Agro-Economic Policy Briefs

Aiding the Future of India's Farmers and Agriculture

(Photo Source: https://bit.ly/3oWVMJm)

On Critical Policy Issues in India's Agricultural Economy

Issue 19, October 2020

Contents

Compiled and Edited by
Centre for Management in Agriculture (CMA)
Indian Institute of Management Ahmedabad
Contact: Prof. Poornima Varma
Co-ordinator & Chairperson CMA, or
Nicky Johnson
Research Associate, or
Kashish
Academic Associate
cma@iima.ac.in
Phone: +91-79-7152-4651

Based on Research & Contributions of: 15 Agro-Economic Research Centres and Units, supported by Ministry of Agriculture & Farmers' Welfare

For kind attention of:

The Hon'ble Prime Minister's Office,
the Ministry of Agriculture and Farmers' Welfare,
and all others interested

The Possible Implications of Farm Acts 2020

Brajesh Jha

Introduction

- Small and marginal farmers dominate Indian agriculture; those that hardly have any surplus to invest in agriculture. Since a significant part of their income comes from off-farm sources, they are often not in a position to provide undivided attention to farming. Furthermore, agriculture has increasingly become home to residuals in the labor market. Rural stagnation in large parts of India is on the rise. Therefore, there is a reason for stepping up of growth in agriculture and farm income, and any significant improvement in agriculture and farm incomes will affect around 45 percent of the population in the country.

- Betterment of agriculture (farming) requires increased private activities in agriculture. However, the same has not been happening as per its potential. The existing restriction on market and market functionaries is perceived as an important reason for low private activities in agriculture. Additionally, the involvement of private enterprises has also improved technologies in agriculture.

- The farm acts recently passed in Parliament aimed at encouraging private activities in agriculture. These are Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act (FPTCA) 2020, Essential Commodities (Amendment) Act (ECA) 2020, and Farmers Empowerment and Protection Agreement on Price Assurance and Farm Services Act (FEPAPA&FS) 2020.

Findings

- The FPTCA encourages trade and commerce of farm produce outside physical premises of market or deemed market notified under various state Agricultural Produce Market legislation. It is supposed to promote transparent, barrier-free inter-state and intra-state trade of farmers' produce. It also presents a framework for electronic trading and matters connected in addition to that. Lastly, FPTCA aims to provide remunerative prices to farmers through competitive alternate trade channels.

- The FEPAPA&FS Act empowers farmers to engage with agribusiness firms (processors, wholesalers, exporters, large retailers) for farm services and sale of farm produce fairly and transparently. This calls for a written agreement (farm agreement) between the agreed parties, and it has a mandatory electronic registration. The 'farm agreement' is not complete without the inclusion of dispute settlement mechanism for timely disposition of disputes. The act (FEPAPA&FS) thus encourages contract farming by providing a national framework for 'farm agreements'.

- The third farm act relates to the amendment of Essential Commodities Act. Following this amendment, commodities like cereals, pulses, oilseeds, edible oil, onion and potatoes will be removed from the list of essential commodities unless an 'extraordinary situation' emerges. The same arises in situations of war, famine, natural calamities and extraordinary price rises. The amendment aims to provide freedom to produce, hold, move, distribute and supply produce to harness economies of scale and attract investment (including FDI) in post-harvest infrastructures in normal circumstances. This enactment, while liberalizing regulatory framework for the benefit of market functionaries, also safeguards the interest of consumers by regulating stocks of the above commodities in case of emergence of 'extraordinary situations'.

- There are several apprehensions about these farm acts. One of the important apprehensions is about corporatization of agriculture and possibility of corporates taking control of farming and dispossessing farmers from their land. But the objective of different farm acts has been to increase private activities in post-harvest infrastructures via corporate investments. Farmers' engagement with corporates will be governed by the 'farm agreement' (as per the FEPAPA&FS) which is a mutual agreement for sale of produce or services. It is not about land or assets of farmers.

- In the 'farm agreement', there are provisions for conciliation of disputes and timely resolution of the same. It will be resolved in a time bound framework at local level (Sub-division Authority). There are enough provisions in the act to check farmers' interests. Moreover, the corporate (in most cases)

will be engaged with a group of farmers than an individual farmer for the produce and service they desire. Therefore, fear of corporates taking control of land and dispossessing farmers of their land is a long drawn misconception about farm acts.

- Another important apprehension is about the removal of government procurement and ineffectiveness of Minimum Support Prices (MSP) for crops. There are studies to show that MSP has been an important signal for allocation of land in agriculture. Though MSP is announced for around 24 commodities, often it has not been effective for many regions (wholesale markets) of the country. With farm acts, there is an apprehension that the prices of commodities will go down further with collusion among post-harvest operators. Though such a collusion is inimical for long-term association and sustainable agriculture production as in the case of e-choupal. The farm acts do not speak- directly or indirectly against the MSP but an assurance from government for prevalence of MSP would probably help farmers.

- The public (government) procurement of food grains has been an important part of country's food security. This largely happens for some selected crops (water intensive crops like paddy and wheat) in specific regions (semi-arid regions, Punjab and Haryana) and has significant economic, ecological and social costs. Despite realization of the same, farmers of the region continue to grow these crops as government has been concentrating on those regions for procurement. A heavy procurement from the regions and its distribution across the nation incurs additional cost.

- Rationality demands that cultivation of water intensive crops in semiarid regions must reduce. This may happen with the reduction in procurement of fine cereals from the region. Therefore, farmers' fear about lessened government procurement from the region is not untrue, but this is not because of farm acts. Additionally, the fear of removal of procurement is not true as the National Food Security Act requires (government) procurement of the food grain.

- It is also argued upon that one of the important objectives of farm acts is about freedom from government monitoring of stocks of post-harvest operators (wholesaler, processor, exporters). However, this expectation is not true as price of essential commodities often rises and the present amendment is linked to extraordinary situations (price rise). The apprehension about 'extraordinary rise in price' is not untrue, as prices of perishables and non-perishables (as per agmarknet.gov.in) frequently rise by 100 and 50 percent respectively over the reference period. However, the situation of 'extraordinary price rise' emerges for specific commodities, not for all essential commodities. The post-harvest operators of many essential commodities will therefore be free from government monitoring of stocks.

