Final Report

On

Seed Distribution System

AT

ANGUL, GAJAPATI &PURI

For

P&C DEPARTMENT, GOVT. OF ODISHA
ODISHA SECRETARIAT

by

NATIONAL PRODUCTIVITY COUNCIL

NATIONAL PRODUCTIVITY COUNCIL

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Table of Contents

LIST OF TABLES

1. INTRODUCTION:

Odisha is having total cultivated area of 61.80lakh hectares. Of the total cultivated area; high land, medium land and low land constitute 29.14lakh hectares, and 17.5lakh hectares, and 15.11lakh hectares respectively. The total cropped area taking into all crops grown in Khariff, Rabi and summer is 88.0lakh hectares, of which paddy constitute 40.05lakh hectares both in Khariff and Rabi. Paddy is the principal crop of Odisha, followed by pulses (20.04lakh hectares), oil seeds (7.65lakh hectares) vegetable (6.90lakh hectares), spices (1.55lakh hectares) and fruits (5.33lakh hectares).

Seed is one of the important basic input which influences agricultural production about 15-20%. Thus availability of quality seeds with the farmers is important in increasing agricultural production.

Quality seeds distribution to the farmers of the state is one of the important services rendered by the Agriculture department, Government of Odisha through its Seeds Corporation. The Seed Corporation distributes the seeds to the farmers in all the seasons at subsidized rate. It distributes seeds like Paddy, Maize, Wheat, Ragi, Moong, Biri, Arhar, Groundnut, Mustard, Til, Niger, Sunflower, Cotton, Jute, Dhanicha, and Field pea for all seasons.

Paddy being the principal crop of Odisha and is grown to the extent of 40.05lakh hectares, the Corporation gives more thrust for distribution of Paddy Seeds to the farmers of Odisha. During the year of 2011-12, Alonepaddy seeds were distributed to the farmers to the extent of 4.87lakh tons in Kharif and 0.34lakh tons in Rabi season.

The study has been undertaken in three district of Odisha i.e.Angul, Puri and Gajapati to evaluate the quality of the service delivery standard of seed distribution made to the farmers by the agriculture dept, Govt of Odisha. Andto understand the satisfaction level of the farmers in receiving seeds by making field survey in Chhendipada block of Angul, Nimapada block of Puri and Gumma block of Gajapati district.

2.0 TERMS OF REFFERENCE:

The study is based on the specific terms and reference as mentioned in the proposal

- To study the existing service delivery standards of the seed distribution made to the farmers to the agriculture Department, Govt of Odisha.
- To study the existing process and activities associated with the seed distribution system.
- To understand the level of satisfaction of the farmers in receiving seeds by making a field survey among stake holders.
- To identify the various gaps in the distribution system from the beginning to end use with respect to standard operating system.
- To identify the critical factors responsible in causing inefficiency in the system.

3.0 DATA AND METHODLOGY:

In this study, three revenue districts namely Angul, Gajapati, and Puri have been selected by the state government to study the quality in service delivery system in producing, procuring and distributing quality seeds to the farmers of Odisha for increasing Agricultural production. In each revenue district, one block is selected namely, Chhendipada block for Angul, Gumma block for Gajapati and Nimapara block of Puri district. A field study conducted in each block to study the level of the satisfaction of the farmers in receiving quality seeds. In this respect a cluster of villages in each block is selected in consultation with Assistant Agricultural Officer (AAO) of the selected blocks. The villages selected in different blocks for the study are mentioned below.

NAME OF THE DISTRICT	BLOCKS SELECTED FOR STUDY	VILLAGES SELECTED FOR STUDY
ANGUL	Chhendipada	Chandiguda
		Tangiri
		Balinali
GAJAPATI	Gumma	Brusav
		Seramga
		Baojhal
PURI	Nimapara	Kapileswar
		Vhodar
		Ateihuda

The name of farmers benefited through quality seeds distribution is enlisted. More than ten percent of the farmers are selected on random from each cluster of villages selected in three blocks for detail study.

The modalities of existing seed production, its storage and distribution through PACS, LAMPS and private dealers have been collected on personal discussion with the officials of Seed Corporation and seed production unit of OUAT. The data relating the requirement of seeds and its availability to the farmers have been collected from various reports of the Seeds Corporation and Zonal Seed Conference reports prepared by the Agriculture department, Government of Odisha.

4.0 EXISTING SEED PRODUCTION SYSTEM:

Seeds are of three types, namely (1) Breeder Seeds, (2) Foundation Seeds and (3) Certified Seeds. The Breeder Seeds are produced in Orissa University of Agriculture and Technology (OUAT), Central Rice Research Institute (CRRI) and other research institutes by using nucleus seeds. The Foundation Seeds are produced by OUAT, CRRI and Seed Corporation by using breeder seeds. The Certified Seeds are mostly produced by the Seed Corporation by using foundation seeds through their 4200 registered seed growers across 30 districts of the state. The seed production officers of the corporation supervise the production programme. The seeds certification agency of the State Government through its expert team monitors the seed production by

visiting production sites of the registered growers. Finally the seed certification agency certifies the seeds produced by the seed growers. After the crop is harvested, the agricultural officers of the Seed Certification Agency issue a threshing floor certificate indicating their certification to the particular seed. With this certificate, the seed growers transfer their produce to the nearest processing centre. After the produce is processed, it is kept in the Storage Go-down of the Seeds Corporation for distribution to the farmers.

5.0 EXISTING SEED DISTRIBUTION SYSTEM:

Seed is one of the important basic input which influences agricultural production about 15-20%. Thus availability of quality seeds with the farmers is important in increasing agricultural production. Initially, the Agriculture Department was procuring and distributing the seeds through its official distribution channel. After the establishment of the Seeds Corporation in the state, the Corporation produces the seeds and also procures some seeds from outside state to meet the requirement of the farmers of the state. But the entire seeds were distributed to the farmers through the distribution channel of the Directorate of Agriculture, Government of Odisha. The Dy. Director of Agriculture, District Agriculture Officer and the Agriculture Extension Officers at the block level who were involved in the process of seed distribution. The facilities of Go-down are available at their level. In this case, the Seeds Corporation supplies the seeds to the Deputy Directors of different districts, even before the price of the seeds fixed by the Government. The DDAs and DAOs distribute the seeds through the sales centres at different block level. Since last two years, the Seeds Corporation has taken the responsibility in distributing the seeds to the farmers through PACS, LAMPCS and private seed dealers.

In practice, the Directorate of Agriculture estimates the total requirement of different kinds of seeds, required for different districts and sends it to the seeds corporation as its indent/requirement for kharif season in the month of April. The corporation procures the seeds and process to fix the price of the

seeds at Government level. After the price fixed at the Government level, the corporation supplies the seeds through PACS/LAMPS on payment of 50% value of the seeds. The major portion of the seeds is supplied through the private dealers on payment of total value of the seeds. In this process supply of seeds is delayed for delay in price fixation at Government level. Further, delay in supply of seeds is also due to delay in payment for seeds by LAMPS/PACS and private dealers. In many cases the dealers and PACS do not have their own Godown for proper storage of seeds. They arrange private Godown before lifting seeds from the corporation. The process further delays the seeds to reach with farmers.

6.0 DEMAND AND SUPPLY GAP OF SEEDS IN ODISHA:

The Director of Agriculture and Food Production, Government of Odisha estimates the total requirement of different kinds of seeds for farmers of the state both for Kharif and Rabi season and informs as Indent of the seed requirement of the state to the Seeds Corporation much ahead of sowing time. The Seeds Corporation of the state procures the required seeds from different sources including its own production and makes it available to the farmers through its dealers/LAMPCS/PACS. But there is mismatch between the demand for seeds as estimated by Director of Agriculture and Food Production and supply of seeds made by Seeds Corporation of the state. The demand and supply gaps of different seeds both for Kharif and Rabi season have been analysed separately and presented below.

6.1. Demand and supply gap of seeds in kharif:

Demand and supply gap of Paddy, Ragi, Maize, Pulses (Arhar, Moong and Biri), fibers (Cotton and Jute) and oil seeds(Niger, Groundnut and Til)in Kharif 2014-15 have been analyzed and presented in Table-1, Table-2, Table-3, Table-4 and Table-5.

6.1.1 Demand and Supply Gap of Paddy Seeds In Khariff:

The Demand and supply gap of Paddy seeds for different type of land in Kharif 2014-15 has been analysed and presented in Table-1. Paddy is grown in upland, medium land and in low land in Odisha.

6.1.1.1 Demand and supply gap of paddy seeds for upland in kharif

The farmers need short duration varieties for upland, medium duration varieties for medium land and long duration varieties for low land. As per the requirement, the farmers prefer Khandagiri, Jogesh, Kalinga-III, Udayagiri, Bandana, Sidhant, and Dhala Heera to grow in uplands. The total requirement for upland was 38,778 quintals for Kharif. Only 23140 quintals were made available to the farmers during the entire Kharif season, resulting a deficit of 15,638 quintals. Further, it is found that against the demand for seven upland rice varieties, an only seed of a single variety (Khandagiri) was made available to the farmers by the Corporation.

