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Status of Pulses Production in India-An Overview

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Abstract:

In India the production of all crops is different; therefore better food security and the importance of food grains are crucial. Mainly cereals, pulses and oilseeds are the main food grains used to improve all livelihoods in India. Therefore, to increase demand for food grains for better nourishment, pulses are very important for daily use in food items. It contains nutritional value, so the government is taking the initiative, to improve the quality of life of people. The inclusion of nutritional food items are provided with the help of enlarging the area of these crops to fulfill the requirements of all peoples in their daily lives. Pulse crops are the main source of protein, have great importance in nitrogen fixation in the land, and the government provides incentives to increase the area under these crops. In the MSP of the government, it provides incentive bonuses to farmers on MSP prices, and the production of pulses is crucial in all parts of India. India contributes near 25 % production of pulses at global levels, nearly 27 % of world consumption, and 14% of imports in the world. Pulses are grown on about 20% of the land used for food grains in India. They give around 7% to 10% of the total food grain production in the country. Pulses are healthy because they are low in fat and high in soluble fiber, which helps lower cholesterol and control blood sugar levels. This study is based on secondary data, which means the information was collected from reports, websites, and other published sources. The objectives of study are 1. to study the number of pulses that contributed production of food grains. 2. To study the contribution of different crops to the total production of pulses. 3. To study the contribution of each state to pulse production in India. 4. To study the number of pulses available per person in India. This study evaluates the pulses contribution in India.

Keywords: India's Status of Pulses Production, Share of Pulses in Total Food grains, Crop Contribution to Total Pulses production, States' Contribution Total Pulses in India, Per capita availability of Pulses in India

Introduction:

People in India do not eat enough protein, fruits, or vegetables. A survey found that 73% of city residents don't obtain enough protein. Pulses are a great source of protein for vegans and vegetarians, as they contain approximately 20% to 25% proteins by weight. It has twice amount of proteins found in wheat three times more than in the rice. The top five pulse-producing states are Rajasthan, Madhya Pradesh, Maharashtra, Uttar Pradesh, and Karnataka. Among these, Madhya Pradesh produces 22% of the total pulses, Maharashtra and Rajasthan each produce 16%, and Uttar Pradesh produces 10%. However, India's current pulse production is not sufficient to meet the demand, so the country imports pulses to compensate for the gap.

The government is now encouraging farmers to grow more pulses instead of just cereal crops as part of its plan to increase farmers' income. India grows 25% of the world's pulses, but its share of total food grain production in the country has dropped from 16% in 1950 to just 8% in 2022–23. This indicates a large mismatch between the demand and supply of pulses in India. Pulses are important for health and the environment. They improve soil support for sustainable farming and quality. As more people shift to vegetarian and vegan diets, pulses are becoming more important as low-carbon, protein-rich foods. They are a key part of the Indian diet and are especially important for providing protein to a diet that is otherwise high in carbohydrates. India is the largest producer and largest consumer of pulses in the world.

Objective:

1. To determine the number of pulses that contribute to total food grain production in India.

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2. To understand how different types of pulse crops contribute to the total pulse production.
3. To examine how much each state contributes to the total pulse production in India.
4. To study how many pulses are available per person in the India?

Research Methodology;

This research study was mainly based on the secondary data. The secondary data were collected from various sources such as previous study, governmental report, and data from various resources.

India's status of pulse production

Pulses are a vital part of Indian agriculture and nutritious land. As a major source of protein, vitamins, and micronutrients, they play a vital role in addressing the nutritional needs of large populations, especially in countries where many people rely on plant-based diets. The main pulses grown in India are chickpeas (chana), pigeon peas (tur or arhar), mung beans, urad beans (black gram), lentils (masoor), peas, and some other small types of beans. One of the unique features of pulse cultivation in India is that pulses are grown across all three major crop seasons. During the Kharif season (monsoon), important crops include pigeon pea, cowpea, black gram, green gram, horse gram, and moth bean. During the Rabi season (winter), chickpeas, lentils, peas, lathyrus, and rajmash are the main crops. The summer season is mainly used to grow green gram, black gram, and cowpea. This seasonal flexibility makes pulses an important crop for farmers worldwide.

