



**Daffodil**  
*International*  
**University**

Project report on

## **Organic farming and products marketing strategy in Bangladesh**



Submitted to:

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## LETTER OF TRANSMITTAL

Date:

Professor Dr. Md. Bellal Hossain Chowdhury

Head

Department of nutrition and food engineering

Subject: Submission of project report on Organic farming and products marketing strategy in Bangladesh.

Dear Sir,

It is a great pleasure and honor for me to have the opportunity to submit project Organic farming and products marketing strategy in Bangladesh as a part of the Nutrition and Food Engineering (NFE) program curriculum. I have prepared this report based on the acquired knowledge during my project work period at Daffodil agro complex and BARI. It is great achievement to work under your active supervision. This report is based Organic farming and products marketing strategy in Bangladesh. I have got the opportunity to work at Daffodil agro complex, under your active supervision. This is the first times this project gave me both academic and practical knowledge. First of all I have gained knowledge about organic farming and its market in Bangladesh. Secondly, the project gave me the opportunity to develop a network with the corporate environment.

I therefore, would like to place this report to your judgment and suggestion. Your kind advice will encourage me to perform better planning in future.

Sincerely Yours,

Md. Masum Billah

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## **CERTIFICATE OF APPROVAL**

I am pleased to certify that the project report on Organic farming and products marketing strategy in Bangladesh conducted by Md. Masum Billah bearing ID 151-34-362 of the department of Nutrition and Food Engineering has been approved for presentation and defense/viva-voce.

I am pleased to hereby certify that the data and finding presented in the report are the authentic work of Md. Masum Billah, I strongly recommended the report presented by Md. Masum Billah for further academic recommendations and defense/viva-voce. Md. Masum Billah bears a strong moral character and a very pleasant personality. It has indeed a great pleasure working with him. I wish him all success in life.

-----

Professor Dr. Md. Bellal Hossain Chowdhury  
Head  
Department of Nutrition and Food Engineering  
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## DECLARATION

This Dissertation entitled “**Organic farming and products marketing strategy in Bangladesh**” is being submitted to the Department of Nutrition and Food Engineering, Faculty of Allied Health Sciences, Daffodil International University Dhaka-1207, Bangladesh as a part of partial fulfillment of the requirements for the degree of Bachelor of Science in Nutrition of Food Engineering. No part of this work referred to in the project has been submitted in support of an application for another degree or qualification of this or any other University or other Institute of learning.

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## ACKNOWLEDGEMENT

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Moreover, again I would also like to express my gratitude to **Prof. Dr. Md. Bellal Hossain** for giving me the opportunity to work at daffodil agro complex and sending me at Bangladesh Agricultural Research Institute to gain practical knowledge.

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Finally, I wish to express immense gratitude and humbly convey my heart-felt respect to all the people who helped me.

## ABSTRACTS

Organic Farming is an agricultural system that promotes environmentally, socially and economically sound production of crops and timber etc. In this system, preservation of soil fertility is considered as the key to successful production. It escapes, the use of chemical-synthetic fertilizers, pesticides and pharmaceuticals. Organic farming is a production system that avoids or mostly excludes the utilization of synthetically combined fertilizers, pesticides, growth regulators. Organic farming is one such technology which will cut back the harmful impacts of agrochemicals, and is considered by many scientists to be the best form of agriculture 1960s. The people all over the world are expressing great concern over the indiscriminate use of chemicals. Therefore, importance is now focused on the use of organic and other byproducts of agriculture and industries. Due to climate change it become necessary to focus on the hybrid production method. So many difficulties facing by people due to the hybridization of the agricultural system.

Thus, a complete shift to organic farming is neither desirable nor possible in high input use areas which are the major contributors of food grains, vegetables and fruits etc. This study includes the importance of organic farming at Gozeria Sandy soil in special techniques in the Chore areas of Munshigonj near to Meghna River bank under Daffodil Agro complex with the help of Bangladesh Agriculture University Germplasm Centre. The methods used in plantation as well as the organic products producing at DIU Complexes.

Under this selection, DIU scientists are developed the new process for sandy soil development with special techniques for organic farming of Dragon fruits plant, Jujabee, Lemon, Mango, Guava, Leafy vegetables, and other citrus fruits. The marketing strategy is of organic products and their potential demand also analyzed.

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# Chapter I

## Organic farming and product marketing strategy

### 1.1 Introduction:

The earth is under danger due to climate change. That's why environment is the most thinking issue to all. To fulfil public demand of safe food, the organic farming is become necessary. Organic farming is a type of farming where fruits and vegetables are produced without using of any artificial fertilizers and pesticides. Plants and animal residues are used as organic fertilizer known as compost fertilizer which keeps the soil health. Modern agriculture management system increase the productivity but reduce the fertility of the land. Highly usage of artificial fertilizer and chemical creates an impact on food. To control the quality of land it's necessary to increase the usage of organic fertilizer or compost fertilizer. The main principles of organic farming are the recycling of animal and plant nutrients and components, to create pesticides free and well fertile land, the proper maintenance of natural resource, and to create ecofriendly environment to increase the productivity of fresh foods. In organic farming method, organic fertilizer are used instead of chemical fertilizer. The sources of this type of organic fertilizer are farm fertilizer, compost fertilizer, garbage extract, biological nitrogen, , household animals shit, and dried blood, crushed bones, and green fertilizer.

