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Front Line Demonstration – A Good Extension Practice for Bridging the Yield and Knowledge Gaps in Cotton - Part I

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EXPERT'S Column



Dr. A. H. Prakash
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Among them is the age old, effective and time honoured technology dissemination practice of "Field Demonstration".

Cotton is an eternal favorite crop for many aspirational farmers in India. The performance of cotton sector in India is quite impressive in terms of its achievements in area and production over the years. The promising genotypes, potential production and protection technologies, hopeful policies, effective Transfer of Technology (TOT) practices and efficient toil of Indian cotton growers deserve the credit for the accomplishments of Indian cotton. Among these, the properly defined and streamlined technology dissemination arrangements have played a major role. Over the years, many dissemination practices were adopted in extending new technologies in cotton improvement, production and protection.

In India, these field demonstrations are conducted under the umbrella of First Line Extension programmes of Indian Council of Agricultural Research (ICAR). Front Line Demonstrations in cotton is one of the longest running farmer friendly TOT programme with great impact in India for replication in other cotton growing countries.

Genesis of the Demonstration Concept

"Show me how?" is the mantra for the demonstration concept. It started during the birth of Cooperative Extension (1896-1905) of Land Grant Commission of United States of America. The Land Grant Commission recognised the

public's right to know the activities carried out in the research stations and hence carefully documented the research output and disseminated the information to farms, homes and ranches through extension programmes. Hands-on demonstration also emerged during that period and were embodied in agricultural extension for nearly a century. The father of demonstration, Seaman A. Knapp, a special agent with the United States Department of Agriculture, established the first demonstration farm in 1903 at Walter C. Porter farm, near Terrell, in Kaufman County, Texas. This first demonstration farm provided the model for the inception and development of demonstration concept in agricultural extension programmes.

In the first demonstration farm, Walter C. Porter followed the explicit farming instructions and the Department of Agriculture's recommendations regarding the use of fertilizer, cultivation practices and selection of crops. Similarly, the community of Terrell agreed to guarantee Porter against any financial loss and assured him about his entitlement for all benefits and income earned out of the demonstration.

The first demonstration included multi crops viz., 25 acres of cotton, 24 acres of corn, three acres of peas and sorghum, one acre of sweet potatoes and one acre of grain sorghum and milo maize. At the end of the year, Porter estimated that his income was at least USD 700 more than what it would have been, had he followed his usual practices. Hence, he decided to continue to follow the scientific recommendation of Seaman A. Knapp to manage his crops.

In later years, the first demonstrator Porter facilitated other farmers in the area to operate on a demonstration farm model and history says that his farm became a laboratory for teaching progressive farm techniques and an incubator for the establishment of the agricultural extension service. Also, his farm was recognised as the birthplace of the Cooperative Extension Service. Then Seaman A. Knapp demonstrated improved cotton growing methods on a broad scale in the weevil-infested areas of Texas and two adjoining states. With a \$40,000 budget, he directed more than 20 federal agents who worked with some 7,000 farmers to establish demonstration plots. Based on his experiences in demonstrations, he stated famously, "What a man hears, he may doubt; what he sees, he may also doubt; but what

he does, he cannot doubt" and was acknowledged as the father of Field Demonstration.

Front Line Demonstration in the Indian Context

The field demonstration conducted under the close supervision of scientists of the National Agriculture Research System in India including the Scientists from ICAR, State Agricultural Universities (SAUs), Krishi Vigyan Kendra (KVK) (Farmers Science Centre) is called Front Line Demonstration (FLD). "Seeing is believing" is the principle of Front Line Demonstration, "Learning by doing" is its methodology and "Yield Enhancement" is its motive.

It is considered as one of the most effective extension tools ever developed. It is a composite of method and result demonstration as well as a combination of both single practice demonstration and composite demonstration. It provides an effective learning situation as farmers "See the crops themselves", "interact with the scientists and extension workers on the fields", and "get doubts clarified then and there".