India is the largest producer and consumer of pulses in the world, with more than 35 million hectares of land under pulse cultivation. The country accounts for 37% of the world's area under pulse and produces approximately 29% of the global total. According to data from 2021 to 2022, India has made

Contribution of pulses to food grains basket

(Area-Million ha, Production-Million tones, Yield-kg/ha)

Year	Pulses			Food Grains			Pulses Share to Food grains (%)	
	Y	P	A	Y	P	A	A	P
2021-22	888	27.30	30.73	2425	315.62	130.17	24	09
2020-21	885	25.46	28.78	2394	310.74	129.80	22	08
2019-20	823	23.03	27.99	2343	297.50	126.99	22	08
2018-19	757	22.08	29.16	2286	285.21	124.78	23	08
2017-18	853	25.42	29.81	2235	285.01	127.52	23	09
2016-17	786	23.13	29.45	2129	275.11	129.23	23	08
2015-16	655	16.32	24.91	2041	251.54	123.22	20	06

Source: DES, Ministry of Agriculture, Government of India.

From 2015–16, the area used to grow pulses in India was 24.91 million hectares, and the total production was 16.32 million tons. The average yield (productivity) was 655 kg per hectare. In the same

significant progress in pulse productivity, reaching 932 kg/ha, up from 786 kg/ha in 2016–2017. This marks a 13% increase in productivity and an 18% increase in total production, the highest growth recorded from 2016 to 2017. Despite this progress, India still faces a mismatch between the pulse demand and supply. Currently domestic production is not sufficient to meet the growing nutritional and dietary needs of the population. Consequently, India continues to import pulses to bridge this gap. This issue is especially concerning given the country's nutritional challenges, where a large section of the population, especially low-income and small-scale households, suffers from protein deficiency and poor dietary diversity. To address these concerns, the Indian government is promoting nutrition-sensitive agriculture, with a strong focus on increasing pulse production. Pulses are recognized not only for their nutritional value but also for their environmental benefits. They help to improve soil health through nitrogen fixation, support intercropping, and contribute to sustainable farming practices. With the growing popularity of vegetarian and vegan diets, pulses are seen as a sustainable, low-carbon food choice for the future.

Pulses share to total food grain basket:

The share of pulses in the total food grain production remained between 8% and 9% until 2016–2017. The government took several steps to support both farmers and consumers, such as better support prices and improved farming support. Because of these efforts, the share of pulses has gone up by approximately 2–3% since 2015–16. In addition, the area used for growing pulses has increased and remained between 25 and 30 million hectares (Mha) since 2015–16.

year, the area under all food grains was 123.32 million hectares, with a total production of 251.54 million tonnes and a yield of 2041 kg per hectare. Pulses made up 20% of the total food grain area, but only 6%

of the total production. By 2021–22, there was a noticeable improvement. The area under pulses increased to 30.73 million hectares, production rose to 27.30 million tons, and the yield improved to 888 kg per hectare. At the same time, the area under food grains was 130.17 million hectares, with a total production of 315.62 million tonnes and a yield of 2425 kg per hectare. In this year, pulses accounted for 24% of the total food grain area and 9% of the total production. This clearly shows that from 2015-16 to 2021–22, the area, production, and yield of pulses increased. The share of pulses in the total food grain

area and production also increased during this period, reflecting positive growth.

Crop and Seasonal Contribution to Pulses Production (2017–18 to 2021–22)

Among all the pulse crops, gram (chickpeas) is the largest contributor, accounting for 47% of the total pulse production. This is followed by Tur (pigeon pea) – 15%, moong (green gram) – 12%, Urd (black gram) – 10%, lentil (masur) – 5%. These crops constitute the majority of India's pulse production. Detailed data on area, production, and yield (APY) by crop shows the important role each plays in the overall pulse output.

Crop Input to Total Pulses production

(Area-lakh hectares, Manufacture -lakh Tones, Yield-kg/ha)

CROP	Normal (2021-22 to 2017-18)			Contribution (%)	
	Area	Manufacture	Yield	Area	Manufacture
Urd	48.38	27.28	564	16	11
Tur	46.29	40.07	866	16	16
Lentil	14.19	13.43	947	05	05
Mung	48.32	26.48	546	17	11
Gram	101.08	115.70	1145	34	47
Other Kharip Pulses	17.62	7.61	432	06	03
Other Rabi Pulses	16.86	16.01	949	06	07
Total Kharip Pulses	139.70	84.34	604	48	34
Total Rabi Pulses	153.25	162.22	1059	52	66
Total	292.94	246.56	842	200	200

Source: DES, Agriculture Ministry & FW (DA&FW), Govt. of India.

