

INVITED ARTICLE

Seed Production and Distribution System by APSSDCL - A way Forward in Serving Farming Community

Andhra Pradesh is an agrarian state where farmers need a genetically diverse portfolio of improved crop seed varieties/hybrids suited to a range of agro-ecosystems and farming practices to sustain the productivity of the crops in addition to their resilience to climatic change. The response of all other inputs depends on quality of seeds to large extent. It is estimated that the direct contribution of quality seed alone to the total production is about 15 – 20% depending upon the crop. Quality seed is most critical for enhancing agriculture production. In India in general, Farm Saved Seed (FSS) is the most prominent source of seed in case of varietal seed to raise crops year after year. The adoption and replacement of new HYVs are always associated with seed replacement, since it is impossible to replace varieties (VRR) without changing seed. Seed Replacement Rate has a positive correlation with crop productivity.

The Andhra Pradesh State Seeds Development Corporation Limited (APSSDC Ltd.,) is the Nodal Agency to Government of A.P., for production, procurement and distribution of seeds. Working since 26th March, 1976 with an authorized capital of Rs.500 Lakhs and an issued capital of Rs.400 Lakhs. The APSSDCL was demerged in the year 2014 due to bifurcation of the erstwhile State of Andhra Pradesh. Its Head Quarters was shifted from Hyderabad to Vijayawada in the year 2017.



Dr. Sekhar Babu Geddam

Vice Chairman & Managing Director, AP State Seeds Development Corporation Ltd., Vijayawada.

Dr. Sekhar Babu Geddam is an IFS officer of 2013 batch, Andhra Pradesh Cadre. He is an alumni of Agricultural College, Bapatla. He did his Ph.D (Genetics) from IARI. He is the Topper of the IFS 2013 batch and got Gold Medal and Silver Medal for topper in core forestry subjects, P. Srinivas Memorial Prize for topper in forest protection subjects from Government of India, R. N. Mathur Memorial Prize, K. P. Sagreya Prize, Dr. B. N. Ganguli award of Academic Excellence and Senior forester prize for best field forester.

Dr. Sekhar Babu is recipient of academic gold medals like UAS Gold Medal, Sri Srasangi Lingaraj Gold Medal, Dr. S. A. Patil Gold Medal, Late Rao Saheb S. H. Prayag Gold Medal, Dr. C. V. Dhulappanavar Memorial Gold Medal and Agricultural College Silver Jubilee Gold Medal.

Dr. Sekhar Babu got the awards like Young Scientist Award in Internatinal Coference, 2012 , Best performance award for the services in 2017, Green Award for conservatin in 2018, Best Poster award the national seminar, 2012 and Meritorious award of APSWREIS.

Dr. Sekhar Babu is a recipient fellowship of INSPIRE fellowships, ICAR-SRF and ICAR-JRF. He has published about 10 research articles in the field of Agricultural Sciences in various Journals of International and National repute.

Objectives of APSSDCL

Production, Procurement and multiplication of high yielding certified/quality seeds of all crops, in order to make sufficient quantities of seeds available to farmers in time at affordable price, including those in remote areas, not easily accessible especially tribal areas

- Increasing production of certified/ quality seed of different crop /varieties
- Promoting new technologies and methodologies in seed production, processing, testing etc.
- Ensuring availability of seed in contingent situations.
- To add value to our farmers by providing pure certified seed through seed quality control measures in all phases of the seed production and procurement and to enhance productivity, profitability and sustainability through innovation and commitment so as to increase the income levels and living standards of small, and marginal farmers
- To promote quality seeds through strictly adhering to the seed chain and by Promotion of location specific high yielding new varieties in all crops.
- To stabilize the prices of different crops /varieties seeds in the market to make available to the farmers at reasonable prices at village level
- Encouraging individual growers seed production Programme especially in Groundnut and Bengal gram crops mainly in Rayalaseema districts.

