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Constraints faced by the shadenet owners regarding management of shadenet house

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Abstract

A significant problem facing world agriculture is the variation in crop yields from year to year due to variation in environmental stresses like drought, flooding, high wind velocities and high or low temperatures damage. Therefore the cultivation of various crops under control situation is essential. This provides an opportunity to directly increase the income of shadenet owners with very small landholdings. But there were different problem to raise the crop in control condition like shadenet house/ glass house etc. Therefore, there is a need to analyzed constraints faced by the shadenet owners regarding management of shadenet house. An Ex-post-facto research design of social research was used for the present investigation. For the propose study total 200 shadenet owners who having the area under shadenet more than 10 R (0.25 acre) were selected by random sampling method from Akola and Buldana districts of the Vidarbha region of Maharashtra. Data were collected through personal interview method then tabulated and analyzed with percentage and frequency for interpretation of results.

Keywords: Shadenet house, shadenet owners, environmental stresses, constraints

Introduction

India is endowed with diverse agro-climatic conditions, which help to grow all kinds of horticulture crops, almost throughout the year, in one part of the country or the other, but the quality of produce under open field conditions particularly in case of high value flowers and vegetables by and large fall short of domestic and international market standards. Sometimes there is no guarantee of consistent production from open cultivation, as the crop is exposed to number of environmental factors that change frequently. Hence, it is imperative to increase the productivity and quality of produce to meet the demand of quality conscious consumers. A breakthrough in production technology that integrates market driven quality parameters with the production system, besides ensuring a vertical growth in productivity is necessitated.

In this context, the most important technology is the Controlled Environment Agriculture (CEA) i.e. Protected Cultivation Technologies (PCTs) such as greenhouse, shadenet house, polyhouse and glasshouse. Although it is centuries old, it is new to India. Since time immemorial, man has learnt how to grow plants under natural environmental conditions and mankind has been aware of the fact that a wise modification of the environment could improve the productivity of crops.

The state of Maharashtra is the third largest state of the Indian union considering both the population as well as geographical area. Maharashtra has traditionally remained drought prone state. Almost nearly 70.00 per cent of the state's geographical area lies in semi-arid region rendering it vulnerable to water scarcity. Every year, Vidarbha region and other part of the state were affected by drought or drought like condition affecting availability of water for drinking and irrigation. Hence, the cultivation of various crops under control situation is essential.

After economic liberalization, there is rapid urbanization; improved infrastructures and emergence of an urban middle class, creating a demand pull for high value horticultural crops in India. The potential of shadenet house to meet this demand should not be over looked. Shadenet house provides many fold advantages over open field cultivation. This technology is highly productive, amenable to automation and conserves water, fertilizer and land. It is also eco-friendly and does not require much sophistication. In this century, protected cultivation is likely to be a common commercial practice, not because of its potential but out of its sheer necessity. This provides an opportunity to directly increase the income of shadenet owners with very small landholdings.

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Therefore, there is a genuine need to find constraints faced by the shadenet owners regarding management of shadenet house.

Methodology

An Ex-post-facto research design of social research was used for the present investigation. The present investigation was carried out in Akola and Buldana Districts of Vidarbha region of Maharashtra state. For the propose study total 200 shadenet owners who were continuously using shadenet from last 3 years and having the area under shadenet more than 10 R (0.25 acre) were selected by random sampling method from 2 districts of the Vidarbha region of Maharashtra. Data were

collected through personal interview method with the help of pretested interview schedule in an informal atmosphere either at home or at field. The data were then tabulated and analyzed with percentage and frequency for interpretation of results.

Result and Discussion

The adoption and management of shadenet house technology in Vidarbha varies widely among regions and owners categories. It is worthwhile to understand the various types of constraints faced by shadenet owners regarding management and adoption of shadenet house. The results of the study are presented in the following Table 1.