From 2017–18 to 2021–22, gram (chickpeas) was the most important pulse crop in India. During this period, the area under gram cultivation was 101.08 lakh hectares, total production was 115.70 lakh tons, and the average yield was 1145 kg per hectare. Looking at the seasonal contribution, the total area under Kharif pulses was 139.70 lakh hectares, with a production of 84.34 lakh tonnes and an average yield of 604 kg per hectare. Kharif pulses made up 48% of the total pulse area but only 34% of the total production. On the other hand, Rabi pulses covered a slightly larger area of 153.25 lakh hectares, produced 162.22 lakh tonnes, and had a higher average yield of 1059 kg per hectare. Rabi pulses contributed 52% to a total pulses area, 66% of the total pulses production. This data shows that among all pulse crops, gram plays the biggest role in both area and production. After gram, tur (pigeon pea) and moong (green gram) also make important contributions. Overall, Rabi pulses overall contribute more than Kharif pulses, both in terms of area and production.

States' Contribution Total Pulses Scenario: Normal (2017-18 to 2021-22)

In India, the total area used for growing pulses is approximately 293 lakh hectares, and the total production is approximately 247 lakh tonnes. Of these, Madhya Pradesh alone has more than 58 lakh hectares under pulse cultivation. This makes Madhya Pradesh the top state in pulse production, contributing approximately 20% of the total pulse area in India and producing 24% of the country's pulses. It ranked first in both area and production. Following Madhya Pradesh, the other major pulse-producing states are Rajasthan and Maharashtra, each contributing 16% of the area, and Uttar Pradesh contributing 10%. Together, these four states hold a major share of the country's pulse farming. More than 90% of India's total pulse production comes from just ten states: Maharashtra, Madhya Pradesh, Rajasthan, Gujarat, Andhra Pradesh, Uttar Pradesh, Karnataka, Jharkhand, Tamil Nadu, and Telangana.

States Contribution in Area & Production – Total Pulses

{Area-lakh ha, production-lakh tons, yield-kg/ha}

S.no	States	Area	% Input	Manufacture	% Input	Yields
1	Rajasthan	60.36	21	39.93	16	662
2	Madhya Pradesh	58.10	20	58.51	24	1007

3	Maharashtra	44.05	15	38.22	16	868
4	Karnataka	31.61	11	19.83	08	627
5	Uttar Pradesh	23.46	08	24.30	10	1036
6	Andhra Pradesh	12.91	04	10.55	04	817
7	Gujarat	11.26	04	14.34	06	1273
8	Tamil Nadu	8.21	03	5.37	02	654
9	Jharkhand	8.06	03	8.38	03	1040
10	Telangana	5.57	02	5.34	02	958
	others	29.34	10	21.79	09	742
	All India	292.94	87	246.56	98	842

Source: DES, Ministry of Agriculture. & FW (DA&FW), GoI. Normal Area & Prod. (2017-18 to 2021-22).

The table shows the contribution of different states in India to the total area and production of pulses from 2017-18 to 2021-22. At the all-India level, the total area under pulses was about 292.94 lakh hectares, with a production of 246.56 lakh tonnes and an average yield of 842 kg per hectare. Madhya Pradesh is the leading state in pulse cultivation, with an area of 58.10 lakh hectares, which is 20% of the total pulse area in India. Its production was 58.51 lakh tonnes, contributing 24% of the country's total pulse production. Rajasthan comes next with 60.36 lakh hectares under pulses, contributing 21% to the total pulse area, and producing 39.93 lakh tonnes, which is 16% of India's total pulse production. Maharashtra has 44.05 lakh hectares of pulse crops, making up 15% of the total area, and produces 38.22 lakh tonnes, which is 16% of the national production. Uttar Pradesh has 23.46 lakh hectares under pulses, contributing 8% to the total area, and produces 24.30 lakh tonnes, which is 10% of India's total pulse production. Other important states and their share in total pulse area

include Karnataka (11%), Gujarat (4%), Andhra Pradesh (4%), Jharkhand (3%), Tamil Nadu (3%), Telangana (3%), and others (10%). In terms of production, these states contribute as follows: Karnataka (8%), Gujarat (6%), Andhra Pradesh (4%), Jharkhand (3%), Tamil Nadu (2%), Telangana (2%), and others (9%).

