क्वीयर लोगों को मानसिक और प्रायोगिक रूप से समर्थन करता है, सहारा देता है उनको Ally कहते है। दूसरा'A'एसेक्सुअल के लिए जो किसी से भी लैंगिक रुझावनहीं रखता, उन लोगों में सिर्फ रुमानी रुझाव होता है। 'P' पनसेक्सुअल शब्द का संक्षेप है, जो blsexual शब्द से अर्थ व्यप्ति में अलग है, ऐसे एक व्यक्ति को किसी भी चीज से रुझाव हो सकता है। '2S' दो स्पिरिट या दो आत्माओं के लिए खड़ा है, जो व्यक्तित्व, लैंगिकता और जेंडर आइडेंटिटी में LGBTQIA+ में प्रतीक इस तथ्य को दर्शाता है कि कई यौन अभिविन्यास और लिंग पहचान हैं जो व्यापक LGBTQIA+ समुदाय का हिस्सा हैं I इन सब विभागों के लिए क्वीर एक अवारित शब्द है I

क्वीर एक सिद्धांत के रूप में सामाजिक रूप से स्थापित मानदंडों और द्वैतवादी श्रेणियों पर सवाल उठता है I क्वीर सिद्धांत के अंतर्गत, पुरुष वर्चस्व वाले समाज में स्त्री के साथ, सवर्ण द्वारा किया जाने वाले उत्पीड़नों में दलितों के साथ, बहुतायत की भयानकता भरे व्यवहार में अल्पसंख्यक के साथ, क्वीर फोबिक समाज में क्वीर मनुष्यों के साथ खड़े होना आता है, और इन सब के लिए क्वीर सिद्धांत आवाज़ उठाता है।

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Analysis of Production and Growth pattern of Lentil Pulse crops in the state of Madhya Pradesh

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Abstract- *Pulse crops are an important and essential part of Indian diet. Lentil pulse crop become more important due to its rich nutritive value. Lentil production reached an all-time high of 1.61 million tons (Mt) over an area of 1.55 million hectares (Mha), with a record productivity level of 1,034 kg/ha in the year 2017-18 in India. The crop was cultivated on 14 lakh hectares (Lha), with Madhya Pradesh leading in both area and production and ranked first in India, contributing 35% in each category during 2016-17 to 2020-21. To estimate the trend coefficient of area, production and yield of lentil pulse crop computed the annual compound growth rate in the state of Madhya Pradesh. The result revealed that the growth of this pulse crop was time constant during the present study.*

Key word- Pulse crop, Nutritive value, trend coefficient, growth in area, production and yield.

Introduction- Pulses are a vital food crop worldwide, known for their high protein content. In India, they play a crucial role not only in the diet but also in the economy, contributing significantly to exports and yielding substantial financial gains. As a major source of protein, pulses are integral to the Indian diet, complementing the carbohydrate-rich meals consumed by people across all demographics. India stands as the largest producer and consumer of pulses globally. With a protein content ranging from 20 to 25 percent by weight, pulses offer double the protein of wheat and triple that of rice. Globally, pulses are cultivated on approximately 93.18 million hectares (Mha), with a production of 89.82 million tons (Mt) and an average yield of 964 kg/ha. India, with over 28 Mha dedicated to pulse cultivation, is the world's leading producer, accounting for 31 percent of the global area and 28 percent of total production. (Annual Report, 2021-22)

