



A Study on Cultivation and Production of Organic Tea: Challenges and Prospects

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ABSTRACT

The nature has its own beauty, the organic tea farming implies the rule and keep the plants naturally grow. In recent time no one can think to alive without chemical free products, but organic farming implies those ethical values which were applied in ancient time when there was no use of any harmful products. The study analysis the strategies adopted by the management in different period starting from cultivation process to despatch. Organic tea cultivation plays a vital role to maintaining healthy ecosystems, protecting biodiversity, and preventing environmental degradation. The special character of organic tea create demand though the price is high. Organic farming often involves traditional and sustainable agricultural knowledge. By promoting organic tea cultivation, there is an opportunity to preserve and pass down traditional farming practices that align with sustainable development goals. Government support and adequate financing can help in own brand creation in the tea economy. Proper guidance and technological sufficiency can help the small organic tea growers and large number of tea estates in Assam to capture the organic world tea market.

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Introduction

India is the second major tea producing country in the world. Recently the tea industry has completed 200 years of existence and service to the nation and world at large. 52% of the total tea in India is carried out in Assam, the state contributes 1/6 of the tea production in the world. The **global organic tea market** size was valued at USD 515.0 Million in 2022 and will reach 1397.42 million in 2028, with a CAGR of 18.1 % during 2022-2028.

Assam the north-eastern state of India, popularly called the 'land of the red river and blue hills' is famous all over the world for its tea. Assam tea is synonymous to the best quality tea in the world and the full bodied, strong liquor of Assam tea is unique in the world (Baruah, P. 2017). Tea is the official state drink of Assam and its recognition as the national drink, the most widely used up beverage second to water in India. In Assam the tea plant *Camellia sinensis* var. *Assamica* became known in 1823 was explored by Robert Bruce a Scottish adventurer. In the present phase tea become Assam's way of life which contributing in the socio-economic development.

The Jorhat district in Assam is known as the tea capital of the world. The Jorhat district of Assam has own historical background related with tea. The first tea garden of Assam was established at Cinnamora Tea Estate, started functioning from 1850, set up by Maniram Dewan who worked as assistant commissioner under British Govt. posted at Jorhat. World's largest and the oldest tea research centre Tocklai Tea Research Institute originated in 1911 functioning as promoter of science and process behind a good cuppa.

Due to difference of physiography and quality such as ample rainfall, low altitude, humid, climate and optimum temperature, the tea growing regions in Assam are allotted into two parts:

1. Assam Valley and
2. Cachar Valley

The geography of Assam with distinct features, the orthodox teas are protected under Geographical Indication (GI in 2007).

Types of Indian tea:

The tea quality also varies depending on season of the year, and the main seasonal variations are first flush, second flush, rains and autumn. The best quality of tea can be obtained in the month of September. Indian teas are classified into various types, based on manufacturing method the conventional classification of tea are four types:



1. Black tea,
2. Green tea,
3. Oolong tea and
4. Instant tea.

Black and green teas are further divided into several types.

Classification Based on the Technique Used in Manufacturing are:

1. Traditional,
2. Handmade or handcrafted and
3. Conventional.

The locale tribe of Assam, the Singphos usually prepare 'Phalap'.

The Shan tribes of Burma prepared 'leppet tea' is the traditional forms of tea.

The other broad categories of tea are: conventional tea, specialty tea, organic, ready to use, Flavoured teas, special health teas, special blend, special single manufacture etc. (Baruah, P. 2017).

According to the sizes, four main kinds of tea are produced:

1. Whole Leaf Grades,
2. Broken,
3. Fannings and
4. Dust.

Each of them is further split up into grades of different qualities.

After the second world war the chemicals were used as fertilizer in cultivation process. The instant result of the chemicals increases its demand and gradually become undivided part of production cultivation.

Organic tea: The eco-friendly nature of organic tea creates safe environment for living being. The first organic certified tea garden in India named Mullootar. The organic tea cultivation adopts Bio-dynamic concept. All types of black, green, orthodox and CTC teas are manufactured in organic tea process.

