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Pulses Production and Trade Performance in India and Myanmar

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ABSTRACT

Background: Although India has always been the greatest producer of pulses, the Indian trade deficit in pulses has transformed several nations into important producers and exporters. Myanmar, with a prevalence of small farms mainly producing chickpea, pigeonpea, mungbean and urdbean, has risen as a major producer of pulses destined for export.

Methods: The data were collected for the time period 1970-2019 to work out trends in area, production and productivity of pulses for both countries. Similarly, data on the pulses trade for the period 1988 to 2019 was also collected for India and Myanmar to analyze growth of export and import of pulses. The outcome of the results are classified in two ways; growth rate (CAGR) and instability (CV%).

Result: Growth rate of pulses in India was found highest in period-V (2.45% in area, 3.83% in production and 1.4% in yield) whereas the growth rate of pulses in Myanmar was observed highest in period-III (10.9% in area, 12.93% in production). Myanmar's instability of pulses was found than India's in all decades except 2010-19. In case of export-import scenario, India's pulses import ranked first in the world due to meet the demand of increasing population.

Key words: Export, Growth rate, Import, Instability, Pulses, Trends.

INTRODUCTION

Pulses are an essential part of the Indian diet as they are a major source of protein. India is the largest producer and consumer of pulses accounting for 25 per cent of global production and 27 per cent of global consumption. Pulse production has been stagnating for nearly forty years as the pulses-grown area is under rain-fed and grown as a residual crop on marginal lands. The farmers are not enthusiastic about growing pulse crops due to the lower production and price risks and also due to the limited purchase by government agencies. Due to the increasing population, declining production of pulses and rising prices of pulses, the net per capita availability of pulses decreased sharply from 51.2 g/day in 1971 to 29.1 g/day in 2003 and increased again to 51.3 g/day in 2018 (Agricultural Statistics at a Glance, 2019). India currently produces approximately 23 million tons of pulses annually and is expected to achieve 39 million tons of pulses for self-sufficiency in India (IIPR Vision-2050). Myanmar, with a prevalence of small farms mainly producing chickpea, pigeonpea, mungbean and urdbean, has risen as a major producer of pulses destined for export. Pulses are important crops for all nationalities; they are nutritious and contain more protein than other food crops. Also, these are the exportable crops that mainly earn foreign income for trade. Although they can be grown at low cost, pulses are more profitable crops.

Although India has always been the greatest producer of pulses, the Indian trade deficit in pulses has transformed several nations into important producers and exporters. Until the late 1990s, India relied nearly exclusively on domestic pulse production and did not require large imports. Indian pulse imports are now rated first in the world due to an increasing population, declining yield and rising prices. The rate of growth of pulses yield is increasing mainly in Myanmar, even as worldwide demand for pulses in the most populated nation like India is increasing. By studying the growth patterns in area, production and yield of pulses in both nations, various policy initiatives to enhance production and to promote the trade of pulses are being undertaken. Policy makers need facts at the state of affairs of pulses production and on improved technologies for sustainable production of pulses with a purpose to formulate appropriate policies for helping pulses growers. The present study has undertaken with the following specific objectives: (1) to work out the trends in area, production and productivity of pulses and (2) to analyze the export-import scenario of pulses.

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MATERIALS AND METHODS

Secondary data were compiled for the time period 1970-2019 to work out trends in area, production and productivity of pulses for both countries. Data from INDIASTAT for India, Indian Institute of Pulses Research (IIPR) and Department of Agriculture (Myanmar) for Myanmar were extracted to determine growth rate and instability in the area, production and productivity of pulses. Similarly, data on the pulses trade from UNCOMTRADE and Central Statistical Organization for the period 1988 to 2019 was also collected

for India and Myanmar to analyze growth of export and import of pulses. The outcome of the results are classified in two ways; growth rate (CAGR) and instability (CV%). The results are presented with the decade-wise, which are 1) 1970-71 to 1979-80 (period-I); 2) 1980-81 to 1989-90 (period-II); 3) 1990-91 to 1999-2000 (period-III); 4) 2000-01 to 2009-10 (period-IV) ; 5) 2010-11 to 2018-19 (period-V) and from 1970-71 to 2018-19 (overall period).

RESULTS AND DISCUSSION

Trends in area, production and yield of pulses in India and Myanmar

The area, production and yield of pulses in India showed an increasing pattern during the year 1970 to 2019 (Table 1). The area and production of pulses in India showed increasing trend of pulses. Pulses area increased from 22,534 thousand ha to 29,156 thousand ha and production increased from 11,818 thousand tons to 22,076 thousand tons, respectively from the year 1970-71 to 2018-19. Martolia (2016) also revealed the same case in her finding that the area under total pulses increased in 63 years from 1951 to 2013 with an increasing growth rate indicating stagnation. The yield under total pulses also found to be increased in the same period from 524 kg/ha to 757 kg/ha. It was observed that pulses production have been increased mainly due to the improvement in their yield which was revealed by (Rimal *et al*., 2015).

