International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

The Role of Government Schemes in Production and Marketing of Dragon Fruit in Aizawl, Mizoram

Vanlalnguri Hmar[1], Dr. Lalhmingliana Renthlei[2]

[1]Research Scholar, Department of Management, Mizoram University
[2]Assistant Professor, Department of Management, Mizoram University

Abstract

The paper aims to discuss the government schemes offered for the development of Dragon fruit in Mizoram. Dragon fruit planted in Mizoram has a wide adaptability and grows well in slightly heavy texture soils. Dragon fruit plants are usually circulated through stem cuttings and flower buds develop after 15-18 months of planting and it also requires 28-30 days for maturing. In Mizoram dragon fruit is popular due to its nutritional value, which is also a very good source of minerals, glucose, fructose, dietary fibre and vitamins. It helps in strengthening the immune system of the human body and can be used for the treatment of diabetes, heart diseases and advantageous in maintaining healthy body weight. The harvest and nutritional value of Dragon fruit in Mizoram differ depending on the species, cultivation practices, growing area and harvesting time and in which the fruit peel has a high potential to be used as a natural dye. The numbers of dragon fruit farmers/growers are gradually increasing due to better prospects of a profitable price of their product in the markets across Mizoram. At present, little information can be obtained on how effective does the government schemes available to farmers/growers and its impact on production and marketing of Dragon fruit in Mizoram. Therefore, research on different aspects of maintaining government schemes and its effectiveness can help and benefit the growers and consumers and to expand the market of Dragon fruit in Mizoram and beyond.

Keywords: Dragon fruit**,** government schemes, production and marketing

1. Introduction

Dragon fruit (*Hylocerus undatus*) belongs to the cactaceae family and is a perennial, climbing vine attained to its popularity for due to its attractive fruit worldwide. The flower of dragon fruit is the most beautiful in the cactaceae family with a bright red skin stubbed with green scales and white or red flesh with tiny black seeds spread all over the flesh of the dragon fruit and are edible and nutritious (Mizrahi et al.,1997). Due to its beautiful flower the dragon fruit nicknamed and called as “Queen of the night” or “Noblewoman”. Dragon fruit comprises juicy flesh which is very delicious in taste and due to its benefits of health value, distribution, and popularity, dragon fruit are identified by a variety of vernacular names like Pithaya, Strawberry pear etc. Its centre of source is Central Americas from there it is widely spread to all over the world especially in the tropical countries and also it is a Fast-Growing vine, energetic in nature. Dragon fruit is a well-established new crop in China, Malaysia, Taiwan, Australia, Vietnam because to its minimal care requirement for its cultivation and resistance to pest and diseases. The main

accomplishment of this crop is that when planted, can grow for about 20 year and 1 hectare could accommodate about 800 dragon fruit plants. Besides, it raises high and fast return to production in the second year after planting and can begin production when it achieves the age of five. Numbers of farmers are very scarce in the States of Bihar, West Bengal, Maharashtra, Gujarat, Andhra Pradesh, Karnataka and Tamil Nadu who have taken a forward step for its cultivation. The overall area of Dragon fruit cultivation is less than 100 acres across the country. The responsiveness and demand for this fruit is huge in India mainly for its taste, nutritional and medicinal properties. India imports 95% of its requirement from Thailand, Malaysia, Vietnam and Sri Lanka. The amount of rainfall become very unpredictable that leads to dryness of soil and weather. Therefore, becoming a favourable growing condition for its cultivation, it admires the region which are having a dry spell of weather with supplementary irrigation for cultivation. So, there is a wide outlook of its cultivation in India due to the favourable climate and to overcome nutritional security.

Dragon fruit a recently introduced super fruit in India, is considered to be a promising, remunerative fruit crop. The fruit has a very attractive colour and mellow mouth melting pulp with black colour edible seeds embedded in the pulp along with tremendous nutritive property which attract the growers from different parts of India to cultivate this fruit crop which originated in Mexico, Central and South America (Britton and Rose, 1963; Morton, 1987 and Mizrahi et al., 1997).

Objectives of the study

- To investigate the efficacy of the government schemes available for farmers/growers of dragon fruit in Mizoram.
- To assess the impact of these schemes on the production and marketing of dragon fruit in Mizoram.

2. Review of Literature

Various government schemes in India have been instrumental in promoting dragon fruit cultivation by providing financial assistance and resources to farmers. Several states have introduced specific subsidies and support programs to encourage the growth of this high-value crop.