The Boisahabi Tea Estate, in Jorhat district, Assam was incorporated in the year 1905 with the garden named 'Boisahabi Tea Estate'. The name of the tea brand is '**Boisahabi**' which is an organic tea brand among the upper Assam teas. **SSK EXPORTS LIMITED** acquired the Boisahabi Tea Estate in 23rd April 1993. The **Boisahabi Tea Estate** located at Jorhat district in Assam covered area under organic tea around 488.84 hectares. The tea estate has two divisions from which cultivation process

accomplished, also have factory, hospital, bungalows, quarters for staff and non-staff, playground, place for worship, etc. Also provide water facility, electricity etc.

With the listed Company's shares, it is run by the management come up with ridiculous involvement in organic tea industry.

Cultivation Process of Organic tea in Boisahabi Tea Estate

The organic tea requires more attention and care in manufacturing to create quantity and quality as well.

Fig. 1.4.1: Tea plant in the garden and Organic fertilizer



Source:

Origin

The organic tea plantation can be done by two ways, the first one is from seeds. Secondly from clone. The tea plants take around 3-4 years to matured. The life time of a tea seed plant varies from 80-100 years and for clone plant 50-60 years with attention and care. The young and tender green leaves are plucked regular basis at intervals of 5-8 days, it involves selecting two leaves and a bud for standard quality, selection for plucking varies according to quality produced by the tea estate.

The tea estate commonly used animal manure- cow urine and cow dung, vermicompost, oil cake, old jaggery. Organic fertilizer- molasses, composted, sewage sludge, food processing wastes, municipal biosolids etc. to pest control, nutrition and to improve soil health.

Withering:

The first step in the organic tea manufacturing process is withering, which involves spreading the leaves out in a cool and ventilated room to removes excess moisture from the leaves, making them pliable and calmer to shape around 22 hours.

Rolling:

After the withering process tea leaves were rolled by different machines. Rolling breaks down cellular structure of the tea leaves, releasing enzymes and promoting oxidation it springs flavour and aroma. CTC, Orthodox machines are used in this process.

Oxidation:

The next step is oxidation, also known as fermentation. The leaves are spread out on large range and left to sit for a specific amount of time, ranging from a few hours to several days according to requisite. This process changes the leaves' chemical composition and gives them their characteristic colour and flavour.

Firing:

The next step in the tea manufacturing process is firing, which involves drying the leaves in large ovens. This step is intended to stop oxidation and bring the leaves moisture content down to 3%.

Sorting and Grading

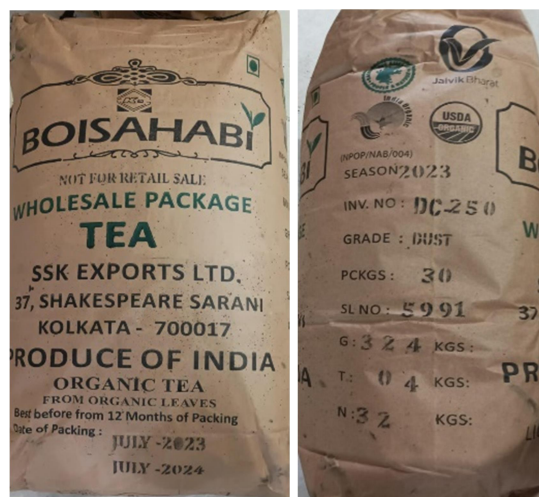
After firing, the leaves are sorted means- separate tea particles based on shape and size relevant to trade required, for quality appearances. Different Grade were given based on it.

Fig:1.4.5: Sorting and Grading



Source: Origin

Fig.1.4.6: Paking, Stitching, Stencilling



Source: Origin

Paking, Stitching, Stencilling

The made tea were paked by using foil laminated bags, which is a premium, the bags are moisture and grease, stain resistant it keeps product fresh for long time.

Stitching ensured wrap the product and protect from temperature, dust, moisture. It improved stability forming in loading of packages.

Stencilling is a techniqe to design by passing ink over holes cut in cardboard or metal in to the surface to be decored. It identifies product with com. logo and necessary information.

