

**A COMPARATIVE ANALYSIS OF PUBLIC DISTRIBUTION SYSTEM IN  
KERALA AND ANDHRA PRADESH**

*by*

**DHANASWI VASIPALLY  
(Admn. No. 2021-11-126)**

**THESIS**

**Submitted in partial fulfillment of the  
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**DEPARTMENT OF AGRICULTURAL ECONOMICS  
COLLEGE OF AGRICULTURE  
VELLAYANI, THIRUVANANTHAPURAM – 695522  
KERALA, INDIA**

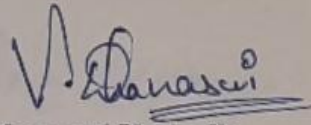
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I, hereby declare that this thesis entitled "A COMPARATIVE ANALYSIS OF PUBLIC DISTRIBUTION SYSTEM IN KERALA AND ANDHRA PRADESH " is a bonafide record of research work done by me during the course of research and the thesis has not previously formed basis for the award to me of any degree, diploma, associateship, fellowship or other similar title, of any other University or Society.

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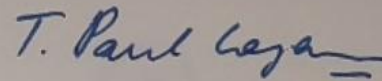
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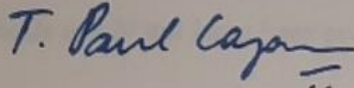
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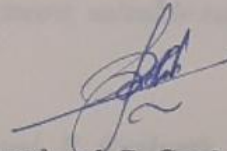
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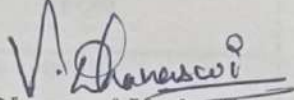
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**TABLE OF CONTENTS**

<b>Sl. No.</b>	<b>Chapters</b>	<b>Page No.</b>
1	INTRODUCTION	1-11
2	REVIEW OF LITERATURE	12-23
3	MATERIALS AND METHODS	24-41
4	RESULTS AND DISCUSSION	42-90
5	SUMMARY AND CONCLUSIONS	91-96
6	REFERENCES	97-103
	APPENDICES	i-xxi
	ABSTRACT	I-VII

**LIST OF TABLES**

<b>Table No.</b>	<b>Title</b>	<b>Page No.</b>
1	Demographics in Kerala	25
2	Land utilization pattern in Kerala	26
3	Demographics in Andhra Pradesh	29
4	Land utilization pattern in Andhra Pradesh	30
5	Compound annual growth rate in area, production and productivity of food grains in Kerala and Andhra Pradesh	53
6	Age of sample respondents	55
7	Gender of sample respondents	56
8	Marital status of sample respondents	57
9	Literacy status of sample respondents	58
10	Occupational status of head of family	59
11	Annual income of sample households as of 2023	60
12	Religion of the sample households	62
13	Caste of the sample households	63
14	Type of household of sample households	64
15	Type of house of sample households	65
16	Type of dwelling of sample households	66
17	Family size particulars of sample households	67
18	Perception of ration card holders about the quality of food grains	68

<b>Table No.</b>	<b>Title</b>	<b>Page No.</b>
19	Perception of consumers about the attitude of PDS dealer	69
20	Level of satisfaction with the function of local PDS outlet	70
21	Accessibility to PDS outlet by the respondents	71
22	Regularity in functioning of PDS outlet	72
23	Sufficiency of quantity of food grains supplied to households through PDS	73
24	Perception of respondents about the quality of food grains supplied through PDS	74
25	Affordability of food grains supplied	75
26	Level of satisfaction about the billing system	76
27	Importance of PDS for household food security	77
28	Opinion of respondents regarding the use of the biometric billing system	78
29	Overall satisfaction in the E-POS system	79
30	Type of ration card of sample households	84
31	Quantity of food grains purchased during one month by the respondents in Kerala and Andhra Pradesh	86
32	Quantity of food grains purchased during one month by the respondents by type of ration cards in Kerala and Andhra Pradesh	87
33	Price of food grains in Kerala State	88
34	Price of food grains in Andhra Pradesh State	88
35	Constraints in Kerala state and Andhra Pradesh	90
36	Total no. of ration cards in Malappuram and Nellore	93

**LIST OF FIGURES**

<b>Figure No.</b>	<b>Title</b>	<b>Page No.</b>
1	Political map of Kerala	24
2	Political map of Malappuram	24
3	Political map of Andhra Pradesh	31
4	Political map of Nellore	31
5	Sampling framework of the study in Kerala state	35
6	Sampling framework of the study in Andhra Pradesh state	36
7	Production of food grains in India from 1950-51 to 2020-21	43
8	Area and production of paddy in Kerala from 2011-12 to 2022-23	44
9	Area and production of paddy in Andhra Pradesh from 2011-12 to 2022-23	45
10	Productivity of paddy in Kerala and Andhra Pradesh during 2011-12 to 2022-23	46
11	Area of Ragi, Jowar, and Small millets in Kerala from 2011-12 to 2020-21	47
12	Production of Ragi, Jowar and Small millets in Kerala from 2011-12 to 2020-21	47
13	Area of Ragi, Jowar and Small millets in Andhra Pradesh from 2011-12 to 2020-21	48
14	Production of Ragi, Jowar and Small millets in Andhra Pradesh from 2011-12 to 2020-21	49
15	Area and production of Sugarcane in Kerala from 2011-12 to 2022-23	50
16	Area and production of Sugarcane in Andhra Pradesh from 2011-12 to 2022-23	51
17	Paddy procurement in Kerala and Andhra Pradesh from 2013-14 to 2022-23	54

**LIST OF PLATES**

<b>Plate No.</b>	<b>Title</b>	<b>Page No.</b>
1	Survey area in Kerala state	41
2	Survey area in Andhra Pradesh state	41
3	Different types of old ration cards in Kerala state	80
4	New ration card in Kerala state	81
5	Old ration cards in Andhra Pradesh state	81
6	New ration card in Andhra Pradesh state	82
7	Ration shop in Kerala state	83
8	Mobile ration van in Andhra Pradesh	83

## LIST OF APPENDICES

<b>Sl. No.</b>	<b>Appendix</b>	<b>Page No.</b>
1	Area, production and productivity of rice in Kerala and Andhra Pradesh	i
2	Procurement of rice in Kerala and Andhra Pradesh	ii
3	Area, production and productivity of ragi in Kerala and Andhra Pradesh	iii
4	Area, production and productivity of jowar in Kerala and Andhra Pradesh	iv
5	Area, production and productivity of small millets in Kerala and Andhra Pradesh	v
6	Area, production and productivity of sugarcane in Kerala	vi
7	Area, production and productivity of sugarcane in Andhra Pradesh	vii
8	Eligibility criteria for white cardholders in Andhra Pradesh	viii
9	Scale of distribution and end consumer price of food grains in Kerala	ix
10	Scale of distribution and end consumer price of food grains in Andhra Pradesh	x-xi
11	Survey schedule for primary data	xii-xxi

**LIST OF ABBREVIATIONS**

AAY	Antyodaya Anna Yojana
APL	Above Poverty Line
AS	Annapurna Scheme
BPL	Below Poverty Line
CACP	Commission for Agricultural Cost and Prices
CAGR	Compound Annual Growth Rate
CIP	Central Issue Price
CWC	Central Warehousing Corporation
DCP	Decentralized Procurement scheme
E-POS	Electronic Point of Sale
FAO	Food and Agriculture Organization
FCI	Food Corporation of India
FPS	Fair Price Shops
GoAP	Government of Andhra Pradesh
GOI	Government of India
GOK	Government of Kerala
MCPE	Monthly Per capita Expenditure
MSP	Minimum Support Price
NFSA	National Food Security Act
NGO	Nongovernmental Organization
NNI	Net National Income
NOAPS	National Old Pension Scheme
NPHH	Non-Priority Household
NPNS	Non-priority non-subsidy
NPS	Non-priority subsidy

NSSO	National Survey Sample Office
OBC	Other Backward Class
PDS	Public Distribution System
PHH	Priority Household
PMGKY	Pradhan Mantri Garib Kalyan Yojana
RBI	Reserve Bank of India
RPDS	Revamped Public Distribution System
SC	Scheduled Caste
SSLC	Secondary School Leaving Certificate
ST	Scheduled Tribe
SWC	State Warehousing Corporations
TPDS	Targeted Public Distribution System
Uts	Union Territories

**LIST OF SYMBOLS**

%	Per cent
***	Significant at 1 per cent level
MT	Million Tonnes
Q	Quintal
etc.	And other similar things
No	Numbers
T	Tonnes
L	Litre
<i>et al.</i>	And others
ha	Hectare
gm	Gram
kg	Kilogram
Rs.	Rupees
sq. km	Square Kilometer
LMT	Lakh Metric Tonnes

# ***Introduction***

## **CHAPTER-1**

### **INTRODUCTION**

Ensuring access to food is crucial for the well-being of individuals, as outlined by the Food and Agriculture Organization (FAO, 2001). As per the FAO definition, food security involves the continual physical and economic availability of safe, adequate, and nutritious food to satisfy people's dietary requirements and preferences for a healthy and active life. The concept of food security encompasses four main elements: Food availability-This pertains to the tangible presence of food and is influenced by factors such as food production, import/export dynamics, and food reserves. Food access refers to households' capability to obtain food in sufficient quantity, quality, and diversity, taking into account both household resources and price considerations. Food utilization-This aspect explores the socio-economic dimensions of household food and nutritional security. It includes factors such as knowledge, habits, food preparation, consumption patterns, intra-household allocation, and the ability to digest and metabolize food properly. Food stability supply-This indicates the consistent availability of food throughout the year and over the long term. Several factors contribute to achieving stability in food supply – Agricultural Production, Distribution Systems, Market Accessibility, Storage and Preservation, Diversification of Food Sources, Government Policies, Research and Technology, Climate Resilience, Global Trade, and Education and Awareness.

Achieving stability in food supply requires a comprehensive and integrated approach that addresses multiple aspects of the food system, from production to consumption. Additionally, it is essential to consider the social, economic, and environmental dimensions of food security.

The significance of the food security concept becomes particularly evident in situations of poverty, natural disasters, and crop failures, where people are more susceptible to the negative impacts of hunger and malnutrition. Within countries, specific groups are at a higher risk due to inadequate access to food, including landless individuals, traditional artisans, service providers, self-employed workers, the homeless, beggars, families engaged in poorly paid occupations, casual laborers,

socially disadvantaged classes with limited land resources, migrants affected by natural disasters, as well as women and children.

Achieving food security remains a significant global challenge, and governments worldwide have made varied progress in addressing it through diverse strategies. However, advancements have been uneven across countries and regions, underscoring the persistent complexity of this crucial issue.

India's population grew from 35.9 crore to 136.9 crore between 1951 and 2021. During the same time period, food output rose from 106 million tonnes to 936 million tonnes. As a result, during the past seven decades, the increase in food production has exceeded the increase in the human population by a factor of two. At 2011–12 prices, agricultural income climbed 7.2 times during this time, with an underlying annual trend growth rate of 2.83 percent. Estimates place the growth rate for agriculture for the 15 years ending in 2021–2022 at 3.61%, the highest of all the phases thus far (GOI, 2023). Per capita income refers to the average income earned by each individual in a specific geographical area, such as a country or a region, over a defined period. It is calculated by dividing the total income of the population by the total number of people in that area. The per capita real income, i.e. per capita net national income at constant (2011-12) prices, for 2017-18 is estimated at 86,668 as against the estimate of 82,229 for 2016-17. This indicates a growth of per capita real income of about 5.4 per cent during 2017-18. The per capita income at current prices during 2017-18 is estimated at Rs. 1,12,835 as compared to Rs. 1,03,870 in 2016-17 showing a rise of 8.6 per cent. (GOI, 2018).

India's per capita net national income or NNI was around 170 thousand rupees in the financial year 2023. The annual growth rate was 13.7 percent as compared to the previous year. Poverty line is the monetary income that one must have to afford the basic amenities of life. Depending upon the country's social and economic status required to attain the basic needs, the poverty line may vary from one country to another. In India, the poverty line lies at Rs. 1,286 per month for urban areas and Rs. 1,059.42 per month for rural areas.

While India has seen impressive economic growth in recent years, the country still struggles with widespread poverty and hunger. India's poor population amounts to more than 300 million people, with almost 30 percent of India's rural population living in poverty. The good news is, that poverty has been on the decline in recent years.

According to Patnaik (2013), the official poverty ratios (on a revised basis) released by the Planning Commission, show a decline from 41.5 per cent to 33.8 per cent in rural India and from 25.7 per cent to 20.9 per cent in urban areas from 2004-05 to 2009-10.

## **PUBLIC DISTRIBUTION SYSTEM IN INDIA**

The Public Distribution System (PDS) is a government-initiated program found in many countries. Its purpose is to provide essential goods to economically disadvantaged segments of society at reduced prices. The primary goal is to guarantee food security and offer items like food grains, sugar, and kerosene to the public at affordable rates.

Patnaik (2001) described the PDS as an expression of the economic unity of the constituent states of the Indian Union. The typical operation of the Public Distribution System in India involves several steps: Beneficiary Identification-The government identifies individuals eligible for the program based on specific socioeconomic criteria such as income levels. Ration Cards-Ration cards are categorized into Below Poverty Line (BPL), Above Poverty Line (APL), and Antyodaya Anna Yojana (AAY) based on the economic status of the households. AAY cards are issued to the poorest of the poor. Procurement- The government acquires essential goods such as rice, wheat, sugar, and kerosene, either directly from farmers or through various channels like FCI and Civil supplies, etc. Storage and Distribution procured goods are stored in warehouses and then essential commodities such as rice, wheat, sugar, and kerosene are commonly distributed through the PDS to designated fair-price shops (FPS) or ration shops. The exact items and quantities may vary by state. Fair Price Shops/Ration Shops- These retail outlets sell essential goods to eligible beneficiaries at subsidized rates, which are typically lower than market prices. FPS are operated by authorized dealers. The government provides financial support to keep the prices of distributed goods low, ensuring accessibility for low-income households. Digitalization and Reforms-In recent years, there has been a push towards digitization and reforms in the PDS to improve transparency, reduce leakages, and enhance efficiency. Aadhaar, a biometric identification system, is often linked to ration cards to ensure that benefits reach the intended beneficiaries. Monitoring and Oversight-Governments establish mechanisms

to monitor the PDS, aiming to prevent corruption, and leakages, and to ensure that the intended beneficiaries receive the benefits.

The Public Distribution System is a vital component in addressing issues of food insecurity and poverty, serving as a cornerstone in social welfare programs across various nations. Specific details and effectiveness can vary between countries. It is one of the largest distribution machineries of its type in the world with a network of 5.5 lakh Fair Price Shops (FPS). Over the years, PDS has become an important part of the Government's policy for the management of the food economy in the country. PDS ensures price stability for the agricultural produce in the country, provides price support to farmers through procurement operations, makes grains affordable for the poor people, and maintains buffer stock which will be needed when unforeseen contingencies arise. PDS is supplemental. i.e. it is not intended to make available, the entire requirement of any of the commodities distributed under it to any household, or section of society. Under the PDS, presently the commodities namely wheat, rice, sugar, and kerosene are being allocated to the States/Union Territories (UTs) for distribution. Some States/UTs also distribute additional items of mass consumption through the PDS outlets such as pulses, edible oils, iodized salt, spices, etc.

## **EVOLUTION OF PDS**

The Public Distribution System (PDS) in India has undergone significant evolution since its inception. The PDS is a crucial component of the government's efforts to ensure food security and provide subsidized food grains to economically vulnerable sections of the population. Here is an overview of the evolution of the PDS in India: Introduction and Early Phases (1950s-1960s)-The PDS was introduced in India in the 1950s with a focus on distributing food grains to address shortages and stabilize prices. The system initially targeted urban centers and aimed to control the distribution and prices of essential commodities. Green Revolution and Expansion (1960s-1970s)- The Green Revolution in the 1960s led to increased agricultural production, and the PDS expanded its coverage to rural areas. The system became an integral part of the government's poverty alleviation and food security strategies. Targeted Public Distribution System (TPDS) (1997)-The TPDS was introduced on 1 June 1997 to make the PDS more efficient and targeted towards the poor. Identification

of below-poverty-line (BPL) families and the issuance of BPL ration cards became a key feature. Antyodaya Anna Yojana (AAY) (2000)-AAY was introduced on 1 March 2001 to provide food grains at highly subsidized rates to the poorest families. AAY cards were issued to the "poorest of the poor" identified in each village. End-to-End Computerization and Aadhaar Integration (2010)-The PDS underwent substantial reforms with the introduction of end-to-end computerization and the integration of Aadhaar (unique identification) to improve transparency and efficiency. This included the implementation of electronic Point of Sale (E-POS) devices at fair-price shops by using thumb impression. National Food Security Act (NFSA) 2013, (Rajiv Gandhi Yojana)- NFSA was enacted to provide legal entitlements to food for a larger section of the population. It aimed to provide subsidized food grains to nearly two-thirds of the population, covering priority households and eligible beneficiaries. The Government of India has fixed a target of 36.82 lakh population to cover under NFSA, 2013, out of which 26.79 lakh populations have been automatically covered under NFSA and the process of selection of the remaining 10.03 lakh population is under progress. For the "Rajiv Gandhi Anna Yojna" in 20-09-2013, the Government of India allocated 15,496 MT of food grains i.e. 9,101 MT of wheat and 6,395 MT of Rice under NSFA, 2013. One Nation One Ration Card (2019)-The "One Nation One Ration Card" initiative was launched to enable the portability of ration cards across states, allowing beneficiaries to access their entitled food grains from any fair-price shop in the country. COVID-19 Pandemic Response (2020)-During the COVID-19 pandemic, the PDS played a crucial role in providing additional food grains to vulnerable populations through schemes like the Pradhan Mantri Garib Kalyan Anna Yojana.

The evolution of the PDS reflects a continuous effort to make the system more targeted, efficient, and responsive to the changing needs of the population. Ongoing reforms and technological interventions aim to address challenges such as leakages, corruption, and ensure that the benefits of the PDS reach those who need them the most.

## **EVOLUTION OF PDS THROUGH INSTITUTIONAL INTERVENTIONS AND VARIOUS SCHEMES**

1939-First structured PDS of cereals (British government)

1942-Department of Food under Govt. of India

1943-Abolishment of rationing  
1950 - Reintroduced due to inflationary pressures  
1957- Central Warehousing Corporation  
1957-1961- Rapid increase in the number of FPS  
1965- FCI & Agricultural Price Commission  
1969-74- 4<sup>th</sup> Five Year Plan - Concept of buffer stock  
1992 – Revamped PDS- Backward blocks.

The Central government and the State governments share the responsibility for the smooth running of PDS. The Central government has the responsibility to collect the food grains from the farmers and to allocate them to the states. Thus it is also a part of India's agricultural policy. The central government procures food grains from the farmers at minimum support price (MSP) through the Food Corporation of India (FCI). The state governments share the responsibility of the identification of needy people, the distribution of ration cards, and the distribution of ration items among them. Many schemes have been launched by the Govt. time and again to make the PDS system fruitful for the public so that they come out of poverty.

Annapura Scheme (AS)- This scheme was introduced on 1 April 2000. The beneficiaries are old, destitute, indigent citizens (65 years and above) who are eligible for old age pension under the National Old Pension Scheme (NOAPS) but have been denied. Under this scheme, food grains are issued to them free of cost at the scale of 10 kg per beneficiary per month. Sampoorana Grameen Rozgar Yojana- This Yojana has been operating since 11 January 2002. Under this food-for-work program, rice and wheat are supplied to the beneficiaries at the rate of Rs.5 per kg per man-day. The Food and Supplies Department makes the food grains available to the FPS and the scheme is executed by the Rural Development Department. It is implemented on the analogy of a food-for-work programme.

NFSA reclassified the people into Priority Households (PHH) and Non-Priority Households (NPHH) instead of APL and BPL and targets 67 per cent of the population to be distributed with food grains under PDS and is implemented by all states and UTs. In states/UTs where PDS covers more than the targeted population as per NFSA norms, extra food-grain allocation is made, covering about 950 million people under PDS as

of 2020. Priority Household (PHH)-As per the NFSA, 2013, every person belonging to priority households shall be entitled to receive 5 kg. of food grains per person per month at subsidized rates. Food grains are at the subsidized price of Rs.3 per kg for rice, Rs.2 per kg for wheat, and Rs.1 per kg for coarse grains for these cardholders. Non-Priority Household (NPHH)-NPHH ration card is given to households who do not meet the PHH eligibility criteria set by the government. Thus, they are not entitled to any food grains. This card only acts as an identity proof.

## **PUBLIC DISTRIBUTION SYSTEM IN KERALA**

The Civil Supplies department is mainly concerned with the implementation of schemes connected with the distribution of rice, wheat, sugar, and kerosene. The state follows the Targeted Public Distribution System (TPDS). The stock of PDS items allotted by the Central Government is distributed basis of ration cards. The families are categorized as Below Poverty Line (BPL) and Above Poverty Line (APL).

In Kerala state, in the year 2024 the total number of ration cards is 94,44,496; in this AAY cards are 5,90,569, PHH cards are 35,91,684, NPSS cards are 22,73,565 and NPS cards are 29,60,074. In Kerala, Malappuram district has the largest number of ration cards with 10,47,093; in this 50,778 are AAY cards and 4,16,930 are PHH cards, NPSS cards are 2,98,029 and NPS cards are 2,81,154 (GOK, 2024).

## **PUBLIC DISTRIBUTION SYSTEM IN ANDHRA PRADESH**

**Replacing AP Ration Card with Rice Card** -The government of Andhra Pradesh has started to replace the old ration cards with a new Rice Card from 2023. Under this process, the AP Government will replace approximately 1,29,00,000 ration cards. Department of Consumer Affairs, Food, and Civil Supplies, Andhra Pradesh Public Distribution system has informed that approximately 18 lakh beneficiaries were found doubtful. The identification of beneficiaries for the new AP Rice Card has been done by Volunteers through a door-to-door survey. Now the beneficiary has been identified and will get a YSR Rice Card. White card-Distribution of rice to those who have BPL white cards at 5 kg of rice per head at Rs.1/- per kg. Antyodaya Anna Yojana Scheme-Distribution of rice to those who have AAY cards at 35 kg of rice per card at Rs.1/- per

kg. Annapurna Scheme (APS)-Distribution of rice to those who have APS cards at 10 kg of rice per card free of cost.

The total cards in the year 2024 in Andhra Pradesh state is 1,48,43,671. In AP, Nellore district has the largest number of ration cards with 7,33,520 BPL cards in the year 2024. There are no APL cards from 2014 (GoAP, 2024).

## **HOW PDS WORKS?**

FCI procures food grains from farmers at Minimum Support Price (MSP) which is recommended by CACP (Commission of Agricultural Costs & Prices). MSP has been revised over the years to encourage production and to give support to farmers. Procurement of food grains is done through the Centralized Procurement System and Decentralized Procurement System. Under the Centralized Procurement System, the procurement of food grains in the Central Pool is undertaken either by FCI directly or by State Government agencies who procure the food grains and handover the stocks to FCI for storage and subsequent issue against Government of India allocations in the same State or movement of surplus stocks to other States. The cost of the food grains procured by State agencies is reimbursed by FCI as soon as the stocks are delivered to FCI as per cost sheets issued by the Government of India. Decentralized Procurement System (DCP)- The scheme of Decentralized Procurement of food grains was introduced by the Government in 1997-98 to enhance the efficiency of procurement and PDS and encourage local procurement to the maximum extent thereby extending the benefits of MSP to local farmers as well as to save on transit costs. This also enables the procurement of food grains more suited to the local taste. Under this scheme, the State Government itself undertakes direct purchase of paddy/rice and wheat and also stores and distributes these food grains under NFSA and other welfare schemes. The Central Government undertakes to meet the entire expenditure incurred by the State Governments on the procurement operations as per the approved costing. The Central Government also monitors the quality of food grains procured under the scheme and reviews the arrangements made to ensure that the procurement operations are carried out smoothly.

The procured food grains are then allocated to states at the Central Issue Price (CIP) which is the uniform price at which the central government sells grains to the

states and union territories for distribution under PDS. CIP is different for both PHH and NPHH categories and has remained unchanged from 2002 to provide economic access to vulnerable sections. The states then distribute food grains to eligible sections of society through Fair Price Shops.

## **FOOD SUBSIDY**

It is the largest expenditure component of the Department of Consumer Affairs, Food and Public Distribution. It is the difference between the economic cost of procuring food grains and the central issue price and is given to FCI and states for the procurement and issue of food grains. The subsidy also covers the storage cost incurred by FCI in maintaining buffer stocks to ensure food security in the country. The storage function assumes paramount importance in FCI because of its requirement to hold a huge inventory of food grains over a significant period. Adequate scientific storage is pre-requisite to fulfill the policy objectives assigned to the FCI for which FCI has a network of strategically located storage depots including silos all over India. Besides having its storage capacity, FCI has hired storage capacities from Central Warehousing Corporation(CWC), State Warehousing Corporations(SWC), State Agencies and Private Parties. Expenditure on food subsidies can be classified under three heads. Subsidy to FCI-FCI receives subsidies for procuring food grains from farmers at government-notified prices and selling them at lower subsidized prices. It also receives a subsidy for the storage cost incurred in maintaining buffer stocks. Subsidy to states Under the decentralized procurement scheme, states may choose to undertake the operations of procurement, storage, and distribution on behalf of FCI, for which they are provided with subsidies. Sugar subsidy-Sugar subsidy is provided for giving one kg of sugar per month at subsidized rates to families covered under the AAY.

The majority of the budget for food subsidy is allocated to FCI and over the years the expenditure by the government for food subsidy has increased. The reasons for the increase in food subsidy include (i) an increase in the procurement cost of food grains, (ii) non-revision of the Central Issue Prices since 2002, and (iii) implementation of the National Food Security Act, 2013 in all states.

## **PDS DURING COVID-19**

The central government has announced several measures to deal with the food security situation in the country because of the COVID-19 pandemic and the associated lockdown. Free distribution of an additional 5 kg of food grains per person and 1 kg of pulses per household under PM Garib Kalyan Yojana (PMGKY) scheme to 800 million entitled people covered under NFSA 2013 has taken place and they can lift the quota of subsidized food grains for six months in one go. States and Union Territories have been allowed to lift food grains for three months in advance of FCI with close monitoring. In addition to the steps taken by the central government, different state governments have also taken steps at their level.

In Kerala, entitled people received 30 kg of food grains, as mandated under PDS, along with the kit prepared by the state. The kit had rice, wheat, sugar, salt, edible oil, pulses, and spices. Those entitled to get 2 kg of rice at subsidized rates now get 15 kg of rice for free. To prevent crowding, the government had devised a card number system for the distribution of ration.

In Andhra Pradesh, one kilogram of red gram dal, and the ration of rice from April 2020 was provided for free to all rice cardholders. A one-time support of Rs 1,000 was provided to all rice card-holding families for buying essential commodities such as groceries and vegetables. The state government provided free rations to NGOs running old age homes and childcare institutions. This free ration included 10 kg of rice and one kg of red gram dal per resident.

## **OBJECTIVE OF THE STUDY**

To achieve the general objectives, specific objectives have to be framed. The following specific objectives have been identified to achieve the general objectives.

1. Study the production and procurement of food grains in Kerala and Andhra Pradesh.
2. Analyse consumer satisfaction towards food grains through the Public Distribution System (PDS).
3. Study the constraints in the implementation of PDS.

### **SCOPE OF THE STUDY**

The results of this study provide information on A Comparative Analysis of the Public Distribution System in Kerala and Andhra Pradesh. The findings of the study will be useful for academicians, researchers and policymakers, government officials.

### **LIMITATIONS OF THE STUDY**

The study has the limitations of time, limited size of the sample and resources at the disposal of the investigation. Further, the study will be limited to the sample respondents or beneficiaries of 120 in both Kerala and Andhra Pradesh. Besides these, a single-person research study is always confronted with various bottlenecks and the present study is not an exemption to these limitations. However utmost care has been taken in the collection, analysis, and presentation of data.

### **ORGANISATION OF THE THESIS**

The thesis is organized into five chapters. The first chapter 'Introduction' explains the importance of the topic, objectives, scope and limitations of the study. The second chapter, 'Review of Literature' deals with the findings of the related studies in line with the objectives of the study. The third chapter 'Materials and Methods' describes the area of study and methodology adopted for analysis. The fourth chapter 'Results and Discussion' discusses the results of the study to draw specific inferences and the final chapter 'Summary' briefly summarizes the work done and salient findings, explains the implications based on the results of the study and also suggests future areas of research.