The intentions of FLD are demonstrating the usefulness of the latest improved crop production and protection technologies to the farmers as well as extension workers with a view to reduce the time gap between technology generation and its adoption. It also enables the scientists to obtain direct feedback from farmers and suitably reorient their research programmes, develop appropriate technology packages and to create effective linkage among scientists, extension personnel and farmers.

It is one of the major First Line Extension Programmes of ICAR. The ICAR has formulated the FLD programme to be operated by various ICAR institutes and All India Coordinated Research Projects (AICRP). The concept of the demonstration is that the Scientist shall have a direct contact with the farmers in transferring the technology packages and latest innovations. On successful demonstration, Krishi Melas (Farmers' Day) are organised giving opportunity for all the neighboring farmers to see for themselves the convincing benefits of the technologies.

Front Line Demonstration in Cotton

The Indian Council of Agricultural Research (ICAR) introduced the Lab to Land programme

during its golden jubilee year 1979 for efficient transfer of technology. The idea behind the programme was that the viable technologies developed by the researchers should have an on-farm field testing and the farmers should be convinced about the technologies for wider adoption in short span of time. This programme was expanded to cotton crop also, implemented by the ICAR – Central Institute for Cotton Research (CICR), Regional Station, Coimbatore, India in a big way and gained much popularity in early eighties among cotton growers.

Later in the 1995-96 crop season, the Ministry of Agriculture, Government of India under Intensive Cotton Development Programme (ICDP), sanctioned Rs.20 lakh for the conduct of cotton FLD. The All India Coordinated Cotton Improvement Project (AICCIP) with its headquarters at the CICR, Regional Station, Coimbatore under the aegis of ICAR has been nominated as the nodal agency for implementing the FLD programme in cotton in the country. In 1995-96, the programme was conducted extensively covering all the cotton growing states with 812 demonstrations. Since then, the AICCIP has been conducting FLD in cotton throughout the country. Until 2021, around 22000 demonstrations have been conducted in 11 cotton growing states of India by 19 participating centres with a budget outlay of around 123 million rupees.

Objectives of Front Line Demonstration in Cotton

- To demonstrate the usefulness of the latest improved crop production and protection technologies to the farmers as well as extension workers with a view to reduce the time gap between technology generation and its adoption.
- To enable scientists to obtain direct feedback from cotton farmers and suitably reorient their research programmes and develop appropriate technology packages.

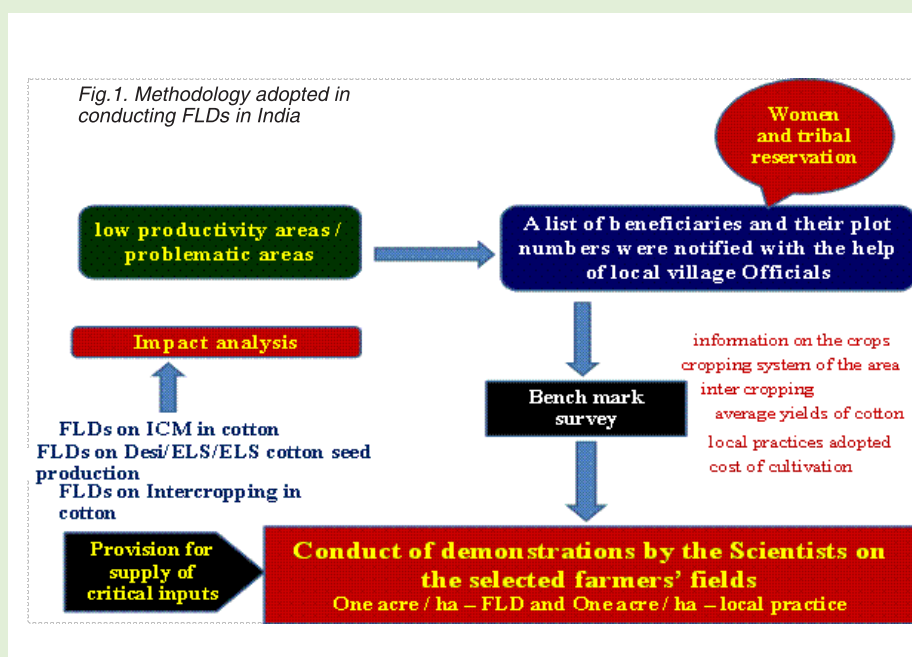
- To create effective linkage among scientists, extension personnel and farmers.

