concerned, the percentage increase was 4.04 in 2005-06 and a decrease of 0.95 in 2010-11. Institutional holdings are decreased by 17.69% in 2005-06 and 15.26 in 2010-11. There is a diminishing trend in area from 2000-01 to 2005-06 and from 2005-06 to 2010-11 for individual holdings.

TABLE-III

Social Group	No. of Operational Holdings	Area Operated(Ha)
Institutional	56258	113872
Scheduled Caste	532005	35247
Scheduled Tribe	95161	34442
Others	6147365	1327255
Total	6830789	1510816



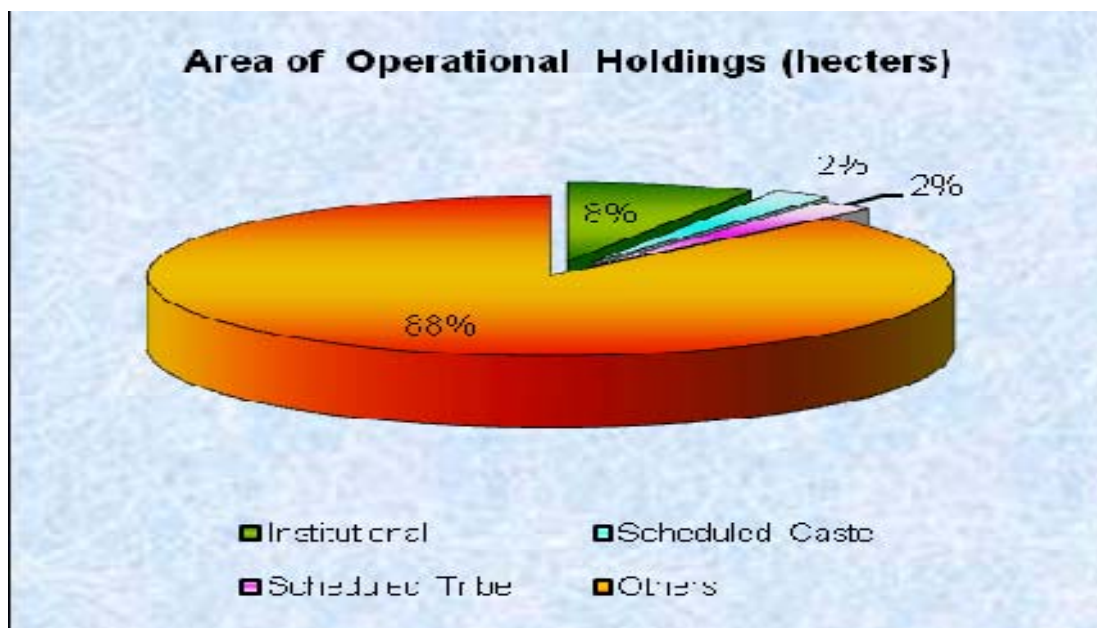
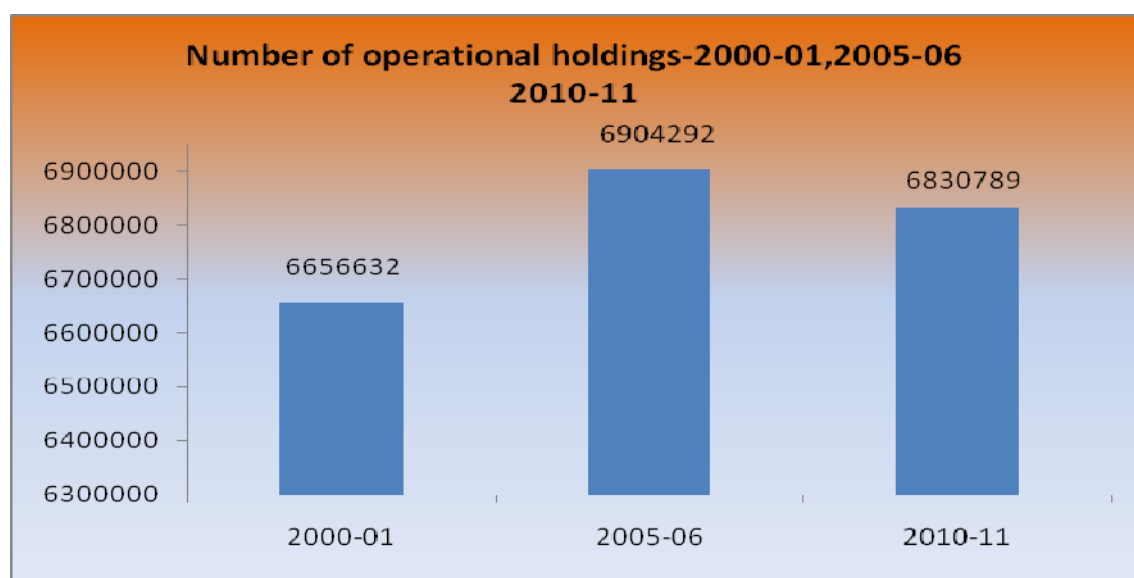


