

ICAR – NISST and Seed System in India



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Director

ICAR-National Institute of Seed Science
& Technology

www.seedres.icar.gov.in

Govt. of India, Ministry of Agriculture

Department of Agriculture & Cooperation (DAC)

Undertakes

Policies, Schemes, Plan, State Developmental Programmes, Varietal release and notification,, Crop Directorates, **Seed Quality**

Regulations, other **National and International Seed related Programmes**

Department of Agriculture Research & Education (DARE)

Indian Council Agricultural Research (ICAR)

Planning and undertaking all applied Agriculture Research through National Agricultural Research Systems (NARS)

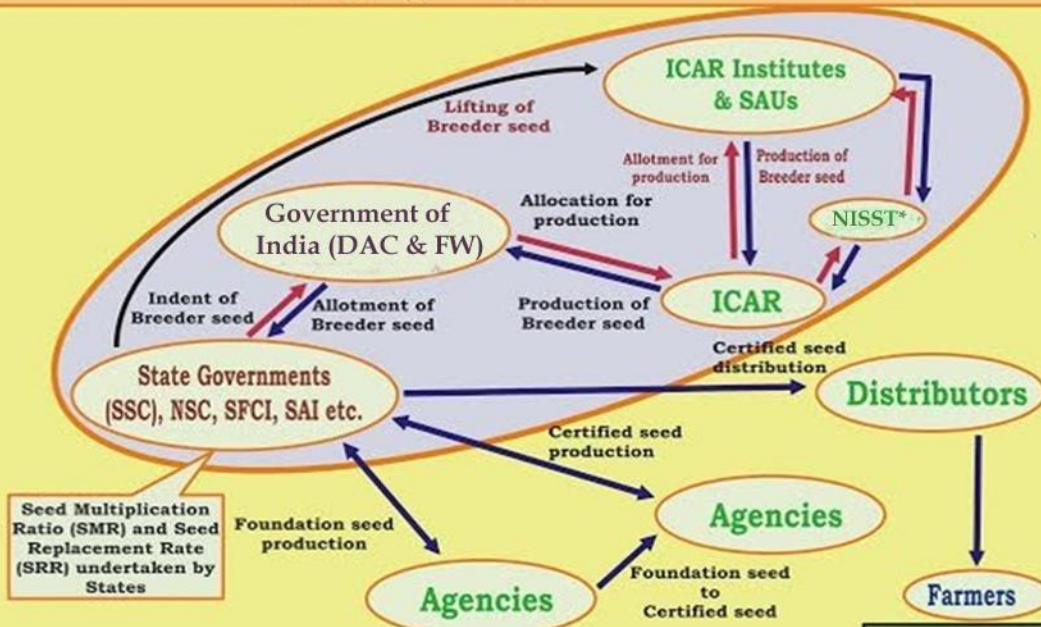
- Commodity based National Institutes.
- National Research Centers
- Project Directorates.
- Crop Oriented All India Coordinated Projects.

Breeder Seed Production

- 28 States and 8 Union Territories with varied Agro climatic conditions

Seed Production and Supply System

Seed Supply System in India



Agencies: NSC, SFCI, Private Seed Companies, Cooperatives etc

Distributors: Cooperatives, NSC etc

*National Institute of Seed Science & Technology, Mau: Coordination unit for Breeder Seed Production



Seed producing agencies (SPAs)

- National seeds corporation (01)
- State seeds corporations (19)
- State Depart. of Agriculture
- Multi-state Cooperatives & Unions (KVSSSL, KRIBCHO, IFFDC, NDDDB, BBSL)
- ICAR institutes (65), SAUs (48), CAUs (03), KVKs (731), Seed Hubs (210: Pulses-150, Oilseeds-36, Millets-24)
- FPOs/ FPCs
- Private sector (> 600) (NSAI)