In the case of Myanmar, the area and production under pulses increased during the period 1970-2019, from 574.98 thousand ha and 276.92 thousand tons in 1970-71 to 4,057 thousand ha and 5,290 thousand tons in 2018-19 respectively. The yield recorded impressive grow from 482 kg in 1970-71 to 1,304 kg in 2018-19. According to the National Export Strategy, the production of pulses grew rapidly with enhanced productivity with introduction of government liberalized economic policies after 1990. When we compared the fluctuations from year to year with India, the increasing trend of Myanmar remained higher than that of India while India was at a steady rate of increase. It can be recorded that the total pulses' yield in Myanmar was still higher than that of India even though India has a larger area and production in each period except in 1970-71. It may be due to the favorable climatic conditions in Myanmar along with the lower area compared to the area in India for pulses (Rimal, 2014). Therefore, it is also interesting to observe that the area, production and productivity percentage change in Myanmar has recorded higher growth in recent years due to demand of pulses in neighbouring countries like India.

Growth rate of pulses in India and Myanmar

In case of India, the growth rate in the total area under pulses was negative both in the 1980s and 1990s, while it was positive in other periods. Rapid growth in the production of chickpea was mainly due to higher growth of area in south India with the expansion of area under rice fallows (Reddy, 2010). CAGR of pulses was found the highest in period-V (2.45% in area, 3.83% in production, 1.40% in yield) as compared to other periods (Table 2). During this period, ISOPOM, NFSM and A3P programs were introduced in India. The production growth was positively significant in period-II, IV and V. The positive growth of production in period-II (1980s) was mainly due to the high productivity in the pulses as mentioned by Agbola (2003). Some executive government plans such as the National Pulses Development Program (NPDP) and Technology Mission were launched in this period. Agbola (2003) also revealed that the decline in domestic production in the period-III (1990s) was the result of major factors, namely, the decline in productivity and cultivated area, as a result of the drought that occurred in the mid and late1990s in India.

In case of Myanmar, CAGR was highest in Period-III, IV and V. Due to the increasing area expansion (10.90%) in

Table 1: Area, production and yield of pulses in India and Myanmar.

		1970-71	1980-81	1990-91	2000-01	2010-11	2018-19	Percentage change in 2018-19 over 1970-71
India	Area	22534	22457	24662	20348	26407	29156	29.39
			(-0.34)	(9.82)	(-17.49)	(29.78)	(10.41)	
	Production	11818	10627	14265	11076	18241	22076	86.80
			(-10.08)	(34.23)	(-22.36)	(64.69)	(21.02)	
	Yield	524	473	578	544	691	757	44.47
			(-8.87)	(15.24)	(-4.10)	(5.77)	(1.70)	
Myanmar	Area	574.98	688.81	829.96	2547.27	3889.42	4057.09	605.61
			(41.11)	(36.12)	(327.09)	(66.93)	(3.16)	
	Production	276.92	390.73	525.03	2005.17	5311.16	5290.46	1810.47
			(23.61)	(23.69)	(233.83)	(420)	(-1.52)	
	Yield	482	567	633	787	1366	1304	170.54
			(17.63)	(11.64)	(24.33)	(73.57)	(-4.54)	

Source: Indiastat, IIPR and DOA, 2019, Figures in parenthesis indicate decadal percentage change.
Area-Thousand hectares, Production- Thousand tons, Yield-kg/ha.

Period III, the growth of total pulses production was recorded the highest (12.93%). However, the productivity (5.80%) was found the highest in period-IV although area and production growth slightly declined in this period. Trade liberalization and strong export demand after the reform of the national economic policy were the reasons for the expansion of the area. Moreover, since 1988, agriculture in Myanmar has seen a departure from the closed trading system and before long; it has become Myanmar's largest export item which was revealed by Fujita and Okamoto (2006). When we compared the two countries, the growth in area, production and yield of Myanmar was remained higher than that of India. CAGR of area, production and yield of total pulses was found highly significant in all the periods in both countries.

Instability of pulses in India and Myanmar

In India, the variability of pulses in terms of productivity appeared with a downward trend from 9.19 per cent to 8.18 per cent from period - I to period -II (Table 3). The differences in the fluctuation of pulses productivity across the periods (period - I to period - IV) were narrowing because of lower fluctuations in the area as well as production. It could be due to the same status of technology and extension services for pulse cultivation mentioned by (Tuteja, 2009). The maximum fluctuation occurred in the most recent period (2010-2019). Otherwise, the instability of production and productivity was the lowest in 1990-2000 whereas minimum area instability was found in period-II (1980-1990).

Instability in Myanmar showed fluctuations in most of the periods. The maximum area (30.02%) and production (34.32%) fluctuations were found in period-III. This was in contrast to the case of India. Among these, the overall period recorded the highest instability with 72.65 per cent in the area, 98.41 per cent in production and 35.96 per cent in yield. Tuteja (2009) also observed the same trend in his study that variance across the entire period appeared highest from 1985-2005. Production variability was close to 100 due to technology adoption, market price instability and high export incentives during 2010-2019. When we compared with India, the instability of Myanmar situation in all periods was quite higher than that of India except for period-V (the last period).