Table III reveals the fact that out of the total of 6830789 holdings 6147365 holdings are belonging to 'Others' category i.e., 89.99% of the total. Only 7.79% for Scheduled Caste, 1.39% for Scheduled Tribe and 0.82% for Institutional holdings. The corresponding percentages of area are Others 87.85%, Scheduled Caste 2.33%, Scheduled Tribe 2.28% and Institutional 7.54.

TABLE – IV
NUMBER AND AREA OF OPERATIONAL HOLDINGS DURING
2000-01, 2005-06, 2010-11

Sl.No	Year	No. of Operational holdings	Area(Ha)
1	2000-01	6656632	1569488
2	2005-06	6904292	1554826
3	2010-11	6830789	1510816



It is obvious from the above table that an increasing trend in the number of operational holdings from 2000-01 to 2005-06 and decreasing trend in 2010-11, whereas a diminishing trend is observed in the corresponding area operated.

The land holdings were classified in to 10 size classes according to size and detailed tables in respect of the estimated number and area of operational holdings have been prepared. But for detailed discussion, comparison and analysis of the census results, these 10 size classes have been grouped up to five size groups.

- 1 .Below 1 hectare (marginal)
2. 1 to 2 hectares (small)
3. 2 to 4 hectares (semi-medium)
4. 4 to 10 hectares (Medium)
5. 10 hectares and above (large)

Type of holding

Table IV 1 in the Appendix gives the distribution pattern of operational holdings under individual, institutional and joint. Out of the total holdings of 68.31 lakhs, the size group below 1 hectare account for 65.80 lakhs which is the 96.33% of the total number of holdings. The total area operated by these holdings is 885644 hectares which works out to 58.62% of the total area. The average size of the group is 0.13 hectares. Next to marginal holders, the holders in the group of small, numbering to 1.80 lakhs which is the 2.64% of the total number of holdings with an operated area of 282305 hectares which is 18.69% of total operated area with an average size class of 1.57 hectares. As in the case of past censuses, the larger size class constitute the lower number of operational holder and larger area of operational holding with average size of operational holding 64.58 hectares

Average size

TABLE-1V-1

Sl.No	Size Class hectare	No of Operational holders (in lakhs)	Area of Operation (hectares)	Average size of holders (hectares)
1	Below 1 hectare	65.80	885644	0.13
2	1 to 2 hectares	1.80	282305	1.57
3	2 to 4 hectares	0.57	159075	2.79
4	4 to 10 hectares	0.12	64063	5.33
5	10 hectares and above	0.02	119729	64.58
All		68.31	1510816	0.22

The average size of an operational holding was 0.22 hectare in 2010-11. This was against 0.24 hectare in 2000-01 and 0.23 hectare in 2005-06.

TABLE IV-2

Average size of individual and joint holdings during 2000-01, 2005-06, 2010-11

Sl.No	Size Class	2000-01	2005-06	2010-11
1	2	3	4	5
1	Below 1 hectare	0.14	0.14	0.13
2	1.00-1.99	1.32	1.33	1.57
3	2.00-3.99	2.51	2.56	2.79
4	4.00-9.99	5.3	5.25	5.32
5	10.00 and above	37.31	58.44	64.58
Total		0.24	0.23	0.22

Scheduled Caste

Table IV. 1 (a) Appendix reveals the number and area operated by operational holders belonging to Scheduled Caste. The details reveals that the total number of holdings in this category for all size classes decreased from 579188 in 2005-06 to 532005 during 2010-11, recording a decrease of 47183 i.e. 8.15%.

Regarding area of the operational holders of this social group, the same has decreased from, 39618 hectares to 35247, which shows a percentage decrease of 11.03%.

Scheduled Tribe

Table IV – 1(b) Appendix shows the number and area operated by operational holders belonging to Scheduled Tribe. The figures shows that the total number of holdings in this social group for all size classes increased from 87307 in 2005-06 to 95161 in 2010-11 recording a increase of 9%, correspondingly operated area increased from 30197 hectares in 2005-06 to 34442 hectares in 2010-11. The average size of holdings increased in this social group.

Distribution of holdings according to social groups

Table IV 3 below gives the number and area of operational holdings according to major social groups i.e. Scheduled Castes, Scheduled Tribes and others under different size classes. The inter percentages are given in brackets.

