



# An Evaluation of Factors Affecting Pulses Production and Consumption in Bihar

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## ABSTRACT

Pulses are nature's precious gift to mankind as it supplements nutritional (protein) requirements of humans, feed to cattle, and nitrogen to the soil. Pulses are extensively grown world over and India ranks second in pulses production. State of Bihar contributes about 2.35 percent of area and 3.06 percent of production of the country, which is about 7-8 percent of the gross cropped area in the state. The productivity of pulses in Bihar ranged between 819 kg/ha in 2000-01 to 897 kg/ha in 2013-14. Pulses are mostly grown under rainfed conditions, on marginal lands, with poor level of input use which has resulted in low productivity and production. The study examines the trends of pulses production and consumption in Bihar. Findings reveal that an increase of 54.68 percent of production in triennium ending 2001-03 to 2012-14. The per capita availability of pulses is still 600 gram to 700 gram per capita per month which is very low compared to recommended levels. The study suggests various measures for improvement of pulses production as well as consumption level in the state through serious efforts by different stake holders who are involved in production, marketing and price determination of pulses.

**Keywords:** Pulses, Factors of Production, Consumption, Bihar

ARTICLE INFO	
Received on	: 18.08.2016
Accepted on	: 29.08.2016
Published online	: 14.12.2016

## INTRODUCTION

Pulses are nature's precious gift to mankind because this crop is supplement nutritious food to our vegetarian population as protein, feed for our cattle and also helping in improving soil health and productivity of other crops. The growth and development of human being is met with pulses still today and it from a vital part in the diet of poor as well as the rich (Singh *et al.*, 2010). Pulses are grown all over the world and account for almost 70 million hectares in area and above 45 million tonnes of production (Choudhary, 2013). Among the pulses producing countries, India ranks second and contributes about 20 percent to world production with 33 percent of pulses area; however it ranks a poor 98<sup>th</sup> in pulses productivity (Reddy, 2009). Pulses share in total food grain production has registered continuous decline from 17 percent in 1961 to below 7 percent in 2011. Data for 2014-15 shows that total production of pulses was 17.1 million tons in the country however the total demand during the same year was 23.6 million ton. In the year 2014-15 the country had to import around 4.6 million ton of pulses (Chand *et al.*, 2015). As per the recommendation of ICMR 65 gram/day/capita pulses are required but the availability was only 30 gram/day/capita during 2013-14. The reduction in per capita availability of pulses has been recorded since 1951 when availability was around 70 gm/day/capita (Singh *et al.*, 1993). The main reasons for continuous declining in per capita availability of pulses was mainly due to stagnation in pulses production around 17 to 18 million tonnes during the last five decades. In the period rapid increase in population of the country and black marketing and hoarding of pulses by traders also. The *Rabi* pulses in the state shows a dominant role in the production.

Due to urbanization, shift in dietary pattern, increase in income level, changes in tastes & preferences of consumer, the demand and consumption of pulses show an increasing trend. However, an abnormal increase in retail price of pulses restricts the consumption by low income group population (Singh *et al.*, 2010). Bihar, one of the important pulses growing and consuming state in India contributes about 2.35 percent of area and 3.06 percent production of pulses under 7-8 percent of the gross cropped area (Chaudhary *et al.*, 1990). The productivity of pulses ranges between 819 kg/ha in 2000-01 to 897 kg/ha in 2013-14. The most of pulses crops are grown in marginal lands so the production and productivity has tended to stick to a certain level (Singh *et al.*, 2014). It is mostly grown in rainfed condition and resulting high yield fluctuation every year (Singh *et al.*, 2013). This is with the above consideration in view the present study has been taken up with the following objectives:

- To examine the trends of pulses production and consumption in Bihar,
- To analyse the factors affecting the production and consumption of pulses in Bihar and
- To suggest policy measures to boost production and consumption of pulses in Bihar.

