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For kind attention of:

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

On Critical Policy Issues in India's Agricultural Economy

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Contents

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imports gradually led to the disappearance of high-quality varieties in India.

Conclusion and Recommendations

- Focus needs to be laid on increasing productivity of ginger in India for it to compete in global markets. The export potential of the crop must be realized. In order to increase productivity, the farmers must use disease-free planting materials and practice better input management. The country must ensure that suitable varieties with high yields are made available in the domestic markets at competitive prices. This will also enable the processors of value added products such as ginger flakes, oils, oleoresins, etc., to source quality raw material at cheap prices and capitalize on exports. The prices of ginger often fluctuate in the domestic market due to the cob-web phenomenon.
- The world trade in ginger imports was $976.42 in 2019-20 and the share of USA was highest (13.13%) followed by Japan (10.32%). Many countries like Pakistan, UAE, Bangladesh import ginger to use it as an ingredient in food, while western countries import it due to its medicinal properties. Overall, there is a potential to increase imports of ginger as all countries are not in a position to cultivate it, especially the European countries. The demand is likely to increase in view of its usage for medicinal properties. Hence, efforts must be made for the country to become competitive and capitalize its potential of the produce in domestic as well as international markets.

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Problems Perceived by Farmers in Adoption of Micro-Irrigation Systems in Madhya Pradesh

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Introduction

- Micro-Irrigation (MI) refers to the slow application of water on, above, or below the soil by a surface drip, sub-surface drip, bubbler, and micro-sprinkler system. Water is supplied using discrete or continuous drips, tiny streams, or miniature sprays through the emitters or applicators placed along a delivery line adjacent to the plant row (Rao and Anitha, 2016[1]). MI has proved to be an efficient method for water saving. Projected additional returns from the saved water must also be considered as compared to the conventional surface method of irrigation. It is necessary to further evaluate and confirm the best system for local producers that will result in high profits so that repayment of irrigation investment loans can become easy (Suryavanshi and Buttar, 2016[2]).
- Successful adoption of MI requires, in addition to technical and economic efficiency, two preconditions vis-a-vis technical knowledge and accessibility through institutional support

[1] Rao, VP., Anitha, V. (2016), Micro-Irrigation Technologies for Water conservation and Sustainable Crop Production. International Journal of Economic Plants. 2016, 3(1): 027-033.

[2] Suryavanshi, P. and Buttar, G.S. (2016), Economic Feasibility of Micro-Irrigation Methods for Wheat Under Irrigated Ecosystem of Central Punjab. Indian Journal of Economics and Development. Volume 12 No. 1a: 485-488.

systems (Palanisami et. al., 2014[3]). MI technologies are believed to be one of such innovative intervention approaches. Originally, MI was associated with the capital-intensive, commercial farms of wealthier farmers. The systems used on large farms, however, are unaffordable for smallholders and are not available in sizes suitable for smaller plots. Recently, these technologies were technically transformed from large, sophisticated, and capital-intensive mode to an input mode (Namara et. al., 2007[4]).

- In Madhya Pradesh (MP), micro-irrigated area was found to be 0.21 meter hectare (m ha) with 0.15 under drip and 0.06 m ha under sprinkler irrigation during the year 2015-20. MP occupied 4.35 percent area under MI, out of which the area under drip and sprinkler was 5.90 and 2.53 percent respectively in the country.

- To identify the problems in adoption of MI technologies by farmers, a multi-stage stratified random sampling method was used for selection of districts, blocks, villages, and respondents. In the first stage, districts were selected based on higher irrigated area under different system of MI, and among all the districts of MP, Dhar district was selected for drip irrigation system and Sagar district was selected for sprinkler irrigation system. In the second stage, from each of the selected districts, two blocks having maximum area under MI were selected. In the third stage, three villages in each block were selected randomly from the list of micro-irrigated villages. In the fourth stage, a list of all the adopters in the selected villages was prepared and eight adopters from each village were selected constituting 96 adopters from both the districts (48 adopters/district). Five point Likert scale (1932) was used to measure the severity of the problem perceived by the farmers in adoption of MI.

Findings

- Majority of adopters were found to be strongly agreeing with the problems such as lack of fencing (58.33%), land fragmentation (46.88%), damage of crop and MI equipment (45.83%), difficulties in getting proper government support (30.21%), poor marketing arrangement (19.79%), and water table going down (14.58%). Majority of adopters also agreed to high cost of wells and tube-wells (57.29%), poor quality of MI equipment (46.88%), difficulty in obtaining government subsidy and support (46.88%), poor after-sale services of MI equipment (45.86%), high cost of maintaining MI (43.75%), lack of credit facilities (35%), poor market arrangement (36.46%), and land fragmentation (33.33%).