The substantial and noticeable upward trends in pulse production during 2016-17, 2017-18, and 2020-21—reaching 23.13 Mt, 25.42 Mt, and 25.46 Mt, respectively—are remarkable success stories. Pulse

productivity increased by 13 percent to 885 kg/ha in 2020-21 and by 9 percent to 853 kg/ha in 2017-18, compared to 786 kg/ha in 2016-17. Overall, production growth achieved a 10 percent increase over the 2016-17 levels. (Annual Report, 2021-22) Madhya Pradesh occupied 60.74 lakh hectare area of pulses and its contribution in India was 21%, Pulses production was 59.70 lakh tons and country level contribution approx. 25% and yield was 983 kg/ha during the period of 2016-17 to 2020-21. Lentil production reached an all-time high of 1.61 million tons (Mt) over an area of 1.55 million hectares (Mha), with a record productivity level of 1,034 kg/ha in the year 2017-18. The top six lentil -producing states were Madhya Pradesh (0.68 Mt), Uttar Pradesh (0.50 Mt), West Bengal (0.15 Mt), Bihar (0.14 Mt), Jharkhand (0.06 Mt), and Rajasthan (0.03 Mt). The crop was cultivated on 14 lakh hectares (Lha), with Madhya Pradesh leading in both area and production and ranked first in India, contributing 35% in each category shown in table no. 1. It was followed by Uttar Pradesh, West Bengal, and Rajasthan, each contributing 12% and 11%. (Annual Report, 2021-22)

Table 1: Area, productio

	M.P.	All India	Rank
Area	4.93(35%)	14.29	1st
Production	4.73(35%)	13.34	1st
Yield	959	934	3rd
Parenthesis shows the share of percentage			

Source – Annual Report 2021-22, DPD Bhopal

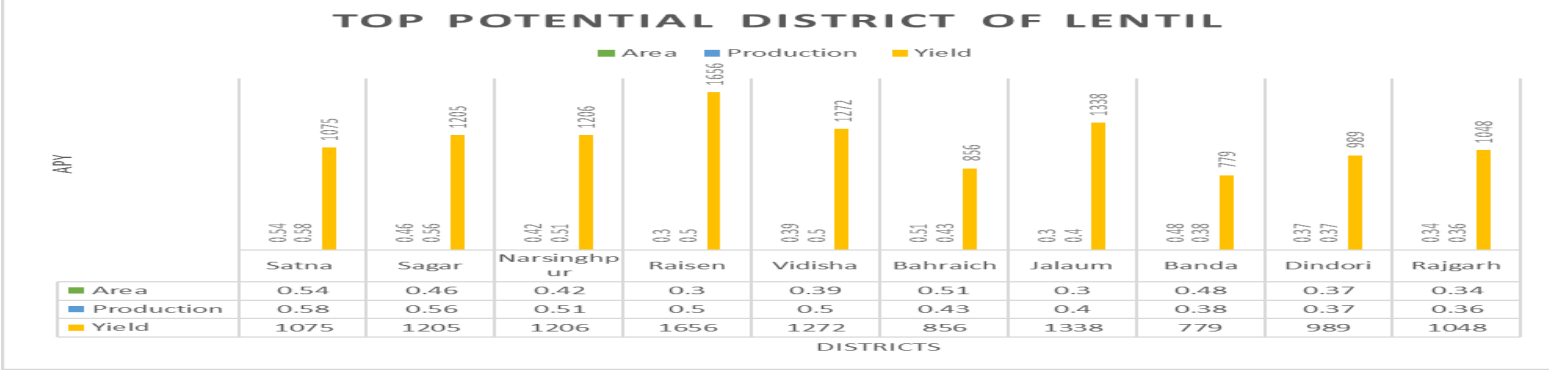
Table 2: Nutritive value of Lentil Pulse Crop

Protein	24-26%	Carbohydrate	57-60%
Phosphorus	300mg/100mg	Calorific value	343-346 kcal/100g
Fat	1.3%	Vitamin C	10-15mg/100g
Dietary	11-12%	Vitamin A	(450 IU) and Riboflavin
Calcium	69mg/100mg	Iron	7mg/100mg

Source- Pulses in India: Retrospect and Prospect Report 2018, DPD Bhopal

This crop is a valuable food source, primarily consumed as dry seeds, either whole, decorticated, or split. In the Indian subcontinent, it is commonly prepared as 'Dal' by removing the outer skin and separating the cotyledons. It is also used in snacks, soups, and other dishes. Known for being easy to cook and highly digestible, it is often recommended for patients due to its high biological value. Additionally, the dry leaves, stems, and broken pods serve as nutritious cattle feed. Grains that are bold, well-shaped, and visually appealing are in high demand for export, often fetching premium prices.