- The periodic restrictions on post-harvest operators (from monitoring of stock) may not be construed as unjust, since essential commodities account for around 60 percent of food basket of average consumers in India and the country is marginally sufficient in many of the essential commodities. The restriction on post-harvest operators after the emergence of an 'extraordinary situation' would possibly keep them alert. This rightly prioritizes consumers' interest over concern of post-harvest operators. In fact, 'freedom from government monitoring of food stocks' requires significant improvement in productivity of many essential commodities.

Conclusions

- The farm acts have often been denounced as an attack on the Federal structure of the country. However, the essentials of farm acts have been on the table for a significant time now. For example, many elements of the Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, 2020 are in accordance with the model APMC Act of 2003. But only a few states have adopted the model act, and so the idea of a 'one nation and one market' remains distant. The fragmented market was realized as the biggest hurdle in the modernization of the market. Similarly, a demand for change in Essential Service Act to free post-harvest operators from inspection of stocks has existed for more than 25 years.

- Similarly, contract farming has been happening in different parts of the country already. However, this was discontinued frequently because of irritants of either party (farmers or corporates). The irritants in contract farming were addressed by one state, but not by others. While contract farming can be an

answer to many ills in agriculture, the present act guides the interested parties. The enactment of farm acts is therefore not unexpected for an observer of agriculture and rural economy.

- The enactment of farm acts at times is also termed as the watershed moment equivalent to trade liberalization of early 1990s. Enactment of such acts cannot be perceived so. The implementation of these acts has to be monitored cautiously to realize the intended effects of these acts across the country. The legislation has to be complemented with the desired facilities.
- A relatively cheaper availability of necessary inputs is the key for private participation. The state of Bihar is an example where the absence of APMC (regulated) market could not attract meaningful investment in the post-harvest infrastructures. The interested parties should have less difficulties in getting suitable land and logistics for the establishment of post-harvest infrastructures. Some key public investments from government and governance is a precursor for realizing the benefits of these farm acts.

For further details, contact:
Brajesh Jha
Institute of Economic Growth, Delhi University, Delhi
brajesh@iegindia.org; Phone: 9818670096

Problems and Prospects of Bamboo Products Marketing in Assam

Moromi Gogoi and Gautam Kakaty

Introduction

- Bamboo is one of the most important forestry species with wide distribution channels throughout the country. It makes significant contribution to the rural economy in many states of the country by acting an important source of income for livelihood sustenance. According to Forest Survey of India (2017), the total bamboo bearing area of the country was estimated at 15.70 million hectares. The annual production of bamboo in India was of about 14.60 million tones and the bamboo & rattan industry of India was worth Rs.28,005 crores in 2017. The global bamboo market value had touched $68.80 billion in 2018 and is expected to grow at a CAGR of 5.0% from 2019 to 2025 (Bamboos Market Size & Share, Global Industry Report, 2019-25).
- Assam, one of the largest bamboo producing states in India, is rich in sylvan resources and most of its forests are richly stocked with bamboos of various species. Bamboos play an important role in the day to day life of the common people of Assam and have become an integral part of the cultural, social and economic traditions of the State.
- Total bamboo area in Assam is about 2.23 million hectares as against India's total area of 15.70 million hectares under bamboo. Out of the 130 bamboo species available in India, 51 species are grown in Assam and they are being used for diverse purposes, mainly for buildings, furniture and diverse contraptions.
- Assam is the hub of 36 different species of bamboo which are suitable for producing different varieties of products including edible items like bamboo shoot, agricultural implements, fishing equipment, furniture, musical instruments, household items, ornaments and, decorative items. Although bamboo products were initially used by the rural artisans for their own requirement, its popularity and demand is now on the rise throughout the country due to its unique style and elegance. The products are bio-degradable and environment friendly and free from ecological hazards created by plastic materials.
- The main objectives of the study were to study the potentialities of bamboo products in Assam, to explore the marketing channels of bamboo products in the sample districts, identify the critical issues encountered by the producers in marketing of bamboo products and suggest policy measures. It was based on primary data collected in the year 2019 in two districts of Assam, viz., Jorhat and Sivasagar. From each selected district, two blocks were selected randomly. Then from each selected block, 40 bamboo artisans involved in bamboo products marketing were interviewed to collect the primary level information. Moreover, 10 bamboo product wholesalers from each district were also interviewed to study the marketing aspects of bamboo products. The artisans had then been divided into four groups based on their annual turnover (those earning below Rs.1 lakh, Rs.1–2 lakh, Rs.2-3 lakh and Rs.3 lakhs and above) from marketing bamboo products.

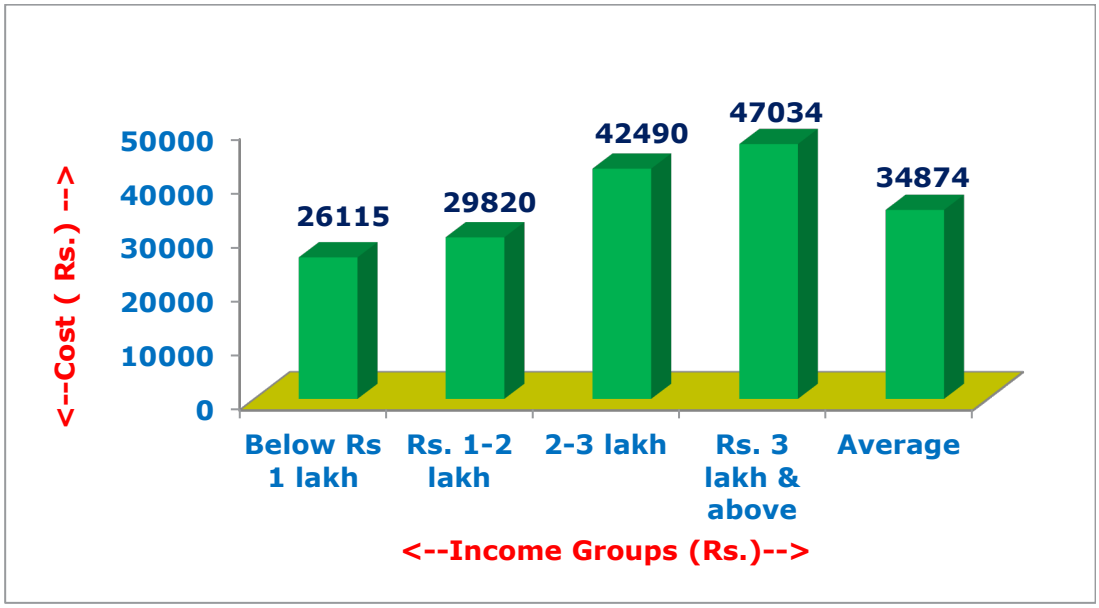
Inputs from 160 artisans and 20 bamboo product wholesalers were taken for this study.