Seed Quality Assurance

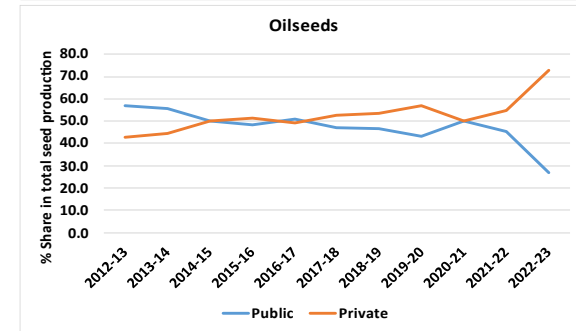
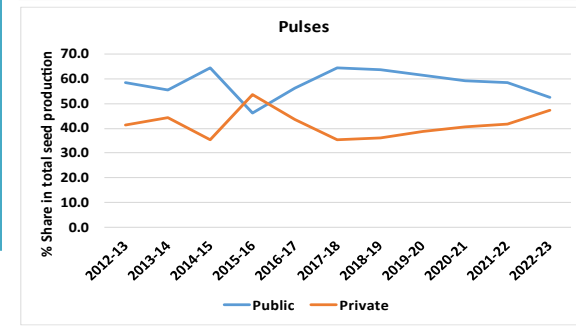
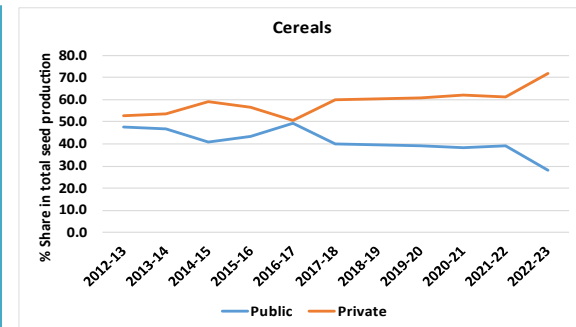
- 25 SSCAs
- Around 191 notified STLs
- CSTL and referral labs
- 08 ISTA accredited and 15 ISTA member laboratories

Seed production trends in India- requirement, availability and sectoral contributions

Year	Req.	Avail.	in lakh quintals			
			Quantity of seed produced by		% Share in total production	
			Public	Private	Public	Private
2012-13	315.19	328.58	161.17	167.41	49.05	50.95
2013-14	335.29	347.30	167.75	179.55	48.30	51.70
2014-15	343.56	351.74	151.09	200.65	42.96	57.04
2015-16	337.05	343.58	147.31	196.26	42.88	57.12
2016-17	353.46	380.34	184.24	196.09	48.44	51.56
2017-18	371.38	419.43	179.35	240.09	42.76	57.24
2018-19	353.52	398.83	170.59	228.24	42.77	57.23
2019-20	387.32	431.00	163.68	267.32	37.98	62.02
2020-21	443.17	483.68	171.89	311.79	35.54	64.46
2021-22	465.38	498.88	165.88	333.00	33.25	66.75
2022-23	464.14	514.26	133.84	380.41	26.03	73.97

[Source: Agricultural Statistics, DAC & FW, GOI]

- In cereal crops, the private sector's share increased from 53% in 2012-13 to 71% in 2022-23 (largely due to the adoption of hybrids in crops maize, pearl millet, and sorghum)
- In pulses, the private sector's contribution has remained relatively stable at around below 50%
- For oilseeds, contribution has grown steadily from 43% in 2012-13 to 73% in 2022-23, driven by sunflower and castor hybrids



Crop Varieties: 1969 - 2024



Crops	No. of varieties notified 1969-2024	No. of varieties released 2014-2024	Climate resilient varieties 2014-24	Biofortified varieties	MAS derived varieties
Cereals	3176	1248	1041	107	60
Oilseeds	1045	383	356	19	8
Pulses	1165	398	391	06	6
Fibre crops	585	313	209	-	-
Forage crops	259	155	117	-	-
Sugar crops	158	79	53	-	-
Others	50	17	10	18(Hort)	-
Grand Total	6438	2593	2177	150	74

ICAR- National Institute of Seed Science & Technology

Vision

- To ensure the quality seed security to the farmers through technology intervention and sustainable agriculture

Mission

- Enhancing genetic and physical characteristics of seed for increased productivity, quality and sustainability

Mandate

- To perform basic, strategic and anticipatory research in seed science and technology.
- To coordinate seed production and seed technology research.
- To impart capacity building in the field of seed production, testing, quality assurance, certification and policy issues.