It's very necessary keep focus on organic farming if we want ecofriendly agricultural environment and healthy life as well.

### 1.2 Objectives of the study:

- Observation the potential market of organic food products in Bangladesh.
- Development of awareness steps for organic firming and sailing of Bangladesh.
- Encouraged the people for organic farming.
- Examined the demand of the organic product in local market as well

### 1.3 Methodology:

This study achieved by the using of data collected from the different sources. Important information collected from the websites, journals, newspapers, books and on field observations. Different types of criteria were used to collect data about the production of organic fruits like the land development, the organic fertilizers, and irrigation methods etc. under this study. SWOT analysis was conducted on few potential products to determine market in Bangladesh.

## Chapter II

### Back ground information

#### 2.1 History of organic farming:

Before 1920, farmers are produced foods in typical natural method. They used natural resource, feeding their soil naturally in a traditional way. But the World War 2 totally changed the methods. Various new research invented different types of chemical which are using from then to nowadays. The indentation of DDT was creating the new era.

Then the usage of various artificial fertilizer and pesticides was started affecting the human health and soil health as well.

Very new life threatening diseases were starting to attack the human. Various new allergies and skin problems also shown to the people. And also reducing the soil health potentially like soil erosion, soil depletion, low food quality and livestock feed. Then scientists were realized that if we would like to solve this problem our focus should turn to soil health.

Modern organic movement was started in Europe the United States of America. But it was modern, pure organic agriculture method was starting at 1840.

The very fast organic farming method developed at 1924, the “Spiritual Foundations for Renewal of Agriculture” book says it. From then to now it has developed much.

#### 2.2 Significances of organic farming in Bangladesh <sup>2-3</sup>:

Bangladesh can possibly develop organic crops naturally. The team on natural cultivating designated by legislature of Bangladesh saw that immense region in the nation is misused with synthetic concoctions which give low yield. These territories can be focused to give high generation through natural cultivating. Bangladesh has incredible breadth to wind up in best 10 natural exporter in the world.

Natural cultivating can keep up soil quality. The compound utilize is hitting the manageability in soil and diminishing its power. Applying natural compost is the main answer for enhance the dirt natural carbon efficiency later on. Our nation has immense measure of horticulture squander yet its vast majority isn't being utilized. There ought to be a technique for substantial scale change of natural horticulture which would diminish sustenance deficiency, as the yield of natural frameworks identify with regular agribusiness on a normal 10– 15%, particularly in serious cultivating frameworks the yield is high. In customary agribusiness, for example, rain-encouraged, natural cultivating can possibly expand the yield. Since about 70% of the aggregate cultivable land comes in this class 5 – 10% expansion in ranch creation would help in accomplishing the focused on development rate by 4 – 5% in rural generation.

Natural excrement can be utilized as an option sustainable asset for supplements supply. An enormous hole exists between the accessible amount and used amount. Be that as it may, it can't be conceivable to meet the supplements prerequisite in harvests from natural sources, if the 100% of cultivable land is changed over into natural cultivating. Natural cultivating framework will have

the capacity to convey agronomic and condition advantage both through basic change and strategic administration of cultivating framework. The advantages of natural cultivating include: to created nations (condition assurance, Increase of biodiversity, diminish vitality utilize and CO<sub>2</sub> outflows) and for creating nations like India (effective utilization of assets, increment in product yields, condition and biodiversity defending, and so on.).

Natural sustenance's are demonstrated to have prevalence regarding wellbeing and security, however there is no proof to demonstrate this predominance as far as taste and nourishment, as the greater part of the investigations done are regularly doesn't have end. Joining lower input costs and great cost can balance lessen yields and make natural homesteads more beneficial than regular ranches. In any case, thinks about which did exclude natural cost gave blended outcomes on benefit the superior cost on the natural sustenance that chooses the financial attainability of natural cultivating, in any event at the present rate of improvement in natural horticulture. Natural cultivating frameworks have irritation and malady the board approach which are to a great extent preventive than receptive.

### **2.3 Awareness about organic farming:**

Bangladeshi governments taking necessary steps to increase the productivity of organic products and millions of taka investing on it to encourage the farmers.

- The organic products market here in Bangladesh is increasing day by day. Most of the educated people are willing to buy fresh and organic products even at slightly high price.
- Governments conducting very useful events to spreading the knowledge about the benefits of organic foods to consumers.
- Various agricultural organizations are helping to farmers by distribute organic seeds.
- Government and non-governments organizations are giving training to farmers to increase the productivity.
- Domestic organic market also increasing day by day.
- Not only to the farmers, are government organizations try to spread knowledge about the benefits of organic foods consumption by different types of program.
- Few NGOs delivery organic seeds to the consumers for free to encourage home gardening and try to create a habit to consumption of organic products.
- Educated people who are concern about their health are willing to buy organic foods.
- According to the Bangladesh organic product manufacturers association (BOPMA), Bangladeshi organic foods manufacturers are also exporting their organic products to abroad.
- As the awareness increasing among consumers Organic Farming has a huge potential growth in future.
- Beside all of these Organic Farming can reduce CO<sub>2</sub> emission and control nitrate loss, maintain soil health, and keep ecosystem well

## **2.4 Problems associated with modern farming:**

Since few decades, the environment continuously changing because of plenty explosions of agricultural resource and uncontrolled by-product wastages. As a result the situation of the environment is in trouble, human life and plant community is in under threat.