Findings

- Based on the sample from study area it was inferred that the artisans produced different types of bamboo items for the study, viz. household, decorative, musical items, & fishing, weaving equipment etc. Notably, the artisans primarily followed traditional techniques of production and did not focus much on promotional measures to attract customers on a continuous basis. As a matter of fact, the study showed that complete commercialization of bamboo products was yet to take place.

- The total material cost for all the income groups was found to be Rs. 55,79,885. The household expenditure was found to be the highest in the income group of Rs. 3 lakh & above (Rs. 47,034), followed by Rs. 2-3 lakh income group (Rs. 42,490), Rs. 1-2 lakh income group (Rs. 29,820) and below Rs. 1 lakh income group (Rs. 26,115) with overall average of Rs. 34,874 (Figure 1).

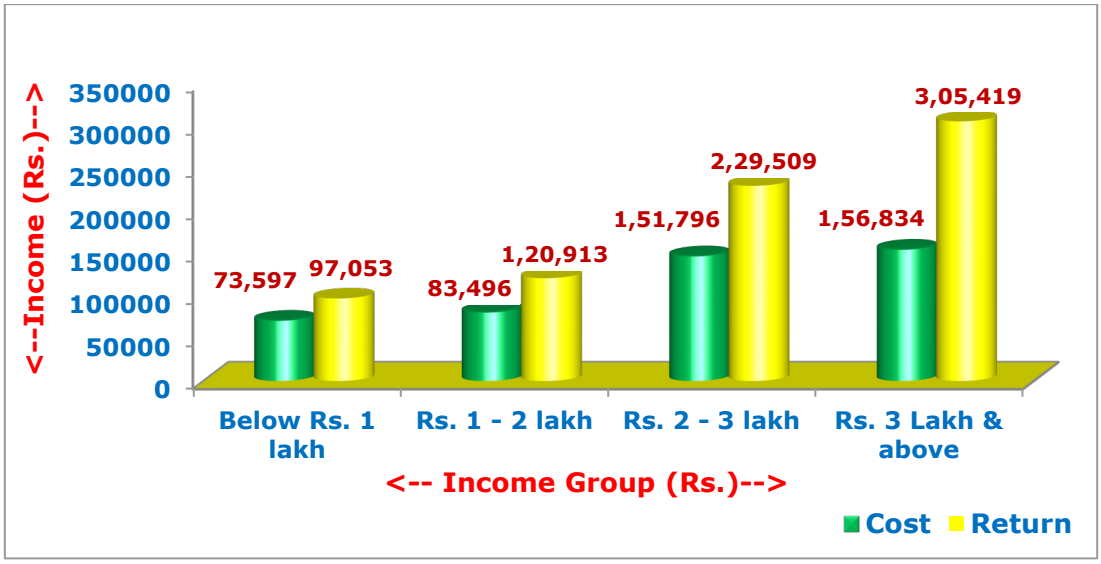
Figure 1: Average Material Cost incurred by the Sample Artisans across the Income Groups



Source: *Survey*

- Each household incurred cost in producing different bamboo products. Cost incurred by artisans in the below Rs.1 lakh income group was Rs. 73,597, for income group of Rs. 1-2 lakh it was found to be Rs. 83,496, for Rs. 2-3 lakh income group, it was estimated at Rs. 1,51,796 and for Rs.3 lakh & above income group, it was recorded at Rs. 1,56,834. The overall average cost was found at Rs. 1,08,833. Household gross return was found to be highest against the income group of Rs. 3 lakh & above (Rs. 3,05,419) followed by Rs. 2-3 lakh income group (Rs. 2,29,509), Rs. 1-2 lakh income group (Rs. 1,20,913) and income group of below Rs.1 lakh (Rs. 97,053) (Figure 2).

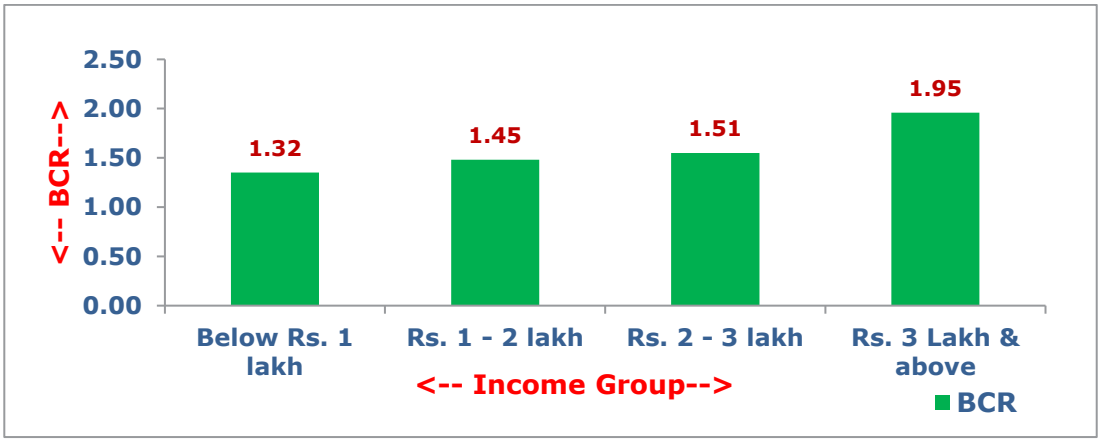
Figure2: Average Total Cost and Gross Return from Different Bamboo Products by the Sample artisans across the Income Groups



Source: *Survey*

- The BCR (Benefit-Cost Ratio) were found to be positive for all the income groups. It was worked out at 1.32:1 for below Rs.1 lakh income group, 1.45:1 for 1-2 lakh income group, 1.51:1 for 2-3 lakh income group and 1.95:1 for 3 lakh and above income group. The overall BCR was estimated at 1.61:1. (Figure 3).

