

Agriculture Land Classification Based on Census Data using Big Data Analysis

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Abstract

Agriculture plays a crucial role in Indian Economy. It provides profitable employment to a considerably massive section of Indian society and provides stuff for an outsized variety of industries in the country. Nearly 75 per cent of Indian people live in rural areas. Agriculture is the largest contributor to web Domestic Product of the country. Thus, Agriculture is a main profit of Indian economy in from of employment and its contribution to the national income. Here we analyzed agriculture statistics of Andhra Pradesh that is derived from agriculture census which is from 1995-2010. The Agricultural Statistics collected from numerous sources within the past connected, mostly to aggregate the area, production and land use at various territorial levels. However, the data that has numerous characteristics of various sizes are holding wasn't obtainable. The census provides information about their variety, area, tenancy, irrigation status, size of holding, type of holdings and farming practices assumed special importance for planning and implementation of land reforms etc. The census data is vast so this data is derived and calculated in Big Data Analysis.

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I. INTRODUCTION

The collection of agricultural [9] statistics in Republic of India dates back to 3rd or 4th century B.C. In the previous era, collection of these data was finished mainly by-product of land revenue administration. Keeping visible the gathering of land use statistics, the country can be divided broadly into three categories. In the first class, the States of the village revenue agencies collect statistics regarding land holdings as a section of maintaining land records. This is done by village officers on the premise of actual review within the field at periodic intervals. Standard forms have been prescribed for this purpose. These data are then aggregated at the level of revenue inspector circle, Tahsil, District and State by the officers of Revenue/Agriculture Departments. A very sizable amount of States and Union Territories [8] fall during this class and

geographical area coated during this class is over 80 per cent.

The Agricultural Statistics [7] collected through numerous sources within the past connected, mostly to aggregate the area, production and land use at various territorial levels. However, very important data for numerous characteristics of various size categories of holding wasn't obtainable. This well tried to be a handicap in higher cognitive process in agriculture sector and consequently for planning and development programmers for the financial gain and customary of living of the cultivators. Hence, the requirement of getting a census of operational holdings providing information on their variety, area, tenancy, irrigation status, size of holding, type of holdings and farming practices assumed special importance for designing and implementation of land reforms, etc. was felt. These items of knowledge are essential for making ready schemes

for the welfare of little and marginal farmers. The census information is beneficial for policy choices and for designing Agricultural production programmers like designing and execution of the high yielding selection programmers (HYVP) and programmers on multiple cropping, irrigation, fertilizer, agricultural credit, etc. It is additionally essential in formulating acceptable policies and programmers of use of agricultural machinery and implements.

The International Institute of Agriculture (IIA), Rome in the year 1924 took the first step to conduct the World Agricultural Census among its member countries with the main objective to collect information on the structure of land holdings etc., on a uniform and comparable basis. The first World Agricultural Census was conducted in 1930 and this Census was supposed to be conducted every 10 years. But, the second World Agricultural Census could not be conducted in 1940 due to World War II. But, in 1950 the Food and Agricultural Organization, which replaced International Institute of Agriculture carried out the Second World Agricultural Census in 1950. In 1945, the Famine Enquiry Commission set up by Government of India, expressed concern about the non-availability of data on cultivator's holdings and made a number of recommendations for improvement of Agricultural Statistics in India. Due to resource constraints, our Country could not participate in the second and the third World Agricultural Censuses on a full-fledged basis. However, data on sample basis was collected on land holdings through the National Sample Survey Organization, Government of India in its 16th and 17th rounds. But the Government of India ultimately participated in the fourth World Agricultural Census in the year 1970 in order to meet the ever growing data needs on the structural characteristics of land holdings.

II. AGRICULTURE CENSUS

The learning phase be separated into numerous phase: before time green revolution (1967-1968 to 1979-1980), grown-up green revolution (1980-1981 to 1989- 1990), before time financial reform (1990-1991 to 1999-2000), fiscal reform (2000-2001

to 2007-2008), and on the whole era (1967-1968 to 2007-2008). But here we have taken the agriculture census from the year 1995-96, 2000-01, 2005-06, and 2010-11.