Implementing Agencies and Fund Flow Mechanism

This novel programme was implemented in 1995-96 through ICAR-All India Coordinated Research Project (AICRP) on cotton and its net working centers and ICAR-Central Institute for Cotton Research (CICR) and its regional stations. Department of Agriculture and Cooperation (DAC), Ministry of Agriculture and Farmers Welfare, Government of India is the sponsoring agency. Until 2013, these demonstrations were conducted on Production Technology, Integrated Pest Management and on Farm implements under Technology Mission on Cotton, Mini Mission II. For the past seven years, under the National Food Security Mission (NFSM), these demonstrations are being conducted on Integrated Crop Management, Desi / Extra Long Staple (ELS) /Seed production and intercropping.

Methodology Adopted

Main emphasis is given to the demonstrations for enhancing the production of cotton in low productivity areas / problematic areas. A baseline survey is conducted by the participating centres to know the resource endowments of the farmers and the level of cotton productivity. For selecting the beneficiaries and identifying the priority areas, Panchayat Raj Institutions are actively utilised. A list of beneficiaries and



their plot numbers are notified in the local Block Development / Panchayat Office. Farmers are selected in consultation with local Agricultural Officers and Panchayat Samiti. These officials form a part of the FLD team. A bench mark survey is conducted before taking up the demonstration which includes information on the crops and cropping system of the area, inter cropping, the average yields of cotton and the local practices adopted in terms of irrigation, use of fertilizer, plant protection, etc. Information on the cost of cultivation is also collected for the area as a whole.

After the harvest, an impact analysis is carried out in the light of reduction in insecticide

use, reduction in cost of cultivation, awareness of modern technology etc. Further in accordance with the decision of Government of India (GOI) regarding implementation of Special Component Plan (SCP) for Scheduled Caste and Tribal Sub Plan (TSP) for Scheduled Tribes and Gender Budgeting, the beneficiaries are selected for the year's front line demonstration programme.

(To be continued...)

(The views expressed in this column are of the authors and not that of Cotton Association of India)

Update on Cotton Acreage (As on 09.09.2021)

(Area in Lakh Ha)

Sr. No.	State	Normal Area (DES)*	Normal Area as on Date (2016-2020)	Area Covered (SDA)					
				2021-22	2020-21	2019-20	2018-19	2017-18	2016-17
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Andhra Pradesh	6.12	5.34	4.85	5.64	6.11	5.51	5.64	3.78
2	Telangana	18.09	18.30	20.59	24.13	18.32	17.94	18.61	12.50
3	Gujarat	26.09	25.34	22.51	22.79	26.66	27.09	26.33	23.82
4	Haryana	6.56	6.51	6.88	7.37	7.01	6.65	6.56	4.98
5	Karnataka	6.47	5.47	6.36	6.79	5.75	5.48	4.71	4.64
6	Madhya Pradesh	6.06	6.30	6.15	6.44	6.09	6.97	5.99	5.99
7	Maharashtra	42.13	41.46	39.37	42.24	43.82	41.19	42.03	38.01
8	Odisha	1.47	1.56	1.97	1.71	1.70	1.58	1.45	1.36
9	Punjab	2.86	3.16	3.03	2.51	4.02	2.84	3.85	2.56
10	Rajasthan	5.78	5.39	7.08	6.68	6.45	4.96	5.03	3.85
11	Tamil Nadu	1.54	0.29	0.29	0.29	0.42	0.18	0.50	0.06
12	Others	0.42	0.22	0.37	0.22	0.27	0.17	0.29	0.17
All India		123.59	119.33	119.45	126.80	126.62	120.56	120.99	101.72

