

Wheat Scenario – A Snippet

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ICAR-Directorate of Wheat Research,
Karnal, Haryana (India)



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About the Directorate...

This organisation works under the aegis of Indian Council of Agricultural Research, New Delhi. About 50 scientists working for the Directorate strive to increase the productivity of wheat and ensure India's food and nutritional security. The Directorate believes much in multi-disciplinary and co-ordinated research for the varietal development and its successful adoption across the wheat growing zones in the country.

Highlights...

AREA	Wheat acreage increased by 1.19 (3.95 %) million hectares
PRODUCTION	National production estimated at 95.91 million tonnes as per the 4 th Advance Estimate of Government of India
YIELD	National average hovering around 3 tonnes/ hectare. In 2013-14, it is around 3075 kg/ha
PROCUREMENT	44 per cent hike in the procurement
TRADE	India exported 5.57 million tonnes
PROFIT	Return per rupee of investment was highest in Rajasthan followed by Gujarat and Madhya Pradesh

From the Project Director's Desk...

India registered an all-time historic production of 95.91 million tonnes in 2013-14 as per the fourth advance estimate of the Directorate of Economics and Statistics, Government of India. Though increase in area under wheat did a major contribution to the enhanced production, yield is almost on par with the last year (3.1 tonnes/ hectare). India also exported 5.57 million tonnes of wheat earning foreign exchange amounting to ₹ 92.78 billion.

Despite the expected aberration in weather parameters and other production threats, the country's co-ordinated research programme will help for incremental yield by developing genotypes which are highly resistant to biotic and abiotic stress. The aim of this e-newsletter is to present the current scenario and explore the plausible reasons behind the crop status.



(Indu Sharma)

Quantum change in area, production and yield

State/Country	2012-13			2013-14*			Quantum Change in		
	Area (000'ha)	Production (000't)	Yield (kg/ha)	Area (000'ha)	Production (000't)	Yield (kg/ha)	Area (000'ha)	Production (000't)	Yield (kg/ha)
Andhra Pradesh	8	10	1250	7	7	1000	-1	-3	-250
Assam	34	44	1304	39	32	821	5	-12	-483
Bihar	2208	5357	2427	2257	5081	2251	49	-276	-175
Chhattisgarh	101	141	1396	103	134	1304	2	-7	-93
Gujarat	1024	2944	2875	1351	3651	2703	327	707	-172
Haryana	2497	11117	4452	2499	11800	4722	2	683	270
Himachal Pradesh	364	609	1671	371	539	1451	7	-70	-220
Jammu & Kashmir	290	462	1595	292	465	1589	2	2	-6
Jharkhand	164	319	1944	173	356	2058	9	37	114
Karnataka	225	179	796	214	230	1075	-11	51	279
Madhya Pradesh	5300	13133	2478	5792	13928	2405	492	794	-73
Maharashtra	773	1181	1528	1097	1602	1460	324	421	-67
Odisha	1	2	1894	1	1	1606	0	-1	-289
Punjab	3512	16591	4724	3514	17035	4848	2	444	124
Rajasthan	3063	9275	3028	2810	8922	3175	-253	-354	147
Uttar Pradesh	9734	30302	3113	9956	30246	3038	222	-56	-75
Uttarakhand	358	858	2396	348	844	2425	-10	-14	29
West Bengal	322	896	2786	338	947	2802	16	51	16
Others	25	84	3361	26	87	3336	1	3	-25
INDIA	30003	93506	3117	31188	95907	3075	1185	2401	-41

Note: * indicates the 4th advance estimates from the Directorate of Economics and Statistics (DES), Government of India.