Table 1: Constraints face by the shadenet owners regarding management of shadenet house

Sl. No.	Constraints	Respondents (N=200)		Rank
		Frequency	Percentage	
I)	Environmental constraints			
1.	Highly fluctuating weather conditions	123	61.50	I
2.	Scarcity of water for irrigation	104	52.00	II
3.	Perishable nature of vegetables	97	48.50	III
4.	Occurrence of pest and diseases	86	43.00	IV
II)	Technical constraints			
1.	Limited and irregular power supply	127	68.50	I
2.	Non-availability of quality shadenet construction material at local market	89	44.50	II
3.	Non-availability of required quantity and quality planting material at right time	74	37.00	III
III)	Labour constraints			
1.	Lack of availability of labour	92	46.00	I
2.	High cost of labour	81	40.50	II
IV)	Economic constraints			
1.	Crop insurance is not covered for vegetables	153	76.50	I
2.	Complexity of loan procedure	148	74.00	II
3.	Lack of adequate and timely disbursement of loan	135	67.50	III
4.	High initial investment in construction of shadenet house	122	61.00	IV
5.	High cost of transportation	107	53.30	V
V)	Marketing constraints			
1.	Lack of exclusive markets for vegetable grown under shadenet house	117	58.50	I
2.	Market price fluctuation	84	42.00	II
3.	Distress sale due to immediate need of money	71	35.50	III
4.	Existence of middle men malpractices	63	31.50	IV

Environmental constraints perceived by shadenet owners in management of shadenet house technology

In Table 1 enlightened that 61.50 per cent of shadenet owners reported that highly erratic weather conditions outside the shadenet house lead to higher care and better management of crops inside the shadenet house and in turn higher cost of cultivation.

More than one half (52.00%) of shadenet owners faced scarcity of water for irrigation was another major environmental related problem for shadenet owners in Vidarbha region. Irrigation is also crucial for the success of shadenet house cultivation. The cropping under shadenet house conditions are intensive and lots of inputs in the form of fertilizers and growth regulators are used. The absorption of externally applied nutrients by plants from soil requires adequate moisture in the soil. Lack of irrigation at critical stages of crop growth will affect adversely on yields.

Nearly one half (48.50%) of shadenet owners faced another problem for management of produced under shadenet house was the vegetables grown under shadenet house conditions are highly perishable. The success of shadenet house adoption and its efficiency also depend on the access to market and efficient supply chain management. More than one third 43.00 per cent of shadenet owners in Vidarbha region found that

occurrence of pest and diseases inside the shadenet house sometimes exceed when compared to open cultivation because of favourable climatic conditions high moisture and humidity inside the shadenet house. Continuous irrigation to soil through drip or mist irrigation or water spray inside the shadenet house has also led to poor drainage conditions.

Some shadenet owners also reported loss in production because of physiological disorders. Such physiological disorders will reduce the market value of the produce either by reducing the quality, distortion in shape and low acceptability or rejection by consumers. Physiological disorders due to extreme climatic conditions may lead to malformation of fruits and vegetables which will fetch very little price in the market. Also over-exploitation of nutrients from soil has led to their decline in fertility status, especially in Maharashtra. Excessive use of irrigation is also a serious problem under shadenet house conditions leading to poor drainage in soil and imbalances in soil fertility status

Paroda (2013) [2] reported that among the major constraints in production of horticultural crops in India are temperature (hot or cold), sunlight duration and quality, water deficiencies or excesses, atmospheric moisture (relative humidity), weeds, deficiency of nutrients, heavy winds, carbon dioxide and host of diseases and insect pests.

Technical constraints perceived by shadenet owners in management of shadenet house technology

The technical constraints perceived by the shadenet owners have been presented in Table 1. Shadenet owners expressed that even now availability of package of practices for cultivation of crops under shadenet is either limited or requires lot of modification to suit their agro-ecological and socio-economic conditions. Production of crops under shadenet conditions is highly capital and technology intensive. Hence, adequate knowledge and training on various issues related to shadenet cultivation is crucial for management and adoption and its success. However, shadenet owners find it difficult to get the latest information and techniques of crop production under shadenet, especially in their local languages.

However, it was interesting to note that 68.50 per cent of shadenet owners said limited power supply was the major technical constraint for the shadenet owners in village level. Shadenet owners have entered into advanced stage of cultivation and are in the process of expanding the area under shadenet house cultivation. Hence, power supply acts as critical input.

One of the crucial inputs in shadenet cultivation is planting material. More than one third (37.00%) of shadenet owners have problem regarding availability of quality planting material in reasonable prices at right time is a challenge. The fact that planting material is supplied only by few private players has resulted into shadenet owners being completely dependent on them. Shadenet owners are also completely dependent on private companies for other inputs such as equipments and machines, growth regulators, pesticides and insecticides for use in shadenet. Some shadenet owners are still in the first phase of shadenet house technology adoption wherein availability of quality planting material and inputs is still an issue.

