

# A STUDY OF PRODUCTION AND MARKETING OF DRAGON FRUIT GROWER IN MUALTHUAM NORTH

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
**November, 2022**

**CERTIFICATE**

This is to certify that the project title '*A Study of Production and Marketing of Dragon Fruit Grower At Mualthuam North, R. Lalmuanawma, Department of Social Work, Higher and Technical Institute, Mizoram for the award of Bachelor of Social Work is carried out under my guidance and incorporates the student's bonafide research and this has not been submitted for the award of any degree in this or any other Universities or Institute of learning.*

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# **CHAPTER 1**

## **INTRODUCTION**

# CHAPTER 1

## INTRODUCTION

This paper study shows the study of Dragon fruit on production and marketing of dragon fruit grower because globally, the marketing and the dragon fruit selling plays an important role on the economic upliftment on the farmers. In most of the countries the Dragon fruit farming was introduced for the farmers, as it is well liked by the people because of its fresh looks, juiciness and its rich sweetness. On top of that the price of the Dragon fruit is good and as for India the fruit was sold in its premium prices i.e. Rs.200 per kg average. The sample for the research will be the Dragon fruit growers in Mualthum North, Lunglei, Mizoram due to the availability of the resources as Mualthum North community are the promising areas of Lunglei District as well as the geographical location are favourable for marketing and Dragon fruit cultivation. In Mualthum north farmers usually practice terrace farming and shifting cultivation mostly. In Mualthum many farming schemes and association are held under NABARD, NEIDA, APRINS (Bee farming) and for marketing under NABARD Bazar was also build in Mualthum north. Under those associations many association are build and the dragon fruit farmers are one of those associations which was started in 2018 and function effectively in 2020.

### **1.1. History of Dragon fruit, history of Dragon fruit marketing:**

**Global Scenario:** The flesh of dragon fruit can vary from white (with pink or yellow skin) to hot pink or deep red with tiny black seeds. The Dragon fruit flavour shows and determines the sweetness and juiciness and is associated with its colour: whitish dragon fruit often has a mild taste while darker, redder flesh can be sweeter and juicier.

Dragon fruit is a native to Mexico, Central America, and South America and was introduced to Asia via Vietnam by the French in the early 1800s. The Dragon fruit continues to gain popularity and favourability in the United States, which is spurring expansion in commercial production.

A number of dragon fruit species are grown around the world, from Asia and the Middle East to Central and South America. Vietnam is Asia's top producer, primarily growing fruit with bright pink skin and white flesh; other Asian countries cultivating the fruit include Malaysia, the Philippines, Sri Lanka, Taiwan, and Thailand. Scientifically referred to as *Hylocereus undatus*, the 'dragon fruit' is grown in countries such as Malaysia, Thailand, the Philippines, the USA and Vietnam and these countries are the major competitors for Indian Dragon Fruit.

**National Scenario:** Production of 'dragon fruit' commenced in India in early 1990s and it was grown as home gardens. Due to high export value, the exotic 'dragon fruit' has become increasingly popular in recent years in the country and it has been taken up for cultivation by farmers in different states. There are three main varieties of dragon fruit cultivated in India: white flesh with pink skin, red flesh with pink skin, and white flesh with yellow skin. However, the red and white flesh is typically being relished by the consumers.

At present, dragon fruit is grown mostly in Karnataka, Kerala, Tamil Nadu, Maharashtra, Gujarat, Odisha, Andhra Pradesh, and Andaman and Nicobar Islands. West Bengal is new to taking up cultivation of this exotic fruit.

### **Mizoram scenario:**

The Dragon fruit farming was started in the year 2013 – 2014 by a few farmers at the initial stage under the Horticulture of Mizoram and now become one of the best selling and one of the states that successfully cultivated the dragon fruit in India. The demand of this fruit is massive in the market in India as well as popular in Mizoram.

The Dragon fruit was sold in premium price i.e. Rs 200/kg. Hence, many farmers took a likings to the dragon fruit and marketing of the Dragon fruit.

### **Local scenario:**

The location of Mualthuam North is in a favourable condition for marketing and production of Dragon fruit and the grower of this Village were influenced by the Cultivation of the Dragon Fruit Farming done by the Centre of Excellence Horticulture department located in Saichho, Lunglei, Mizoram. This department cultivation of Dragon fruit procedure and process of farming was copied and influenced the Mualthuam north Farmers, and build a Mualthuam North Dragon fruit grower association.

This association was established on 2020 under the chairmanship of V. Vnlalrema. This association was build by a group of Farmer's in Mualthuam North and also it is a small association. After the Dragon fruit grower abolish only 8 family members and their number increased up to 41 families till today.

## **1.2. Field setting:**

### **Profile of Mualthuam:**

Mualthuam North community origin is not specifically known but this Mualthuam name originated from Molsom clan who now live in Tripura who had formally dwelt at that that place due to which Mualthuam is called as it's name, the molsom people also now living in the Western parts of Mizoram and Eastern parts of Tripura. Mualthuam village was first established at Pholeuh Tlang known as Khawhlui tlang in the year of 1896 and later shifted to this location in 1903 as it is now. Mualthuam North is located about 50 Km North of Lunglei on the highway of Lunglei to Aizawl via Thenzawl. The population of Mualthuam North suddenly increased after grouping of people in the year of 1969, by the Indian Army due to the proclamation of Mizoram disturbing area at that time. Mualthuam North is the grouping centre of it's four neighbouring Villages. Though some of the villagers goes back to their original but some does not and settled in the community permanently. Administrative authorities vested upon Village Council and Administrative Officer (AO) at that time, but now all of the administration were taken by the village council.

### **1.3. Development of Mualthuam North Dragon Fruit Grower Association:**

The location of Mualthuam North is in a favourable condition and the grower of this Village were influenced by the Centre of Excellence Horticulture Department. This farming association procedure and process of farming was copied by the Mualthuam North Farmers, and build a Mualthuam North Dragon fruit grower association. The main reason for the development of this association is to stabilize the price and to stand in a uniform group towards Govt. agency.

This association was established on 2020 under the chairmanship of V. Vanlalrema. This association was build by a group of Farmer's in Mualthuam North and also it is a small association. After the Dragon fruit grower abolish only 8 family members and their number increased up to 41 families till today.

### **1.4. Process of farming:**

All the farming was on the hilly areas as the location of the dragon fruit grower are living in hilly areas. The process of farming on land is done on terracing farming, as for the hilly areas it is more efficient. The farmer made a concrete poles for the vines of the Dragon fruit to grow and on the top unused tires are used to spread the vines or the seeds where the fruits used to ripen or artificially made by wood. This way the vines can be spread and the fruits will be able produce as many fruits as possible. Their source of water are made through farm points where they stock waters and distributed evenly by using man power or machines. The fertilizers are usually collected by the farmers as they usually used organic fertilizers and they commonly used poultry droppings. The poultry droppings are the most favourable fertilizers in the areas.

### **1.5. Favourability:**

The Dragon fruit production is the most favourable production in Mualthuam north as the fruit is well liked by the local market in the area. Not only in the areas the locality The Dragon fruit is also well liked in Mizoram so there is no problem in selling the fruits to the people who pass through highway. Not only in the areas of the locality, the dragon fruit can also be produced widespread in Mizoram and outside Mizoram, as the favourability is at a high rate globally.

### **1.6. Statement of the Problem:**

The Dragon fruit is a very tasty fruit and a very healthy fruit which earned a favour to peoples heart and have a great place in the marketing in widespread not only in the country of India but in globally. Especially in Mizoram the government took a favour and liking towards the Dragon fruit. The government took the Dragon fruit farming to promote the development of the rural areas and started the agricultural farming under the Horticulture Department in the year 20013 – 20014.

The Mualthuam North Dragon Fruit Grower Association was the main source of the Dragon fruit grower in Mualthuam North. Their production was well liked by the local markets

and shops of the community. Their production is much efficient and can earn money much more than normal farming's. As the price of the Dragon fruit was also sold in a premium price i.e. Rs.200/kg. Mualthuam North Dragon fruit will be taken out as the sample for the research as the location and geographical areas are the best availability in Lunglei District, Mizoram. The research will focus on the study of production, marketing and the challenges faced by the Dragon fruit growers in the process of marketing and production.