AICRP on Seed (Crops)

S. N.	Centre with both components	S. N.	Centre with both components	S. N.	Centres with only QSP component	S. N.	Centres with only QSP component
1	CSKHPKV, Palampur (04)	20	PAJANCOA&RI, Karaikal (01)	38	UBKV, Pundibari	57	ICAR-IIMR, Ludhiana
2	PAU, Ludhiana (06)	21	JAU, Junagadh* (2 + 1)	39	NAU, Navsari	58	ICAR-CCARI, Goa
3	CCSHAU, Hisar (05)	22	SNAU, Jobner* (3 + 1)	40	BAU, Sabour	59	ICAR-CIARI, Port Blair
4	GBPUAT, Pantnagar (05)	23	ANGRAU, Guntur (4)	41	UAHS, Shimogga	60	ICAR- VPKAS, Almora
5	NDUAT, Faizabad (05)	24	ICAR-IARI, New Delhi	42	ICAR-RC NEH, Manipur	61	ICAR-IIPR, Kanpur
6	CSAUAT, Kanpur (04)	25	ICAR-CAZRI, Jodhpur	43	ICAR-CRIJAF, Barackpore	62	VSI, Pune
7	AAU, Jorhat (05)	26	ICAR-IISS, Mau	44	ICAR-NRRI, Cuttack	63	AU, Kota (01)
8	RPCAU, Pusa (04)		Centres with only QSP component	45	ICAR-IGFRI, Jhansi	64	RVSKVV, Gwalior* (02)
9	OUAT, Bhubaneswar (06)	27	BHU, Varanasi (01)	46	ICAR-CICR, Nagpur	65	MPUAT, Udaipur* (01)
10	JNKVV, Jabalpur (06)	28	BAU, Ranchi (01)	47	ICAR-IIRR, Hyderabad		
11	VNMKV, Parbhani (03)	29	BCKV, Nadia	48	ICAR-IIMR, Hyderabad		
12	MPKV, Rahuri (07)	30	SKRAU, Bikaner (01)	49	ICAR-IIOR, Hyderabad		
13	PDKV, Akola (07)	31	SDAU, SK Nagar (01)	50	ICAR-IIWBR, Karnal		
14	UAS, Bangalore (05)	32	IGKV, Raipur (02)	51	ICAR-DRMR, Bharatpur		
15	UAS, Dharwad (02)	33	KKV, Dapoli (01)	52	ICAR-IISR, Indore		
16	PJTSAU, Hyderabad (08)	34	KAU, Trissur (01)	53	ICAR-DGR, Junagadh		
17	TNAU, Coimbatore (05)	35	UAS, Raichur (01)	54	CAU, Imphal		
18	SKUAST, Srinagar (02)	36	SKUAST, Jammu	55	ICAR-IISR, Lucknow		
19	AAU, Anand (02)	37	SVPUAT, Meerut	56	ICAR-SBI, Coimbatore		

* Newly proposed centres under QSP/STR component; Fig. in parenthesis indicate scientific positions



All India Coordinated Research Programme on Seed (Crops)