The production process reduce quantity by 22%- 30% of the total plucked green tea leaves. After completing the steps made tea were despatch every day or once every two days in pick seasons (April-October) to Kolkata warehouse for private sales.

Review of Literature

Lin and Chen, (2004) Organic tea manufacturers export 66% of their tea directly to Japan, USA, Germany etc. through posts. They also found that organic tea price ranges from 20 US dollar to 260 US dollar per kg.



Dabbert, Haring and Zanolli (2004) acknowledged that the marketing of organic products needs to take consumers' motives into account for buying organic products. The consumer's choices of organic products reflect ethical morals, general standards, level of personal satisfaction and welfare.

Banerjee (2005) organic tea sector is a small part of the tea industry but the number of organic tea producers and the volume of organic tea traded in the world market have recorded a high growth over the last few years. The reason behind increasing organic trend implies several factors like awareness among the tea producers about the problem of soil erosion, consumer's awareness on pesticides etc.

Hazra, (2006), analysed the reasons for increase in the number of organic producers and volume of organic tea in the world market and awareness of environmental difficulties by the tea agriculturalists, increased consumer's consciousness of insecticide residues and belief that organic tea generally provide better quality due to avoidance of artificial extracts.

Kuhar and Juvancic (2008) in their study identified some factors such as accessibility of organic nutrients in retail outlets, consumers' revenue, environmental aspects, health and visual appeal of products that most significantly influenced the purchase of organic products.

Food and Agriculture Organisation of the United Nations (FAO) (2016), Report of the working group on Organic Tea, India is the largest organic tea producer in the world and the cultivation of the region mainly based on the inputs like organic manure. It is a holistic production management system which promote natural health of soil, people, animals, plants in the ecosystem including socio biological activities and biological cycles.

The Research Institute of Organic Agriculture (FIBL), and The International Federation of Organic Agriculture Movements (IFOAM) (2018), India is having the highest number of organic producers in the world and from the basis of organic land it is ninth position in the world.

Statement of Research Problem

This study is being conducted to analyse the present trend in the process of organic tea cultivation, production adopted by the organisation according to the market situation recently in Assam. The particular area is selected because the Boisahabi Tea Estate is the only one organic tea estate in Jorhat district. From 2015 the tea industry producing pure organic tea, trying to improve made tea quality from 2018 by its own green tea leave cultivation. The conventional tea is ignored as the study



analysis only about organic tea. One year data in conventional tea has been taken to compare the difference between the quantity produce by conventional tea and in organic tea.

Organic tea production, emphasizing the commitment to sustainable practices, fair trade, and the positive impact on local communities. The entire tea sector is the largest source of employment generation as compared to other services. The study generates ideas about how to spread the awareness on organic tea into more interior areas where people get beneficial.

Research Question

1. What is the present trend of organic tea in Assam with reference to Boisahabi Tea Estate?

Objective of the Study

1. To analyse present trend of Boisahabi Tea Estate to identify the challenges and prospects in organic tea in Assam.

Significance of the Study

The organic tea upholds the balance of economic, social, environmental dimensions to generate well-adjusted and resilient tea industry. Organic farming doctrines, focus on sustainable and naturally friendly practices to encourage tea producers for long term also. The natural and eco-friendly tea product, supports chemical free consumption and healthy lifestyles.

By opting for organic tea, aid farming methods, environmental accumulation and long-term sustainability can be accomplished. It helps to uphold the balance of ecosystems, conserving habitats for innumerable plant and animal species, contributes to biodiversity and prevents the negative impact of chemical-intensive agriculture on local wildlife. This study has been conducted to analyse the various perspective leading to these impediments.

Scope of the Study

The study is conducted to the discernment of a particular tea estate, The scope of the study is constricted within Jorhat district in Assam. The study is conducted in selected tea area in Jorhat district the research area focuses on Sustainable agricultural practices involving community engagement, fostering a more equitable and inclusive approach to development, encouragement of local people by so long as to generate remunerations and upholding social obligations. This ensures that local communities benefit from tea cultivation, creating a more sustainable and socially responsible industry. The study



may be beneficial for policy makers, government and those who are interested in evaluating about the organic tea industries. The study analysis, findings, suggestions and conclusion anticipated, would be enormous use for imminent research in the organic tea sector.