Bihar: The Directorate of Horticulture, Department of Agriculture, Bihar, has announced a 40% subsidy under the National Horticulture Mission Scheme for dragon fruit cultivation. This subsidy is based on a unit cost of ₹1,25,000 per hectare, effectively providing ₹50,000 per hectare to farmers. This initiative aims to alleviate financial constraints and promote agricultural diversification in the state. (Krishi Jagran, 2024)

Haryana: The Haryana government offers a subsidy of ₹1,20,000 per acre to farmers cultivating dragon fruit. This financial aid is disbursed over three years: ₹30,000 in the first year and ₹10,000 each in the second and third years. Farmers can avail this grant for up to 10 acres under the scheme, which is designed to encourage the adoption of dragon fruit farming in the region (See Positive, 2022)

Gujarat: The Gujarat government has initiated a special program providing financial aid to farmers cultivating dragon fruit, locally known as Kamlam. Farmers from the general category can receive up to ₹3,00,000 per hectare, while those from SC and ST categories are eligible for up to ₹4,50,000 per hectare. This support is part of a broader effort to enhance horticultural development in the state (Desh Gujarat, 2022).

Mizoram: The Mizoram government has been working to promote dragon fruit farming since 2014-2015. The Department of Horticulture started an Area Expansion Scheme to help farmers grow this crop (Department of Horticulture, Mizoram, 2020). The government also ensures farmers can sell their produce

directly through a buy-back system. This helps farmers get fair prices for their crops (MIDH, n.d.).
The government has also invested in infrastructure. For example, ₹31.34 crore was allocated in 2024 to build a road connecting dragon fruit plantations in Lamlian Dung Zau, Thenzawl (The Sentinel Assam, 2024). Farmers also receive training. The Agricultural Technology Management Agency (ATMA) held training programs in Lunglei District to teach better farming techniques (Krishi Vigyan Kendra, 2021).

3. Methodology

Purpose of the study

The study is accomplished in Aizawl, Mizoram. The study is to find out the effectiveness role of Government schemes in production and marketing of dragon fruit in Mizoram. With the help of certain Schemes, the Department of Horticulture had made contributions by emphasizing the cultivation of dragon fruits. Dragon fruit cultivation had been initialised so that there will be high value of dragon fruit within the local market and also to promote the practice of cultivation of dragon fruit within the state that will help beneficial for the farmers. Since the market price of the dragon fruit is relevantly high which ranges from Rs 200/- to Rs. 400/- according to the quality of the fruit. The climatic condition of Mizoram is suitable for the cultivation of dragon fruit on a large scale.

Data collection

The data were collected within the area of Aizawl. Data was collected through face-to-face personal interview with the help of a structured questionnaire through an easy accessibility of government schemes for dragon fruit production and marketing. Around 50 respondents were selected considering availability at the first sight and discussions were held with farming households on an informal basis. Primary data were collected during August 2023 to October 2023.

Data analysis

Data were analyse using Statistical Package for Social Sciences (SPSS version-22) software. The data were used to described through descriptive statistics such as means, percentages, standard deviation and frequencies.

Sampling techniques

The target population was all farmers/growers engaged in production and marketing of dragon fruit in Aizawl. About 50 respondents of dragon fruit farmers/growers can be obtained where frame and selection errors can easily be controlled. It is described to identify the major quantity produced through the implication of government schemes in production and marketing of dragon in Aizawl. The sampling techniques involves Statistical Package of Social Science (SPSS version-22) which will help identify the satisfaction of farmers/growers of government schemes in production and marketing of dragon fruit in Aizawl, Mizoram.

4. Analysis and result

Government schemes in production and marketing of dragon fruit in Mizoram

The Government of Mizoram had done effort to promote the cultivation of dragon fruit within the state. Through the help of certain central sponsored schemes such as Mission for Integrated Development of Horticulture (MIDH/HMNEH), Rashtrya Krishi VikasYojana(RKVY), and Pradhan Mantri Krishi Sinchai Yojana (PMKSY), the Department of Horticulture, Government of Mizoram had chosen farmers and introduced the cultivation of dragon fruit in a large scale within the state of Mizoram. With the help of Programme under Article 275 (1) during 2016 – 2017, the department also had done work in Aizawl,

Serchhip and Lunglei Districts with the total of 113 beneficiaries and a financial target of Rs. 115.40 lakh. The beneficiaries have been assisted in terms of planting materials and other necessary inputs including cash assistance for inter culture and trellis erection. (Department of Horticulture, 2018)

However, although the government had done their work for the farmers, there are farms owned by the officers themselves in several places bypassing the real farmers who are really in need of such privilege. While in other places the farms are solely owned by private farmers who fall under the criteria for beneficiary. It is the aim of the study to investigate into the scenario and study whether the services had reached the beneficiaries and whether it is benefitted by the farmers.