Mission

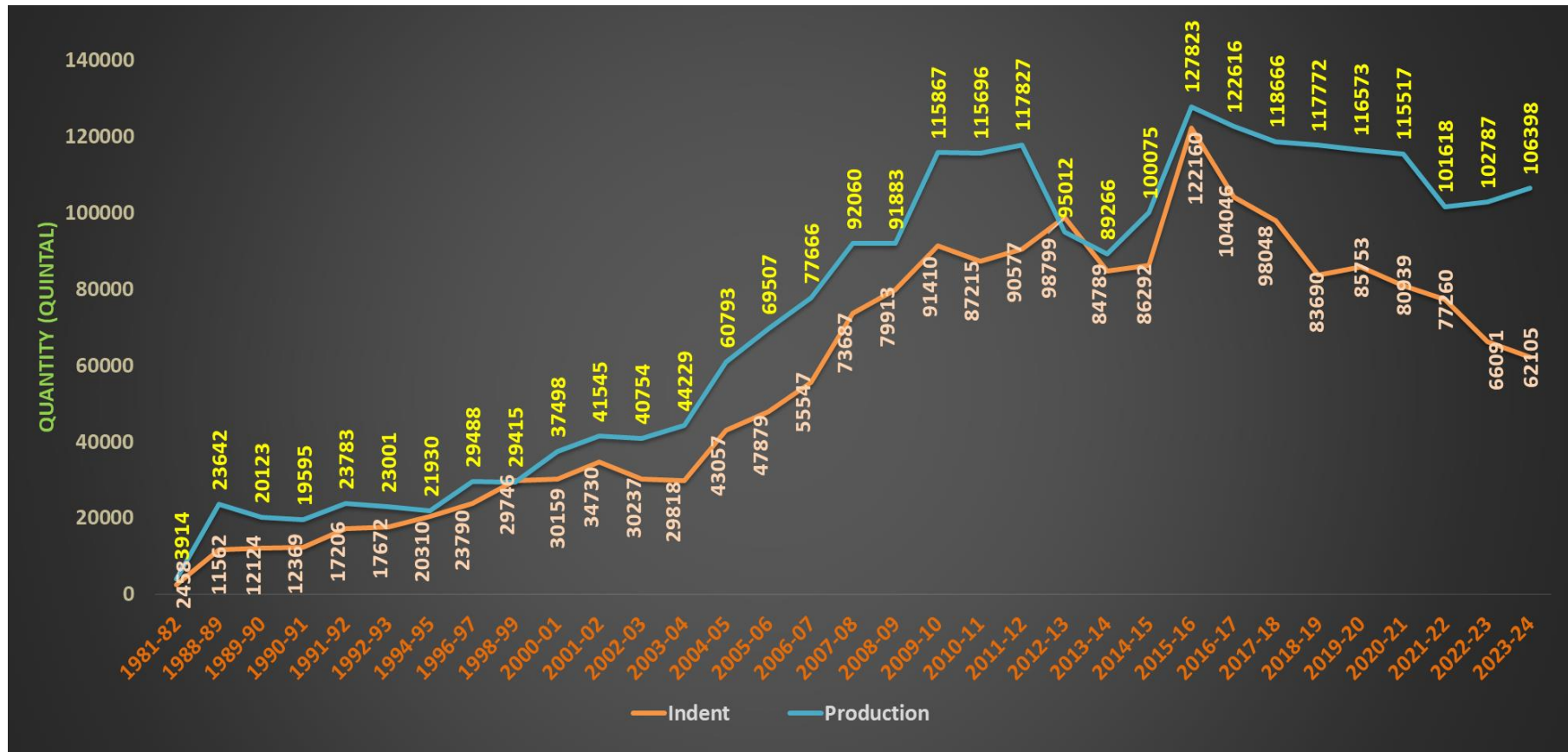
- To ameliorate Seed Replacement Rate (SRR) and Varietal Replacement Rate (VRR) through production of adequate quantity of quality seed and to develop region specific seed technologies for improved yield and productivity

Mandate

- To produce breeder seed as per national requirement and augment quality seed production among agricultural crops in the country.
- To conduct, coordinate and monitor research on different aspects of seed science and technology.
- Qualitative and quantitative enhancement in seed production capabilities of institutions under NARES
- Capacity building among various stake holders on seed production, processing, storage & packaging, quality control and seed health.
- To establish linkages with Crop Improvement Projects, Seed Industry, Seed Regulatory Agencies, NGOs, KVKs etc.