Comprehensive Agriculture Census, 1995-96

The Agricultural Census was conducted in the State with 1995-96 as the reference year. The Number and Area has been collected in 10 size classes instead of 11 size classes as was done in the year 1990-91 by reticulating the village records in a complete enumeration basis. The data relating to soil utilize, irrigation type, source-wise Irrigation, crop outline, tenancy particulars etc., was also collected from 20 percent sample villages of the main Census. As a part of the Agricultural Census, data was also collected on Inputs like fertilizers, manures, pesticides and agricultural implements in 7 percent of the total villages in the State within TRAS villages under Input Survey 1996-97. The required information for Input Survey, 1996-97 was collected from maximum of 20 operational holdings in each selected village among the 5 size groups at the rate of 4 holdings.

Comprehensive Agriculture Census, 2000-01

The Agricultural Census has been taken up in the State with 2000-01 as the reference year. In the first phase, the data on number and area of operational holdings has been collected in 10 size classes by re-tabulating the village records in a complete enumeration basis. In the second phase, the data related to soil utilize, irrigation type, source-wise Irrigation, crop outline, tenancy particulars etc. was collected from 20 percent sample villages (TRAS villages). The data on inputs like fertilizers, manures, pesticides and other agricultural inputs was also collected in 7 percent of the total villages in the State within T.R.A.S. villages of 2000-01 with 2001-02 as reference year. The required information for Input Survey 2001-02 has been collected from a maximum of 20 operational holdings in each selected village at the rate of 4 holdings in each size group.

Comprehensive Agriculture Census, 2005-06

The Agricultural Census has been taken up in the State with 2005- 06 as the reference year. In the first

phase, the data on number and area has been collected in 10 size classes by re-tabulating the village records in a complete enumeration basis. In the second phase, the data relating soil utilize, irrigation type, source-wise Irrigation, crop outline, tenancy particulars etc., was collected from 20 percent sample villages (TRAS Villages). The data on inputs like fertilizers, manures, pesticides and agricultural inputs was also 5 collected in 7 percent of the total villages in the State within T.R.A.S. villages of 2005-06 with 2006-07 as reference year. The required information for Input Survey 2006-07 has been collected from a maximum of 20 operational holdings in each selected village at the rate of 4 holdings in each size group.

Comprehensive Agriculture Census, 2010-11

The Agricultural Census has been taken up in the State with 2010-11 as the reference year. In the first phase, the data on number and area has been collected in 10 size classes by re-tabulating the village records in complete enumeration basis. In the second phase, the data relating to soil utilize, irrigation type, source-wise Irrigation, crop outline, tenancy particulars etc., was collected from 20 percent sample villages (TRAS Villages). The data on inputs like fertilizers, manures, pesticides and agricultural inputs was also collected in 7 percent of the total villages in the State within T.R.A.S. villages of 2010-11 with 2011-12 as reference year. The required information for Input Survey 2011-12 has been collected from a maximum of 20 operational holdings in each selected village at the rate of 4 holdings in each size group.

These agriculture census data is much complicated to handle so this data is organized by Big Data Analysis.

III. THE BIG DATA

It's hard to recall an issue that receives a hefty quantity of information hastily as Big Data[2]. Although, during the past years, Big Data is the most mentioned topic in trade, it is currently diligence sector. This targets what Big Data means, why it was vital, and earnings of analyzing it.

What did you say about BIG DATA?

Big Data refers to a datasets whose volume is away from the flexibility of typical database software package utensils to confine, pile up, handle and evaluate.

Big Data [3] is the word, which is a set of datasets, thus huge and composite. It becomes hard to procedure with their catalog managing tools or traditional information dispensation application.