### **i. Ozone layer damage:**

Ozone layer gives protection and act as a buckler from the damaging. If this protection is not work, the lives in earth are facing trouble. But this life saving layer become thinner continuously every year because of the reaction with chlorofluorocarbons (CFCs) which are come out from aerosol spray, refrigerators and air condition. As a result the ozone layer depleting and by which ultra violet (UV) rays reaching earth and create trouble for lives. If the ozone layer destroyed totally the lives on earth will destroy.

### **ii. Global warming:**

The temperature of earth is noticeably increasing day by day due to increased amount of greenhouse gas in the atmosphere. Which resulting that the temperature of the environment will increase 4 degree Celsius within next few decades. It will affect the sea level by melting the ice exists in Antarctica. The problem of these in agriculture are decreased the productivity and increase the infectious diseases.

### **iii. Acid rain:**

In atmosphere the increasing amount of sulfur dioxide and nitrogen dioxide are forming acid which come on the surface with rain and create damage. It's known as acid rain. Acid rain destroy the crops, forest, house, and soil and makes trouble for agriculture.

### **iv. Degradation of land:**

Due to the excessive usages of artificial fertilizers, pesticides, insecticides, various agricultural chemical and various cropping together leads the soil degradation and reduces the fertility of soil. For this reason the productivity of land also decreasing and affecting on the agriculture.

### **v. Destruction of forest:**

To increase the cultivation area people are continuously destroying the forest. It occurs due to the extra demand of the increasing amount of population. We know that forests are playing important role. It controlling the soil erosion, fertility, floods and also control carbon dioxide and oxygen. Deforestation also helps to increase environment temperature which known as global warming, it may leads drought.

### **vi. Genetically modified crops:**

Modern farming technologies are encourages to produce genetically modified foods to fulfil the consumers demand. To produce genetically modified foods farmers are using gen modified seeds to improve productivity. But it creates problem like;

- Superbugs :

Superbugs are more poisonous pest which were found in hybrid farm. Farmers have to use stronger chemical to destroy them.

- Kill bees and butterflies:  
Genetically modified crops are containing more pest killer elements, that why farmers are producing this type of foods even without using of excessive chemicals. But the thing is it kills the bees and butterfly which may effect on the ecosystem.

## **2.5 Effects of chemical compound:**

Foods contains some harmful elements, however it might incorporate synthetic substances that can expand your danger of sickness. These synthetic concoctions can incorporate pesticides, herbicides, manures, additives, fake hues and seasons, and modernly created fats and sugars. Not these substances may show up on the nourishment item mark.

### **i. Direct impact on humans:**

If the credits of pesticides include enhanced economic potential in terms of increased production of food and fiber, and amelioration of vector-borne diseases, then their debits have resulted in serious health implications to man and his environment. There is now overwhelming evidence that some of these chemicals do pose a potential risk to humans and other life forms and unwanted side effects to the environment.

The high hazard bunches presented to pesticides incorporate creation laborers, formulators, sprayers, blenders, loaders and horticultural homestead specialists. Amid make and definition, the likelihood of perils might be higher in light of the fact that the procedures included are not hazard free. In mechanical settings, laborers are at expanded hazard since they handle different harmful synthetic compounds including pesticides, crude materials, dangerous solvents and latent bearers.

### **ii. Influence on environment:**

Pesticides can debase soil, water, turf, and other vegetation. Notwithstanding murdering bugs or weeds, pesticides can be harmful to a large group of different life forms including winged creatures, angle, gainful creepy crawlies, and non-target plants. Bug sprays are commonly the most intensely dangerous class of pesticides, however herbicides can likewise present dangers to non-target living beings.

### **iii. Contamination of surface water:**

Pesticides can achieve surface water through overflow from treated plants and soil. Defilement of water by pesticides is across the board. Few study proved that pesticides were found in all examples from significant waterways with blended farming and urban land utilize impacts and 99 percent of tests of urban streams.

**iv. Impact on soil fertility:**

Overwhelming treatment of soil with pesticides can make populaces of useful soil microorganism's decrease. As indicated by the dirt researcher Dr. Elaine Ingham, "On the off chance that we lose the two microorganisms and parasites, the dirt corrupts. Abuse of synthetic manures and pesticides have impacts on the dirt life forms that are like human abuse of anti-microbial. Aimless utilization of synthetic substances may labor for a couple of years, yet after briefly, there aren't sufficient useful soil living beings to clutch the supplements".