6.1.1.2 Demand and supply gap of paddy seeds for medium land in kharif

The total demand for rice variety for medium land was 2, 80,320 quintals against which supply was made only to the extent of 1, 72,193 quintals, resulting a deficit of 1, 08,127 quintals. The farmers of Odisha have indicated their requirement of 17 varieties of rice crop for medium land in Kharif season in the year 2014-15, against which the seeds corporation has made available seeds only for 6 varieties for medium land. The corporation could not able to make arrangement to produce or to procure 11 no of varieties for medium land for Kharif season to meet the requirements of the farmers. Even for certain varieties, the supply was much less than the demand. Deficit in Supply of some popular varieties like, MTU-1001, Lalat, Pratikshya, for medium land in Kharif 2014-15 was to the tune of 24 thousands to 35 thousand quintals.

6.1.1.3 Demand and supply gap of Paddy seeds for low land in Kharif

The total demand for rice varieties for low land was 3, 62,635 quintals against which supply was made to the extent of 3, 68,817 quintals, resulting a surplus of 6,181 quintal. The farmers of Odisha have indicated their requirement of 30 varieties of rice crop for low land in Kharif season in the year 2014-15, against which the seeds corporation has made available seeds only for 11 varieties for low land. The corporation could not able to make arrangement to produce or to procure 19 numbers of varieties for low land for Kharif season to meet the requirements of the farmers. Even for certain varieties, the supply was much less than the demand for, while certain variety were supplied more than demand. Deficit in Supply of a most popular variety like Swarna for low land in Kharif 2014-15 was to the tune of 35 thousand quintals.

6.1.2 Demand and supply gap of Ragi and Maize in Khariff:

The variety wise requirement and availability of Ragi and Maize seeds for Kharif 2014-15 have been analyzed and presented in Table-2. This indicates that the total requirement of Ragi and Maize seeds were respectively 240 quintals and 277 quintals for Kharif. Against such requirement, the supply of Ragi seeds was only 80 quintals, resulting a deficit 160 quintals. But the corporation did not able to supply any variety of Maize seeds. On the requirement of 7 varieties of seeds of both Maize and Ragi, the corporation could able to provide only one variety of Ragi seeds.

6.1.3 Demand and supply gap of pulse seeds in Kharif:

The farmers of Odisha require pulse seeds including Arhar, Biri and Moong, to grow in Kharif season. The variety wise requirement and availability of Arhar, Moong, and Biri seeds for Kharif 2014-15 have been analysed and presented in Table-3. This indicates that the total requirement of Arhar, Moong and Biri seeds were 2900 quintals, 3700 quintals and 4200 quintals respectively for Kharif. Against such requirements, the supply of seeds was only 150 quintals,

3201 quintals and 6180 quintals respectively for Arhar, Moong, and Biri. The deficit in supply of Arhar and Moong seeds were to the tune of 2750 quintals and 499 quintals respectively. But the supply of Biri seeds was more than the demand.

6.1.4 Demand and supply gap of jute seeds in Kharif:

Jute is grown as pre Paddy Kharif crops in Odisha. The Seeds Corporation provides jute seeds to the farmers. During the Kharif 2014-15, the total requirement of jute seeds in the state was 300 quintals. Against such requirement, the corporation did not able to produce/ procure the seeds. As a result the deficit of seeds was 300 quintals during the year Table-4.

6.1.5 Demand and supply gap of oil seeds in Kharif.

The farmers of Odisha require oil seeds which includes, Niger, Groundnut and Till to grow in Kharif season. The variety wise requirement and availability of oil seeds for Kharif 2014-15 have been analysed and presented in Table-5. This indicates that the total requirement of Niger, groundnut and Til seeds were 250 quintals, 19,000 quintals and 136 quintals respectively for Kharif. Against such requirements, the supply of seeds was 68 quintals and 2105 quintals respectively for Niger and Groundnut. But the corporation did not able to supply any seed for Til. The deficit in supply of Niger, groundnut and Till to the tune of 182 quintals, 16,895 quintals and 136 quintals respectively. It clearly shows that the supply of oil seeds to the farmers were much less than their requirement.

6.2 Demand and Supply gap of Seeds in Rabi:

6.2.1 Demand and supply gap of paddy seeds in Rabi:

Demand and supply gap of Paddy seeds for different types of land in Rabi 2014-15 has been analysed and presented in Table-6. In Rabi season, Paddy is also grown in upland, medium land and low land.

6.2.1.1 Demand and supply gap of Paddy seeds for upland in Rabi:

The farmers need short duration varieties for upland, medium duration varieties for medium land and long duration varieties for low land even in Rabi season. As per requirement, the farmers prefer Khandagiri, Jogesh, Kalinga-III, Sidhant, Pathara, Parijat, Sahabhagi, Jaldidhan and Mandakini to grow in uplands. The total requirements for upland were 13,631 quintals for Rabi, against which the total availability was 14,000 quintals. Although total quantity of availability of seeds is more than the requirement, but availability of seeds were made for only two varieties against the requirement of 9 varieties.

6.2.1.2 Demand and supply gap of Paddy seeds for medium land in Rabi:

The total demand for rice variety for medium land was 69,831 quintals against which supply was made 75,600 quintals, resulting a surplus of 5,769 quintals. The farmers of Odisha have indicated their requirement of 10 varieties of rice crop for medium land in Rabi season in the year 2014-15, against which the seeds corporation has made available seeds only for 5 varieties for medium land. The corporation could not able to make arrangement to produce or to procure another five number of varieties for medium land for Rabi season to meet the requirements of the farmers. Even for certain varieties the supply was much less than the demand.

6.2.1.3 Demand and supply gap of Paddy seeds for low land in Rabi:

The total demand for rice variety for low land was only 207 quintals. The farmers prefer only RGL-2537 and RGL-2538 to grow in low lands. But the corporation did not able to arrange to supply these two varieties to the farmers.

6.2.2 Demand and supply gap of Ragi and Maize Seeds in Rabi Season:

Variety wise requirement and availability of Ragi and Maize seeds 2014-15 for Rabi season have been estimated and presented in Table-7. This indicates that the availability of Ragi seeds was much more than the requirement.

Maize, being the most important crops in Rabi season, the corporation could not able to supply any seed to the farmers against the requirement of 34.40 quintals of Maize seeds. It may be due to lack of technical personnel with them to produce or to procure such seeds to meet the farmers' requirements.

6.2.3 Demand and supply gap of pulse seeds in Rabi season:

Pulse is the most important crop in Rabi season for Odisha. The farmers grow pulses like Green gram, Black gram, Bengal gram, and Field pea in Rabi season.

6.2.3.1 Demand and supply gap of Green gram in Rabi season:

Farmers need 17 green gram varieties to grow in Rabi season. The demand for major varieties includes TARM-1, PDM-11 and PDM -54, PDM-139. The total requirement of seeds for Pulses was 6,312.70 quintals for Rabi, against which the availability was 2,229.14 quintals recording. Supply to the extent of only 35.30 percent of the total requirement. Even seven varieties of pulses could not be made availability to the farmers.

6.2.3.2 Demand and supply gap of Black gram in Rabi season:

Farmers need 13 Black gram varieties to grow in Rabi season. The demand for major varieties of Black gram includes PU-35, T-9, Prasad, PU-31 and PU-30 etc. The total requirement of seeds was 4,828.80 quintals for Rabi, against which the availability was only 986.12 quintals resulting a deficit of 3,843.28 quintals.

6.2.3.3 Demand and supply gap of Bengal gram in Rabi season:

Farmers need 9 Gram varieties to grow in Rabi season. The total requirement was 1303.1 quintals for Rabi, against which the availability was only 52.32 quintals, resulting a deficit of 1188.50 quintals in the season.

6.2.3.4 Demand and supply gap of field Pea in Rabi season:

The total requirement of field pea covering five varieties was 287.50 quintal for Rabi, against which there was no availability of any seeds in the entire season.

6.2.4 Demand and supply gap of oil seeds in Rabi season:

The farmers of Odisha grow different types of oil seeds in Rabi season, which includes Ground nut, Till, Mustard, and Sunflower.

6.2.4.1 Demand and supply gap of Ground nut seeds in Rabi season:

The farmers need 11 varieties of ground nut to grow in Rabi season. The demand for major varieties of Ground nut includes AK-12-24, TMV-2, Kadri-6, TAG-24, and OG-52-1. The total requirement was 1, 35,805.50 quintals for Rabi, against which the availability was only 47,162.60 quintals results a deficit of88, 642.90 quintals.

6.2.4.2 Demand and supply gap of Til seeds in Rabi season:

The total requirements of Til seeds covering 10 varieties were 290.10 quintals against which the corporation did not able to supply any seeds to the farmers. It is mainly due to lack of proper planning to produce or to procure the required seeds to meet the need of the farming community.

6.2.4.3 Demand and supply gap of Mustard seeds in Rabi season:

The total requirements of Mustard seeds covering 7 varieties were 3010.70 quintals against which the availability was only 1347.46 quintals results a deficit of 1663.40 quintals.