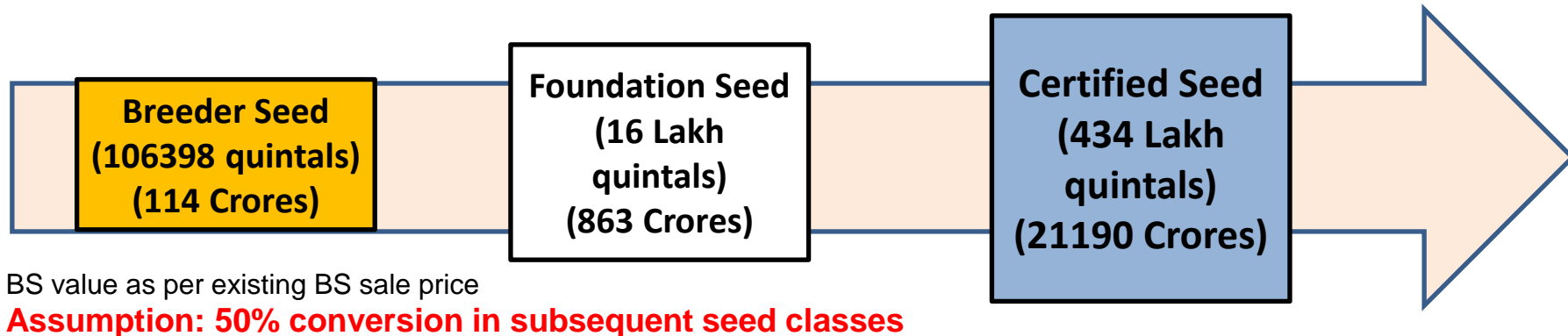
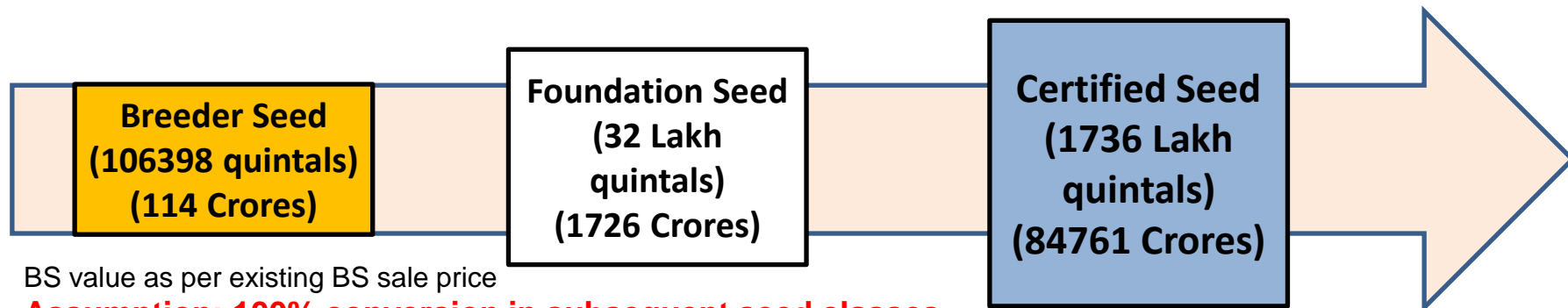