Figure 3: Estimated BCR of Bamboo Products Produced by the Sample Artisans across the Income Groups



Source: *Survey*

- Artisans under study disposed of their produce through a number of marketing channels. The common and popular marketing channels prevailing are (i) Producer–Retailer–Consumer, (ii) Producer–Wholesaler-Retailer–Consumer and (iii) Producer-Commission Agent/Middleman Wholesaler – Retailer–Consumer. It was found that maximum volume of bamboo products was traded through channel-III (63.59 %) followed by channel-II (28.24%) and Channel-I (8.17%) (Table-1)

Table 1: Volume of Transaction of Bamboo Products through different Marketing Channels by the Sample Artisans

Channels	Income Groups (Rs.)				Amount of transactions (Rs.)	PC (%)
	Below Rs.1 lakh	Rs.1-2 lakh	Rs.2-3 lakh	Rs.3 lakh & above		
Channel-I	545,925	609,888	424,133	714,680	2,294,626	8.17
Channel-II	1,484,916	1,949,125	1,421,123	3,073,126	7,928,289	28.24
Channel-III	2,336,559	3,728,488	3,662,971	8,123,534	17,851,551	63.59
Total					**28,074,466**	**100**

Source: *AERC, Assam*

- Although the maximum amount of transactions took place through Channel-III, yet, Channel-I could be the most efficient one because of the fact that the number of market intermediaries were less in Channel-I as compared to the other channels and thus producers could earn higher margin in channel-I in the study area (Table-2).

Table 2: Market Efficiency of Different Channels based on Marketing Transactions of Bamboo Products by Sample Artisans in Jorhat and Sivasagar District

S.No.	Particulars	Bamboo Sofa Set	Fishing Equipment	Murha (Bamboo Sitting Tool)	Pasi & Kharahi (Bamboo basket)	Decorative Items
	Channel -I :					
1	Jorhat	2.05	1.5	1.69	1.79	1.55
	Sivasagar	2.17	1.53	1.83	1.87	1.65
	Channel -II:					
2	Jorhat	1.39	1.2	1.21	1.15	1.08
	Sivasagar	1.41	1.23	1.25	1.19	1.17
	Channel-III:					
3	Jorhat	0.86	0.76	0.82	0.84	0.79
	Sivasagar	0.88	0.78	0.89	0.87	0.83

Source: *AERC, Assam*

- The major problems cited by the artisans in production and marketing of bamboo products were high cost of raw materials, shortage of labor, lack of technical guidance, unsound economic conditions, problems of quality and vulnerability to pests, lack of strong marketing network etc. Inflow of low cost durable products was another major problem. Dearth of market linkages, lack of organized market were the other problems cited.
- During the survey, it was found that although the Central and the state Government had taken various measures to develop the bamboo sector with timely initiatives to uplift the bamboo artisans under different components of NBM, yet, only 40 percent of the sample respondents heard about the NBM programme. Nearly 92 percent of the bamboo artisans wanted to take bamboo products marketing as a main occupation for commercial production of bamboo items while only 8 percent of the respondents were averse to expansion of their business. 82 percent of them took part in national and international exhibitions organized by various Government organizations and NGOs and 50 percent of them considered those to be very useful.

Figure 4: Bamboo Products Produced by the Sample Artisans

Source: *AERC, Assam*

Conclusion and Recommendations

- The prices of handicraft products are very much erratic. There is a significant difference in prices of the same article if purchased from two different shops or from two different places and the customer feels exploited. Pricing could be based on categorization of art in itself, skill exhibited and quality of raw materials used.
- Majority of the artisans are not aware of various schemes and programmes launched by the Government extending loan at concessional rates, free tools and implements, dyes and chemical, work shed-cum-housing facilities, training programmes etc. Benefits of the subsidy policy, if any, should reach the rural artisans. Promotional campaigns could be undertaken to make them aware of all these benefits & opportunities. They could also be given the opportunity to avail some training in this line so that can make a living with bamboo craft.
- Continuous research and development efforts could be made for modernization of product-process and upgradation of techniques to meet the changing requirements of the customers.
- The Government's policy of announcing minimum support prices has helped the growers of agricultural crops. State Governments could be empowered to enact pricing policy for fixing minimum prices for the bamboo items produced by the artisans.
- An institutional approach may create a positive environment to attract the younger generation to adopt the traditional handicraft practices as an alternative avenue for livelihood. For that matter, effective measures may be taken to educate on potentialities and profitability of bamboo & bamboo products. They could exploit better marketing techniques and uplift a large chunk of people in terms of income and employment.
- There lies an immense potentiality of growing bamboo plantation in the state of Assam and so is the future of bamboo products. Bamboo craft continues to be a household enterprise and no serious look has been given for marketing of bamboo products as yet. The critical issues as encountered by the bamboo artisans are needed to be addressed through Government intervention, which may include market intelligence, market support & an efficient price mechanism. A concerted effort, if made and executed in true sense of the term, it can open up a new vista for bamboo craft in the state of Assam, which in turn will uplift a large chunk of people in terms of income & employment.

For further details, contact:
Moromi Gogoi
Agro-Economic Research Centre, Assam Agricultural University, Jorhat, Assam
ms.moromi@rediffmail.com; Phone: 9435351250

Nutritional Food Security at Household Level calls for Distribution Efficiency of Seed Minikits of Pulses

H. O. Sharma, Deepak Rathi, Hemant Kumar Niranjan

Introduction

- Pulses are normally grown in all ecological conditions in India but the contribution of pulses in overall production is more from Central India as compared to other part of the country. Government is implementing Seed Minikit programme under various schemes of the Ministry of Agriculture. Seed Minikits of different field and fodder crops are to be used to given farmers including those below poverty line in order to introduce new varieties/hybrids and to encourage farmers for seed multiplication of various crops at grass root level.

- Pulses provide high quality protein complementing cereal proteins for pre-dominantly substantial vegetarian population of the country. Although being one of the largest pulses cultivating State in the country, pulses area and production share to total food grain is only 23.38 & 9 and 44 & 24.25 percent in the Country and Madhya Pradesh, respectively. The cultivation of pulses builds up a mechanism to fix atmospheric nitrogen in their root nodules and thus meet their nitrogen requirements to a great extent.