Research Methodology

Research Design

In this research both quantitative and qualitative research method has been used. To conduct the study both qualitative and quantitative data have been collected from various sources which are primary and secondary sources. The collected data were tabulated and simple analytical methods were used.

Sources of Data

The primary and secondary data required for the study has been collected with the help of convenience sampling and structured questionnaire. Under structured questionnaire the question for the study is definite, concrete and pre-determined. The data has been collected during the period of 2014-2022. Primary data has been collected from the people directly through interview by using structured and unstructured interviews.

The secondary data were collected through questionnaire consisting 35 questions and 3 sections, are as a research tool. To collect data survey has been conducted on samples of 50 different demographic factors; samples have been picked randomly by using simple random technique. Secondary data were collected from various books, journals, reports, magazines etc.

Study Area

The study is conducted in the region of Boisahabi Tea Estate, Jorhat district in Assam.

Limitation of the Study

The study is conducted in the organic tea estate in Jorhat district of Assam. The results of the study may not be comprehensive as the study is confined to only one district, the organic tea estates ordinarily possess analogous features and therefore the findings of the study would enable to suggestions for future rectification. The quantity of conventional tea is ignored as the study analysis about organic tea only. One year data has been taken to compare the difference between the quantity produce by conventional tea and in organic tea.

Data Analysis and Interpretation

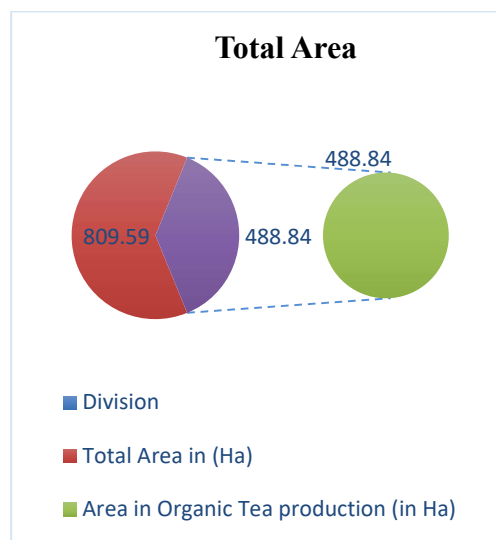
The data were collected from the employees in the tea estate, producers, managers operating in Jorhat district in Assam using structured and unstructured interviews and questionnaires. The tea estate maintains its books of accounts from 1st January-31st December each year.

Fig.10.1.1: Total area of Boisahabi Tea Estate

The Boisahabi Tea Estate has two divisions-

1. Hemla Division, area occupied 226.16 hectors, and
2. Boisahabi Main Division area occupied 538.43 hectors.

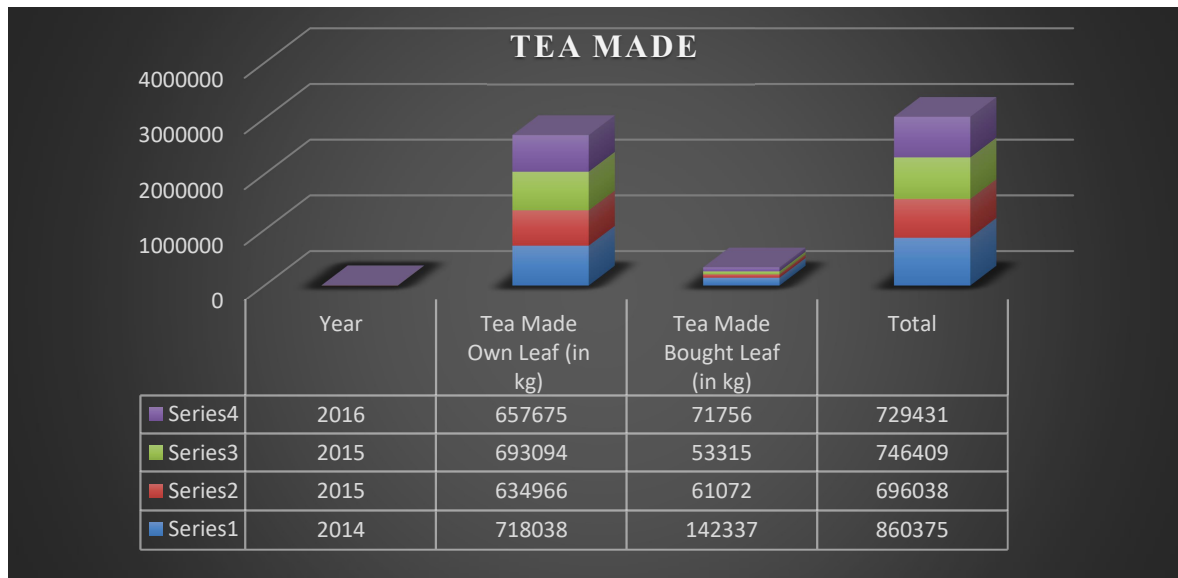
The total area under tea cultivation is 488.84 hectors and the rest of the area used for accommodation and other wellbeing.