Trends in Breeder Seed Production

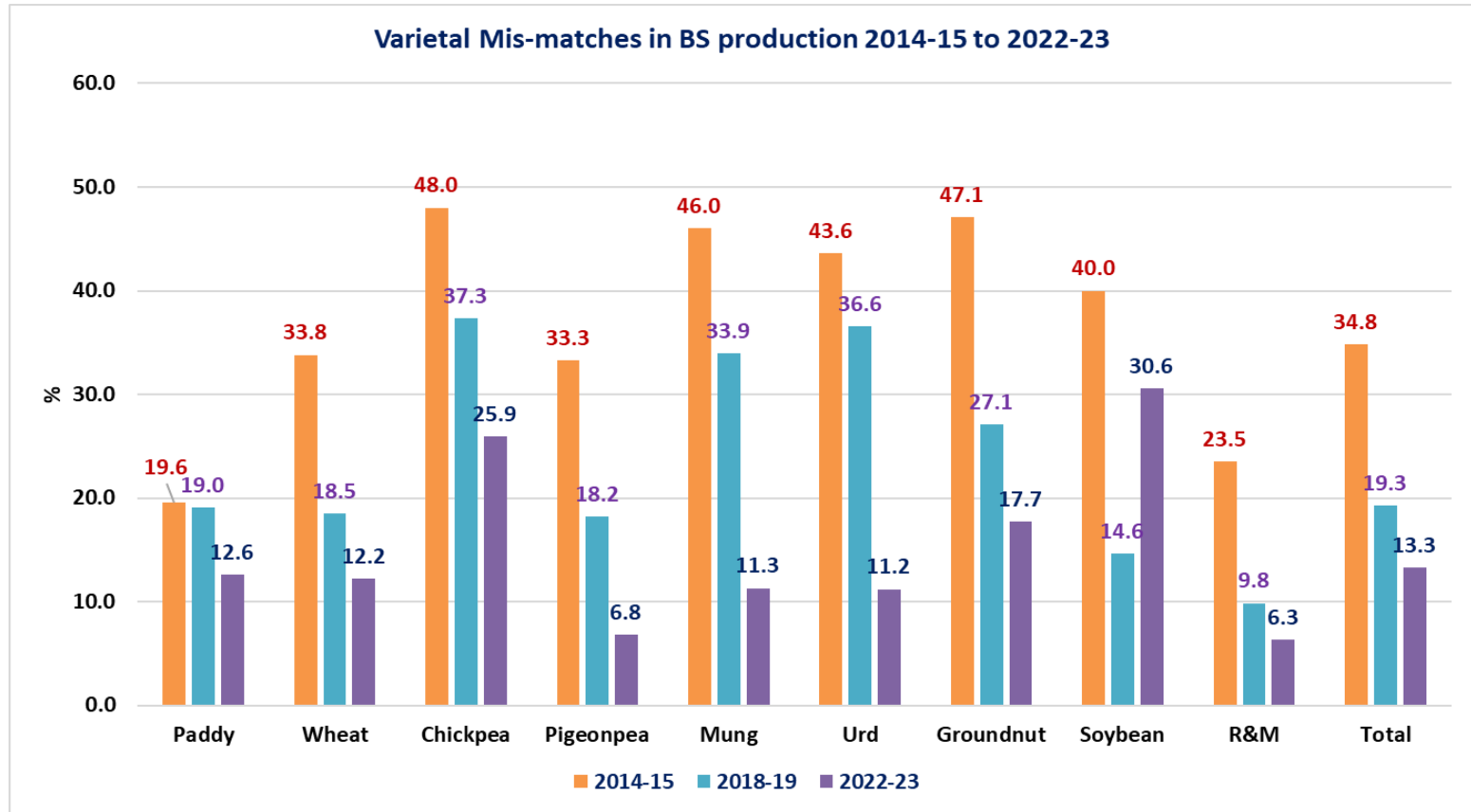




Quantum & Value of Quality Seed that potentially can be produced in Seed Chain based on BS production (2023-24)



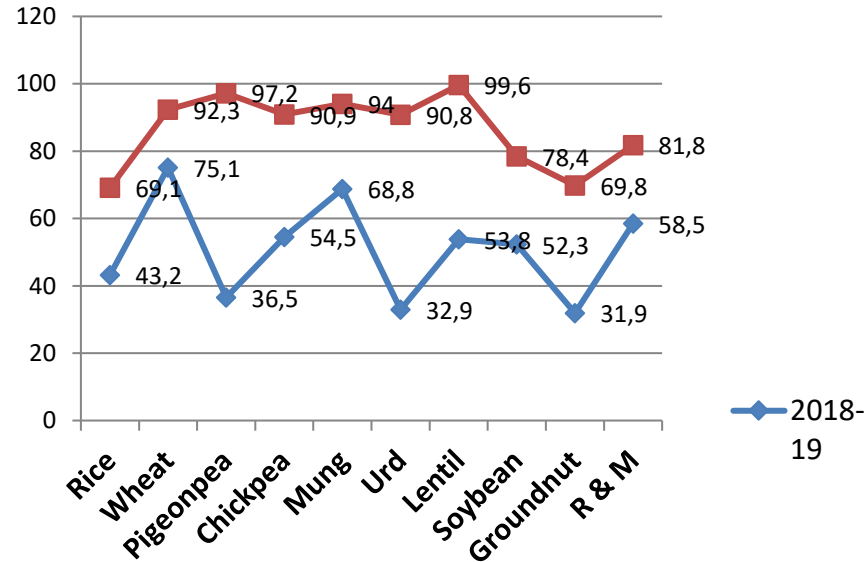
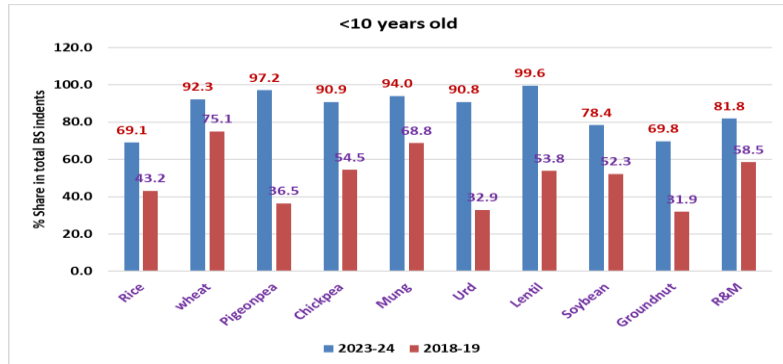
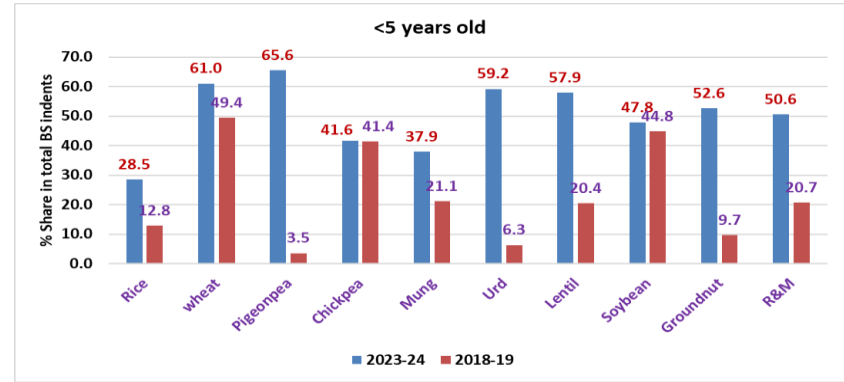
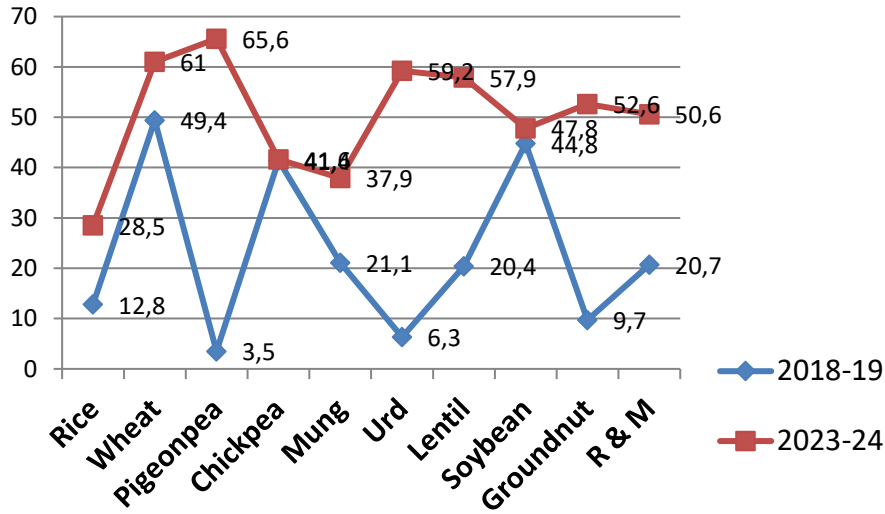
Varietal Mis-matches in Breeder Seed Production