Analysis on year-to-year growth indicated that the overall production in the country has increased by 2.57 per cent. Though acreage increase is the major reason for the historic production, yield in traditional and large wheat growing states like Punjab, Haryana and Madhya Pradesh have shown a rise which is a good sign for the central grain pool. State wise analysis indicated that Uttar Pradesh has registered the highest production (30.24 million tonnes), followed by Punjab (17.04 million tonnes), Madhya Pradesh (13.93 million tonnes), Haryana (11.80 million tonnes), Rajasthan (8.92 million tonnes) and Bihar (5.08 million tonnes). These top six states together contributed around 91 per cent of the total wheat production in the country. Among states, Madhya Pradesh alone produced additional 7.94 lakh tonnes (6.05 %) wheat in 2013-14 followed by Gujarat and Haryana. Despite increased acreage, production in Uttar Pradesh witnessed a fall by 0.6 lakh tonnes which is mainly due to the decline in yield. State wise analysis on acreage indicated that Uttar Pradesh holds the prime position (9.96 million hectares), followed by Madhya Pradesh (5.79 million hectares), Punjab (3.51 million hectares), Rajasthan (2.81 million hectares), Haryana (2.50 million hectares) and Bihar (2.26 million hectares). All these states together cover about 86 per cent of the total area in the country under wheat. During 2013-14, a majority of the states registered an increase in area under the crop in comparison to 2012-13. Among them, Madhya Pradesh showed the maximum increase (4.92 lakh hectares).

Contribution of yield and area to wheat production (2013-14)

State/Country	Change in production in 2013-14* over 2012-13		% contribution by	
	Quantity (in '000 tonnes)	Deviation (in %)	Area	Yield
Andhra Pradesh	-3	-30.00	-12.50	-20.00
Assam	-12	-27.59	15.08	-37.07
Bihar	-276	-5.16	2.23	-7.23
Chhattisgarh	-7	-5.17	1.58	-6.64
Gujarat	707	24.03	31.93	-5.99
Haryana	683	6.14	0.08	6.06
Himachal Pradesh	-70	-11.51	1.88	-13.15
Jammu & Kashmir	2	0.47	0.83	-0.36
Jharkhand	37	11.53	5.36	5.85
Karnataka	51	28.49	-4.89	35.10
Madhya Pradesh	794	6.05	9.28	-2.96
Maharashtra	421	35.65	41.91	-4.42
Odisha	-1	-42.13	-31.73	-15.24
Punjab	444	2.68	0.06	2.62
Rajasthan	-354	-3.81	-8.27	4.85
Uttar Pradesh	-56	-0.18	2.28	-2.41
Uttarakhand	-14	-1.66	-2.83	1.20
West Bengal	51	5.70	5.11	0.56
Others	3	3.18	3.95	-0.74
INDIA	2401	2.57	3.95	-1.33

Note: * indicates the 4th advance estimates from the DES, Government of India.

The overall increased production (2.4 million tonnes) during 2013-14 has been attributed to the increase in area under wheat (3.95 %) despite a marginal decline in the crop yield by 1.33 per cent. However, a majority of the states like Haryana, Jharkhand, Karnataka, Punjab, Rajasthan, Uttarakhand and West Bengal have shown an increased yield during 2013-14 in comparison to 2012-13. Among them, the per cent increase in yield was more evident in Karnataka. Barring a few states like Odisha, Uttarakhand, Rajasthan and Andhra Pradesh, the rest have shown an increase in area. The contribution was highest in the case of Maharashtra (42 %), followed by Gujarat (32 %) and Assam (15 %).

Selected state wise procurement of wheat (in lakh tonnes) in India

States/UTs	2013-14	2014-15
Bihar	-	-
Chandigarh	0.07	0.05
Delhi	-	-
Gujarat	0.75	-
Haryana	51.3	64.95
Himachal Pradesh	-	-
Jammu and Kashmir	-	-
Madhya Pradesh	46.5	70.94
Maharashtra	-	-
Punjab	88.92	116.41
Rajasthan	5.17	21.59
Uttar Pradesh	2.1	6.28
Uttarakhand	0.02	0.01
West Bengal	-	-
India	194.11	280.23

Note : * indicates the procurement estimates during 2014-15 marketing season.

Source: Ministry of Consumer Affairs, Food and Public Distribution (Government of India).

FCI, the nodal central agency, along with other authorized state agencies procured wheat at the minimum support price (MSP) of ₹ 14000 per tonne in 2013-14. As usual, Punjab, Haryana and Madhya Pradesh contributed more to the central grain pool. In 2013-14 marketing season, wheat procurement stood at 19.41 million tonnes. But in the current season, wheat procurement increased by 44 % and it is estimated at 2.80 million tonnes. The plausible reason was increased production in major wheat growing states. However, procurement was nil in Gujarat.