**TABLE IV- 3
NUMBER AND AREA OF OPERATIONAL HOLDINGS ACCORDING TO
MAJOR SOCIAL GROUP**

Sl. No	Size class(Ha)	Number of operational holdings				Area operated (Hectares)			
		All	SC	ST	Others	All	SC	ST	Others
1	Marginal (Below 1.00)	6579692 (96.32)	529419 (99.51)	86041 (90.42)	5964232 (96.14)	885643.80 (58.62)	30927.18 (87.74)	17154.68 (49.82)	837558.94 (58.12)
2	Small (1.00-1.99)	180171 (2.64)	1975 (.37)	6117 (6.43)	172079 (2.77)	282305.13 (18.69)	2541.37 (7.21)	8056.99 (23.39)	271706.77 (18.85)
3	Semi-medium (2.00-3.99)	57028 (0.83)	516 (0.10)	2555 (2.68)	53957 (0.87)	159075.15 (10.53)	1329.21 (3.77)	6139.07 (17.82)	151606.87 (10.52)
4	Medium (4.00-9.99)	12044 (0.18)	95 (0.02)	428 (0.45)	11521 (0.19)	64063.02 (4.24)	449.02 (1.28)	2303.06 (6.69)	61310.94 (4.25)
5	Large (10.00&above)	1854 (0.03)	0	20 (0.02)	1834 (0.03)	119728.65 (7.92)	0	785.31 (2.28)	118943.34 (8.26)
All Sizes		6830789 (100)	532005 (100)	95161 (100)	6203623 (100)	1510815.75 (100)	35246.78 (100)	34442.11 (100)	1441126.86 (100)

It is seen from the above Table that 99.51% of the Scheduled Caste operational holders (below 1 hectare) operated 87.74% of the total area of that category, 0.37% of the holders (1.00 to 1.99 hectare) operated 7.21% of the operated area, 0.10% (2.00 to 3.99 hectares) operated 3.77% of the operated area etc with regard to Scheduled Tribe 90.42% operational holders of this social group, belongs to below 1 hectare operate 49.82% of the operated area 6.43% of (in the size class 1 to 1.99 hectare) of the operational holders operate 23.39% of the area operated by them.

The concentration is higher in the marginal operators of other social group 96.14% in number and operated area 58.12%. The other concentration is in small (1.00 – 1.99 hectares) operates 2.77% and semi medium (2.00 to 3.99 hectare) 0.87% operating an area of 18.85% and 10.52% respectively.

A social group wise comparison of the results shows that out of the total operational holders, scheduled caste operational holders constitute only 7.79% and scheduled tribe operational holders constitute 1.39%. 90.82% of operational holders are in other social group. In the case of operated area also, i.e. scheduled caste 2.33% and scheduled tribe 2.28% and operational holders of general category constitute 95.39%.

Table IV (4) shows district-wise distribution of operational holding and area according to social group. Scheduled caste operational holders are largest in Thrissur district and it is lowest in Wayanad district. Operated area is largest in Idukki and lowest in Kasargod. ST operators are highest in Wayanad and 2nd Idukki. The operated area operated by Scheduled Tribe, operational holders are highest in Idukki and 2nd Wayanad. Operators from other categories are highest in Thiruvananthapuram district, whereas the operated area is highest in Idukki district.

TABLE IV-4**DISTRICT WISE NUMBER AND AREA OF OPERATIONAL HOLDINGS ACCORDING TO MAJOR GROUPS**

Sl. No	DISTRICT	Number of operational holdings				Area operated (Hectares)			
		SC	ST	Others	Total	SC	ST	Others	Total
1	Thiruvananthapuram	59332	5013	686558	750903	2300	4062	79990	86352
2	Kollam	59060	2386	518851	580297	3150	793	86244	90187
3	Pathanamthitta	30305	4535	261978	296818	1916	1003	63852	66771
4	Alappuzha	32808	975	443560	477343	1951	47	65163	67161
5	Kottayam	20234	3205	395297	418736	1458	1169	121357	123984
6	Idukki	35837	15403	208375	259615	6385	9274	149190	164849
7	Ernakulam	47988	1925	597482	647395	2233	463	117356	120052
8	Thrissur	67566	1930	615244	684740	2933	145	96291	99369
9	Palakkad	65499	9496	424529	499524	4174	6026	135284	145484
10	Malappuram	50518	3284	636670	690472	3482	568	128808	132858
11	Kozhikode	38749	2317	597285	638351	2374	370	107842	110586
12	Wayanad	4534	27558	142324	174416	958	7146	82352	90456
13	Kannur	11972	6541	466708	485221	1108	1573	124434	127115
14	Kasargod	7603	10593	208762	226958	825	1803	82964	85592
	State	532005	95161	6203623	6830789	35247	34442	1441127	1510816

Tenancy Status

Table IV- 2A give the distribution of number of holdings and area operated according to Tenancy Status.