Chart 1: Top Potential districts of Lentil in area (Lha), Production (Lt) and Yield (Kg/ha)



Source- Directorate of Pulses Development Bhopal (M.P.)

Chart 1 shows the Inter district analysis in the country. The above presented chart revealed that district Satna of M.P. with 5.39% of production has the highest share followed by Sagar (5.18%), Narsinghpur (4.71%) and Raisen (4.62%) of M.P. District-wise area, production and yield of top ten district of India in respect of production are presented below which contributed 29.56 per cent and 42.53 per cent of area and production of the country.

Objectives of the paper:

The main objectives of the paper are:

To analyze the trend and growth rate in area, Production and yield of lentil pulse crop in Madhya Pradesh.

A comparative study of lentil pulse crop production between states and country.

Hypothesis: -H_0: There is no trend and Growth rate of area, production and yield in lentil pulse crop in the state of Madhya Pradesh.

H_1: There is a positive trend and growth rate of area, production and yield in lentil pulse crop in the state of Madhya Pradesh.

Sources of Data -To fulfill the objective of the present paper the secondary data has been used. The secondary data for the period of 1970-71 to 2014-15 on area, production, and yield of Lentil pulse crop in Madhya Pradesh was collected from the various sources like Indian Agricultural statistics, Agriculture statistics at a glance and E- pulses data book from ICAR- Indian institute of pulses research. State wise area, production and productivity data for the period of 2016-17 to 2020-21 compiled from directorate of economic & statistics, DA&FW as per fourth advance estimates and Directorate of Pulses Development Bhopal.

Research Methodology-The annual Compound growth rate statistical method was employed for the analysis and interpretation of data and fulfill the objectives of the present paper:

Compound annual growth rate (CAGR)-The compound annual growth rate was worked out the propensity of the variable to increase, decrease or stagnant over the period of time. It also indicates the magnitude of the rate of variation in the variable under consideration per unit of time. The Compound Growth Rate has been calculated with the help of exponential function which is as Exponential Function

$Y= ab^x$

Log Y = loga + Xlogb

CGR= Antilog (b-1) ×100

Result and Discussion -To estimate the trend and growth rate of area, production and yield of lentil pulse crop in the state of Madhya Pradesh was calculated annual compound growth rate. The result has been presented below

Table 3 Annual Compound Growth rate of Lentil in Madhya Pradesh

Variable	phase	Trend Coefficient	T- ratio	F-ratio	Sig
A	I short run (1970-71 to 1986-87)	1.000*	249.985	0.005	0.942
P		1.002*	123.343	0.048	0.000
Y		1.002*	151.681	0.102	0.754
A	II short run (1987-88 to 2003-04)	1.035*	209.212	52.336	0.000
P		1.032*	153.008	22.730	0.000
Y		0.997*	287.541	0.950	0.345
A	III short run (2004-05 to 2020-21)	0.994*	154.435	0.739	0.404
P		1.050*	75.717	13.699	0.002
Y		1.050*	84.181	20.969	0.000
A	IV long run (1970-71 to 2020-21)	1.016*	747.030	139.133	0.000
P		1.030*	494.955	217.771	.000
Y		1.014*	512.550	51.772	0.000
*-Significant at 1% level of significance					

Source-Compiled by researcher In this table analyzed the compound annual growth rate in lentil pulse crops for the period 1970-71 to 2020-21. This period divided into four phases.