**v. Contamination of air, soil, and non-target vegetation:**

Pesticide showers can straightforwardly hit non-target vegetation, or can float or volatilize from the treated region and debase air, soil, and non-target plants. Some pesticide float happens amid each application, even from ground gear. In spite of the way that just constrained research has been done on the point, thinks about reliably discover pesticide deposits in air. But it affects the air as well as different plants through air.

**2.6 Food security in Bangladesh:**

Food security exists when all people, at all times, have access to sufficient, safe and nutritious food to maintain healthy and productive lives. The key elements of food security are:

- Availability of enough food from domestic production and/or imports to meet the demand,
- Access of the food to all people at all times through enough incomes and affordable prices,
- Proper hygiene and sanitary practices and safe water for utilization of food to have optimum impact on health and nutrition, and
- A regulatory framework in place and its proper implementation for controlling contamination to ensure food safety.

But, is it safe to have food in Bangladesh remains a big question. Tragically, our controllers, approach organizers, and political administration accountable for guaranteeing nourishment security administration, fizzled us in approaching safe sustenance yet. Since we have sheltered and unadulterated safe nourishment in our plates, sustenance security will remain a long ways regardless of the amount we create, how effectively we showcase, how magnificently we disperse. Individuals can endure starvation for constrained period in any case, may need to kick the bucket from utilization of defiled nourishment. We have sufficiently heard of obsolete laws, for example, unadulterated nourishment act, and sufficiently heard of government ordering stringent, present day laws set up yet any unmistakable authorization is yet to stop. Correspondingly, about portion of the ladies in these three biggest nations of South Asia are experiencing iron deficiency. In the course of the most recent three decades, sustenance generation and accessibility has expanded at a decent pace in Bangladesh and in addition whole of South Asia. This expansion was credited to

the great execution of Bangladesh, India and Pakistan, where per capita sustenance generation expanded by 1.1%, 1.4% and 1.0% separately. While India and Pakistan are independent in the creation of most nourishment wares, Bangladesh and Sri Lanka have likewise turned out to be confident underway of their staple rice. Therefore, South Asia's per capita sustenance accessibility expanded from 2,259 kcal/individual/day to 2,434 kcal/individual/day somewhere in the range of 1991 and 2011. Malnutrition, neediness and appetite have diminished in Bangladesh in the course of the most recent three decades. Additionally, the nation has planned a complete social wellbeing net which has profited the populace, especially the defenseless ones. The nourishing status of ladies has enhanced in the course of the most recent a very long while, yet variations exist by pay and societal position. In 2011, about a fourth of ladies matured (15-49 years) experienced interminable vitality lack with a BMI of under 18.5) contrasted with half of the ladies in late 1990s. Higher interest for lodging, street building and industrialization is removing prolific farmlands while challenge is getting greater and greater in taking care of more noteworthy nourishment demand of expanding populace. Despite the fact that the birth rate is settled yet in view of a current expansive populace base, Bangladesh needs to become about a large portion of a million tons of extra rice year-on-year just to keep pace with the increasing number of mouths to be nourished.



## Chapter III

### **Organic farming in Bangladesh:**

#### **3.1 History**

Considering physiological needs of Bangladeshi nations, a group of scientist have developed high yield crops for all seasons with higher amount of essential nutrients in daily meal. To meet up these demand, organic crops are most essential and that's why, a concerted planning was coopted under DIU Gozaria sandy land near to Meghna river bank with new approach without inorganic materials used at the soil and also plants. Only organic composed fertilizer with organic growth hormone, manmade technology to safe the crops etc. to confirming organic crops/fruits. In this circumstance the legislature is presently thinking about for fares of rice subsequent to guaranteeing crisis stocks, to address unplanned issue if there should arise an occurrence of cataclysmic events and unpredictable market circumstance. Thailand and Philippines are two Asian nations created the most natural rice for the fare reason, Bangladesh may likewise win the remote cash by delivering and trading natural rice as natural rice has appeal in local and fare markets. The other potential natural items are distinguished in Bangladesh are oats (wheat, maize or corn), beats (gram, dark gram and lentil), organic products: banana, mango, orange and pineapple, oil seeds and oils (soybean, sunflower, mustard, groundnut, castor, vegetables, herbs and flavors (stew, turmeric, tamarind, ginger and so on.) and others: sugar, tea, jute, cotton and so on. It is seen that fine rice is a productive cultivating adventure for agriculturists and a decent wellspring of occupation. In this way, other than present day assortments, Bangladesh can deliver the customary fine and sweet-smelling rice. Bangladesh is likewise a reasonable land and atmosphere for all year produces. As before 1960s the nation never polished high substance mixes and high information sources however now confronting decrease of soil wellbeing and different issues, so it will be a lot less demanding to persuade the ranchers to receive natural cultivating. Natural agribusiness isn't only an answer for rich nations, however can likewise be helpful for creating nations, where it can add to deliberate and practical financial and biological improvement. Natural cultivating is work escalated, yet Bangladesh has the near favorable position because of the accessibility of adequate work with sensible wages.

#### **3.2 Organic fruits and vegetables produces in Bangladesh:**

- Vegetables
- Cereals
- Sugar
- Fruits
- Pulses
- Seeds
- Oil
- Chicken

3.3 Few images of things that used as pesticides and insecticides in organic farming 1-3, 8-12:



Image: Organic matters that can be used as pesticides in farming:



Few worm are used to destroy other worm in the farm.