- The major problems faced by the adopters in relation to MI were lack of fencing (4.36), MI structure damaging by animals (4.13), land fragmentation (4.13), difficulties in obtaining government subsidy and support (3.75), poor marketing arrangement (3.70), poor quality of MI equipment (3.64), high cost of well/ tube well (3.61), lack of government support (3.56), high need/cost of maintenance of MI (3.55), lack of credit facilities (3.46), and poor after-sale services (3.45). The mean score of the above mentioned problems were found to be near four or more, indicating major problems in the study area (Table 1).

[3] Palanisami, K., Mohan Kadiri, Kakumanu, K. R., and Raman, S. (2014), Spread and Economics of Micro-irrigation in India: Evidence from Nine States, Economic & Political Weekly Supplement. Vol. xlvi no.(s) 26 & 27.

[4] Namara, R. E., Nagar, R. K., and Upadhyay, B. (2007), Economics, adoption determinants, and impacts of micro-irrigation technologies: empirical results from India. Water Productivity: Science and Practice, Irrig Sci (2007) 25:283–297.

Table 1: Major Problems Perceived by Farmers in Adoption of Micro-Irrigation (%)

Sr. No.	Problems	Strongly Agree	Agree	Partially Agree/ Disagree	Disagree	Strongly Disagree	Mean Score
		5	4	3	2	1	
1	Poor quality of MI	12.50	46.88	32.29	8.33	0.00	3.64
2	High need/cost of maintenance in MI	10.42	43.75	36.46	9.38	0.00	3.55
3	Inadequate water	1.04	11.46	33.33	43.75	10.42	2.49
4	Poor water quality	0.00	8.33	25.00	36.46	30.21	2.11
5	Difficulty in obtaining government subsidy & support	20.83	46.88	20.83	9.38	2.08	3.75
6	Unreliable electricity supply	3.13	11.46	23.96	36.46	25.00	2.31
7	Lack of credit	7.29	40.63	42.71	9.38	0.00	3.46
8	Lack of own wells/tube-wells	1.04	13.54	39.58	29.17	16.67	2.53
9	High cost of wells/tube-wells	9.38	57.29	18.75	14.58	0.00	3.61
10	Water table going down	14.58	20.83	50.00	13.54	1.04	3.34
11	Lack of knowledge/training for MI	2.08	13.54	42.71	41.67	0.00	2.76
12	Lack of government support	6.25	12.50	34.38	34.38	12.50	2.66
13	Difficulty in getting government support	30.21	34.38	27.08	8.33	0.00	3.86
14	Lack of MI dealers in area	1.04	17.71	57.29	17.71	6.25	2.90
15	Poor after sales service	6.25	45.83	39.58	6.25	2.08	3.48
16	Low output price/profitability	1.04	13.54	43.75	39.58	2.08	2.72
17	Poor marketing arrangements	19.79	36.46	37.50	6.25	0.00	3.70
18	Land fragmentation	46.88	33.33	16.67	3.13	0.00	4.24
19	Damage by animals	45.83	23.96	27.08	3.13	0.00	4.13
20	Lack of fencing	58.33	26.04	9.38	6.25	0.00	4.36

Source: Field Survey.

- MP is one of the leading states in successfully introducing MI facilities under Pradhan Mantri Krishi Sinchayee Yojana-Per Drop More Crop in almost all the districts. Its aim is to ensure food security for the growing population in the face of climatic change, limited water and land resources, and to provide irrigation to every farm through improved water use efficiency. Government of MP made excellent efforts in providing MI facilities to the beneficiaries through subsidies, equipment, technical knowledge, etc., under the programme. Since farmers of a few districts benefitted more than the others, efforts must be made in such a way that all the districts benefit.

Conclusion and Recommendations

- Efforts should be made to promote MI in all the districts of the state with proper awareness of programme. Steps need to be taken to lower the price of MI equipment in order to reduce the subsidy in a gradual manner for horizontal expansion of the technology on a large scale.
- Provision/support must be given for farm-fencing, subsidy/government assistance for latest and improved MI technology/equipment, and better training to the farmers for them to expand the use of MI in future.

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