# ***Review of literature***

## CHAPTER-2

### REVIEW OF LITERATURE

Keeping in view the objectives set forth for the study some of the relevant research studies are presented under the following headings:

1. Study the production and procurement of food grains in Kerala and Andhra Pradesh.
2. Analyse consumer satisfaction towards food grains through the Public Distribution System (PDS).
3. Study the constraints in the implementation of PDS.

#### **1. Study the production and procurement of food grains in Kerala and Andhra Pradesh**

George (1979) in his study analysed about the subsidized public distribution reduced consumption disparities, and graded levy rice procurement lessened income gaps among farmers. Subsidized distribution proved more feasible and cost-effective than direct income transfers for enhancing low-income consumers' consumption. In Kerala, gains for producers and consumers exceeded the government subsidy's cost, confirming public distribution viability. While this study established effectiveness, it's crucial to note income transfer estimates only offer a partial view. The analysis lacks discussion on alternative strategies for increasing poor consumers' consumption levels, and before considering feasibility in other areas, specific conditions must be analyzed. The Kerala experience provides guidelines for potential extension, emphasizing the need for economic analysis and organizational considerations.

George (1996) in his research on India's food subsidy, found two influencing components: consumer support and buffer stock maintenance. The Food Corporation of India manages procurement and issue prices, with government compensating for the gap as consumer subsidy. Total food subsidy rose from Rs. 117 crores in 1972-73 to Rs. 5,250 crores by 1995-96. Consumer subsidy's share increased from 55% in the 1970s to 90% in 1989-90, then declined to 72% by 1993-94 due to rising buffer stock costs. The subsidy depends on PDS distribution and rate, determined by procurement

price, FCI charges, and issue price. Offtake from PDS rose in the 1980s. Wheat initially dominated subsidies, later shifting to both rice and wheat. The subsidy rate for wheat exceeded that of rice in the 1970s and 1990s but reversed in the 1980s.

Radhakrishna (1996) analysed the shift from food scarcity to surplus is marked by increased production in the 1980s, resulting in a surplus of government-held foodgrain stocks. Although optimistic about agricultural supply, the plateauing of cereal and calorie intake is a concern, particularly among the poor. Despite a predicted increase in non-cereal food demand, cereal consumption is expected to grow modestly. The potential impact of liberalization on cereal prices raises concerns for the poor, who heavily rely on cereals for affordable calories. Addressing nutrition and food security requires a targeted public distribution system and ongoing support programs. As the economy shifts, policy attention must focus on rainfed crops in lagging regions, necessitating diverse technologies and broad agricultural growth. While advocating for a greater role for grain markets, a balanced approach is crucial, acknowledging the need for government intervention. Failing to act now may extend food insecurity into the next decade.

According to Sen (2002), there was a decrease in the annual growth rate of the agricultural production index. The rate dropped from 3.8 percent during the period between 1981-82 to 1983-84 to 2.1 percent between 1988-89 to 1990-91 and 1997-98 to 1999-2000.

Zhou and Wan (2007) examined the Public Distribution Systems (PDS) for food grains in India and China, with a focus on the critical role of pricing in the Indian PDS. Maintaining a balance in pricing is crucial, as excessively high or low prices pose challenges. Government subsidies are incurred when grain prices fall below the associated costs. Despite annual increases in procurement prices to support farmers, the prices at which the PDS distributes grains have not kept pace, leading to a substantial rise in subsidies. The study calculated the subsidy proportion to total GDP, typically around 0.5 percent in India, with recent years showing a higher proportion due to increased public stocks.

The Targeted Public Distribution System (TPDS) in India was created to provide food to the underprivileged, but according to Swaminathan (2008), it has actually resulted in a large exclusion of the poor and food insecure from the public food system and a decrease in coverage in States like Kerala where the universal PDS was most successful. His findings raise more questions about whether the Public Distribution System can provide impoverished households with food security, despite this being its main stated goal. We do not find proof that this duty is being accomplished, not even in a state like Andhra Pradesh where the system is functioning rather effectively.

Kumar *et al.* (2009) in their study, revealed that the FCI procures grains to uphold a reserve stock to the Public Distribution System (PDS) and various government welfare initiatives. The storage, transportation, and distribution of these grains through the PDS are the responsibilities of the FCI.

Nair (2011), according to his research, the PDS in Kerala has been seriously hampered by the highly arbitrary identification of beneficiaries and the ensuing inclusion and exclusion errors. High exclusion errors impose enormous societal costs due to the high market prices for food grains and the persistent reliance of the poor on the PDS. The analysis demonstrates that, in addition to a significant decrease in PDS offtake, even BPL households' usage levels have fallen from pre-TPDS levels. The bulk of households are now market-dependent due to the fall in PDS offtake and domestic rice production.

Pal's (2011) essay has made a critical analysis of the Central Warehousing Corporation's (CWC) policies. Its major objective is to guarantee adequate storage space for two crucial uses: (i) preserving food grain buffer and ready stock for the Public Distribution System, and (ii) meeting general warehousing requirements. The goal of the policy is to lessen dependency on Cover and Plinth (CAP) storage and update existing storage capacity. In the public sector, three entities—Food Corporation of India (FCI), Central Warehousing Corporation (CWC), and 17 State Warehousing Corporations (SWCs)—are involved in developing large-scale storage/warehousing capacity. FCI's capacity mainly focuses on storing food grains, while CWC and SWCs

handle storage for both food grains and other specified commodities. The Warehousing (Development and Regulation) Act of 2007, enacted and notified in September 2007, serves to regulate and oversee this sector.

Kumar *et al.* (2012) in their study on food security in India looked at trends in food availability, access, and absorption. It finds that having enough food (availability) is crucial, with per capita food grain around 200 kg per year. Caloric consumption declined until 2004-05 but showed a positive turn in 2009-10. Despite PDS improvements, nutritional deficiencies persist, especially among the poor. The study stresses the need for long-term strategies to boost food production and calls for research to address PDS performance disparities. The positive link between household income and nutrition highlights the importance of continuing and expanding anti-poverty programs. Strengthening social safety net programs is essential for future planning, learning from successful states in PDS management, and exploring alternatives in underperforming states.

Kumar and Mohanty (2012) in their investigation found that there is a high prevalence of corruption in the rural Indian Public Distribution System (PDS). This is mainly ascribed to the appointment of dealers based on political considerations and the absence of a margin provision for these dealers. Consumer clubs, which could play a pivotal role in educating rural consumers about the PDS and ensuring their food security and welfare, encounter difficulties primarily due to a lack of financial support.

Svedberg (2012) found that from 1993–1994 to 2009–2010, the average monthly per capita household consumption expenditures (MPCE) increased by just 1.5% year based on data from the National Sample Survey Office (NSSO) surveys. Additionally, the statistics showed that between the two years for which comparable official figures are available, 1993–1994 and 2004–2005, the percentage of the population with MPCE below the official poverty level only dropped from 36% to 27.5%, indicating a limited decline in poverty.

Balani (2013) in their report revealed that as per the CAG findings, beginning in 2008-09, the escalation in food grain procurement placed considerable strain on the available storage capacity for the central pool stock. This strain stemmed from the

increasing food grain stocks and the relatively slower growth in storage capacity by the Food Corporation of India (FCI).

Mahendran (2013) in his analysis indicated that for the public distribution system to be more sustainable and efficient, the involvement of impoverished individuals is crucial. However, certain issues persist within the universal system, including corruption, leakages, block markets, and uncooperative behaviour from some ration employees towards the poor. In comparison to targeted Public Distribution Systems (PDS) in other states, the universal system demonstrates greater effectiveness in Tamil Nadu.

In his research, Kostakis (2014) looked into the variables influencing how much food Greek households spend. It emphasizes how important socioeconomic variables are in determining how much money is spent on food, including income, gender, age, marital status, place of residence, and employment status. Additionally, the research identifies robust connections between demographic and socioeconomic variables and consumer attitudes, particularly in the context of experimenting with food expenditures.

Adithya *et al.* (2017) revealed that in states where designated agencies are actively involved in food grain procurement, such as Punjab, Haryana, Chhattisgarh, Uttar Pradesh, and Telangana, there is a heightened awareness of the Minimum Support Price (MSP). However, a significant proportion of farmers, namely 27.83% and 30.48%, lack awareness regarding the specific agencies responsible for procuring food grains at MSP. This highlights the necessity for establishing a robust network of procurement agencies and increasing farmer awareness regarding MSP operations. It's worth noting that, except for major crops like rice and wheat, the quantity procured is limited, resulting in a lower overall awareness. Moreover, for rice and wheat, procurement activities are concentrated in specific states, contributing to higher awareness levels among farmers in those particular regions.

The goal of Mahapatra and Mahanty's (2019) study was to minimize peak stock and enhance inventory control in a capacity-constrained setting by improving the food grains supply chain in the Indian food program. Previous research shows that there is an incongruity between the rate at which food grains are procured and the rate at which

storage facilities are built, which results in inadequate storage space, incorrect storage, and deterioration of quality. In order to pinpoint bottlenecks and important variables, the study used a dynamic fixed time-interval simulation model that took into account monthly transportation capacities, distribution, and procurement fluctuation. To lower peak stock, two useful strategies were suggested: advanced wheat distribution and scheduled wheat procurement, with advanced distribution having a greater influence. The estimated financial savings under these policies could be up to INR 4.32 billion. Implementation methods and potential consequences were discussed, along with the study's limitations and key insights for improved food grains management.

Kumar (2023) analyzed MSP complexities by assessing deviations, linking paddy procurement to cultivation costs to evaluate MSP effectiveness. While recent MSP increases can benefit farmers, success depends on a robust procurement network and equitable service. If private agencies dominate procurement, small farmers may miss fair prices. In certain rice-producing states, private agencies dominate procurement, excluding small farmers. Except for states like Kerala, Punjab, and Madhya Pradesh, MSP policies face inefficiencies and poor returns due to neglect of small farmers. Haryana stands out as effective, but even there, private agencies dominate procurement for small farmers. To enhance effectiveness nationwide, the government procurement network needs expansion to include small farmers.

## **2. Analyse consumer satisfaction towards food grains through the Public Distribution System (PDS).**

Swaminathan (2000) in his study said that Kerala is the single Indian state possessing a comprehensive and well-functioning public distribution system. It emphasizes that the foundation and continuity of an effective food security system hinge on substantial political support and awareness.

Tarozzi (2005) examined the link between child nutrition and the price increase of rice provided by PDS in AP. A health survey started recording weight for a sizable sample of kids a few months after the price rise. He did by utilising several estimating

methodologies, that extended exposure to high pricing is not associated with lower nutritional status, as determined by weight-for-age.

Deb (2010) revealed that the state gained recognition for effectively executing the Rs. 2 per kg rice program within the Public Distribution System (PDS). Originally initiated in the 1982-83 period, this endeavor aimed to provide an additional subsidy on the central issue price (CIP) for families situated below the poverty line (BPL). The program persisted until 1991-92, when the rate was modified to Rs. 3.50 per kg. Over the course of the 1990s, several adjustments were made to the scheme, ultimately resulting in a rate increase to Rs. 5.25 per kg in 2000-01. Importantly, the government sustained the supply of rice at this rate to BPL families through the targeted Public Distribution System (TPDS) until recently.

Drèze and Khera (2013) tried to draw attention to continuation of prior publications in which we have attempted to highlight the Public Distribution System's (PDS) expanding significance as a tool for social safety and economic assistance in rural India. The implied value of PDS entitlements has significantly grown as a result of the PDS commodities' rising market prices (mostly wheat and rice) and issue prices that, in certain states, are either constant or even declining. The good news is that there is enough proof that rural poverty is now significantly reduced by India's public distribution system. The impact is especially significant in states with a robust PDS, supporting recent data that the PDS is now a significant source of financial stability for the poor in many states. The bad news is that despite long overdue PDS changes, the PDS still has minimal effect on rural poverty in several big states including West Bengal, Bihar, Jharkhand, and Uttar Pradesh.

Dhanaraj and Gade (2013) conducted a study in Tamil Nadu, it is estimated that out of every 5.43 kilograms of PDS rice provided by the government, only one kilogram actually reaches the intended recipients. The efficiency of distribution is less in the case of sugar, where only one kilogram is consumed by those in need for every 8.21 kilograms distributed.

Ghumaan and Dhiman (2014) they found the unavailability of food grains is linked to various factors such as storage and transportation challenges, inconsistent

government supply, black market activities, and a lack of effective government supervision. Even when rations are accessible, their quality often falls short. The majority of respondents attribute the issues to government shortcomings rather than faults of the dealers. There is a widespread perception that the government bears responsibility for all problems. To rectify these malpractices and improve the public distribution system, promoting fair procedural and policy reforms is crucial.

Jayan (2015) has discovered that India is implementing it through a three-tier system made up of Antyodaya, BPL (Below Poverty Line), and APL (Above Poverty Line) families. The study showed how far the food grains and ration subsidies under the PDS reached rural and urban families, as well as how many households in the State of Kerala were able to go over the official poverty line owing to ration income.

Kishore and Chakrabarti (2015) used data from five rounds of representative consumer surveys conducted between 1993–1994 and 2009–2010 to analyze the effect of changes in the TPDS on household food consumption. According to their study, TPDS's expansion of in-kind food subsidies may have an effect on household consumption patterns that is relatively comparable to what we could anticipate from a cash transfer program. Contrary to popular belief, it may result in increased spending on non-subsidized products and services as well as subsidized items.

Ghumaan and Dhiman (2017) in their research recommended that the government designate officials to conduct quality inspections on food grains during procurement, transportation from warehouses to Fair Price Shops, and subsequent distribution to consumers after thorough checks. The Food Supply Department should ensure sufficient allotment for each item, and the quantity of food grains distributed by FPS dealers per household per period should be raised to reduce the disparity between demand and distribution of items.

George and McKay (2019) highlighted the scarcity of published materials in India pertaining to the Public Distribution System (PDS) and its influence on food security in their review. The review's findings recognize the PDS's role in combating hunger and malnutrition but underscore its limited impact on reducing child mortality and improving food security, primarily due to operational deficiencies. Addressing

these operational inefficiencies and considering environmental consequences through appropriate policy reforms may offer the PDS the potential to mitigate India's food insecurity challenges. In essence, the analysis underscores the necessity for more specific research in the domain of food security in India, essential for devising effective solutions that can enhance the efficacy of the PDS.

Ahmed *et al.* (2020) surveyed 132 randomly selected homes to learn more about the public distribution system (PDS) that is widely used in the Kamrup (Rural) district of Assam. The study took into account the impact of PDS on BPL households as well as the factors that contribute to PDS participation in the study area. In comparison to their counterparts who were not beneficiaries, the study found that the public distribution system in the study area had increased beneficiary security.

An investigation carried out by Anjana and Vijayan (2020) explored the operational aspects of ration shops in Pavaratty Panchayath, Thrissur. The evaluation of their effectiveness is grounded in data obtained from the municipal area. The results highlight that a noteworthy proportion of the community depends on ration shops for at least one essential item. However, the present situation unveils a shortage of available food items for consumers. The study proposes an augmentation in the quantity of food items distributed through ration shops, accentuating the need to ensure the quality of supplied food grains. It underscores the essential role of government intervention in ensuring a sufficient supply to every individual in need, thereby contributing to poverty eradication and attaining food security.

The study by Mody and Rehman (2021) looked into the sources of information regarding the distribution of food grains during the lockdown, the caliber of excellent services provided by PDS during the lockdown, the applications of goods provided by FPS during the lockdown, and the degree to which consumers are satisfied with the food grains' quality. Additionally, the study looks on the assistance that affluent people in the community received during the lockdown in the study area. According to the results of this study, 63.5 percent of respondents learned about the distribution of food grains from friends and family, followed by 29.5 percent who learned about it from the owner of the FPS, 5 percent who learned about it from the notice board of the FPS, and

only 2 percent who learned about it from members of the Gram Panchayat. Additionally, 45.75 percent of all respondents concur that the FPS in their area offers quality services. Similarly, 47% of all respondents concur that the FPS owner's working hours are responsible and beneficial.

Barvin (2023) in her study on Consumer Perception regarding Fair Price Shops in Tirunelveli City offered a glimpse into various facets of the Public Distribution System (PDS) in India, particularly emphasizing the state of Tamil Nadu. The study highlighted government efforts to improve the PDS, guaranteeing the timely delivery of vital supplies to the underprivileged.

### **3. Study the constraints in the implementation of PDS.**

Krishnamurthy *et al.* (2013) in their study revealed that report carry several implications for the National Food Security Act (NFSA). Initially, the transparency enhancements in the Public Distribution System (PDS) outlined in the NFSA align with similar reforms implemented in Chhattisgarh post-2004. Nevertheless, these results indicate the challenge of predicting the impact of such provisions in states with historically poor PDS food grain distribution, despite an upward trend. Secondly, considering the positive impact of expanding the PDS in Chhattisgarh in alleviating food insecurity before global crises, the proposed increase in subsidized food grain distribution under the NFSA could potentially enhance food security in states with well-functioning PDS systems.

Rajkumar (2013) in his study enhanced the understanding of the food grains supply chain and customer perceptions in the Public Distribution System (PDS). Key factors affecting and improving stock levels include food grain availability, situations of stock-outs, regular supply, and the fill ratio on entitlement. Effective management of these elements ensures the availability of food grains on store shelves. Improving the quality factor involves accurate weight measurement and packaging, which not only enhances precision but also reduces wastage.

Patsaria and Bajpai (2016) in their study revealed that customer satisfaction with the public distribution system in Gwalior city is influenced significantly by the quality

of commodities and the price of the products. The regression analysis results affirm the significant impact of these factors on customer satisfaction. It is recommended that the Ministry of Food Supplies concentrate on improving these aspects to enhance the overall performance of the PDS.

The study conducted by Chhabra *et al.* (2018) aimed to identify the main obstacles to the mandatory adoption of e-governance technology. The authors focused on six crucial areas, which are infrastructure, software design, government support, infrastructure, human error, and process design. The study, which included qualitative research methods, sought to comprehend user reactions and provide guidance for next e-government initiatives. The results indicated that more quantitative research was required to examine linkages in greater detail and determine the importance of obstacles to technology adoption. Such studies in other e-government sectors could be beneficial for the priority difficulties resulting from deploying new ICT in the PDS food supply chain in an Indian state, providing insights for government focus areas.

Bhagwat and Raut (2018) conducted an analysis indicating that consumer satisfaction with the Public Distribution System (PDS) is influenced by errors in targeting poor individuals. This underscores the need to minimize targeting errors when identifying the appropriate beneficiaries for PDS food grain distribution. The study also found that targeting errors significantly predict the cost of delivering food grain to customers.

Ramya and Ramjuk (2018) revealed that the importance of eradicating fake ration cards, recommends opening more FPSs in Kurung Kumey, and reveals widespread satisfaction with the PDS in surveyed districts. Respondents appreciate the reasonable prices and value the PDS's role in their well-being, signaling continued preference for it over cash transfer. Strengthening the current policy of supplying subsidized goods through the PDS is advocated.

Dheera (2020) had presented an apt model detailing the security features of the Public Distribution System (PDS) in Kerala, which was newly implemented. The shift to digitalized ration shops had significantly improved the security of the PDS by enabling online transactions. Additionally, the integration of biometric recognition,

achieved through linking Aadhaar with the ration system, had ensured the verification of beneficiaries. Furthermore, the electronic recording of transactions and bill generation had contributed to a more transparent system, effectively deterring unauthorized sales of products. These features had collectively enhanced the quality of service, making the system more transparent during the study period.

Arora *et al.* (2021) revealed that ICT reforms' impacts and challenges on the Public Distribution System (PDS), focusing on E-PDS issues like beneficiary identification, quality adulteration, and malpractices. The use of technology, including biometrics, touch screens, online payments, and automated vending machines, can address these challenges. While automated PDS reduces corruption, challenges persist, requiring a transparent grievance redressal mechanism. Aadhaar-based verification is deemed effective, but challenges like internet connectivity, infrastructure, and trained staff persist. Governments should assess regional contexts before implementing methods in the PDS.

Lagad *et al.* (2023) revealed that the Electronic Point of Sale (EPOS) system in the Public Distribution System (PDS) plays a crucial role in determining the overall satisfaction of beneficiaries. Key factors such as Service Quality, Transparency, Accessibility, Ease of Use, and System Reliability were pinpointed as significant predictors influencing the level of satisfaction. This underscores the importance of these elements in shaping the user experience and satisfaction levels within the Public Distribution System.

Suryakrishna (2021) in his paper looked into the impact of introducing e-pos machines in Kerala's ration shops from the viewpoint of beneficiaries. The main goals are to analyze how satisfied beneficiaries are with the performance of ration shops before and after the E-POS machine implementation and to spotlight the main problems related to ration shop operations post the introduction of E-POS machines.

## **Materials and methods**

## CHAPTER-3

### MATERIAL AND METHODS

The methodology employed for the study conducted has been described under the following headings.

3.1 Study area

3.2 Sampling and Data Collection

3.3 Variables and their Measurement

3.4 Analytical Framework

### 3.1 STUDY AREA

The study was conducted in Malappuram district of Kerala and Nellore district of Andhra Pradesh which were purposively selected because they have the highest Below Poverty Level (BPL) ration cards.

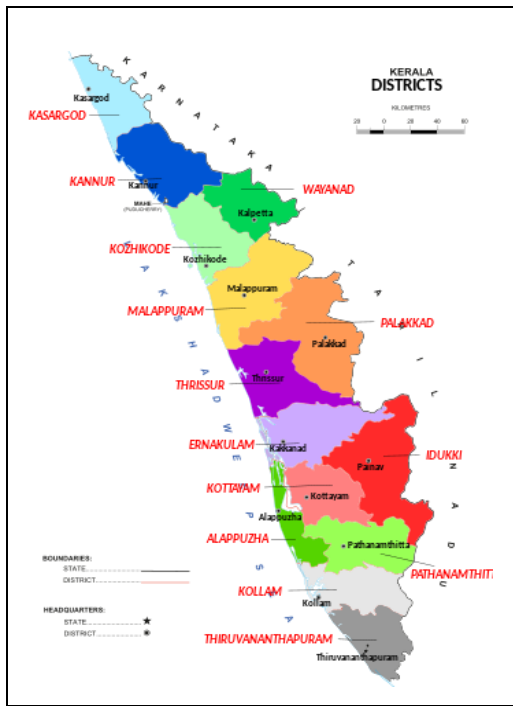


Fig 1. Political map of Kerala

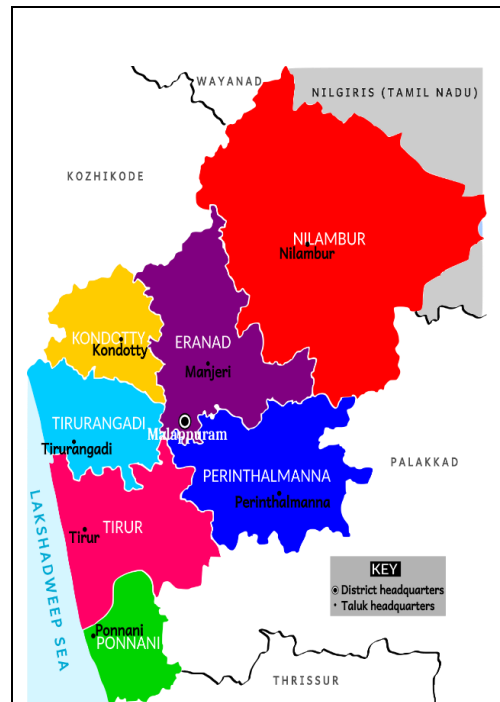


Fig 2. Political map of Malappuram

A study region's profile in terms of agroclimatic conditions, topography, and other socioeconomic characteristics is important for understanding the problems of agricultural development in that region.

This section provides basic information about the study area, such as location, climatic conditions, soil type, and cropping pattern.

### 3.1.1 KERALA STATE

#### 3.1.1.1 Demographics in Kerala

Table 1. Demographics in Kerala

Sl. No	Particular	Numbers *
1	Population	33,406
2	Sex Ratio (Females Per 1000 males)	1,084
3	Population density per sq. km	860
4	Urban population	15,935
5	Rural population	17,471
6	Decadal growth rate (%)	4.91
7	Literacy rate (%)	94
8	Birth rate per thousand	15.2
9	Life expectancy years	75.2
10	Death rate per thousand	7.0
11	Mortality rate per thousand	12
12	Poverty rate person in lakh	24.0

Source: RBI, 2023.

Note: \*Nos. in thousands

#### 3.1.1.2 Land Utilization Pattern

It was observed from table 2, that the total cropped area in Kerala was 64.92 per cent of the total geographical area. The net area under cultivation was 52.21 per cent of the total geographical area. Forests accounted for 27.83 per cent of the area and the share of land put to non-agricultural uses was 11.98 per cent. The important

crops grown in the state are coconut, arecanut, rubber, cashew, pepper, betel vine, banana, tubers and other crops.

Table 2. Land Utilization Pattern in Kerala

Sl. No	Type of land	Area in hectares	Percentage to total Geographical Area
1	Total geographical area	38,86,287	100
2	Forest	10,81,509	27.83
3	Land put to non agricultural use	4,65,561	11.98
4	Barren and uncultivable land	9784	0.25
5	Permanent pastures and other grazing land	0	0.00
6	Land under miscellaneous tree crops	2267	0.06
7	Cultivable waste	88,499	2.28
8	Fallow other than current fallow	49,420	1.27
9	Current fallow	53,914	1.39
10	Marshy land	12	0.00
11	Still water	1,00,316	2.58
12	Water logged area	2937	0.08
13	Social forestry	2700	0.07
14	Net area under cultivation	20,29,368	52.21
15	Total cropped area	25,23,014.31	64.92

Source: GOK, 2021

### 3.1.1.3 Cropping pattern

The cropping pattern in the State is dominated by cash crops like rubber, cashew, pepper, tea and coffee, covering 64.92% of the total cultivated area and the major area food crops are rice, tapioca, banana and plantain. Coconut occupied the largest area of crop cover followed by Rubber and Paddy.

As per 2011 census percentage of agricultural workers in Kerala is 5.96% and it was 7.36% as per 2001 census (GOK, 2021).

### **3.1.1.4 MALAPPURAM DISTRICT**

The study was undertaken in Malappuram district of Kerala which has the highest Below Poverty Level (BPL) ration cards. It is also Kerala's most populous district, accounting for roughly 13 per cent of the state's total population and is Kerala's third-largest district in terms of the land area bounded on the east by the Western Ghats and on the west by the Arabian Sea. After Ernakulam and Thiruvananthapuram, it is Kerala's third-largest contributor to the state's Gross State Domestic Product in 2019.

The district's eastern portion is hilly, while the western portion is coastal. The district includes seven sub-districts (Taluks) viz., Eranad, Kondotty, Nilambur, Perinthalmanna, Ponnani, Tirur, and Tirurangadi.

The district is divided into three sections viz., highland (Malanadu), midland (Edanadu), and plain (valley).

### **3.1.1.5 TIRUR BLOCK**

The Tirur block is found between 75.956678°E East longitude and 11.152610°N North latitude.

Niramaruthur is a beautiful sandy coastal village and also a Gram panchayat in Tirur Taluk, Malappuram district in the state of Kerala, India. It is 7 kilometers from Tirur.

Vettom is a land of light in Tirur, Malappuram. It is the coastal suburb of Tirur Municipality. It was part of the Kingdom of Tanur (Vettathnad) in medieval times. Vettom panchayat is surrounded by water on all borders. It is Those are the Tirur River and Cannoli Canal. It is 10 kilometers from Tirur.

### **3.1.1.6 Demography**

Malappuram had a population of 44,94,998 people according to the 2018 Statistics Report. Malappuram is home to 12.98 percent of Kerala's total population. With a population density of 1,265 inhabitants per kilometer square (3,280/sq.m), it is the most populous district in Kerala and the 50th most populous of India's 640

districts.

### **3.1.1.7 Education**

According to the 2019–20 school statistics, the district has the most schools in Kerala. In the district, there are 898 primary schools, 363 secondary schools, 355 highschools, 248 higher secondary schools, and 27 vocational higher secondary schools. There are also 120 CBSE schools and three ICSE schools. The literacy rate in Malappuram is 93.55 per cent.