- In India, pulses can be produced with minimum use of resources hence making it less costly than animal protein. In comparison to other vegetables, pulses are rich in protein which are less expensive and can be cultivated as an inter-crop and also as mixed crop. It is mostly cultivated under rain fed conditions and does not require intensive irrigation facility. This is the reason why pulses are grown in areas left after satisfying the demand for cereals/cash crops. Even in such conditions, pulses give better returns. Apart from this, pulses possess several other qualities such as it improves soil fertility and physical structure of the soil, fit in mixed/inter-cropping system, crop rotations.

- India, a country with high concentration of poor and malnourished people, has for long promoted a cereal-centric diet composed of subsidized staples such as rice and wheat. Today, however, dietary patterns are changing. Policy makers, researchers and health activists are looking for ways to fight malnutrition in the country and not just hunger. As attention is being shifted from calorie intake to nutrition, neglected foods such as pulses (the dried, edible seeds of legumes) are gaining popularity. It is right time to distribute the Seed Minikits across the pulse growing areas not only to increase the Seed and Varietal Replacement Rate but also to break the yield barriers by bridging the yield gap there by achieving nutritional security at household level which is only possible by developing new varieties. Its supply chain and access to farming community through proper and efficient distribution of seed Minikits of pulses. There are three kinds of hunger that need to be dealt with calorie inadequacy, protein deficiency and micronutrient deficiency.

- During 2017-18, pulses were cultivated over 29813.16 thousand hectares of area and recorded the highest ever production of 25416.62 thousand tones with a productivity level of 853 kg/ha. Ten states occupied major area under pulses and contributed more than 90 percent production of pulses in the country. The percentage share in area and production levels were Madhya Pradesh (25.09% & 31.91%), Rajasthan (17.88% & 13.40%), Maharashtra (14.12% & 13.17%), Karnataka (10.14% & 7.68%), Uttar Pradesh (7.59% & 8.66%), Andhra Pradesh (4.72% & 4.79%), Gujarat (3.05% & 3.63%), Tamil Nadu (2.77% & 3.29%), Jharkhand (2.66% & 2.19%) and Chhattisgarh (2.65% & 2.16%) respectively.

- Based on triennium ending 2017-18, out of total pulses area, area occupied under chickpea, black gram, pigeon pea, lentil and green gram was found to be 49.10, 19.79, 9.57, 8.35 and 6.07 percent respectively in Madhya Pradesh with overall productivity of pulses (1872 kg/ha) as shown in Table 1 below:

Table 1: Share of Area under Pulses in Madhya Pradesh (TE 2017-18)

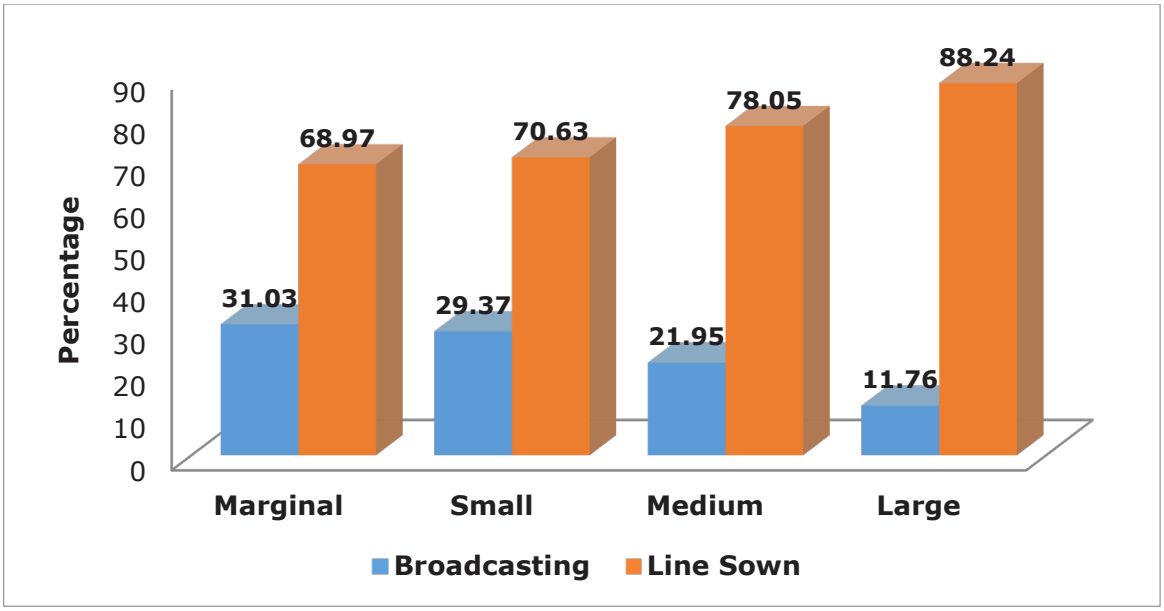
Particulars	Area (000 ha)	% share of Area	Production (000 ton)	% share of Production	Productivity (Kg/ha)
Gram	3276.33	49.10	3834.41	53.61	1170.00
Lentil	556.95	8.35	506.20	7.08	909.00
Urd	1320.67	19.79	893.89	12.50	677.00
Tur	638.67	9.57	715.52	10.00	1120.00
Moong	405.33	6.07	230.91	3.23	570.00
Others	475.12	7.12	970.92	13.58	2044.00
Total Pulses	**6673.07**	**100.00**	**7151.85**	**100.00**	**1072.00**

Source: *MPkrishi.org*

Findings

- Out of total Seed Minikit (200) distributed in the year 2018 (171) and 2017 (29), 86 percent were found to be distributed in 2018 among marginal (42.5%) and small (43.5%) respondents, while 14 percent among medium (9%) and large (5%) categories of respondents in 2017. Around 75 percent respondents were found following line sowing (Figure 1).

Figure 1: Methods of Sowing Pulses in the Study Area



Source: *Field survey*

- Ninety percent became aware about distribution of Seed Minikits which was found to be distributed only through agricultural officers of department of agriculture of the State. Number of Seed Minikit distributed among different size of farms are shown in Table 2.