6.2.4.4 Demand and supply gap of sunflower seeds in Rabi season:

The total requirement of Sunflower seeds in Rabi season was 148.50 quintals covering four varieties. But the corporation did not able to supply any seeds to the farmers.

7.0 CHANGES IN DEMAND FOR DIFFERENT SEEDS DURING 2008-2014 KHARIF

Variety wise requirement and availability of seeds during 2008 for Kharif season have been analyzed and presented in Annexure-1. This shows that the supply of paddy seed for upland, medium land and low land were more than requirement. The requirement and availability of Ragi and Maize seeds, pulses, Fibre, oilseeds and Dhanicha, have been analyzed and placed in Annexure-II, III, IV, V, VI respectively. It is found that availability of different types of seeds during Kharif 2008 as mentioned in Annexure I-to vi were more than demand for seeds by the farmers.

The requirement and availability of seeds during Kharif of 2008 and 2014 have been compared and presented in Table-10. This indicates that supply of seeds during 2008 exceeded the demand resulting a surplus of 12,257.50 quintals. But during 2014 the demand for quality seeds including new varieties increased by 58.20 percent. But the seeds corporation could not able to produce/procure the required seeds to meet the need of the farmers of the state. During the year there is deficit supply of upland paddy seeds and medium land paddy seeds to the extent of 11,226 quintals and 1.08,127 quintals respectively. There is also less supply of ground nut seeds to the extent of 16,895 quintals. An average supply of total seeds was deficit 1, 30,244 quintals this clearly shows that there is a big gap between the requirement and supply of seeds during 2014-15.

8.0 DEMAND AND SUPPLY GAP OF SEEDS IN SELECTED DISTRICTS

8.1. Type and variety wise seeds required for three selected district

Requirement of seeds of a particular variety depends upon climate, rainfall and pattern of rainfall, soil and land type and extent of irrigation facilities. A type of seed and its varieties required for the district vary from other districts. As per the report of the Agricultural strategy committee* the seeds required for different districts are given below.

NAME OF THE CROP	NAME OF THE CROP VARIETIES		
	ANGUL	GAJAPATI	PURI
Paddy	Naveen Khandagiri Lalata MTU-1010 MTU-7029 MTU-1001 Sarala Pooja CR-1009 Ranidhan Pratikshaya Dhanarasi Barsha CR-1009	 MTU-1010 MTU-7029 MY-1001 POOJA LALAT	Naveen Swarna SUB 1 SAHABHAGI RANI DHAN PRATIKSHAYA BARASADHAN CR DHAN-70 CHANDAN MANASWINI KHANDAGIRI LALAT MTU-1001 MTU-1010 MTU-1032 MTU-7029(SWARNA) SARALA POOJA CR-1009 CR-1018 CR-1014 RGL-2537 PADMINI DURGA PANI DHAN BPT-5204 RGL-2332 LUNISHRI HANSESWARI
ground nut	SMRUTI ICGS P-VISHAL TARM-1		

	IPM-2-3		
Mung	P-VISHAL TARM-1 IPM-2-3		
BIRI	(PU-35)		
ARhar	UPAS-120 MARUTI		
DHANICHA TL	DHANICHA		Dhanicha

Report of the Agriculture strategy committee meeting of Angu 3l district for Khaif 2015 DDA Angul page No-31

8.2 Supply gap of seeds in three selected districts (ANGUL, Gajapati and Puri):

Name of the district	**KHARIF-2014**			**RABI 2013-14**		
	Name of the seeds	Quantity required in quintals	Quantity supplied in quintals	Name of the seeds	Quantity required in quintals	Quantity supplied in quintals
ANGUL	PADDY	9788.00	5574.50	Paddy	57.00	
	DHANICHA	40.00	0			
	GROUND NUT	75.00	130.00	GROUND NUT	822.00	186.3
	ARHAR	16.00	10.00	ARHAR		
	BIRI	24.00	30.00	BIRI	89.00	0.00
	MUNG	24.00	20.00	MUNG	75.50	10.00
				WHEAT	93.00	0.00
				TIL	3.00	0.00
				MUSTARD	51.00	30.00
				SUNFLOWER	5.40	00
				GRAM	38.00	5.00
				FIELD PEA	56.00	25.50
TOTAL		=9967.00	=5764.00		=1293.9	=256.00

Deficit in supply			-42.17%			-80.22%
GAJAPATI	PADDY	12750	9805.1			
	MAIZE	1050	1290			
	RAGI	12	56			
	ARHAR	12	110			
	MOONG	40	00			
	BIRI	40	200			
	DHANICHA	400	50			
	GROUND NUT	0	50			
	SUN HEMP	0	0			
TOTAL=		=14304	=11561.1			
Deficit in supply			=19.17%			
PURI	PADDY	17,492	18,058	PADDY	5,230	2,512
	DHANICHA	373	27.20	WHEAT	20.00	6.38
				MOONG	35.00	371.00
				BIRI	400.00	30.68
				FIELD PEA	12.00	29.40
				GRAM	8.96	8.96
				GROUND NUT	18,000	5,074.56
				MUSTARD	90.00	44.96
				SUN FLOEWER	7.00	0.00
					24,302	7873.52

Source: Collected from the Fertilizer report of the Deputy Director of Agriculture of respective districts

There is mismatch in demand and supply of seeds both in Kharif and Rabi season in Angul district the deficit in supply of seeds in Kharif and Rabi is respectively 42. 17% and 80.22%In Rabi seasons the seeds like Paddy, Wheat, Biri, Till and sunflower could not be supplied in Rabi season to Angul district. Even the deficit in the supply of ground nut

seeds is to the tune of 77.34%. There is an adequate supply of seeds for Kharif season in Puri district, but there is a deficit of 67% in supply of seeds for rabi season.

9.0 Demand and supply gap of seeds in three selected blocks (Chhendipada, Gumma, and Nimapda)

As per the report of the Agricultural strategy committee* the seeds required in Kharif for different selected blocks are given below.

NAME OF THE CROPS IN KAHARIF 2015	NAME OF THE CROP VARIETIES		
	CHHENDIPADA	GUMMA	NIMAPADA
Paddy	Naveen Khandagiri Lalata MTU-1010 MTU-7029 MTU-1001 Sarala Pooja CR-1018 Ranidhan Pratikshaya Dhanarasi Barsha CR-1009	MTU-1010 MTU1001 Pooja Lalat MTU7029	Sahabhagi Naveen Lalitgiri Lalat MTU -1001 MTU-1010 pratikshya Pooja BPT-5204 RGL-2537 Swarna Swarna-SUB 1 CR-1018 CR-1014 CR-1009 Sarala
GROUND NUT	SMRUTI ICGS(91114) P-VISHAL TARM-1 IPM-2-3		
MUNG	P-VISHAL IPM-2-3		
BIRI	(PU-35)		
ARHAR	UPAS-120		

	MARUTI		
DHANICHA	DHANICHA		

10.0 Demand and supply gap of seeds at village level

At present seeds are distributed through primary Agricultural cooperative societies to the farmers in both Chhendipada and Nimapada block, while LAMPS takes the responsibility in distributing seeds in Guma block. In this section, an attempt is made to analyse the demand and supply gap of seeds at village level in three selected village. Survey data has been used to study the gap. since in Chhendipada block, the survey data does not reflect the gap properly, the PACS, which estimate the requirement of seeds for the villages and actually supply the seeds to the farmers, a detailed information on requirement of seeds and actual quantity seeds supplied in Kharif 2015 in a PACS located in the village selected for the study are collected for detail analysis of demand and supply gap as seeds at village level. The information given below indicates that there is clear mismatch on demand for seeds and supply of seeds at village level. There is 66.67% deficit in supply of seeds. Further against the requirement of 10 types of paddy seeds, actual supply was made only 3 types of paddy seeds besides none of the pulse seeds were available to the farmers in Kharif 2015 even if there was demand for pulse seeds in Kharif

Society wise target and achievement of seeds during Kharif season in 2015-16 at Tangiri Primary Agriculture Cooperative Society (PACS)*

NAME OF SEEDS	VARIETY	REQUIREMENTS(QUANTITY IN QUINTAL)	SUPPLIED (QUANTITY IN QUINTAL)
PADDY	SARALA	10.00	NIL
	PUJA	15.00	10.00
	NABIN	15.00	NIL
	LALAT	10.00	NIL
	KONARK	10.00	NIL
	RANI	10.00	10.00
	KHANDAGIRI	10.00	NIL
	SWARNA	10.00	NIL
	SWARNA ,SUB-		15.00

	1		
	PRATIKSHAYA	5.00	NIL
MUNG		2.00	NIL
BIRI		2.00	Nil
ARHAR		1.00	Nil
G.NUT		5.00	Nil
		TOTAL =105.00	35.00

Source:*This information was collected from Tangiri service cooperative society located in the selected village for the study of Chhendipada block on dated 1/08/2015. This society caters the need of the seeds of the farming community of the selected villages.