* Directorate of Economics & Statistics, Ministry of Agriculture and Farmers Welfare, Krishi Bhavan, New Delhi
Source : Directorate of Cotton Development, Nagpur

All India Weather Summary and Forecast

Weather Forecast for next 5 days

◆ Meteorological sub-division wise detailed 5 days precipitation forecast is given in Table-1.

◆ No significant change in maximum temperatures over most parts of the country during next 5 days.

Table-1
5 Day Rainfall Forecast (MORNING)
14-September-2021

Met-Sub-Division	14-Sep Today	15Sep Wed	16Sep Thu	17Sep Fri	18Sep Sat
1. Andaman & Nicobar Islands	FWS	WS	WS	WS	WS
2. Arunachal Pradesh	ISOL	ISOL	SCT	FWS	FWS
3. Assam & Meghalaya	SCT	SCT	FWS	FWS	FWS
4. N. M. M. & T.	SCT	SCT	FWS	FWS	FWS
5. S.H. West Bengal & Sikkim	SCT	SCT	FWS	FWS	FWS
6. Gangetic West Bengal	FWS	SCT	SCT	FWS	FWS
7. Odisha	FWS	SCT	SCT	FWS	FWS
8. Jharkhand	FWS	SCT	SCT	SCT	SCT
9. Bihar	SCT	SCT	FWS	FWS	FWS
10. East Uttar Pradesh	SCT	FWS	SCT	SCT	SCT
11. West Uttar Pradesh	SCT	FWS	FWS	ISOL	ISOL
12. Uttarakhand	FWS	SCT	FWS	ISOL	ISOL
13. Haryana, Chd & Delhi	SCT	SCT	FWS	ISOL	ISOL
14. Punjab	ISOL	ISOL	ISOL	ISOL	ISOL
15. Himachal Pradesh	SCT	ISOL	ISOL	ISOL	ISOL
16. J & K and Ladakh	ISOL	DRY	DRY	DRY	DRY
17. West Rajsthan	SCT	SCT	SCT	FWS	FWS
18. East Rajasthan	FWS	WS	WS	FWS	FWS
19. West Madhya Pradesh	WS	WS	SCT	ISOL	ISOL
20. East Madhya Pradesh	FWS	FWS	SCT	SCT	SCT
21. Gujarat Region	WS	WS	FWS	FWS	FWS
22. Saurashtra & Kutch	WS	WS	WS	FWS	FWS
23. Konkan & Goa	WS	WS	WS	WS	WS
24. Madhya Maharashtra	FWS	SCT	SCT	ISOL	ISOL
25. Marathawada	FWS	SCT	ISOL	ISOL	ISOL
26. Vidharbha	FWS	SCT	SCT	ISOL	ISOL
27. Chhattisgarh	FWS	SCT	SCT	SCT	SCT
28. Coastal A. P. & Yanam	SCT	SCT	SCT	ISOL	ISOL
29. Telangana	SCT	ISOL	ISOL	ISOL	ISOL
30. Rayalaseema	ISOL	ISOL	ISOL	ISOL	ISOL
31. T.N.,Puducherry & Karaikal	ISOL	ISOL	SCT	SCT	SCT
32. Coastal Karnataka	WS	WS	FWS	FWS	FWS
33. North Interior Karnataka	FWS	FWS	SCT	ISOL	ISOL
34. South Interior Karnataka	SCT	SCT	SCT	ISOL	ISOL
35. Kerala & Mahe	WS	FWS	FWS	FWS	FWS
36. Lakshadweep	FWS	SCT	SCT	SCT	SCT