Table 2: Number of Seed Minikit Distributed among Different Sizes of Farms

Method	Distribution			Awareness			Distribution Channel Agriculture Department
	2017	2018	% age Increase over 2018	Agriculture Officer	Farmer Facilitator	Fellow Farmer	
Marginal	14	71	80	90.22	5.43	4.34	42.5
Small	14	73	81	90.00	5	5	43.5
Medium	1	17	94	88.89	11.11	0	9
Large	0	10	100	84.62	15.38	0	5
Overall	29	171	83	89.66	6.47	3.87	100

Source: *Field survey*

- The majority of respondents opined that seed distributed was only of short duration varieties superior in quality (73%) and yield (74%) as compared to local varieties which fetches more prices (64%) in the market as compared to local variety. 65.50% of the respondents were found to identify the variety of crops and 54.50% were opined that yield is better than the local variety. The 33% respondents opined that there must be supervision of field by the experts in the period of cultivation of crop especially at the time of sowing. 61 percent respondents support quality seed distribution by the agriculture department. Respondents' opinion regarding quality of seed supplied and distribution of Seed Minikits in 2018 are shown in Table 3.

Table 3: Respondents' Opinion Regarding Quality of Seed Supplied and Distribution of Seed Minikits in the Reference Year 2018 (%)

Particulars	Marginal	Small	Medium	Large	Overall
Distribution of Seed Minikit					
a. Yield Difference	70.59	74.71	83.33	80.00	74.00
b. Quality difference	69.41	73.56	83.33	80.00	73.00
c. More profitable	62.35	63.22	72.22	70.00	64.00
d. Short duration of crop	100.00	100.00	100.00	100.00	100.00
Quality of Seed Supplied					
Identify variety of the crop	51.76	78.82	16.47	7.06	65.50
Yield is better	54.12	56.32	50.00	50.00	54.50
Supervision of the field by expert	15.29	43.68	61.11	40.00	33.00
Support to seed distribution	43.53	74.71	77.78	60.00	61.00

Source: *Field Survey*

- Poor quality of seed (27%) and non availability of Seed Minikits on time (73%) were found to be major problems as shown in Table 4.

Table 4: Major Problems Faced by Respondents in Availing the Seed Minikit (%)

Particulars	Marginal	Small	Medium	Large	Overall
Poor quality of Seed	23.53	29.89	33.33	20.00	27.00
Non-availability of seed minikit in time	76.47	70.11	66.67	80.00	73.00
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Source: *Field Survey*

- The Majority of respondents want short duration varieties of pulses (12.50%) and arrangement of field demonstration in the villages (39.50%) for effectiveness of Seed Minikit programme. Some of the respondents reported that more advertisement was needed (23.50%) for effectiveness of the programme. Some of the respondents also wanted that seed germination test should be made compulsory (24.50%) in the respondent's fields for better plant population in the field (Table 5).

Table 5: Measures to Improve the Effectiveness of the Scheme (%)

Particulars	Marginal	Small	Medium	Large	Overall
Short duration variety	11.76	14.94	11.11	0.00	12.50
More Advertisement	18.82	22.99	50.00	20.00	23.50
Field demonstration with full packages of practices of pulses production	40.00	42.53	16.67	50.00	39.50
Seed Germination test should be compulsory	29.41	19.54	22.22	30.00	24.50
Total	100.00	100.00	100.00	100.00	100.00

Source: *Field Survey*

- Out of the total respondents, the majority of them suggested that the Seed Minikits should be supplied at minimum rate (25.78%), they wanted to be informed about latest available varieties of pulses and their sources of availability (21.68%), there should be proper monitoring and supervision after sowing (20.08%), enhanced advertisement (17.74%) and produce of the beneficiaries should be distributed among farming community (14.72%). The respondent's suggestion to improve the reach of the scheme across size of farms are sown in Table 6.

Table 6: Respondents Suggestions to Improve the Reach of the Scheme (%)

Particulars	Marginal	Small	Medium	Large	Overall
Disseminate the Knowledge about latest available varieties of pulses and their sources of availability	14.34	19.91	25.95	26.53	21.68
Minikits should be supply at Minimum rate	33.28	31.02	20.07	18.76	25.78
Monitoring/Supervision after sowing	23.69	21.67	10.08	24.88	20.08
Enhanced advertisement	16.93	17.46	24.39	12.18	17.74
Produce of the Beneficiaries should be distributed among farming community	11.76	9.94	19.51	17.65	14.72
Total	**100.00**	**100.00**	**100.00**	**100.00**	**100.00**

Source: *Field Survey*

Conclusion and Recommendations

- Before distribution of Seed Minikits, result demonstrations should be conducted on field. Other major inputs could also be clubbed together and distributed among farming communities to generate real impact of technology.
- Farmers may be exposed to crop cafeterias grown by the KVKs where different popular/improved varieties are grown to help them recognize different varieties of a particular crop with its characteristics. They can then adopt the varietal diversification for enhancing the efficiency of resources being used on one hand and increase the productivity on the other, which could lead to doubling farm incomes.
- In order to meet the domestic demand for pulses, a sustainable production and productivity approach could be maintained by deploying multi-pronged short-term and long-term strategies. Imports can help tide over supply deficits in the short term. In the long run, measures would need to focus on sustainable production system with increased productivity envisaging public capital formation in irrigation, quality seeds of promising varieties and their availability to meet a minimum 33% Seed Replacement Rate (SRR), research and efficient use of water, plant nutrition and other necessary inputs including remunerative prices to the farmers.
- Policy initiatives may lead to efficient domestic production and help to maintain balance between domestic production and demand. If potential yield levels are achieved, then increasing demand in the country can be met in future.

For further details, contact:
H. O. Sharma
Agro-Economic Research Centre, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur.
aerc_jbp@yahoo.co.in; Phone: 9893980715

Sugarcane Cultivation & Marketing Issues in Punjab

J.M.Singh, Arjinder Kaur, Parminder Kaur & Satwinder Singh

Introduction

- Sugarcane is one of the most important commercial crops of Punjab, being cultivated on 95 thousand hectares with a production of 7774 thousand tones during the year 2018-19. The productivity of sugarcane was 818 quintals per-hectare. It can be called an agro-industrial crop as it is mainly grown for sugar production in the state. It is grown in two seasons - autumn (September-October) as well as spring (February-March) and lasts for 2-3 years. The autumn grown sugarcane can be considered better with higher yield for the growers and thus higher returns along with higher recovery from the cane by the sugar mills. It also advances cane crushing season enabling farmers to grow other winter crops, thus increasing the profitability from farming (Sanghera et al, 2018).