Requirement and supply of varieties of paddy seeds among beneficiaries in the selected villages of Nimapada block.

NAME OF THE CROP	NAME OF THE PADDY VARIETIES	REQUIREMENTS (QUANTITY IN KILOGRAM)	SUPPLIED (QUANTITY IN KILOGRAM)
PADDY	SWARNA	214.00	94.00
	POOJA	750.00	490.00
	RANI	100.00	100.00
	SAMALAI	64.00	64.00
	1018	40.00	40.00
	SARALA	140.00	20.00
	MASURI	40.00	40
	SWARNA SUB-1	120.00	120
	GAYATRI	20.00	-
	624	40.00	-
	PRATIKSHYA	20.00	
	1009	165.00	100.00
	KALAMUKIA	70.00	--
	CHAKAAKHI	10.00	--
	1018	40.00	40.00
	TOTAL=	1833.00	1108.00
Deficit in supply of seeds=39.55%			

11.0 FARMERS RESPONSE ON SEED DISTRIBUTION SYSTEM:

Farmer's responses on seeds distribution have been studied by conducting a field survey among the beneficiaries in selected blocks of three districts:

11.1 Farmers response in three selected blocks (Chhendipada, Gumma, Nimapada)

CHHENDIPADA	GUMMA	NIMAPADA
1. Seeds are not supplied in time.	1. seeds are not supplied in time	1.seeds are not supplied in time
2. variety of seeds required by the farmers are not supplied	2. variety of seeds required by the farmers are not supplied	2. variety of seeds required by the farmers are not supplied
3. At village level the farmers have demand for type and variety of seeds. For paddy they need Swarna, Puja, Lalat, Pratikshaya, Navin, Arnapurna, Sahabhagi, including a local variety namely Kalachamapa.	3. farmers have demand for variety of paddy seeds like MTU1010, MTU1001,POOJA,and LALAT	3. Farmers have demand for a wide range of paddy varieties in kharif season due to facilities of irrigation to the extent of more than 90% of their total area under paddy. their demand for paddy varieties includes, swarna, pooja,rani,samalai, sarala masuri, swarna sub-1, gayatri,624,pratikshya ,1009,kalamukia,chakaakhi
4. farmers demand are much more on Swarna, Puja, Navin ,Lalat etc.	4. farmers demand are much more on MTU1010, LALAT	4. Farmers demand are much more on pooja,swarna, sarala and 1009.
5. 90 percentage of farmers use their own seeds for Kharif crop.	5. more than 90% of farmers still use their own seeds in khrif	5. 75% of the farmers use their own seeds in kharif
6.supply of seeds is made available at PACS level for which farmers travel 3 to 5 kilometer to get the seeds	6. supply of seeds is made available at LAMPS level for which farmers travel 3 to 7 kilometer to get the seeds	6. supply of seeds is made available at pacs level for which farmers travel 2 to 5 kilometer to get the seeds
7. The seed supply center is not opened for all the times. since the farmers are busy for their cropping, sometimes they unable to purchase seeds by	7. The seed supply center is not opened for all the times. since the farmers are busy for their cropping, sometimes they unable to purchase seeds by	7. The seed supply center is not opened for all the times. since the farmers are busy for their cropping, sometimes they unable to purchase seeds by travelling such a

travelling such a long distance.	travelling such a long distance.	long distance.
8. Only 46% of the farmers receive seeds in time, while 33% and 21% receive seeds respectively after seven days an d ten days of starting of showing time.	8. 30% farmers do not get their require seeds.	8. 58% of the farmer beneficiary receive seeds in time while 23% and 9% receive paddy seeds respectively seven days and ten days after starting os showing time
9. The farmers use their own produced seeds which are poor in quality due to non availability of government seeds.	9. The farmers use their own produced seeds which are poor in quality due to non availability of government seeds.	9. The farmers use their own produced seeds which are poor in quality due to non availability of government seeds.
10. 5 to 15% percentage of the total rice production is reduced due to untimely supply of seeds	10. 15 to 25% of the rice production is reduced due to untimely availability/ non availability of required seeds.	10. 5 to 15% percentage of the total rice production is reduced due to untimely supply of seeds
11. farmers face constraints in getting seeds due to(1) non availability of seeds nearby village(2) non opening of seeds sales center throughout the day (3) Non availability of seeds in small packets like 5.KG/10. KG packets	11. farmers face constraints in getting seeds due to(1) non availability of seeds nearby village(2) non opening of seeds sales center throughout the day (3) Non availability of seeds in small packets like 5.KG/10. KG packets	11.farmers face constraints in getting seeds due to(1) non availability of seeds nearby village(2) non opening of seeds sales center throughout the day (3) Non availability of seeds in small packets like 5.KG/10. KG packets
12. some seeds available In the sale center does not contain proper tax indicating germination percentage, sowing percentage and type of land where such seeds are to be sown.	12. Some seeds available In the sale center does not contain proper tax indicating germination percentage, sowing percentage and type of land where such seeds are to be sown.	12. some seeds available In the sale center does not contain proper tax indicating germination percentage, sowing percentage and type of land where such seeds are to be sown.

12.0 SWOT ANALYSIS:

In this study an attempt has been made to study the strength, the corporation is having in distributing the seeds to the farmers, the weakness, Opportunities and Threat to the system. This will help to the corporation to convert the weakness to opportunities and proper care can be taken to check the threat. Besides steps to be taken to explore the opportunities.

12.1 STRENGTH:

- The corporation is having 4200 seed growers for production of both paddy and non paddy seeds in the state.
- The corporation is having a strong advisory body at the apex level called as Board of Directors which takes both administrative and technical decision for seed production.
- The seed certification agency actively involved in certifying the seeds produced by the registered growers.
- The corporation uses foundation seeds of OUAT, and CRRI for production of certified seeds.
- The seeds corporation is having five seed producing farms of its own, where it produces foundation seeds

12.2 WEAKNESS:

- The seed corporation does not have adequate technical staff to supervise seed production programme.
- There are no technical staffs even in the district level to supervise the production as well as distribution of seeds.
- Even the seed corporation is not having a single seed production officer to supervise the programme.
- The PACS/LAMPCS are not under control of the corporation.
- The corporation is not having gone down at block level.
- The Agro industry corporation which is presently involved tin production and distribution of seeds is not having agricultural experts to supervise seed production programme.
- The PACS/LAMPCS and private dealers do not lift the seeds from the seed corporation in time, which affects timely availability of seeds with farmers.

12.3 OPPORTUNITIES:

- There is huge demand for seeds in the state; the seeds corporation should exploit the opportunities.
- The seed replacement ratio for all non paddy seeds is less than 5% and for paddy, it is about 20%. The corporation should expand its production and distribution system to increase the seed replacement ratio.
- The seed corporation should expand its market research including supply chain management for seeds to reduce the marketing cost.
- Both Orissa University of Agriculture Technology (OUAT) and the Central Rice Research Institute (CRRI) have developed more than hundred rice verities, the seeds corporation should take the advantages of this.

12.4 THREAT:

- Although seed is used as an input for production, it must be handled by the technical persons.

- The production practices followed for Seed production is different from practice followed for normal production of food crops. Thus seed production should be properly supervised by the technical expert.
- Taking up seed production programme without technical expert will affect quality of the seeds.
- Choice of a particular variety of a crop mostly depends upon the type of land/soil, climate, Rainfall, Season and other climatic factors. Thus without technical experts, planning for seed production, estimating the requirement of different kinds of seeds and its distribution to the farmers before sowing time will affect not only the quality of the seeds but also the agriculture production.
- The Seeds Corporation is having its market research cell. In fact corporation is not conducting any research on market issues like supply chain management and market efficiency etc. which could develop a dependable market support for sustainability of the Corporation.

13.0 Constraints on production and distribution of seeds:

1 The seed corporation does not have adequate technical staff to supervise seed production programme. There are no technical staffs even at the district level to supervise the production as well as distribution of seeds.

2 The production practices followed for Seed production is different from practices followed for normal production of food crops. Thus seed production should be properly supervised by the technical expert

3 The Seeds Corporation is having a market research cell. In fact corporation is not conducting any research on market issues like supply chain management and market efficiency etc. which could develop a dependable market support for sustainability of the Corporation.

4 The total requirement for upland paddy seeds was 38,778 quintals for Kharif, against which Only 23,140 quintals were made available to the farmers during the entire Kharif season2014-15, resulting a deficit of 15,638 quintals. Against the demand for seven upland rice varieties, only seeds of a single variety (Khandagiri) were made available to the farmers by the corporation.

5 The total demand for rice variety for medium land was 2, 80,320 quintals against which supply was made only to the extent of 1, 72,193 quintals, resulting a deficit of 1, 08,127 quintals.

6 The farmers of Odisha have indicated their requirement of 17 varieties of rice crop for medium land in Kharif season in the year 2014-15, against which the seeds corporation has made available only six varieties for medium land.

7 On the requirement of 7 varieties of seeds of both Maize and Ragi, the corporation could able to provide only one variety of Ragi seed.