### **1.7. Objectives:**

- To study production of the dragon fruit grower
- To study the marketing process of the dragon fruit grower
- To study challenges faced by the dragon fruit grower

### **1.8. Chapter scheme:**

- Chapter 1 : Introduction
- Chapter 2 : Review of literature
- Chapter 3 : Methodology
- Chapter 4 : Results and discussion
- Chapter 5 : Conclusion and Suggestion

# **CHAPTER II**

## **REVIEW OF LITERATURE**

## CHAPTER II

### REVIEW OF LITERATURE

The literature review is carried to critically review the research variables and review precious works related to the study for better understanding and knowledge. This chapter contains about the review of the of production and marketing of dragon fruit grower in Mualthuum North.

**Jaafar et al 2009; Rebecca et al., 2010** states that dragon fruit has become popularised and favoured worldwide for its attractive red colour and nutrients and antioxidants and provides a good amount of several vitamins and minerals.

**Dragon fruit production and market projection 2020 – 2025 trend analysis research and market 19/8/2020** studies shows that Dragon fruit is the leading fruit export of Vietnam. Major export destination of these fruits are china, Indonesia and Thailand. The fruit is also entering the new market including India, New Zealand & Australia and Chile

**RC Laldusangi and Debashis Mandal 2018 – 2019 science and technology journal vol 9. Performance of dragon fruit under integrated nutrient Management at Mizoram** Studies shows the performance of the dragon fruit under integrated nutrient management in Mizoram. Integrated nutrient management with Farm Yard Manure to supply 50% K + 50% RDF + Azotobacter + Phosphate Solubilizing Bacteria + Potash Solubilizing Bacteria was found to be the best treatment for the cultivation of dragon fruit in Mizoram.

**G C Wakchaure et al, ICAR–National Institute of Abiotic Stress Management, Baramati, Pune studies of Dragon Fruit Cultivation in India: Scope, Marketing, Constraints and Policy Issues in India** The SWOT analysis indicate that India has tremendous scope for all kind of dragon fruit production. There is increasing demand for quality products at competitive rate in domestic and export market. Though dragon fruit production depends on increasing and widening domestic market in future, export market will be equally attractive. To be successful in both domestic and International market it is essential to produce quality dragon fruit of organic origin and processed products to avoid pesticide residues and at competitive rate from underutilised degraded land.

**KJ Krishi Jagran, Agripedia** studies of Dragon fruit market in India states that that total All India area of Dragon Fruit cultivation has the scope to expand further – currently it is grown in 100 acres approximately. The fruit of the plant has a good taste hence demand is quite healthy for the product. India imports 95% of its requirement from Thailand, Malaysia, Vietnam and Sri Lanka. It takes 18-26 months 1.5- 2 years) for harvesting, and between months of August to December. Therefore deducting all expenses net profit comes closer to Rs 4.50 lacs per acre over first 2 years.



**DRAGON FRUIT COUNTRY REPORT FROM INDIA by G. Karunakaran et al, on Dr.Karunkaran, Vetnum proceeding publication** states that Marketability of dragon fruit in the region is expected to be very high because of limited number of commercial producers and high demand. There is a potential for off season production of Dragon fruit in India, and the market price remains as high as INR 150.00 to 250.00 per kg during off season. Production is expected to rise in the future; hence, marketing strategies need to be critically examined in India. In case of any market glut, there is a strong need to explore the avenues of value addition through processing, so that the production will be continue to increase and the surplus produce shall be processed.

**Calcium nutrition influencing yield and fruit quality of dragon fruit by Kundan Kishore et al. (September 2022) Indian Journal of horticulture** Shows that the study focused on evaluating the influence of calcium fertilization upon mineral content and fruit qualities of the attributes of the Dragon Fruit. The pigment bectacyanin together with the bio active compounds like phenol and flavonoid contributes towards the anti oxidant capacity of fruit was its findings.

**Dragon Fruits as a Functional Food by Susmita Das and safina kosser August 2022 Vol.2 issue 12 on the Just Agriculture Multidisciplinary e-newsletter** research shows that the pulp is juicy and contains small black seeds, Among the essential fatty acids found in the seeds 50% are linoleic acids and linolenic acid that are good for geart disease and the risks of cardiovascular diseases can be reduced. The natural oil extracted from the seeds can be used as a mild laxative as well.

**Quality of pitaya fruit (*Hylocereus undatus*) as influenced by storage temperature and packaging by Sergio Tonetto De Freitas, August 2013, Scientia Agricola 70(4)** research shows that the best storage for the dragon fruit in Canada is 5 celsius degree, msintaining greener baracts higher firmness and higher titratable acidity, it can reduce decay

**Pitahaya (*Hylocereus* spp): A new fruit crop, a market with a future by Fabrice Le Bellec et al July 2006 Fruits 61(6)** study highlights the fact that the interest shown in these Pitahayas is recent and, for these reasons, more detailed knowledge on these species is required (agronomic, genetic and technological) dated in their research.

**Cultivation, Nutritional Value, and Health Benefits of Dragon Fruit *Hylocereus* spp a Review by Farid Md. Hossain et al. April 2021 International Journal of Horticultural Science and Technology** discusses the cultivation technology, nutritional values and health benefits of Dragon Fruit. Dragon fruit plant has wide adaptability and grown well in slightly heavy texture soils. The nutritional value depends on the cultivation and harvesting time and the peel have a high potential to be used as a natural dye.

# **CHAPTER III**

## **METHODOLOGY**

## **CHAPTER III**

### **METHODOLOGY**

In this research methodology the process and steps is highlighted which is to be carried out during the research. Methods used in the data collection will be highlighted as well as the methods of sampling. The techniques used in the data collection –

#### **3.1. Field settings:**

Mualthuam north is a village situated in Lunglei Dist. Which is located towards northern part of Lunglei district, it is about 48km far from Lunglei i.e. the district capital with a total household of 350 and in those household most of the household depend on the agricultural activities and from that 15 household depend and participate in this dragon fruit farming.

#### **3.2. Research design:**

In this research qualitative research study is used. Descriptive research is used to describe the prospect and challenges faced in production, marketing and challenges faced by the Mualthuam North dragon fruit grower.

#### **3.3. Sampling method:**

The study relies on purpose sampling techniques to select the sampling frame or sample size.

Purposive sampling is a non-probability it is also called as selective sampling. Since the presence study selected the specific group of dragon fruit grower in Mualthuam north some of the members of the dragon fruit grower society were selected for this study by using purposive sampling technique. The total sampling size is 15 houses.

#### **3.4. Sources of data:**

Primary data – schedule 4 ways Likert scale will be used to draw out the most suitable information for the research, interview will be used to collect the information needed. Interaction and key informant interview was the key primary information.