The term is commonly used synonymously with connected conception like Business Intelligence (BI) [11] and data processing. It's exact every three requisites are on analyze data and during a heap of cases advanced analytics [10]. However Big Data theory is absolutely dissimilar from alternative, once records volume, variety of dealings plus variety of information source are thus huge as well as intricate to facilitate want unique ways of technology thus it headed for describe within reach of data (for illustration, established data warehouse solution might dissatisfy once addressing Big Data) as shown in Figure 1.

It ought to by currently be clear to facilitate the "BIG" in Big Data isn't remarked volume. Whereas Big Data positively involve a group of information, wherever Big data do not consign to information only. What it way that be facilitate merely cannot attain heap of information. It's conjointly impending back by you hasty, it's pending back by you during troublesome style, plus it's pending back on you as of a range of supply.



Fig 1. The Three V of Big Data

About which data we are discussing?

Organization includes a protracted tradition to capture transactional data [5]. With the exceptions of the, organizations lately they're capturing extra data from its operational environment at associate bit by bit faster tempo. Some illustration is scheduled at this point.

- **Network data:** client stage network behavior data like page view, search, analysis review, purchase, can be capture. This can improve presentation area like churn modeling, client segmentation and embattled classified ad
- **Text data:** (electronic mail, reports, Face book feed, credentials, etc) is one in every of the largest and most commonly relevant kinds of big data. This target extracting key facts from the text so we tend to utilize the facts as input to totally different analytic methodology (for illustration, mechanically sort insurance claim while pretend or not.)
- **Time and site data:** GPS and mobile phone along with the internet association build moment in time and place info grow supply of data. At a non-public stage, varied organization arrives to understand the influence of expressive their purchasers and measures on that place. Evenly it's seen at time and site data at correlate shared stage. As groups of public unlock their time and site data publically, groups of exciting application begin toward appear. era plus site information is lone wherever the privacy-sensitive sort of big data is treat among nice care.
- **elegant grid and feeler information:** now a day's feeler information be composed as of cars, lubricate pipe, windmill turbines, as well as they're within very lofty occurrence. feeler information afford dominant info lying on the assembly of engines plus machines. It allows identification issues a lot of simply and quicker growth of easing measures.
- **Social network data:** Within social network sites akin to Face book, LinkedIn, Instagram,

it's potential to linkage study to reveal the net of a specified client. Social network study will offer insight keen on what advertisement may ask the certain user. This made to simply allowing benefit with clients in person, but shrewd what is their ring of contacts or classmates has an concern here.

In generally Big Data supply, ability isn't simply in what that individual supply of data know how to notify you explicitly by itself. The worth is in what it will inform you together through different data (for request, a established churn model support past transactions of data that is repeatedly increased once shared with network browsing data from clients.).

IV. THE BIG DATA COMPONENTS IN TECHNOLOGICAL ECOLOGY

Forbid us revisit to the Gartner explanation used for one more instance. Big data is lofty amount, lofty rapidity plus lofty assortment in turn resources to stipulate commercial, inventive varieties of in sequence dispensation that alter increased, decision making, and route mechanization. It spell away expressly to facilitate big data necessitate a brand novel kind of data managing result since of its is lofty amount, lofty rapidity plus lofty assortment character. These novel kinds of information organization result bear the brand of extremely scalable, extremely equivalent, plus lucrative.

Capture, store and access the Big Data

Usually, information be kept in relational record (for instance a CRM scheme client information, make available string organization software used for seller connected in sequence) and few of these information be extracting occasionally since the set record, distorted plus laden into records stockroom in favor of report plus additional study. This can be usually within the area of Business Intelligence. Such method and tool set disappoint once handling Big Data. Meant for example, solitary major publically discusses Hadoop cluster is at 455 peta bytes during 2014 and then it is grow. There is nix matching relational database or else information stockroom to facilitate return still secure to individuals' kind of information. Another cute mark

for Hadoop (relational technology) is once data come in shapeless design like acoustic, film, manuscript. It be worthy to say that here is a common plan to facilitate novel skill, like Hadoop is substituting different technologies, like relational catalog. It's not the crate. In additional it is being possible to add along with one another. The cute mark for a extremely similar relational policy for illustration is handling lofty price transactional information to facilitate previously planned, to facilitate a oversized quantity of client and application that rise continual queries of familiar data (wherever a hard and fast scheme plus optimization pays sour) amid venture stage safety plus presentation warranty. It's typically referred as Hadoop bionetwork when discuss the varied lay of technology wont handle with big data. An example stack may appear as follows.