8 The total requirement of Arhar, moong and Biri seeds were 2900 quintals, 3700 quintals and 4200 quintals respectively for Kharif. Against such requirements, the supply of seeds was only 150 quintals, 3201 quintals and 6180 quintals respectively for Arhar, Moong, and Biri. The deficit in supply of Arhar and Moong seeds were to the tune of 2750 quintals and 499 quintals respectively.

9 There is mismatch in demand and supply of seeds both in Kharif and Rabi season in Angul district the deficit in supply of seeds in Kharif and Rabi is respectively 42. 17% and 80.22 % Even the deficit in the supply of ground nut seeds is to the tune of 77.34%

10 There is clear mismatch on demand for seeds and supply of seeds at village level. There is 66.67% deficit in supply of seeds. Further against the requirement of 10 type of paddy seeds, actual supply was made only 3 type of paddy seeds besides none of the pulse seeds were available to the farmers in Khaif in 2015 even if there was demand for pulse seeds in Kharif.

11 Although supply of seeds for Kharif in Nimapada block is adequate, its supply in Rabi season is deficit to the extent of 67%.

12 The deficit in supply of seeds is 39.55% at village level in Nimapada as compared to 67% in Chhendipada.

13 Supply of seeds is made available at PACS and LAMPS level for which farmers travel 3 to 5 kilometres at Chhendipada, 3 to 7 kilometers at Gumma and 2 to 5 kilometres at Nimapada to get the seeds.

14 The seed supply centre is not found opened during morning and evening time.Since the farmers are busy for their cropping, sometimes they unable to purchase seeds by travelling a long distance.

15 Due to lack of adequate storage facilities at LAMPs and private dealers, they do not take the seeds in advance from the seeds corporation for distributions.

16 Only 46% of the farmers in Chhedipada and 58% farmers in Nimapada receive seeds in time.

17 30% farmers of Gumma block do not get any seeds for their farming.

14.0 SUMMARY AND CONCLUSION:

Quality seeds distribution to the farmers of the state is an important service rendered by the agriculture department government Odisha through its seeds corporation. The seed corporation distributes the seeds to the farmers in Kharif, Rabi and in summer season at subsidized rate. It distributes seeds like Paddy, Maize, Wheat, Ragi, Moong, Biri, Arhar, Groundnut, Mustard, Til, Niger, Sunflower, Cotton, Jute, Dhanicha, and field pea for different seasons.

Seeds are of three types, namely (1) breeder seeds, (2) foundation seeds, and (3) certified seeds. The breeder seeds are produced in Orissa University of Agriculture and Technology (OUAT), Central Rice Research Institute (CRRI) Cuttack and other research institutes by using nucleus seeds. The foundation seeds are produced by OUAT, CRRI, and Seed Corporation by using breeder seeds. The certified seeds are mostly produced by the seed corporation by using foundation seeds through their 4200 registered seed growers across 30 districts of the state. Presently the seeds are distributed through LAMPs/PACS and private dealers.

The modalities of existing seed production, its storage and distribution through PACS, LAMPS, and private dealers have been collected on personal discussion with the official of Seed Corporation and seed production unit of OUAT. The data relating the requirement of seeds and its availability to the farmers have been collected from various reports of the seed corporation and reports of the zonal seed conference prepared by the Agriculture department government of Odisha. More than 10percent of the beneficiaries who have actually received seeds from the seed corporation through LAMPs/PACS/private dealers inthree selected cluster of villages of Chhendipada/Gumma/Nimapadablock have been

selected on random and contacted for their response on the quality of service delivery system through pre-tested questionnaires.

The salient findings of the study have been summarized and presented below.

14.1 SEED REQUIREMENT AND DISTRIBUTION SYSTEM:

In practice, the Directorate of Agriculture and food production government of Odisha estimates the total requirement of different kinds of seeds for different seasons required for different districts and sends it to the seeds corporation as its indent/requirement for kharif season in the month of April. Similarly the indent is sent for other seasons.

The corporation procures the seeds and process to fix the price of the seeds at government level. After the price fixed at the government level, the corporation supply the seeds through PACS/LAMPS/private dealers on payment of 50% value of the seeds. The major portion of the seeds is supplied through the private dealer on payment of total value of the seeds.

In this process supply of seeds is delayed for delay in price fixation at government level. Further delay in supply of seeds is also due to delay in payment for seeds by LAMPS/PACS and private dealers.

In many cases the dealers and PACS do not have their own go-down for proper storage of seeds. They arrange private go down before lifting seeds from the corporation. The process further delays the seed distribution system.

Initially the agriculture department was procuring and distributing the seeds through its official distribution channel. After the establishment of the Seed Corporation in the state, the corporation produces the seeds and also procures some seeds from outside state to meet the requirement of the farmers of the state. But the entire seeds were distributed to the farmers through the distribution channel of the Directorate of Agriculture government of Odisha.

In this case, the seeds corporation supplies the seeds to the Deputy Directors of different districts, even before the price of the seeds fixed by the government. The DDAs and

DAOs distribute the seeds through the sales centres at different block level. In such process seeds are available with farmers in time.

Since last two years, the seed corporation has taken the responsibility in distributing the seeds to the farmers through PACS, LAMPS and seed dealers, who do not have adequate storage facilities and even funds for advance payment to the corporation for listing seeds. The process delays in availability of seeds with farmers.

14.2 DEMAND AND SUPPLY GAP OF KHARIF SEEDS:

The total requirement for upland paddy seeds was 38,778 quintals for Kharif, against which Only 23,140 quintals were made available to the farmers during the entire Kharif season, results a deficit of 15,638 quintals. Against the demand for seven upland rice varieties, only seeds of a single variety (Khandagiri) were made available to the farmers by the corporation. The total demand for rice variety for medium land was 2, 80,320 quintals against which supply was made only to the extent of 1, 72,193 quintals, results a deficit of 1, 08,127 quintals. The farmers of Odisha have indicated their requirement of 17 varieties of rice crop for medium land in Kharif season in the year 2014-15, against which the seeds corporation has made available only six varieties for medium land. The total demand for rice variety for low land was 3, 62,635 quintals against which supply was made to the extent of 3, 68,817 quintals, results a surplus of 6,181 quintal. The farmers of Odisha have indicated their requirement of 30 varieties of rice crop for low land in Kharif season in the year 2014-15, while the seeds corporation has made available seeds only for 11 varieties for low land.

On the requirement of 7 varieties of seeds of both Maize and Ragi, the corporation could able to provide only one variety of Ragi seed.

The total requirement of Arhar, moong and Biri seeds were 2900 quintals, 3700 quintals and 4200 quintals respectively for Kharif. Against such requirements, the supply of seeds was only 150 quintals, 3201 quintals and 6180 quintals respectively for Arhar, Moong, and Biri. The deficit in supply of Arhar and Moong seeds were to the tune of 2750 quintals and 499 quintals respectively. But the supply of Biri seeds was more than the demand.

The total requirement of jute seeds in the state was 300 quintals. Against such requirement, the corporation did not able to produce/ procure any seeds. As a result the deficit of seeds was 300 quintals during the year 2014-15.

The deficit in supply of Niger, groundnut and Till seeds to the tune of 182 quintals, 16,895 quintals and 136 quintals respectively. The supply of oil seeds to the farmers was much less than their requirement.

14.3 DEMAND AND SUPPLY GAP OF RABI SEEDS:

The availability of upland paddy seed is more than the requirement, but supply of seeds were made only for two varieties against the requirement of 9 varieties in Rabi season. The farmers of Odisha have indicated their requirement of 10 varieties of rice crop for medium land in Rabi season in the year 2014-15, against which the supply was made only for 5 varieties for medium land. The corporation could not able to make arrangement to produce or to procure another five no of varieties for medium land for Rabi season to meet the requirements of the farmers. Even for certain varieties the supply was much less than the demand for.

The total demand for rice variety for low land paddy was only 207 quintals. The farmers prefer only RGL-2537 and RGL-2538 to grow in low lands. But the corporation did not able to arrange to supply these two varieties to the farmers.

Maize, being the most important crops in Rabi season, against the total requirement of 34.40 quintals for the state, the corporation could not able to supply any seed to the farmers.The total requirement of Green gram seeds was 6,312.70 quintals for Rabi, against which the availability was 2,229.14 quintals indicating the supply to the extent of only 35.30 percent of the total requirement. Even seven varieties could not be made availability to the farmers. The total requirement Black gram seed was 4,828.80 quintals for Rabi, against which the availability was only 986.12 quintals resulting a deficit of 3,843.28 quintalsThe total requirement of Bengal gram seed was 1303.1 quintals for Rabi, against which the availability was only 52.32 quintals. Resulting a deficit of 1188.50 quintals.

The total requirement of Field pea covering five varieties was 287.50 quintal for Rabi, against which there was no availability of any seeds in the entire season. The total requirement of Groundnut seeds was 1, 35,805.50 quintals for Rabi, against which the availability was only 47,162.60 quintals results a deficit of88, 642.90 quintals. The total requirements of Til seeds covering 10 varieties was 290.10 quintals but the Corporation did not able to supply any varieties to the farmers.

