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Performance Efficiency of Lentil Intercropping With Guava in Larkana after Post COVID-19 Pandemic in Pakistan

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Abstract

This research investigates the Performance efficiency of Lentil intercropping with Guava in Larkana after Post COVID-19 pandemic in Pakistan. Data were collected from 60 farmers in Mahota Larkana and data were analyzed by using SPSS software. According to the results Mungbeans cultivated in guava field increased the production of Guava as well as Mungbeans yield performance increased by 10 % after COVID-19 pandemic. Most of the Lebanese and Mexican restaurants are operating in all big cities of Pakistan and most of the customers demand variety of cuisine like Baba Juong, Hamas and other dishes made of chickpeas. The factors related with soil (marginal lands, alkaline soils with low organic matter and erosion), climate change, lack of crop-specific farm machinery, post-harvest losses and marketing issues. It was further revealed that due to COVID-19 farmers faced many challenges of availability of seed, fertilizer and pesticides in the far areas of these districts. It was further revealed that due to urban shift in the population dietary pattern change and it increase the demand of consumption of pulses in both rural and urban areas. 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.

Key words: Market analysis, consumption, Value addition, Chickpea

Introduction:

Pakistan imported \$311.768 million of pulses during July-Jan 2019-20, down by 4 percent, official figures say. Fall in pulses import now stands at \$12.625 million during July-Jan 2019-20, comparing to the commodity's import of \$324.393 million during July-Jan 2018-19, Pakistan Bureau of Statistics shows. In terms of volume, the country's pulses import however went up by 7.16 percent or 42,548 metric tonnes to 637,019 metric tonnes during July-Jan 2019-20 from 594,471 metric tonnes in July-Jan 2018-19. (Business Recorder-2020)

Pulses are smart crops both for humans and the cropping system as they provide protein, minerals, vitamins, and fiber for human diet and nitrogen to the soil and contribute to the maintenance of biodiversity. Pulses, also called grain legumes, contribute about 33% of the global dietary protein requirement of the human population. In Pakistan, the production of pulses is far less than the requirement and the balance is met through imports.

Thus, the performance of Agriculture during 2019-20 remained remarkable. On the aggregate, the sector recorded strong growth of 2.67 percent considerably higher than 0.58 percent growth achieved last year. (Table 2.1)

Sector	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020(P)
Agriculture	2.50	2.13	0.15	2.18	4.00	0.58	2.67
Crops	2.64	0.16	-5.27	1.22	4.69	-4.96	2.98
i) Important Crops	7.22	-1.62	-5.86	2.60	3.56	-7.68	2.90
ii) Other Crops	-5.71	2.51	0.40	-2.51	6.26	2.59	4.57
iii) Cotton Ginning	-1.33	7.24	-22.12	5.58	8.80	-12.74	-4.61
Livestock	2.48	3.99	3.36	2.99	3.70	3.82	2.58
Forestry	1.88	-12.45	14.31	-2.33	2.58	7.87	2.29
Fishing	0.98	5.75	3.25	1.23	1.62	0.80	0.60

P: Provisional Source: Pakistan Bureau of Statistics-2019-20

During 2019-20, the production of Chillies and Moong increased by 34.5 percent and 12.6 percent, respectively compared to production of last year. However, the production of pulse Mash, Potato and Onion decreased by 5.8 percent, 5.3 percent and 1.0 percent, respectively compared to last year's production. The production of Masoor remained the same of last year's production. The area and production of other crops are given in Table 2.10.

Crops	2018-19		2019-20(P)		% Change in production over Last year
	Area (000 Hectares)	Production (000 Tonnes)	Area (000 Hectares)	Production (000 Tonnes)	
Masoor	12.9	6.0	10.4	6.0	0.0
Moong	163.2	117.8	186.7	132.7	12.6
Mash	14.1	6.9	13.9	6.5	-5.8

P: Provisional (July-March) Source: Pakistan Bureau of Statistics

Literature Review

Minerals are important in human metabolism and mineral deficiencies are often associated with some human diseases/ disorders like cardiovascular disease (CVD), diabetes, cancer, and neurodegenerative disorders (Cabrera et al 2003). Pulses are a good source of different minerals. Consumption of 100- 200 mg of legumes can meet the daily requirement of different minerals: e.g. the daily zinc requirement of 3.0mg/day for women and 4.2 mg/day for men (FAO 2002) can be met by consumption of 100-200 mg of lentil, cowpea, and chickpea. Similarly, daily iron requirement (1.46 mg/day for women and 1.05 mg/day for men) can be met by consuming 100 g of most of the food legumes. Further, legumes are good source of different types of Vitamin B, folic acid, and α/γ tocopherol (Gowda et al 2014). Additionally, legumes like chickpea and bean also provide β -carotene and Vitamin-K.