- ✓ Amazon portal for communications (to store in Cloud and pay the money through online)
- ✓ Apache Hadoop Distributed File System (HDFS) used for scattered case scheme
- ✓ Map Reduce or else glint used for dispersed encoding mold
- ✓ Cassandra or HBase for non-relational scattered catalog managing scheme.
- ✓ Hive to execute SQL on Hadoop
- ✓ Machine learning library and math library, on Map Reduce.
- ✓ data analytics and visualization using R programming.

Techniques in Analytical model

Commonly used analytical techniques are constituted in subsequent category.

- ✓ Statistical method, forecasting, deterioration scrutiny.
- ✓ Catalog query.
- ✓ Information stockroom.
- ✓ Machine learning plus data mining.

Visualization

When study is completed, the outcome must communicate with varied stakeholders. One in all the toughest part of associate study is manufacturing eminence sustaining graphics. Equally, a fine graph

is one among most effective way in present conclusion. Graphics are worn mostly for two reasons: investigative data analysis and present outcome.

V. APPLICATIONS OF BIG DATA IN AGRICULTURE SECTOR

Big Data [4] and machine learning be vast within predict thing akin to while you valor crave to utilize assured pesticide. The US rules approximately not exploitation bound pesticide 24 hours prior to a "predicted rain storm" of over an creep of rainwater. So however does one dig up the information resolute the farmers who are on to cover their field.

Solitary talent client is wearisome to aid farmers superior appreciate their loam. They enclose to initiate the extremely fascinating approach to provide a movable lab to these farmers will utilize as a result of its presently terribly costly to induce a loam study. They've additionally designed a hand-held x-ray device to take a loam scrutiny to work away stuff similar to nitrogen plus potassium level, and that sorts of fertilizers or else crops will exist worn to craft adjustment within the loam [1].

The Data Model

Raw data as of farm organization system is extract also fixed into a information sphere mold to facilitate have be exactly planned toward help its direction and study. This method termed as **ETL** (Extract, Transform, and Load).

The information moulds contain totally dissimilar entity that individual bases summarize a cultivation idea (goods, field, farm, plant zone, yield type, field operation, etc.) plus jointly combine to illustrate farming actions.

The mould revolve about field operation, like drill (plant), yield safety (pesticide appliance), nourishment (fertiliser use), and harvest defer (collect operation). This records mould is inhabited by countless of accounts so as to supply a data lake, hold precious information set to creature query and exposed.

Enrichments

The Inbound information is not barely laden but too enrich within assorted way for illustration:

- **Information canonicalization:** Farm organization system frequently permits the cultivator to sort gratis manuscript, which usually create numerous representation of the similar thing. For illustration, 'Abc' 'ABC +,' plus 'ABC, 10' denote to a similar pesticide. Every entry is roll up keen on a lone canonical outline by exploitation prototype toning by standard terminology.
- **Component stop working:** Fertilizer nutrients tin provide to cultivator. For illustration, '0-0-26-6' tin bust losing keen on Nitrogen (N) 0%, P₂O₅ (Phosphorus pent oxide) 0%, K₂O (Potassium oxide) 26%, SO₃ (Sculpture trioxide) 6%.
- **Natural loam symphony:** base on exacting field's of geological position, loam property tin obtain as an peripheral source.
- **Climate circumstances:** Alike, precedent weather setting like forecasts on behalf of exacting locality be obtain as of an outer API (Application Programming Interface).