Per capita availability of pulses in India

The daily number of pulses available per person in India was 43 gm in 2013. This is expected to increase slightly to approximately 45 grams by 2021. Similarly, the yearly availability of pulses per person has also increased, from 15.8 kilograms in 2013 to 16.4 kilograms in 2021. The largest increase happened around 2017-18. According to the Food Security Act (FSA) of 2013, to give proper nutrition to people who eat only vegetarian food, each person should get 55 grams of pulses every day, which adds up to about 20 kilograms in a year.

Per capita availability of pulses in India

Year	Pulses Availability	
	Kg per capita per year	G per capita per day
2013	15.80	43.29
2014	16.90	46.30
2015	16.00	43.84
2016	15.70	43.01
2017	20.00	54.79
2018	18.70	51.23
2019	17.20	42.47
2020	17.50	43.84
2021	16.40	44.93

Source: Directorate of Economics and Statistics, min. of Agriculture & FW, GoI, (DA&FW) Department of Agriculture and Farmer Welfare.

India's Imports and Exports of pulses

(Quantity – Lakh tonnes, Values -Crore)

Year	Import		Export	
	Import Value	Import Quantity	Export Value	Export Quantity
2017-18	19548.42	56.08	2888.06	1.79
2018-19	7232.73	23.91	1721.60	2.74
2019-20	9235.97	27.23	1147.45	1.90
2020-21	10923.13	23.16	1639.50	2.32
2021-22	14131.30	25.18	2023.63	3.12

Source: DGCI&S, Ministry of Commerce & Industry, Kolkata State.

Pulses are an important crop because they play a significant role in keeping people healthy and well-nourished. The table shows imports and exports

of pulses in India from 2017-18 to 2021-22. In 2017-18, India imported 56.08 lakh tonnes of pulses, which cost approximately 19,548 crore rupees. During

the same year, India exported 1.79 lakh tonnes of pulses worth 2,888 crore rupees. By 2021-22, the import of pulses had decreased to 25.18 lakh tonnes, with a value of 14,131 crore rupees. The export of pulses increased to 3.12 lakh tonnes, valued at 2,024 crore rupees. This means that during this period, the import of pulses decreased, whereas exports went up.

Result and Discussion

1. The productivity of pulses increased by 13% during 2020-21 and 2021-22 compared to 786 kg per hectare in 2016-17. Production grew by 18% in 2021-22 compared to 2016-17, which was the highest growth in that period.
2. From 2015-16 to 2021-22, the area, production, and yield of pulses increased. The share of pulses in the total food grains also increased during these years.
3. Among all pulse crops, gram (chickpeas) contributes the largest share in both area and production, followed by tur (pigeon pea) and mung beans. Pulses grown in the rabi season mostly contribute to the total pulses area and production.
4. More than 90% of all the pulses grown in India come from 10 main states. These are Maharashtra, Madhya Pradesh, Uttar Pradesh, Rajasthan, Karnataka, Gujarat, Andhra Pradesh, Jharkhand, Telangana, and Tamil Nadu.
5. The daily per capita availability of pulses in India was 43 gms in 2013 and has increased to 45 Gms by 2021. The yearly per capita availability also rose from 15.8 kg in 2013 to 16.4 kg in 2021.
6. In 2021-22, India imported 25.18 lakh tonnes of pulses worth 14,131 crore rupees. During the same year, it exported 3.12 lakh tonnes worth 2,024 crore rupees. This shows that imports decreased while exports increased during this period.

Conclusion:

Pulses are edible seeds of leguminous plants and play a very important role in agriculture and nutrition including in India. Pulses are a major source of proteins for millions of people. Pulses are very important because they have 20% to 25% protein by weight. This is about twice as much protein as wheat and three times more than rice. In addition to being nutritious, pulses also help the environment. They improve soil health by fixing nitrogen naturally, which reduces the need for chemical fertilizers. This process also helps fight climate change by lowering greenhouse gas emissions. Owing to these benefits, pulses are an important part of sustainable farming systems that aim to protect the environment while providing healthy food for people.

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Conflicts of Interest

The author states that he has no conflicts of interest related to the publication of this paper.

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