The fat content of many pulses ranges between ~1-6 g/100 g (USDA 2013). Chickpea has the highest fat content (~6.0g/100 g) among the grain legumes, almost about 3-4 times higher than others. The range of polyunsaturated, monounsaturated and saturated fatty acids (PUFAs, MUFAs and SFAs) in most of the pulses is 40-60%, 20-25% and 15%, respectively (Gowda et al 2014). Legumes are a good source of health promoting fatty acids like linoleic, linolenic, oleic and palmitic acids. Additionally, most of the legumes are also good source of carbohydrates (30-60%; USDA 2013). Higher oligosaccharide content in chickpea leads to higher flatulence (Jaya et al., 1979; Rao and Belavady, 1978). The main carbon reserve in grains of legumes starch and is constituted of amylose and amylopectin (Chibar et al 2010). Grain legumes are a good source of fibre and total dietary fibre (TDF) content in legumes is ~8-27.5% (Guillon and Champ 2002). Several health benefits are associated with increased consumption of dietary fibre including reduced risk of

several diseases (cardiovascular disease/diabetes/cancer/ obesity) and also lowers blood cholesterol levels (Tosh and Yada 2010; Marlett et al 2002).

Methodology

Data were collected from primary sources. A survey was conducted from 200 pulses growers i.e. Chickpeas, Lentil and Mung beans from Larkana, Shikarpur, Jacobabad and Sukkur Districts. It was revealed that due to COVID-19 pandemic. A Structural questionnaire were developed for the reliability and Validity of data.

Factors Affecting Pulse Production during COVID-19 Pandemics.

Pulses crop production adversely affected by insect and cuss attack, diseases attack, etc. at massive extent as a result of within the initial section of internment all the retailers of Agriculture inputs and pesticides in major cities were closed therefore not handiness of pesticides.

2. Pulses usually grownup below rain fed, unirrigated, and wet stress conditions.
3. Rain fall in several areas of Sindh only a few showers in last years.
4. thanks to high precipitation in some a part of the state caused water work conditions, which were extremely injurious to pulse crops and affects the assembly.
5. thanks to temperature change and surprising rain and heat conjointly affected pulse production response in Sindh province.
6. the utilization of ancient type of seed low level of seed replacement causes low productivity and production.
7. Non-availability of early maturity and high yielding varieties affects the assembly level of pulses.
8. Late provide of presidency help of pulses didn't show positive impact on pulses production.
9. Lack of soil testing facilities, poor extension services, etc. affects the assembly of pulses.
10. The shortage of cash affects the counseled package of practise and use of Rhizobium culture at the massive extent.
11. Majority of the farmers within the state weren't maintaining sowing time, seed rate that have an effect on the productions.
12. The anti-social components destroyed gram, pea, and grass pea crop at each stage of growth and this affects the assembly level.
13. Minimum sports value don't encouraging production level of pulses as a result of value invariably high compare to vegetables.

Factors poignant Consumption

Some potential reasons for lower consumption in Sindh province are:

1. within the state variety of pulses like Lentil (Masoor), chickpea, Moong, etc. were found employed by the buyer.
2. throughout the last one and 0.5 decade merchandising costs of the various pulses have augmented considerably. As per the damage of various pulses in Rs./Quintal conferred here below.
3. Majority of the pulses shopper are economically poor and not capable to buy pulses PRN to them on the high value.
4. The slight increase in consumption of pulses within the state is thanks to increase in financial gain levels of the center category.
5. Around forty two p.c of the population in Bihar are still living below poverty level and that they cannot afford to require counseled amount of the pulses thanks to high costs.
6. terribly low per capita financial gain ultimately LED to say no in consumption of pulses generally.
7. The annual rate of growth of production of pulses is less than the annual rate of growth of population therefore high demand and low provide will increase the worth of pulses.
8. Lack of awareness relating to organic process price of pulses among poorer sections of the society.
9. Larger low financial gain families realize it troublesome to buy and consume counseled quantities of pulses thanks to high value concerned.
10. The shifting behaviour of style and preferences relating to non-vegetarian diet within the state reduces the consumption level of pulses within the state.