TABLE IV-2A
DISTRIBUTION OF NUMBER OF HOLDINGS AND AREA OPERATED
ACCORDING TO TENANCY STATUS 2010-11

Sl. No.	Category of Holdings and size group(Ha)	Number of Holdings				Area operated (in hectares)			
		wholly owned and self operated	wholly leased in	wholly otherwise operated	partly owned, partly leased in and partly otherwise operated	wholly owned and self operated	wholly leased in	wholly otherwise operated	partly owned, partly leased in and partly otherwise operated
1	2	3	4	5	6	7	8	9	10
1	Marginal (Below 1.00)	6526605	3856	16614	159	868350.83	1429.68	2163.23	116.47
2	Small (1.00 - 1.99)	173556	350	573	76	271929.87	483.08	839..78	128.92
3	Semi-medium (2.00-3.99)	54591	320	292	0	152387.60	860.06	599.58	0
4	Medium (4.00 - 9.99)	11279	192	5	7	59924.93	1093.38	30.84	29.81
5	Large (10 & above)	1745	38	0	0	115111.08	1906.24	0	0
All Categories		6767776	4756	17484	242	1467704.31	5772.44	3633.43	275.20

Regarding the tenancy status of operational holding out of the total 6830789 operational holding 6767776 (99.08%) are wholly owned and self-operated holding. The percentage of area is 97.15% Wholly leased in, wholly otherwise operated and partly owned and partly leased in and partly otherwise operated area is only 9680 hectare. The percentage of area is 0.6. The size class wise composition of the number

of operational holding wholly owned and self operated is in marginal 96.44%, small 2.56%, semi-medium 0.81%, Medium 0.17%, larger and above 0.03%. 59.16% of wholly owned operated area is in the size class below 1 hectare, 18.53% area is in the size class of 1.00 to 2.00 hectare. 10.38% is semi- medium (2.00-3.99), 4.08% comes under medium size class and 7.8% is in larger and above size class. The leased in operational holding is only 4756 numbers which is only 0.07% of the total operational holding of the state.

**TABLE 1V-2B
DISTRIBUTION OF LEASED AREA BY TERMS OF LEASING 2010-11**

Sl. No.	Category of holdings	Area leased in for (in hectares)					Total
		Fixed money	Fixed produce	Share of produce	Usufructuary Mortgage	Other terms	
1	2	3	4	5	6	7	8
1	Marginal (Below 1.00)	6189.75	795.08	989.75	46.26	864.04	8884.88
2	Small (1.00 - 1.99)	3501.87	448.47	683.47	26.99	334.59	4995.39
3	Semi-medium (2.00-3.99)	2141.31	149.07	325.29	22.00	990.06	3627.73
4	Medium (4.00 - 9.99)	1538.59	159.86	65.06	0.00	1126.19	2889.70
5	Large (10 & above)	2677.41	73.34	0	0.00	1749.71	4500.46
All Categories		16048.93	1625.82	2063.57	95.25	5064.59	24898.16

Regarding the terms of leasing, “fixed money” constitute the majority 64.46%. Fixed produce comes only 6.53% of the total. Under usufructuary mortgage 95 hectares operated i.e., 0.38%. Area under other terms of leasing is 5065 hectares i.e. 20.3%. Higher is the concentration of area under marginal group who operate on the basis of fixed money (6190 hectare).

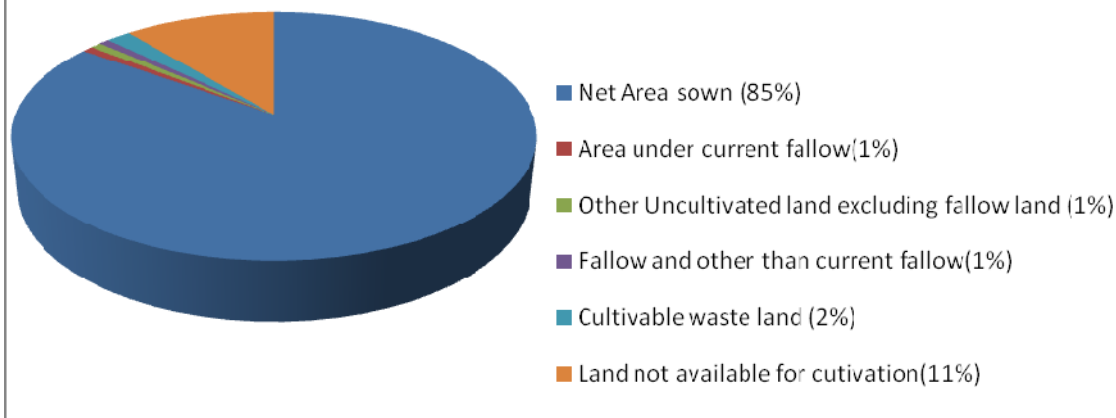
Land utilization and Comparison with previous census

Table IV 5 below gives the statement of land utilization which reveals that 84.91% of the area used for cultivation during the census period, which is about 1.26 greater than the last census (83.65%). Land not available for cultivation has decreased by 0.27 than the last census. This shows a positive sign in the recent scenario of Agriculture.