The total requirements of Mustard seeds covering 7 varieties were 3010.70 quintals against which the availability was only 1347.46 quintals results a deficit of 1663.40 quintals. The total requirement of Sunflower seeds in Rabi season was 148.50 quintals covering four varieties. But the corporation did not able to supply any seeds to the farmers.

14.4 CHANGE IN DEMAND FOR DIFFERENT SEEDS DURING 2008-2014 KHARIFF

The supply of seeds during 2008 exceeded the demand results a surplus of 12,257.50 quintals. During 2014, the demand for quality seeds increased by 58.20 percent. But the seeds corporation could not able to produce/ procure they require seeds to meet the need of the farmers of the state. During the year 2014 Kharif, there is deficit supply of upland and medium land paddy seeds to the extent of 11,226 quintals and 1.08,127 quintals respectively. There is also less supply of ground nut seeds to the extent of 16,895 quintals.

On an average the deficit in seed supply was of total seeds was deficit 1, 30,244 quintals indicating big gap between the requirement and supply of seeds during 2014-15, while the total supply was more than the demand during 2008.

14.5 CHANGE IN DEMAND FOR DIFFERENT TYPES OF PADDY SEEDS DURING 2008-2014 KHARIFF

During 2014 the demand for upland paddy like Klinga-3, Dhalaheera, Khandagiri, Sidhant, and Jogesh, have been increased considerably, while the variety like Udayagiri and Vandana have been newly added in the farmer's demand list.

The demand for medium land paddy varieties like Lalata, Surendra, Naveen, Konark, MTU-1001, MTU-1010, Pratikhya, Jajati and Gitanjali have been increased significantly. New varieties like, Tapaswani, Kharabela, Manaswani, Virendra, Nuakalajera and Chandan have been added in the demand.

In respect of low land paddy variety, the demand for Swarna, RGL-2583, Mahandi, RGL-2332, Srala, Pooja, Kanchan, Padminin, Moti, RGL-2537, Durga, CR—1014, CR-1018 and CR-1030 have been increased. The varieties like Upahar, Jagabandhu, Ranidhana, Hanseswari, Barshadhan, Ranjit, Swarna sub-1 Dhanrasi and Tulasi have been added in the demand list.

14.6 FARMERS RESPONSE ON SEED DISTRIBUTION SYSTEM.

Seeds are not supplied in time in three blocks 90% of the farmers in Chhendipada and Guma block and 75% of farmers Nimapada block use their own seeds

46% of the farmers in Chhendioada block and 58% of the farmers in Nimapada block received their seeds in time. 30% farmers of the inGumma block do not get any seeds.

Farmers use their own seeds in the selected blocks due to non-availabilityseeds in time.

5 to 15% of the total production of rice in Chhendipada and Nimapada block and 15 to 25% rice production in Gumma block get reduced due to untimely supply of seeds

Farmers face constraints in getting seeds due to(1) non availability of seeds nearby village(2) non opening of seeds sales center throughout the day (3) non availability of seeds in small packets like 5.kg/10. kg packets.

Some seeds available in the sale center does not contain proper tax indicating germination percentage, sowing percentage and type of land where such seeds are to be sown.

15.0 POLICY OPTION:

1. The seeds corporation of Odisha handles more than 8.5 lakh quintals of different quality seeds for Kharif and Rabi. Majority of these seeds are produced by them through their 4200 registered seed growers. The different seeds include Paddy, Maize, wheat, Ragi, Moong, Biri, Arhar, Field pea, Groundnut, Mustard, Til, Niger, Cotton, Jute and Dhanicha. Crops are produced in irrigated and rain fed situation. Each crop has number of varieties. Farmers of Odisha even required 56 varieties of paddy for Kharif and 21 varieties for Rabi to grow in their upland, medium land and low lands 2014-15. Similarly there is good number of varieties for other crops which farmers need to grow in their field. Thus more than 8.5 lakh quintals seeds produced by Seed Corporation through registered growers. Even they produce some quantity of foundation seeds. All these activities are to be planned, monitored and supervised by the qualified technical personnel; otherwise the quality of seeds will not only be poor but will affect the total production of crops in the state. Therefore the seeds corporation which does not have technical

personnel at field level to supervise the production is to be fully equipped with qualified persons to increase the quality of seed production. (Para 6.2.2)

2. 55 % of the total area under paddy in the state is rain fed. The state experiences drought/ High stress like situation once in three to four years. The farmers therefore need short duration paddy varieties to grow in upland and medium-up land. As per the study there is a long gap between demand and supply of paddy seeds particularly in upland and medium land. The corporation should give its thrust to provide required quantity of seeds for upland and medium land. (Para 6.1.1.1 & 6.1.1.2)
3. Pulse is one of the major crops In Odisha. It is mainly grown as Rabi crops after paddy is harvested in ratified situation. Its productivity is only at a level of five quintals per hectare since last 30 years. The farmers need quality seeds for pulses for breakthrough in pulse production. Moong and Biri are the major pulses grown in Odisha. But the corporation supplies only 35% for Moong seed and 20% Biri of their total requirement. The corporation may give thrust to promote the seeds. (Para 6.1.3)
4. Among oil seeds, Groundnut is the major crop grown in Odisha. But the corporation supplies only 47,163 quintals against farmer's requirement of 1, 35,806 quintals recording a deficit of more than 88,000 quintals. Availability of groundnut seeds to the farmers of Odisha particularly in Rabi season is crucial for increasing productivity of groundnut. (Para 6.2.4.1)
5. Farmers have an interest to grow some new crop varieties every year. These new varieties are to be produced under close supervision of technical personnel. The corporation should be equipped with qualified personnel to produce such new varieties for commercial cultivation.
6. The PACS/LAMPS which are financially not much sound to pay 50% advance of the seed cost to the seeds corporations make delay in transferring the seeds from seeds corporation to LAMPS/PACS for distribution to the farmers. As a result the farmers did not get seeds in time, which reduces the yield of rice to the extent of 5 to 25%. Thus institutional arrangement may be reorganized for early sanction of loan which may be paid directly to the corporation against the indent of

concerned LAMP/PACS/ private dealers. This may help in timely distribution of seeds. (Para 14.1)

7. Seed is an important technical input can be carefully handled by the technical personnel not like other inputs. Thus the seeds if transferred through DDAS, DAOS, and AAOs will help in maintaining the quality of the seeds and will able to provide more efficiently the type of seeds which the farmer needs to grow in their field. Since the agriculture department prepares the cropping programme much ahead of the crops season the actual availability of seeds may be monitored through them. Beside in the changing climate situation like early monsoon or delay in monsoon, they can properly advise the type of seeds to be sown for success of crops in the adverse situation.(Para 14.1)
8. Presently 90% of the farmers in Gumma block of Gajapati districts and 75% of farmers of Nimapada block of Puri district use their own seeds in Kharif seasons due to non availability of seeds in time. Besides, non availability of required quantity including required varieties encourages the farmers to use their own seeds. The seeds corporation is to be strengthened to produce required quantity of seeds and to distribute it to the farmers in time. (Para 14.6).

Table 1: Variety wise Requirement and Availability of Paddy Seeds for different types of land in Odisha during 2014-2015 (Kharif)

(Figures in Quintals)

LAND TYPE	VARIETY	REQUIREMENT	AVAILABILITY	SURPLUS/ SHORTAGE
Upland	KhandaGiri	34100	23140	-10960
	Jogesh	922	0	-922
	Kalinga-III	1085	0	-1085
	Udayagiri	800	0	-800
	Bandana	421	0	-421
	Sidhant	950	0	-950
	DhalaHeera	500	0	-500
	Sahabhagi	7988	13400	5412
	Parijata	1000	0	-1000
Subtotal (A)		47766	36540	-11226
Medium Land	Naveen	22000	4035	-17965
	Jajati	5000	0	-5000
	Konark	6695	1295	-5400
	Lalat	55000	51633.33	-3366.67
	MTU-1001	94314.9	70686.67	-23628.2
	Pratikshya	44627	9293.33	-35333.7
	Surendra	12500	0	-12500
	Satabdi	3500	0	-3500
	Tapaswani	548	0	-548
	Gajapat	500	0	-500
	Kharavela	200	0	-200
	MTU-1010	31311	35250	3939
	Manaswani	310	0	-310
	ADT-43	0	0	0
	Virendra	500	0	-500
	MTU-1032	0	0	0

Medium Land	Satyakrishna	0	0	0
	NuaDhusura	0	0	0
	NuaKalagira	680	0	-680
	Gitanjali	2134	0	-2134
	Chandan	500	0	-500
Subtotal (B)		280319.9	172193.33	-108127

