International Journal of Psychosocial Rehabilitation, Vol. 25, Issue 03, 2021
ISSN: 1475-7192

Wheat Production in India: Current Studies for the Future

Bahaderjeet Singh[1], Ramandeep Kaur[2]

[1,2]**Guru Kashi University, Talwandi Sabo**

Abstract

A staple food for humans and livestock alike, wheat is a major crop in temperate regions. The adaptability and high return capability of wheat are two significant variables in its prosperity. What's more, the gluten protein part, which gives the visco-flexible properties that permit its mixture to be handled into bread, pasta and other food items. It gives supplements, helpful phytochemicals, and dietary fiber parts to the human eating routine. Among the current and future worries examined in this survey are ways of keeping up with wheat creation and quality with lower contributions of agrochemicals, as well as ways of creating worked on quality lines for explicit end utilizes, for example, biofuels and human food.

Keywords: *wheat production, current studies, indian wheat*

1. INTODUCTION

1.1. Current status of area, production and yield of Indian wheat

Rabi is the harvest season for wheat in India. Normal sowing and harvesting dates are around November to April. Area, production, and productivity data for wheat are shown in tables 1 and 2, respectively. The national wheat acreage increased by 1.5 million hectares (5 percent) from 29.04 million hectares to 30.54 million hectares, demonstrating a vertical pattern. At 32%, Uttar Pradesh is trailed by Madhya Pradesh (18.75 percent), Punjab (11.48 percent), Rajasthan (9.54), Haryana (8.56), and Bihar (5.36) as far as land region, which is 9.75 million hectares (6.82 percent). In any case, states like Jharkhand (51%), Madhya Pradesh (27%), and Rajasthan have seen huge development in wheat region (13%). Expanding the region under wheat development is an immediate

aftereffect of a sharp ascent in the base help cost and government acquisition.

State/UT	Area (million ha)		Change (%)	Production (million tonnes)		Change (%)
	2008–2009 to 2012–2013	2013–2014 to 2017–2018		2008–2009 to 2012–2013	2013–2014 to 2017–2018	
Assam	0.05	0.02	−52.35	0.06	0.03	−43.40
Bihar	2.16	2.08	−3.57	4.63	4.86	4.98
Chhattisgarh	0.10	0.10	0.59	0.12	0.14	13.22
Gujarat	1.12	1.09	−2.85	3.20	3.22	0.60
Haryana	2.50	2.55	2.21	11.35	11.24	−0.93
Himachal Pradesh	0.36	0.34	−4.26	0.53	0.66	24.79
Jammu and Kashmir	0.29	0.29	1.83	0.44	0.48	10.52
Jharkhand	0.12	0.19	50.99	0.22	0.38	70.04
Karnataka	0.25	0.19	−25.30	0.23	0.20	−13.23
Madhya Pradesh	4.52	5.73	26.76	9.45	16.32	72.72
Maharashtra	1.01	1.05	4.79	1.61	1.48	−8.27
Punjab	3.52	3.51	−0.40	16.25	16.61	2.21
Rajasthan	2.63	2.98	12.99	8.12	9.31	14.62
Uttar Pradesh	9.66	9.75	0.94	28.33	27.93	−4.77
Uttarakhand	0.38	0.34	−9.89	0.85	0.81	−4.64
West Bengal	0.32	0.29	−8.33	0.85	0.80	−5.94
Others	0.04	0.04	−20.64	0.12	0.12	−3.54
All India	29.04	30.54	5.16	87.39	94.57	8.22

Table 1.

Statewise quinquennial normal of region and creation of wheat.

State/UT	2008–2009 to 2012–2013	2013–2014 to 2017–2018	Change (%)
India	3009	3100	3.03
Punjab	4617	4738	2.61
Haryana	4544	4407	-3.01
Others	3083	3331	8.05
Rajasthan	3038	3133	3.12
Gujarat	2845	2922	2.69
Uttar Pradesh	2724	2867	5.23
Madhya Pradesh	2698	2843	5.38
West Bengal	2241	2754	22.90
Uttarakhand	2144	2375	10.76
Bihar	2091	2339	11.87
Jharkhand	1790	2005	12.01
Himachal Pradesh	1602	1911	19.28
Jammu and Kashmir	1511	1656	9.58
Maharashtra	1466	1400	-4.53
Assam	1180	1373	16.39
Chhattisgarh	1149	1328	15.59
Karnataka	914	1057	15.64