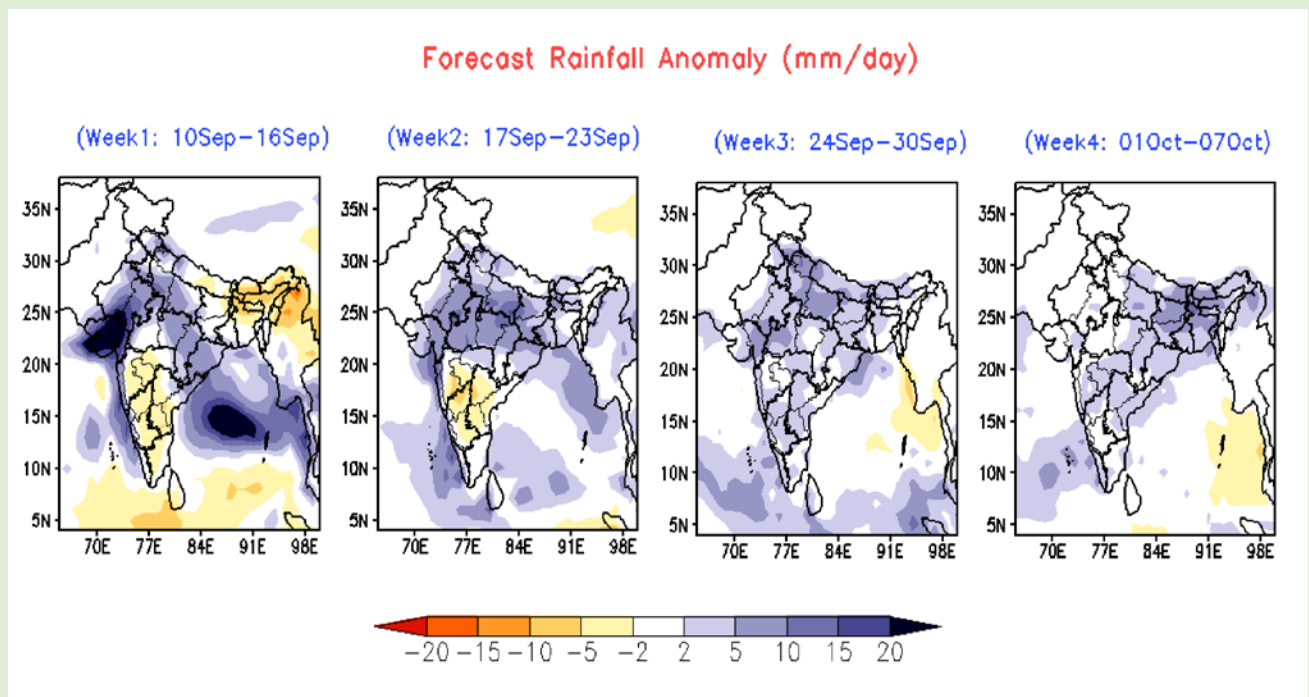
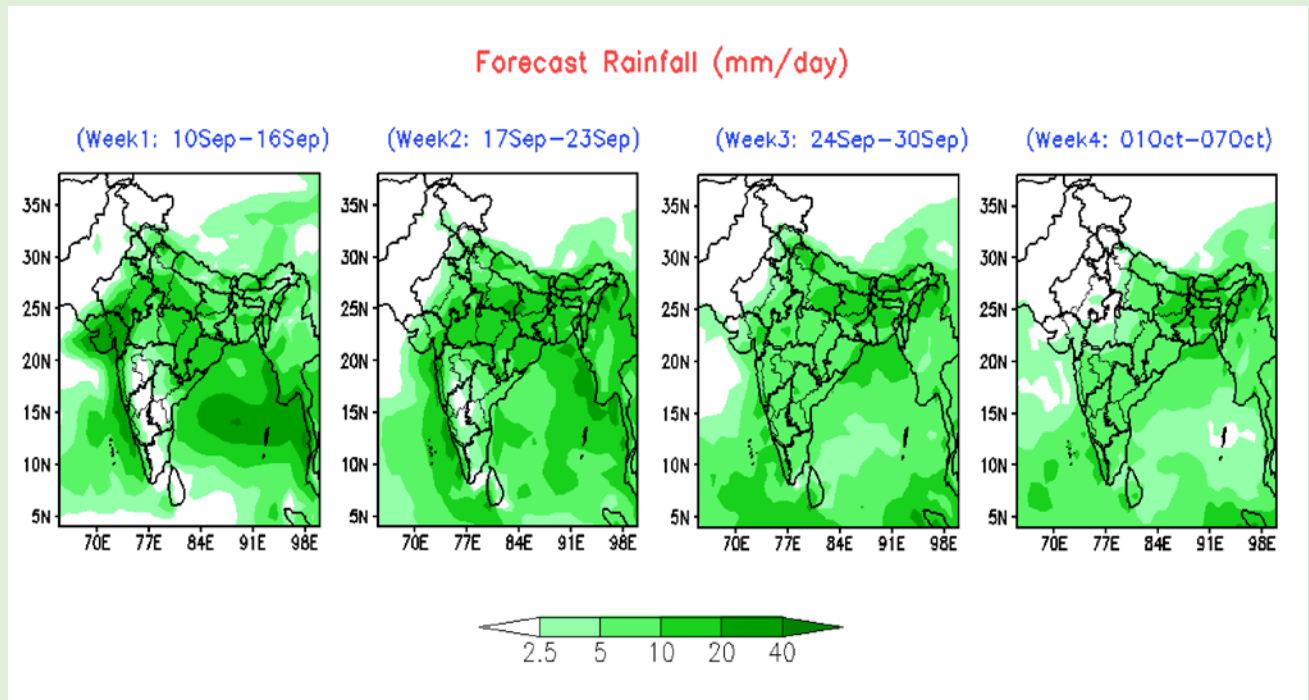
% Station Reporting Rainfall