Buffer Stock Position

Buffer stocks are required to (i) feed the population under Targeted Public Distribution System (TPDS) and other welfare schemes, (ii) ensure food security during the periods when production is short of normal demand during bad agricultural years and (iii) stabilize prices during period of production shortfall through open market sales. The buffer norm for wheat w.e.f 20.04.2005 is 8.2 million tonnes (January), 4 million tonnes (April), 17.1 million tonnes (July) and 11 million tonnes (October). In addition to buffer norms, Government has prescribed a Strategic Reserve of 30 lakh tonnes of Wheat w.e.f. 01.07.2008.

Stock of wheat in central pool is 38.11 million tonnes as on August 01, 2014 (Storage: 37.74 million tonnes, Mandi + Transit: 0.37 million tonnes). Stock with FCI: 15.76 million tonnes and state agencies: 22.35 million tonnes.

Source: Ministry of Consumer Affairs, Food and Public Distribution (Government of India).

Trade Scenario

S.No.	Export quantity (item wise) in tonnes	HS Code	2013-14
1.	Durum wheat: Seed	100111	27343
2.	Other durum wheat excluding seed	100119	732369
3.	Wheat and meslin seed excluding durum wheat	100191	52973
4.	Other wheat and meslin	100199	4759323
	A. Wheat	10019910	4732201
	B. Meslin	10019920	27122
Total wheat exports			5572008
S.No.	Import quantity (item wise) in tonnes	HS Code	2013-14
1.	Wheat	10019910	11271
Total wheat imports			11271

Note : Meslin is a mixture of wheat and rye flour.

Source: Ministry of Commerce, Government of India.

India has exported wheat to different destinations like Bangladesh, Korea Republic, United Arab Emirates, Indonesia etc. The total wheat exported in 2013-14 was 5.57 million tonnes and also India imported a meager quantity of 11271 tonnes. Among export quantity, 'other wheat and meslin' category alone accounted for about 85 per cent of the total exports. It is followed by 'other durum wheat excluding seed' (13 %) and 'wheat and meslin seed excluding durum wheat' (1 %). The value of total wheat exports stood at ₹ 92.78 billion and the imports are valued at ₹ 269.17 million.

Costs and Returns from Wheat

Items	Bihar	Gujarat	Haryana	HP	MP	Maharashtra	Punjab	Rajasthan	UP
Cost of Cultivation (₹/ha)	24348	27297	42323	17862	27532	36488	42984	31631	35984
Cost of Production (₹/Qtl)	764	709	773	1056	834	1257	872	667	804
Gross Returns (₹/ha)	32458	45901	63914	18648	41728	41474	58133	53551	48104
Value of Main Product (₹/ha)	27003	42945	52959	13169	35638	40539	50621	44536	39529
Value of By-Product (₹/ha)	5455	2955	10955	5479	6090	935	7511	9015	8575
Material and Labour Input per Hectare									
Seed (Kg.)	113	157	117	113	116	116	107	151	144
Fertilizer (Kg. Nutrients)	126	179	203	58	105	192	245	133	182
Manure (Qtl.)	0	1	0	25	0	0	1	3	1
Human Labour (Man Hrs.)	479	361	284	225	288	520	161	464	440
Animal Labour (Pair Hrs.)	32	9	2	34	14	44	1	6	6
Rate per Unit (₹)									
Seed (Kg.)	18	20	16	12	17	26	15	16	15
Fertilizer (Kg. Nutrients)	16	14	13	12	14	15	13	15	15
Manure (Qtl.)	25	48	8	43	29	184	10	42	35
Human Labour (Man Hrs.)	13	12	29	18	16	16	28	18	15
Animal Labour (Pair Hrs.)	26	55	91	9	39	55	79	20	110
Derived Yield (Qtl./ha)	26	36	45	12	28	28	43	40	37
*Break-Up Human Labour Hours	479	361	284	225	288	520	161	464	440
Family	266	201	180	211	183	288	66	377	289
Attached	1	6	12	0	8	44	18	12	4
Casual	212	155	92	14	97	188	77	75	147
Item wise Breakup of Cost of Cultivation (₹/ha)									
A. Operational Costs	17544	18402	22564	10780	15097	25748	18120	18855	21288
Human Labour	6273	4468	8188	4008	4579	8377	4516	8437	6563
Family	3475	2518	4873	3697	2915	4766	1694	6689	4092
Attached	9	80	326	2	149	685	456	212	52
Casual	2789	1870	2989	309	1514	2926	2366	1535	2419
Animal Labour	837	503	212	296	548	2414	60	132	616
Hired	274	113	1	95	72	587	2	39	10
Owned	563	390	211	202	476	1827	59	93	607
Machine Labour	3397	3690	5714	2847	3913	4895	6420	3400	5028
Hired	3355	3556	4875	2817	3720	4785	4898	3336	4675
Owned	42	134	839	30	193	110	1523	65	352
Seed	2005	3085	1825	1351	1938	2966	1575	2352	2218
Fertilizer & Manure	2057	2610	2732	1755	1511	2945	3268	2096	2731
Fertilizer	2051	2557	2730	687	1510	2885	3260	1951	2691
Manure	6	54	2	1068	1	60	8	145	40
Insecticides	0	318	674	32	14	106	1338	17	40
Irrigation Charges	2549	3246	2636	275	2226	3408	340	2053	3570
Miscellaneous	0	0	46	0	0	0	105	0	0
Interest on Working Capital	426	481	536	215	369	636	498	369	521
B. Fixed Costs	6804	8895	19759	7083	12435	10740	24864	12776	14697
Rental Value of Owned Land	5609	7401	16206	4340	10432	6914	16287	8758	10861
Rent Paid For Leased-in-Land	0	171	47	6	0	0	4561	324	408
Land Revenue, Taxes and Cess	31	9	0	18	4	21	0	10	6
Depreciation	222	144	333	486	403	410	383	406	604
Interest on Fixed Capital	941	1170	3173	2233	1596	3395	3634	3277	2816
Total Cost [Operational Cost + Fixed Cost]	24348	27297	42323	17862	27532	36488	42984	31631	35984
Benefit - Cost Ratio	1.33	1.68	1.51	1.04	1.52	1.14	1.35	1.69	1.34