TABLE IV - 5
LAND UTILIZATION PATTREN - OPERATIONAL HOLDINGS APPROACH 2010 - 11
(AREA IN HECTARES)

Sl. No	Land Use pattern in operational holdings	2000-01		2005-06		2010-11	
		Area	Percentage	Area	Percentage	Area	Percentage
1	2	3	4	5	6	7	8
1	Net Area sown	1311566	83.57	1300601	83.65	1282759.4	84.91
2	Area under current fallow	26561	1.69	26382	1.70	11793.68	0.78
3	Other Uncultivated land excluding fallow land	47919	3.05	12504	0.80	12096.08	0.80
4	Fallow and other than current fallow	16307	1.04	14771	0.95	11120.10	0.74
5	Cultivable waste land	25249	1.61	25191	1.62	26643.08	1.76
6	Land not available for cultivation	141886	9.04	175380	11.28	166403.42	11.01
Total		1569488	100.00	1554826	100.00	1510815.8	100.00

LAND UTILIZATION PATTERN 2010-11 (Operational Holdings)



The census result reveals that out of the total operated area of 1510816 hectares, net cultivated area (net area sown + current fallow) is 1294553 hectares, which is 85.69% of the total operated area. Land not available for cultivation is only 11.01%. compared with the results of 2000-01 and 2005-06 census, the net area sown has increased from 83.57% in 2000-2001 to 83.65% in 2005-06 and 84.91% in 2010-11. Other uncultivable land excluding fallow land is same as 0.8% in 2005-06 and 2010-11 Land not available for cultivation has increased from 9.04% in 2000-01 to 11.28% in 2005-06. But the same has become 11.01% in 2010-11.

On analyzing the pattern of land utilization against the total operated area in each district (Table IV 9 (a)) it is, observed that out of the total operated area, net area sown is highest (92.52%) in Idukki, while it is lowest in (74.79%) in Alappuzha District. Land not available for cultivation is highest in Malappuram.

TABLE IV 6
NUMBER AND AREA OF OPERATIONAL HOLDINGS ACCORDING TO TENURE AND TENANCY STATUS 2010-11

(AREA IN HECTARES)

ALL SOCIAL GROUP

Sl. No.	Size Class of operational holdings (Ha)	Total Holdings		Wholly owned and self operated holdings		Wholly leased in Holdings		Wholly Otherwise Operated Holdings		Partly owned ,Partly Leased -in and partly otherwise operated				
		No	Area	No	Area	No	Area	No	Area	No	Owned Area	Leased -in Area	Other. operated Area	Total Area
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Marginal (Below 1.00)	6579692	885643.80	6526605	868350.83	3856	1429.68	16614	2163.23	159	32.09	38.36	46.02	116.47
2	Small (1.00 - 1.99)	180171	282305.13	173556	271929.87	350	483.08	573	839.78	76	56.04	40.63	32.25	128.92
3	Semi-medium (2.00-3.99)	57028	159075.15	54591	152387.60	320	860.06	292	599.58	0	0	0	0	0
4	Medium (4.00 - 9.99)	12044	64063.02	11279	59924.93	192	1093.38	5	30.84	7	2.29	24.28	3.24	29.81
5	Large (10 & above)	1854	119728.65	1745	115111.08	38	1906.24	0	0	0	0	0	0	0
All Categories		6830789	1510815.80	6767776	1467704.30	4756	5772.44	17484	3633.43	242	90.42	103.27	81.51	275.20

A comparative analysis of district wise percentage distribution of land utilization Table IV 9 (b) of appendix with the data of previous census shows that no abnormal variation is noticed in net area sown during 2000-01, 2005-06 and 2010-11. It is almost same in all the districts during the previous censuses. Some variation is noticed between districts in the case of current fallow during 2000-01, 2005-06 and 2010-11 census. Current fallow is the highest in Malappuram district during 2010-11 censuses. It is least in Kozhikode district Kottayam district is having highest percentage in other uncultivable land. Fallow land other than current fallow is highest in Palakkad district. Malappuram district is having highest percentage of land not available for cultivation.