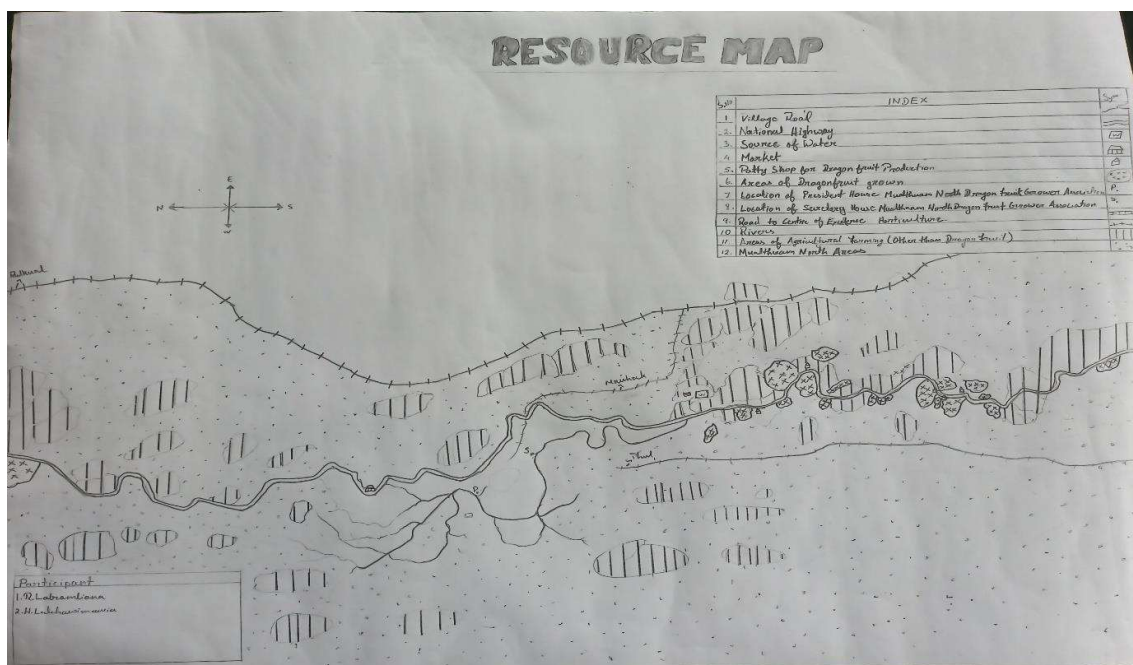
Secondary – Minute book and the recordings of the secretary was the secondary source of data used to collect the required data.

Likert scale will be used to draw out the most suitable information for the research, PRA will be conducted to know more about the community structure as well as the resource mapping.

## Figure 3.1 : Resource Mapping

SOURCE: PRA (Mualthuam North dragon fruit grower Association)

Resource mapping was conducted through using participatory method which is conducted in Mualthuam North community to know about the resources they have and the land used to grow the Dragon Fruit by the Mualthuam North Dragon Fruit Grower Association. The above figure shows -



1. Village Road – the village road is the internal road linked with the houses of the villagers of the Dragon fruit grower association as well as the villagers.
2. National Highway – the national highway is the highway linked between Lunglei – Aizawl road.
3. Source of water – the source of water is a point where the Dragon fruit Grower takes the water for the dragon fruit.
4. Market – the market is a place where the production is sold and the name of the market is Jerusalem Market. It is the biggest market in Mualthuam North and most of the Dragon Fruit is sold from this market.
5. Patty shop – some of the farmers sell their own production beside their place of cultivation.
6. Dragon fruit grown in the areas of Mualthuam North forest is highlighted in the Resource mapping.

7. The president of the dragon fruit house location is shown with a mark/symbol of 'P'
8. 'S' is the location of the secretary of Mualthuam North Dragon Fruit Association.
9. Road to Centre of Excellence under the collaboration of the Horticulture department and Israel.
10. Rivers are shown in the Resource Map.
11. The areas of agricultural farming is shown.
12. All the areas and land of Mualthuam North is shown in Dots.

# **CHAPTER 4**

## **RESULTS AND DISCUSSIONS**

## CHAPTER IV

### RESULTS AND DISCUSSION

This chapter has been presented into two major parts on the key informant interview and schedule interview through unstructured question. Which will portray the objectives of the research on the study of production of the dragon fruit grower, to study the marketing process of the dragon fruit grower, challenges faced by the dragon fruit grower.

#### 4.1. SCHEDULED INTERVIEW:

The research findings are processed through SPSS and the data collection is made through interview schedule and asking questions by using the tools of Likert Questionnaires and unstructured questions. The findings are –

##### 1. DEMOGRAPHIC PROFILE –

##### 1.1. PERSONAL INFORMATION

**Table No. 4.1**

Sl.No	Particular	No of response	Percent
1	<b>Age</b>	N - 15	
	25 - 45	5	33.3
	46 - 70	10	66.7
2	<b>Gender</b>	N - 15	
	Male	14	93.3
	Female	1	6.7
3	<b>Religion</b>	N - 15	
	Christian	15	100
4	<b>Community</b>	N - 15	
	ST	15	100
5	<b>Type of family</b>	N - 15	
	Nuclear	11	73.3
	Extended	3	20
	Single parent	1	6.7
6	<b>Size of family</b>	N - 15	
	1 – 3 members	5	33.3
	4 – 6 members	5	33.3
	7 – 9 members	5	33.3
7	<b>Ownership of the land</b>	N - 15	
	Owned	15	100

8	<b>Close relative owned dragon fruit grower</b>	N - 15	
	Yes	12	80
	No	3	20

**Source: Computed**

The table 4.1 shows the demographic profile represents the personal information about the respondent information. The respondent are the Dragon Fruit Grower Association Mualthuam North which was purposefully collected through purpose sampling.

The Demographic profile first shows the age gaps amongst the dragon fruit grower as the majority of the grower are usually on the age gap of 25-45 of age are 33.3% and 46-75 of years are 66.7%. which shows that the Dragon Fruit Grower in Mualthuam North are usually middle aged. Most of the respondent are male i.e. Male 93.3% and Female 6.7%. The Religion of the respondents are 100% Christian and the community respondent are Scheduled Tribes. The respondent family types are nuclear (73.3%), extended (20.0%) and single parent (6.7%). Also the sizes of the respondent family increased up to eight family members but unfortunately the respondent do not have five family member in the household.

Some of their ownership of land is asked to know if their land is rented or owned for farming and all of the respondent owned their land for Growing the Dragon Fruit. Question is asked if the Dragon fruit grower relative owned a dragon fruit and the results are 80% those who indulged in Dragon Fruit Farming and 20% do not owned or practised a Dragon Fruit Farming. This results shows that Most of the Dragon Fruit Farming is influenced by their Families.



## 1.2. EDUCATIONAL QUALIFICATION AND ECONOMIC BACKGROUND –

**Table No. 4.2**

Sl.No	Particular	No of respondent	Percent
1	<b>Educational background</b>	N - 15	Percent
	Below HSLC	8	53.3
	HSLC	2	13.35
	HSSLC	3	20
	UG	2	13.35
2	<b>Family economic status</b>	N - 15	
	BPL	6	40
	APL	9	60
3	<b>No of family member having regular income</b>	N - 15	
	Who don't have a regular income	8	53.3
	Who have a regular income	7	46.7
4	<b>Family primary occupation</b>	N - 15	
	Govt. Servant	6	40
	Horticulture	9	60
5	<b>Annual income from dragon fruit per year</b>	N - 15	
	3000 – 30000	2	13.3
	30000 - 50000	3	20
	50000 – 70000	5	33.3
	70000 – 90000	1	6.7
	100000 and above	4	26.7
6	<b>Family indeptedness</b>	N - 15	
	No depth	13	86.7
	Bank	2	13.3
7	<b>Financial support for farming</b>	N - 15	
	Self	11	73.3
	Family	4	26.7

**Source: Computed**

This table 4.2 shows the educational qualification and economic background of the Dragon Fruit Grower Association of the respondent. First we have the educational

background of the respondent which is – Below HSLC (53.35%), HSLC (13.3%), HSSLC (20%), UG (13.35%). The family economic status are – BPL (40%) and APL (60%). To know more about the Dragon Fruit Growers backup for their expense in maintenance of the Dragon Fruit the numbers of person having a regular income as well as their family primary occupation such as family who do not have a regular income 53.3% and family who have a regular income 46.7%. The family primary occupation are Government servant 40% and Horticulture 60% as follows. The Dragon fruit grower average income is Rs.50000 – Rs.70000. There are families who have a depth in bank are 13.3% and who do not have a depth are 86.7%.