Mis-matches at 13.30% during 2022-23



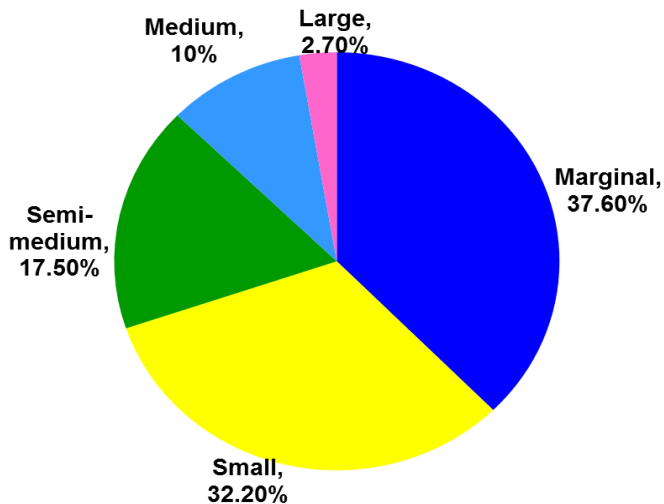
Varietal Replacement Rate (VRR): Share of <5 year and <10 year old varieties in BS indents



Survey and Sample Size

States	Districts	No. of farmers
J&K, HP, UP ,Uttarakhand, Haryana, Rajasthan, Gujarat ,WB, Assam, Manipur, Chhatisgarh, Odisha, Maharashtra, Goa, Telangana, Karnataka, Puducherry, Tamilnadu, Kerala, Andaman & Nicobar Islands (20)	100	7625