Seed production systems

Objective: Multiplication of quality seed under vigilant supervision of breeder of seed certification agency to distribute quality seed of notified varieties for sowing purpose. Seed of notified varieties are multiplied in four tier system by the involvement of ICAR Institutes / State Agricultural Universities, State / National Seed Corporation and Seed Certification Agencies.

Nucleus seed

This is cent per cent genetic pure seed with physical purity produced under the direct supervision of the concerned plant breeder.

Breeder Seed

Breeder seed is the progeny of nucleus seed of a variety and is produced by the originating breeder or by a sponsored breeder. Breeder seed production is the mandate of the Indian Council of Agricultural Research (ICAR) and is being undertaken with the help of ICAR Research Institutions, National Research Centres and All India Coordinated Research Project of different crops, State Agricultural Universities (SAUs). There has been a steady increase in the production of breeder seed over the years.

Foundation Seed

Foundation seed is the progeny of breeder seed and is required to be produced from breeder seed or from foundation seed which can be clearly traced to breeder seed. The responsibility for production of foundation seed has been entrusted to the NSC, SFCI, State Seeds Corporations, State departments of Agriculture and private seed producers, who have the necessary infrastructure facilities. Foundation seed is required to meet the standards of seed certification prescribed in the IMSCS, 2013 both at the field and laboratory level.

Certified Seed

Certified seed is the progeny of foundation seed and must meet the standards of seed certification prescribed in the IMSCS, 2013. In case of self pollinated crops, certified seeds can also be produced from certified seeds provided it does not go beyond three generations from foundation seed stage-I. Certified seed production is organized by State Seed Corporation, NSC, SFCI, other public, cooperatives

Few Policies and Regulations

Year	Event	Objective/s
1928	Report of Royal Commission on Agriculture	First major milestone in the history of seed sector development.
1945	Famine Enquiry Commission	Emphasised need for multiplication and distribution of quality seed of improved varieties.
1952	Grow-More Food Program Committee	
During 50's	Seed Farms were established in Community Development Blocks	Department of Agriculture started Seed Farms to multiply foundation seed.
1961	First hybrid maize was released	Later hybrids of sorghum and pearl-millet were released.
1963	National Seeds Corporation Ltd was established	To develop a sound seed industry in the country.
1966	Enactment of Seed Act	To regulate quality of seed.
1967	Seed Review Team	Set-up to examine the seed situation in the country and to give suggestions.
1969	Tarai Development Corporation, Pantnagar	To develop 16,000 ha for seed production.
1969	State Farms Corporation of India	Production of certified seed having 38,325 ha in 14 farms.
1971	Report of National Commission on Agriculture	Stressed the need for maintaining purity of seed.
1974	Setting up of joint working party	To formulate National Seed program.
1976	National Seed Project	
1976	Phase I	Implementation in four states.
1978	Phase II	Five more states.
1990	Phase III	Four more states.
1987	Expert Group on Seed	To review the entire seed sector and to give suggestions.
1988	New Policy on Seed Development, Govt. of India.	To make available the best planting material in the world to the Indian farmers.
1983/ 1994	Seed Control Order under the Essential Commodity Act 1955	To regulate quality and pricing of seeds.
1991	New Industrial Policy	Opened doors for the foreign investors in the Indian seed industry.
2001/ 2003	PPV & FR Act / PPV & FR Act Rules	To protect plant breeder's and farmer's rights.
2002	National Seed Policy	To develop seed industry.
2004	Establishment of Directorate of Seed Research, Mau, UP	To undertake research and coordination on seed production.
2008	Joining of OECD seed schemes	To facilitate seed trade in international market.
2009-14	Export and Import Policy (New EXIM)	Liberalized export of seeds and planting materials with few exceptions.
2010	Seed Bill 2004 – pending in parliament	To produce quality seed and also protect Farmers' interests.
2011	Modified New policy on Seed Development / Modified policy on Seed Sector	Provision for import of wheat and rice.
2015	ISTA accreditation of first public sector laboratory	To produce quality seed matching international seed standards to promote seed export.
	Cotton Seed Price (Control) Order, 2015	To provide an effective system for fixation of sale price for cotton seeds to ensure their availability to the farmers at fair, reasonable and affordable prices.
2020	Agriculture Infrastructure Fund	The Union Cabinet in July 2020 has approved a new pan India Central Sector Scheme called Agriculture Infrastructure Fund.