- There are 16 sugar mills in the state with daily crushing capacity of 53266 tones and recovery percentage of sugar in the state is 10.12. Out of the total existing mills, nine are cooperative mills while seven are in the private sector. According to estimates, Punjab needs to cover almost double the area under the crop to approximately 1.8 lakh hectares so as to meet the technical and economic viability of the mills i.e. at least 900 lakh quintals of sugarcane is needed every year to run each mill for 180 days as per the installed capacity.

- Low risk susceptibility of sugarcane and almost assured returns to an extent even in adverse conditions makes it popular among the farming community. But certain factors like delayed payments by the sugar mills and less or even zero increase in State Advisory Price (SAP) for the crop were hampering its increase in acreage. Considering the remunerative returns and suitable climatic conditions along with good infrastructural facilities, this crop has good potential in the state barring some marketing related issues.

- A survey regarding harvesting and transportation cost of this crop was undertaken in the state as these two major components of cost remain out of the purview of estimating cost of cultivation of crop by the Commission for Agricultural Costs & Prices (CACP). Two top ranking districts in the state on the basis of area were selected for the survey namely Hoshiarpur and Gurdaspur, roughly comprising 50, percent of the area under sugarcane crop in the state. A sample of 100 sugarcane cultivators was selected from each district thus comprising a total sample of 200 cultivators. Besides, four sugar mills were also selected from the districts which cater to the needs of sugarcane growers in the study area. Two sugar mills selected from Hoshiarpur district operated in the private sector while from Gurdaspur district, one private sugar mill and one co-operative sugar mill had been selected for the survey.

Findings

Area, production and productivity scenario of sugarcane in the state

- The sugarcane production in the state has undergone many ups and downs since the inception of 'Green Revolution' era which focused on the cultivation of cereal crops. Thus, with the shifting of cropping pattern exclusively in favor of paddy and wheat crops, variations in area under other crops has been witnessed.

- The status of area, production and yield under sugarcane cultivation in major districts of the state has been shown in Table 1. A perusal of the Table reveals that during the 1970's and 80's decade, the area under this crop hovered around one lakh hectares in the state which increased to 1.12 lakh hectares during the Triennium Ending (TE) 1999-2000. But in the following decade, a drop of about 26 percent was witnessed in the area under this crop, which later on improved to 93 thousand hectares by Triennium Ending (TE) 2018-19. The decline in area may be attributed to problem of delayed payments by sugar mills to the farmers. This problem lingered on resulting in decline in area, however, some improvement has been witnessed during the last couple of years.

- The production of sugarcane crop has shown an upward trend over the years except for the period when area under the crop had declined sharply. The

increase in cane output can be mainly attributed to increasing yield level of the crop. Improved varieties of the cane along with innovative agronomic practices resulted in higher productivity of the crop.

- The district-wise scenario of the crop revealed that its cultivation mostly concentrated in nine districts of the state but with the passage of time, area under the crop declined in Amritsar, Ludhiana, Patiala, Sangrur and Rupnagar districts due to area shifting towards paddy/ basmati crop. Recently, cane cultivation is largely confined to Hoshiarpur, Gurdaspur, Jalandhar and Kapurthala districts.

Table 1: District wise Area, Production and Yield of Sugarcane, Triennium Ending (TE) 1979-80 to 2018-19, Punjab

(Area in '000 ha, Production in'000 tones, Yield in Kg/ha)

District	Variable	TE 1979-1980	TE 1989-1990	TE 1999-2000	TE 2009-2010	TE 2018-2019
Amritsar	Area	9.67	4.83	12.78	4.33	5.67
	Production	48.33	26.00	78.33	27.00	368.67
	Yield	4993.00	5416	7178.00	6132.00	57661.00
Gurdaspur	Area	16.33	18.77	20.00	23.00	21.67
	Production	85.00	110.67	123.67	145.00	1296.00
	Yield	5171.00	5894	7168.00	6294.00	59026.00
Hoshiarpur	Area	8.00	11.00	17.88	20.33	23.00
	Production	37.67	60.67	104.50	113.00	1291.67
	Yield	4688.00	5494	6869.00	5559.00	55123.00
Jalandhar	Area	15.00	20.30	18.80	10.00	10.67
	Production	90.00	130.33	105.33	58.33	677.33
	Yield	5917.00	6406.00	6570.00	5864.00	61819.00
Kapurthala	Area	2.67	3.00	5.70	3.67	4.00
	Production	15.33	19.67	32.83	20.00	232.00
	Yield	5809.00	6645.00	6686.00	5531.00	58265.00
Ludhiana	Area	7.33	7.53	8.23	2.00	2.67
	Production	41.67	45.33	54.50	12.00	186.00
	Yield	5684.00	6051.00	7762.00	6100.00	63040.00
Patiala	Area	11.00	8.70	5.47	2.33	2.00
	Production	60.33	55.33	31.17	16.00	136.67
	Yield	5327.00	6380.00	6739.00	7029.00	68224.00
Rupnagar	Area	13.00	12.10	12.07	3.00	2.67
	Production	80.00	71.33	66.83	18.00	133.33
	Yield	6170.00	5933.00	6456.00	5987.00	52622.00
Sangrur	Area	11.00	6.13	7.05	2.33	3.33
	Production	62.67	35.67	46.83	17.33	216.33
	Yield	5605.00	5858.00	7825.00	7349.00	61927.00
Punjab*	Area	100.33	102.00	112.33	83.00	93.33
	Production	552.33	610.67	668.00	498.00	766.80
	Yield	5460.00	5996.00	5965.00	6008.00	8213.00

Source: *Statistical Abstract of Punjab (Various issues)*

**Data for Punjab relate to all the districts growing sugarcane in the state*

Mill-wise cane crushed & recovery percentage in the state

- Availability of sugar mill in close vicinity encourages the farmers for cultivating this crop with an idea of early disposal of the produce. Since the crop is bulky in nature, its transportation to far-off place is quite difficult and also require high powered HP tractor to pull the loaded trolley. The information regarding

number of sugar mills, cane crushed and sugar produced in Punjab has been provided in Table 2.