Educational background * Annual income from dragon fruit per year Cross-tabulation												
Educational Qualification	Annual income from dragon fruit per year											Total
	3000	30000	4500	4600	5200	5500	6000	6500	9000	22500	30000	
Below HSLC	0	0	2	1	0	1	2	0	0	0	2	8
HSLC	0	1	0	0	1	0	0	0	0	0	0	2
HSSLC	1	0	0	0	0	0	0	1	0	1	0	3
Graduate	0	0	0	0	0	0	0	0	1	0	1	2
Total	1	1	2	1	1	1	2	1	1	1	3	15

Source: Computed

**Table 4.3**

Regarding their income per year and their educational background are calculated in a cross tabulation to find out if their education and knowledge helps in their monthly income. And the number of the educational background are showed in numerical form 1 represents below HSLC, 2 represents those who passed HSLC, 3 represents those who passed HSSLC and 4 represents those who graduate Bachelor degree.

The above table clearly shows that the educational qualification improved their production in a much more efficient way to earn income through Dragon fruit production. Also the Educational qualification is not only the key to mass produce the Dragon Fruit as some of the highest earnings comes from the lowest educational background. As the lower education level also makes as much money as those who have a high educational qualification. This showed that skills is needed to increase the production and the fruit is needed to be old enough to increase the production.

## 2. STUDY ON THE PRODUCTION OF DRAGON FRUIT GROWER –

**Table No. 4.4**

s/n	Statement	Response			Total (Frequency & Percent)
		Disagree	Agree	Strongly Agree	
1	<b>I produce good quality only</b>	0 (0%)	12 (80%)	3 (20%)	0 (0%)
2	<b>I always produce my fruit 3 times in a year</b>	1 (6.7%)	4 (26.7%)	10 (66.7%)	0 (0%)
3	<b>I possess the skills to produce 4 times a year</b>	2 (13.3%)	0 (0%)	13 (86.7%)	0 (0%)
4	<b>I can earn living by selling my production</b>	6 (40%)	9 (60%)	0 (0%)	0 (0%)
5	<b>My quality of fruit depends on the nutrient supply</b>	0 (0%)	1 (6.7%)	14 (93.3%)	0 (0%)
6	<b>I rely on organic and inorganic fertilizer</b>	0 (0%)	14 (93.3%)	1 (6.7%)	0 (0%)

**Source: Computed**

In the table 4.4 the study of production is focused in the scheduled questions and it is one of the objectives of the research which depicts the production and the process. All of the question schedule is categorised in Likert questionnaire the findings are as follows –

- All of the production are all good quality only. The association and its members produce only good qualities as they receive a premium stem which is the seed of Red Dragon Fruit (*Selenicereus undatus*).
- The Dragon Fruit Grower can produce three times a year mostly and from the respondent 66.7% strongly agreed. From the respondent who agreed upon this are 26.7 and the respondent who disagree upon this are 6.7%. Upon this finding most of the respondent agreed upon this and the Dragon fruit association can produce three times a year.
- If the Dragon fruit grower possess the skills to produce four times a year is the question and 86.7% of the respondent Strongly agreed upon this question in-fact most of the respondent possess the skills to produce five to six times a year and 13.3% do not agreed upon this due to lack of resources and water supply.
- 40% of the respondent cannot earn living from the Dragon Fruit as the respondent recently starting the cultivation of Dragon Fruit. On the contrary 60% of the respondent can earn living and agreed upon it.
- All of the respondent agreed upon their production depends on the nutrient supply of the fertilizers. As 93.3% agreed upon this question and 6.7% of the respondent strongly agreed upon this question.
- All of the respondent uses fertilizers for their Production. 93.3% agreed upon this and 6.7% of the respondent strongly agreed upon this.

### 3. STUDY OF MARKETTING –

**Table No. 4.5**

s/n	Statement	Response			Total (Frequency & Percent)
		Disagree	Agree	Strongly Agree	
1	<b>I give my production to the market</b>	9 (60%)	6 (40%)	0 (0%)	0 (0%)
	<b>I can sell my production through government agencies</b>	15 (100%)	0 (0%)	0 (0%)	0 (0%)
	<b>I can sell my stem and the fruit profitably</b>	1 (6.7%)	13 (86.7%)	1 (6.7%)	0 (0%)
	<b>The price of the stem seed depends on its length</b>	0 (0%)	15 (100%)	0 (0%)	0 (0%)
	<b>I face problems in selling my production</b>	11 (73.3%)	4 (26.7%)	0 (0%)	0 (0%)
	<b>I can sell the fruit in a premium price</b>	15 (100%)	0 (0%)	0 (0%)	0 (0%)

**Source: Computed**

The above table shows the research upon the study of marketing in the members of Mualthuam North Dragon Fruit Grower Association as marketing is the only way they would earn living and they usually sell on their own as well as give to their production to the market.

- From the respondent 40% if them give their production to the market and 60% of the respondent sell their own production as they can sell the production in a much more price than giving to the market. This shows that the respondent mostly sell their production in a patty shop by their own and the patty shop location are shown in Figure 3.1 in a resource map.
- Production cannot be sold in any of the Government agency as there are no agencies available in the areas. But, the Mualthuan North Dragon Fruit Association started making a preparation to give their production to a company called Vanva Dragon Fruit Farmers Producer Company PVT. ltd.
- In regards to selling production profitably 86.7% agreed upon it with 6.7% who strongly agreed upon it and 6.7% do not agree upon this on selling the production.
- All of the respondent agreed upon the price of the seeds depends on its length because the Mualthuam North Dragon Fruit Association fixed the price of the dragon fruit.
- To sell the production 73.3% have no problem in selling their production and 26.7% faced a problem. But this shows that there is not much problem in selling their production. Also for those who find it hard to sell their production are usually because of the many productions in a ripening season.
- All of the respondent cannot sell the production in a premium price i.e. Rs.200/- per kg and to give their production in a market they used to give Rs.180/- per kg. Due to the increase in the production of Dragon fruit in a production season they usually sell the fruit in the amount of Rs.150/- and give their production to the market in the amount of Rs.130/- or Rs.120/- according to the seller and the market they negotiate with each others.

#### 4. STUDY OF CHALLENGES FACED –

**Table No. 4.6**

<b>Challenges faced</b>			
Sl. No	Statement	Mean	Std. Deviation
1.	I face problem from insects and parasites	3.07	.458
2.	I face problem in distribution of water	2.87	.640
3.	I face problem in maintaining the health of the dragon fruit	2.80	.414
4.	I have financial problem in the farming process	2.40	.632
5.	I have received financial assistance from the government agencies	2.07	.594
6.	I can always found enough fertilizer	2.07	.458

**Source: Computed**

The above table 4.6 shows the study of challenges faced in a Likert Questionnaire by the Dragon Fruit Growers of the Mualthuam North Dragon Fruit Grower Association. All of the challenges faced are categorised from the most challenges they faced from top to the bottom and the first three statements are the main challenges faced by the respondent. Question is asked to portray the challenges that can arise in the process of growing the Dragon Fruit.

- The Dragon Fruit Grower faced many challenges mostly as the calculated mean ranks the highest with a mean of 3.07 with the result of .458 in a standard deviation. Mostly they faced challenges from Rats who used to eat their fruit and leave them a great loss.
- Distribution of water is the next most problem and challenges that arise in their production with a mean of 2.87 with a deviation of .640. As the water distribution cannot be done effective without tools.
- The third major challenges that the grower faced is a problem of maintaining the health of the Dragon Fruit with a mean of 2.80 and a standard Deviation of .414. The health of the dragon fruit is needed to be maintained because it can get infected easily.