### **3.1.1.8 Religion**

Since the early medieval period, the areas that make up the Malappuram district have been multi-ethnic and multi-religious. Malappuram has a cosmopolitan population thanks to centuries of trade across the Arabian Sea. Islam, Hinduism, Christianity, and other minor religions are practiced in the district. Malappuram is one of two districts in South India with a Muslim majority, the other being Lakshadweep. The majority of Christians in the district descended from Saint Thomas Christians who migrated to Malabar in the twentieth century from Northern Travancore.

Even though Andhra Pradesh is having more population and decadal growth rate (%) whereas the population density and sex ratio is more in Kerala. The increased poverty rate in Kerala is due to the increased population density when compared to Andhra Pradesh.

### 3.1.2 ANDHRA PRADESH STATE

#### 3.1.2.1 Demographics in Andhra Pradesh

Table 3. Demographics in Andhra Pradesh

Sl.No	Particulars	Numbers (thousands)
1	Population	84,541
2	Sex Ratio (Females Per 1000 males)	993
3	Population density per sq. km	308
4	Urban population	28,219
5	Rural population	56,362
6	Decadal growth rate	10.98
7	Literacy rate (%)	67.02
8	Birth rate per thousand	17.5
9	Life expectancy years	69
10	Death rate per thousand	7.5
11	Mortality rate per thousand	43
12	Poverty rate person in lakh	9

Source: GoAP, 2021

#### 3.1.2.2 Land Utilization Pattern

It was observed from table 4 that the total cropped area in Andhra Pradesh was 44.71 per cent of the total geographical area. The net area sown was around 36.10 per cent and the area sown more than once was 8.61 per cent of the total geographical area. Forests accounted for 22.63 per cent of the area and the share of land put to non-agricultural uses was 12.72 per cent. The important crops sown are rice, cotton, groundnut, pigeon pea, sunflower, black gram, and sorghum.

### 3.1.2.3 NELLORE DISTRICT

Nellore District is situated in the South Eastern portion of the state with a coastal length of 163 KM bounded by the Bay of Bengal on the East. The district was known

Table 4. Land utilization pattern in Andhra Pradesh

Sl.No	Type of land	Area in hectares	Percentage
1.	Total geographical area	1,62,96,690	100
2.	Forest	36,88,226	22.63
3.	Land put to non agricultural use	20,74,073	12.72
4.	Barren and uncultivable land	13,36,375	8.2
5.	Permanent pastures and other grazing land	2,05,861	1.27
6.	Land under miscellaneous tree crops	1,55,039	9.51
7.	Cultivable waste	4,11,850	2.52
8.	Fallow other than current fallow	93,891	0.57
9.	Current fallow	57,836	0.35
10.	Net area sown	58,83,520	36.10
11.	Area sown more than once	14,03,271	8.61
12.	Total cropped area	72,86,791	44.71

Source: GoAP, 2020

as Vikrama Simhapuri until the 13th Century and later it came to be referred to as Nellore.

### 3.1.2.4 NELLORE RURAL BLOCK

The Nellore rural block is found between 80°0'E East longitude and 14°26'N North latitude.

Kakupalli Bit-I is a Village in Nellore Rural Mandal in SPSR Nellore District of Andhra Pradesh State, India. It belongs to the Andhra region. It is located 10km East of the District headquarters Nellore.

Penubarthi village is located in Nellore mandal of Sri Potti Sriramulu Nellore district in Andhra Pradesh, India. It is situated 15km away from Nellore, which is both district & sub-district headquarters of Penubarthi village.

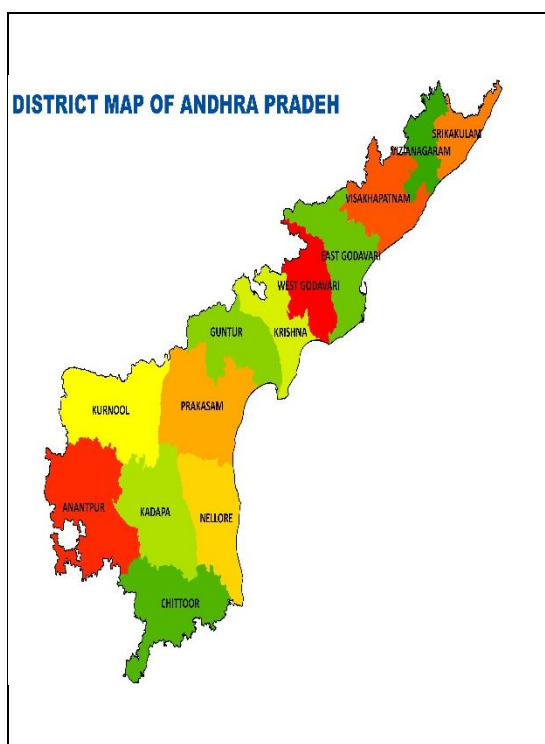


Fig 3. Political map of Andhra Pradesh



Fig 4. Political map of Nellore

### **3.1.2.5 Demography**

The total area of the district is 10,440 sq. km. The total population of the district as per 2011 population census is 24.69 lakhs. Out of this, the rural and urban populations are 17.64 lakhs and 7.05 lakhs respectively forming 71.42 % and 28.58 % of the total population. The density of the population is 236 per Sq.km. The population of females per 1000 males is 983. The population covered under Scheduled Castes and Scheduled Tribes communities is 5.05 lakhs and 2.15 lakhs respectively. The decennial growth rate is registered at 11.05% whereas the density of the population per sq. km has increased from 204 to 236 in the period 2001-2011. As regards the working population of the district, there are as many as 9.15 lakhs of main workers out of the total population of 24.69 lakhs. The balance is the non-workers to an extent of 13.72 lakhs. The main workers and marginal workers form 83.3% and 16.7% respectively out of the total workforce.

### **3.1.2.6 Education**

The education sector plays an important role in the socioeconomic development of society at large. The Government has been investing huge amounts in creating education infrastructure including recruitment of teachers in all categories. Because of these constructive measures, the literacy rate has phenomenally increased to 61.64% a little above the State literacy at 67.35%. The existing infrastructure viz., Primary, Upper Primary, and High Schools among others is furnished hereunder comprehensively. As many as 2455 primary schools are existing in the district. Out of them, most primary schools are being managed by Mandal Parishads. A total of 526 Upper Primary schools are functioning in the district under all the management. There are 699 High Schools, 23 High Schools attached to Junior Colleges and 183 Junior Colleges existing in the District in the reference year under all managements. There are 17 Engineering colleges in the private sector. College of Fisheries Science is situated at Muthukur Mandal of Nellore District and plays a vital role in training the students and fisheries development. There are 2 Medical Colleges one is in the private sector and another one is Government sector.

### **3.1.2.7 Religion**

As per the official census 2011 and population data 2024 of Sri Potti Sriramulu Nellore district, Hindus are the majority in Sri Potti Sriramulu Nellore state. The total population of Sri Potti Sriramulu Nellore district is 2,963,557 as per census 2011. Hindus constitute 89.07% of Sri Potti Sriramulu Nellore's population.

## **3.2 SAMPLING AND DATA COLLECTION**

Malappuram district of Kerala and Nellore district of Andhra Pradesh were purposively selected because they have the highest Below Poverty Level (BPL) ration cards. Two grama panchayats namely will be selected randomly. One block panchayat (Mandal) will be purposively selected with maximum BPL cards from each district. Tirur block in Malappuram district, Kerala state and Nellore rural block in Nellore district, Andhra Pradesh state which has the highest BPL cards was purposively selected. From the selected block panchayat, two-gram panchayaths will be selected randomly. In Kerala, from Tirur block - Niramathur and Vettom from each of the selected grama panchayaths, 30 BPL beneficiaries and 30 non-BPL beneficiaries will be selected randomly. In Andhra Pradesh, from Nellore rural block - Kakupalli Bit-1 and Penubarthi from each of the selected grama panchayaths, 60 BPL beneficiaries will be selected randomly and were interviewed. Thus the total sample size of the respondents will be two hundred and forty.

### **3.2.1 Data Collection**

Information regarding the number of blocks and number of villages in each block that come under the distribution network was collected from the office of the main center.

Primary data on consumer satisfaction towards food grains through the Public Distribution System and constraints faced by consumers and ration shops will be collected by using a pretested structured interview schedule. The survey was conducted during August month in Nellore and October month in Tirur of 2023. All the primary data based on personal interviews and meetings with the beneficiaries have been collected using a pre-tested schedule. The primary data pertained to the year 2022-23.

Secondary data on production and procurement will be collected from the Department of Civil Supplies and Consumer Affairs of the Government of Kerala and Consumer Affairs, Food and Civil Supplies of the Government of Andhra Pradesh, and Food Corporation of India. The secondary data about the period from 2011-23.

Fig 5. Sampling framework of the study in Kerala state

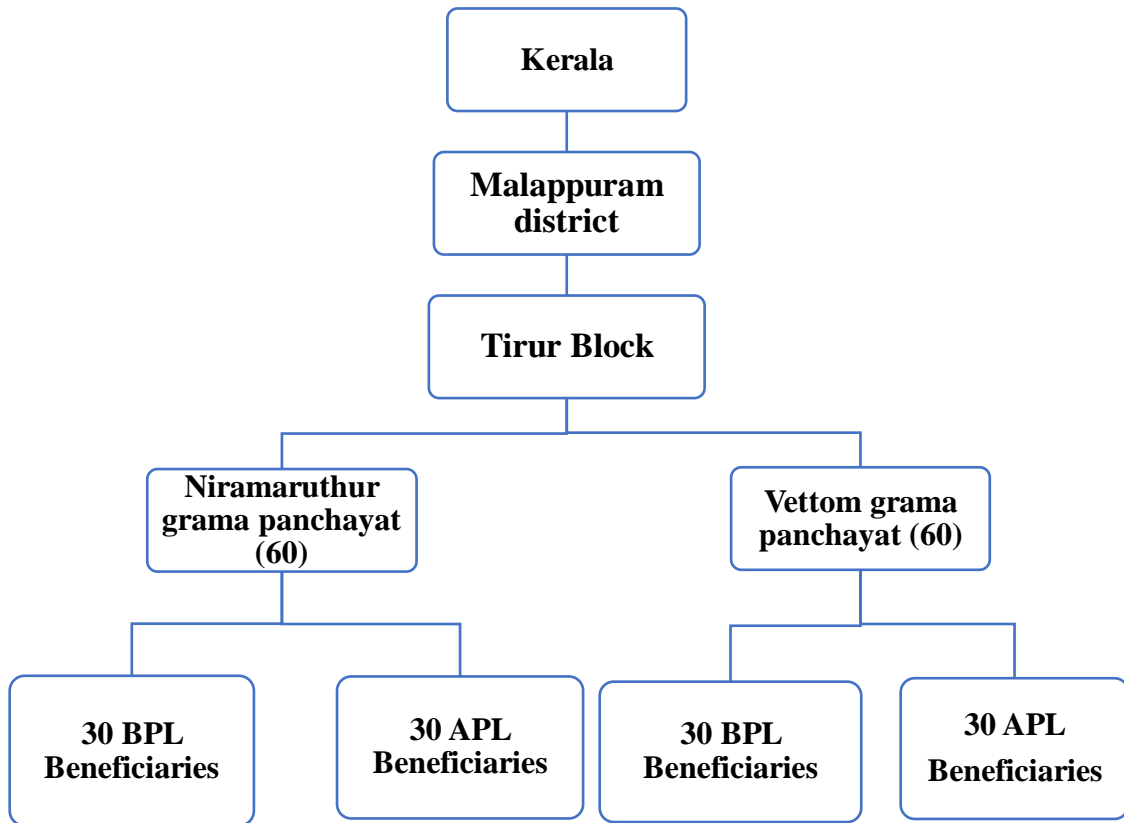
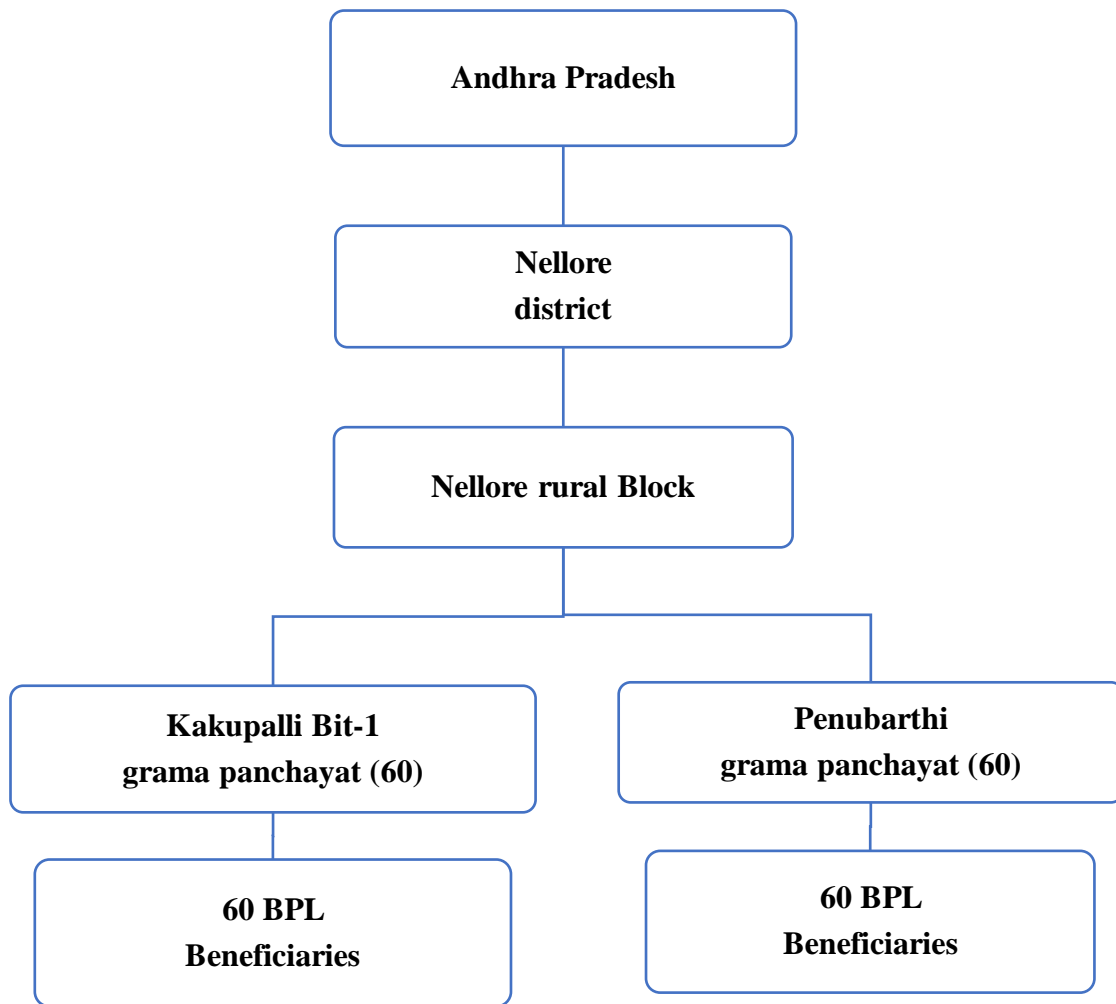


Fig 6. Sampling framework of the study in Andhra Pradesh state



### **3.3 VARIABLES AND THEIR MEASUREMENT**

**3.3.1 PDS** The Public Distribution System is a system of stores supported by the government that is tasked with providing essential non-food items and food to the underprivileged segments of society at extremely low costs.

**3.3.2 FPS** A fair price store was one that was authorized to provide ration card users under the Targeted Public Distribution System with essential commodities by an order issued under section 3 of the Essential Commodity Act 1955.

**3.3.3 Dealer** Person who has been licensed to distribute essential commodities to beneficiaries through fair price shops.

**3.3.4 PDS Supplies** The commodities that are distributed in the fair price shops are known as PDS supplies. Major PDS supplies were Rice, Wheat, Sugar, and Pulses.

**3.3.5 Issue Price** The price at which the government makes the food grains available to the consumers.

**3.3.6. Ration Card** A formal document provided by the Indian state governments to households qualified to buy discounted food grains through the public distribution system.

**3.3.7 Consumer** Person who purchases the PDS supplies from fair price shops.

**3.3.8 Antyodaya Anna Yojana** It is a government-sponsored scheme to provide highly subsidized food to millions of the poorest of the poor. It was launched by the government in the year 2000. Under this scheme, 35 kg of rice is given to the consumer irrespective of the size of the family.

**3.3.9 Below Poverty Line** The Indian government uses it as an economic benchmark to determine who is economically disadvantaged and to identify individuals and households who require support from the government. According to international standards, extreme poverty is defined as having less than \$1.90 per day per head of purchasing power parity. Customers who fall below the poverty limit are granted White Cards.

**3.3.10 Above Poverty Line** It is a measure of people who live above the poverty line as set by the country. For someone to be deemed above the poverty line in an urban location, they must earn a greater minimum monthly income. Pink Cards are distributed to customers who earn more than the poverty threshold.

**3.3.11 Socioeconomic status of beneficiaries** Socio-economic characteristics of the respondents such as gender, age, marital status, education, occupation, annual income, religion, caste, type of households of respondents, family size, ownership of house, type of dwelling, and household assets were collected and categorized into various groups.

### **3.4 ANALYTICAL FRAMEWORK**

The statistical tools employed to extract the results from the collected data are listed below.

#### **3.4.1 Tabular Analysis**

Tabular analysis method was adopted to describe the socio-economic profile. Percentage calculations were employed to analyze the socio-economic features of the respondents such as age, gender, marital status, education, occupation, annual income, religion, caste, type of households of respondents, family size, ownership of house, type of dwelling, and household assets.

#### **3.4.2 Exponential Growth Rate**

In the present study, secondary data were collected regarding the production and procurement of food grains in Kerala and Andhra Pradesh and were analyzed using the Compound Annual Growth Rate (CAGR) to determine the trend.

The compound annual growth rate was estimated using the exponential function of the following form

$$y = a.b^t .e^u \dots\dots\dots (1)$$

Where, Y= Dependent variable for which growth rate is estimated

a = Intercept term

b<sub>1</sub>- regression coefficient

t = used to represent the time variable

e = error term

u = Napier base

The equation (1) was transformed into log linear form and written as;

$$\log Y = \log a + t \log b + Ut \dots\dots\dots (2)$$

Equation (2) was estimated by Ordinary Least Squares (OLS) technique. Compound Annual Growth Rate (CAGR) g was then computed

where,

$$\text{CAGR (g)} = (\mathbf{b-1}) \times \mathbf{100} \dots\dots\dots (3)$$

g = Compound growth rate in per cent per annum

b = Antilog of log b

The standard error of the growth rate was estimated and tested for its significance with 't' test statistic.

### 3.4.3 Likert's Scale Technique

A Likert scale is a type of psychometric scale that is frequently used in questionnaire-based research. In survey research, it is the method most frequently employed to scale responses.

A Likert item is essentially a statement that the respondent is asked to rate using any combination of subjective or objective standards. The score is determined by measuring the respondent's level of agreement or disagreement. Using the Likert scale approach, the PDS was utilized to analyze customer satisfaction with food grains.

Sl. No	Response	Score (weight)
1	Excellent	5
2	Good	4
3	Undecided	3
4	Bad	2
5	Very bad	1

After adding together all of the scores, the means of each attribute were determined, and the satisfaction levels were ordered accordingly. A straightforward comparison of the degree of satisfaction was made using the mean score. The formula below was used to determine the mean score.

$$\text{Mean score} = \frac{\sum_{i=1}^n W_i X_i}{\sum_{i=1}^n X_i}$$

where,

W<sub>i</sub> : Weight of the variable.

X<sub>i</sub> : No. of respondents

### 3.4.4 Garrett's Ranking Technique

Garret ranking technique was employed for ranking the constraints of the respondents. This method helps to identify the notable constraints affecting the respondents. Through this method, the respondents were asked to rank the identified constraints. The ranks were then converted into mean scores (Garret ranking) for capturing a real picture of the constraint prevailing in the study area. In this method, the ranks assigned to different constraints were transformed into percentages using the formula

$$\text{Per cent position} = \frac{100 \times (R_{ij} - 0.5)}{N_j}$$

Where,

R<sub>ij</sub>= Rank given for ith factor by jth individual

N<sub>j</sub>= Number of factors ranked by jth individual

Then, the percentage positions were transformed into scores on a scale of 100 points referring to the table given by Garrett and Woodworth (1969). From the scores so obtained, the mean score level was derived and constraints were ranked based on the mean score level.



**Plate 1. Survey in Kerala state**



**Plate 2. Survey in Andhra Pradesh state**

## **Results and discussion**

## **CHAPTER-4**

### **RESULTS AND DISCUSSION**

In this chapter, an attempt was made to discuss critically the results obtained from the study. The important findings of the study are presented and discussed in the following sections according to the objectives of the study.

4.1 Study the production and procurement of food grains in Kerala and Andhra Pradesh.

4.1.1 Production of food grains.

4.1.2 Procurement of food grains.

4.2 Analyse consumer satisfaction towards food grains distributed through the Public Distribution System (PDS).

4.2.1 Socioeconomic status of beneficiaries

4.2.2 Level of satisfaction of consumers.

4.2.3 Type of ration cards.

4.2.4 Quantity of food grains distributed.

4.2.5 Price of food grains.

4.3 Study the constraints in the implementation of PDS.

4.3.1 Constraints in the implementation of PDS in Kerala state

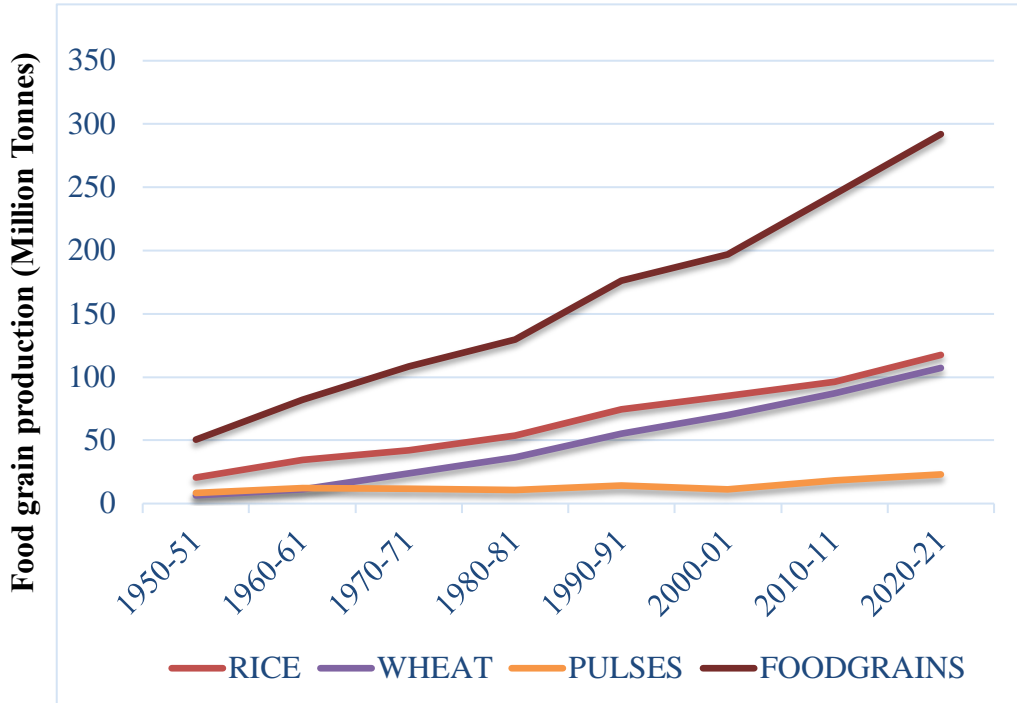
4.3.2 Constraints in the implementation of PDS in Andhra Pradesh state

#### **4.1. Study the production and procurement of food grains in Kerala and Andhra Pradesh.**

Secondary data regarding the production and procurement of food grains were collected from various government institutions like the Food Corporation of India, Supplyco, and Consumer Affairs. The details regarding the production of food grains (paddy, wheat, small millet, and jowar) and procurement of food grains (paddy) in Kerala and Andhra Pradesh were collected.

### 4.1.1 Production of food grains in India

Fig.7. Production of food grains in India from 1950-51 to 2020-21



Source: GOI, 2020

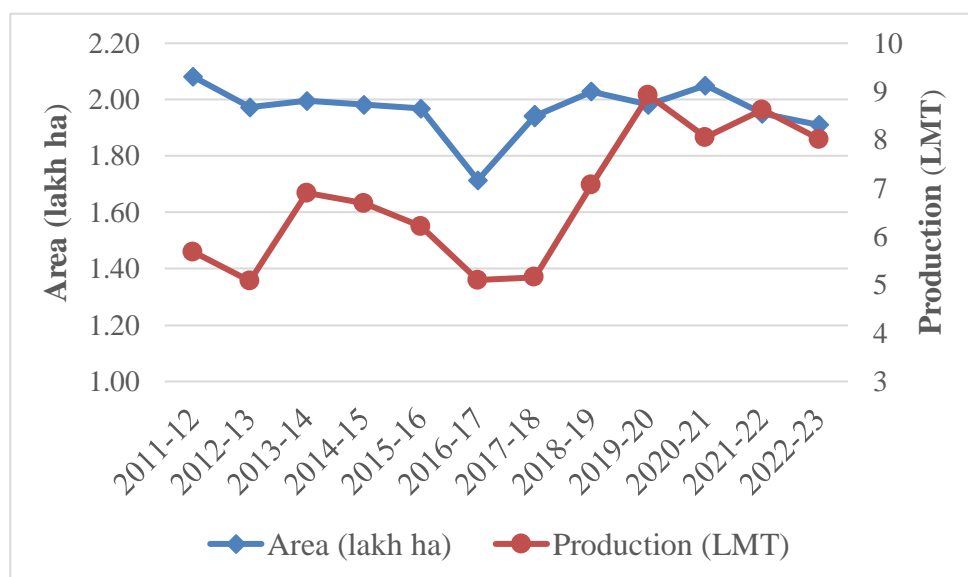
India attained self-sufficiency in several food grains including rice and wheat since the mid-1990s for which the green revolution of the 1960s contributed much (Chakravarti, 1973). Along with the increase in population from 376.3 million in the 1950s to 1,395.57 million in 2020, food grain production has also been increasing, thus ensuring the availability of enough food to feed the burgeoning population. The above graph shows the increase in food grain production from 82.2 million tonnes to 291.95 million tonnes from the years 1950-51 to 2020-21 as shown in fig.7.

#### 4.1.1.1. Area and production of paddy in Kerala

In Kerala, paddy is cultivated in all three seasons (*Virippu (autumn)*, *Mundakan (winter)*, and *Puncha (summer)*) except in Wayanad district. The area under production of paddy in three seasons was estimated at the panchayat level. The total area under paddy during the year 1975-76 was 8.76 lakh hectares. The area under paddy decreased by 77.6 per cent during the year 2021-22 when compared to that of the year 1975-76 (GOK, 2021). After analyzing the area for 12 years, paddy cultivation was highest during 2011-12 with (2.08 lakh ha) and lowest during the year 2016-17 with (1.71 lakh

ha) The data regarding the production of paddy in Kerala during the period from 2012-23 is given in Appendix I. During the year 2019-20, the production of paddy was the highest with (8.92 LMT) when compared to the last 8 years. The production of paddy in Kerala was lowest during the period 2016-17 with (1.71 lakh ha) out of the total production computed for the last 12 years as shown in fig. 8.