Growth rate of pulses export and import from India

The fluctuation in the quantity of exports in India could be seen clearly at the beginning of 1988 to 1998 where the export of pulses grew at the rate of 21.78 per cent (Table 4). The increase in quantity import could be witnessed from 1988 to 1998, when total pulses import increased at the rate of 0.24 per cent per annum. The growth rate of imported quantity and value of pulses showed increasing with period-II (1998-2008) had the highest growth rate (22.67% in volume and 28.43% in value) and again decreased in the next period (2008-2019). The unit price of exported pulses mostly chickpea has consistently raised during the study period. Compared to exported value of pulses from other countries in the global market, the unit price of Myanmar, Australia and Canada for exported pulses was cheaper even than India. The unit value of imports was less than that of exports in period-I and III. This was also mentioned by Reddy (2004) that the unit value for imports was less than the unit value of exports, which indicates the low quality of imports compared with exports during the two periods. CAGR of pulses in terms of quantity and value was found highly significant in all the periods either export or import in India.

Table 2: Growth rate (CAGR) of pulses in India and Myanmar. (Per cent)

Period	India			Myanmar		
	Area	Production	Yield	Area	Production	Yield
Period-I	0.60*	-0.39*	-1.02*	-0.36*	3.15*	3.52*
Period-II	-0.06*	1.51*	1.57*	-1.20*	-0.51*	0.70*
Period-III	-0.60*	-0.20*	1.27*	10.90*	12.93*	1.76*
Period-IV	1.09*	2.71*	1.54*	4.87*	10.96*	5.80*
Period-V	2.45*	3.83*	1.40*	1.96*	2.05*	0.08*
Overall (1970-2019)	0.24*	1.25*	1.03*	5.60*	8.08*	2.25*

Source: Indiastat, IIPR and DOA (2019), *Significant at 1% level of significance.

Table 3: Instability (CV) of total pulses in India and Myanmar. (Per cent)

Period	India			Myanmar		
	Area	Production	Yield	Area	Production	Yield
Period-I	4.47	12.26	9.19	6.78	13.97	15.56
Period-II	3.41	8.53	6.92	10.03	18.45	13.98
Period-III	4.08	6.43	0.28	30.02	34.32	7.05
Period-IV	5.07	10.53	6.37	14.44	30.72	16.94
Period-V	9.87	15.95	8.18	8.93	10.88	2.86
Overall (1970-2019)	8.34	24.56	16.91	72.65	98.41	35.96

Source: Indiastat, IIPR and DOA (2019).

Table 4: Growth rate (CAGR) of pulses export and import from India. (Per cent)

Period	Export		Import	
	Quantity	Value	Quantity	Value
1988-1998	21.78*	25.16*	0.24*	2.19*
1998-2008	3.11*	8.56*	22.67*	28.43*
2008-2019	5.07*	6.65*	3.06*	1.95*
1988-2019	8.51*	10.96*	5.87*	11.81*

Source: UN COMTRADE database, *Significant at 1% level of significance.

Table 5: Growth rate (CAGR) of pulses export from Myanmar. (Per cent)

Period	Quantity	Value
2001-2010	0.73*	17.42*
2010-2019	2.24*	-1.33*
2001-2019	1.19*	8.27*

Source: CSO (Myanmar), *Significant at 1% level of significance.

Growth rate of pulses export from Myanmar

The growth rate of exported quantity and value from Myanmar during the year 2001 to 2019 is depicted in Table 5. Growth rate of exported quantity from Myanmar was found 0.73 per cent in period-I (2001-2010) to 2.24 per cent in period-II (2010-2019). However, the exported value showed very high in 2001-2010 (17.42%) and declined in 2010-2019 (-1.33%). The overall period depicted the growth rate performance of 1.19 per cent in exported quantity and 8.27 per cent in exported value. It is also interesting to note that growth rate of exported value was higher than exported volume except in 2010-2019.

CONCLUSION

The factors governing the production and trade of pulses differ between the two countries. Production constraints such as socio-economic patterns, irrigation and cropping patterns are among the most influential factors that make India dependent on imports from the world. If crop patterns like rice-pulses, inter-cropping with other crops, high improved varieties, and adequate credit to farmers can improve productivity and expand areas of pulses in India. Among pulse crops, there is a significant possibility to extend the area and production of rabi pulses, primarily lentil, on a big scale, since lentil has demonstrated greater profitability and lower cost than competitive crops such as wheat, gram and mustards (Reddy and Reddy, 2010).

The trade policy of pulses in India always affects the production, prices and export of pulses in Myanmar. Discussions with the Indian government to improve the predictability and transparency of their pulse import policy are important in the short term. In the long term, Myanmar should explore an agreement to stabilize access to the Indian market. Doing so should result in more stable domestic supply levels and prices of Myanmar. ASEAN has a Free Trade Agreement with India. As a member country of ASEAN, Myanmar should also explore this multilateral channel to resolve trade issues with India that may be challenging to address bilaterally.

Conflict of interest

All authors decalre that they have no conflict of interest.

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