## MATERIALS AND METHODS

The study is based on secondary data to find out the reasons of stagnation or declining trends of production as well as consumption in the state and for suggesting suitable policy measures. The time series data for crop year 2001 to 2014 on pulses production and consumption was collected from various published sources to see the trends in production and consumption in the state of Bihar.

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## RESULTS AND DISCUSSION

### Background of the State

The state of Bihar is one of the backward states of India and is on path of high growth since the year 2002. As per 2011 census the total population of the state was 103.8 million. About 89.5 percent of the population lives in rural areas and only 10.5 percent in urban areas (Census, 2011). It shows high dependency of the population on agriculture sector. As per latest estimates around 33.74 per cent of population of the state lives below poverty line, while state possesses around 2.8 per cent of the total geographical area of the country with 8.0 per cent of the total population. As per one estimate around 50 lakh of people in the state migrate every year to earn their livelihood. About half of the state population is malnourished. In the state most of the people are vegetarian and they met

their protein requirement through pulses. Because as use pulses are still a cheapest source of protein and it forms a vital part in the diet of poor and the rich. The pulses are used in various purposes like cattle feed, green fodder, concentrate for milch animals. However this crop facing a number of problems in production due to several reasons.

### Agricultural production in India and Bihar

India has made tremendous progress in the agricultural sector over the last 50 years but the situation of pulses does not show an encouraging progress during the period. There has been a sharp decline of Pulses have seen in acreage. The Agricultural production of principle crops in India have been presented in [Table 1](#)

**Table 1 :** Trends of Agricultural production of Principle crops in India

Items	Million tones		
	Triennium ending 2001 -2003	Triennium ending 2012-14	% Change
Total Food grain	197.74	259.64	(+) 31.30
Pulses	11.71	17.68	(+) 54.48
Oilseeds	18.68	30.31	(+) 67.00
Coarse Cereals	31.77	40.16	(+) 29.03
Sugarcane	296.01	351.18	(+) 18.58

Source : Pratiyogita Darpan, May 2016 p103.

The above table indicates that in India from triennium ending 2001-2003 to triennium ending 2012-14 a clear increase in total food grain, pulses oilseeds, coarse cereals and sugarcane but increase in pulses production was remarkable 54.48 per cent.

The release of 3<sup>rd</sup> advance estimate of D.A.C. in May, 2015 shows production of 251.12 million ton food grains & 17.38 million ton pulses. The agricultural production of principle crops in Bihar have been presented in [Table 2](#)

**Table 2 :** Production of food grains and pulses in Bihar

Year	In lakh mt.	
	Food grains	Pulses
2001 -02	121.34	5.32
2003 -04	112.18	5.59
2005 -06	108.94	4.98
2008 -09	126.70	5.27
2009 -10	100.76	4.59
2010 -11	108.19	4.67
2011 -12	177.62	5.19
2012 -13	176.39	5.42
2013 -14	135.23	4.47

Source: Economic survey of Bihar (2015) p31

Perusal of [Table 2](#), shows that the production of food grains & pulses in Bihar since 2001-02 to 2013-14. The food grain production has observed higher fluctuation in production during the referred years. The pulses production almost stagnant or slight increase/decrease during the various years as referred under table. This indicates no definite trends in

production of food grain in the state while low fluctuation has been observed in case of pulses. The production of food grains & pulses in India and state of Bihar is found an increasing trend but high fluctuation. This is mainly due to vagaries of nature and climate change brought the production variation.

### Production of pulses in Bihar

During the last one and half decade several efforts were made from time to time for boosting the pulses production, but it

could not stabilize the productions which has been fluctuating every year. The [table 3](#) indicates the production of pulses in Bihar.