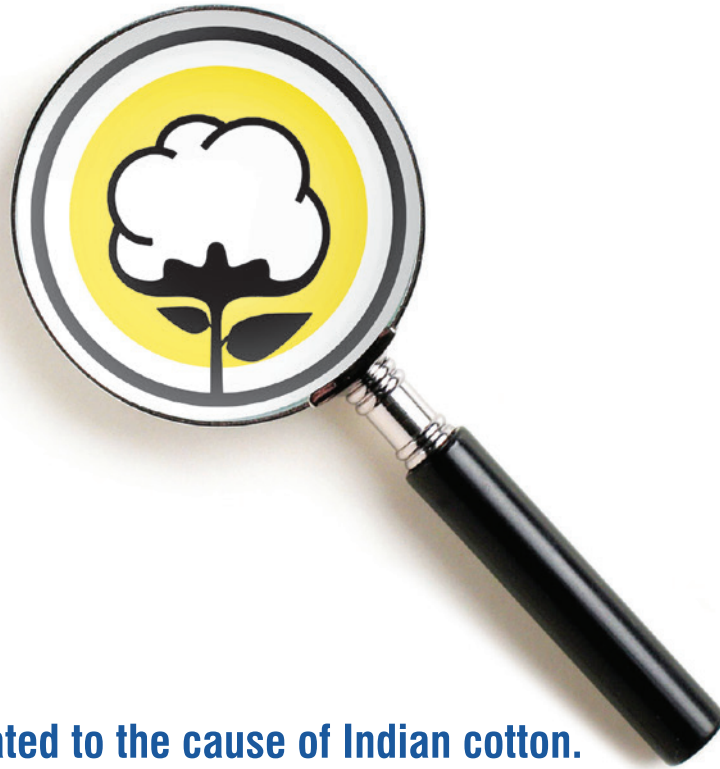
% Stations	Category	% Stations	Category
76-100	Widespread (WS/Most Places)	26-50	Scattered (SCT/ A Few Places)
51-75	Fairly Widespred (FWS/ Many Places)	1-25	Isolated (ISOL)
No Rain	Dry		

Weather Outlook for subsequent 2 days from 19th September, 2021 to 21st September, 2021

♦ Fairly widespread to widespread rainfall with isolated heavy rainfall likely over most parts

of East India & along the West coast & Northeast India and Andaman & Nicobar Islands and isolated to scattered rainfall activity over remaining parts of the country.