## 5. SUGGESTION FOR PRODUCTION –

**Table No. 4.7**

<b>Suggestion in terms of production 1</b>	<b>Frequency</b>	<b>Percent</b>
No Response	1	6.7
dig a fertilizer pit	1	6.7
fertilizer	1	6.7
good maintenance	1	6.7
good poles/stand	4	26.7
good seeds	3	20.0
water supply	4	26.7
Total	15	100.0
<b>Suggestion in terms of production 2</b>	<b>Frequency</b>	<b>Percent</b>
No response	2	13.3
good distancing	3	20.0
good poles/concrete	1	6.7
good poles/stan	5	33.3
plant the fruit on the surfa	2	13.3
water supply	2	13.3
Total	15	100.0
<b>Suggestion in terms of production 3</b>	<b>Frequency</b>	<b>Percent</b>
No response	5	33.3
fertilizer	2	13.3
good maintenance	3	20.0
process of seeding	1	6.7
stem levitation	1	6.7
they need pesticides	1	6.7
water supply	2	13.3
Total	15	100.0
<b>Suggestion in terms of production 4</b>	<b>Frequency</b>	<b>Percent</b>
No response	12	80.0
fertilizer	1	6.7
good maintenance	1	6.7
no shades on cultivation are	1	6.7
Total	15	100.0

**Source: Computed**

The above table 4.7 shows about their opinion for the production of the dragon fruit and the respondents are asked to make suggestion for the dragon fruit and their importance are shown in ascending order given the no 1 is the most important and so on.

- From the above suggestion number one the main priority is given to water supply and good stand or poles for the dragon fruit which is both 26.7%. The most common answer and their first priority is the stand or poles strong enough to hold up the Dragon Fruit

and recommend a concrete stand for the Dragon Fruit. For the water supply they all said that the production solely depends almost on the abundance of water they received.

- And for their next priority Good poles for the dragon fruit 33.3% still stands unchanged but the respondent next priority is good distancing and 20% is the respondent answer. The distancing is one of the main benefactor of the production as the distancing can improve the stem to spread and grow freely.
- Thirdly, the respondent put up importance on good maintenance which is 20% From respondent and even suggested that the maintenance can keep the Dragon Fruit Young and they can produce more and more.
- Only some of the respondent give priorities to the last and some of their suggestion are fertilizers and no shades for the production to increase.

The respondent gave the most priority to the good stand for the Dragon Fruit to grow and suggest that every poles should be concrete, and the next suggestion they give was to give as much as water can be to the Fruit to produce more and more. The respondents also suggest that for the production good distancing is needed.

## 6. SUGGESTION FOR MARKETING –

**Table 4.8**

Suggestion in terms of marketing 1	Frequency	Percent
No response	3	20.0
cold storage	2	13.3
export production to other states	2	13.3
Govt. agency to give production	2	13.3
more price on the dragon fruit	1	6.7
need stable price	5	33.3
Total	15	100.0
Suggestion in terms of marketing 2	Frequency	Percent
No response	12	80.0
cold storage	1	6.7
more price on the dragon fruit	1	6.7
need stable price	1	6.7
Total	15	100.0

**Source: Computed**

The above table 4.8 shows the respondent suggestion for marketing and the respondent are free to respond in any ways and the results of the respondent are divided into two parts and the first part is the respondent first priority and the second is their second suggestion and their next priorities.

- The First priorities the respondent given in the marketing is to stabilize the price of the Dragon Fruit (33.3% respondent) as the respondent cannot sell in a premium price and the price of the Mualthuam North Dragon Fruit cannot be applicable anymore. The respondent can only sell the Dragon fruit at the price of Rs.150/- per kg and sell the

fruit at the price of Rs.120/- or Rs.130/- at the market. The usual and premium price set by the Mualthuam North Dragon Fruit Association was Rs.200/- and Rs.180/- to be given in the market.

- The respondent second importance are to have a cold storage and more price on the dragon fruit. Especially in the season of Dragon fruit there is an increase in the production which cause deflation in the marketing and cold storage can keep the Fruit preserved and can sell in a premium price constantly.

The suggestion for the marketing given by the respondent are usually - cold storage that can store as many as the respondent needed, export production to other states to reduce the problem of selling as well as can fix the price instability. Govt. agency to purchase their production, more price on the dragon fruit and the need of stable price.

## 4.2. KEY INFORMANT INTERVIEW

### Demographic profile:-

Name – Mualthuam North Dragon Fruit Grower Association

ESTD – 2020

Member – 41

Chairman – V. Vanlalrema

Vice Chairman – Vanlalaua Varte

Secretary – H. Lalchawimawia

Assistant Secretary – PC. Liandinga

Finance Secretary – K. Sanghnuna

Treasurer – B. Lalbiakenga

### Member names and phone numbers –

S. No	Name	DOB	Phone No.
1.	V. Vanlalrema	19-09-1957	8118914248
2.	H. Vanlalauva	01-03-1960	9366345628
3.	H. Lalchawimawia	10-03-1979	8974731574
4.	PC. Liandinga	01-04-1949	9862040811
5.	B. Biakenga	26-12-1964	9366960047
6.	K. Sanghnuna	02-09-1964	8787881407
7.	NG. Lalengzaua	20-04-1962	9612554292
8.	ZD. Vanlalsawma	03-04-1977	8119867578
9.	PC. Liankunga	01-03-1971	9366947820



10.	R. Chhunthuama	25-04-1961	9366612963
11.	K. Sangzawni	15-03-1967	9366423552
12.	PC. Lianenga	15-03-1978	9612629972
13.	R. Chhunthuama	15-10-1969	9366177508
14.	Sailiana Sailo	11-08-1974	9862309027
15.	C. Lalrinthanga	01-03-1959	9362593574
16.	C. Vanlalnghaka	18-09-1989	6009013980
17.	C.Lalremsiama	23-03-1962	6009542448
18.	K. Sangtluanga	15-10-1967	6009236782
19.	R. Kawlbuanga	02-02-1949	6009473001
20.	Lalthanliana Sailo	01-10-1984	8974732503
21.	R. Biakvela	27-07-1988	6009379755
22.	PC. Lalchungnunga	01-11-1960	8729851247
23.	R. Lalchhandama	01-03-1982	6009110871
24.	ZD. Kaptluanga	05-02-1984	8787684194
25.	F. Vanlalhnaia	08-12-1966	9366341154
26.	C. Lalchungnunga	03-10-1965	9362540679
27.	Lalkeua Sailo	16-04-1952	6009104307
28.	PC. Chhawnkima	20-10-1970	9366416173
29.	C. Vanlalliana	01-04-1958	9366260442
30.	David Lalrinawma	03-01-1980	6909101199
31.	R. Lalruaia	15-10-1964	7005984214
32.	C. Laldinmawia	31-10-1988	9366789921
33.	Nguezidinga Sailo	01-02-1978	8787809959
34.	SR. Lalramzaua	20-12-1964	8413944891
35.	NG. Lalengzaua (buanga)	25-12-1984	8974745102
36.	Zorammuana	03-09-1969	9402339702
37.	R. Lalramliana	28-07-1962	9612310603
38.	K. Malsawmzela	15-05-1993	9862764318
39.	R. Lalnunmawia	01-01-1965	9862228762
40.	F. Lalmangaihzuala	14-07-1988	9366418493
41.	Vanlalthuama Sailo	20-06-1978	8787755919

**Mualthuam North leaders selection and committee 2020 –**

- On Dt.27/9/2020 (Sunday) the leaders are selected for the leaders starting from October 2020 to October 2021 and the leaders are appointed as –
  - V. vanlalrema – Chairman
  - Vanlalaua Varte – Vice Chairman
  - NG. Lalawmpuia – Secretary
  - H. Lalchawimawia – Assistant Secretary
  - B. Lalbiakenga – Treasurer
  - K. Sanghnuna – Finance Secretary
- Or those who are not the members of the Drragin fruit Association the membership fee should be Rs.100/-.

3. Different rates of the dragon fruit stem–
  - Rs.50/1ft.
  - If the feet of the stem is longer than 1ft the seller and the buyer should negotiate.

#### **Aims and objective :-**

To stabilize the dragon fruit price

To function as a pressure group as an association

To receive beneficiaries from the horticulture and distribute fundings from the government evenly.

#### **Planning :-**

1. Pesticide shipment through Central of Excellence.
2. The meeting held agenda is to give benefits or to receive the beneficiaries through the association which the horticulture department fundings
3. Build a rate on the price as to be sold in a premium price as to be sold in the amount of Rs.200/- and Rs.180/- to be given in the market.
4. To get a place or a cold storage to stock the production as the production tends to grow which causes a lack of place to stock the production.
5. To give the stem to the COE – The Central of Excellence is a Horticulture Department collaborated with Israel which is located near Saichho Village.
6. To achieve a winery production indirectly through Vanva Dragon Fruit Farmers Producer Company Pvt .ltd. this winery planning is still on a process as the winery farm is not well liked and the winery is not yet allowed in Mizoram and request was made to the Government of Mizoram.