Fig.8. Area and production of paddy in Kerala from 2011-12 to 2022-23

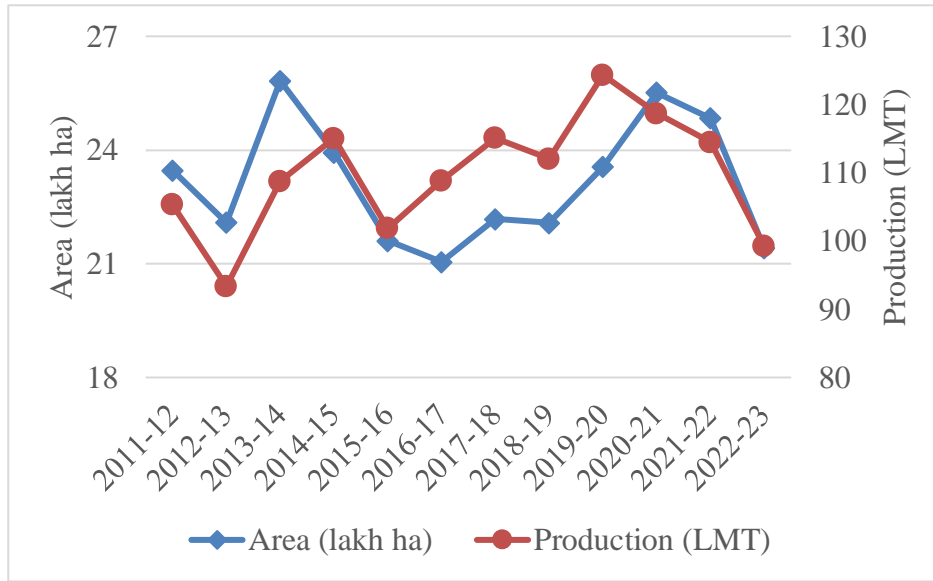


Source: Various issues of Agriculture at a Glance

#### 4.1.1.2. Area and production of paddy in Andhra Pradesh

Andhra Pradesh holds the 3rd position in the production of paddy in India, contributing significantly to the nation's overall production. Appendix 1 shows the production of paddy in Andhra Pradesh during the year 2012-21. After analyzing the area for 12 years, paddy cultivation was highest during 2019-20. During the year 2019-20, the production of paddy was the highest (124.34 LMT) in Andhra Pradesh when compared to the last eight years. It shows that the maximum production of paddy in both states was obtained during the period 2019-20 as shown in fig.9.

Fig.9. Area and production of paddy in Andhra Pradesh from 2011-12 to 2022-23



Source: Various issues of Agriculture at a Glance

#### 4.1.1.3. Productivity of Paddy in Kerala and Andhra Pradesh

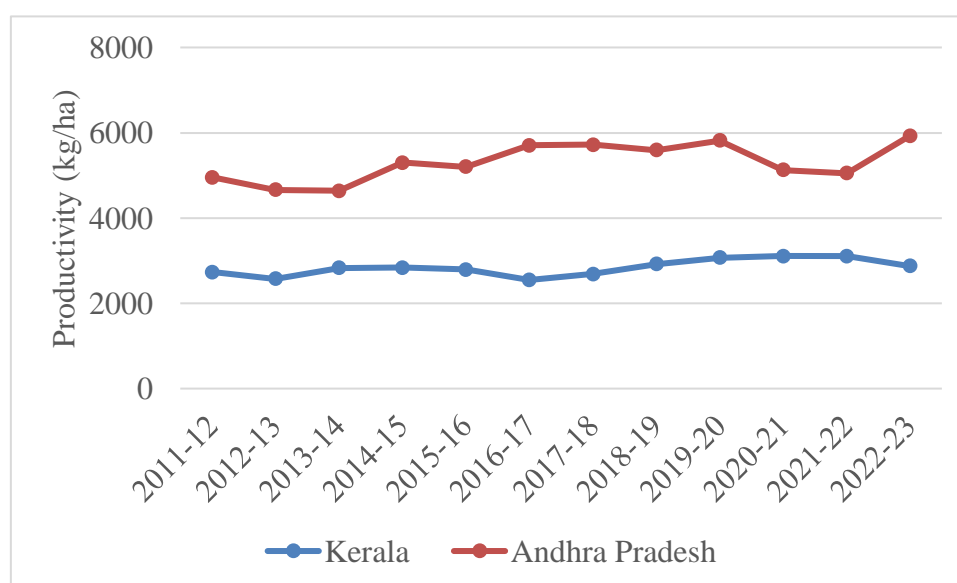
The data regarding the productivity of paddy in Kerala during the period from 2012-23 is given in Appendix I. In Andhra Pradesh state during the year 2022-23, the productivity of paddy was the highest with (5,932 kg/ha) when compared to the last eleven years and lowest during the year 2013-14 with (4641 kg/ha). The productivity of paddy in Kerala was highest during the year 2021-22 (3108 kg/ha) and lowest during the period 2016-17 (2,547 kg/ha) as shown in fig.10.

#### 4.1.1.4 Area and production of Ragi, Jowar and Small millets in Kerala from 2011-12 to 2020-21

Appendix III, IV and V show the area and production of ragi, jowar, and small millets (kora, variga, sama, arika, ooda, and andukorra) in Kerala state during the year 2012-21. After analyzing the area for 10 years, area under ragi was highest during the year 2011-12 with (0.248 ‘000 ha) and lowest during year 2016-17 with (0.033 ‘000 ha), the area under jowar was highest during year 2019-20 with (0.285 ‘000ha) and lowest during year 2016-17 (0.140 ‘000ha) and the area under small millets was highest during year 2011-12 with (0.11 ‘000 ha) and lowest during year 2016-17 with (0.009 ‘000ha) in Kerala during the last 10 years as shown in fig.11. During the year 2018-19,

the production of ragi was the highest (0.271 '000ha) and lowest during year 2016-17 (0.042 '000ha), the production of jowar was the highest during year 2019-20 (0.285 '000ha) and lowest during the year 2016-17 (0.140 '000ha) and the production of small millets was the highest during year 2011-12 (0.262 '000ha) and lowest during year 2016-17 (0.006 '000ha). It shows that minimum production of ragi, jowar, and small millets in Kerala state was obtained during the same period 2016-17 where even area was also minimum as shown in fig.12.

Fig.10. Productivity of paddy in Kerala and Andhra Pradesh during 2011-12 to 2022-23

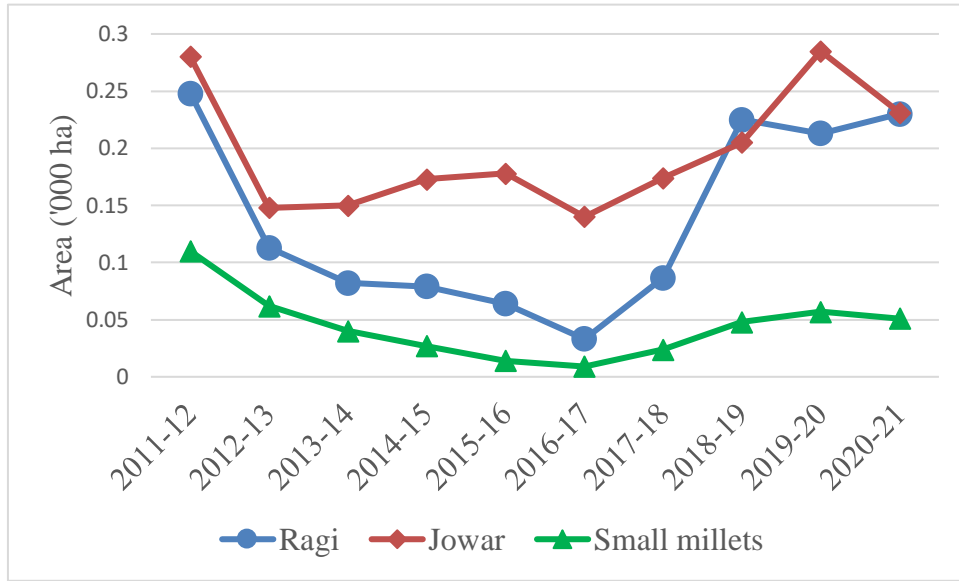


Source: Various issues of Agriculture at a Glance

#### 4.1.1.5 Area and production of Ragi, Jowar and Small millets in Andhra Pradesh from 2011-12 to 2020-21

Appendix III, IV and V shows the area and production of ragi, jowar and small millets in Andhra Pradesh state during the year 2012-21. After analyzing the area for 10 years, under area ragi was highest during the year 2011-12 with (40 '000 ha) and lowest during the year 2015-16 with (31 '000 ha), the area under jowar was highest

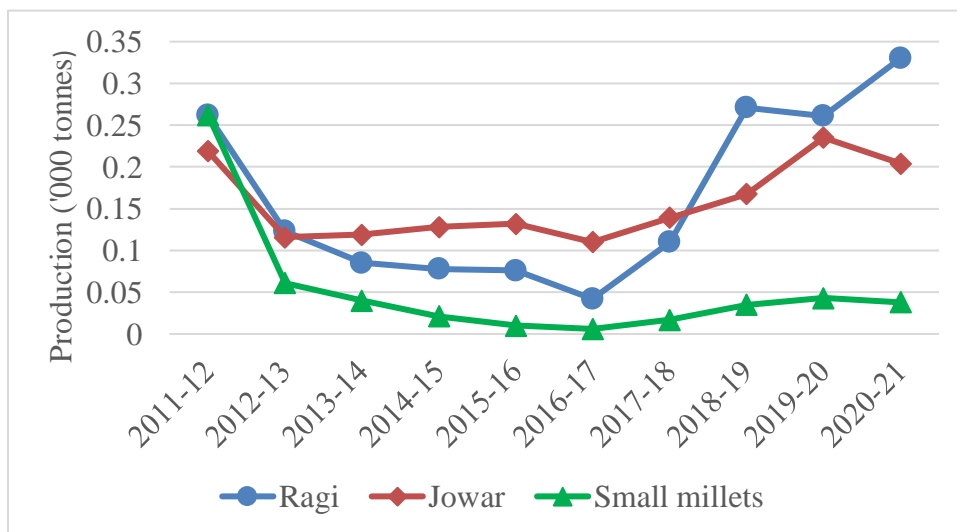
Fig.11. Area of Ragi, Jowar, and Small millets in Kerala from 2011-12 to 2020-21



Source: Various issues of Agriculture at a Glance

during the year 2015-16 with (174 '000ha) and lowest during the year 2016-17 (97 '000ha) and the area under small millets was highest during the year 2015-16 with (51 '000 ha) and lowest during year 2018-19 with (13 '000ha) in Kerala during the last 10 years as shown in fig.13.

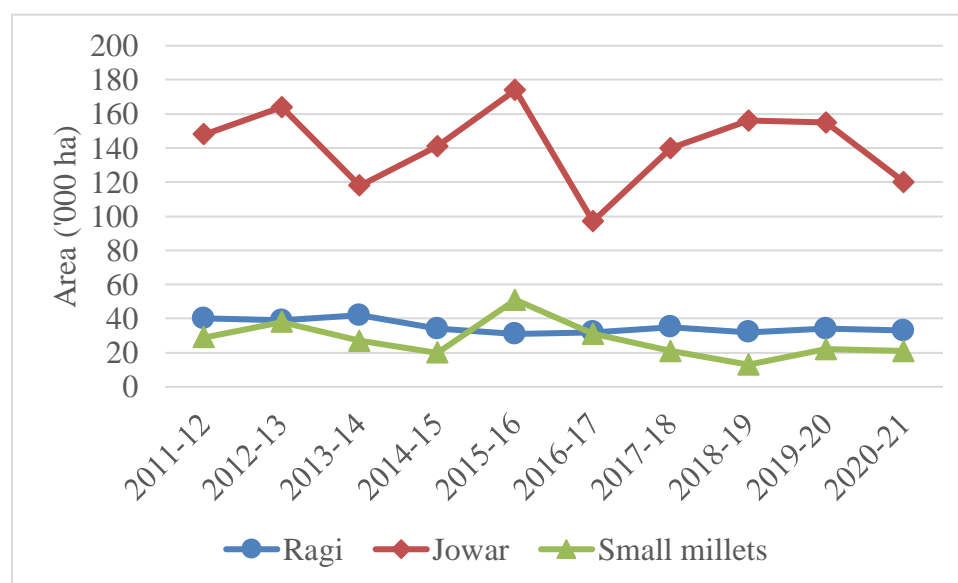
Fig.12. Production of Ragi, Jowar and Small millets in Kerala from 2011-12 to 2020-21



Source: Various issues of Agriculture at a Glance

During the year 2018-19, the production of ragi was the highest during year 2017-18 and 2019-20 (44 '000ha) and lowest during year 2014-15 (34 '000ha), the production of jowar was the highest during year 2012-13 (412 '000ha) and lowest during year 2016-17 (198 '000ha) and the production of small millets was the highest during year 2015-16 (49 '000ha) and lowest during year 2018-19 (6 '000ha) as shown in fig.14.

Fig.13. Area of Ragi, Jowar and Small millets in Andhra Pradesh from 2011-12 to 2020-21

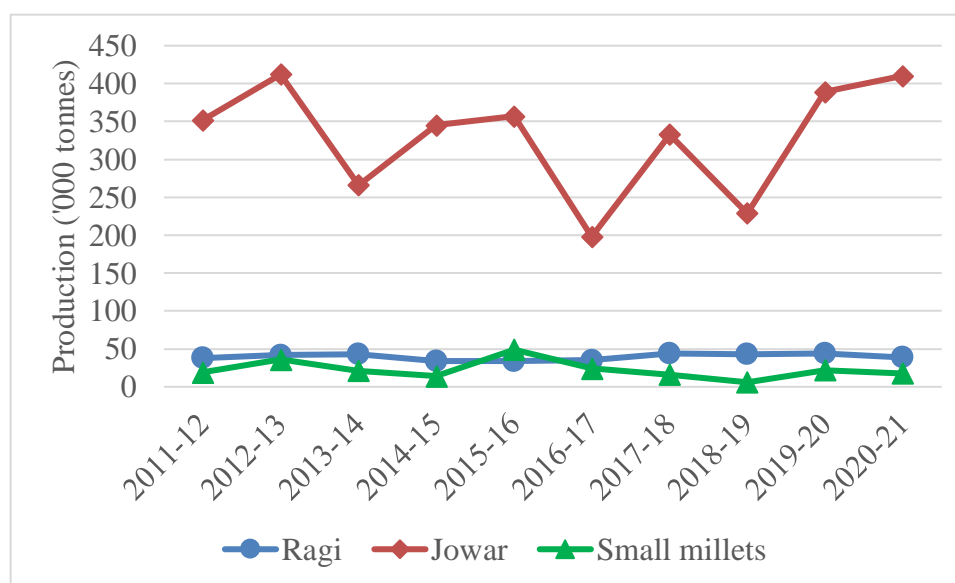


Source: Various issues of Agriculture at a Glance.

#### 4.1.1.6 Area and production of Sugarcane in Kerala from 2011-12 to 2020-23

In Kerala, Idukki district is the leading producer of sugarcane followed by Alappuzha district. The area, production and productivity of sugarcane in Kerala was 931 hectares, 1,01,240 tonnes and 108 tonnes per ha, respectively. (GOK, 2023). The sugarcane area and production in the state have declined to 85.70 to 78.13 per cent, respectively during the year 2021-22. The production of sugarcane in Kerala was lowest during the period 2020-21 (74 '000 tons) out of the total production computed for the last 12 years as shown in fig.15 and given in Appendix VI.

Fig.14. Production of Ragi, Jowar and Small millets in Andhra Pradesh from 2011-12 to 2020-21



Source: Various issues of Agriculture at a Glance

Nisha *et al.* (2021) pointed out that the major factors limiting sugarcane cultivation were the lack of suitable processing avenues and the lack of government assistance for the cultivation.

#### 4.1.1.7 Area and production of Sugarcane in Andhra Pradesh from 2011-12 to 2020-23

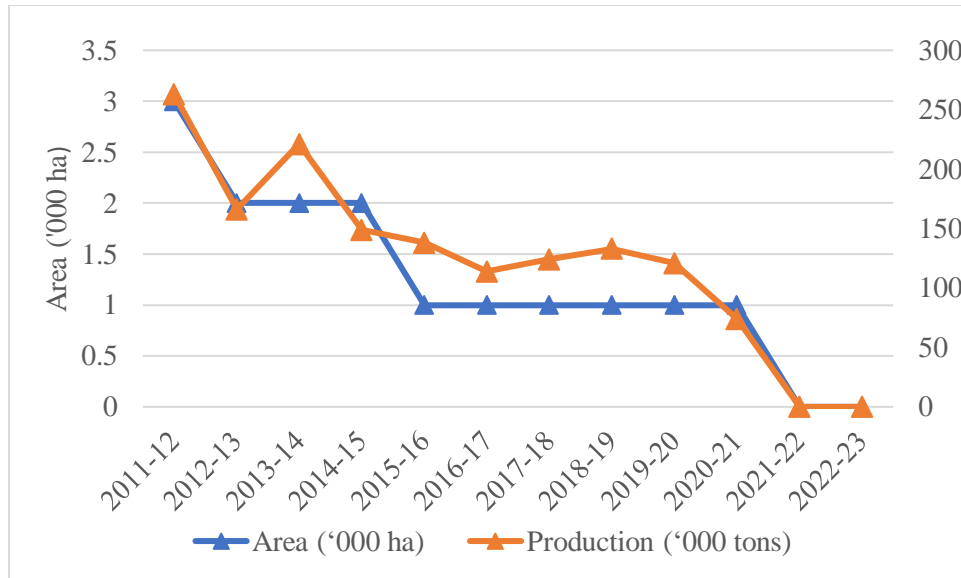
In Andhra Pradesh, Sugarcane is one of the leading cash crop constituting 0.1 million hectare of cultivated area with an overall production of 7.95 million tonnes and yield of 80.28 tonnes ha<sup>-1</sup> (Asha *et al.*, 2018). The major sugarcane growing districts were Vishakaptnam, Godavari and Krishna. The area and production of sugarcane declined drastically from 2011-12 to 2022-23 given in fig.16 and Appendix VII. The area (204 '000ha) and production (16686 '000 tons) of sugarcane were highest during the year 2011-12. The reason for decline in area and production were due to labour shortage and high production cost (Rao *et al.*, 2023).

#### 4.1.1.8 Growth Rate in Area, Production and Productivity of Food Grains in Kerala and Andhra Pradesh

##### Rice

The area under rice in Kerala varied from 2.08 lakh ha in 2011-12 to 2.05 lakh ha in 2020-21. The area under rice in Andhra Pradesh varied from 23.46 lakh ha in

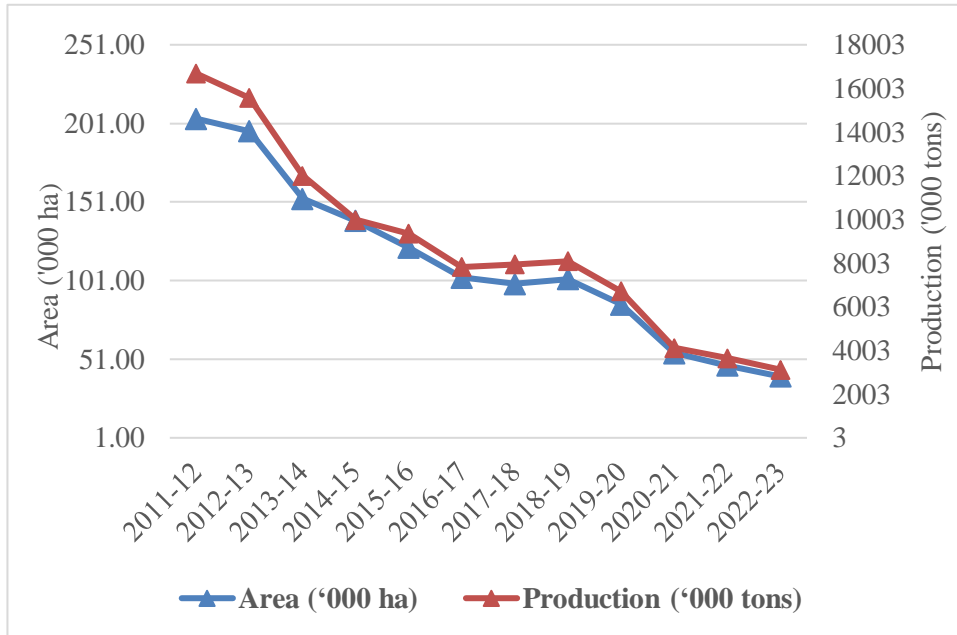
Fig.15. Area and production of sugarcane in Kerala from 2011-12 to 2020-23



Source: Various issues of Agriculture at a Glance

2011-12 to 25.52 lakh ha in 2020-21 (Appendix 1). A fluctuating trend was observed in the case of area and production. Compound annual growth rate was employed to find out the growth rates in the area and production of rice. Growth rates were worked out for the overall study period (2011-12 to 2020-21). In Kerala and Andhra Pradesh, the computed growth rates were 0.99 per cent and 1.00 per cent respectively. A higher growth rate was observed in Andhra Pradesh (1.00%) when compared to Kerala (0.99%). The growth rate in the production of rice in Kerala and Andhra Pradesh was 1.03 per cent and 1.02 per cent. When compared to Andhra Pradesh, a higher growth rate in production of 1.03 per cent was observed in Kerala. A notable increase in rice production was observed from 2019-20 onwards in Kerala which was primarily due to government policy interventions such as minimum selling price policy. The growth rate of productivity was 1.10 and 1.10 per cent in Kerala and Andhra Pradesh respectively.

Fig.16. Area and production of sugarcane in Andhra Pradesh from 2011-12 to 2020-23



### Ragi

The area under ragi in Kerala varied from 248 ha in 2011-12 to 230 ha in 2020-21. The area under ragi in Andhra Pradesh varied from 0.40 lakh ha in 2011-12 to 0.33 lakh ha in 2020-21(Appendix III). A fluctuating trend was observed in the case of area and production. Compound annual growth rate was employed to find out the growth rates in the area and production of ragi. Growth rates were worked out for the overall study period (2011-12 to 2020-21). In Kerala and Andhra Pradesh, the computed growth rates were 1.05 per cent and 0.97 per cent respectively. A higher growth rate was observed in Kerala (1.05%) when compared to Andhra Pradesh (0.97%). Similarly, there has been a notable growth in ragi production in Kerala which increased from 262 tonnes in 2011-12 to 330 tonnes in 2020-21. In Andhra Pradesh, ragi production increased from 0.38 lakh tonnes in 2011-12 to 0.39 lakh tonnes in 2020-21. The growth rate in the production of ragi in Kerala and Andhra Pradesh was 1.08 per cent and 1.00 per cent respectively. When compared to Andhra Pradesh, a higher growth rate in production of 1.08 per cent was observed in Kerala. A notable increase in ragi production was observed from 2020-21 onwards in Kerala.

## **Jowar**

The area under Jowar in Kerala varied from 280 ha in 2011-12 to 231 ha in 2020-21. The area under jowar in Andhra Pradesh varied from 1.48 lakh ha in 2011-12 to 1.20 lakh ha in 2020-21(Appendix IV). A fluctuating trend was observed in the case of area and production of jowar. Compound annual growth rate was employed to find out the growth rates in the area and production of jowar. Growth rates were worked out for the overall study period (2011-12 to 2020-21). In Kerala and Andhra Pradesh, the computed growth rates were 1.02 per cent and 0.95 per cent respectively. A higher growth rate was observed in Kerala (1.02%) when compared to Andhra Pradesh (0.95%). Similarly, there has been a notable growth in Jowar production in Kerala which decreased from 219 tonnes in 2011-12 to 204 tonnes in 2020-21. In Andhra Pradesh production of jowar increased from 0.38 tonnes in 2011-12 to 0.39 tonnes in 2020-21. The growth rate in the production of Jowar in Kerala and Andhra Pradesh was 1.03 per cent and 0.97 per cent respectively. When compared to Andhra Pradesh, a higher growth rate in production of 1.03 per cent was observed in Kerala. A notable increase in Jowar production was observed from 2019-20 onwards in Kerala.

## **Small millets**

The area under small millets in Kerala varied from 110 ha in 2011-12 to 51 ha in 2020-21. The area under small millets in Andhra Pradesh varied from 0.29 lakh ha in 2011-12 to 0.21 lakh ha in 2020-21(Appendix V). A decreasing trend was observed in the case of area and production. A compound annual growth rate was employed to find out the growth rates in the area and production of small millets. Growth rates were worked out for the overall study period (2011-12 to 2020-21). In Kerala and Andhra Pradesh, the computed growth rates were 0.95 per cent and 0.93 per cent respectively. A higher growth rate was observed in Kerala (0.95%) when compared to Andhra Pradesh (0.93%). Similarly, there has been a notable decrease in small millet production in Kerala decreasing from 262 tonnes in 2011-12 to 38 tonnes in 2020-21. In Andhra Pradesh production of small millets decreased from 0.19 lakh tonnes in 2011-12 to 0.18 lakh tonnes in 2020-21. The growth rate in the production of small millets in Kerala and Andhra Pradesh was 0.87 per cent and 0.93 per cent respectively. When compared to Kerala, a higher growth rate in production of 0.93 per cent was observed in Andhra

Pradesh. A notable increase in production of small millets was observed from 2020-21 onwards in Kerala. Compound annual growth rate in area, production and productivity of food grains in Kerala and Andhra Pradesh during 2012-21 is given in table 5.

Table 5. Compound annual growth rate in area, production and productivity of food grains in Kerala and Andhra Pradesh

Sl. No	CAGR (% per annum)						
	Kerala				Andhra Pradesh		
	Food grain	Area	Production	Productivity	Area	Production	Productivity
1	Rice	0.99	1.03	1.01	1.00	1.02	1.01
2	Ragi	1.05	1.08	1.01	0.97	1.00	1.00
3	Jowar	1.02	1.03	1.00	0.99	0.99	1.00
4	Small millets	0.95	0.87	0.96	0.93	0.93	0.95

Source: Various issues of Agriculture at a Glance

#### 4.1.2 Procurement of food grains

##### 4.1.2.1 Procurement of food grains in India

The food grains distributed to beneficiaries through the Targeted Public Distribution System (TPDS) are sourced from farmers at a Minimum Support Price (MSP). MSP is the rate at which the Food Corporation of India (FCI) directly acquires crops from farmers, typically exceeding market prices. This mechanism aims to offer price support to farmers and stimulate agricultural production. About thirty percent of production is accounted for by procurement, which grew steadily from 38 million tonnes in 2003–04 to 70 million tonnes in 2012–13. Sustaining this procurement level is essential in order to fulfill the obligations stipulated in the National Food Security Act of 2013. The real amount of procurement has been rising steadily, reaching 70 million tonnes in 2012–13, accounting for roughly 36% of total production, despite the Commission for Agricultural Costs and Prices (CACP) estimating 61 million tonnes (Balani, 2013). It may be simpler to obtain this amount of food grains in years when production is high. Punjab wins the biggest part of the states in the overall paddy procurement for the year

2016–17, accounting for 27%. Odisha (10%), Chhattisgarh (10%), Andhra Pradesh (9%), and Haryana (8%) follow in order of importance (Kumar, 2023).

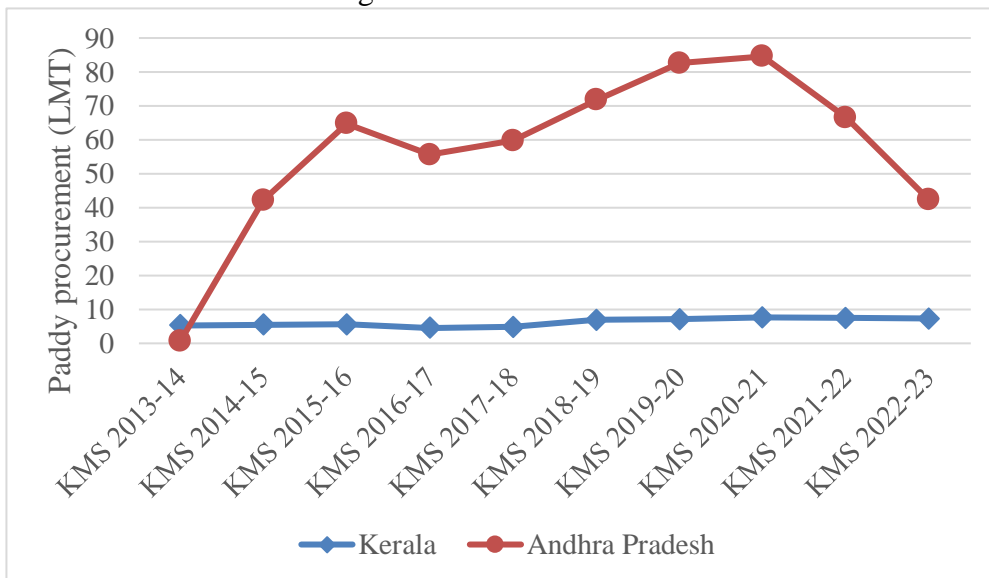
#### 4.1.2.2 Paddy procurement in Kerala and Andhra Pradesh

Kerala State Civil Supplies Corporation Limited (Supplyco) is procuring paddy on behalf of the State Government under the Decentralised Paddy Procurement Scheme of the Government of India. The AP State Civil Supplies Corporation Ltd is the nodal agency of Government of AP for paddy procurement operations. The procurement of paddy was highest for both Kerala with 7.65 LMT and in Andhra Pradesh with 84.57 LMT during the period 2020-21 which can be assumed due to covid-19 pandemic in which the state procures more from other rice-producing states to cope with the tough situation. The procurement of paddy in Andhra Pradesh was less during the period 2013-14 with 0.72 LMT. During the year 2016-17, procurement of paddy (4.52 LMT) was less compared to that in the last 10 years in Kerala. Paddy procurement in 2013-14 (0.72 LMT) was less compared to that in the last 9 years in Andhra Pradesh as shown in fig.17.