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we are dedicated to the cause of Indian cotton.
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The Cotton Association of India (CAI) is respected as the chief trade body in the hierarchy of the Indian cotton economy. Since its origin in 1921, CAI's contribution has been unparalleled in the development of cotton across India.

The CAI is setting benchmarks across a wide spectrum of services targeting the entire cotton value chain. These range from research and development at the grass root level to education, providing an arbitration mechanism, maintaining Indian cotton grade standards, issuing Certificates of Origin to collecting and disseminating statistics and information. Moreover, CAI is an autonomous organization portraying professionalism and reliability in cotton testing.

The CAI's network of independent cotton testing & research laboratories are strategically spread across major cotton centres in India and are equipped with:

- State-of-the-art technology & world-class Premier and MAG cotton testing machines
- HVI test mode with trash% tested gravimetrically

LABORATORY LOCATIONS

Current locations : • **Maharashtra :** Mumbai; Yavatmal; Aurangabad; Jalgaon • **Gujarat :** Rajkot; Ahmedabad • **Andhra Pradesh :** Adoni
 • **Madhya Pradesh :** Khargone • **Karnataka :** Hubli • **Punjab :** Bathinda • **Telangana:** Warangal, Adilabad



COTTON ASSOCIATION OF INDIA

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UPCOUNTRY SPOT RATES								(Rs./Qtl)					
Standard Descriptions with Basic Grade & Staple in Millimetres based on Upper Half Mean Length [By law 66 (A) (a) (4)]								Spot Rate (Upcountry) 2020-21 Crop September 2021					
Sr. No.	Growth	Grade Standard	Grade	Staple	Micronaire	Gravimetric Trash	Strength /GPT	6th	7th	8th	9th	10th	11th
1	P/H/R	ICS-101	Fine	Below 22mm	5.0 - 7.0	4%	15	11698 (41600)	11698 (41600)	11698 (41600)	11698 (41600)		11698 (41600)
2	P/H/R (SG)	ICS-201	Fine	Below 22mm	5.0 - 7.0	4.5%	15	11867 (42200)	11867 (42200)	11867 (42200)	11867 (42200)		11867 (42200)
3	GUJ	ICS-102	Fine	22mm	4.0 - 6.0	13%	20	9589 (34100)	9589 (34100)	9589 (34100)	9589 (34100)	H	9589 (34100)
4	KAR	ICS-103	Fine	23mm	4.0 - 5.5	4.5%	21	10489 (37300)	10629 (37800)	10714 (38100)	10826 (38500)		10911 (38800)
5	M/M (P)	ICS-104	Fine	24mm	4.0 - 5.5	4%	23	11754 (41800)	11754 (41800)	11754 (41800)	11810 (42000)		11810 (42000)
6	P/H/R(U) (SG)	ICS-202	Fine	27mm	3.5 - 4.9	4.5%	26	13694 (48700)	13751 (48900)	13835 (49200)	13919 (49500)	O	13919 (49500)