#### **Schemes and benefits :-**

There is no benefits from the association as the main objectives are to stabilise the rates of the association and to act as a pressure group as well as to distribute the benefits from the government evenly.

#### **Achievements as an association:-**

1. Training from Central of Excellence by District Horticulture Officer and meeting –
  - How to plant
  - How to handle parascites and insects
  - Fertilizer distribution and the amount of fertilizer
2. The stem was given and sell to the Kawmzawl in a premium price.

#### **Partnership :-**

There is no stable partnership amongst other association as the association abolished before the lunglei district dragon fruit grower association. But after the lunglei district dragon fruit grower

association abolished Mualthuam North dragon fruit grower association participated and given their names as a part of the district dragon fruit grower.

Mutual relationship was build with the Centre of excellence horticulture department. As trainings and the engagement of the benefits are linked through mutual relationship as a short term relationship.

#### **Needs as an association :-**

- Water Gun to evenly distribute the water more efficiently in a manner to produce more of the Dragon fruit.
- Cutter is needed by the Dragon fruit as an association to borrow and used to cut the dragon fruit by not damaging the stem and not to leave scars
- Pesticide is needed as a farmer and as an association because the association do not have a place to buy. But the Mualthuam North Dragon Fruit Grower Association is requesting and expecting to attain through the Central Of Excellence.
- Yellowish stem chemical is needed to maintain the health of the Dragon Fruit as the yellowish Stem is the Disease of the Dragon Fruit. This chemical is needed as an association to maintain the health of the Dragon Fruit.
- Fertilizers – Source of fertilizers is needed by the Association as the association members cannot attain a sufficient amount of Fertilizers organic or inorganic.

#### **Problem faced :-**

1. Fluctuation of rates – due to increase in the production of the Dragon Fruit in the season of ripening the dragon fruit grower faced deflation in marketing, The original rate if the Dragon Fruit set by the Dragon Fruit Grower was Rs.200/- per kg and Rs.180/- to be given in Market. But due to increase of the Dragon fruit in a producing season the Dragon Fruit Grower in Mualthuam North had to sell the production in Rs.150/- per kg and Rs.130/- or Rs.120/- to be given in market. The price of the dragon fruit is negotiated between the Dragon Fruit Grower and the Sellers.
2. Deflation – Gambler for the price from the sellers. The Sellers from the market used to trick the Dragon fruit grower as telling the lies about the price of the Dragon fruit whom they get from. which causes the rate to deflate and the fruit price tends to get lower and lower.
3. Rat Problem – the main problem faced by the dragon fruit grower is from the rats that resides in jungle as they used to devour the fruits from the dragon fruit grower. Many plans and action is held but no improvement can be seen.

#### **Workers relationship as an association :-**

The work progress and the relationship between the association members are good as the leaders are willing to enforce the law made by the committee members and the members are unified through WhatsAap group.

#### **Future plan:-**

1. To produce as much production as possible to give it to the Vanva Dragon Fruit FPC Pvt .ltd,. The Vanva Dragon Fruit Farmers Producer Company Pvt .ltd was a company that tries to

promote the production of the Mizoram. They have planning to produce the fruit to export outside Mizoram. The company office is located in Haulawng and it was located in the north of Lunglei District.

2. The Mualthuam North Dragon fruit Association is requesting and expecting to attain pesticide for the Dragon Fruit Grower Association through the Central Of Excellence. Request was made to the Horticulture Department (Central Of Excellence which is the nearest Horticulture Department)
3. To make a rate and collaborate with the winery production company. Rioght now the winery production cannot be made through the agencies as the company is under the rules and still in the process of licensing the production.
4. One year assessment to achieve future planning by testing and estimating the production per year as the Mualthuam North Dragon fruit Grower Association is still lack on the production.
5. For those who suffer the increase in the numbers of rats which devours the dragon fruit are collected by the association leaders with their names with the loss from the rats and calculated in an amount to be submitted to the DC Office.

## **CHAPTER 5**

## **CONCLUSION AND DISCUSSION**

## **CHAPTER V**

### **CONCLUSION AND DISCUSSION**

This chapter gives information on the major findings of the study which is collected through interview, schedule and unstructured question.

#### **5.1. MAJOR FINDINGS:**

This chapter gives information on the general findings from the data collected through primary and secondary data by having an interview with the Mualthuam North Dragon Fruit Association members with a scheduled Likert questionnaires and unstructured questions. Key informant interview with the secretary of the Mualthuam North Dragon Fruit association was also held and the interview was used to extract the Associations profile aims and objectives as well as to acquire secondary data. To attain the objectives of the study of production of the dragon fruit grower, to study the marketing process of the dragon fruit grower and the challenges faced by the Mualthuam North Dragon Fruit Growers.

The major findings of this study were drawn based on the criteria of objectives of the study such as –

##### **Objective I: To study the production of the Mualthuam North Dragon Fruit Grower –**

In the production of the Dragon Fruit the Mualthuam north Dragon Fruit Grower the respondent have given a suggestion and answered a question regarding their production. The results are as follows –

- The dragon fruit farmer produced only a good quality of dragon fruit.
- Usually the Dragon Fruit Growers produce three times a year.
- The Dragon fruit growers possess the skills to produce 4 times a year. In-fact the Dragon fruit grower can produce the fruit 5 – 6 times a year.
- The dragon fruit growers can also earn a living from dragon fruit cultivation and their production is enough to earn living.
- The dragon fruit quantity of production depends on the nutrient supply of fertilizers.
- The dragon fruit Grower uses organic and inorganic Fertilizers and the growers especially used poultry fertilizers as their fertilizers.

The Dragon Fruit Growers of Mualthuam North suggested that to produce good quality and quantity of Dragon Fruit the poles or stand for the stem to grow is very important, and suggested that the stand for the dragon fruit should be a concrete to uphold the weight of the Dragon fruit or a good stand that cannot whither as time passes buy. To have a good production the dragon fruit need a good amount of fertilizers and water. The distancing is also needed to be wide enough to grow their stem. Also they suggested that cutting down the yellowish stems and good maintenance can make the dragon fruit healthy and keep them young to produce more of the fruit and the growth can be increased if the stem is planted in a surface level of the ground.

## **Objective II: To study the marketing process of the Dragon Fruit Grower –**

The study of marketing process of the Dragon Fruit Grower in Mualthuam North is made to the growers itself and the Dragon fruit growers also give suggestion in the marketing. And the findings are as follows –

- The Dragon fruit grower in Mualthuam North usually sell their production by themselves as the price have gone down in the areas of Mualthuam North. By selling their production in patty shop is more efficient for their perspectives.
- There is no person who can give their production to Government agencies.
- The Dragon Fruit Growers of Mualthuam North can still sell the Dragon Fruit profitably by the Dragon Fruit Growers of Mualthuam North on their perspective even with the low rate i.e. Rs150/- per kg for selling and Rs.120/- to Rs.130/- to be given in the market.
- The price if the stem is fixed and the price depends on the length of the seed.
- There is still not much of problem in selling the production. But, problems can arise when there is an increase in the production of the Dragon Fruit.
- The Dragon Fruit cannot be sold in a premium price due to the increase in the production of the Dragon Fruit.

The Dragon Fruit Growers have given a thought and suggestion regarding the marketing of the Dragon Fruit and suggested that if there can be a Government agency or a company to sell their production there will be no problem in finding a place to sell their productions. Also, if there can be an exportation to other states the problem of low price can be fixed. They also suggested that the price of the Dragon fruit should be increased in a premium price i.e. Rs.200/- per kg as the price of the local dragon fruit is Rs.150/- per kg.