**Table 3:** Production of pulses in Bihar

Year	Thousand Tones		
	Kharif pulses	Rabi pulses	Total pulses
2000 -01	98.71	520.73	619.44
2001 -02	85.23	461.81	547.04
2002 -03	81.41	477.50	558.91
2003 -04	82.37	474.44	556.81
2004 -05	84.08	387.32	471.40
2005 -06	78.23	368.85	447.08
2006 -07	85.03	366.39	451.42
2007 -08	80.06	392.88	472.94
2008 -09	69.67	457.75	527.42
2009 -10	77.60	394.86	472.46
2010 -11	78.52	388.86	467.38
2011 -12	91.27	428.53	519.80
2012 -13	99.81	442.92	542.79
2013 -14	86.72	360.76	447.48

Source: Economic survey of Bihar (2015) p31.

The above table shows the production of kharif and *rabi* pulses in Bihar. The table indicates that in both season pulses production had been a decline trend in between 2000-01 to 2013-14. The production of the above pulses might have reduced probably due to the fact that mostly grown is rain fed conditions, susceptible to diseases and other risk factors

associated with the cultivation of pulses.

### Per capita consumption of food grains in Bihar

In the state of Bihar people are consuming cereals and pulses as a staple food. The per capita per month consumption of food grains is presented under [table 4](#).

**Table 4:** Per capita consumption of food grains

Year	In kg/month		
	Total cereals	Pulses	Total food grains
2000 -01	13.75	0.62	14.37
2003 -04	13.93	0.61	14.54
2005 -06	13.16	0.71	13.87
2008 -09	13.45	0.66	14.11
2011 -12	12.08	0.74	12.82
2013 -14	12.76	0.69	13.45

The [table 4](#) reveals that per capita consumption of total cereals, pulses and total food grains in Bihar. The table shows that the cereal consumption was on decline trend and pulses trends are almost stagnant. However the total food grain consumption was decline after 2010-11. As per the recommendation for a adult per month requirement of total food grains are 14.46 kg and Total pulses around 2 to 2.5 kg per month. The estimate shows that both pulses and total food grains are deficits from

the required amount. The pulses situation is worst. The table further indicates that the consumption of pulses marginally increase in past few years which may be due to rising per capita income in the state. The decline in cereal consumption may be due to shift in other foods due to taste and preferences of the people in the state. The scenario of national level shows an increase in pulses consumption 32.0 gm/day/person in 2001-02 to 41.9 gm/day/person in 2013-14 but below the

recommended level. This indicates a vast gap in between the recommended level and availability level of pulses in the state and nation also.

### Factors responsible for production & consumption of pulses in Bihar

#### Factors affecting production

The study finds that annual production of pulses has fluctuated between the range of 619 thousand ton to 447 thousand ton. The same trend has been observed across the kharif and rabi season pulses. During the referred period several efforts has been made to improve the pulses production in the state but the fluctuation and decline in pulses production continued due to:

- (1) Pulses crop production adversely affected due to insect and pest attack, diseases attack, etc. at large extent
- (2) Pulses generally grown under rain fed, unirrigated, and moisture stress conditions
- (3) Rain fall in general has been erratic, uncertain and unevenly distributed in Bihar over the years
- (4) Due to high rainfall in some part of the state caused water logging conditions, which were highly injurious to pulse crops and affects the production
- (5) Due to high temperature and low rainfall flower drops occurs in pulses and also high bud abortion occurs
- (6) The use of traditional variety of seed low level of seed replacement causes low productivity and production
- (7) Non-availability of early maturity and high yielding

- varieties affects the production level of pulses
- (8) Late supply of government assistance of pulses did not show positive impact on pulses production
  - (9) Lack of soil testing facilities, poor extension services, etc. affects the production of pulses (10) The shortage of money affects the recommended package of practise and use of Rhizobium culture at the large extent
  - (11) Majority of the farmers in the state were not maintaining sowing time, seed rate which affect the productions
  - (12) The anti-social elements destroyed gram, pea, and Khesari crop at every stage of growth and this affects the production level and
  - (13) Minimum sports price do not encouraging production level of pulses because market price always high as compare to MSP on pulses.