Area and Seed Requirement in A.P for field crops

S. No.	Crop	Area Under Variety (In Ha)		Total Area in Ha	Seed Rate (In Quintal/Hactare)	Seed Required (in Quintal)
		Kharif	Rabi			
1	Paddy	16,31,330.00	8,28,129.00	24,59,459.00	0.5	12,29,729.50
2	Maize	1,14,858.00	1,68,907.00	2,83,765.00	0.2	56,752.60
3	Sorghum	17,820.00	36,980.00	54,800.00	0.07	3,925.50
4	Bajra	26,476.00	829	27,305.00	0.04	1,092.04
5	Ragi	42,234.00	9,603.00	51,837.00	0.06	1,555.02
6	Korra	15,155.00	3,606.00	18,761.00	0.05	468.87
7	Varagalu	500	100	600	0.05	17.5
8	Sama	3,685.00	100	3,785.00	0.05	95.12
9	Blackgram	64,804.00	4,16,669.00	4,81,473.00	0.2	57,646.86
10	Greengram	44,633.00	1,18,356.00	1,62,989.00	0.2	16,950.82
11	Redgram	2,57,699.00	2,887.00	2,60,586.00	0.2	40,184.94
12	Cowpea	8,280.00	1,300.00	9,580.00	0.2	958
13	Horsegram	42,220.00	20,674.00	62,894.00	0.25	7,861.50
14	Soybean	1,814.00	-	1,814.00	0.75	448.96
15	Ggroundnut	7,35,121.00	1,17,785.00	8,52,906.00	1.5	7,80,408.63
16	Sesamum	19,869.00	17,796.00	37,665.00	0.06	768.32
17	Sunflower	3,191.00	4,846.00	8,037.00	0.05	401.55
18	Castor	22,449.00	9,950.00	32,399.00	0.05	1,620.45
19	Rajma		15,410.00	15,410.00	0.5	7,705.00
20	Bengalgram		4,81,880.00	4,81,880.00	0.62	2,59,926.00
21	Cotton	6,00,000.00	-	6,00,000.00	0.25	13,500.00
	Total	36,52,138.00	22,55,807.00	59,07,945.00		24,82,017.18

Source: Department of Agriculture, Comissionarate of Agriculture, Guntur, A. P.

Production Activity by APSSDCL (Quantity in Quintal)

S. No.	Crop	2018-19	2019-20	2020-21
1	Paddy	2,47,000.00	2,80,330.70	2,60,000.00
2	Groundnut	2,36,000.00	5,00,000.00	4,50,000.00
3	Bengalgram	3,41,000.00	2,00,000.00	10,000.00
4	Redgram	4,800.00	8,000.00	10,000.00
5	Greengram	6,750.00	2,500.00	3,000.00
6	Blackgram	7,150.00	8,000.00	3,500.00
7	Millets	6,975.00	1,500.00	1,000.00
Greenmanure crops				
8	Dhaincha	61,000.00	37,000.00	61,000.00
9	Sunhemp	25,000.00	12,000.00	24,075.00
10	Pillipesara	24,000.00	10,000.00	28,024.00
	Total	9,59,675.00	10,59,330.70	8,50,599.00

Source: Andhra Pradesh State Seeds Development Corporation Limited Prasadampadu, Vijayawada

& private companies etc. on it's own farms, governmental farms and progressive farmer's field.

Varietal replacement

The replacement of old or obsolete varieties with the recently released high yielding and disease resistant varieties has been the major consideration to increase the agriculture production. Farmers realize the benefits of crop improvement research. Hence, there is need to bring awareness in the farming communities in the country with respect to recently released varieties, their adaptive potential and technological advances to realize the high yields. There is need for conscious production of identified varieties before their release and notification. This is a rare event in the existing pattern of crop improvement work because the breeder gives more attention to the development of variety and its release but not for the genetic purity of the variety that is being given to the production of breeder seed.