## **Objective III: To study challenges faced by the Dragon Fruit Grower –**

The challenges faced by the Dragon Fruit Grower in their production are discussed with the Dragon Fruit growers and their opinion are collected. The results are as follows –

- The Dragon Fruit Growers cannot find enough fertilizers for their Dragon Fruit.
- The source of water is not enough for the Dragon Fruit Growers as the location where they grow the fruit is in a hilly areas and the growers have to buy the water. Especially the place for storing the water is a big problem faced by the Dragon Fruit Growers.
- Financially the Dragon Fruit Grower can manage on maintaining the farming process and its maintenance.
- The farmers have faced a problem insects and parasites in their production especially from rats. The rats used to eat their Dragon fruit and have a loss on their production.
- The Dragon Fruit Grower faced a problem in maintaining the health of the dragon fruit as the disease called ‘anthracnose’ that cause a fruit rot and stem cancer frequently infected to their Dragon Fruit. The Farmer suggested that the diseased stem should be cut down to keep the Dragon Fruit Healthy.

- Some of the early Grower of Dragon Fruit received a Financial Assistance from the Government but almost all of the Dragon Fruit Grower do not received any Financial Assistance from the Government.

Some of the major challenges faced by the Dragon Fruit Growers are the in-availability of the fertilizers, lack of source of water, attacks from rats and diseases acquired by the Dragon Fruit. Many of the challenges comes from lack of resources, lack of tools to guard the fruit and frequent diseases acquired by the Dragon Fruit.

## 5.2. CONCLUSIONS

The present study aims to understand the process of production of the dragon fruit grower, to study the marketing process of the dragon fruit grower and to study challenges faced by the dragon fruit grower. All the study focuses on the Dragon Fruit Grower of Mualthuam North. Challenges and problem arise in every corner of the production and marketing as well as the overall challenges talked in the above results and discussion. The Dragon Fruit Grower formed an association to resolve any problem and challenges faced by the Dragon Fruit Grower.

From the study of the Dragon Fruit Growers Production they can produce a good qualities of the dragon fruit and acquired the skills to produce the Dragon fruit 5 – 6 times in a year and can earn living through the production. But, problem can arise in the process of the production such as Dragon fruit cancer (a disease that can cause a rotting to the stem and to the fruit), lack of storage in a Dragon Fruit production season and lack of nutrient supply for the Dragon fruit as well as attack from paracites. To solve all of the problems in an effective way Mualthuam North Dragon Fruit Grower Association makes a planning and make a strategy to decrease the rising of the problem they organise a training in collaboration with The District Horticulture Officer to take care of the Dragon Fruit Diseases, requesting the Centre of Excellence to let them use their cold storage and still in a process, requesting the Horticulture department (Centre of Excellence) to order pesticides and fertilizers for the association. The Association also stands for distributing the benefits from the Horticulture Department for the growers who are in need of the benefits either in kind or in cash lastly for the production problem caused by parasites the Association collected the loss from the parasites in cash and their names then the list was submitted in the DC Office in hoping to receive refunds for their loss.

From the study of Marketing on the Dragon Fruit Grower of Mualthuam North. Problems of marketing and their methods of marketing was focussed and the findings showed that, the marketing fluctuated as production rises in the local areas. The Dragon Fruit Grower had to sell their own production to have a good income from the production, but despite the Deflation of the price of the marketing the community thinks it is still profitable and still can earn living through Dragon Fruit Production according to the findings of the research. The Dragon Fruit Growers makes a suggestion regarding the marketing and states that the price needs to be stable with the increase of the Dragon Fruit Price and to export to the neighbouring states and to other states. To solve the problem of the deflation in the marketing Dragon Fruit



Grower Association makes a planning to collaborate with Vanva Dragon Fruit Farmers Producer Company Pvt .Ltd. It is a company that focused on the improvement of the dragon fruit Production and work upon the fruit processing that should be exported. The association makes a preparation for one year to give their production to the Company and can start giving their production in the Company which will lead to the decrease of deflation as well as mobilization of the stability of the price of the Dragon fruit.

### 5.3. SUGGESTION

The suggestion proposed here are mainly based on the results of the study of production, marketing and challenges faced by the Mualthuam North Dragon Fruit Grower Association

***Technique of cultivation:*** In the process of cultivating the seed or the stem the stem should be planted in a surface areas and before planting the seeds dug a hole and fill with a fertilizer can improve the growing process as well as distancing is also very important.

***Funding:*** If funding are provided regularly to the dragon fruit growers in kind or in cash to the association. The process of production can be improved greatly as an association as well as private production.

***Agency to supply the dragon fruit:*** The dragon fruit grower cannot sell in a premium price and if there is an agency to supply the Deflation of marketing can also be decreased.

***Provision of resources and fertilizers:*** The dragon fruit grower cannot find enough fertilizers on their own and if there is a source of supplier from the Government, company, or agency. There will be more production.

***Support for water restoration and distribution tools:*** The Dragon Fruit Grower do not have any place for a large water restoration and the tools is lacking for storing the water and water distribution tools. If the Government can donate the materials and tools for the storatation of water it would make a huge difference in terms of production.

### 5.4. POSSIBLE SOCIAL WORK INTERVENTION

The possible social work intervention from the research of the study of production and marketing of Dragon Fruit Grower in Mualthuam North are-

- Micro levels:- the micro level of the possible social work intervention are –
  - Educator: Educator role can be played as conducting the skills of farming or cultivation to each and every individual.
  - Case study can be held during the research as well as to study the challenges and needs individually.
- Mezzo levels:- the macro levels that can be appointed in the possible social work intervention are –
  - Advocate: By advocating to the Government for the Dragon Fruit Grower to let the grower be a part of the Government schemes beneficiaries given out from the Horticulture Department

- Collaborator: Collaboration with the District Horticulture Officer for the purpose of training the Dragon fruit Grower.
- 
- Macro levels:- the macro level focused on the possible social work intervention at the level of wide varieties.
  - The research of the Dragon fruit can be used in the improvement of the community or at the state level.
  - The research can be used in the improvement of the negligence of the Dragon Fruit Grower