Image: Neem Leaf

All of these information are collected from Bangladesh Agricultural Research Institute (BARI).

### **3.4 Organic product manufacturers in Bangladesh:**

In Bangladesh very little amount of people doing organic farming. But nowadays this number is increasing. Young, energetic entrepreneurs are doing organic agriculture. Some leading organic manufacturers:

- Kartoia Fertilizer & Co.
- Lub Rref (bd) Ltd.
- Jamuna Agro Services
- Unique Food Products
- Real Agro & Marketing
- Update Fisheries Ltd.
- Himalaya Agro Services
- GME Agro Limited

They are working with Tricoderma fungicides, Pheromone hormone, Neem extracts, Tobacco extracts, natural bactericides etc.



## Chapter IV

### Farming at Daffodil Agro Complex

#### 4.1 History

Daffodil agro complex is this type of farm where various kinds of organic fruits and vegetables are produced. It established just 2 year before. Daffodil agro complex beginning their organic farming project on 4 acres land which located just beside Chittagong road, Gazaria, Munsiganj. Some products from Daffodil agro complex are:

Sl. no	Name of plants	Amount of plants
1	Dragon fruit	900 pcs
2	Guava	140 pcs
3	Lemon	265 pcs
4	Mango (BAU 4, 5; Mallika)	330 pcs
5	Malta	84 pcs
6	BAUkul	220 pcs
7	Papaya	40 pcs
8	Sofeda	14
9	Jambura	16
10	Rosella	
11	Sajina	

Note: All of these breeds are from Germplasm center, BAU.

#### 4.2 Dragon fruits farming:



Image: Dragon Fruit plants.

The dragon fruits are most populous in foreign country like Thailand, Vietnam, Isreal but in Bangladesh this in it still unknown to the most of the people. The price of Dragon fruits here in Bangladesh is approximately 400-500 taka per kilogram. Dragon fruits are consumed as raw or used to make jam, jelly etc.

#### **4.2.1 Types of dragon fruits:**

There are two major types generally produced in Bangladesh. These are:

- Red color with white flesh.
- Red color with red flesh.



Image: Red and white color Dragon fruit.

#### **4.2.2 Environments required for cultivation of Dragon fruits:**

It can be grow in poor soil and weather condition. Sunny region that means tropical region are the best for its farming but to acquire better yield sometime it's necessary to provide shield to protect from excessive sunlight.

### **4.2.3 The requirement of soil to cultivation of Dragon fruits:**

Dragon fruits can be grown at different range of soil like sandy soil, clay soil and loam soil. At Daffodil agro complex, Dragon fruits are producing yield at sandy soil. Organic matters are used as fertilizer to increase lands fertility.



Image: Cow dung <sup>1, 5, 8</sup>

### **4.2.4 Land preparation:**

During land preparation for the cultivation of Dragon fruits different organic matters like compost as used and ploughed till the soil looks fine.

### **4.2.5 Planning method of Dragon fruits cultivation:**

The most common cultivations is done by cuttings. Although, seeds also used as another cultivating propagation. But there is a problem by seed cultivation method. It carries the mother plant characteristics and take longer time. Planning of plant cutting from well mother plant, and it's have to the length of 20 cm. Then the cuttings of plant should be plotted at another land which prepared with the mixture of cow dung. After few days the baby plants should be planted with a stake and let it grow. After growing the plants, it's necessary to bonding the plants tightly with stake. And then let it grow. Watering every day is important.





Image: Baby Dragon plant caring.



Image: Dragon plantation with pillar.

#### **4.2.6 Irrigation during cultivation:**



More watering require compared with other plant because yielding beginning at dry and hot season. For the effective yielding drip irrigation must be needed.

Flowering starts at July-August. According to the farm in charge per acre 6-7 tons of yield will be produced. Price per kg is 400 tk.



Image: Dragon fruits.

#### **4.2.7 Pest diseases:**

These is no proper evidence of disease caused by pests.

### **4.3 Marketing strategy of Dragon fruits in Bangladesh:**

#### **4.3.1 Market definition:**

The market of organic food sector here in Bangladesh is limited. There as very less competitors that's why it will be very easy for us to establish a market of Dragon fruits among our targeted group. But must have to do enough promotion of Dragon fruits.

#### **4.3.2 Size of market:**

Our market size is not too big. Targeted group is the educated, health conscious and middle class people. Young employee generation is under target. Because they are very much health conscious and they have enough money too.

#### **4.3.3 Competition and competitors:**

There is no established Dragon fruits manufacturers in Bangladesh. Because most of the people are not aware about it. According to the daily star online few manufacturers are:

- Fiber agro plus
- Horticulture center, Dinajpur
- BB and CB fruits

This farming organizations are cultivating Dragon fruits but few business enterprises are importing Dragon fruits from abroad and then selling in local market.