Responses of the Participants

Age plays an important role in horticulture and agriculture production. While collecting the primary data, the age of the principal cultivator in the family has been taken into consideration. To analyse the data, the age group of the respondents has been divided into below 20 to 30 years which has been grouped as young farmers, 31 to 40 years group as middle-aged farmers, 41 to 50 average age farmers and above 51 to 60 years category as old farmers.

Table 1. Age of Respondents

Age of the Respondents	N	Percentage
20-30	14	29
31-40	17	34
41-50	16	32
51-60	3	6
Total	**50**	**100**

Source: Researchers' data

It is revealed from the above table 1 that among the dragon fruit farmers, 29 percent belongs to age group below 20 to 30 years, 34 percent are between 31 to 40 years, 32 percent as average age farmers and 6 percent are above the age of 51 to 60 years. The middle age of the dragon fruit farmers is found to be 31 to 40 years with a 34 percentage. It can also be seen that the majority of the dragon fruit farmers are at the average of 41 to 50 with a 32 percentage. It can be seen that 6 percentage can be found at the old age of 51 to 60 years of dragon fruit farmers.

The overall mean age of the farmers under study was found to be between 31 to 40 years. It can be concluded that the middle age group category forms the majority of the farmers who are involved in dragon fruit farming in Aizawl, Mizoram which is represented by 34 percent of the respondents.

Table 2. Descriptive Statistics on Ways for Improving of Production and Marketing of Dragon Fruit

Ways	N	Percentage
Using better quality of seeds	16	32
Using more quality of fertilizers	21	42
Improving irrigation/watering of Dragon fruit	10	20
Regular training in dragon fruit farming	3	6

Total	**50**	**100**

Source: Researchers' Data

From the above Table 2, we can see that according to the dragon fruit farmer, using better quality of seeds is the most important factor that contributes to the production of higher yields per hectare. The other important factors in order of their significance are using more quality fertilizer, utilizing more manpower, attending regular training on farming techniques and lastly, by improving irrigation.

Table 2. Descriptive Statistics on Challenges Faced by Farmers

Challenges	Frequency	Percentage
Lack of support from the Government	25	50
Poor storage facility	7	14
Poor quality of seed	11	22
Limited available land for expansion	7	14
Total	**50**	**100**

Source: Researchers' Data

Table 3, presents the problems faced by the dragon fruit farmers at the time of collecting the data. The foremost problem cited by the farmers is lack of support from the government for production and marketing of dragon fruit in Aizawl, followed by the fact that the terrain of their land is unsuitable for cultivating more crops, and limited available land for expanding their area of cultivation. Other problems faced by the dragon fruit farmers in order of significance are poor distribution network, lack of, poor storage facility and poor seed quality.

Therefore, it can be clearly seen from above table 3, to have a proper production and marketing of dragon fruit in Aizawl, the government should give more importance to the farmers requirement for better cultivations of dragon fruit.

Table 4. Descriptive Statistics on Agreement of Farmers on the Role of Government Schemes

Rate	Frequency	Percentage
Strongly Disagree	23	50
Disagree	7	14
Strongly Agree	11	22
Agree	7	14
Total	**50**	

Source: Researchers' Data

Table 4, clearly shows that of the 23 dragon fruit farmers, 50 percentage strongly disagrees with the role of government schemes applied in Aizawl, which shows that it did not reach the expectation of the dragon fruit farmers including 7 farmers disagree with a 14 percentage. It can also see 11 dragon fruit farmers with 22 percentage strongly agree with the government schemes issued in Aizawl, which means it satisfy and reach their requirement and lastly it can be settled that only 7 dragon fruit farmers agree with 14 percentage satisfy with the government scheme function in Aizawl, Mizoram.

Therefore, in order to be successful in production and marketing of dragon fruit in Aizawl, the government needs to prioritise the farmers requirement by acknowledging the target for dragon fruit cultivation. And dragon fruit farmers should enjoy the benefits of government schemes for cultivating and yielding good results.