Usually loam varieties, atmospheric circumstances are not hold on inside cultivation system. Though, it can be deduct as of farms geo-location. This information provides excite fresh dimension towards the information mere. It opens the gate to doubtless respond queries similar to:

- *Whether the agents perform higher below bound conditions across the UK?*
- *However farmers can take different choices for next year cropping in different weather conditions?*

Technology Stack: Processing and Storage as shown in Figure 2

HPCC

HPCC (High-Performance Computer Cluster) a information exhaustive compute stage is preferred as Big data stage for this result. This tool is

worn to get route, analyze plus knead the information in arrange to erect the preferred information mold.

HPCC have it's possess encoding idiom referred as Enterprise Control Language (ECL) that was planned especially used for Big data endeavors. ECL is worn within The Data Refinery Cluster (THOR) - HPCC's dispensation section and dispersed file scheme (and a very dominant one). THOR do the serious exciting of Big data extremely capable.

Query and Search

Search and query technological needs are determined by rising use cases as novel clients have an interest in overriding the information store in HPCC. Amid actual and potential consumers, to hand the product supplier, growers, cooperative, ruling establishment, distributors, medium outlet, etc., by their own hunt wants, which is required to analysed based on case basis. Conversely, two strategies are implemented currently.

Elastic search

In sort to hunt, surf, and carve and cube the information, Elastic search come into play. Subsets of the information mere are incrementally pressed from HPCC into Elastic search index which tin differ in substance and formation, depending on the hunt wants the every crate.

Scalability, velocity, constancy, as well as the Elastic Stack (Log stash, Kibana, X-Pack, etc.) build Elastic search a ideal fit for the resolution design provide hunt control and facilitate information analytics training.
ROXIE (Rapid Online XML Inquiry Engine)

ROXIE is HPCC own information deliverance engine. It is accustomed depiction plan and time result. Even though planning and implement the query may be time overwhelming, it serves outcome terribly fast.

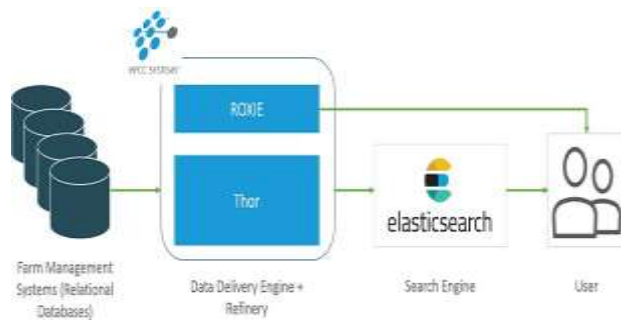


Fig 2. Overview of Architecture

VI. STUDY AREA

The State of Andhra Pradesh [6] was shaped on 1st November, 1956, as a consequence of the States Re-organization Act by amalgamating number of the districts of the erstwhile Hyderabad state with a few districts of merged Madras state. The state of Andhra Pradesh has 23 districts. It has a locality of 2, 75, 06,800 Kms. or 2, 76,754 Sq. miles constitute 8.4% of the overall region of India. It is the fifth largest state in the country with regard to its area and population. The state of Andhra Pradesh was fashioned by combining regions with wide completely different resources endowments, historical legacies and institutional arrangements.

On the basis of various indicators of development, the state can be broadly categorized into five homogeneous regions. At the time of the formation Andhra Pradesh union [12] take place among the nine Telugu-speaking districts of Telangana with the previous Andhra State, which considered of Coastal Andhra region and Rayalaseema region. It is also known as Coastal Andhra consists of North Coastal Andhra with the 3 districts of Srikakulam, Vijayanagaram and Visakhapatnam and South Coastal Andhra with the 6 districts of East Godavari, West Godavari, Krishna, Guntur, Prakasam and Nellore. Of these, North Coastal Andhra region is the most backward region of the state and South Coastal Andhra is the most developed region in the state. The 'Rayalaseema' region is another backward region of Andhra Pradesh and it consists of 4 districts namely Chittoor, Cuddapah, Anantapur and Kurnool. Likewise 'Telangana' region, another backward region in the state can be sub-divided into

North Telangana region, comprising Nizamabad, Adilabad, Karimnagar, Warangal and Khammam districts and South Telangana region consisting of Mahaboobnagar, Nalgonda, Ranga Reddy, Hyderabad and Medak districts.