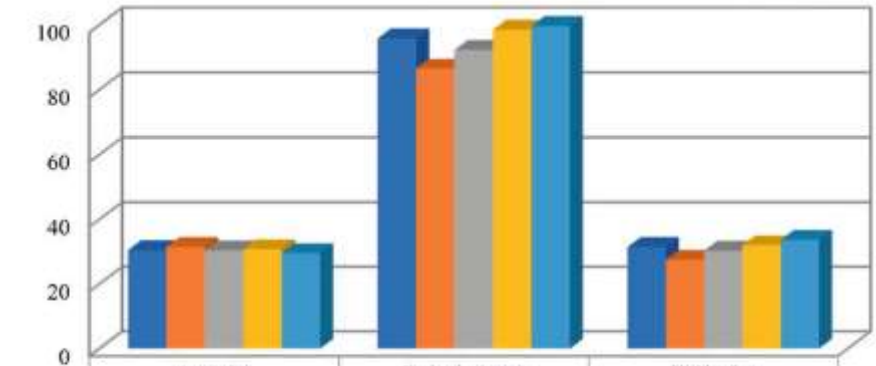
Table 2. Statewise quinquennial normal of wheat yield (kg/ha).

From 2012–2013 to 2017–2018, wheat production increased by 7.18 million tonnes, from 87.39 to 94.57 million tonnes (8.22 percent). As a result of increased area and marginal productivity, production has increased primarily due to this factor. About 28 million tonnes of wheat are produced in Uttar Pradesh, which accounts for about 30 percent of the total production in India. Traditional wheat-developing areas like Uttar Pradesh, Punjab, Haryana, Madhya Pradesh, Bihar, and Rajasthan have delivered around 85 million tons of wheat. An almost twofold expansion underway from 9.45-16.32 million tons to 0.22-0.38 million tons was kept in Madhya Pradesh and Jharkhand, separately. Notwithstanding, in Uttar Pradesh, 1.4 million tons of decrease was noticed, which is a big deal concern.

Between 2012-2013 and 2017-2018, the public wheat efficiency pattern showed a slight improvement, ascending from 3009 kg/ha to 3100 kg/ha (Table 2). Reception of high-yielding assortments alongside different data

sources has brought about this ascent in efficiency. Punjab and Haryana, two customary wheat-developing states, produce more per capita than the remainder of the country. Modern wheat-developing states like West Bengal (23%), Himachal Pradesh (19.28 percent) and Assam have seen the best expansion in efficiency (16.39 percent). In any case, the decrease in Haryana's efficiency has raised genuine worries.

Information from India's Quinquennial Wheat Area, Production, and Yield shows an abatement in crop grounds to 29.58 million hectares (Figure 1). Nonetheless, wheat creation has risen fundamentally from 95.85 million tons to 99.70 million tons over the past few years. Wheat-growing regions saw an increase in production as a result of a rise in productivity.



	Area(mha)	Production(mton)	Yield (q/ha)
2013-14	30.47	95.85	31.45
2014-15	31.47	86.53	27.50
2015-16	30.42	92.29	30.34
2016-17	30.79	98.51	32.00
2017-18	29.58	99.70	33.71

Figure 1. Quinquennial scenario in area, production and yield of wheat.

2. Production constraints and challenges for wheat production

Constraints on production are various and shift among harvests and locales. A portion of the significant difficulties to edit creation incorporate a developing populace, a developing interest for food, expanding contest for cultivable land and water system water as well as a silly utilization of assets, bug climate collaboration and a reducing normal asset base as well as a plateau in yields (Figure 2). Wheat production is particularly vulnerable to the effects of climate change, and these challenges are magnified because of this vulnerability.