5. Suggestions:

- **Quality seed:** For better yield good quality of dragon fruit seed is very important. Poor quality seeds often give poor results and effect the production and marketing.
- **Lack of market set-up:** All the dragon fruit farmers said that they didn't have well organized places or infrastructure facilities in the market. So, they usually sell the dragon fruit on road side in the open air directly to the consumers. Therefore, market opportunity has really come down since infrastructure facilities is not maintain.
- **Government schemes:** The dragon fruit farmers were not satisfied with government of Mizoram as it did not reach their requirements. Therefore, the government of Mizoram should give more concern of farmers needs to benefits the government schemes issues.
- **Storage facility**: There is a lack of storage facility for storing the products before it has been brought to the market. The storage would be helpful in such a way that it is accessible for the farmers to store their crops and other farm products to reduce damage due to lack of proper storage.
- **Rainwater Harvesting:** Most of the dragon fruit cultivators practice the use of stream and river water by pipelines and waterways. This cannot sustain throughout the year so that a proper rainwater harvesting pond or a tank would be helpful so that irrigation issues can be addressed.

6. Conclusion

Dragon fruit can be adapted and spread in various environmental in Mizoram. It is a potential economic crop for international market and thrives well in warm and dry weather. Mizoram covers the geographical area of 21,081 Sq. km., out of which 11.56 lakh hectares (55%) is identified as potential area for horticulture crops. However, only 11.96 % of the total potential area is covered so far which proves that there is still a vast scope for further development of horticulture in the State. In near future, ample attention should be obligatory for minimising post–harvest losses through standard post–harvest practices and successful marketing of fresh dragon fruit. Overall, it can be concluded that dragon fruit production, marketing and with the help of government schemes can become a turning-point for guaranteed profits to marginal and small-scale farmers in Aizawl, Mizoram.

References:

1. Mizrahi Y., A. Nerd, and P. S. Nobel. 1997 Cacti as crops. Hort. Rev. 18:291–319.
2. Britton NL, Rose JN. The Cactaceae: Description and Illustration of Plants of the Cactus Family, Dover, New York. USA. 1963; 1(2):183-195.
3. Mizrahi Y, Nerd A, Nobel PS. Cacti as a crop. Hort. Rev. 1997; 18:291-320.
4. Morton J. Cactaceae: strawberry pear and related species. In: Fruits of Warm Climates, Ed., Miami, and Fl, 1987, 347-348
5. Pushpakumara DKNG, Gunasena HPM, Kariayawasam R. Proximate analysis of dragon fruit (Hylocereus polyrhizus). Amer. J App. Sci 2009;6(7):1341-1346.

6. Krishi Jagran. (2024, January 6). Bihar announces 40% subsidy for dragon fruit cultivation. Retrieved from https://krishijagran.com/news/bihar-announces-40-subsidy-for-dragon-fruit-cultivation/
7. See Positive. (2022, July 26). Haryana will provide Rs 1.20 lakh per acre for growing dragon fruit. Retrieved from https://seepositive.in/tag/dragon-fruit-farm-in-haryana/
8. Desh Gujarat. (2022, July 1). Gujarat govt announces financial aid to farmers cultivating dragon fruit. Retrieved from https://deshgujarat.com/2022/07/01/gujarat-govt-announces-financial-aid-to-farmers-cultivating-dragon-fruit/
9. Department of Horticulture, Government of Mizoram. (2020). E-book Publication 2019-2020. Retrieved from https://horticulture.mizoram.gov.in/uploads/attachments/c6852169c5520abbeffc33f90a0f3ff1/e-book-2019-20final.pdf
10. The Sentinel Assam. (2024, January 29). Mizoram CM Lalduhoma pledges Rs. 31.34 crore for dragon fruit farmers. Retrieved from https://www.indiatodayne.in/mizoram/story/mizoram-cm-lalduhoma-announces-rs-3134-crore-for-dragon-fruit-farmers-795987-2024-01-29
11. Mission for Integrated Development of Horticulture (MIDH). (n.d.). Mizoram Value Chain Dragon Fruit. Retrieved from https://www.midh.gov.in/VCS%20Reports/8-MIZORAM%20Value%20Chain%20Dragon%20Fruit.pdf
12. Krishi Vigyan Kendra Lunglei District. (2021, February 23). Farm School on Dragon Fruit Cultivation organised by ATMA Hnahthial Block, Lunglei District. Retrieved from https://kvklunglei.mizoram.gov.in/post/farm-school-on-dragon-fruit-cultivation-organised-by-atma-hnahthial-block-lunglei-district