There is no procurement of millets and sugar in both states.

Fig.17. Paddy procurement in Kerala and Andhra Pradesh from 2013-14 to 2022-23

Note: KMS- Kharif Marketing Season



Source: Various issues of Agriculture at a Glance

## 4.2.1 SOCIO-ECONOMIC CHARACTERISTICS OF SAMPLE RESPONDENTS

The socio-economic profile provides a comprehensive understanding of respondents in terms of their age, gender, marital status, education status, occupation, income level, religion, caste, type of household, no of households, and type of dwelling.

### 4.2.1.1 Age of sample respondents

Information regarding age particulars was collected from sample respondents and grouped into four categories viz., 18-30 years, 30-50 years, 50-60 years, and above 60 years and the same are provided in table 6.

A perusal of the table 6 shows the age distribution of the respondents. Out of 120 respondents from Kerala 10.83 per cent of the respondents were in the age group of 18-30 years, 39.17 per cent of the respondents were in the age group of 30-50 years, 26.27 per cent of the respondents were in the age group of 50-60 years and the 23.33 per cent of the respondents were in the age group of above 60 years. Out of 120 respondents from Andhra Pradesh, age categorization indicated that 6.67 per cent of the respondents were in the age group of 18-30 years, 50 per cent of the respondents

Table 6. Age of sample respondents

Sl. No.	Age	Kerala (No. of respondents)	Andhra Pradesh (No. of respondents)
1	18-30 years	13 (10.83%)	8 (6.67%)
2	30-50 years	47 (39.17%)	60 (50%)
3	50-60 years	32 (26.67%)	30 (25%)
4	Above 60 years	28 (23.33%)	22 (18.33%)
	TOTAL	120 (100%)	120 (100%)

Note: Figures in parentheses indicate per cent to total

were in the age group of 30-50 years. 25 per cent of the respondents were in the age group of 50-60 years and 18.33 per cent of the respondents were in the age group of above 60 years. The age group details revealed that the greater percentage of sample respondents in both Kerala and Andhra Pradesh areas were in the age group of 30- 50 years.

The observations were in line with the results of the study conducted by Bhagawat and Raut (2018) in Maharashtra in which he found that respondents in the age group of 18-30.

#### 4.2.1.2 Gender of sample respondents

Gender information was collected from sample respondents and grouped into three categories viz., male, female and others and the same is provided in table 7.

Table 7. Gender of sample respondents

Sl. No.	Gender	Kerala (No. of respondents)	Andhra Pradesh (No. of respondents)
1	Male	34 (28.33%)	52 (43.33%)
2	Female	86 (71.67%)	68 (56.67%)
3	Others	0 (0%)	0 (0%)
	TOTAL	120 (100%)	120 (100%)

Note: Figures in parentheses indicate per cent to total

A perusal of table 7 shows the gender of the sample respondents. Gender categorization in Kerala state indicated that 28.33 per cent of the respondents were male and 71.67 per cent of the respondents were female. In Andhra Pradesh state, 43.33 per cent of the respondents were male and 56.67 per cent of the respondents were female. The gender analysis revealed that a greater percentage of sample respondents in both Kerala and Andhra Pradesh areas were female.

Similar results were found in the study conducted by Mahendran (2014) in Tamil Nadu in which most of the respondents were female with 68.4%.

#### 4.2.1.3 Marital status of the sample respondents

Information regarding the marital status was collected from sample respondents and grouped into four categories viz., Single, Married, Divorcee and Widow and the same is provided in table 8.

A perusal of table 8 shows the marital status of sample respondents. Marital status categorization in Kerala state, indicated that 7.5 per cent of the respondents were single, 81.67 per cent of the respondents were married, none of the respondents were divorcee and 10.83 per cent of the respondents were widow. In Andhra Pradesh state, 2.5 per cent of the respondents were under the category of single, 80 per cent of the

Table 8. Marital status of the sample respondents

Sl. No.	Marital status	Kerala (No. of respondents)	Andhra Pradesh (No. of respondents)
1	Single	9 (7.5%)	3 (2.5%)
2	Married	98 (81.67%)	96 (80%)
3	Divorcee	0 (0%)	4 (3.33%)
4	Widow	13 (10.83%)	17 (14.17%)
	TOTAL	120 (100%)	120 (100%)

Note: Figures in parentheses indicate per cent to total

respondents were married, 3.33 per cent of the respondents were divorced and 14.17 per cent of the respondents were widow. The marital status analysis revealed that the greater percentage of sample respondents in both Kerala and Andhra Pradesh areas were married.

A study conducted by Nakkiran (2004) in Tamil Nadu also revealed that the majority (96.7%) of the respondents were married.

#### 4.2.1.4 Literacy status of sample respondents.

Information regarding the literacy status was collected from sample respondents and grouped into six categories viz. below SSLC, SSLC, plus two, graduation, post graduation and professional and the same is provided in table 9.

A perusal of table 9 shows the literacy status of sample respondents. Literacy status categorization in Kerala state shows out of 120 respondents 46.67 per cent of the respondents were below SSLC, 34.17 per cent of the respondents were having SSLC, 10 per cent of the respondents were having plus two, 8.33 per cent of the respondents were graduates and 0.83 percent of the respondents were having the qualification of

Table 9. Literacy status of sample respondents.

Sl. No.	Literacy	Kerala (No. of respondents)	Andhra Pradesh (No. of respondents)
1	Below SSLC	56 (46.67%)	73 (60.83%)
2	SSLC	41 (34.17%)	31 (25.83%)
3	Plus two	12 (10%)	5 (4.17%)
4	Graduation	10 (8.33%)	9 (7.5%)
5	Post graduation	1 (0.83%)	2 (1.67%)
6	Professional	0 (0%)	0 (0%)
	TOTAL	120 (100%)	120 (100%)

Note: Figures in parentheses indicate per cent to total

post-graduation. In Andhra Pradesh state shows that out of 120 rural respondents 60.83 per cent of the respondents were below SSLC, 25.83 per cent of the respondents were having SSLC, 4.17 per cent of the respondents were having plus two, 7.5 per cent of the respondents were graduates and 1.67 percent of the respondents were having the qualification of post-graduation. The educational status revealed that greater percentage of sample respondents in both Kerala and Andhra Pradesh were below SSLC.

A study conducted by Anjana and Vijayan (2020) in Thrissur district also revealed that more (36%) of the respondents were below SSLC.

#### 4.2.1.5 Occupational status of head of family

Information regarding the occupational status of the family head was collected from sample respondents and grouped into four categories viz., self-employed, employed for wages, government employee and unemployed and the same is provided in table 10.

Table 10. Occupational status of head of family

Sl. No	Occupation	Kerala (No. of respondents)	Andhra Pradesh (No. of respondents)
1	Self-employed	4 (3.33%)	16 (13.33%)
2	Employed for wages	21 (17.5%)	71 (59.17%)
3	Government employee	0 (0%)	0 (0%)
4	Unemployed	95 (79.17%)	33 (27.5%)
	TOTAL	120 (100%)	120 (100%)

Note: Figures in parentheses indicate per cent to total

A perusal of the table 10 shows the occupational status of the family head. Out of 120 Kerala respondents, 3.33 per cent of the family heads were self-employed, 17.5

per cent of the family heads were employed for wages and 79.17 per cent of the family heads were unemployed. In Andhra Pradesh state out of 120 households 13.33 per cent of the households were self-employed, 59.17 per cent of the households were employed for wages and 27.5 per cent of the households were unemployed. The occupation status of the sample households revealed that greater percentage of family heads in Kerala areas were unemployed. In Andhra Pradesh state greater percentage of family heads were employed for wages.

A study conducted by Suryakrishnan (2021) in Palakkad district also revealed that the majority (60%) of the respondents were others, 14% of the respondents are Selfemployed, 24% of them belong to the employed for wages, and 2% of them are government employees.

#### 4.2.1.6 Annual income status of sample households

Information regarding the annual income was collected from sample households and grouped into five categories viz., below Rs. 15,000/ year, Rs 15,000-

Table 11. Annual income of sample households as of 2023

Sl. No.	Income level	Kerala (No. of respondents)	Andhra Pradesh (No. of respondents)
1	Below Rs.15,000	86 (71.67%)	20 (16.67%)
2	Rs.15,000-25,000	16 (13.33%)	42 (35%)
3	Rs.25,000-1,00,000	9 (7.5%)	56 (46.67%)
4	Above Rs. 1,00,000	9 (7.5%)	2 (1.66%)
	TOTAL	120 (100%)	120 (100%)

Note: Figures in parentheses indicate per cent to total

25,000/year, Rs 25,000-1,00,000/year and above Rs 1,00,000/year and the same is provided in table 11.

A perusal of the table 11 shows the income status of the sample households. Income level categorization in Kerala state shows that 71.67 per cent of the households were having an income level of below Rs 15,000/year, 13.33 per cent of the households were having an income level of Rs 15,000-25,000/year, 7.5 per of the households were having an income level of Rs. 25,000-1,00,000/year and 7.5 percent households were having the income of above Rs.100000. In Andhra Pradesh state out of 120 households that 16.67 percent of the households were having the income level of below Rs 15,000/year, 35 per cent of the households were having the income level of Rs 15,000-25,000/year, 46.67 per of the households were having an income level of Rs. 25,000-1,00,000/year and 1.67 percent households were having the income of above Rs.1,00,000. The income status of the sample households revealed that greater percentages of households in the Kerala state had an income level of below Rs. 15,000/year and in Andhra Pradesh, more households had an income level of Rs.25,000- Rs.1,00,000/year.

The results are in line with the study of Nair (2022) where the results have shown that the majority of the respondents in Thiruvananthapuram district reported an annual income falling within the range of less than Rs.15,000/year.

#### **4.2.1.7 Religion of the sample households**

Information regarding the religious particulars was collected from sample households and grouped into four categories viz., Hindu, Muslim, Christian and any other and the details of the same are provided in table 12.

A perusal of the table 12 shows the religion of the sample households. Out of 120 households from Kerala, 80 per cent of the households belonged to Hindu, 20 per cent of the households belonged to Muslim and none of the households belonged to Christian and any others. Out of 120 households in Andhra Pradesh, 100 per cent of the households belonged to Hindu and none of the households belonged to Muslim, Christian and others. The religious particulars of the sample households revealed that greater percentage of households in both Kerala and Andhra Pradesh belonged to the Hindu religion.

Vetrivel (2020) also noted that most of the respondents in Tiruchirappalli district belonged to the Hindu religion.

#### 4.2.1.8 Caste of the sample households

Information regarding the caste of sample households was collected and grouped into four categories viz., General, Scheduled Caste, Scheduled Tribe, OBC, and others, and the details of the same are provided in table 13.

A perusal of the table 13 shows the caste of the sample households. Out of 120 households from Kerala 10 per cent of the households belonged to the general category,

Table 12. Religion of the sample households

Sl. No	Religion	Kerala (No. of respondents)	Andhra Pradesh (No. of respondents)
1	Hindu	96 (80%)	120 (100%)
2	Muslim	24 (20%)	0 (0%)
3	Christian	0 (0%)	0 (0%)
4	Any other	0 (0%)	0 (0%)
	TOTAL	120 (100%)	120 (100%)

Note: Figures in parentheses indicate per cent to total

17.5 per cent of the households belonged to the scheduled caste, none of the households belonged to the scheduled tribe and 72.5 per cent of the households belonged to OBC. Out of 120 households from Andhra Pradesh 22.5 per cent of the households belonged to the general category, 35.83 per cent of the households belonged to a scheduled caste, none of the households belonged to a scheduled tribe and 35 per cent of the households belonged to OBC. The caste particulars of the sample households revealed that greater percentage of households in Kerala belonged to OBC and Andhra Pradesh belonged to the scheduled caste.

Similar results have been found in the study conducted by Mahendran (2014) in Tamil Nadu in which many of the respondents belonged to the category OBC with 38%.

#### 4.2.1.9 Type of household of sample households

Information regarding the type of household was collected from sample households and grouped into four categories viz., single, nuclear family, nuclear family with dependent and joint family and the details of the same are provided in table 14.

Table 13. Caste of the sample households

Sl. No	Caste	Kerala (No. of respondents)	Andhra Pradesh (No. of respondents)
1	General	12 (10%)	27 (22.5%)
2	Scheduled Caste	21 (17.5%)	43 (35.83%)
3	Scheduled Tribe	0 (0%)	8 (6.67%)
4	OBC	87 (72.5%)	42 (35%)
5	Other	0 (0%)	0 (0%)
	TOTAL	120 (100%)	120 (100%)

Note: Figures in parentheses indicate per cent to total

A perusal of the table 14 shows the type of household of sample households. Out of 120 households from Kerala 67 per cent of the households were single, 10.83 per cent of the households were having a nuclear family, 61.67 per cent of the households were having a nuclear family with a dependent and 25.83 per cent of the household had joint family. In Andhra Pradesh state out of 120 households, 10.83 per cent of the households were single, 23.33 per cent of the households had nuclear family, 58.34 per cent of the households had nuclear family with dependent and 7.5 per cent of the households had joint family. The type of household of the sample households revealed that greater percentages of households in both Kerala and Andhra Pradesh were nuclear family with dependents.

Table 14. Type of household of sample households

Sl. No	Type of household	Kerala (No. of respondents)	Andhra Pradesh (No. of respondents)
1	Single	2 (1.67%)	13 (10.83%)
2	Nuclear family	13 (10.83%)	28 (23.33%)
3	Nuclear family with dependent	74 (61.67%)	70 (58.34%)
4	Joint family	31 (25.83%)	9 (7.5%)
	TOTAL	120 (100%)	120 (100%)

Note: Figures in parentheses indicate per cent to total

Similar results have been found in the study conducted by Anjana and Vijayan (2020) in Thrissur district in which the majority (64%) of the respondents belonged to the nuclear family.

#### 4.2.1.10 Type of house of sample households

Information regarding the type of house was collected from sample households and grouped into two categories viz., own house and rented house and the same is provided in table 15.

A perusal of the table 15 shows the type of house of sample households. Out of 120 households from Kerala, 97.5 per cent of the households had own house and 2.5 per cent of the households were living in a rented house. In Andhra Pradesh state out of 120 households, 94.17 per cent of the households were having own house and 5.83 per cent of the households were living in a rented house. The type of house of the sample households revealed that most of the households in both Kerala and Andhra Pradesh were having own house.

Table 15. Type of house of sample households

Sl. No	Type of house	Kerala (No. of respondents)	Andhra Pradesh (No. of respondents)
1	Own house	117 (97.5%)	113 (94.17%)
2	Rented house	3 (2.5%)	7 (5.83%)
	TOTAL	120 (100%)	120 (100%)

Note: Figures in parentheses indicate per cent to total

#### 4.2.1.11 Type of dwelling of sample households

Information regarding the type of dwelling was collected from sample households and grouped into three categories viz., concrete roof, tiles and sheet and the same is provided in table 16.

Examining table 16 reveals the kind of housing occupied by the sample households. Of the 120 Keralan residences, 91.67 percent had concrete roofs, 6.67 percent had tile roofs, and 1.67 percent had sheet roofs. Sixty-five percent of the 120 households in the state of Andhra Pradesh had concrete roofs, followed by tiled houses with 15.83 percent and sheet houses with 19.17 percent. The sample households' types of dwellings showed that a higher proportion of households in the states of Andhra Pradesh and Kerala had concrete roofs.

The results are in line with the study of Vetrivel (2020) where the results have shown that the majority of the respondents in Tiruchirappalli district are having concrete roofed houses.

#### 4.2.1.12 Family size particulars of sample household

Information regarding the family size was collected from sample households and grouped into four categories viz., 1-3 members, 4-6 members, 7-9 members and greater than 10 members and the same is provided in table 17.

Table 16. Type of dwelling of sample households

Sl. No	Type of dwelling	Kerala (No. of respondents)	Andhra Pradesh (No. of respondents)
1	Concrete roof	110 (91.67%)	78 (65%)
2	Tiles	8 (6.67%)	19 (15.83%)
3	Sheet	2 (1.66%)	23 (19.17%)
	TOTAL	120 (100%)	120 (100%)

Note: Figures in parentheses indicate per cent to total

A perusal of table 17 shows the family size particulars of sample households. Family size categorization of 120 rural sample households indicated that in Kerala state 46.67 per cent of the sample households belonged to the category of less than 4 members, 45 per cent of the sample households belonged to the category of 4-6 members, 6.67 per cent of the sample households belonged to the category of 7-9 members and 1.67 per cent of the sample households belonged to the category of more than 9 members. In Andhra Pradesh state out of 120 households, 85.83 per cent of the sample households belonged to the category of less than 4 members, 11.67 per cent of the sample households belonged to the category of 4-6 members, 2.5 per cent of the sample households belonged to the category of 7-9 members.

The family size particulars revealed that greater percentage of households in both Kerala and Andhra Pradesh state belonged to the category of less than 4 members.

## 4.2.2 LEVEL OF SATISFACTION OF CONSUMERS

### 4.2.2.1 Perception about the quality of food grains

Table 18 shows that in Kerala state, 16.67 per cent of the respondents felt excellent about the quality of food grains received from PDS, 66.67 per cent of the respondents felt good, 15.83 per cent of the respondents were undecided and 0.83 per cent of the

respondents felt bad. In Andhra Pradesh state, 3.33 per cent of the respondents felt excellent, 60 per cent of the respondents felt good, and 36.67 percent of the respondents were undecided about the quality of food grains. None of the respondents felt that the quality of food grains was very bad.

Table 17. Family size particulars of sample households

<b>Sl. No</b>	<b>Family size</b>	<b>Kerala (No. of respondents)</b>	<b>Andhra Pradesh (No. of respondents)</b>
1	<4	56 (46.67%)	103 (85.83%)
2	4-6	54 (45%)	14 (11.67%)
3	7-9	8 (6.67%)	3 (2.5%)
4	>9	2 (1.66%)	0 (0%)
	<b>TOTAL</b>	120 (100%)	120 (100%)

Note: Figures in parentheses indicate per cent to total

Among the 240 respondents, the majority of them (63.33%) felt that the quality of food grains was good. The mean score of the perception of ration card holders about the quality of food grains was more in Kerala (3.99) when compared to that in Andhra Pradesh (3.66).

Comparably, in the Punjab study by Ghumaan and Dhiman (2014), concerning the quality of the commodities supplied under the PDS, 54% of respondents felt good, 28% were undecided, 16% felt bad, and 2% felt very bad about the quality of food grains; however, in urban areas, 2% of respondents felt excellent, 50% felt good, 32% were undecided, 14% felt bad, and 2% felt very bad about the quality of food grains.

Table 18. Perception of ration card holders about the quality of food grains.

State	No. of respondents							Mean Score
	Parameters	Excellent	Good	Undecided	Bad	Very bad	Total	
Kerala	No. of respondents	20	80	19	1	0	120	3.99
	Percentage	16.67	66.67	15.83	0.83	0	100	-
Andhra Pradesh	No. of respondents	4	72	44	0	0	120	3.66
	Percentage	3.33	60	36.67	0	0	100	-
Total	No. of respondents	24	152	63	1	0	240	3.82
	Percentage	10	63.33	26.25	0.42	0	100	-

#### 4.2.2.2 Perception of consumers about the attitude of PDS dealer

Table 19 shows that in Kerala state, 15.83 per cent of the respondents felt very helpful about the attitude of the PDS dealer, 83.34 per cent of the respondents felt helpful, 0.83 per cent of the respondents were undecided and none of the respondents felt somewhat helpful and not helpful. In Andhra Pradesh state, 25.83 per cent of the respondents felt very helpful, 72.5 per cent of the respondents felt helpful, 1.67 per cent of the respondents were undecided and none of the respondents felt somewhat helpful and not helpful about the perception of consumers about the attitude of PDS dealer.

Among the 240 respondents, the majority of them (77.92%) felt helpful with the perception of consumers about the attitude of PDS dealers. The mean score of the perception of ration card holders about the attitude of PDS dealers was more in Andhra Pradesh (4.24) when compared to that in Kerala (4.12).

According to Ghumaan and Dhiman's (2014) survey in Punjab, the majority of households there said that the FPS sellers were helpful overall. Out of fifty respondents from rural areas, the results showed that forty-two percent were satisfied, ten percent were at an average level of satisfaction, thirty-four percent were dissatisfied, and fourteen percent were extremely dissatisfied with the way the FPS dealer treated them.

Regarding the behaviour of FPS dealers in metropolitan areas, 4 percent of respondents are extremely satisfied, 34 percent are satisfied, 24 percent are at an

average satisfaction level, 4 percent are dissatisfied, and 4 percent are severely dissatisfied.

Table 19. Perception of consumers about the attitude of PDS dealer

State	No. of respondents							Mean score
	Parameters	Very helpful	Helpful	Indifferent	Somewhat helpful	Not Helpful	Total	
Kerala	No. of respondents	19	100	1	0	0	120	4.12
	Percentage	15.83	83.34	0.83	0	0	100	-
Andhra Pradesh	No. of respondents	31	87	2	0	0	120	4.24
	Percentage	25.83	72.5	1.67	0	0	100	-
Total	No. of respondents	50	187	3	0	0	240	4.19
	Percentage	20.83	77.92	1.25	0	0	100	-

#### 4.2.2.3 Level of satisfaction with the functioning of local PDS outlet

Table 20 shows that in Kerala state, 42.5 per cent of the respondents were highly satisfied with the functioning of local PDS outlet, 55.83 per cent of the respondents were satisfied, 1.67 per cent of the respondents were somewhat dissatisfied and none of the respondents were undecided and fully satisfied. In Andhra Pradesh state 27.5 per cent of the respondents were highly satisfied, 40 per cent of the respondents were satisfied, 26.67 per cent of the respondents were undecided, 3.33 per cent of the respondents were somewhat dissatisfied, and 2.5 per cent of the respondents were fully dissatisfied about the level of satisfaction with the function of local PDS outlet.

Table 20. Level of satisfaction with the functioning of local PDS outlet

State	No. of respondents							Mean score
	Parameters	Highly satisfied	Satisfied	Undecided	Somewhat dissatisfied	Fully dissatisfied	Total	
Kerala	No. of respondents	51	67	0	2	0	120	4.14
	Percentage	42.5	55.83	0	1.67	0	100	-
Andhra Pradesh	No. of respondents	33	48	32	4	3	120	3.86
	Percentage	27.5	40	26.67	3.33	2.5	100	-
Total	No. of respondents	84	115	32	6	3	240	4.12
	Percentage	35	47.97	13.33	2.5	1.2	100	-

Among the 240 respondents, the majority of them (47.97%) were satisfied. The mean score of the perception of ration card holders about the level of satisfaction with the functioning of local PDS outlet was more in Kerala (4.14) when compared to that in Andhra Pradesh (3.86).

## **PERCEPTION OF RESPONDENTS ON FUNCTIONING OF PDS OUTLET DURING THE PAST 5 YEARS**

### **4.2.2.4 Accessibility to PDS outlet by the respondents**

Table 21 shows that in Kerala state, 26.67 per cent of the respondents felt highly accessible, 30 per cent of the respondents felt accessible, 43.33 per cent of the respondents were undecided and none of the respondents felt accessible with some difficulty and not accessible. In Andhra Pradesh state, 3.33 per cent of the respondents felt excellent, 35 per cent of the respondents felt good, 61.67 per cent of the respondents were undecided and none of the respondents felt accessible with some difficulty and not accessible. about the accessibility of PDS.

Table 21. Accessibility to PDS outlet by the respondents

State	No. of respondents							Mean score
	Parameters	Highly accessible	Accessible	Undecided	Accessible with some difficulty	Not accessible	Total	
Kerala	No. of respondents	32	36	52	0	0	120	3.83
	Percentage	26.67	30	43.33	0	0	100	-
Andhra Pradesh	No. of respondents	4	42	74	0	0	120	3.41
	Percentage	3.33	35	61.67	0	0	100	-
Total	No. of respondents	36	78	126	0	0	240	3.62
	Percentage	15	32.5	52.5	0	0	100	-

Among the 240 respondents, the majority of them (52.5%) were undecided with the accessibility of PDS. The mean score of the perception of ration card holders about the accessibility to PDS outlet by the respondents was more in Kerala (3.83) when compared to that in Andhra Pradesh (3.41).

The observations were in line with the results of the study conducted by Nair (2022) in Thiruvananthapuram district, where the accessibility of PDS of 56 per cent of respondents was better, 39 per cent of respondents felt the same, 1 per cent respondents felt worse and 4 per cent respondents felt can't say.

#### 4.2.2.5 Regularity in functioning of PDS outlet

Table 22 shows that in Kerala state, 23.33 per cent of the respondents felt very regular about the functioning of PDS outlet, 33.33 per cent of the respondents felt regular, 43.34 per cent of the respondents were undecided and none of the respondents felt irregular and highly irregular. In Andhra Pradesh state, 1.67 per cent of the respondents felt very regular, 33.33 per cent of the respondents felt regular, 65 per cent of the respondents were undecided and none of the respondents felt irregular and highly irregular about the regularity in the functioning of PDS.

Among the 240 respondents, the majority of them (54.7%) were undecided about the regularity in the functioning of PDS.

Table 22. Regularity in functioning of PDS outlet

State	No. of respondents							Mean score
	Parameters	Very regular	Regular	Irregular	Highly irregular	Undecided	Total	
Kerala	No. of respondents	28	40	0	0	52	120	3.82
	Percentage	23.33	33.33	0	0	43.34	100	-
Andhra Pradesh	No. of respondents	2	40	0	0	78	120	3.36
	Percentage	1.67	33.33	0	0	65	100	-
Total	No. of respondents	30	80	0	0	130	240	3.58
	Percentage	12.5	33.33	0	0	54.17	100	-

The mean score of the perception of ration card holders about the regularity in functioning of PDS outlet was more in Kerala (3.82) when compared to that in Andhra Pradesh (3.36).

The observations were in line with the results of the study conducted by Nair (2022) in Thiruvananthapuram district, where 29 per cent of respondents felt better, 61 per cent of respondents felt the same, 6 per cent of respondents felt worse, 1 per cent respondent felt can't say and 3 per cent respondents felt unclear the regularity in the functioning of PDS.

#### **4.2.2.6 Sufficiency of the quantity of food grains supplied to households through PDS**

Table 23 shows that in Kerala state, 27.5 per cent of the respondents felt highly sufficient, 22.5 per cent of the respondents felt sufficient, 50 per cent of the respondents were undecided and none of the respondents felt insufficient and grossly insufficient. In Andhra Pradesh state, 3.33 per cent of the respondents felt highly sufficient, 20.83 per cent of the respondents felt sufficient, 75.84 per cent of the respondents were undecided and none of the respondents felt insufficient and grossly insufficient about the quantity supplied to households through PDS.

Table 23. Sufficiency of quantity of food grains supplied to households through PDS

State	No. of respondents							Mean score
	Parameters	Highly sufficient	Sufficient	Undecided	Insufficient	Grossly insufficient	Total	
Kerala	No. of respondents	33	27	60	0	0	120	3.77
	Percentage	27.5	22.5	50	0	0	100	-
Andhra Pradesh	No. of respondents	4	25	91	0	0	120	3.27
	Percentage	3.33	20.83	75.84	0	0	100	-
Total	No. of respondents	37	52	151	0	0	240	3.52
	Percentage	15.41	21.67	62.92	0	0	100	-

Among the 240 respondents, the majority of them (62.92%) were undecided about the quantity supplied to households. The mean score of the perception of ration card holders about the quantity of food grains supplied to households was more in Kerala (3.77) when compared to that in Andhra Pradesh (3.27).