Table 10 in the appendix reveals the percentage of area under main land use to total operated area district wise during 2000-01, 2005-06 and 2010-11. Out of the total operated area in the state 85.26% land is cultivated in 2000-01, 84.81% in 2005-06 and 85.69% in 2010-11 respectively. Uncultivated land is 5.70%, 3.49% and 3.3% in the state during 2000-01, 2005-06 and 2010-11. Land not available for cultivation is 9.04%, 11.72% and 11.01% in the state during these census period respectively.

TABLE IV -7

PERCENTAGE OF AREA UNDER MAIN LAND USE TO THE TOTAL OPERATED AREA BY THE STATE, 2000-01 & 2005-06, 2010-11

Sl.No	Size class (hectares)	Percentage of area under											
		Net cultivated area			Un cultivated land			Land not available for cultivation			Total		
		00-01	05-06	10-11	00-01	05-06	10-11	00-01	05-06	10-11	00-01	05-06	10-11
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Marginal (Below 1.00)	82.44	81.72	81.47	6.24	3.00	3.10	11.32	15.28	15.43	100	100	100
2	Small (1.00 - 1.99)	90.21	90.75	91.19	4.80	3.81	3.71	4.98	5.44	5.10	100	100	100
3	Semi-medium (2.00-3.99)	90.06	91.52	91.18	4.96	3.86	4.32	4.98	4.62	4.50	100	100	100
4	Medium (4.00 - 9.99)	89.46	89.96	90.26	5.36	4.29	4.96	5.18	5.75	4.78	100	100	100
5	Large (10 & above)	82.85	87.40	94.11	5.35	3.82	1.64	11.81	8.78	4.25	100	100	100
All Categories		85.26	85.35	85.69	5.70	3.37	3.30	9.04	11.28	11.01	100	100	100

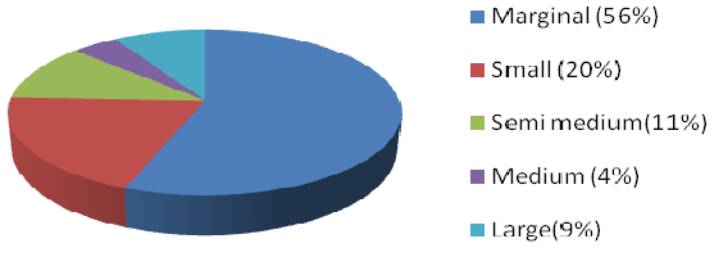
The size class wise analysis (Table IV-7) of land utilization with the comparison of data of earlier census in the percentage composition of net cultivated area, uncultivated land, land not available for cultivation, reveals that net cultivated area is higher (81 to 94%) in all the size classes. Higher is the percentage in small, semi medium and medium size class during the 7th and 8th censuses and in small, semi medium and large size class during 9th census as is in the case of district wise distribution. The percentage distribution is almost uniform in all the censuses in all size classes except large in the case of uncultivated land. Land not available for cultivation increased from 9.04 % in (2000-01) to 11.01% in 2010-11.

The percentage of net cultivated area of all size classes during 2000-01 is 85.26%, 85.35% during 2005-06 and 85.69% in 2010-11. The percentage of uncultivated land was 5.70%, 3.37% and 3.3% during 2000-01, 2005-06 and 2010-11 respectively. Land not available for cultivation was 9.04%, 11.28% and 11.01% during 2000-01, 2005-06 and 2010-11 respectively.

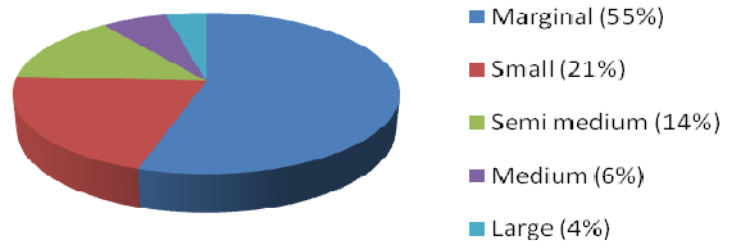
TABLE IV - 8
PERCENTAGE OF NET CULTIVATED AREA ,TOTAL UNCULTIVATED AREA AND LAND AVAILABLE FOR
CULTIVATION 2000-01, 2005-06 & 2010-11

Sl. No	Size class (hectares)	Net cultivated area			Uncultivated land			Land not available for cultivation		
		00-01	05-06	10-11	00-01	05-06	10-11	00-01	05-06	10-11
1	2	3	4	5	6	7	8	9	10	11
1	Marginal (Below 1.00)	54.37	55.17	55.74	61.57	51.18	54.90	70.38	78.04	82.14
2	Small (1.00 - 1.99)	20.21	19.48	19.89	16.10	20.71	21.00	10.52	8.82	8.65
3	Semi-medium (2.00-3.99)	12.82	12.31	11.24	10.57	13.15	13.80	6.68	4.71	4.32
4	Medium (4.00 - 9.99)	5.67	5.34	4.43	5.08	6.44	6.37	3.10	2.58	1.84
5	Large (10 & above)	6.93	7.70	8.70	6.69	8.52	3.93	9.32	5.85	3.05
All Categories		100	100	100	100	100	100	100	100	100