#### **4.3.4 Consumer analysis:**

If anyone would like to buy this type of products, customers often do a lot of brand switching. Consumers are holding few belief that they will choose a brand of this type of product without much revaluation and reevaluate that product during consumption but next time the consumers may pick another brand. Consumers do this type of behave, when they are offered lower prices, coupons, free samples and advertising. This offering presents reasons for typing something new.

That's why to market it, it's necessary to sell with an established, or at super shop.

#### **4.3.5 Potential participants:**

- People who are conscious about their health.
- Upper middle class and upper class.
- Young employee
- Higher educated
- Corporate people
- Govt. officers
- Company managers
- University teachers

#### **4.3.6 Motivation and expectation:**

Normally people are seeking new fresh fruits to fulfill their proper nutritional demand. Buyer will expect that this fruits will fulfill their nutritional intake. If it will occur then they are motivated to buy this in future.

#### **4.3.7 Strength, weakness, opportunity and threat (SWOT analysis):**

##### **Strength:**

- Economic of Scale: We are investing huge amount of money that able to support our marketing plan. Always try to minimize our product price as much as we can that also helpful for company.
- High Quality and Price: High quality is the strength of our product and maintain a price as well. Our product is maintained organic which makes us unique from other manufacturers.
- Other strengths are:
  - i. Human resource
  - ii. Our own agro complex
  - iii. Totally organic that means don't use artificial chemicals

##### **Weaknesses:**

- Price: Our product price is too high because of it is organic. That should be the weakness.
- Target market: It's difficult to reach the targeted group.
- Preservation: It is very tough to preserve perishable products like Dragon fruits.
- Other weaknesses are:

- i. Customer response of new product.
- ii. Short shelf life
- iii. Positioning as a local manufacturers
- iv. Off-seasonal availability

**Opportunities:**

- New farming method: New farming method is the biggest advantage of Daffodil agro complex in Bangladesh.
- New market: This products is totally new to the targeted group as organic Dragon fruits.
- Other opportunities are:
  - i. Weak competitors
  - ii. Opportunity to increase the market coverage and retail penetration.
  - iii. Shop at elite area

**Threats:**

- Off-seasonal availability.
- Changing Buyers taste: The demand of the buyers, change day by day.
- Other threats are:
  - i. Importers
  - ii. Well established agro farms.
  - iii. High price

## 4.4 Organic lemon farming <sup>1, 6, 9</sup>:



Image: lemon plants. (Pheromone trap)

Lemon is popular in Bangladesh. It is cultivating in all over the country.

### 4.4.1 Types of lemon in Bangladesh:

Kagzi lebu is the most popular lime variety.

Sometimes its name varies with the location such as Kagza at Ishurdi (Pabna district) and Patia kagzi in Chittagong. Recently, Bangladesh Agricultural Research Institute (BARI) has released two varieties, namely BARI Lebu-2 and BARI Lebu-3. BARI Lebu-2 is round, medium, about 81 g, sour and juicy (33%). BARI Lebu-3 is round, small, about 55 g, less sour and highly juicy (38%).





Image: lemon growing at plant. <sup>10</sup>

#### **4.4.2 Climate required for lemon farming:**

It can be grown in sub-tropical conditions. Sunny, rainy regions are ideal for its farming but to acquire better yield. High humidity may increase different types of diseases.

#### **4.4.3 The requirement of soil to cultivation of Dragon fruits:**

Citrus can be grown at different ranges of soil like sandy soil, clay soil and loam soil. At Daffodil agro complex, lemons are producing yield at sandy soil. Organic matters are used as fertilizer to increase land fertility here in Daffodil agro complex. Deep soil with pH 5.5 to 7.5 is considered good. But lemon can grow with pH 4 to 9.

#### **4.4.4 Planting of lemon:**

June to August is the best period of planting lemon. Dugs to plant seeds. In other months seeding can be done.

#### **4.4.5 Irrigation for lemon farming:**

To improve yielding it's necessary to water plants during summer as well as winter. It also reduces the fruit crops and increases the size. But over irrigation may cause diseases like root rot collar rot.

Citrus plants are being matured in three times in a year. And it happens during February, June and September. Fertilizers should be spread and mixed with soil after watering.

#### **4.4.6 Fertilizers used in lemon farming at Daffodil agro complex:**



Image: Cow dung as organic fertilizer,

At Daffodil agro complex, just organic matters and compost fertilizers including plant residues, cow dung is used as fertilizer to keep the soil health.

#### **4.4.7 Method used to damage insect:**

Normally sex pheromone method used as organic way to destroy insect. At Daffodil Agro Complex the sex pheromone also using.





Image: Sex pheromone trap. <sup>12</sup>

But to control pests in farming Cypermethrin for insect and Carbendazim for fungus.

#### **4.4.8 Harvesting:**

Well matured fruits can be picked up in 3 cycle. Lemon is picked when the color and skin starts developing.





Image: Harvested lemon.

Average production of lemon is 700-800 pieces per tree according to the in charge of Daffodil agro complex.

#### **4.4.9 Post harvesting management:**

Before marketing lemon are washed with 1% solution of sodium bicarbonate to kill the microorganism on the surface of lemon and then air flowed over it to remove water from it surface.