7	M/M(P)/SA/TL	ICS-105	Fine	26mm	3.0 - 3.4	4%	25	12232 (43500)	12232 (43500)	12232 (43500)	12232 (43500)		12232 (43500)
8	P/H/R(U)	ICS-105	Fine	27mm	3.5 - 4.9	4%	26	13919 (49500)	13976 (49700)	14060 (50000)	14144 (50300)		14144 (50300)
9	M/M(P)/SA/TL/G	ICS-105	Fine	27mm	3.0 - 3.4	4%	25	12570 (44700)	12570 (44700)	12513 (44500)	12513 (44500)	L	12513 (44500)
10	M/M(P)/SA/TL	ICS-105	Fine	27mm	3.5 - 4.9	3.5%	26	13413 (47700)	13413 (47700)	13413 (47700)	13413 (47700)		13357 (47500)
11	P/H/R(U)	ICS-105	Fine	28mm	3.5 - 4.9	4%	27	14088 (50100)	14144 (50300)	14229 (50600)	14313 (50900)		14313 (50900)
12	M/M(P)	ICS-105	Fine	28mm	3.7 - 4.5	3.5%	27	14566 (51800)	14566 (51800)	14566 (51800)	14566 (51800)		14566 (51800)
13	SA/TL/K	ICS-105	Fine	28mm	3.7 - 4.5	3.5%	27	14594 (51900)	14594 (51900)	14594 (51900)	14594 (51900)	I	14594 (51900)
14	GUJ	ICS-105	Fine	28mm	3.7 - 4.5	3%	27	14904 (53000)	14904 (53000)	14904 (53000)	14904 (53000)		14904 (53000)
15	R(L)	ICS-105	Fine	29mm	3.7 - 4.5	3.5%	28	14622 (52000)	14622 (52000)	14679 (52200)	14735 (52400)		14707 (52300)
16	M/M(P)	ICS-105	Fine	29mm	3.7 - 4.5	3.5%	28	15044 (53500)	15044 (53500)	15044 (53500)	15044 (53500)	D	15044 (53500)
17	SA/TL/K	ICS-105	Fine	29mm	3.7 - 4.5	3%	28	15072 (53600)	15072 (53600)	15072 (53600)	15072 (53600)		15072 (53600)
18	GUJ	ICS-105	Fine	29mm	3.7 - 4.5	3%	28	15607 (55500)	15607 (55500)	15607 (55500)	15607 (55500)		15607 (55500)
19	M/M(P)	ICS-105	Fine	30mm	3.7 - 4.5	3.5%	29	15466 (55000)	15550 (55300)	15607 (55500)	15607 (55500)		15607 (55500)
20	SA/TL/K/O	ICS-105	Fine	30mm	3.7 - 4.5	3%	29	15522 (55200)	15607 (55500)	15663 (55700)	15663 (55700)	A	15663 (55700)
21	M/M(P)	ICS-105	Fine	31mm	3.7 - 4.5	3%	30	15691 (55800)	15747 (56000)	15803 (56200)	15803 (56200)		15775 (56100)
22	SA/TL/K / TN/O	ICS-105	Fine	31mm	3.7 - 4.5	3%	30	15747 (56000)	15803 (56200)	15860 (56400)	15860 (56400)		15832 (56300)
23	SA/TL/K/ TN/O	ICS-106	Fine	32mm	3.5 - 4.2	3%	31	N.A. (N.A.)	N.A. (N.A.)	N.A. (N.A.)	N.A. (N.A.)	Y	N.A. (N.A.)
24	M/M(P)	ICS-107	Fine	34mm	2.8 - 3.7	4%	33	26152 (93000)	26152 (93000)	26152 (93000)	26152 (93000)		26152 (93000)
25	K/TN	ICS-107	Fine	34mm	2.8 - 3.7	3.5%	34	27276 (97000)	27276 (97000)	27276 (97000)	27276 (97000)		27276 (97000)
26	M/M(P)	ICS-107	Fine	35mm	2.8 - 3.7	4%	35	27276 (97000)	27276 (97000)	27276 (97000)	27276 (97000)		27276 (97000)
27	K/TN	ICS-107	Fine	35mm	2.8 - 3.7	3.5%	35	N.A. (N.A.)	N.A. (N.A.)	N.A. (N.A.)	N.A. (N.A.)		N.A. (N.A.)

(Note: Figures in bracket indicate prices in Rs./Candy)