Seed replacement rates

The replacement of the farmers saved seed with the certified or high quality will have a improvement increasing yield potential to the extent of 15 to 25% in different crops. The impact of certified seed increasing the yield potential has been well recognized by the farming community in the state. However, National Commission on Agriculture has fixed up the target of seed replacement rates of varieties to the extent of 33% and often cross pollinated crops 50% and 100% in case of hybrids.

Crops under Production, Procurement and Distribution at APSSDCL

Cereals : Paddy

Millets : Ragi , Korra , Sama, Andukorralu, Ooda, Arika

Pulses : Blackgram, Greengram, Redgram, Bengalgram, Cowpea and Horsegram

Oil Seeds : Groundnut, Sesamum and Soybean.

Green manure : Dhaincha , Sunhemp and Pillipesara

Production Activity by APSSDCL

Based on the indents placed by the Department of Agriculture and the previous two year's sales, the Corporation organized Production Programme of Paddy, Pulses, Groundnut, Bengalgram and Millet crop seeds. The Corporation has Produced/ Procured the following Crop varieties during 2018-19, 2019-20 and 2020-21.

Seed Certification System

Seed certification is a legally sanctioned system for quality control of seed multiplication and production. In India, seed certification is voluntary and labelling is compulsory. The main objective of the Seed Certification is to ensure the acceptable standards of seed viability, vigour, purity and seed health. In India, Seed Certification Agencies in each States are establishment under Section 8 of the Seeds Act, 1966.

Seed Processing

The seeds produced/ procured will be processed in the own seed processing plants of APSSDCL/ custom processing plants and packed in the prescribed size of packing as per the recommended seed rate.

Engineering

The Corporation has received grants under schemes like RKVY-I, RKVY-II, Central Sector, Planning and Seed Bank Schemes towards

infrastructure development for strengthening Seed processing, Seed Storage and Seed Testing facilities etc.

The APSSDCL is having 11 seed processing units in 7 districts of A.P. namely Srikakulam, Vizianagaram, West Godavari, Krishna, Prakasam, Chittoor, and Kurnool, having total processing capacity of 4.40 Lakh qtls., per annum.

Presently, the storage capacity of A.P Seeds is 4.12 Lakh sft. Comprising of 8 districts, against the required Storage capacity of 7.00 lakh sft.

Maintenance of seed quality

Seed quality is maintained through seed certification, quality control labs of APSSDCL and seed testing labs of department of Agriculture. Seeds being sold in the market are compulsorily required to be labelled as prescribed under the Seeds Act, 1966. Seed quality standards are prescribed under the IMSCS, 2013. APSSDCL has also conducting GOT test to evaluate foundation and certified seed mostly in Blackgram crop in order to avoid field level complaints. Every year on an average 10,000 samples are tested at each Lab. In case of certified seed the samples will be drawn by the APSSCA & tested for its quality at Seed Testing Laboratories of APSSCA.

Seed distribution activity before 2019 season in A.P

- Distribution of seeds at mandal level is an age old practice from beginning it became inconvenience to farmers (majority old and elderly farmers) from long ago.
- Changed the life of rural farmers and especially woman farmers in search of basic input seed.
- No specific standard operating procedures related to seed distribution

- Policies for providing the basic input seed access to small and marginal farmers at gram panchayat level are less/nil.
- Small and marginal farmers every time in need of seed has to go to the mandal level sale counters, Loss of Money for transportation and energy of the needy farmers by moving 3/4 days for getting seed.
- Peak distribution time huge gatherings and long queues from all villages at mandals in need of seed at MAO'S /other stock points which leads to casualties/injuries to farmers.
- Huge uproar by farmers especially for Groundnut in Anantapuramu for paddy in srikakulam district became natural phenomena and sensitive issue every year.
- It became an opportunity to middle man to enter and get the seed which they in turn uses for recycling /bulking and supplying same seed to the seed producing organizations.
- Huge non subsidy pending dues from agriculture officers
- Genuine, poor and needy farmers unable to get the seeds