## Reference:

- Farid Md. Hossain et al. Cultivation, Nutritional Value, and Health Benefits of Dragon Fruit *Hylocereus* spp a Review April 2021 International Journal of Horticultural Science and Technology.  
[https://www.researchgate.net/publication/350835439\\_Cultivation\\_Nutritional\\_Value\\_and\\_Health\\_Benefits\\_of\\_Dragon\\_Fruit\\_Hylocereus\\_spp\\_a\\_Review](https://www.researchgate.net/publication/350835439_Cultivation_Nutritional_Value_and_Health_Benefits_of_Dragon_Fruit_Hylocereus_spp_a_Review)
- Fabrice Le Bellec et al Pitahaya (*Hylocereus* spp): A new fruit crop, a market with a future July 2006 Fruits 61(6)  
[https://www.researchgate.net/publication/41713104\\_Pitahaya\\_Hylocereus\\_spp\\_A\\_new\\_fruit\\_crop\\_a\\_market\\_with\\_a\\_future](https://www.researchgate.net/publication/41713104_Pitahaya_Hylocereus_spp_A_new_fruit_crop_a_market_with_a_future)
- G C Wakchaure et al, ICAR–National Institute of Abiotic Stress Management, Baramati, Pune studies of Dragon Fruit Cultivation in India: Scope, Marketing, Constraints and Policy Issues in India The SWOT analysis. [https://www.researchgate.net/profile/Jagadish-Rane-2/publication/348844675\\_Dragon\\_Fruit\\_Cultivation\\_in\\_India\\_Scope\\_Marketing\\_Constraints\\_and\\_Policy\\_Issues/links/60c9f6be458515dc1785aab3/Dragon-Fruit-Cultivation-in-India-Scope-Marketing-Constraints-and-Policy-Issues.pdf](https://www.researchgate.net/profile/Jagadish-Rane-2/publication/348844675_Dragon_Fruit_Cultivation_in_India_Scope_Marketing_Constraints_and_Policy_Issues/links/60c9f6be458515dc1785aab3/Dragon-Fruit-Cultivation-in-India-Scope-Marketing-Constraints-and-Policy-Issues.pdf)
- G. Karunakaran et al. on DRAGON FRUIT COUNTRY REPORT FROM INDIA  
<https://krishi.icar.gov.in/jspui/bitstream/123456789/23809/1/Dr.Karunkaran,%20vetnum%20proceeding%20.pdf>
- Kundan Kishore et al. Calcium nutrition influencing yield and fruit quality of dragon fruit (September 2022) Indian Journal of horticulture.  
[https://www.researchgate.net/publication/363862828\\_Calcium\\_nutrition\\_influencing\\_yield\\_and\\_fruit\\_quality\\_of\\_dragon\\_fruit](https://www.researchgate.net/publication/363862828_Calcium_nutrition_influencing_yield_and_fruit_quality_of_dragon_fruit)
- KJ Krishi Jagran, Agripedia. <https://krishijagran.com/agripedia/dragon-fruit-market-in-india-business-prospects-quite-healthy/>
- RC Laldusangi and Debashis Mandal 2018 – 2019 science and technology journal vol 9. Performance of dragon fruit under integrated nutrient Management at Mizoram  
[https://www.researchgate.net/publication/353216494\\_Performance\\_of\\_Dragon\\_Fruit\\_under\\_Integrated\\_Nutrient\\_Management\\_at\\_Mizoram](https://www.researchgate.net/publication/353216494_Performance_of_Dragon_Fruit_under_Integrated_Nutrient_Management_at_Mizoram)
- Sergio Tonetto De Freitas, Quality of pitaya fruit (*Hylocereus undatus*) as influenced by storage temperature and packaging August 2013, Scientia Agricola 70(4)  
[https://www.researchgate.net/publication/258028425\\_Quality\\_of\\_pitaya\\_fruit\\_Hylocereus\\_undatus\\_as\\_influenced\\_by\\_storage\\_temperature\\_and\\_packaging](https://www.researchgate.net/publication/258028425_Quality_of_pitaya_fruit_Hylocereus_undatus_as_influenced_by_storage_temperature_and_packaging)
- Susmita Das and safina kosser. Dragon Fruits as a Functional Food August 2022 Vol.2 issue 12 on the Just Agriculture Multidisciplinary e-newsletter.  
[https://www.researchgate.net/publication/363173284\\_Dragon\\_Fruits\\_as\\_a\\_Functional\\_Food](https://www.researchgate.net/publication/363173284_Dragon_Fruits_as_a_Functional_Food)

## Annexure-1:

# SCHEDULED QUESTIONNAIRES FOR MUALTHUAM NORTH DRAGON FRUIT GROWER ASSOCIATION

Objectives:

- To study production of the dragon fruit grower
- To study the marketing process of the dragon fruit grower
- Challenges faced by the dragon fruit grower

## I: DEMOGRAPHIC PROFILE

### I. Personal Information:

Schedule No: .....

*(Tick (✓) the most appropriate option)*

Khua/Veng:.....

1.	Name (Optional)	:	Mr./Ms.:
2.	Age	:	1. 25-45 <input type="checkbox"/> 2. 46- 75 <input type="checkbox"/>
3.	Gender	:	1. Male <input type="checkbox"/> 2. Female <input type="checkbox"/>
4.	Religion	:	1. Christian <input type="checkbox"/> 2. Hindu <input type="checkbox"/> 3. Muslim <input type="checkbox"/> 4. Any other (Specify).....
5.	Community	:	1. ST <input type="checkbox"/> 2. SC <input type="checkbox"/> 3. General <input type="checkbox"/> 4. OBC <input type="checkbox"/>
6.	Type of Family	:	1. Nuclear <input type="checkbox"/> 2. Extended <input type="checkbox"/> 3. Single Parent <input type="checkbox"/>
7.	Size of Family	:	..... Number
8.	Ownership of cultivating land	:	1. Owned <input type="checkbox"/> 2. Rented <input type="checkbox"/>
9.	Close Relative owned dragon fruit grower	:	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>

## II. Educational Background:

(Tick (✓) the most appropriate option)

S.N	Level	Year	Stream	Place	Medium
1.	Below HSLC				
2.	HSLC		..... .	1.Mizoram <input type="checkbox"/> 2.Outside Mizoram <input type="checkbox"/>	1.Mizo <input type="checkbox"/> 2.English <input type="checkbox"/>
3.	HSSLC		1. Arts <input type="checkbox"/> 2. Science <input type="checkbox"/> 3. Commerce <input type="checkbox"/> 4. Any Other (Specify).....	1.Mizoram <input type="checkbox"/> 2.Outside Mizoram <input type="checkbox"/>	1.Mizo <input type="checkbox"/> 2.English <input type="checkbox"/>
4.	UG		1. Arts <input type="checkbox"/> 2. Science <input type="checkbox"/> 3. Commerce <input type="checkbox"/> 4. Any Other (Specify).....	1. Aizawl <input type="checkbox"/> 2. Lunglei <input type="checkbox"/>	1.Mizo <input type="checkbox"/> 2.English <input type="checkbox"/>
5.	Other Qualification		If any, (Please Specify).....		

Sl. No	Variables		Response
1.	Family Economic Status	:	1. BPL <input type="checkbox"/> 2. AAY <input type="checkbox"/> 3. APL <input type="checkbox"/>
2.	No. of family member having regular income	:	..... Numbers
3.	Family Primary Occupation	:	1. Govt. Servant <input type="checkbox"/> 2. Business <input type="checkbox"/> 3. Daily Labourer <input type="checkbox"/> 4. Agriculture <input type="checkbox"/> 5. Any other ( <i>Specify</i> ) ..... .....
4.	Monthly/Annual household Income ( <i>Primary source</i> )	:	Rs. ....
5.	Family Indebtedness	:	1.No debt <input type="checkbox"/> 2. Bank <input type="checkbox"/> 3. Money Lender <input type="checkbox"/> 4.Other financial Institution <input type="checkbox"/>
6.	Saving Money/ Savings Scheme (Personal)	:	1.No saving <input type="checkbox"/> 2. Self-savings <input type="checkbox"/> 3. Bank <input type="checkbox"/> 4. Insurance <input type="checkbox"/> 5. Post Office Savings <input type="checkbox"/> 6. Any other ( <i>Specify</i> ) .....
7.	Owned Personal Bank Account	:	1. No personal Bank Account <input type="checkbox"/> 2. Saving Account <input type="checkbox"/> 3. Fixed deposit Account <input type="checkbox"/> 4. Joint Account <input type="checkbox"/> 5. Any other ( <i>Specify</i> ) .....
8.	Financial Support for farming	:	1. Self <input type="checkbox"/> 2. Family <input type="checkbox"/> 3. Government <input type="checkbox"/> 4. Any other( <i>Specify</i> ) ..... .....

### III. Economic background

**IV. Challenges faced by the dragon fruit grower in production, marketing and common challenges faced.**

(Tick (✓) the most appropriate option)

S/No	Question	1	2	3	4
1.	I produce good quality only				
2.	I always produce my fruit 3 times in a year				
3.	I possess the skills to produce 4 times a year				
4.	I can earn living by selling my production				
5.	The length of the stem for the seed depends on its length				
6.	I rely on organic and inorganic fertilizer				
7.	I give my production to the market				
8.	I can sell my production through government agencies				
9.	I can sell the stem and the fruit profitably				
10.	The price of the stem seed depends on its length				
11.	I face problems in selling my production				
12.	I can sell the fruit in a premium price				
13.	I can always found enough fertilizer				
14.	I face problem in distribution of water				
15.	I have a financial problem in the farming process				
16.	I face problem from insects/practices				
17.	I face problem in the maintaining of the health of the dragon fruit				
18.	I have received financial assistance from the government/agencies				

**Response key: 1= Strongly disagree, 2= Disagree, 3= Agree 4 = Strongly agree**

**Q. Suggestion in terms of Production at least 3**

**Q. Suggestion in terms of Marketing at least 3**