The observations corroborated the findings of a study by Nair (2022) in the Thiruvananthapuram district, wherein 40% of respondents felt that the quantity supplied to households through PDS was better, 43% felt that it was the same, 15% felt that it was worse, and 2% felt that it was impossible to say.

#### 4.2.2.7 Perception of respondents about the quality of food grains supplied through PDS

Table 24 shows that in Kerala state, 25.83 per cent of the respondents felt excellent about the quality of food grains supplied through PDS, 25 per cent of the respondents felt good, 49.17 per cent of the respondents were undecided and none of the respondents felt bad and very bad. In Andhra Pradesh state, 1.67 per cent of the respondents felt excellent, 20 per cent of the respondents felt good and 78.33 per cent of the respondents were undecided and none of the respondents felt bad and very bad about the quality of food grains supplied to households through PDS.

Among the 240 respondents, the majority of them (63.5%) were undecided about the quality of food grains supplied through PDS. The mean score of the

perception of ration card holders about the quality of food grains supplied through PDS was more in Kerala (3.76) when compared to that in Andhra Pradesh (3.23).

The findings of Nair's (2022) study in the Thiruvananthapuram district corroborated the observations, with 40% of respondents feeling better, 43% feeling the same, 15% feeling worse, and 2% feeling unsure about the quality of the food grains provided to households through PDS.

#### 4.2.2.8 Affordability of food grains supplied

Table 25 shows that in Kerala state, 30 per cent of the respondents felt highly affordable, 31.67 per cent of the respondents felt affordable, 38.33 per cent of the respondents were undecided and none of the respondents felt not affordable and highly unaffordable. In Andhra Pradesh state, 1.67 per cent of the respondents felt highly affordable, 21.67 per cent of the respondents felt affordable, 76.66 per cent of the

Table 24. Perception of respondents about the quality of food grains supplied through PDS

State	No. of respondents							Mean score
	Parameters	Excellent	Good	Undecided	Bad	Very bad	Total	
Kerala	No. of respondents	31	30	59	0	0	120	3.76
	Percentage	25.83	25	49.17	0	0	100	-
Andhra Pradesh	No. of respondents	2	24	94	0	0	120	3.23
	Percentage	1.67	20	78.33	0	0	100	-
Total	No. of respondents	33	54	153	0	0	240	3.5
	Percentage	13.75	22.5	63.75	0	0	100	-

respondents were undecided none of the respondents felt not affordable and highly unaffordable about the price of food grains supplied to households through PDS. In Kerala, respondents felt the price is high for kerosene and in Andhra Pradesh, respondents felt the price is high for dal.

Among the 240 respondents, the majority of them (57.5%) were undecided about the price of food grains supplied through PDS. The mean score of the perception of ration card holders about the price of food grains supplied was more in Kerala (3.91) when compared to that in Andhra Pradesh (3.25).

Similarly, the study conducted by Ghumaan and Dhiman (2014) in Punjab reveals that the majority of respondents viewed that wheat, pulses, and kerosene were available at cheap prices in the FPS.

#### 4.2.2.9 Level of satisfaction about the billing system

Table 26 reveals that in the state of Kerala, 38.33% of respondents expressed high satisfaction, 51.67% expressed satisfaction, 1% expressed undecidedment, and 0% expressed both partial and complete dissatisfaction. Regarding the degree of satisfaction with the billing system, 32.5 percent of respondents in the state of Andhra Pradesh felt extremely satisfied, 59.17 percent felt satisfied, 8.33 percent felt undecided, and none felt both somewhat satisfied and completely dissatisfied.

Table 25. Affordability of food grains supplied

State	No. of respondents							Mean score
	Parameters	Highly affordable	Affordable	Undecided	Not affordable	Highly unaffordable	Total	
Kerala	No. of respondent	36	38	46	0	0	120	3.91
	Percentage	30	31.67	38.33	0	0	100	-
Andhra Pradesh	No. of respondents	2	26	92	0	0	120	3.25
	Percentage	1.67	21.67	76.66	0	0	100	-
Total	No. of respondents	38	64	138	0	0	240	3.58
	Percentage	15.83	26.67	57.5	0	0	100	-

Among the 240 respondents, the majority of them (55.42%) were satisfied with the level of satisfaction on the billing system. The mean score of the perception of ration card holders about the level of satisfaction about the billing system was more in Kerala (4.28) when compared to that in Andhra Pradesh (4.24).

Comparably, Suryakrishnan (2021) found that 28% of respondents were extremely satisfied, 36% were satisfied, 36% were neutral, and 8% were dissatisfied with the billing system in the PDS outlets. The study was conducted in Palakkad district.

#### 4.2.2.10 Importance of PDS for household food security

Table 27 shows that in Kerala state, 40.83 per cent of the respondents were felt very important about the importance of PDS in household security, 55 per cent of the respondents felt important, 4.17 per cent of the respondents felt not important and none of the respondents felt less important and not important. In Andhra Pradesh state, 46.67

Table 26. Level of satisfaction about the billing system

State	No. of respondents							Mean Score
	Parameters	Highly satisfied	Satisfied	Undecided	Somewhat dissatisfied	Fully dissatisfied	Total	
Kerala	No. of respondents	46	62	12	0	0	120	4.28
	Percentage	38.33	51.67	10	0	0	100	-
Andhra Pradesh	No. of respondents	39	71	10	0	0	120	4.24
	Percentage	32.5	59.17	8.33	0	0	100	-
Total	No. of respondents	85	133	22	0	0	240	4.26
	Percentage	35.41	55.42	9.17	0	0	100	-

per cent of the respondents felt very important, 50 per cent of the respondents felt important, 3.33 per cent of the respondents felt undecided and none of the respondents felt not important about the importance of PDS for household food security.

Among the 240 respondents, the majority of them (52.25%) were felt important with the importance of PDS for household food security. The mean score of the perception of ration card holders about the importance of PDS for household food security was more in Andhra Pradesh (4.43) when compared to that in Kerala (4.28).

Likewise, in a research study by Ramya and Ramjuk (2018) in Arunachal Pradesh regarding the significance of PDS for household food security in Kurung

Kumey and Papum Pare districts, 50.7 percent of respondents felt extremely important, 48.7 percent felt important, and 0.7 percent were undecided in Kurung Kumey district, and 30 percent felt extremely important, 61.3 percent felt important, 6.7% were undecided, and 2% felt less important in Papum Pare district.

#### 4.2.2.11 Opinion of Respondents regarding use of the biometric billing system

Table 28 shows that in Kerala state, 15.83 per cent of the respondents felt very excellent, 55 per cent of the respondents felt good, 29.17 per cent of the respondents were undecided and none of the respondents felt bad and very bad.

Table 27. Importance of PDS for household food security

State	No. of respondents							Mean score
	Parameters	Very important	Important	Undecided	Less important	Not important	Total	
Kerala	No. of respondents	49	66	0	0	5	120	4.28
	Percentage	40.83	55	0	0	4.17	100	-
Andhra Pradesh	No. of respondents	56	60	4	0	0	120	4.43
	Percentage	46.67	50	3.33	0	0	100	-
Total	No. of respondents	105	126	4	0	5	240	4.35
	Percentage	43.75	52.5	1.67	0	2.08	100	-

In Andhra Pradesh state, 26.67 per cent of the respondents felt excellent, 57.5 per cent of the respondents felt good, 15.83 per cent of the respondents were undecided and none of the respondents felt bad and very bad about the use of a biometric billing system. After the biometrics system came outsiders of the family are not allowed to take ration from Fair price shops.

Among the 240 respondents, the majority of them (56.25%) felt good regarding the use of the biometric billing system. The mean score of the perception of ration card

holders about the opinion of respondents regarding the use of the biometric billing system was more in Andhra Pradesh (4.10) when compared to that in Kerala (3.86).

In a similar vein, 70% of respondents to a survey by Suryakrishna (2021) in the Palakkad district felt positively about the use of the biometric billing system, 6% felt neutrally about it, and 24% felt negatively about it.

#### 4.2.2.12 Overall satisfaction with the E-POS system

Table 29 shows that in Kerala state, 41.67 per cent of the respondents were highly-satisfied with the E-POS system, 45 per cent of the respondents were satisfied,

Table 28. Opinion of respondents regarding the use of the biometric billing system

State	No. of respondents							Mean score
	Parameters	Excellent	Good	Undecided	Bad	Very bad	Total	
Kerala	No. of respondents	19	66	35	0	0	120	3.86
	Percentage	15.83	55	29.17	0	0	100	-
Andhra Pradesh	No. of respondents	32	69	19	0	0	120	4.10
	Percentage	26.67	57.5	15.83	0	0	100	-
Total	No. of respondents	51	135	54	0	0	240	3.98
	Percentage	21.25	56.25	22.5	0	0	100	-

13.33 per cent of the respondents were undecided and none of the respondents felt somewhat satisfied and fully dissatisfied. In Andhra Pradesh state, 30.83 per cent of the respondents were highly satisfied, 68.34 per cent of the respondents were satisfied, 0.83 per cent of the respondents were undecided none of the respondents felt somewhat satisfied and fully dissatisfied about their overall satisfaction with the E-POS system.

Among the 240 respondents, the majority of them (56.67%) were satisfied with overall satisfaction in the E-POS system. The mean score of the perception of ration card holders about the overall satisfaction in the E-POS system was more in Andhra Pradesh (4.30) when compared to that in Kerala (4.21).

In a study carried out in the Palakkad district by Suryakrishna (2021), 42 percent of participants expressed high satisfaction, 36 percent expressed satisfaction, 20 percent expressed neutrality, and 2 percent expressed dissatisfaction with the E-POS system's overall level of satisfaction.

Table 29. Overall satisfaction in the E-POS system

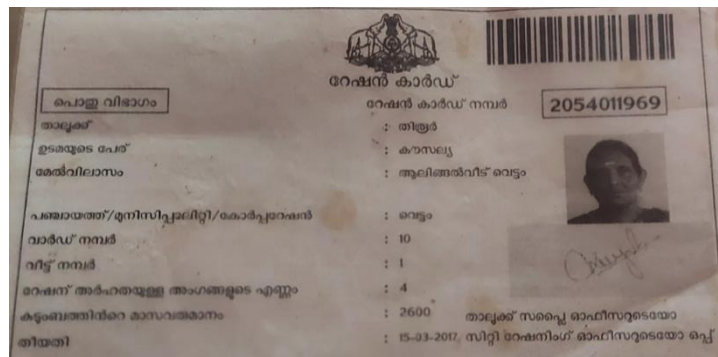
State	No. of Respondents							Mean score
	Parameters	Highly satisfied	Satisfied	Undecided	Some what dissatisfied	Fully dissatisfied	Total	
Kerala	No. of respondents	50	54	16	0	0	120	4.21
	Percentage	41.67	45	13.33	0	0	100	-
Andhra Pradesh	No. of respondents	37	82	1	0	0	120	4.3
	Percentage	30.83	68.34	0.83	0	0	100	-
Total	No. of respondents	87	136	17	0	0	240	4.29
	Percentage	36.25	56.67	7.08	0	0	100	-

### 4.2.3 TYPE OF RATION CARDS

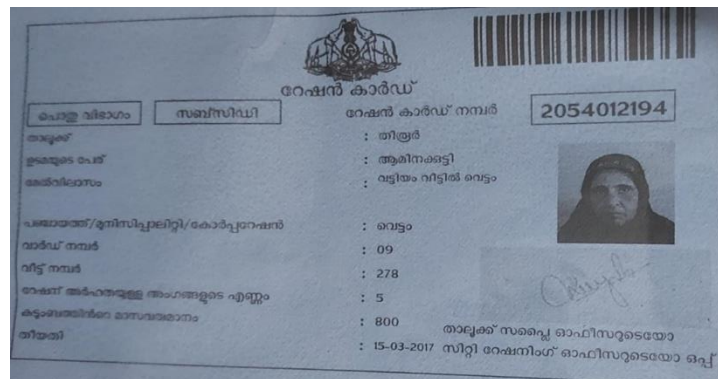
#### TYPE OF RATION CARD OF SAMPLE HOUSEHOLDS

Information regarding the type of ration card was collected from sample households and grouped into three categories viz., white card, blue card, pink card and yellow card and the same is provided in table.30.

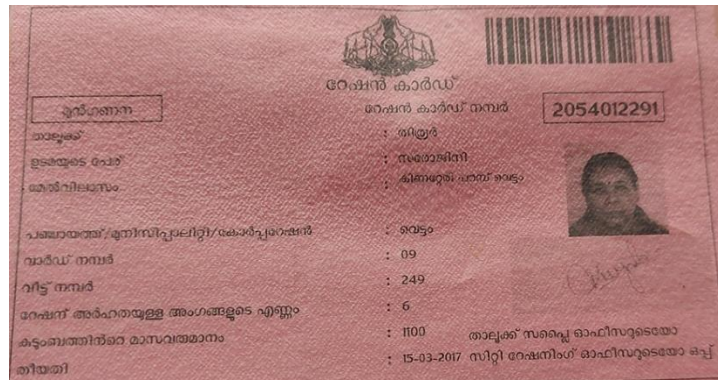
A perusal of table.30. shows the type of ration card of sample households. Eligibility conditions are given in (Appendix VI). Out of 120 households from Kerala 18.33 per cent of the households were having white cards, 29.17 per cent of the



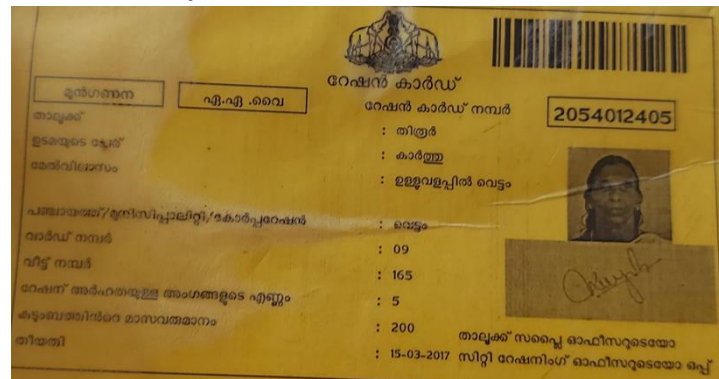
**Non-priority non-subsidy (NPNS)- White card**



**Non-priority subsidy (NPS)- Blue card**

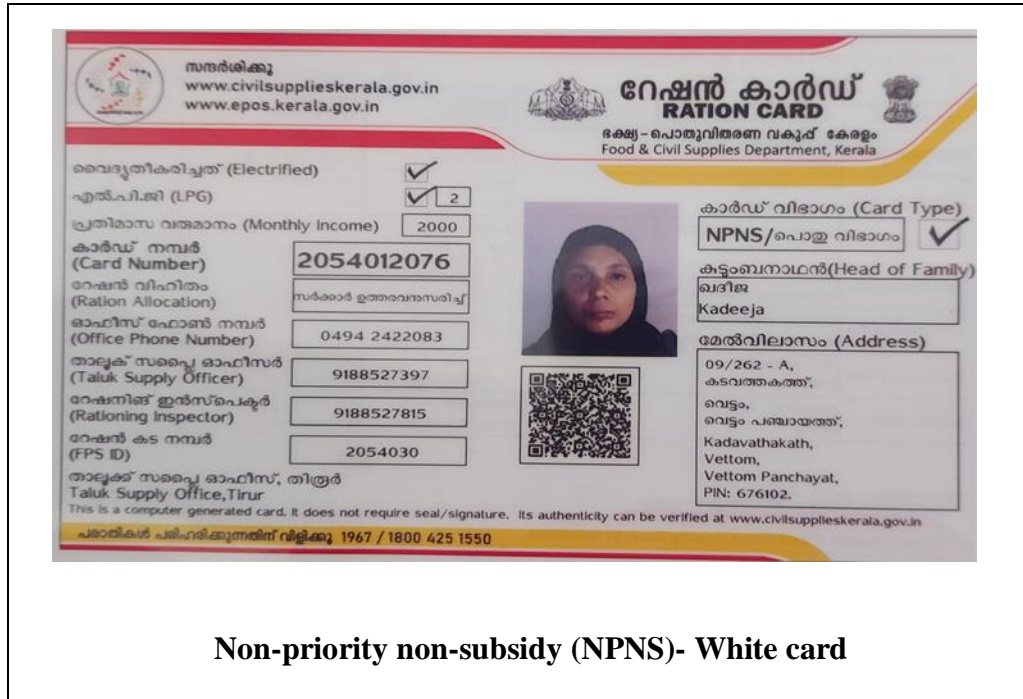


**Priority house hold (PHH) – Pink card**



**Antyodaya Anna Yojana (AAY) - Yellow card**

**Plate 3. Different types of old ration cards in Kerala state**



Non-priority non-subsidy (NPNS)- White card

Plate 4. New ration card in Kerala state



Plate 5. Old ration card in Andhra Pradesh state

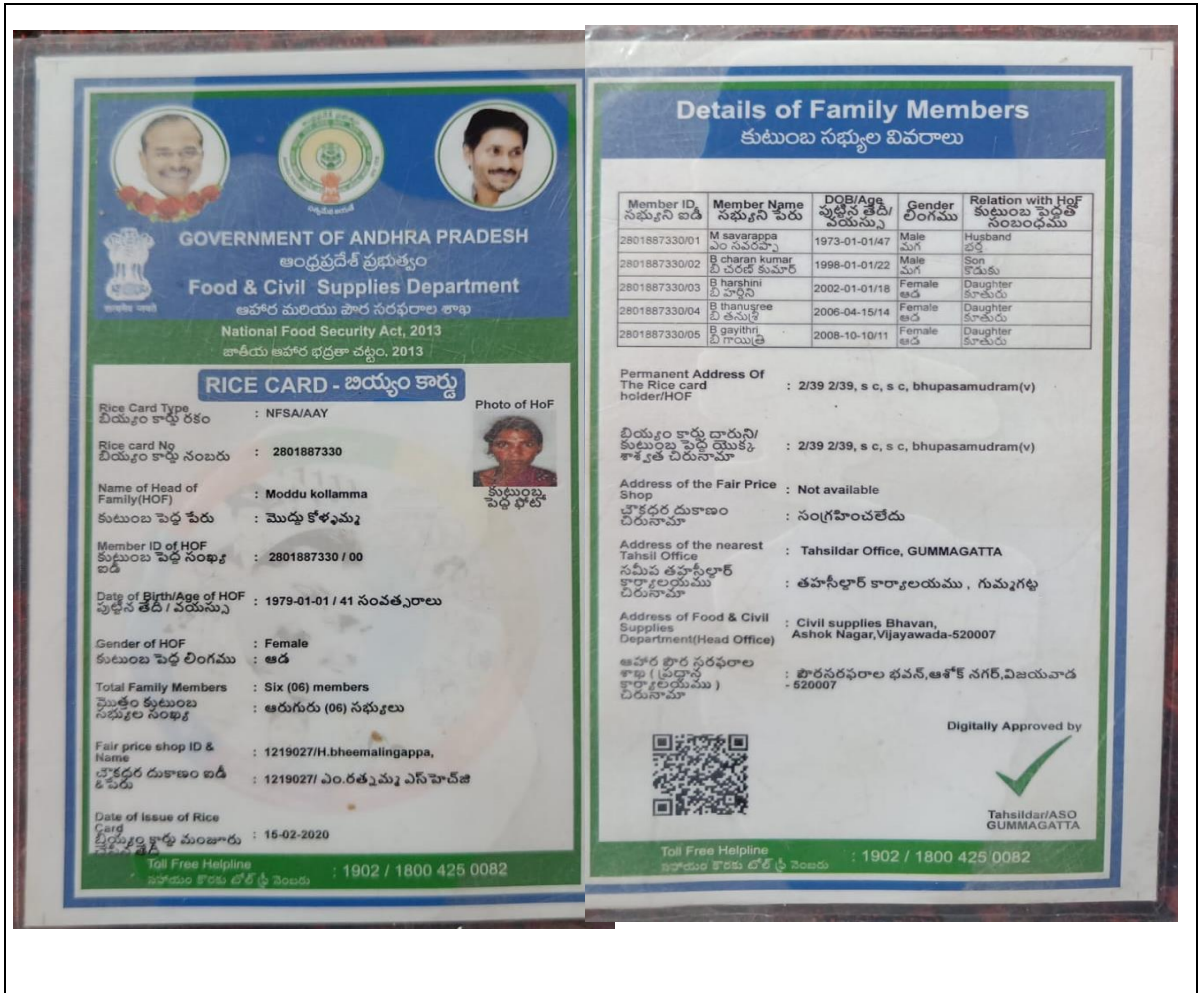


Plate 6. New ration card in Andhra Pradesh state



Plate 7. Ration shop in Kerala state



Plate 8. Mobile ration van in Andhra Pradesh

households were having blue cards, 41.67 per cent of households were having pink cards and 10.83 per cent of the households were having yellow cards. In Andhra Pradesh state out of 120 households, 100 per cent of the households were having white cards and none of the households were having blue, pink and yellow cards because in Andhra Pradesh, 2014 all other cards were abolished. The type of ration card of the sample households revealed that greater percentage of households in Kerala were having pink cards while in Andhra Pradesh, all had white cards. Similarly, the study conducted by Anjana and Vijayan (2022) revealed that the majority of the respondents in Thrissur district were having pink colour ration cards.

Table.30. Type of ration card of sample households

Sl. No	Type of ration card	Kerala (No of respondents)	Andhra Pradesh (No of respondents)
1	White card*	22 (18.33%)	120 (100%)
2	Blue card	35 (29.17%)	0 (0%)
3	Pink card	50 (41.67%)	0 (0%)
4	Yellow card	13 (10.83%)	0 (0%)
	TOTAL	120 (100%)	120 (100%)

Note: Figures in parentheses indicate per cent to total

\*White card- Kerala (NPHH), Andhra Pradesh (PHH)

#### **4.2.4 QUANTITY OF FOOD GRAINS DISTRIBUTED IN KERALA AND ANDHRA PRADESH STATES**

##### **4.2.4.1 KERALA STATE**

According to the norms of the government of Kerala the quantity of food grains permitted through PDS to households is given in Appendix IX. For white card holders, the quantity of rice (Boiled, Matta and Raw rice) permitted was 6 kg/ card in that 4 kg

boiled rice and 2 kg raw rice. For blue card holders, the quantity permitted was 1 kg matta rice/person and 1 kg raw rice/person and 2 kg atta/card. For pink card holders, the quantity permitted was 4 kg/ person; in that 3 kg boiled rice and 1 kg raw rice, and if more than 3 persons are in the family 4 kg raw rice and 12 kg boiled rice, 1 kg wheat grains /card, 2 kg of atta/ card and if more than 3 persons (3 kg of atta) and 0.5 lit kerosene/card (once in 3 months). For yellow card holders, the quantity permitted was 30 kg/card; in that 15 kg boiled rice, 15 kg raw rice. It may vary sometimes according to the availability of stock of rice, 1 kg sugar /card, 3 kg wheat grains /card, 2 kg atta/card and 1 lit kerosene/card (once in 3 months).

The quantity of food grains purchased during one month (October, 2023) by the respondents in Kerala is given in table 31. The average quality of rice distributed to 120 households was 11.93 kg/month, the average quality of wheat grains distributed was 0.8 kg /month, the average quality of wheat atta distributed was 1.78 kg, average quality of sugar distributed was 0.12 kg and average kerosene distributed was 0.47 lit /month per household. The average quantities vary according to the type of ration cards given in table 32.

#### **4.2.4.2 ANDHRA PRADESH STATE**

According to norms of the government of Andhra Pradesh the quantity of food grains permitted through PDS to households is given in Appendix X. This state abolished all other cards from 2014, except the White card (PHH). In Andhra Pradesh, a ration card is called a rice card. PHH household was permitted rice quota of 5 kg per person in the rice card and a household covered under AAY Cards will get 35 kg per card. Ragi quantity up to 3 kg per card in lieu of Rice as per their choice, will be given to the residents of Ananthapur, Kurnool, Sri Satya Sai, Chittoor, Annamayya, Tirupathi, YSR Kadapa and Nandyala districts. Jowar quantity up to 3 kg per card in lieu of Rice as per their choice, to residents of YSR Kadapa, Anantapur, Kurnool and Nandyala districts. The sugar quantity permitted was up to 1 kg per AAY card and ½ kg per PHH card. Red gram dal quantity of up to 1 kg per rice card and Wheat Atta (Chakki Atta) quantity of up to 1 kg per rice card holder is permitted to residents of Municipal corporations, Municipalities, and Urban areas including Nagar Panchayats in all the districts.

The quantity of food grains purchased during one month (August, 2023) by the respondents in Andhra Pradesh is given in table 31. The average quality of rice distributed to 120 households was 19.37 kg/month, the average quality of wheat atta distributed was 1 kg/month, average quality sugar distributed was 0.5 kg/month and average quality red gram dal distributed was 1 kg/month per household is given in table 32.

The average quantity of rice, wheat atta and sugar purchased by BPL cardholders in one month in Kerala (20.61kg, 2.175 kg and 1 kg respectively) is more than that purchased by BPL card holders Andhra Pradesh (19.37 kg, 1 kg and 0.5 kg respectively).

Table.31. Quantity of food grains purchased during one month by the respondents in Kerala and Andhra Pradesh

Sl. No	Food grains	Kerala	Andhra Pradesh
1	Rice	11.93 kg	19.37 kg
2	Wheat grains	0.8 kg	-
3	Wheat atta	1.78 kg	1 kg
4	Sugar	0.12 kg	0.5 kg
5	Kerosene	0.47 litre	-
6	Red gram dal	-	1kg

The average quantities vary according to the type of ration cards given in table 28. The average quantity of rice and sugar purchased in Andhra Pradesh is more than that in Kerala.

#### 4.2.5 PRICE OF FOOD GRAINS

The prices of subsidized food grains distributed through the PDS are typically set by the government and may vary based on the type of grain and the economic policies in place.

##### 4.2.5.1 KERALA STATE

The price of food grains in Kerala state varies according to the type of ration card held by the respondents, where of rice cost is high (Rs.10.90 / kg) for white card

holders, Rs.4 /kg for blue card holders because white and blue card holders come under APL cards. Rice was free of cost for pink and yellow card holders which come under BPL cards. Sugar with Rs.21/ kg was distributed to yellow card holders, wheat grains

Table 32. Quantity of food grains purchased during one month by the respondents by type of ration cards in Kerala and Andhra Pradesh

SL. No	Type of ration card	Food grains	Kerala	Andhra Pradesh
1	White	Rice	6 kg	19.37 kg
		Wheat grains	-	-
		Wheat atta	-	1 kg
		Sugar	-	0.5 kg
		Kerosene	-	-
		Red gram dal	-	1 kg
2	Blue	Rice	8.97 kg	0
		Wheat grains	0.02 kg	
		Wheat atta	2.02 kg	
		Sugar	-	
		Kerosene	0.5 litre	
		Red gram dal	-	
3	Pink	Rice	11.22 kg	0
		Wheat grains	1.04 kg	
		Wheat atta	2.35 kg	
		Sugar	-	
		Kerosene	0.5 litre	
		Red gram dal	-	
4	Yellow	Rice	30 kg	0
		Wheat grains	3 kg	
		Wheat atta	2 kg	
		Sugar	1 kg	
		Kerosene	1 litre	
		Red gram dal	-	

were only distributed to BPL cards with free of cost, wheat atta was distributed to blue card holders at Rs.17 /kg, pink at Rs.9/ kg and yellow at Rs. 7 /kg. Kerosene oil was distributed only to BPL cards with Rs. 40 / ½ litre for pink cardholders and Rs.80/litre for yellow cardholders.