Present system of seed distribution from Kharif 2020 season at Dr Y.S.R Rhytu Bharosa Kendralu

- To convert the problems faced by the farming community in Andhra Pradesh into an opportunity for hassle free seed distribution system.
- Village level distribution of seeds fulfills diverse purposes of farmers needs at village level in respect to basic input seeds especially for small and marginal farmers of Andhra Pradesh
- First time in the history of A.P seed distribution initiative and activity done at village level
- Standard operating procedures have been framed well in advance prior beginning of season.

- As per SOP norms seed distribution activity happened across the state
- Distribution happened at Gram Sachivalayam/ RBKs place in Each village prior starting of the season.
- Grama Volunteers, Village Agricultural Assistants, ,MAOs, Department of agriculture and APSSDCL officials to playing key role.
- Farmers are the happiest persons and expressing great sense of honour and pleasure to the government of AP for introducing this concept of seed distribution at village level by establishing RBKs
- Prior to the starting of the season the search for basic input need for seed has come to end
- Farmers are getting preferred varieties seed at right time at affordable price at their Village

The Corporation has distributed through Dr. Y.S.R. Rythu Bharosa Kendhralu at village level is nearly 10 to 10.5 lakh qtls the path breaking system since 2020 onwards this changed the seed distribution scenario in the state of Andhra Pradesh benefitting small and marginal framers.

Distribution

From kharif 2020 season onwards the seed distribution is decentralized and taken to village level for the first time in Andhra Pradesh for the benefit of the farming community so that as such the seed required by the farmers will reach to them.

Dr Y.S.R Rhythu Bhorosha Kendralu

With a vision to deliver the quality inputs like seeds, fertilizers and Pesticides to door steps to the farming community started 10,641 Rhythu Bhorosha Kendralu from then onwards seed booking and delivery of goods are happening at RBKS. The required Paddy, Green Manure, Pulses seeds are been positioned and distributed. Agricultural inputs to farmers at right price, right time at their Village Secretariats. It is a Virtual Shop with a Digital Kiosk for taking orders from interested farmers. Model products shall be on display in these Virtual shops.

Dr Y.S.R RBKs level seed distribution which changed the farm sector needs in related to inputs.

- Peak distribution time huge gatherings and long ques in need of seed at stock points which leads to casualties/injuries to farmers before seasons single case was not observed during kharif 2020 season
- Huge uproar by farmers especially for Groundnut in Anantapuramu for paddy in srikakulam came to end.
- No middle man /recycling /bulking has not happened
- Small and marginal farmers every time in need of seed has to go to the mandal level sale counters, Loss of Money for transportation and energy of the needy farmers by moving 3/4 days for getting seed has been saved.

Financial Achievements:

The total turnover of the Corporation for the year 2020-21 is **Rs.684.76 Crores** (Provisional)i.e., **9%** of increase compared to last financial year's (2019-20) turnover i.e., Rs.607.74 Crores.

GO'S:

The distribution will be done as per the standard operations procedure issued through G.O.Rt.No.174 dt : 30.03.2021 Agriculture and Co-operation (Agri-II) Dept,Govt of A.P.

Seed distribution during last two years and no. of farmers benefitted

S.No	Crop Name	2019-20			2020-21		
		Qty Distributed in qtls	Subsidy Rs in Lakhs	No of farmers benefitted	Qty Distributed in qtls	Subsidy Rs in Lakhs	No of farmers benefitted
1	Paddy	160571	1876	301773	225340	2492	534503
2	Millets	244	12	3763	549	18	10727
3	Pulses	391397	13473	673935	187972	5317	315270
5	Groundnut	435564	12370	432780	456916	14638	588152
6	Sesamum	197	13	3254			
7	Rajma	887	65	254297			
8	Private Hybrids	7554	837	4077			
9	Green manure	103732	5328	61695	57322	1956	251479
	Total	1100145	33974	1735574	928099	24421	1700131

District wise subsidy Seed Distribution particulars during last two years & no. of farmers benefitted.