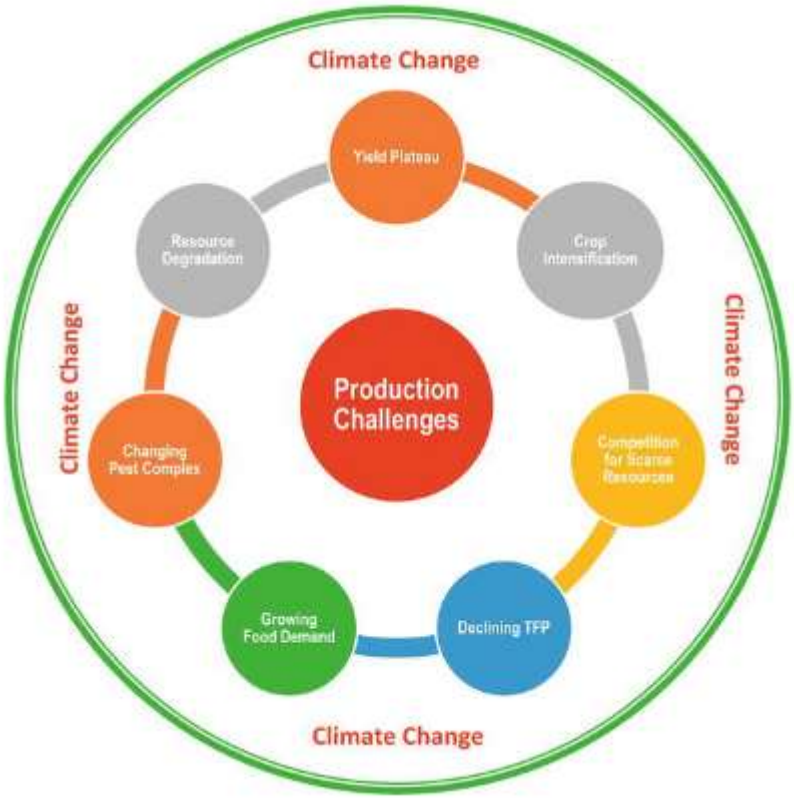


Figure 2. Production challenges in Indian setting.

2.1. Climatic vulnerability

An enormous piece of India's wheat region is under heat pressure, with the Gangetic fields and focal India being the most impacted, while northwestern pieces of Indo-Gangetic Plains are all the more reasonably impacted. Temperature swings are additionally quite possibly the most genuine ecological danger confronting Indian farming today, as they could have an effect on wheat production and availability in the country. Wheat production in India is expected to fall by 4–6 million tonnes for every 1°C increase in temperature. Every 2–3.5°C increase in temperature will result in a 9–25% loss in profit for rainfed wheat.

2.2. Excessive use of inputs and land resources

Wheat yields have increased significantly since the Green Revolution thanks to increased use of inputs, pesticides, and irrigation. Fertilizers, chemicals, and irrigation have depleted the groundwater table and depleted the soil's fertility. Soil quality deteriorated as a result of the monocropping system. There will be a severe shortage of natural resources in the country if the current trend continues.

2.3. Salt-affected and problematic soils

For canal-irrigated areas, there are nearly 4 million hectares of salt-affected wheat fields in India. Reclamation progress is sluggish, even with better soil amendments and better drainage. As a result, the yield of wheat will be drastically reduced.

2.4. Pest and disease complex

Wheat pests have become more resistant with each passing year, despite being tightly controlled in certain circumstances. New pests and diseases have emerged, putting a significant strain on wheat production.

2.5. Availability of improved seed

As a result, India's adoption system and germplasm distribution have been both formal and informal. 80 percent of all seeds are saved by farmers, despite the fact that new improved varieties are being developed and made available to farmers by NARS around. In addition, many farmers in India are unaware of new wheat varieties because of weak linkages in the supply chain. Development and distribution of new wheat varieties are essential to meeting production goals.

2.6. Price volatility

Agricultural commodity price volatility has recently drawn the attention of producers, consumers, and policymakers alike. Wheat production is threatened by price fluctuations, which have a negative impact on wheat growers' well-being. Furthermore, the fluctuation of wheat prices on the international market makes international trade more difficult to manage.

2.7. Decline in farm size

Another major concern for the country as a whole has been the decline in the size of farm holdings over the years. Farmland fragmentation due to the nuclear family system and urbanisation are to blame for this. There was an estimate of 1.16 hectares of operational land in India based on the agrarian registration (2010-2011). Punjab had the most noteworthy normal functional holding of significant wheat-developing states (3.77 ha), while Bihar had the least (0.39 ha). With regards to food creation and wheat creation, declining ranch size and land transformation to neighborhoods are the principle roadblocks.

2.8. Declining total factor productivity

Increasing utilization of data sources and asset administrations, joined with stale yield levels, has brought about declining absolute variable usefulness, which has turned into a central issue for policymakers. With rice-wheat being widely grown in intensive cropping areas, this is a major concern. Adopting better technologies and making optimal use of available resources can help combat this problem.

3. CONCLUSION

The transformation of agriculture is of critical importance for the development of the region. Multidisciplinary cutting-edge research is urgently required in order to foster predominant genotypes equipped for breaking the yield hindrance. Despite the fact that it is costly, innovative work is fundamental, and thus, more open and private cash ought to be designated to it. Moreover, the endeavors of augmentation faculty, who act as change specialists in the cultivating local area, should be monstrous. Reorienting cost approach, seed strategy, and credit strategy is crucial for help the present creation framework as well as the future advancement of the economy. Ranchers should have more noteworthy admittance to info and result markets, as well as a retooled conveyances framework, to increment crop usefulness. This cooperative energy will assume a significant part in accomplishing the ideal degree of creation as well as in ensuring food security for people in the future, on the overall basis.