Land type	Variety	Requirement	Availability	Surplus/ Shortage
Lower land	Pooja	94900	152840	57940
	Mahanadi	320	0	-320
	BPT-5204 (Samabamasuri)	11800	5723.33	-6076.67
	RGL-2332	3090	0	-3090
	RGL-2538	10000	0	-10000
	RGL-2537	12000	10986.67	-1013.33
	Ramachandi	1356	0	-1356
	Swarna(MTU-7029)	162000	127480	-34520
	Upahara	500	0	-500
	CR-1018	12000	7640	-4360
	Sarala	10500	23393.33	12893.33
	Moti	3400	0	-3400
	Jagabandhu	2500	0	-2500
	Ranidhan	8411	24460	16049
	CR-1009	4800	11866.67	7066.67
	CR-1014	3200	0	-3200
	Hanseswari	30	0	-30
	Varshadhan	3711	2080	-1631
	Panidhan	350	0	-350
	Kanchan	970	0	-970
	Durga	1200	0	-1200
	Lunishree	250	0	-250
	CR-1030	2000	0	-2000
	Padmini	2800	0	-2800
	K.Juha	397	0	-397
	Ranjit	1950	0	-1950

	Swarna-sub-1	7000		-7000
	Dhanarasi	1000	0	-1000
	CR Dhan-70		2346.67	2346.67
	Jaldidhan		0	0
	Tulasi	200	0	-200
	I.S.Masuri	0	2146.67	2146.67
Subtotal (C)		362635	370963.3	8328.3
TOTAL		690720	579696.67	-111023

Table 2: Variety Wise Requirement and Availability of Ragi and Maize Seed in Odisha during 2014-2015 (Kharif)

(Figures In quintal)

CROP	VARIETY	REQUIREMENT	AVAILABILITY	SURPLUS/ SHORTAGE
Ragi	Bhairabi	160	80	-80
	Chilika	60	0	-60
	Subhra	20	0	-20
Total		240	80	-160
Maize	Navjot	120	0	-120
	G-5	10	0	-10
	DHM-103	122	0	-122
	Maharaja	25	0	-25
Total		277	0	-277

Table 3: Variety wise Requirement and Availability of Pulses Seeds (Arhar, Moong and biri) in Odisha during 2014-2015(Kharif).

(Figures in quintal)

CROP	VARIETY	REQUIREMENT	AVAILABILITY	SURPLUS/SHORTAGE
Arhar	IPCL-87	300	0	-300
	Upas-120	1900	150	-1750
	Laxmi	180	0	-180
	Asha	420	0	-420
	ICPL-8863	100	0	-100
Total		2900	150	-2750
Moong	TARM-1	500	0	-500

	TARM-2	494	0	-494
	PDM-11	500	0	-500
	PDM-54	1200	0	-1200
	OBGG-52	500	170	-330
	OUM-11-5	136	140	4
	P.Vishal	0	248	248
	IPM-2-3	0	1420	1420
	K-851	0	290	290
	LGG-460	140	45	-95
	SML-668	80	618	538
	PDM-139	150	270	120
Total		3700	3201	-499
CROP	**VARIETY**	**REQUIREMENT**	**AVAILABILITY**	**SURPLUS/SHORTAGE**
Biri	PU-94-02	0	2405	2405
	PU-30	875	0	-875
	Sekher-I	200	440	240
	Sekher-II	500	290	-210
	PU-35	50	459	409
	Ujala	400	210	-190
	IPU-2-43	0	1850	1850
	PU-19	125	0	-125
	Prasad	800	500	-300
	T-9	800	0	-800
	PU-31	450	26	-424
Total		4200	6180	1980

Table 4: Variety Wise Requirement and Availability of Jute Seeds in Odisha during 2014-2015 (Kharif)

(Figures in quintals)

CROP	VARIETY	REQUIREMENT	AVAILABILITY	SURPLUS /SHORTAGE
JUTE	JRO-524	250	0	-250
	JRO-66	50	0	-50
Total		300	0	-300

Table 5: Variety wise Requirement and Availability of Oil Seeds (Niger, Groundnut, Sunflower and Til) in Odisha during 2014-2015 (Kharif)

(Figures in quintal)

CROP	VARIETY	REQUIREMENT	AVAILABILITY	SURPLUS /SHORTAGE
Niger	GA-10	250	8	-242
	Utkal-150	0	60	60
Total		250	68	-182
Groundnut	TMV-2	6000	0	-6000
	TAG-24	3500	220	-3280
	AK-12-24	3500	0	-3500
	Smruti	1200	968	-232
	JL-24	55	0	-55
	TPG-41	645	0	-645
	ICGV-91114	1500	679	-820.67
	TG-37-A	1500	0	-1500
	TG-38	600	38	-562
	GPBD-4	500	200	-300
Total		19000	2105.33	-16895
Til	GT-2	56	0	-56
	Uma	60	0	-60
	Kalika	20	0	-20
Total		136	0	-136

Table 6: Variety Wise Requirement and Availability of Paddy Seeds for different types of land in Odisha during 2014-2015 (Rabi)

(Figures in Quintals).

LAND TYPE	VARIETY	REQUIREMENT	AVAILABILITY	SURPLUS/SHORTAGE
Upland	Kalinga-III	10	0	-10
	Pathara	105	0	-105
	Parijat	107	0	-107
	Khandagiri	12813	6000	-6813
	Sahabhagi	470	8000	7530

	Jogesh	88	0	-88
	Sidhanta	6	0	-6
	Jaldidhan	5	0	-5
	Mandakini	27	0	-27
Sub Total(A)		13631	14000	369
Medium Land	Naveen	1519	100	-1419
	Chandan	240	0	-240
	Lalat	24774	28000	3226
	Satabdi	481	0	-481
	MTU-1010	24466	27000	2534
	MTU-1001	16220	20000	3780
	Konark	1866	0	-1866
	Surendra	180	500	320
	Bhuban	15	0	-15
	ADT-43	70	0	-70
Sub Total(B)		69831	75600	5769
Low land	RGL-2537	51	0	-51
	RGL-2538	156	0	-156
Subtotal (C)		207	0	-207
TOTAL(A+B+C)		83669	89600	5931

Table 7: Variety Wise Requirement and Availability of Ragi and Maize Seeds in during 2014-2015 (Rabi) season.

(Figures in Quintals).

CROP	VARIETY	REQUIREMENT	AVAILABILITY	SURPLUS/SHORTAGE
Ragi	Bhairabi	2.00	40.00	38.00
	Chilika	0.00	100	100
Sub – Total		2.00	140.00	138.00
Maize	Navjyot	24.90	0.00	-24.90
	Decan-103	6.00	0.00	-6.00
	Decan-105	3.50	0.00	-3.50
Sub Total		34.40	0.00	-34.40

TABLE 8: VARIETY WISE REQUIREMENT AND AVAILABILITY OF PULSE SEEDS IN ODISHA DURING 2014-2015(RABI) (FIGURES IN QUINTAL).

CROP	VARIETY	REQUIREMENT	AVAILABILITY	SURPLUS/SHORTAGE
Moong	TARM-1	1722.7	500	-1222.7
	TARM-2	92	0	-92
	PDM-11	640	0	-640
	PDM-54	1167.1	0	-1167.1
	OBGG-52	620	31.96	-588.04
	OUM-11-5	44.6	15.32	-29.28
	P.Vishal	189	79.32	-109.68
	IPM-02-03	0	62.48	62.48
	K-851	127.7	10.4	-117.3
	LGG-460	35	0	-35
	SML-668	472	1160.78	688.78
	PDM-139	1080.6	128.88	-951.72
	Jyoti	7	0	-7
	HUM-16	111	0	-111
	IPM-02-14	0	231.8	231.8
	LAM-460	0	8.2	8.2
	T-44	4	0	-4
Total		6312.7	2229.14	4082.06
Biri	PU-35	801	344.26	-456.74
	T-9	1078	0	-1078
	WBU-108	132	0	-132
	Sekher-2	143	0	-143
	PU-19	85	0	-85
	Sekhar-I	137	163	26
Biri	Ujala	77.2	37.52	-39.68
	IPU-2-43	11	340.12	329.12
	Prasad	256.6	67.76	-188.84
	PU-31	281	0	-281
	PU-30	1160	0	-1160
	TU-94-2	349	32.86	-316.14
	PDU-1	318	0	-318

Total		4828.8	986.12	-3843.28
Gram	Annegiri-1	438.5	0	-438
	Radhey	119.6	0	119.6
	JG-11	600.3	48.4	-551.9
	Samrat	4.5	0	-4.5
	ViharPhule	10	0	-10
	Iccv-2	44	0	-44
	Iccv-10	20	0	-20
	Iccv-37	60	0	-60
	Mnk-1	6.2	3.92	-2.28
Total		1303.1	52.32	-1188.5

CROP	VARIETY	REQUIREMENT	AVAILABILITY	SURPLUS/SHORTAGE
Field Pea	Rachana	1585.1	0	-1585.1
	Prakash	1.3	0	-1.3
	Bikash	5.2	0	-5.2
	Aparna	271	0	-271
	Adasrh	10.2	0	-10.2
Total		**287.5**	**0**	**-1872.8**

Table 9: Variety Wise Requirement and Availability of Oil Seeds (Niger, Groundnut, Sunflower and Til) in Odisha during 2014-2015, (Rabi)

(Figures in quintal).