Data analysis using MongoDB and R

MongoDB is a potent collection of armed forces to permit team to expose data from frontend securely, build logic in backend, third party examine integrations, or APIs and sprint rules in reply to knowledge change all stupidly regarding on servers. Pay just for what you utilize.

In this we load the Agriculture census data in to MongoDB using the command client and server command (CMD) prompts and this data is imported into R programming.

R language is widely used for data analysis and statistical computing. This R language as of a undeveloped text editor to interactive R studio plus extra newly Jupiter notebook has occupied many data science community athwart the globe.

The R is used by all global users additions of influential packages in R have prepared more dominant with time. Packages such as dplyr, tidly, reader, statistics table, Spark R, ggplot2 cover the data management, apparition and calculation a lot quicker. To understand data analysis we must get to know about some familiar terms in R.

Response Variable (Dependent Variable): In a information book the response variable (y) makes predictions.

Predictor Variable (Independent Variable): In a information book predictor variables (Xi) is used to made prediction on response variable.

Train information: The predictive mould is often engineered on train knowledge. And it is spontaneously determined where the trained knowledge is invariably enclosed the response variable.

Test Data: Once the model is built and its exactness is tested on test data. This data contain fewer records of explanation than train data set and it do not incorporate response variable.

Graphical Representation of Variables

This can be analyzed in the in two ways: Uni-variate Analysis and Bi-variate Analysis. Uni-variate analysis is prepared by one variable. Bi-variate analysis is prepared with two variables. Here we uses bivariate analysis for visualization, we use “plot” package. This graph can facilitate to perceive the distribution and frequency of variables within the data sets.

VII. MATERIALS ANDMETHODS

Firstly, we calculate the district wise agriculture census data by which we can specify the district census data as shown in table 1, district wise year wise holdings, district wise cultivated land, district wise un-cultivated land and district wise area not available for cultivation land which are represented in graphically as shown in figure 3. These are formed by using census which is in .CSV format and these are loaded in R programming.

By integrating the entire district wise agriculture census data loaded which is in the form of CSV file. Then load the CSV file in MongoDB by command prompt. Then access the file in R programming Then performed group by operation on the data based on year and find the total holdings (in hectares) year wise the total holdings is as shown in below table: Then performed group by operation on the data based on year and find the total holdings (in hectares) year wise the total holdings is as shown in the table 2. By using the total holdings we plot a graph as in figure 4 now we performed group by operation on the data based on year and find the total cultivated land year wise as in table 3. By using total cultivated land we plotted the graph as shown in figure 5 Next we performed group by operation on the data based on year and find the total uncultivated land year wise as in table 4. Then we plotted a graph for uncultivated land in year wise as shown in figure 6 then we performed group by operation on the data based on year and find the total area not available for cultivation year wise as in table 5. Then we plotted a graph for area not available for cultivation as shown in figure 7. Then performed total area to find, which is un-cultivated and not available for cultivation year wise in a single graph as shown in figure 8.