#### **4.4.10 Packaging:**

After removing of water fresh and juicy lemon are prepared to pack. We used cellophane paper to pack. We put 6 lemon on cellophane paper and wrap them tightly.

### **4.5 Marketing strategy of Lemon in Bangladesh:**

#### **4.5.1 Market definition:**

The market of organic food sector here in Bangladesh is limited. But for lemon product it will be too competitive. In Bangladesh lemon are cultivating domestically.

#### **4.5.2 Size of market:**

Our market size is too big. Almost all the people in Bangladesh is consuming lemon each and every day. Targeted group is the educated, health conscious and middle class people who are come in super shop.

#### **4.5.3 Competition and competitors:**

There is enough established lemon manufacturers in Bangladesh. Because most of the people are who have land they are willing to cultivate lemon.

- Farmers

This farming organizations Daffodil agro complex is cultivating lemon.

#### **4.5.4 Consumer analysis:**

Consumers thought that lemon are selling at everywhere in Bangladesh. So they can buy it from anywhere. Consumers do this type of behave, but when offered lower prices they are agree to buy it. That's why to market it, it's necessary to sell with an established, or at super shop.

#### **4.5.5 Potential participants:**

- People who are conscious about their health.
- Upper middle class and upper class.
- Women
- Corporate people
- Govt. officers
- University teachers

#### **4.5.6 Motivation and expectation:**

Normally people are seeking fresh and juicy. Buyer will expect that this lemon will fulfill expectation and fulfill their vitamin C intake. If it will occur then they are motivated to buy this in future.

#### 4.5.7 Strength, weakness, opportunity and threat (SWOT analysis):

##### Strength:

- **Economic of Scale:** We are money that able to support our plan. Always try to minimize our product price as much as we can that also helpful for company.
- **High Quality and Price:** High quality is the strength of our product and maintain a price as well. Our product is maintained organic which makes us unique from other manufacturers.
- Other strengths are:
  - i. Human resource
  - ii. Our own agro complex
  - iii. Totally organic that means don't use artificial chemicals

##### Weaknesses:

- **Price:** Poor distribution system.
- **Target market:** sometimes targeted people are not willing to buy it.
- **Preservation:** It is very tough to preserve perishable products like lemon.
- Other weaknesses are:
  - i. Customer response.
  - ii. Short shelf life
  - iii. Supplying system.

##### Opportunities:

- **New farming method:** New farming method is the biggest advantage of Daffodil agro complex in Bangladesh.

- **New market:** Organic lemon are not producing commercially here in Bangladesh.
  
- Other opportunities are:
  - i. Good quality product (attractive scent)
    - Opportunity to increase the market coverage and retail penetration.
    - Shop to elite area.

**Threats:**

- **Changing Buyers taste:** The demand of the buyers, changing day by day.
  
- Other threats are:
  - i. Farmers
  - ii. Retailers from everywhere.



## Chapter V

**Pictures of some other leafy vegetables cultivating between other plants:**



Image: Leafy vegetables between Dragon plant's columns.



Image: Organic leafy vegetables.





Image: Harvesting period organic leafy vegetables.<sup>4-8</sup>



Image: Lettuce leaf on field.<sup>10-12</sup>





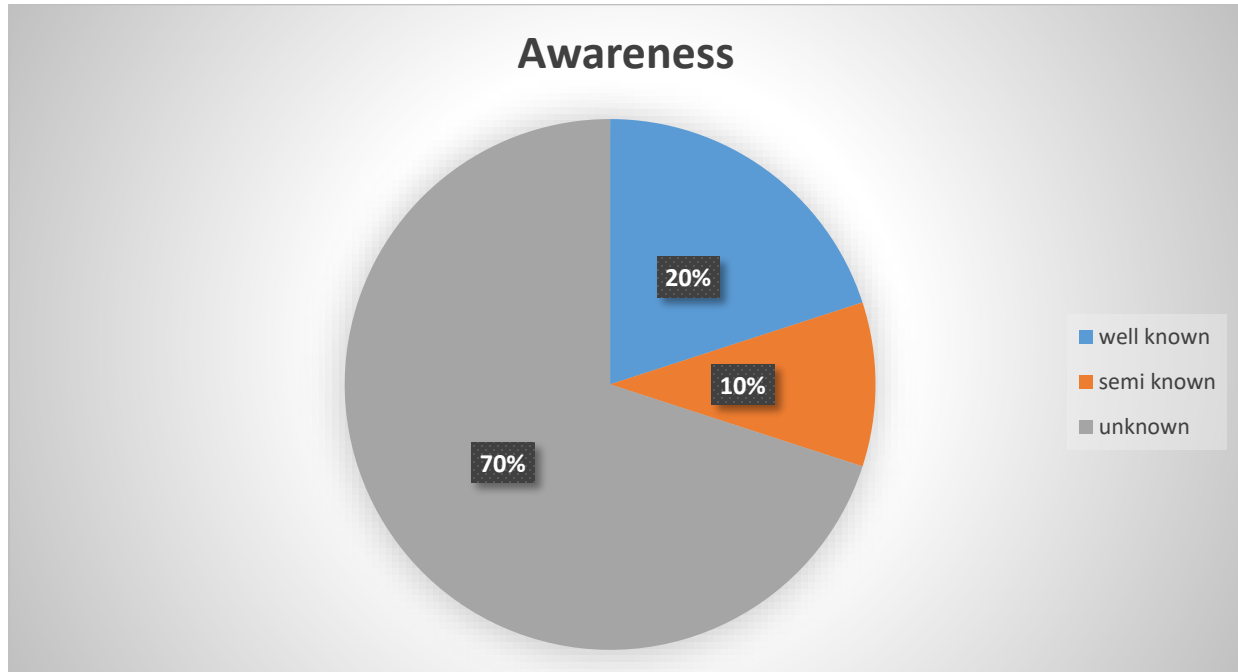
Image: Other vegetables growing on fence.