References

1. 1.Nikos A, Jelle B. World agriculture towards 2030/2050: The 2012 revision. ESA Working Paper No. 12-03. Rome: Food and Agriculture; 2012

2. 2.Shiferaw B, Smale M, Braun HJ, Duveiller E, Reynolds M, Muricho G. Crops that feed the world 10. Past successes and future challenges to the role played by wheat in global food security. Food Security. 2013;5:291-317. DOI: 10.1007/s12571-013-0263-y

3. 3.USDA. United States Department of Agriculture [Internet]. 2018. Available from: http://www.fas.usda.gov [Accessed: January 22, 2019]

4. 4.Sharma I, Sendhil R. Domestic production scenario of wheat. In: Souvenir of Roller Flour Millers Federation of India Platinum Jubilee Celebration; 2015. pp. 18-20

5. 5.Sharma I, Sendhil R. Wheat Production in India—A Decadal Synopsis [Internet]. 2016. Available from: http://www.FnBnews.com [Accessed: 15 January 2019]

6. 6.Sharma I, Sendhil R, Chatrath R. Regional disparity and distribution gains in wheat production. In: Souvenir of 54th AIW&B Workers Meet; Gujarat: Sardarkrushinagar Dantiwada Agricultural University; 2015

7. 7.MoA&FW. Ministry of Agriculture and Farmers Welfare, Government of India [Internet]. 2018. Available from: https://eands.dacnet.nic.in/Advance_Estimate/4th_Adv_Estimates2017-18_Eng.pdf [Accessed: 25 December 2018]

8. 8.Sharma I, Sendhil R, Chatrath R.Deciphering the role of wheat production and protection technologies for food and nutrition security. In: Souvenir of 53rd All India Wheat & Barley Research Workers' meet and International Seminar on Enhancing Wheat & Barley Production with special emphasis on Nutritional Security; Jabalpur: Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV); 2014

9. 9.Sharma I, Sendhil R, Gupta OP, Singh R. Status of Wheat in India. In: Wheat: Recent Trends on Production Strategies of Wheat in India; Jabalpur and ICAR-IIWBR: Jawaharlal Nehru Krishi Vishwa Vidyalaya (JNKVV); 2014. pp. 1-13

10. 10.Sendhil R, Singh R, Sharma I. Exploring the performance of wheat production in India. Journal of Wheat Research. 2012;4:37-44

11. 11.ICAR-IIWBR. Vision 2050. Karnal: ICAR-Indian Institute of Wheat and Barley Research; 2015. pp. 1-48

12. 12.Sharma I, Chatrath R, Sendhil R. Challenges, target and strategies for sustainable wheat production for food security and nutrition. Indian Farming. 2013;63:3-6, 17

13. 13.Sharma I, Sendhil R, Singh R. India's food production towards 2050—Challenges, opportunities and strategies. Agriculture Today. 2013:146-151

14.14.Sendhil R, Balaji SJ, Ramasundaram P, Kumar A, Singh S, Chatrath R, et al. Doubling farmers income by 2022: Trends, challenges, pathway and strategies. Research Bulletin No: 40. Karnal: ICAR-Indian Institute of Wheat and Barley Research; 2018. pp. 1-54

15.15.Sharma I, Chatrath R, Kumar S, Sendhil R. The challenges of climatic drift on productivity of wheat in India. In: Subbaiah, Prajapati GV, editors. Water Management and Climate Smart Agriculture (Vol 1-3). Gujarat: Junagadh Agricultural University; 2015

16.16.Sendhil R, AnkitaJha AK, Singh S. Extent of vulnerability in wheat producing agro-ecologies of India: Tracking from indicators of cross-section and multi-dimension data. Ecological Indicators. 2018;89:771-780. DOI: 10.1016/j.ecolind.2018.02.053

17.17.Sharma I, Sendhil R, Venkatesh K. Managing risk in wheat production against weather anomalies. Agriculture Today. 2015:90-92

18.18.Singh GP, Chatrath R, Kumar S, Sendhil R. Impact of climate change on wheat production & strategies for ensuring food security in India. In: Souvenir Released during the International Conference on Climate Change Adaptation and Biodiversity; Port Blair: Ecological Sustainability and Resource Management for Livelihood Security; 2016

19.19.Joshi AK, Mishra B, Chatrath R, Ortiz Ferrara G, Singh RP. Wheat improvement in India: Present status, emerging challenges and future prospects. Euphytica. 2007;157:431-446. DOI: 10.1007/s10681-007-9385-7

20.20.Aggarwal PK. Global Climate Change and Indian Agriculture—Case Studies from the ICAR Network Project. New Delhi: Indian Council of Agricultural Research; 2009