Table 1. District wise census data

Sl. No.	A	B	C	D	E	F	G	H	I	J
1	38	738	437	344	783	476	301	101	43	41
2	38	478	148	380	134	817	234	102	10	84
3	38	144	141	302	271	440	12	144	17	214
4	38	472	138	446	173	819	301	201	23	301
Chittoor										
Sl. No.	A	B	C	D	E	F	G	H	I	J
1	38	472	138	446	173	819	301	201	23	301
2	38	472	138	446	173	819	301	201	23	301
3	38	472	138	446	173	819	301	201	23	301
4	38	472	138	446	173	819	301	201	23	301
Nellore										
Sl. No.	A	B	C	D	E	F	G	H	I	J
1	38	472	138	446	173	819	301	201	23	301
2	38	472	138	446	173	819	301	201	23	301
3	38	472	138	446	173	819	301	201	23	301
4	38	472	138	446	173	819	301	201	23	301
Anaparthi										
Sl. No.	A	B	C	D	E	F	G	H	I	J
1	38	472	138	446	173	819	301	201	23	301
2	38	472	138	446	173	819	301	201	23	301
3	38	472	138	446	173	819	301	201	23	301
4	38	472	138	446	173	819	301	201	23	301
Kannur										
Sl. No.	A	B	C	D	E	F	G	H	I	J
1	38	472	138	446	173	819	301	201	23	301
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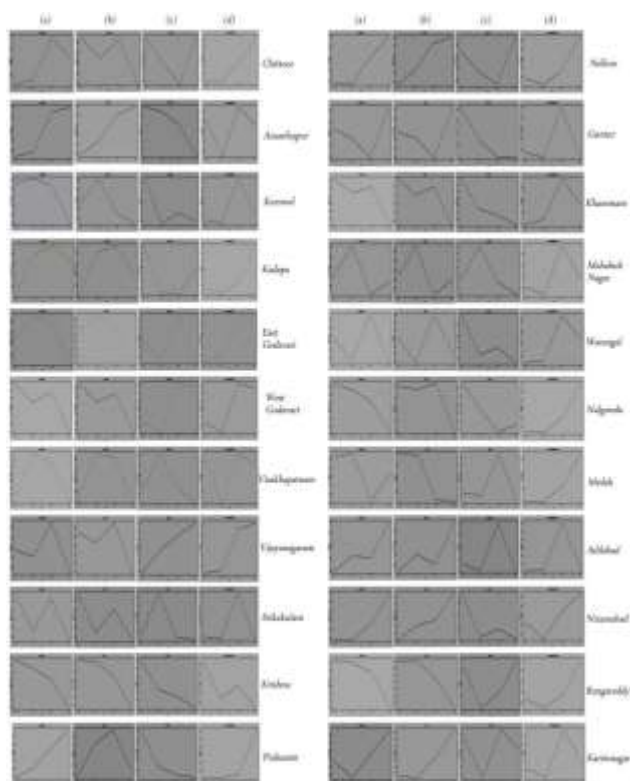


Fig 3. District wise agriculture data
(a) total holdings, (b) net cultivation,
(c) uncultivated land, (d) area not available for cultivation

Table 2. Total holdings of A.P year wise

S.No	Year	Total Holdings
1	1995	14373312
2	2000	14399509
3	2005	14488889
4	2010	14293266

Table 3. Net Cultivated of A.P in year wise

S.No	Year(l)	Net Cultivated(n)
1	1995	14025208
2	2000	14148491
3	2005	14182115
4	2010	13924838

Table 4. uncultivated land of A.P in year wise

S.No	Year(l)	Uncultivated (n)
1	1995	75575
2	2000	39032
3	2005	26776
4	2010	26046

Table 5. Area not available for cultivation of A.P year wise

S.No	Year (l)	Area not available for cultivation(n)
1	1995	34985
2	2000	18103
3	2005	87135
4	2010	144765