The compound annual growth rate in area for the period 1970-71 to 1986-87 in area was 1.000 and statistically significant. the f- ratio reported with 0.005 and was found statistically insignificant, which suggest that the model was found insignificant. In the period 1987-88 to 2003-04 in area of lentil pulse crops in Madhya Pradesh the compound annual growth rate was 1.035 and statistically significant. the f- ratio reported with 52.336 and was found statistically significant, which stated that the model was found significant. the compound annual growth rate in area for the period 2004-05 to 2020-21 was 0.994 and statistically significant. the f- ratio was found insignificant, which suggest that the model was found insignificant. in long run series for the period 1970-71 to 2020-21 in area the compound annual growth rate was 1.016 and statistically significant the f- ratio reported with 139.133 and was found significant, which suggest that the model was found significant.

In above discussion suggest that the area growth rate model in 2nd and long run series was found significant. whereas, in rest of the case it was found insignificant. However, t-ratio of β coefficient was found significant in each case, which reveals the growth in area of lentil was timed constant.

For the period 1970-71 to 1986-87 in production of lentil pulse crops the compound annual growth rate was 1.002 and statistically significant. the f- ratio reported with 0.048 and was found statistically significant, which suggest that the model was found significant. In production of lentil pulse crops the compound annual growth rate for the period 1987-88 to 2003-04 was 1.032 and statistically significant. The f- ratio reported with 22.730 and was found significant, which suggest that the model was found significant. the compound annual growth rate in production of lentil pulse crops for the period 2004-05 to 2020-21 was 1.050 and statistically significant. the f- ratio reported with 13.699 and was found statistically significant because the value of P is 0.002 which is less than 0.005. which stated that the model was found significant. in long run phase in production for the period 1970-71 to 2020-21 the compound annual growth rate was 1.030 and statistically significant. the f- ratio reported with 217.771 and was found significant, which suggest that the model was found significant.

In this discussion suggest that the production growth rate model in 1st to long run series was found significant. The t- ratio of β coefficient was found significant in each case, which reveals the growth in production of lentil was time constant.

The compound annual growth rate in yield for the period 1970-71 to 1986-87 was 1.02 and statistically significant. the f- ratio reported with 0.102 and statistically insignificant, which suggest that the model was found insignificant. In the period 1987-88 to 2003-04 in yield of lentil pulse crops the compound annual growth rate was 0.997 and statistically significant. the f- ratio reported with 0.950 and was found insignificant, which suggest that the model was found insignificant. Yield of lentil pulse crops computed the compound annual growth rate for the period 2004-05 to 2020-21 was 1.056 and statistically significant. The f- ratio reported with 20.969 and was found significant, which suggest that the model was found significant. in long run series in yield of lentil pulse crops for the period 1970-71 to 2020-21 the compound annual growth rate was 1.014 and statistically significant. the f- ratio reported with 51.772 and was found significant, which suggest that model was found significant.

In the above discussion suggest that the yield growth rate model in 3rd and long run series was found significant. whereas, in rest of the cases it was found insignificant. however, the t- ratio of β coefficient was found significant in each case, which reveals the growth in yield of lentil was time constant.

Conclusion -Pulse crops are an important and essential part of Indian diet. Lentil pulse crop become more important due to its rich nutritive value. The present paper analyzed the area, production and yield status in the state of Madhya Pradesh. The study found that the growth in area of lentil pulse crop in Madhya Pradesh was statistically significant in each case. Which suggest that the growth rate of lentil pulse crop in this state was time constant during the study period. Production and yield growth of lentil pulse crop also registered positive and significant except some cases. Which suggest that the growth in production and yield of lentil pulse crop was time constant in the state of Madhya Pradesh during the study period. It is said as per the result of the study that in case of lentil pulse crop Madhya Pradesh is the dominant state in terms of area, production and yield. That's why it is known as Dalhan state in the country. With the help of study of the above study following policy recommendation are given:

- To increase level of awareness about various initiatives of the government.
- To provide certified seeds and fertilizers to farmers through proper channel.
- To provide the adequate level of power supply during the cultivation time of rabi pulse crop.

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