Source: DES (Government of India) and data pertains to 2010-11.

Country wise Area, Production and Yield

Country/Region	Area (million hectares)		Production (million tonnes)		Yield (tonnes / hectare)	
	2012-13	2013-14	2012-13	2013-14	2012-13	2013-14
Afghanistan	2.55	2.56	5.00	5.03	1.96	1.96
Bulgaria	1.19	1.17	4.90	4.90	4.12	4.18
Denmark	0.57	0.70	4.14	5.20	7.29	7.48
Egypt	1.35	1.40	8.65	8.95	6.41	6.39
France	5.32	5.31	38.5	38.7	7.24	7.30
Germany	3.13	3.22	24.9	25.6	7.98	7.95
Hungary	1.09	1.10	5.04	4.85	4.62	4.41
India	30.0	31.2	93.5	95.9	3.12	3.08
Iran	7.00	6.80	14.5	13.0	2.07	1.91
Italy	1.86	1.84	7.22	7.10	3.88	3.86
Kazakhstan	12.9	12.7	13.9	13.5	1.08	1.06
Morocco	3.28	3.06	7.00	4.70	2.13	1.54
Pakistan	8.64	8.83	24.0	24.5	2.78	2.77
Poland	2.14	2.20	9.50	9.60	4.45	4.36
Romania	2.10	2.08	7.50	7.40	3.57	3.57
Russia	23.4	23.8	52.1	59.0	2.23	2.48
Spain	2.12	2.15	7.60	6.20	3.58	2.89
Syria	1.55	1.30	4.00	2.50	2.58	1.92
Turkey	7.70	7.71	18.0	15.0	2.34	1.95
Ukraine	6.57	6.30	22.3	22.0	3.39	3.49
United Kingdom	1.63	1.98	11.9	15.4	7.33	7.80
Uzbekistan	1.40	1.40	6.80	6.80	4.86	4.86
Argentina	3.50	4.20	10.5	12.5	3.00	2.98
Australia	13.51	13.8	27.0	26.0	2.00	1.88
Canada	10.44	9.30	37.5	28.0	3.59	3.01
China	24.12	24.1	121.9	126	5.06	5.23
United States	18.27	18.71	57.9	55.2	3.17	2.95
World	220.5	222.6	714.1	716.1	3.24	3.22

Source: United States Department of Agriculture (USDA).

Globally, wheat is the largest grown cereal and India is the second largest producer next to China with a maximum area under wheat. However, in terms of yield, it is marginally less relative to the world average of 3.22 tonnes / hectare.

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