NET CULTIVATED AREA 2010-11



UNCULTIVATED LAND 2010-11



LAND NOT AVAILABLE FOR CULTIVATION 2010-11

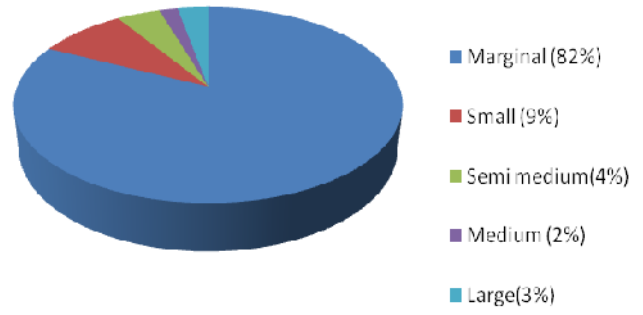


Table IV-8 is percentage of net cultivated area, total uncultivated area and land available for cultivation in 2000-01, 2005-06 and 2010-11. The percentage of net cultivated area, uncultivated land and land not available for cultivation among various size class group shows that 'marginal' size class constitute the largest group. It is increasing during every census, i.e., it was 54.37% in 2000-01, 55.17% in 2005-06 and 55.74% in 2010-11, which means that sub division and fragmentation of operational holding is higher in the State. Net cultivated area decreased in semi-medium and Medium Size classes. A little increase is noticed in small and Large Size class, i.e., from 19.48% in 2005-06 to 19.89% in 2010-11 in small size class and from 7.7% in 2005-06 to 8.7% in 2010-11 in large size class.

Cropping Pattern

Gross cropped area enumerated during the 9th Agricultural Census were 1552554 hectares. The cropping pattern is entirely different in the state compared to other Indian States. Food crops are cultivated mainly along with commercial crops in the same land. Multiplicity of crops and intensity of cropping exists in the state. In the same plot both seasonal, annual and perennial crops are cultivated. Totally there are 158 crops covered in the census. However data on the selected crops are collected for analyzing crops wise percentage distribution of gross cropped area during 2000-01, 2005-06 and 2010-11. Paddy cultivated area decreased from 12.06% in 1995-96 to 11.21% in 2000-01 to 10.72% in 2005-06 and to 8.8% in 2010-11.

The percentage of coconut cultivated area decreased from 31.36% in 1995-96 to 25.70% in 2000-01 and decreased to 24.66% in 2005-06 and increased to 25.22% in 2010-11. Percentage of Rubber cultivated area also shows an increase in all the censuses.

While looking into percentage distribution of area under principal crops in different size classes during the 2010-11 census (Table IV- 13) it is seen that marginal operators contributes larger percentage of area under paddy (42.54%) coconut (67.72%) Tapioca (74.49%) Rubber (41.74%) Cashew (49.53%) Tea (8.53%) Pepper (53.49%) Coffee (34.14%) Arecanut (57.66%) Mango (81.90%) and Banana (58.75%). The percentage of small, semi medium cultivators cultivating the above crops are almost same. Whereas tea is a plantation crops contributing 80.52% of area under larger size class.

Cropping Intensity

Intensity of cropping refers to the ratio of gross cropped area and net area sown multiplied by 100 (it is expressed in percentage). The state intensity of cropping is 121.03%. Intensity of cropping is highest in Idukki and it is lowest in Ernakulam .

An analysis of gross area under selected crops in the state in size class wise distribution shows rubber occupies 1st position among selected crops followed by coconut and paddy. Though tea is a plantation crop, the percentage of gross cropped area of tea under all size class except large is less than 1%. However the percentage under larger group is 8.76%.

Irrigation Status

In the Agricultural Census 2010-11 details of irrigation was also collected. Out of the total holdings 2.78% are wholly irrigated and 65.10% are partly irrigated holdings wholly unirrigated holding is 32.12%. Net irrigated area is 26.23%. Inter cropping and multiple cropping is the special feature of cropping pattern in Kerala. On the same agricultural holding certain crops are irrigated where as some other crops are not irrigated.