#### 4.2.5.2 ANDHRA PRADESH STATE

The Price of food grains in Andhra Pradesh state varies for PHH and AAY cards for respondents, where rice, ragi, and jowar were given free of cost for both PHH and AAY

Table.33. Price of food grains in Kerala State

Sl.No	Name of the scheduled commodity	White card- Non-priority non-subsidy (NPNS)	Blue card- Non-priority subsidy (NPS)	Pink card- Priority Household (PHH)	Yellow card- Antyodaya Anna Yojana (AAY)
1	Rice (boiled, matta & raw rice)	Rs.10.90 / kg	Rs.4 / kg	Free of cost	Free of cost
2	Sugar	-	-	-	Rs. 21 / kg
3	Wheat grains	-	-	Free of cost	Free of cost
4	Wheat atta	-	Rs.17 / kg	Rs.9 / kg	Rs.7 / kg
5	Kerosene oil	-	-	Rs.40 / ½ l	Rs.80 / l

Table.34. Price of food grains in Andhra Pradesh State

Sl. No	Name of the scheduled commodity	White card	
		Priority Household (PHH)	Antyodaya Anna Yojana (AAY)
1	Rice	Free of cost	
2	Ragi	Free of cost	
3	Jowar	Free of cost	
4	Sugar	Rs.17 per ½ kg	Rs.13.50 / kg
5	Red gram	Rs.67.00 / kg	

6	Wheat atta	Rs.16.00 / kg
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card holders, sugar with Rs.17 per ½ kg for PHH and Rs.13.50/ kg for AAY cards, wheat atta with Rs.16 / kg for both cards and red gram with Rs. 67/ kg for both cards. Out of these food grains red gram price is high in Andhra Pradesh state. The average price of rice in Kerala is Rs. 7.45/ kg, whereas it is free of cost in Andhra Pradesh.

### **4.3 CONSTRAINTS IN THE IMPLEMENTATION OF PDS**

#### **4.3.1 Constraints in the implementation of PDS and constraints faced by consumers in food grain availability through PDS**

##### **4.3.1.1 In Kerala state**

The major constraints experienced by the respondents were identified and presented in table.31. The major problem faced by the respondents was improper functioning of the POS machine with a Garrett score of 68.29, followed by shortage of food grains with a Garrett score of 65.3, grain supplies did not reach the PDS with a Garrett score of 62.49, grain supplies "ran out" by the time we went to buy with a Garrett score of 60.77, unavailability of good quality food grains with a Garrett score of 51.16, transportation problems faced by consumers with a Garrett score of 36.77, lack of information about opening times of the PDS outlet with a Garrett score of 34.10 and at last inadequate supply to fair price shop with a Garrett score of 21.42.

##### **4.3.1.2 In Andhra Pradesh state.**

The major constraints experienced by the respondents were identified and presented in table 31. The major problem faced by the respondents was a shortage of food grains with a Garrett score of 71.29, followed by improper functioning of the POS machine with a Garrett score of 61.28, grain supplies "ran out" by the time we went to buy with a Garrett score of 61.10, grain supplies did not reach the PDS with a Garrett score of 59.95, unavailability of good quality food grains with a Garrett score of 49.31, transportation problems faced by consumers with a Garrett score of 43.97, lack of information about opening times of the PDS outlet with a Garrett score of 32 and at last inadequate supply to fair price shop with a Garrett score of 20.

Table.35. Constraints in the implementation of PDS in Kerala state and Andhra Pradesh

S.No	Constraints	Kerala		Andhra Pradesh	
		Garrett's score	Rank	Garrett's score	Rank
1	Improper functioning of the POS Machine	68.29	1	61.28	2
2	Shortage of food grains	65.30	2	71.29	1
3	Grain supplies did not reach the PDS	62.49	3	59.95	4
4	Grain supplies "ran out" by the time we went to buy	60.77	4	61.10	3
5	Unavailability of good quality food grains	51.16	5	49.31	5
6	Transportation problems faced by consumers	36.77	6	43.97	6
7	Lack of information about opening times of the PDS outlet	34.10	7	32	7
8	Inadequate supply to fair price shop	21.42	8	20	8

The most important constraint in Kerala state is the improper functioning of the POS machine and in Andhra Pradesh, state is a shortage of food grains.

Kumari (2016) also reported that some of the major issues faced by consumers include the shortage of grains, grains supplies did not reach the PDS, inadequate supply to fair price shop, and unavailability of good quality food grains, major major issues faced by consumers include the grains supplies “ran out” by the time we went to buy, improper functioning of the POS machine, Transportation faced by consumers and lack of information about opening times of the PDS outlet.

## ***Summary and conclusions***

## **CHAPTER-5**

### **SUMMARY AND CONCLUSIONS**

In this context, research work entitled “A comparative analysis of Public distribution system in Kerala and Andhra Pradesh was carried out with the objectives of studying the production and procurement of food grains in Kerala and Andhra Pradesh, analyzing consumer satisfaction towards food grains distributed through the Public Distribution System (PDS) and study the constraints in the implementation of PDS. The study will be conducted in Malappuram district of Kerala and Nellore district of Andhra Pradesh which were purposively selected because they have the highest Below Poverty Level (BPL) ration cards. Secondary data regarding the production and procurement of food grains were collected from various government institutions like the Food Corporation of India, Supplyco, and Consumer Affairs. The details regarding the production of food grains (paddy, wheat, small millet, and jowar) and procurement of food grains (paddy) in Kerala and Andhra Pradesh were collected.

Along with the increase in population from 376.3 million in the 1950s to 1,395.57 million in 2020, food grain production has also been increasing, thus ensuring the availability of enough food to feed the burgeoning population. During the year 2019-20, the production of paddy was the highest (8.92 LMT) when compared to the last 8 years. The production of paddy in Kerala was lowest during the period 2016-17 (1.71 lakh ha) out of the total production computed for the last 12 years in Andhra Pradesh when compared to the last eight years. It shows that the maximum production of paddy in both states was obtained during the period 2019-20. In Andhra Pradesh state during the year 2022-23, the productivity of paddy was the highest with (5,932 kg/ha) when compared to the last eleven years and lowest during the year 2013-14 with (4641 kg/ha). The productivity of paddy in Kerala was highest during the year 2021-22 (3108 kg/ha) and lowest during the period 2016-17 (2,547 kg/ha).

The socio-economic profile provides a comprehensive understanding of respondents in terms of their age, gender, marital status, education status, occupation,

income level, religion, caste, type of household, no of households, and type of dwelling. The age group details revealed that the greater percentage of sample respondents in both Kerala and Andhra Pradesh areas were in the age group of 30- 50 years. The age group details revealed that the greater percentage of sample respondents in both Kerala and Andhra Pradesh areas were in the age group of 30- 50 years. The marital status analysis revealed that a greater percentage of sample respondents in both Kerala and Andhra Pradesh areas were married. The educational status revealed that a greater percentage of sample respondents in both Kerala and Andhra Pradesh were below SSLC. The occupation status of the sample households revealed that a greater percentage of family heads in Kerala areas were unemployed. In Andhra Pradesh state greater percentage of family heads were employed for wages. The income status of the sample households revealed that greater percentages of households in the Kerala state had an income level of below Rs. 15,000/year and in Andhra Pradesh, more households had an income level of Rs.25,000- Rs.1,00,000/year. The religious particulars of the sample households revealed that a greater percentage of households in both Kerala and Andhra Pradesh belonged to the Hindu religion. The caste particulars of the sample households revealed that a greater percentage of households in Kerala belonged to OBC and Andhra Pradesh belonged to the scheduled caste. The type of household of the sample households revealed that greater percentages of households in both Kerala and Andhra Pradesh were nuclear family with dependents. The type of house of the sample households revealed that most of the households in both Kerala and Andhra Pradesh had having own house. The type of dwelling of the sample households revealed that greater percentages of households in both Kerala and Andhra Pradesh had concrete roofed houses. The family size particulars revealed that a greater percentage of households in both Kerala and Andhra Pradesh state belonged to the category of less than 4 members.

Among the 240 respondents, the majority of them (63.33%) felt that the quality of food grains was good. Among the 240 respondents, the majority of them (77.92%) felt helpful with the perception of consumers about the attitude of PDS dealers. Among the 240 respondents, the majority of them (47.97%) were satisfied. Among the 240 respondents, the majority of them (52.5%) were undecided about the accessibility of

PDS. Among the 240 respondents, the majority of them (54.7%) were undecided about the regularity in the functioning of PDS. Among the 240 respondents, the majority of them (62.92%) were undecided about the quantity supplied to households. Among the 240 respondents, the majority of them (63.5%) were undecided about the quality of food grains supplied through PDS. Among the 240 respondents, the majority of them (57.5%) were undecided about the price of food grains supplied through PDS. Among the 240 respondents, the majority of them (55.42%) were satisfied with the level of satisfaction with the billing system. Among the 240 respondents, the majority of them (52.25%) felt important with the importance of PDS for household food security. Among the 240 respondents, the majority of them (56.25%) felt good regarding the use of the biometric billing system. Among the 240 respondents, the majority of them (56.67%) were satisfied with overall satisfaction with the E-POS system.

Table. 36 No. of ration cards in 2024 in Malappuram and Nellore

	APL	BPL	Total
Malappuram (Kerala)	5,79,183	4,67,708	10,47,093
Nellore (Andhra Pradesh)	Nil	7,33,520	7,33,520

The type of ration card of the sample households revealed that a greater percentage of households in Kerala had pink cards while in Andhra Pradesh, all had white cards. In Kerala, the average quality of rice distributed to 120 households was 11.93 kg/month, the average quality of wheat grains distributed was 0.8 kg /month, the average quality of wheat atta distributed was 1.78 kg, average quality of sugar distributed was 0.12 kg and average kerosene distributed was 0.47 lit /month per household. In Andhra Pradesh, the average quality of rice distributed to 120 households was 19.37 kg/month, the average quality of wheat atta distributed was 1 kg/month, the average quality of sugar distributed was 0.5 kg/month and the average quality of red gram dal distributed was 1 kg/month per household.

The average quantity of rice, wheat atta and sugar purchased by BPL cardholders in one month in Kerala (20.61kg, 2.175 kg and 1 kg respectively) is more than that purchased by BPL card holders Andhra Pradesh (19.37 kg, 1 kg and 0.5 kg respectively).

The price of food grains in Kerala state varies according to the type of ration card by the respondents, where rice cost is high (Rs.10.90 / kg) for white card holders, Rs.4 /kg for blue card holders where white and blue card holders which come under APL cards and free of cost for pink and yellow card holders which come under BPL cards. Sugar with Rs.21/kg only was distributed to yellow card holders, wheat grains were only distributed to BPL cards free of cost, wheat atta was distributed to blue card holders at Rs.17/kg, pink with Rs.9/kg and yellow with Rs. 7 /kg. Kerosene oil was distributed only to BPL cards with Rs. 40 / ½ lit for pink cardholders and Rs.80/lit for yellow cardholders. The Price of food grains in Andhra Pradesh state varies for PHH and AAY cards for respondents, where rice, ragi, and jowar were given free of cost for both PHH and AAY card holders, sugar with Rs.17/ ½ kg for PHH and Rs.13.50/ kg for AAY cards, wheat atta with Rs.16 / kg for both cards and red gram with Rs. 67/ kg for both cards. Out of these food grains red gram price is high in Andhra Pradesh state. The average price of rice in Kerala is Rs. 7.45/ kg, whereas it is free of cost in Andhra Pradesh.

Constraints were analyzed using Garrett's ranking for both Kerala and Andhra Pradesh. In Kerala, the major problem faced by the respondents was improper functioning of the POS machine with a Garrett score of 68.29, followed by shortage of food grains with a Garrett score of 65.3, grain supplies did not reach the PDS with a Garrett score of 62.49, grain supplies ran out by the time we went to buy with a Garrett score of 60.77, unavailability of good quality food grains with a Garrett score of 51.16, transportation problems faced by consumers with a Garrett score of 36.77, lack of information about opening times of the PDS outlet with a Garrett score of 34.10 and at last inadequate supply to fair price shop with a Garrett score of 21.42. In Andhra Pradesh, the major problem faced by the respondents was a shortage of food grains with a Garrett score of 71.29, followed by improper functioning of the POS machine with a Garrett score of 61.28, grain supplies ran out by the time we went to buy with a Garrett

score of 61.10, grain supplies did not reach the PDS with a Garrett score of 59.95, unavailability of good quality food grains with a Garrett score of 49.31, transportation problems faced by consumers with a Garrett score of 43.97, lack of information about opening times of the PDS outlet with a Garrett score of 32 and at last inadequate supply to fair price shop with a Garrett score of 20.

## **SUGGESTIONS AND POLICY IMPLICATIONS**

1. To enhance overall satisfaction of E-POS, it is essential to improve service quality through staff training, internet connectivity and SMS messaging services, providing OTP whenever biometric identification failed.
2. The quality of food grains in both states has to be improved because only 35% of respondents felt that quality is good whereas majority were undecided.
3. Spreading awareness is essential among the public about the allocated ration according to the size of their families.
4. Adding coarse cereals such as jowar and ragi, along with pulses like redgram and green gram, to the poverty line basket is recommended, as the residents of some districts in Andhra Pradesh state like Rayalaseema region and some other districts favor these coarse cereals in their diet.
5. In Andhra Pradesh, redgram is distributed in some districts only it should be given for other districts also and need to be implemented in Kerala state.
6. Minor millets have to be procured in both states and sugar has to be procured in Andhra Pradesh.
7. An increase in the amounts of wheat flour and sugar is necessary, given that the current distribution levels through the PDS are insufficient to meet the demands of households.
8. In Kerala, Government will send SMS notifications to beneficiaries in advance and after purchase of food grains informing them about the availability of PDS supplies so it should implemented in Andhra Pradesh also so it can help recipients plan efficiently and minimize the need for repeated visits to Fair Price Shops.

9. There is a need to extend the operating days of Fair Price Shops in Andhra Pradesh because in Kerala shops will be open all the days except Sunday from 8am to 12 noon and 4pm to 7pm whereas in Andhra Pradesh first 15 days of the month only it will open.
10. A thorough evaluation of specific areas' requirements should be conducted based on cards, enabling the Public Distribution System (PDS) to guarantee a sufficient supply of essential commodities.
11. The government needs to buy more from its agencies and include small farmers to ensure fair prices and good returns on their investments. Strengthening the procurement network is essential for this purpose.
12. In Kerala, APL cards also issued whereas in Andhra Pradesh they are not issued so with some rules and regulations APL cards may be reintroduced in Andhra Pradesh.
13. In Andhra Pradesh, mobile dispensing unit (MDUs) for door delivery of ration supplies is implemented where as in Kerala it should be implemented so that old aged people will be benefited.

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# **Appendices**

## APPENDIX I

### Area, production and productivity of rice in Kerala and Andhra Pradesh

S. No	Year	Rice area (lakh ha)		Rice production (LMT)		Rice productivity (kg / ha)	
		Kerala	Andhra Pradesh	Kerala	Andhra Pradesh	Kerala	Andhra Pradesh
1	2011-12	2.08	23.46	5.68	105.35	2733	4951
2	2012-13	1.97	22.09	5.08	93.36	2577	4660
3	2013-14	1.99	25.83	6.9	108.74	2827	4641
4	2014-15	1.98	23.94	6.69	115.03	2837	5298
5	2015-16	1.96	21.61	6.21	101.88	2790	5198
6	2016-17	1.71	21.05	5.10	108.86	2547	5702
7	2017-18	1.94	22.18	5.16	115.10	2684	5722
8	2018-19	2.02	22.08	7.07	112.03	2920	5593
9	2019-20	1.98	23.56	8.92	124.34	3073	5819
10	2020-21	2.05	25.52	8.05	118.71	3105	5130
11	2021-22	1.95	24.84	8.62	114.5	3108	5048
12	2022-23	1.91	21.41	8.01	99.26	2872	5932

## APPENDIX II

### Procurement of rice in Kerala and Andhra Pradesh, 2014-23

Sl. No	Year	Rice procurement (LMT)	
		Kerala	Andhra Pradesh
1	KMS 2013-14	5.35	0.72
2	KMS 2014-15	5.50	42.19
3	KMS 2015-16	5.62	64.72
4	KMS 2016-17	4.52	55.59
5	KMS 2017-18	4.84	59.70
6	KMS 2018-19	6.94	71.73
7	KMS 2019-20	7.10	82.58
8	KMS 2020-21	7.65	84.57
9	KMS 2021-22	7.48	66.58
10	KMS 2022-23	7.31	42.30

### APPENDIX III

**Area, production and productivity of ragi in Kerala and Andhra Pradesh,  
2012-21**

Sl. No	Year	Ragi area ('000 ha)		Ragi production ('000 tonnes)		Ragi productivity (kg/ha)	
		Kerala	Andhra Pradesh	Kerala	Andhra Pradesh	Kerala	Andhra Pradesh
1	2011-12	0.248	40	0.262	38	1056	944
2	2012-13	0.113	39	0.123	42	1088	1091
3	2013-14	0.082	42	0.085	43	1037	1045
4	2014-15	0.079	34	0.078	34	987	1029
5	2015-16	0.064	31	0.076	34	1188	1090
6	2016-17	0.033	32	0.042	35	1273	1077
7	2017-18	0.0865	35	0.11	44	1272	1277
8	2018-19	0.225	32	0.271	43	643	1348
9	2019-20	0.213	34	0.261	44	1225	1320
10	2020-21	0.230	33	0.33	39	1431	1197

#### APPENDIX IV

##### Area, production and productivity of jowar in Kerala and Andhra Pradesh, 2012-21

Sl. No	Year	Jowar area ('000 ha)		Jowar production ('000 tonnes)		Jowar productivity (kg/ha)	
		Kerala	Andhra Pradesh	Kerala	Andhra Pradesh	Kerala	Andhra Pradesh
1	2011-12	0.28	148	0.219	352	782	2376
2	2012-13	0.148	164	0.116	412	853	2509
3	2013-14	0.150	118	0.119	266	793	2247
4	2014-15	0.173	141	0.128	345	740	2435
5	2015-16	0.178	174	0.132	357	742	2049
6	2016-17	0.140	97	0.110	198	786	2036
7	2017-18	0.174	140	0.139	333	799	2382
8	2018-19	0.205	156	0.1675	229	817	1474
9	2019-20	0.285	155	0.235	389	825	2510
10	2020-21	0.231	120	0.204	410	883	3428

## APPENDIX V

### Area, production and productivity of small millets in Kerala and Andhra Pradesh, 2012-21

Sl. No	Year	Small millets area ('000 ha)		Small millets production ('000 tonnes)		Small millets productivity (kg/ha)	
		Kerala	Andhra Pradesh	Kerala	Andhra Pradesh	Kerala	Andhra Pradesh
1	2011-12	0.11	29	0.262	19	1062	653
2	2012-13	0.062	38	0.061	36	984	756
3	2013-14	0.04	27	0.04	21	875	636
4	2014-15	0.027	20	0.021	14	778	744
5	2015-16	0.014	51	0.01	49	714	640
6	2016-17	0.009	31	0.006	24	667	581
7	2017-18	0.024	21	0.017	16	723	453
8	2018-19	0.048	13	0.035	6	726	342
9	2019-20	0.057	22	0.043	22	778	591
10	2020-21	0.051	21	0.038	18	745	624

## APPENDIX VI

### Area, production and productivity of sugarcane in Kerala, 2011-12 to 2020-21

Year	Area ('000 ha)	Production ('000 tons)	Productivity(tons /ha)
2011-12	3	263	87.7
2012-13	2	166	83.0
2013-14	2	221	110.5
2014-15	2	149	94.5
2015-16	1	138	138.0
2016-17	1	114	114.0
2017-18	1	124	112.9
2018-19	1	133	113.16
2019-20	1	121	127.19
2020-21*	1	74	116.31

## APPENDIX VII

### Area, production and productivity of sugarcane in Andhra Pradesh, 2011-12 to 2022-23

Year	Area ('000 ha)	Production ('000 tons)	Productivity (tons /ha)	Cane Crushed ('000 tons)	Sugar ('000 tons)	Sugar recovery (%)
2011-12	204	16686	81.8	11588	1135	9.79
2012-13	196	15567	79.4	10299	993	9.64
2013-14	153	12009	78.5	10091	1007	9.98
2014-15	139	9987	71.8	6014	564	9.38
2015-16	122	9353	76.7	5894	551	9.35
2016-17	103	7830	76.0	4117	385	9.37
2017-18	99	7948	80.28	4992	474	9.50
2018-19	102	8091	79.33	5408	508	9.40
2019-20	86	6724	79.19	-	-	-
2020-21	55	4125	74.88	-	-	-
2021-22	47	3654	77.56	-	-	-
2022-23*	40	3126	78.04	-	-	-

## APPENDIX VIII

### Eligibility criteria for white cardholders in Andhra Pradesh

Category	Eligibility Criteria
Total Family Income	Rural: Rs.10,000/- per month Urban: Rs.12000/- per month
Total Family Landholding	Uniform to entire state Wet: less than 3.00 Ac Dry: less than 10.00 Ac Both together Max 10.00 Ac
Electricity Consumption	Less than 300 Units per month
Government Employee / Pensioner	No government employee / pensioner. (All sanitary workers are exempted)
Four-Wheeler	should not own a four-wheeler (Taxis, Tractors, Autos are exempted)
Income Tax	No income tax payee.
Municipal Property	Property less than 1000 Sq. ft

**APPENDIX IX**

**Scale of distribution and consumer price of food grains in Kerala**

Sl. No	Name of the scheduled commodity	Scale of distribution				End consumer price per kg (in Rs.)			
		White	Blue	Pink	Yellow	White	Blue	Pink	Yellow
1	Rice (Boiled, Matta and Raw rice.)	6 kg/ card (4kg boiled rice and 2 kg raw rice.)	1 kg matta rice / person 1 kg raw rice /person	4 kg/ person( 3 kg boiled rice and 1 kg raw rice), and if more than 3 persons 4 kg raw rice and 12 kg boiled rice).	30 kg/card (15 kg boiled rice and 15 kg raw rice).	1 kg- Rs.10.90/-	1 kg- Rs.4/-	Free of cost	Free of cost
2	Sugar	-	-	-	1 kg sugar.	-	-	-	Rs. 21/-
3	Wheat grains	-	-	1 kg wheat/card	3kg wheat/card	-	-	Free of cost	Free of cost
4	Wheat atta	-	2 packets of atta/ card	if more than 3 persons (3 packets of atta	2kg atta/card	-	1 packet- Rs.17	1packet- Rs.9	1 packet- Rs.7
5	Kerosene oil	-	-	0.5 lit kerosene	1 lit kerosene	-	-	Rs.40/-	Rs.80/-

## APPENDIX X

### Scale of distribution and consumer price of food grains in Andhra Pradesh

Sl. no	Name of the scheduled commodity	Scale of distribution	Cost of commodity to remitted by the fps dealer per kg (in Rs.)	Fps dealer commission per kg (in Rs.)	End consumer price per kg (in Rs.)
1	Rice to Priority Household Cards	5 kgs per unit in the rice card	-	1.00	Free of Cost
	Rice to AAY Cards	35 kgs per card	-	1.00	Free of Cost
2	Ragi	Upto 3 kg per card in lieu of Rice as per their choice, to the Ananthapur, Kurnool, Sri Satya Sai, Chittoor, Annamayya, Tirupathi, YSR Kadapa, Nandyala districts	-	1.00	Free of Cost
3	Jowar	Upto 3 kg per card in lieu of Rice as per their choice, to YSR Kadapa, Ananthapur, Kurnool and Nandyala district.	-	1.00	Free of Cost

4	Sugar	1 kg per AAY card	12.50	1.00	Rs.13.50/-
		½ kg per PHH card	33.00	1.00	Rs.17.00/-(1/2 kg)
5	RG Dal	1 kg per ice card	66.00	1.00	Rs.67.00/-
6	Wheat Atta (Chalki Atta)	1 kg per rice card holder of Municipal corporations, Municipalities, Urban areas including Nagar Panchayats in all the districts.	15.00	1.00	Rs.16.00/-

## **APPENDIX XI**

**KERALA AGRICULTURAL UNIVERSITY**  
COLLEGE OF AGRICULTURE, VELLAYANI,  
DEPARTMENT OF AGRICULTURAL ECONOMICS  
VELLAYANI P O, THIRUVANANTHAPURAM- 695522

### **SURVEY SCHEDULE FOR PRIMARY DATA**

A COMPARATIVE ANALYSIS OF PUBLIC DISTRIBUTION SYSTEM IN KERALA  
AND ANDHRA PRADESH

Investigator's name(s) : Dhanaswi Vasipally

Advisor's name : T. Paul Lazarus

Village :

Gram Panchayat :

Block :

District:

Date:

### **QUESTIONNAIRE**

#### **A. Respondent's Details**

1. Name:

2. Gender:

Male

Female

Others

3. Age(years):

18-30

30-50

- 50-60
  - Above 60
4. Marital status:
- Single
  - Married
  - Divorce
  - Widow
5. Educational qualification:
- Below SSLC
  - SSLC
  - Plus two
  - Under Graduation
  - Post Graduation
  - Professional
6. Occupation:
- Self employed
  - Employed for wages
  - Government employee
  - Others
7. Yearly income(Rs) :
- Below 15000
  - 15000-25000
  - 25000-100000
  - Above 100000
8. Religion:
- Hindu
  - Muslim
  - Christian
  - Any other

9. Caste:

- General
- SC
- ST
- OBC
- Other (specify)

**B. Household Details**

10.Type of household:

- Single
- Nuclear family
- Nuclear family with dependent(s)
- Joint family (with several nuclear families)
- Others (specify)

11. Number of household members:

	Female	Male
Children (below 14 years)		
Adults (aged 14-65 years)		
Aged persons(> 65 yrs)		

12. Is it own house or rented house?

13.Type of dwelling:

- Concrete roof
- Tiles
- Metallic sheet
- Mud or Straw house

14. Number of rooms:

- Latrine(No):
- Water source:

15. Total land area owned (Acres):

16. Land put for agricultural purpose:

17. Household assets:

Items	Yes	No
<input type="checkbox"/> Electricity connection		
<input type="checkbox"/> Pressure cooker		
<input type="checkbox"/> Fan		
<input type="checkbox"/> Television		
<input type="checkbox"/> Motorcycle / scooter		
<input type="checkbox"/> Four-wheel vehicle <input type="checkbox"/> Mobile phone (keypad / smart phone)		

18. Livestock assets:

Type	Number	Yield	Self Consumed	Quantity sold	Rate/Unit	Income
1. Milch animals						
Cows						
Buffaloes						
2. Goats						
3. Poultry						
4. Piggery						
5. Any other						

19. What will be the annual income from crop activities?

### C. Ration Cards

20. Do you have a ration card? Yes/ No

21. If yes, what is the type of Ration Card:

Colour of ration card	Andhra Pradesh
<input type="checkbox"/> White	
<input type="checkbox"/> Blue	
<input type="checkbox"/> Pink	
<input type="checkbox"/> Yellow	

22. If 'NO' give reasons

Not eligible

- Have not bothered to get it
- Procedure for obtaining ration card is difficult
- Only a limited number of ration cards are issued
- No time to get the ration card

23. Why did you take ration card?

- Getting subsidised food items
- Identification purpose

24. Are you using the Ration Card, How Often?

Year of issue:

25. Did you need to pay anyone any amount to obtain your Ration Card or for other associated expenses? If yes what will the amount?

- Yes
- No

26. Are you in possession of your Ration Card at this moment or is it with someone else? If no, then where it is?

- Yes
- No

#### **D. PDS Utilization**

27. In an ordinary month what are all commodities you are allotted according to your Ration Card from the PDS outlet? (Price/kg or Lt & Qty/month)

	Quantity / Month	Price / Kg	
<input type="radio"/> Rice			
1. Boiled rice			
2. Matta rice			
3. Raw rice			
<input type="radio"/> Wheat grains			
<input type="radio"/> Wheat Atta			
<input type="radio"/> Sugar			
<input type="radio"/> Red gram			
<input type="radio"/> Bengal gram			
<input type="radio"/> Kerosene			
<input type="radio"/> Palm oil			
Others (specify clearly)			

28. Are you aware of quota of supply, If yes how?

29. Do u get the allotted quantity of commodities? Yes / No
30. If no, why is it so? Is there any delay for the processing?
31. What are the items that you would like to be supplied by the fair price shops?
32. Do you feel that the present quantities are adequate? Yes/No
33. Are you getting any reduction due to loss or damage of food grains? Yes / No
34. Are u able to survive without purchasing the grains from outside? Yes / No
35. If no, how much quantity should be supplied per head or per card?

Items	Quantity	Price

36. What did you feel about the prices of

	Cheap	Nominal	Costly
Rice			
1. Boiled rice			
2. Matta rice			
3. Raw rice			
Wheat grains			
Wheat Atta			
Sugar			
Red gram			
Bengal gram			
Kerosene			
Palm oil			

37. Estimation of the purchase of grain (wheat and rice together) this month (August 2023) as well as during the last 3 months by your family?
38. Do you need to pay more or less for the commodities now? Yes/ No
39. Is the quota for any of these months still awaited? Yes/No
40. Has it ever happened in the past 6 months that your quota for a particular

month was sold in the open market or appropriated by someone else?