#### Factors affecting Consumption

In Bihar consumption of pulses showed an increasing trend during last one and half decade but the level of consumption is far lower than that of ICMR recommendation. Some possible reasons for lower consumption are:

- (i) A number of pulses like Tur (Arhar), Lentil (Masoor), Urd, Gram, Pea, Khesari, Moong, etc. are popular among the consumers, but their production is not adequate in the state.
- (ii) During the last one and half decades selling prices of the different pulses have increased significantly. As per the selling price of different pulses are represented under table no.5

**Table 5:** Selling Price of Some Popular Pulses in Bihar (Rs. Per Qtls)

Pulses	2001-02	2015-16
Gram	1442-1500	6700-7200
Arhar	2205-2300	11400-12900
Masoor	1390-1400	6400-7200
Moong	2325-2400	8000-9400
Urd	1131-1200	13500-14500
Khesari	915-1000	4500-5500
Pea	2100-2200	5000-6000

The data shows significant increase in pulses price during the referred period of 2001-02 to 2015-16. The table further indicates that in case of gram the prices increase from Rs.1442 to Rs.1500 per quintal in 2001-02 to Rs.6700-7200 per quintal in 2015-16. In case of Arhar the price increase from Rs 2205 to Rs 2300 per quintal in 2001-02 to Rs 11400 to 12900 per quintal in 2015-16 and the other crop under the reference also shows a remarkable increase in the price during the mentioned period.

- (iii) Majority of the pulses consumer are economically poor and not able to purchase pulses as required to them on the high market price
- (iv) The slight increase in consumption of pulses in the state is due to increase in income levels of the middle class
- (v) Around 42 per cent of the population in Bihar are still living below poverty line and they cannot afford to take

- (vi) pulses in their diet due to high prices
- (vi) Very low per capita income ultimately led to decline in consumption of pulses in general (vii) The annual growth rate of production of pulses is lower than the annual growth rate of population so high demand and low supply increases the price of pulses
- (viii) Lack of awareness regarding nutritional value of pulses among poorer sections of the society
- (ix) Larger low income families find it difficult to purchase and consume of pulses due to high cost involved and
- (x) The shifting behaviour of taste and preferences regarding non-vegetarian diet in the state reduces the consumption level of pulses in the state.

In Bihar, there is vast potential for increase in production as well as consumption of pulses. In terms of production the

pulses have shown either stagnant or slight positive and negative changes in production during the last one and half decade. This is mainly due to variation in productivity of different pulses. The susceptibility of pulses crop, low productivity, lack of extension services social and personal are the main factors which affect the pulses production in the state. The climate change, low use of irrigation, minimum use of fertilizers, less-use of plant protection measures, non-adoption of high yielding varieties, etc. are also affects the production level at the large extent in the state. However factors like soils, labourers, availability etc. are favourable for the production of pulses crops in the state. The overall production will be increased through productivity improvement and expansion of pulses area in total cropped area. Measures suggested for boost of production and consumption in the state are: (a) There is need to bridge the gap between demand and supply of pulses in the state by combat the losses occurred due to natural calamities, growers should be motivated for adopting proper package of practices of pulses, providing Soil testing facilities, extension backup,

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etc. needed for checking the increasing prices of pulses through strategic management so that consumer afford this crop at large extent and improve the consumption level.

#### CONCLUSION

The consumption level is continuously on increasing path but due to low level of production of different pulses in the state, a large portion of demanded pulses are imported from outside the state which causes increase in pulses price. Lack of awareness regarding health benefits of pulses, low purchasing power, higher family size group, low per capita income, unemployment, etc. are some of the crucial factors which affect the pulses consumption in the state. Recent initiatives by the state government in the field of pulses production have resulted in the increase in production and has had a positive impact on the consumption level too. There is an urgent need for sustained efforts to promote production of pulses in the state at the faster rate and also to popularize crop insurance to protect the pulse growers from the vagaries of nature.

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#### Citation:

Kumar Amalendu and Singh KM.2016.An Evaluation of Factors Affecting Pulses Production and Consumption in Bihar. *Journal of AgriSearch* **3**(4): 226-230