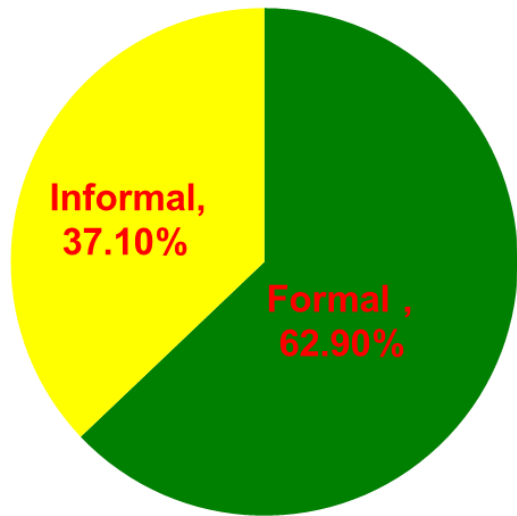
Categories of sample farmers



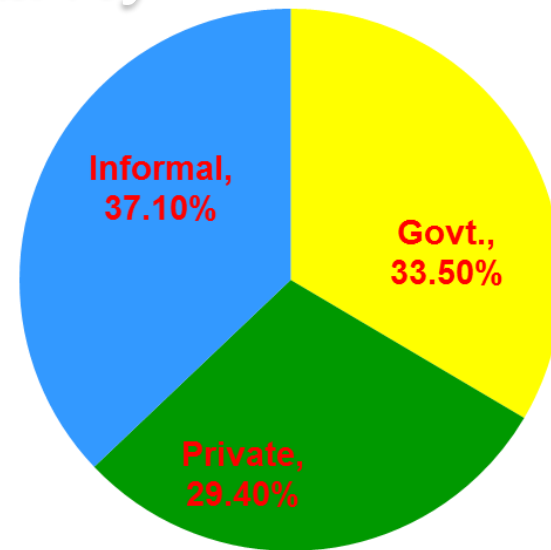
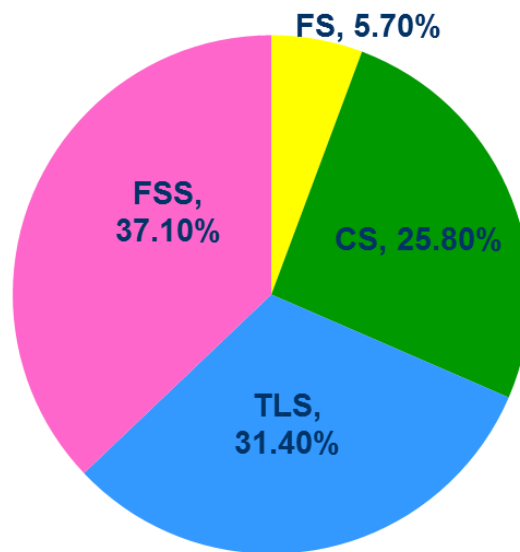
Average land holding of sample farmers

Land holding particulars	Average size of land holding
Marginal (<1ha)	0.50
Small (1-2ha)	1.50
Semi-medium (2-4ha)	3.03
Medium (4-10ha)	6.35
Large 10 ≥ ha	18.94
Average/Total	2.35

Contribution of formal and informal sectors in Indian seed domain: An analytical survey



All crops



Contribution of formal and informal sectors in Indian seed domain: An analytical survey

Contribution of formal and informal sectors for different group of crops

Particulars	Primary data (Formal: Informal)	Secondary data (Formal: Informal)
All crops	63:37	54:46
Cereals	65:35	64:36
Pulses	53:47	29:71
Oilseeds	47:53	44:56

Contribution of various class of seed for different group of crops

Class of seed	Share (%)		
	Cereals	Pulses	Oilseeds
Foundation seed	6.90	9.70	3.50
Certified seed	30.90	22.50	21.00
Truthfully labelled seed	27.30	20.70	22.28
Farm saved seed	34.90	47.10	52.70



Brainstorming session
Informal Seed Sector- Way forward

Chair- **Dr. S.K. Rao, VC, RVSKVV, Gwalior**

Co-Chair: **Dr. D.K. Yadava, ADG (Seed),
ICAR**

12 panelist & 50 participants

**Prepared a Pre-Proposal for
National Programme on
Informal Seed Sector**



National Programme on Informal Seed Sector

- ❖ Improving quality of FSS
- ❖ Institutional Support
- ❖ Harmonization of Existing strength of formal and informal and integration *per se*
- ❖ Capacity building

Informal Seed Sector:

- Quality declared seed system – Mixed approach
- Seed consortia models- quality assurance, processing, packaging, marketing
- Trait specific to location specific
- Robust to competitive

- Community seed system/ Seed FPO
- SOP for Quality assurance
- Delineation of agro-ecologies specific to varieties
- Seed Standard as per requisite of informal seed system



With quality seeds towards the prosperity of mankind.....

Thank you