District	2019-20			2020-21		
	Qty Distributed in qtls	Subsidy Rs in Lakhs	No of farmers benefitted	Qty Distributed in qtls	Subsidy Rs in Lakhs	No of farmers benefitted
Srikakulam	73207.1	1226.25	150788	76727	933	204819
Vizianagaram	62056.8	1222.86	137572	63098	715	177633
Visakhapatnam	21772.9	393.093	50399	33948	394	102119
East Godavari	7827.58	235.917	18037	19403	320	41155
West Godavari	9879.48	387.357	20686	12704	284	30446
Krishna	22379.2	762.763	48115	23873	481	68254
Guntur	25534.1	1041.53	59277	9672	238	36143
Prakasam	77428.6	2557.14	111306	51636	1348	92527
SPSR Nellore	43067	1749.88	92083	41288	985	93392
YSR Kadapa	132913	4350.67	214900	115774	4178	160535
Kurnool	129206	4036.27	148024	79196	2185	101563

New initiatives

- Setting up of Seed cum millet processing units and Storage godowns in 33 locations at Gram Panchayat level in 25 Parliamentary constituencies of the state under SMSP & NFSM Scheme.
- Establishment of 20 mini testing lab facilities at all APSSDCL units for testing of different quality parameters of seeds of various crops.
- Supply of seed testing kits to Dr. Y.S.R. RBK's to facilitate quality check before supply of seed to farmers at Dr. Y.S.R. RBK's.
- Production of vegetable crop seeds and supply through Dr. Y.S.R. RBK's as Kitchen garden vegetable seed kits.
- Introduction of the New Varieties released by the State Agri. University and other ICAR

Institutes in to seed production chain based on the preference of the Farmers .

Future Plans

- Total seed requirement for field crops in the state has to be produced and supply to farmers by APSSDCL.
- Plan the seed production by and large involving farmers (Individual growers production). Especially Groundnut and Bengalgram
- Attaining self sufficiency in all crops seed production and enter into general sales of important crops
- As far as possible to organize the Production at the places of distribution itself to save the expenditure on transportation.
- Organising Production Programme Strictly adhering to seed chain (3 chain or 5 chain model i.e., B/s, F/s & C/s).
- Maintenance breeding activity of popularly grown Paddy and Pulse crop varieties in order to ensure pure seed production.
- Planning for tie-up with different Agricultural Universities and Research Stations by entering MOU for multiplication and testing of new varieties
- It is planned to increase storage capacity 2.15 lakh Qtls. In addition to the existing capacity of 4.12 lakh qtls (Srikalahasti, Vizianagaram, Tanuku, Srikakulam, Visakhapatnam, Gannavaram, Guntur, Ongole and Kadapa).

- Seed growers are assured of good quality and pure seeds for further multiplication. Seed Growers are protected against the vagaries of climatic conditions due to safe storage of their raw seed delivered to the seed processing units till it is processed and distributed.

CONCLUSION

Seed Production by APSSDCL and distribution through Dr Y.S.R Rythu Bharosha Kendralu is now occupying a pivotal place in A.P agriculture in supplying quality input seed and is well poised for continued growth in the years to come. APSSDCL continuously and gradually expanding all its activities especially in terms of its product range, volume and value of seed handled, level of seed distribution to the un-reached areas, Production of hybrids/HYVs will be promoted on high priority to improve productivity and increase production especially in crops like, rice, Groundnut, Bengalgram, Redgram, Blackgram, Greengram, Millets and other crops. which benefits and helps through raise in income levels of small and marginal farmers and need for basic input seed at village level in the state of Andhra Pradesh.

LITERATURE CITED

Andhra Pradesh State Seeds Development Corporation Limited Prasadampadu, Vijayawada
Department of Agriculture, Comissionarate of Agriculture, A.P, Guntur
<https://seednet.gov.in>