- Yes, several times
- Yes, once
- No

41. During last 3 months when you didn't get your full quota of grain, what was the main reasons that the PDS dealer usually say for not getting the full quota?

S.no	Item	Occurrence of problem (yes / no)	Rank
1	Shortage of food grains		
2	Grain supplies did not reach the PDS outlet		
3	Lack of information about opening times of the PDS outlet		
4	Inadequate supply to fair price shop		
5	Unavailability of good quality food grains		
6	Grain supplies "ran out" by the time we went to buy		
7	Transportation problems faced by consumers		
8	Improper functioning of the POS Machine 1. Not recognising thumb impression		
9	No issues		
10	Other responses (please specify)		

42. Suppose that the PDS outlet was open every day and that grain was always available. In that case, would you buy your full ration every month? Yes / No

43. If no, why not?

44. How would you describe the Quality of the grains received?

- Excellent-5     Good-4     Undecided-3
- Bad-2             Very bad-1

45. If commodities are in good quality are you using those or are you selling in open market? If so what will be prices?

46. Have u observed any low quality commodities distributed in this PDS system?

47. If you are getting low quality commodities r u going to use it for your purpose or selling in open market? If so what will be price?

48. Are u getting your ration to your door step? Yes / No

49. If no, what is the reason?

50. How far is the PDS outlet from your house \_\_\_\_\_ km.

51. Last time when you went to purchase your PDS ration, how long did it take you to go to the PDS outlet, obtain your grain ration, and come back home \_\_\_\_\_m

52. How many days does the PDS outlet usually open in a month?  
\_\_\_\_\_ days

53. Are these days fixed for each month? Yes / No

54. If not, do you get to know in advance that the PDS outlet is going to open? Yes / No

55. Do you feel that the opening days of the PDS outlet are adequate? Yes / No

#### **E. Perception of PDS**

56. How would you describe the attitude of the PDS dealer?

- Very helpful-5
- Helpful-4
- Indifferent-3
- Somewhat helpful-2
- Not helpful-1

57. Does the PDS dealer provide you with sufficient information regarding new policies, plan and changes made by the Government ? Yes / No

58. Are you satisfied with the functioning of the local PDS outlet ?

- Highly satisfied-5
- Satisfied-4
- Undecided-3
- Some what dissatisfied-2
- Fully dissatisfied-1

59. How would you rate the overall functioning of the PDS outlet today compared with that 5 years ago ?

- Excellent-5
- Good-4
- Undecided-3
- Bad-2
- Very bad-1

60. How would you rate the PDS today compared with 5 years ago in the following aspects?

Items	Excellent-5	Good-4	Undecided-3	Bad-2	Very bad-1
<input type="radio"/> Accessibility					
<input type="radio"/> Regularity					
<input type="radio"/> Quantity supplied					
<input type="radio"/> Quality of grain					
<input type="radio"/> Price of grain					

61. If you were given any ‘coarse grain’ such as bajra / jowar / maize / ragi at the PDS outlet, would you buy it? Yes / No

62. Suppose that instead of giving you food rations through the PDS every month, the government deposited some money every month in your bank account -enough to buy the same amount of food on the market – and closed the PDS outlet. How would you feel about it? Would it be better, worse or the same as getting food from the PDS outlet?

63 Are you satisfied with the adoption of E-POS machine? Yes / No

64. Reason for the compatibility with E-POS system

- Reduces corruption
- Less time to purchase
- Can purchase from any ration shop
- Ensure deserved portion to all families
- Accurate and timely distribution
- Ensure government control

65. Problem faced at the time of purchase

- Server problems
- Compulsory purchase
- Lack of knowledge
- Purchasing problems
- Long queue
- Not able to receive ration by sending other person
- Other problems

66. Are you regularly getting the bill after purchase? Yes / No
67. Are u getting messages about the arrival of stock in the ration shop? Yes / No
68. Are you regularly getting the messages in your mobile after purchase? Yes / No
69. Have encountered fraudulent activity from the distributor? Yes / No
70. Satisfaction level about billing
- Highly satisfied-5
  - Satisfied-4
  - Undecided-3
  - Somewhat satisfied-2
  - Fully dissatisfied-1
71. How would you describe the importance of the PDS for your family's food security?
- Very important-5
  - Important-4
  - Undecided-3
  - Lessimportant-2
  - Not important-1
72. Opinion about the government control on public distribution system
- Excellent-5
  - Good-4
  - Undecided-3
  - Bad-2
  - Very bad-1
73. Is this system efficient for the future ? Yes / No
74. Opinion about the use of Biometrics ( Finger print)
- Excellent-5
  - Good-4
  - Undecided-3
  - Bad-2
  - Very bad-1
75. Overall satisfaction in this E-POS system in public distribution system
- Highly satisfied-5
  - Satisfied-4
  - Undecided-3
  - Some what satisfied-2
  - Fully dissatisfied-1
76. Do you have any suggestions for the improvement of the PDS?

# **Abstract**

**A COMPARATIVE ANALYSIS OF PUBLIC DISTRIBUTION SYSTEM IN  
KERALA AND ANDHRA PRADESH**

*by*

**DHANASWI VASIPALLY**

**(Admn. No. 2021-11-126)**

**Abstract of thesis**

**Submitted in partial fulfillment of the  
requirements for the degree of**

**MASTER OF SCIENCE IN AGRICULTURE**

**Faculty of Agriculture**

**Kerala Agricultural University**



**DEPARTMENT OF AGRICULTURAL ECONOMICS**

**COLLEGE OF AGRICULTURE**

**VELLAYANI, THIRUVANANTHAPURAM-695522**

**KERALA, INDIA**

**2024**

The present study “A Comparative Analysis of Public Distribution System in Kerala and Andhra Pradesh” was aimed to study the production and procurement of food grains in Kerala and Andhra Pradesh, analyze consumer satisfaction towards food grains distributed through the Public Distribution System (PDS) and study the constraints in the implementation of PDS. For the present study, a purposive cum random sampling technique was adopted. It was conducted in Tirur block of Malappuram district of Kerala state and Nellore rural of Nellore district of Andhra Pradesh state. The study used both primary and secondary data to achieve the objectives of the study. The primary data were gathered from respondents by personal interview technique using a well-structured schedule. A total of 240 respondents, 120 from Kerala state and 120 from Andhra Pradesh state were selected randomly from two grama panchayats of Tirur block and Nellore rural block. The secondary data on the area, production and productivity of food grains were obtained from the Department of Civil Supplies and Consumer Affairs of Government of Kerala and Consumer Affairs, Food and Civil Supplies of Government of Andhra Pradesh, Food Corporation of India and Supplyco. The data collected was analyzed to attain the stated objectives using Percentage analysis, Cross tabulations, Likert scaling technique, Compound annual growth rate (CAGR) and Garrett’s ranking technique.

In rice, a higher growth rate was in area observed in Andhra Pradesh (1.00%) when compared to Kerala (0.99%). When compared to Andhra Pradesh, a higher growth rate in production of 1.03 per cent was observed in Kerala. The growth rate of productivity was 1.01 per cent in both Kerala and Andhra Pradesh respectively.

On analysis, the study revealed that the majority of respondents belonged to the age group of 30- 50 years in both Kerala and Andhra Pradesh. The majority of the respondents in both Kerala (71.67%) and Andhra Pradesh (56.67%) were female. The majority of the respondents in both Kerala (81.67%) and Andhra Pradesh (80%) were married. About 46.67% and 60.83% of respondents were educated up to below SSLC in Kerala and Andhra Pradesh. Occupation status revealed that the majority of respondents (79.17%) family heads in Kerala were others i.e., housewives, working as private employees, etc., as well as in Andhra Pradesh (59.17%) family heads were having the occupation of employed for wages. The majority of the respondents

(69.17%) had an annual income of (below 15,000) in Kerala and (46.67%) had an annual income of (25,000-1,00,000) in Andhra Pradesh. The majority of the respondents belonged to the Hindu religion in both Kerala (80%) and Andhra Pradesh (100%). Majority of the respondents belonged to OBC and SC in Kerala (72.5%) and Andhra Pradesh (35.83%) respectively. The majority of the respondents belonged to nuclear families with dependents in both Kerala (61.67%) and Andhra Pradesh (58.33%). Majority of the respondents had own houses in Kerala (97.5%) and Andhra Pradesh (94.17%). The majority of the respondents belonged to family size less than 4 in both Kerala (46.47%) and Andhra Pradesh (94.167%). The majority of the respondents had roofed houses in both Kerala (91.67%) and Andhra Pradesh (65%). The majority of the respondents belonged to pink cards and white cards in Kerala (41.67%) and Andhra Pradesh (100%) respectively.

The average quantity of rice, wheat atta and sugar purchased by BPL cards in Kerala (20.61kg, 2.175 kg and 1 kg) is more when compared to Andhra Pradesh (19.37 kg, 1 kg and 0.5 kg).

Major constraints faced by the respondents was improper functioning of the POS machine in Kerala with a Garrett score of 68.29 and shortage of food grains in Andhra Pradesh with a Garrett score of 71.29.

### **Based on the findings the study recommended the following policy suggestions**

1. To enhance overall satisfaction of E-POS, it is essential to improve service quality through staff training, internet connectivity and SMS messaging services, providing OTP whenever biometric identification failed.
2. The quality of food grains in both states has to be improved because only 35% of respondents felt that quality is good whereas majority were undecided.
3. Spreading awareness is essential among the public about the allocated ration according to the size of their families.
4. Adding coarse cereals such as jowar and ragi, along with pulses like redgram and green gram, to the poverty line basket is recommended, as the residents of some districts in Andhra Pradesh state like Rayalaseema region and some other districts favor these coarse cereals in their diet.

5. In Andhra Pradesh, redgram is distributed in some districts only it should be given for other districts also and need to be implemented in Kerala state.
6. Minor millets have to be procured in both states and sugar has to be procured in Andhra Pradesh.
7. An increase in the amounts of wheat flour and sugar is necessary, given that the current distribution levels through the PDS are insufficient to meet the demands of households.
8. In Kerala, Government will send SMS notifications to beneficiaries in advance and after purchase of food grains informing them about the availability of PDS supplies so it should implemented in Andhra Pradesh also so it can help recipients plan efficiently and minimize the need for repeated visits to Fair Price Shops.
9. There is a need to extend the operating days of Fair Price Shops in Andhra Pradesh because in Kerala shops will be open all the days except Sunday from 8am to 12 noon and 4pm to 7pm whereas in Andhra Pradesh first 15 days of the month only it will open.
10. A thorough evaluation of specific areas' requirements should be conducted based on cards, enabling the Public Distribution System (PDS) to guarantee a sufficient supply of essential commodities.
11. The government needs to buy more from its agencies and include small farmers to ensure fair prices and good returns on their investments. Strengthening the procurement network is essential for this purpose.
12. In Kerala, APL cards also issued whereas in Andhra Pradesh they are not issued so with some rules and regulations APL cards may be reintroduced in Andhra Pradesh.
13. In Andhra Pradesh, mobile dispensing unit (MDUs) for door delivery of ration supplies is implemented where as in Kerala it should be implemented so that old aged people will be benefited.

സംഗ്രഹം

“കേരളവും ആന്ധ്രപ്രദേശും തമ്മിലുള്ള പൊതു വിതരണ സംവിധാനത്തിന്റെ താരതമ്യ പഠനം” എന്ന പഠനത്തിന്റെ പ്രധാന ലക്ഷ്യം കേരളം, ആന്ധ്രപ്രദേശ് എന്നീ സംസ്ഥാനങ്ങളിലെ ഭക്ഷ്യ ധാന്യങ്ങളുടെ ഉദ്പാദനവും സമാഹരണവും പഠിക്കുക, പൊതുവിതരണ സംവിധാനത്തിലൂടെ വിതരണം ചെയ്യുന്ന ഭക്ഷ്യധാന്യങ്ങളോടുള്ള ഉപഭോക്താ സംതൃപ്തി വിശകലനം ചെയ്യുക, പൊതുവിതരണ സംവിധാനത്തിന്റെ നടപ്പാക്കലിൽ ഉള്ള ബുദ്ധിമുട്ടുകൾ പരിശോധിക്കുക എന്നിവയാണ്. ഈ പഠനത്തിനായി പർപ്പസീവ് കം റാൻഡം സാമ്പിൾ ടെക്നീക് സ്വീകരിച്ചു. പഠനം കേരളത്തിലെ മലപ്പുറം ജില്ലയിലെ തിരൂർ ബ്ലോക്കിലും ആന്ധ്രപ്രദേശിലെ നെല്ലൂർ ജില്ലയിലെ നെല്ലൂർ ഗ്രാമീണ മേഖലകളിലും നടന്നു. പഠനത്തിന്റെ ലക്ഷ്യങ്ങൾ കൈവരിക്കുന്നതിന് പ്രാഥമികവും ദ്വിതീയവുമായ വിവരങ്ങൾ ഉപയോഗിച്ചു. നന്നായി ചിട്ടപ്പെടുത്തിയ ചോദ്യാവലി ഉപയോഗിച്ച് വ്യക്തിഗത അഭിമുഖം നടത്തി പ്രാഥമിക വിവരം ശേഖരിച്ചു. കേരളത്തിൽ തിരൂർ ബ്ലോക്കിലെ രണ്ടു പഞ്ചായത്തുകളിൽ നിന്ന് 120 പേരെയും ആന്ധ്രപ്രദേശിൽ നെല്ലൂർ റൂറലിലെ 2 പഞ്ചായത്തുകളിൽ നിന്ന് 120 പേരെയും വിവരശേഖരണത്തിനായി ക്രമരഹിതമായി തിരഞ്ഞെടുക്കപ്പെട്ടു. ഭക്ഷ്യധാന്യങ്ങളുടെ വിസ്തീർണം, ഉദ്പാദനം, ഉദ്പാദനക്ഷമത എന്നിവയെക്കുറിച്ചുള്ള ദ്വിതീയ വിവരങ്ങൾ കേരള സർക്കാരിന്റെ സിവിൽ സപ്ലൈസ് ആൻഡ് കൺസ്യൂമർ അഫയേഴ്സ് ഡിപ്പാർട്ട്മെന്റ്, ആന്ധ്രപ്രദേശ് സർക്കാരിന്റെ ഉപഭോക്താകാര്യം, ഫുഡ് ആൻഡ് സിവിൽ സപ്ലൈസ്, ഫുഡ് കോർപ്പറേഷൻ ഓഫ് ഇന്ത്യ, സപ്ലൈകോ എന്നിവയിൽ നിന്ന് ലഭിച്ചു. ശതമാനവിശകലനം, ക്രോസ്സ് ടാബുലേഷൻ, ലൈക്കർട്ട് സ്കെയിലിംഗ് ടെക്നീക്, കോമ്പൗണ്ട് വാർഷിക വളർച്ചാ നിരക്ക് (സിഎജിആർ), ഗാരറ്റിന്റെ റാങ്കിങ് ടെക്നീക് എന്നിവ ഉപയോഗിച്ച് പ്രഖ്യാപിത ലക്ഷ്യങ്ങൾ കൈവരിക്കുന്നതിനായി ശേഖരിച്ച വിവരങ്ങൾ വിശകലനം ചെയ്തു.

കേരളത്തിലെയും ആന്ധ്രപ്രദേശിലെയും നെൽക്യൂഷിയുടെയും വിസ്തൃതി വളർച്ചാ നിരക്ക് യഥാക്രമം 0.99, 1.00 ശതമാനം ആണെന്ന് കണ്ടെത്തി. ആന്ധ്രപ്രദേശുമായി താരതമ്യം ചെയ്യുമ്പോൾ ഉദ്പാദനത്തിന്റെ വളർച്ചാനിരക്ക് കേരളത്തിൽ കൂടുതലാണ് എന്ന് മനസ്സിലാക്കാൻ കഴിഞ്ഞു.

പ്രതികരിച്ച ഉപഭോക്താക്കളുടെ സാമൂഹിക സാമ്പത്തിക പ്രൊഫൈൽ വിശകലനം ചെയ്തതിൽ നിന്നും കേരളത്തിലും

ആന്ധ്രപ്രദേശിലുമുള്ള ഭൂരിഭാഗം ഉപഭോക്താക്കളും 30 നും 50 നും ഇടയ്ക്ക് പ്രായമുള്ളവരാണ് എന്ന് മനസ്സിലായി. കേരളത്തിലും (71.67%), ആന്ധ്രപ്രദേശിലും (56.67%) പ്രതികരിച്ചവരിൽ ഭൂരിഭാഗവും സ്ത്രീകളാണ്. കേരളത്തിലും (81.67%), ആന്ധ്രപ്രദേശിലും (80%) പ്രതികരിച്ചവരിൽ ഭൂരിഭാഗവും വിവാഹിതരാണ്. കേരളത്തിലും ആന്ധ്രപ്രദേശിലുമായി ഏകദേശം 46.67% ഉം 60.83% ഉം എസ്എസ്എൽസിക്ക് താഴെ വിദ്യാഭ്യാസമുള്ളവരാണ്. കേരളത്തിൽ പ്രതികരിച്ച ഉപഭോക്താക്കളിൽ ഭൂരിഭാഗം പേരും വീട്ടമ്മമാരാണ്. ആന്ധ്രപ്രദേശിൽ പ്രതികരിച്ച ഉപഭോക്താക്കളിൽ കൂടുതൽ ആളുകളും (59.19%) കൂലിപ്പണി ചെയ്യുന്ന തൊഴിലാളികളാണെന്ന് മനസ്സിലായി. പ്രതികരിച്ചവരിൽ ഭൂരിഭാഗവും (69.17%) കേരളത്തിൽ (15,000ൽ താഴെ) വാർഷിക വരുമാനവും (46.67%) ആന്ധ്രപ്രദേശിൽ (25,000-1,00,000) വാർഷികവരുമാനവുമാണ് ഉള്ളത്. പ്രതികരിച്ചവരിൽ ഭൂരിഭാഗവും കേരളത്തിലും (80%), ആന്ധ്രപ്രദേശിലും (100%) ഹിന്ദു മതത്തിൽ പെട്ടവരാണ്. പ്രതികരിച്ചവരിൽ ഭൂരിഭാഗവും യഥാക്രമം കേരളത്തിൽ (72.5%), ആന്ധ്രപ്രദേശിൽ (35.83%) ഒബിസിയിലും എസ്സിയിലും പെട്ടവരാണ്. കേരളം (61.67%), ആന്ധ്രപ്രദേശ് (58.33%) എന്നിവിടങ്ങളിൽ ആശ്രിതരായ അണുകൂടുംബങ്ങളിൽ നിന്നുള്ളവരാണ് പ്രതികരിച്ചവരിൽ ഭൂരിഭാഗവും. പ്രതികരിച്ചവരിൽ ഭൂരിഭാഗം പേർക്കും കേരളത്തിലും (97.5%), ആന്ധ്രപ്രദേശിലും (94.17%) സ്വന്തമായി വീടുകൾ ഉണ്ടായിരുന്നു. കേരളം (46.47%), ആന്ധ്രപ്രദേശ് (94.167%) എന്നിവിടങ്ങളിൽ 4-ൽ താഴെയുള്ള കുടുംബങ്ങളാണ് പ്രതികരിച്ചവരിൽ ഭൂരിഭാഗവും. സർവ്വേയിൽ പങ്കെടുത്തവരിൽ ഭൂരിഭാഗവും കേരളത്തിലും (91.67%), ആന്ധ്രപ്രദേശിലും (65%) മേൽക്കൂരയുള്ള വീടുകളായിരുന്നു. സർവ്വേയിൽ പങ്കെടുത്തവരിൽ ഭൂരിഭാഗവും പീക്ക് കാർഡുകളും വെള്ള കാർഡുകളും യഥാക്രമം കേരളത്തിൽ (41.67%), ആന്ധ്രപ്രദേശിൽ (100%) ഉള്ളവരാണ്.

കേരളത്തിൽ ബിപിഎൽ കാർഡുകൾ വാങ്ങുന്ന അരി, ഗോതമ്പ് ആട്ട, പഞ്ചസാര എന്നിവ (20.61 കിലോ, 2.175 കിലോ, 1 കിലോ) ആന്ധ്രപ്രദേശിനെ അപേക്ഷിച്ച് (19.37 കിലോ, 1 കിലോ, 0.5 കിലോ) കൂടുതലാണ്.

68.29 ഗാരറ്റ് സ്കോർ ഉള്ള കേരളത്തിലെ പിഒഎസ് മെഷീൻറെ തെറ്റായ പ്രവർത്തനവും ആന്ധ്രപ്രദേശിൽ 71.29 ഗാരറ്റ് സ്കോറുള്ള

ഭക്ഷ്യധാന്യങ്ങളുടെ ദൗർലഭ്യവുമാണ് പ്രതികരിക്കുന്നവർ നേരിടുന്ന പ്രധാന തടസ്സങ്ങൾ.

കണ്ടെത്തലുകളെ അടിസ്ഥാനമാക്കി പഠനം ഇനിപ്പറയുന്ന നയ നിർദ്ദേശങ്ങൾ ശുപാർശ ചെയ്തു

1. ഇ-പിഐസ്-ന്റെ മൊത്തത്തിലുള്ള സംതൃപ്തി വർദ്ധിപ്പിക്കുന്നതിന് വേണ്ടി, തൊഴിലാളികളുടെ പരിശീലനത്തിലൂടെയും, മെച്ചപ്പെട്ട ഇൻറർനെറ്റ് കണക്റ്റിവിറ്റി കൊടുത്തുകൊണ്ടും, യഥാക്രമം എസ്എംഎസ് സർവീസുകൾ ഉപഭോക്താക്കൾക്ക് എത്തിച്ചുകൊണ്ടും സർവീസ് മെച്ചപ്പെടുത്തേണ്ടതുണ്ട്.
2. രണ്ട് സംസ്ഥാനങ്ങളിലെയും ഭക്ഷ്യധാന്യങ്ങളുടെ ഗുണനിലവാരം മെച്ചപ്പെടുത്തേണ്ടതുണ്ട്, കാരണം പ്രതികരിച്ചവരിൽ 35% പേർ മാത്രമേ ഭക്ഷ്യധാന്യങ്ങൾ ഗുണനിലവാരമുള്ളതാണെന്ന് കരുതുന്നുള്ളൂ, എന്നാൽ ഭൂരിപക്ഷം ഇതിനെപ്പറ്റി ഒരു തീരുമാനം പറയാത്തവരാണ്.
3. കുടുംബങ്ങളുടെ വലിപ്പത്തിനനുസരിച്ച് അനുവദിച്ച റേഷനെ കുറിച്ച് പൊതുജനങ്ങൾക്കിടയിൽ അവബോധം പ്രചരിപ്പിക്കേണ്ടത് അത്യാവശ്യമാണ്.
4. രായലസീമയിലും, മറ്റ് ചില ആന്ധ്രപ്രദേശിലെ ജില്ലകളിലെ നിവാസികൾ നാടൻ ധാന്യങ്ങൾ ഭക്ഷിക്കാൻ താല്പര്യപ്പെടുന്നു, അതിനാൽ അവരുടെ ഭക്ഷണക്രമത്തിൽ ചുവന്ന പയർ, ചെറുപയർ തുടങ്ങിയ പയർവർഗ്ഗങ്ങൾക്കൊപ്പം ജോവർ, റാഗി തുടങ്ങിയ നാടൻ ധാന്യങ്ങളും ദാരിദ്ര്യരേഖ വസ്തുവകകളിൽ ചേർക്കുവാൻ ശുപാർശ ചെയ്യുന്നു.
5. ആന്ധ്രപ്രദേശിൽ, ചില ജില്ലകളിൽ മാത്രമേ റെഡ്ഗ്രാം വിതരണം ചെയ്യുന്നുള്ളൂ, അത് മറ്റ് ജില്ലകൾക്കും നൽകണം, അത് കേരള സംസ്ഥാനത്ത് നടപ്പാക്കേണ്ടതുണ്ട്.
6. രണ്ട് സംസ്ഥാനങ്ങളിലും ചെറുകിട തിനകളും ആന്ധ്രപ്രദേശിൽ പഞ്ചസാരയും സംഭരിക്കണം.
7. ഗോതമ്പ് പൊടിയുടെയും പഞ്ചസാരയുടെയും അളവിൽ വർദ്ധനവ് ആവശ്യമാണ്, പൊതുവിതരണ സംവിധാനത്തിലൂടെയുള്ള നിലവിലെ വിതരണ അളവ് കുടുംബങ്ങളുടെ ആവശ്യങ്ങൾ നിറവേറ്റാൻ അപര്യാപ്തമാണ്.

8. കേരളത്തിൽ സർക്കാർ ഗുണഭോക്താക്കൾക്ക് മുൻകൂറായി എസ്എംഎസ് അറിയിപ്പുകൾ അയയ്ക്കും, ഭക്ഷ്യധാന്യങ്ങൾ വാങ്ങിയതിന് ശേഷവും പിഡിഎസ് വിതരണത്തിന്റെ ലഭ്യതയെക്കുറിച്ച് അവരെ അറിയിക്കും, അതിനാൽ ഇത് ആന്ധ്രപ്രദേശിലും നടപ്പിലാക്കണം, അതിനാൽ ഇത് സ്വീകർത്താക്കളെ കാര്യക്ഷമമായി ആസൂത്രണം ചെയ്യാനും ആവർത്തിച്ചുള്ള ന്യായവില കടകളിലേക്കുള്ള സന്ദർശനങ്ങൾ കുറയ്ക്കാനും സഹായിക്കും.
9. ആന്ധ്രപ്രദേശിൽ ന്യായവില കടകളുടെ പ്രവർത്തന ദിവസങ്ങൾ നീട്ടേണ്ടതുണ്ട്, കാരണം കേരളത്തിലെ കടകൾ ഞായറാഴ്ച ഒഴികെയുള്ള എല്ലാ ദിവസവും രാവിലെ 8 മുതൽ 12 വരെയും വൈകുന്നേരം 4 മുതൽ 7 വരെയും തുറന്നിരിക്കും, അതേസമയം ആന്ധ്രപ്രദേശിൽ മാസത്തിലെ ആദ്യത്തെ 15 ദിവസങ്ങളിൽ മാത്രമാണ് തുറക്കുക.
10. അവശ്യസാധനങ്ങളുടെ മതിയായ വിതരണം ഉറപ്പുനൽകാൻ പൊതുവിതരണ സംവിധാനത്തെ (പിഡിഎസ്) പ്രാപ്തമാക്കിക്കൊണ്ട്, കാർഡുകളെ അടിസ്ഥാനമാക്കി നിർദ്ദിഷ്ട പ്രദേശങ്ങളുടെ ആവശ്യകതകളുടെ സമഗ്രമായ വിലയിരുത്തൽ നടത്തണം.
11. ന്യായവിലയും അവരുടെ നിക്ഷേപത്തിന് നല്ല ആദായവും ഉറപ്പാക്കാൻ സർക്കാർ ഏജൻസികളിൽ നിന്ന് കൂടുതൽ വാങ്ങുകയും ചെറുകിട കർഷകരെ ഉൾപ്പെടുത്തുകയും വേണം. ഈ ആവശ്യത്തിന് സംഭരണ ശൃംഖല ശക്തിപ്പെടുത്തേണ്ടത് അത്യാവശ്യമാണ്.
12. കേരളത്തിൽ, എപ്പിൾ കാർഡുകളും വിതരണം ചെയ്യപ്പെടുന്നു, എന്നാൽ ആന്ധ്രപ്രദേശിൽ അവ നൽകപ്പെടുന്നില്ല, അതിനാൽ ചില നിയമങ്ങളും നിയന്ത്രണങ്ങളും ഉപയോഗിച്ച് ഈ കാർഡുകൾ ആന്ധ്രപ്രദേശിൽ പുനരവതരിപ്പിക്കാവുന്നതാണ്.
13. ആന്ധ്രപ്രദേശിൽ, റേഷൻ സാധനങ്ങൾ ഡോർ ഡെലിവറി ചെയ്യുന്നതിനുള്ള മൊബൈൽ ഡിസ്പെൻസിങ് യൂണിറ്റ് (എംഡിയു) വഴി നടപ്പിലാക്കുന്നതുപോലെ കേരളത്തിലും നടപ്പാക്കുകയും, അതുവഴി പ്രായമായവർക്ക് പ്രയോജനം ലഭിക്കുകയും ചെയ്യും.