The comparison of district wise distribution of wholly irrigated holdings, partly irrigated holdings and wholly unirrigated holdings through census i.e. 7th, 8th and 9th censuses is given under table 16. The table reveals that the percentage of number of holdings was decreased from 5.67% in 2000-01 to 3.07% in 2005-06 and it is decreased to 2.78% in 2010-11 partly irrigated holdings were 49.44%, 55.09% and 65.10% respectively. The partly irrigated area 21.61, 22.99 and 23.46 respectively in each census. In the state out of the total net area sown net irrigated area was 27.28% in 2000-01, 26.23% in both census i.e. 2005-06, 2011-12

Analysing the sources of irrigation to different size classes compared with the result of previous census the percentage of irrigated area is higher in marginal followed by small, semi medium, medium from all sources, viz. Canal, Tank, Well, Tube well and other sources. This characteristic is same during the earlier census results also. Among the various sources, well and tube well is highest in marginal size class, i.e. 63.42%, 69.36%, 68.75% and 54.79%, 49.20%, 58.21% during 2000-01, 2005-06

and 2010-11 respectively. Table 16 (a) in the appendix given various percentage of source wise and size class wise irrigation during 7th, 8th and 9th census.

Table 16(b) shows the percentage distribution of irrigation from different source, to various size classes. Well irrigation is the largest source of irrigation. The census result reveals that tube well irrigation percentage is least in the State in all the periods of census. It is only 5.27% in 2000-01, 6.26% in 2005-06 and 6.42% in 2010-11.

Table 16 (c) shows the district wise distribution of holdings receiving irrigation by different sources. The different sources listed are canal, tank, well, tube wells and other sources.

Out of the 3918240 irrigated holdings canal irrigated holdings are 172098, tank irrigated holding 111098, well irrigated holdings 2431408, Tube well irrigated holdings are 290997 and other sources irrigated holdings are 912639.

The distribution of district wise area irrigated by different sources revealed from 2010-11 census is given under Table 16 (d). The percentage of canal irrigated area is largest in Palakkad 55.59% and lowest in Kannur Districts, i.e. 0.13%. Tank irrigated area is largest in Idukki 45.4%. Among the districts used for wells for irrigation purpose, Thrissur stands first 19.86% and Kollam is the least 1.32% Tube well irrigated area is highest in Kasargod 29.73% and the least in Pathanamthitta 0.11%. It is also below 1% in Kollam (0.14%), Wayanad (0.70%) Irrigation from other sources is highest in Wayanad(20.96%) and least in Pathanamthitta (0.81%).

A comparative analysis of percentage of area irrigated from different sources in each district during 2000-01 , 2005-06 and 2010-11 are given in table 16 (f). The census reveals that in the state the percentage of canal irrigated area is decreasing i.e. 18.08%, 15.81%, and 15.35% in 2000-01, 2005-06 and 2010-11 respectively. The percentage of well-irrigated area shows a increase in 2010-11. It is increased from 33.11% in 2005-06 to 37.52% in 2010-11. Tube well irrigation is not prominent in all the census period except in Alappuzha.

Irrigation Source

Table 16 (g) gives the number of wells and tube wells used for irrigation. There are 1661405 wells and 249832 Tube wells with pump set and 482227 wells without pump set used for irrigation in the state as revealed in the census during 2010-11. Out of the total number of wells used for irrigation 1630654 are electric connected and 30751 are diesel connected. Tube wells connected with electricity are 245670 and diesel tube wells are 4162. There are 1543520 wells connected with pump set, 469243 wells without pump set and 234608 tube wells used for irrigation in marginal size class. Under large size class (10 hectare and above) there are 1343 wells and 291 Tube wells used for irrigation.

Distribution of district wise number of wells and tube wells are given in table 16 (h). The largest number of wells with pump set are in Thrissur (247998) district and lowest in Wayanad (19238) district. Wells without pump set are higher in Thiruvananthapuram 82568. Majority of wells with pump set is electric connected.

Wells with diesel pump set are 30751 in the state. Tube wells are largest in Alappuzha (126061) district. Electric connected tube wells are also largest in Alappuzha district 125343. Diesel connected tube wells are highest in Alappuzha District (718).

Intensity of Irrigation

Table 17 reveals the intensity of irrigation. The intensity of irrigation is measured as a ratio of gross irrigated area to net irrigated area and is expressed as percentage. The census reveals that the percentage of intensity of irrigation is 121.03. The intensity of irrigation during 2000-01 and 2005-06 is 109.25 and 110.21 respectively. The distribution among various size classes are almost the same. It is 118.01% in marginal size class. The intensity of irrigation shows an increasing trend when compared with the 8th Agriculture Census.

The district wise percentage distribution of gross cropped area according to irrigation status Table 17 (a) shows that percentage of irrigated area in the state is only 23.53%. The unirrigated area is 76.47% out of the gross cropped area. The percentage of gross cropped area irrigated is highest in Thrissur 51.68% and lowest in Kollam 3.39%. The percentage of gross cropped area unirrigated is highest in Kollam 96.61% and lowest in Thrissur 48.32%.

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