Singh *et al.* (2006)^[3] also reported that no specific breeding work had been initiated for development of suitable varieties/hybrids for greenhouse or protected cultivation, even in important vegetables *viz.* tomato, cherry tomato, sweet pepper and cucumber. Exotic seeds are very costly and are out of reach of the Indian growers.

Labour constraints perceived by shadenet owners in adoption of shadenet house technology

Shadenet house cultivation is labour intensive and demands skilled labour throughout the year. The labour related constraints faced by the shadenet owners have been given in Table 1.

Not surprisingly, availability of skilled labour is a critical issue for 46.00 per cent of shadenet owners. Migration of rural folk to urban areas in search of better jobs, alternative employment opportunities at the village level and indifferent attitude of youth towards agriculture has led to acute shortage of skilled labour especially in the peak seasons of planting/sowing and harvesting. This has naturally raised the wage rates of skilled labour required in shadenet house which is another labour constraint faced by shadenet owners regarding management of shadenet house.

Economic constraint perceived by shadenet owners in adoption of shadenet house technology

The economic constraints of the shadenet owners in management of shadenet house have been presented in Table 1. The initial cost required to establish a shadenet house is

still very high and is beyond the reach of small and medium farmers.

In economic related constraints 76.50 per cent of shadenet owners have the poor accessibility to subsidy and absence of pricing policy including crop insurance for vegetable crop grown under shadenet as their major economic constraint. It has only increased the risk of shadenet house cultivation. The ceiling limit of subsidy varies from scheme to scheme but generally it ranges between 20 to 50 per cent of the cost of erection of shadenet house. Even the ceiling on area under shadenet house for availing subsidy benefits is maximum of one unit (1008 sq. m). Nearly two third (74.00%) of owners faced the complexity during application of the loan procedure. From table shows that 67.50 per cent of the shadenet owners said that there is lack of adequate and timely disbursement of loan for shadenet was change their attitude and rate of adoption of shadenet technology among the respondent. This procedure and disbursement of loan was found one of their major economic contain during management of shadenet house technology. Nearly 61.00 per cent and 53.50 per cent of shadenet owners indicated that High initial investment in construction of shadenet house and High cost of transportation as their economic constraints respectively and having the range last.

Marketing constraints perceived by shadenet owners in adoption of shadenet house technology

The shadenet owners strongly argued for increasing the ceiling of area under shadenet house cultivation and amount of subsidy. The shadenet owners expressed that it took minimum of eight months after application, to avail loan facilities from financial institutions and commercial banks. Even the post-harvest operations for shadenet house products are very costly and may lead to huge financial losses under unfavourable market conditions.

The success of shadenet house cultivation and its economic viability also depends on accessibility to market and market prices. Distant markets leading to higher cost of transportation, fluctuation in prices of vegetables, exploitation by middlemen and lack of organized market exclusively for shadenet house crops are the constraints which are hindering the adoption of shadenet house cultivation by majority of the respondents. The marketing constraints faced by shadenet owners have been presented in Table 1.

Indian farmer is a price taker and not a price fixer. It is more so in crops where price policy is completely absent as in case of vegetables. Hence, unfavorable market prices may cause huge financial losses. Shadenet owners fetched good prices from international markets when compared to domestic market. Even in the domestic market, shadenet owners fetched good prices during the months of January-April and the season is generally slack during September to December. More than one half (58.50%) of shadenet owners examined that lack of exclusive markets for vegetable grown under shadenet house as their major marketing constraint and give rank first. Nearly half i.e. 42.00 per cent of shadenet owners have the market price fluctuation as their second marketing constraints. More than one third (35.50%) of shadenet owners said that doing distress sale due to immediate need of money and 31.50 per cent of shadenet owners have existence of middle men malpractices as their marketing related constraints.

Conclusion

The adoption of shadenet house in India is still in the primary stage and provides an ample opportunity to encash the technology. High initial investment, lack of availability of quality planting materials and inputs, poor post-harvest infrastructure and absence of price policy have led to very limited adoption of this technology by few shadenet owners in certain pockets of the Vidarbha. Crop insurance was not covered for shadenet house as well as crop grown under shadenet was the major constraint of the shadenet owners. Government or policy maker can take some initiative, So that farmers can adopt more protected cultivation practices in their own farm. Government should take initiatives for creation of grading, cold storage and processing facilities at farm gate level to reduce post-harvest losses.

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