## Chapter VI

### Identify and sales and awareness about organic products:

We collect some organic matter from Daffodil Agro Complex and sold them into local market to identify the demand and consciousness about organic products among the normal people.

#### 6.1 Awareness among normal people about organic food product:



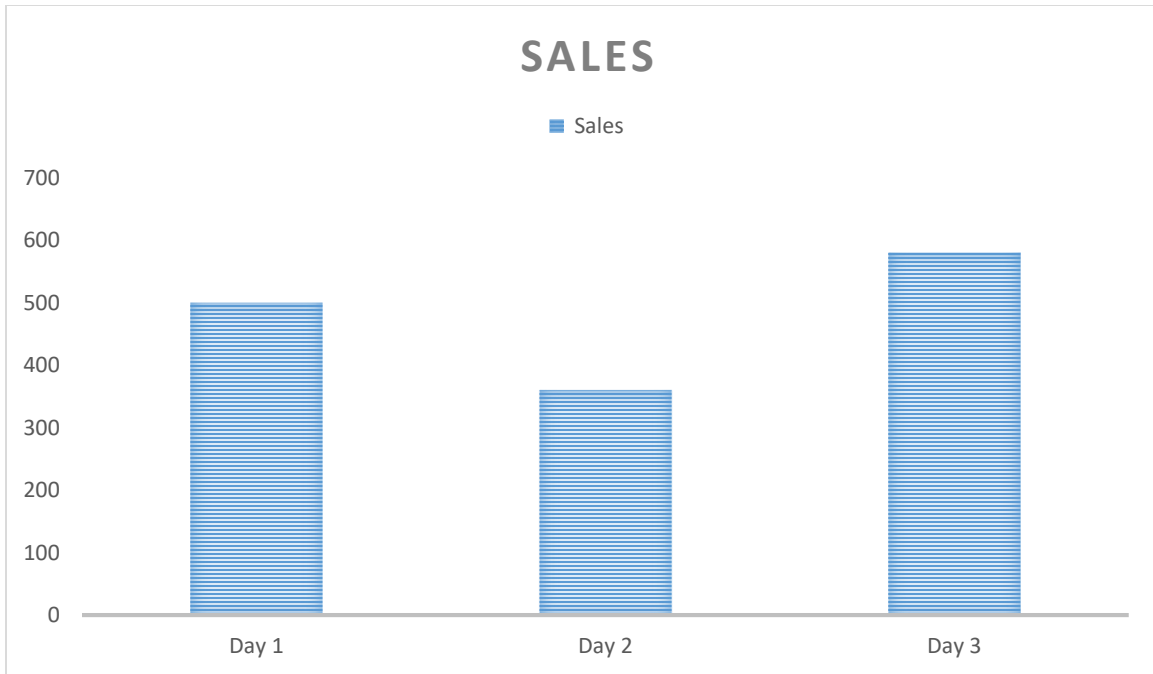
In this survey 30 participant was giving their opinion about organic food product.

Participant	Well known	Semi known	Unknown
30	6	3	21

#### 6.2 Sales:

We collect some organic matter from Daffodil agro complex and sold them into local market to identify the demand and consciousness about organic products among the normal people.





At 1<sup>st</sup> day I sold organic product just lemon about 350 pcs.

- 200 pcs sold as whole sale.
- Rest of those directly to people.

At 2<sup>nd</sup> day we sold very small quantity of organic products like lemon, leafy vegetables.

- All of the products directly sold to people.

At 3<sup>rd</sup> day, we sold huge amount of green leafy vegetables, lemon and few amount of expensive dragon fruits.

- All of the products directly sold to people.

### 6.3 Sales opportunity:

Name of organic goods	People need	Sales opportunity
Vegetables	100%	Very high
Lemon	60%	High
Dragon fruits	50%	Medium (Depend on target people)

#### **6.4 CONCLUSIONS:**

In the first year, only a few Dragon fruits, Citrus Lemon , Leafy vegetables and other vegetables like pumpkin, gourd etc were cultivated; beside these , Jujube fruits has started to sale out to the customer directly from DIU Agro complex.

A large number of Dragon samplings has been ready to sale to the farmers . AS a whole we can say, Sandy land will be value added cultivatable land within a short time . As per estimation we will get a handsome sales return from 2019 cultivation year.

**The End.**

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