CROPS	VARIETY	REQUIREMENT	AVAILABILITY	SURPLUS /SHORTAGE
GROUND NUT	KADRI-6	8046	9333.8	1287.8
	AK-12-24	10598	0	-10598.5
	TMV-2	102885	0	-102885
	TAG-24	6250	6444	194
	TG-37A	4	0	-4
	TPG-41	44	0	-44
	G-38B	40	1978.2	1938.2
	OG-52-1	3743	8345.4	4602.4
	GPBD-4	300	10668	10368

	ICGV-91114	2032	9080	7048
	JL-24	1863	1313.2	-549.8
TOTAL		135805.5	47162.6	-88642.9
TILL	UMA	108.7	0	-108.7
	GT-37A	1	0	-1
	GT-2	133.8	0	-133.8
	NIRMALA	10	0	-10
	KALIKA	23	0	-23
	PRACHI	7	0	-7
	S-14	1	0	-1
	BINAYAK	3.6	0	-3.6
	AMRIT	2	0	-2
TOTAL		290.1	0	-290.1
MUSTARD	M-27	1898	640.68	-1257.32
	PT-303	116.1	0	-116.1
	PUSA BOLD	15	0	-15
	PUSA AGRANI	77	0	-77
	JHUMUKA	22	0	-22
	PARBATI	572.8	144.33	-428.47
	ANURADHA	309.8	562.45	252.65
TOTAL		3010.7	1347.46	-1663.24
SUN FLOWER	MODERN	4	0	-4
	KBSH-1	87.3	0	-87
	PAC-36	29.5	0	-29.5
	ABSH-44	27	0	-27
TOTAL		148.5	0	-148

TABLE 10: CHANGE IN DEMANDS FOR DIFFERENT TYPES SEEDS DURING 2008-2014 (KHARIF)

(Figures in quintal)

Name of the Crop		Requirement of Seeds in (2008)	Surplus/ Deficits	Requirement of seeds in (2014)	Surplus/ Deficits
PADDY	Upland	21175	20	47766	-11226
	Medium Land	137368	4956.5	280319.9	-108127
	Lower Land	238897	6940.5	362635	6180.67
Subtotal		397440	11917	690720.90	-111025
CEREALS	Ragi	450	60	240	-160
	Maize	700	50	277	-277
Subtotal		1150	110	517	-437
Pulses	Arhar	650	53	2900	-2750
	Moong	1250	0	3700	-499
	Biri	1350	15	4200	1980
Subtotal		3250	68	10800	-1269
Fibber seeds	Jute	770	0	300	-300
	Cotton	104	0	0	0
	Mesta	110	0	0	0
Subtotal		984	0	300	-300
Oil seeds	Niger	150	162.5	250	-182
	Groundnut	14500	0	19000	-16894.67
	Til	250	0	136	-136
	Sun flower	7	0	0	0
Subtotal		14907	162.5	19386	-17212.67
Dhanicha		2500	0	0	0
Total		**420231**	**12257.50**	**721723.90**	**-130243.67**

TABLE 11: CHANGE IN DEMAND FOR TYPE OF SEEDS DURING 2008-14 KHARRIF IN ODISHA

Name of the crops		Varieties dropped	Demand for varieties decreased	Demand for varieties increased	New varieties introduced
PADDY	UPLAND		--	KALINGA -	UDAYAGIRI
				DHALAHEERA	BANDANA
				KHANDAGIRI	
				SIDHANT	
				JOGESH	
	MEDIUM LAND	--	--	SATABDI	TAPASWANI
				LALAT	GAJAPATI
				SURENDRA	KHARABELA
				NAVEEN	MANASWANI
				KONARK	VIRENDRA
				MTU-1001	NUAKALAJERA
				MTU-1010	CHANDAN
				PRATIKHYA	
				JAJATI	
				GITANJALI	
PADDY	L. LAND	--	RAMACHANDI	SWANA	UPAHAR
			LUNISHREE	RGL-2538	JAGABANDHU
			KETAKIJUHA	MAHANADI	RANIDHANA
			JAGABANDHU	RGL-2332	HANSESWARI
			BPT-5204	SARALA	VAARSHA DHAN

ANNEXURE 1: VARIETYWISE REQUIREMENT AND AVAILABILITY OF PADDYSEEDS FOR DIFFERENT TYPE OF LAND IN ODISHA DURING 2008 (KHARIF)

(Figures in quintals).

Land Type	Variety	Requirement	Availability	Surplus/ Shortage
Upland	Kalinga-III	210	210	0
	DhalaHeera	60	60	0
	Khandgiri	20425	20445	20
	Parijata	150	150	0
	Sidhanta	80	80	0
	Jogesh	250	250	0
Subtotal(A)		21175	21195	20
Medium Land	Satabdi	1178	1178	0
	Lalat	36510	38510	200
	Surendra	6425	6425	0
	Naveen	2900	2900	0
	Konark	1545	1545	0
	MTU-1001	61710	64332.5	2622.5
	MTU-1010	5900	5900	0
	Pratikhya	20210	22344	2134
	Jajati	900	900	0
	Geetanjali	90	90	0
Subtotal(B)		137368	144124.5	4956.50
Land Type	Variety	Requirement	Availability	Surplus/ Shortage
Lower land	RGL-2538	1650	1650	0
	Swarna (MTU-7029)	142000	145652.50	3652.50
	Ramachandi	1500	1500	0
	Mahanadi	105	105	0
	RGL-2332	2610	2610	0
	Sarala	9000	9000	0
	Pooja	50160	52413	2253
	Kanchana	270	270	0
	Padmini	1212	1212	0
	Moti	720	720	0

	RGL-2537	4990	4990	0
	Durga	900	900	0
	CR-1014	1235	1235	0
	CR-1009	5700	5700	0
	CR-1018	11250	12285	1035
	CR-1030	375	375	0
	Lunishree	300	300	0
	Ketakijoha	300	300	0
	Jagabandhu	0	0	0
	BPT-5204	4620	4620	0
Subtotal(C)		238897	245837.50	6940.50
TOTAL(A+B+C)		397440	412685	11917

Annexure 2: Variety Wise Requirement and availability of Ragi and Maize Seed in Odisha during 2008 (Kharif)

(Figures in quintals).

Crop	Variety	Requirement	Availability	Surplus/Shortage
Ragi	Bhairabi	200	260	60
	Chillika	250	250	0
TOTAL		450	510	60
Maize	Navjot	300	300	0
	Shakti-1	0	50	50
	Decan-103	200	200	0
	Decan-105	200	200	0
TOTAL		700	750	50

Annexure 3: Variety Wise Requirement and Availability of Pulse Seeds (moong, biri and Arhar) in Odisha during 2008 (Kharif)

(Figures in quintals).

Crop	Variety	Requirement	Availability	Surplus/Shortage
Moong	PDM-54	350	350	0
	PDM-11	300	300	0
	COGG-912	50	50	0
	TARM-II	50	50	0
	PDM-139	200	200	0
	Sujata	50	50	0
	OUM-11-5	100	100	0
	OBGG-52	50	50	0
	Tarm-1	100	100	0
TOTAL		1250	1250	0
Biri	PU-35	300	300	0
	PU-19	300	300	0
	PDU-1	100	100	0
	Sekhar-1	50	50	0
	Sekhar-II	50	50	0
	Sarala	100	100	0
	TU-94-2	100	115	15
	T-9	200	200	0
	WBU-108	100	100	0
	Ujala	50	50	0
TOTAL		1350	1365	15
Arhar	ICPL-87119	120	120	0
	UPAS-120	180	208	28
	ICPL-84031	200	200	0
	ICPL-85063	100	125	25
	Pusa-855	50	50	0
TOTAL		650	703	53

Annexure 4: Variety Wise requirement and Availability of Fibre Seeds (Jute, Cotton and Mesta) in Odisha during 2008 (Kharif)

(Figures in quintal).

CROP	VARIETY	REQUIREMENT	AVAILABILITY	SURPLUS/SHORTAGE
Jute	JRO-524	770	770	0
Cotton	MCU-5	104	104	0
Mesta	AMV-4	110	110	0
TOTAL		984	984	0

Annexure 5: Variety Wise Requirement and Availability of Oil Seeds (Niger, Groundnut, Sunflower and Til) in Odisha during 2008 (Kharif)

(Figures in quintal).

Crop	Variety	Requirement	Availability	Surplus/Shortage
Groundnut	AK-12-24	5000	5000	0
	OG-52-1	500	500	0
	TAG-24	500	500	0
	TMV-2	8500	8500	0
TOTAL		14500	14500	0
Til	Amrit	125	125	0
	Nirmala	125	125	0
TOTAL		250	250	0
Niger	GA-10	75	237.5	162.5
	JNC-9	75	75	0
TOTAL		150	312.5	162.5
Sunflower	KBSH-1	7	7	0

Annexure 6: Variety wise Requirement and Availability of Dhanicha Seeds in Odisha during 2008 (Kharif)

(Figures in quintals).

CROP	VARIETY	REQUIREMENT	AVAILABILITY	SURPLUS/SHORTAGE
Dhanicha	Local	2500	2500	0