Table 5: Selling Price of Some Popular Pulses in Larkana

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

Source: Collected by Authors from Local market prices published in newspapers of Bihar

The data shows more than six time increase in pulses price during the referred period of 2001-02 to 2015-16.

Conclusions

In the state of 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 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 the climatic factors, 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.

Suggestions

1. There is need to bridge the gap between demand and supply of pulses in the state.
2. With a view to combat the losses occurred due to natural calamities, in production should be compensating through launching crop insurance scheme for pulses.
3. In the state pulses growers should be motivated for adopting package of practices of pulses.
4. Soil testing facilities, extension backup, etc. should be strengthened.
5. Government should take proper care in checking the increasing prices of pulses so that consumer afford this crop at large extent and improve the consumption level.

References

- i. Chand, R., Raju, S.S. and Reddy, A.A. 2015. Assessing performance of pulses and competing crops based on market prices and natural resource valuation. *Journal of Food Legumes* 28(4): 335-340,
- ii. Chaudhary, J.N. Singh, K.M. and Singh, R.K.P. 1990. Pulses production in Bihar-an empirical analysis. *Agricultural Situation in India*. 45 (2): 113-119
- iii. Choudhary, A.K. 2013. Technological and extension yield gaps in pulses in Mandi district of Himachal Pradesh. *Indian Journal of Soil Conservation* 41 (1): 88–97
- iv. Choudhary A K and Suri V K. 2014. Scaling up of pulses production under frontline demonstrations technology programme in Himachal Himalayas, India. *Communication in Soil Science and Plant Analysis* 45 (14): 1 934–48.
- v. Census (2011) Government of India.
- vi. Commodity Profile : Pulses, August 2015, Ministry of Agriculture, GoI
- vii. Dass, A, Suri, V.K., Choudhary, A.K. 2014. Site-specific nutrient management approaches for enhanced nutrient-use efficiency in agricultural crops. *Research and Reviews: Journal of Crop Science and Technology* 3 (3): 1–6.
- viii. Department of Statistics and Evaluation, Government of Bihar, Patna.
- ix. ESI. 2015. The Economic Survey 2014–15. The Economic Survey of India, New Delhi.
- x. Government of Bihar (2003), Bihar through figure, Department of Statistics and Evaluation, Patna.
- xi. Government of Bihar (2008) Bihar Economic survey – 2008-09, ministry of finance, Patna, March. P. 23.
- xii. Government of Bihar, Economic survey 2012-13, 2013-14.
- xiii. ICAR Annual Report 2014, Indian Council of Agricultural Research.
- xiv. Joshi, P. K., Tripathi, G. and Gautam, M. 2012. Transforming Bihar agriculture: challenges and opportunities: Paper presented at Global Bihar Summit 2012: Forging Partnerships For Development, 17-19 February 2012, Patna, India. Available at http://www.globalbihar.net/wp-content/uploads/2012/02/papers/pk_joshi_agri.pdf
- xv. Kumar, A., Suri, V.K. and Choudhary, A.K. 2014. Influence of inorganic phosphorus, VAM fungi and irrigation regimes on crop productivity and phosphorus transformations in okra (*Abelmoschus esculentus* L.)–pea (*Pisum sativum* L) cropping system in an acid Alfisol. *Communications in Soil Science and Plant Analysis* 45 (7): 953–67.
- xvi. Rai, J.N., Singh, K.M. and Shahi, B. 1992. Lentil in paira cropping system-An Agro-economic Study. *Indian Farmer Times*. 10 (3):15-17
- xvii. Reddy, A.A. 2009. Pulses production technology: Status and way forward. *Economic and Political Weekly* 44 (52): 73–82.
- xviii. Reddy, A. A., 2015, Pulses Production Trends and Strategies to become self sufficient Indian Farming. 65 (6): 02–10.

- xix. Sekhar, C.S.C. and Bhatt, Yogesh (2012), Possibilities and constraints in pulses production in India and impact of national food security mission (final report) Institute of Economic Growth, N.Delhi.
- xx. Singh, A.K. Manibhushan, Bhatt, B.P., Singh, K.M. and Upadhaya, A. 2013. An Analysis of Oilseeds and Pulses Scenario in Eastern India during 2050-51. Journal of Agricultural Science 5(1): 241-249.