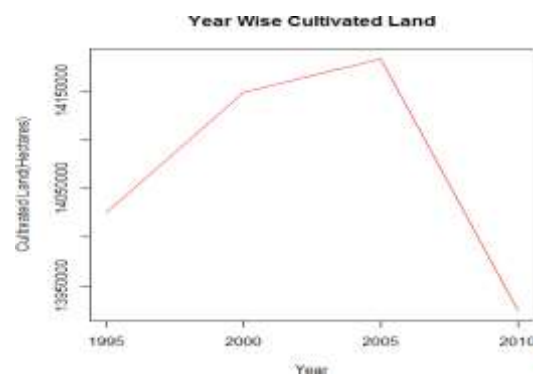


Fig 4. Andhra Pradesh Year Wise Holdings

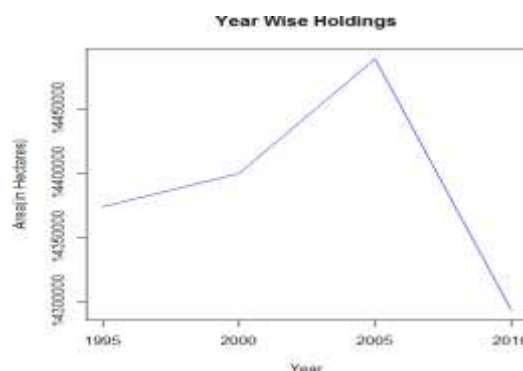


Fig 5. Andhra Pradesh Year Wise Cultivated Land

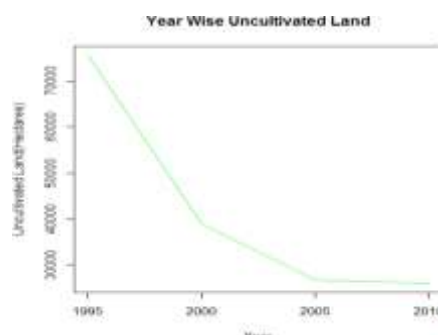


Fig 6. Andhra Pradesh Year Wise Uncultivated Land

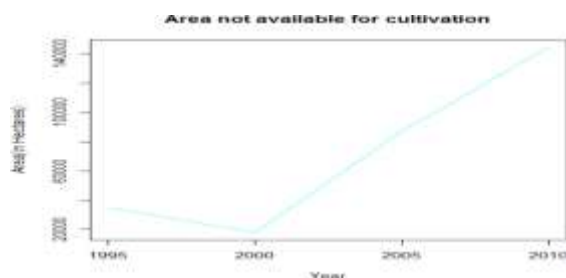


Fig 7. Andhra Pradesh Year Wise Area Not Available For Cultivation

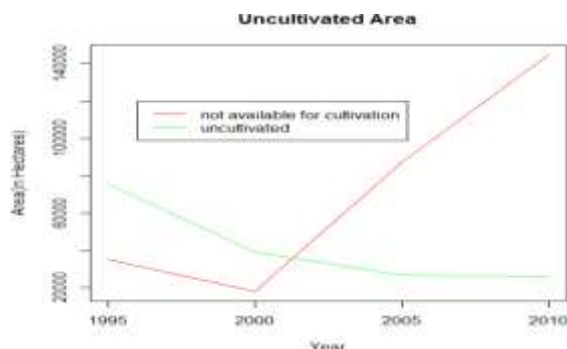


Fig 8. Andhra Pradesh Year Wise Uncultivated Area and Not Available For Cultivation

VIII. CONCLUSION

Analyzed Andhra Pradesh agriculture census year-wise forms 1995 to 2010. This census data is loaded into MongoDB and is accessed into R programming. In the census data is divided into individual district data and then it is divided into yearly data. Every district year wise holdings, cultivated land, uncultivated land, area not available for cultivation are represented in graphically by using R programming. Then analyzed total agriculture census data of Andhra Pradesh with year wise and calculated total holdings year-wise, cultivated land, uncultivated land, area not available for cultivation and represented in graphically. The different types of data is taken in the form of documents or in image and calculated using Big data analysis with MongoDB, Hive, PIG etc and this loaded data can be accessed in to Python or R programming. We can also calculate in MAT LAB also. We can also classify the agriculture land with its crops that means at which climate the different grades of agriculture land will produce which crop and which area is rich in producing the specified crops and which area is poor in producing the specified crops.

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