- A perusal of the table reveals that presently there are 16 sugar mills operating in the state, with nine in the co-operative sector and seven in the private sector. All these mills taken together have daily crushing capacity of 53266 tones. The sugar production by sugar mills in Punjab during the year 2018-19 was 786 thousand tones with recovery rate of 10.12 percent. On an average these mills were operational for 144 days in 2018-19 which is less than the norm of 180 days per year as envisaged by technical experts. This is pertinent to mention that eight sugar mills in the state are under liquidation.

Table 2: Mill-wise Cane Crushed and Sugar Produced by Sugar Mills in Punjab, 2018-19

Sugar Mill	Daily Crushing capacity (Tonnes)	Cane Crushed (000 Tonnes)	Sugar production (000 Tonnes)	Recovery percentage	No. of days worked in year
Bhogpur Co-operatives Sugar Mills Ltd., Bhogpur	1016	212	23	11.00	160
Morinda Co-operative Sugar Mills Ltd., Morinda	2500	286	31	10.13	125
Batala Co-operative Sugar Mills Ltd., Batala	1500	214	21	9.87	157
Doaba Co-operative Sugar Mills Ltd., S.B.S Nagar	2500	350	35	9.85	156
Wahid Sandhar Sugar Ltd., Phagwara	4500	599	49	9.57	136
Bhagwanpura Sugar Mills Ltd., Dhuri	2500	347	38	10.95	123
Gurdaspur Co-operative Sugar Mills, Ltd.	2000	273	25	9.27	158
Fazilka Co-operative Sugar Mills, Ltd., Fazilka	1250	153	15	9.66	114
Budhewal Co-operative Sugar Mills, Ltd., Budhewal	1250	198	21	10.32	138
Nakodar Co-operative Sugar Mills, Ltd., Nakodar	1250	204	20	9.88	151
Ajnala Co-operative Sugar Mills, Ltd., Ajnala	2500	309	28	9.11	157
Indian Sucrose Ltd Mukerian	6500	1238	131	10.6	123
Rana Sugar and Allied Ind. Ltd., Butter Savian	4500	957	97	10.13	138
Nahar Industrial Enterprises Ltd., Amloh	5000	453	50	11.06	124
A.B. Sugar Ltd., Dasuya	7000	1144	110	9.63	155
Chadha Sugar Mill & Industries Ltd., Kiri Afgana (Gurdaspur)	7500	907	92	10.22	142
Punjab	53266	7844	786	10.12	144

Source: *Statistical Abstract of Punjab*

Sugarcane harvesting cost and transportation charges in the study area

- It was found out during the survey that harvesting of sugarcane was under contractual labor system. Wage rate was found to be varying in the range of Rs.50-60 per-quintal. All the cane harvesting laborers were males and no female laborer was involved in harvesting operation. Total harvesting cost of sugarcane on the sample farms was estimated at Rs.15,071 per-acre. This cost included harvesting, detrashing, and loading of cane in the trolley.
- The transportation of sugarcane from farm gate to sugar mills was totally mechanized and tractor-trolley was the only mode of transportation.

Average load per-trolley was found to be in the range of 150-170 quintals. No other purchase center, except sugar mills, was found to be existing in the study area. Loading was completely manual in the sampled villages and loading charges were included in the contractual amount of harvesting. Total transportation cost on the sample farms was estimated at Rs.3,479 per acre depending upon the distance of sugar mill from the farmer's farm. Unloading system was mechanized and exclusively undertaken by sugar mills. No unloading charges were borne by the sugarcane cultivators. Average distance travelled from farms to sugar mills was worked out to be 13 kilometers.

- The produce was purchased by the sugar mills at State Advisory Price (SAP) i.e. Rs.310 per-quintal which is same for the last three seasons. About five percent of sampled farmers were also found to be selling a small proportion of their produce to Gur manufactures at a price of Rs.250-275 per-quintal. Transportation cost in the state is totally borne by the farmers and sugar mills were not contributing anything towards it. Private sugar mills under study were rated as better by the cultivators due to prompt payments. However, co-operative sugar mill in Gurdaspur district was found to be having some payment issues with the cultivators.

- Certain issues were highlighted regarding sugarcane purchase by the sampled farmers. Biased distribution of purchase slips by the sugar mills in favor of large farmers or politically sound/connected people was reported during the survey. Many a times waiting period for selling cane at the sugar mills for the farmers was extended up to 2 to 3 days.

- Farmers also reported bearing extra charges on hiring JCB machines if the trolley gets overturned enroute sugar mill or if it gets stuck in the sludge. Farmers have to hire high HP tractor to pull it out. There was no provision of any compensation for these extra charges which were quite common during the transportation of cane to sugar mills.

Farmers' payment related issues

- There are reports regarding pending payment issues with the sugar mills in the state. Private mills had a pending payment of Rs.240 crores while co-operative mills have arrears of Rs.123 crores which have to be paid to the sugarcane growers in Punjab[1]. This is a major issue often reported by the print and electronic media concerning farmer's welfare.

Recommendations

- Farmers incurring losses due to untoward incident/ accident during transportation of cane to the sugar mills could be suitably compensated or at least timely evacuated/rescued by the concerned sugar mill.

- Sugar mills could ensure timely purchase of cane from farmers so that they are not harassed for days together while waiting their turn to dispose of their produce. Also, purchase slips may be timely supplied to the cane growers by the sugar mills.

- Pending payment of farmers by sugar mills may be timely released without further delay. It should be binding on the mill owners to pay the farmers within a stipulated time period after cane purchase.

Acknowledgement

- Field survey results are the outcome of data collected under the project 'Sugarcane transportation and harvesting cost in Punjab' undertaken under the guidelines of Ministry of Agriculture and Farmers' Welfare.

References

i. Statistical Abstract of Punjab, Economic Adviser to Government, Punjab. (2019).

ii. Sanghera G.S., Singh R.P., Singh Onkar and Tyagi Vikrant (2018) Initiatives for sustainable sugarcane farming in Punjab, Journal of Plant Science Research 34(2): 137-152.

For further details, contact:

J.M. Singh

Agro-Economic Research Centre, Punjab Agricultural University, Ludhiana

jmsingh@pau.edu; Phone: 9872301032

1The Tribune, Chandigarh, Page 3, August 24, 2020.