Source: Recorded data from the tea estate

The tea estate was applicable to produce organic tea from 2015 after the three years provisional period got certificate in 2018 for organic tea. The company started manufacturing tea from only own leaf in 2018, till 2017 the tea estate collected bought leaf from small tea growers from the local area.

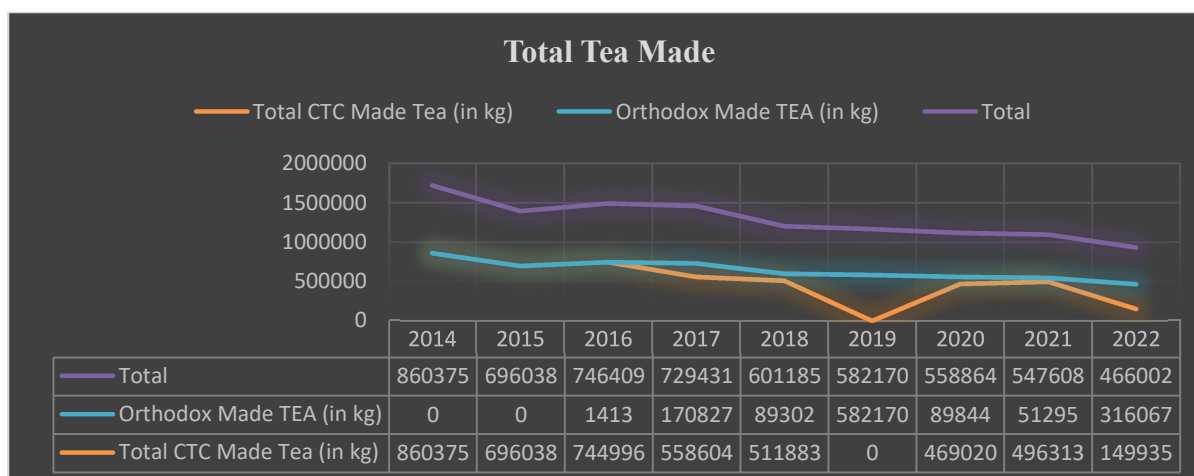
Fig.10.1.2: Tea Made by Boisahabi Tea Estate



Source: Recorded data from the tea estate

As the fig. 10.1.2 depicts that the tea estate produces more organic tea product from its own made tea leaf as compared to bought leaf. The four years have been taken for analysis because of the Boisahabi Tea Estate used to purchase bought leaf till 2017 due to non-reliability quality of tea leaf, rising food safety awareness and demand for organic drink in national as well international market. In 2014 the made tea from conventional tea quantity is quite high i.e. 7,18,038 kg. due to its cultivation process. As a result of these trends leading tea companies have tea garden to provide organic variety of specialty teas. The highest tea made from its own production of organic tea in the year 2016 i.e. 6,93,094 kg. In case of bought leaf the highest organic tea made in the year 2017 i.e.71,756 kg. during the study period.

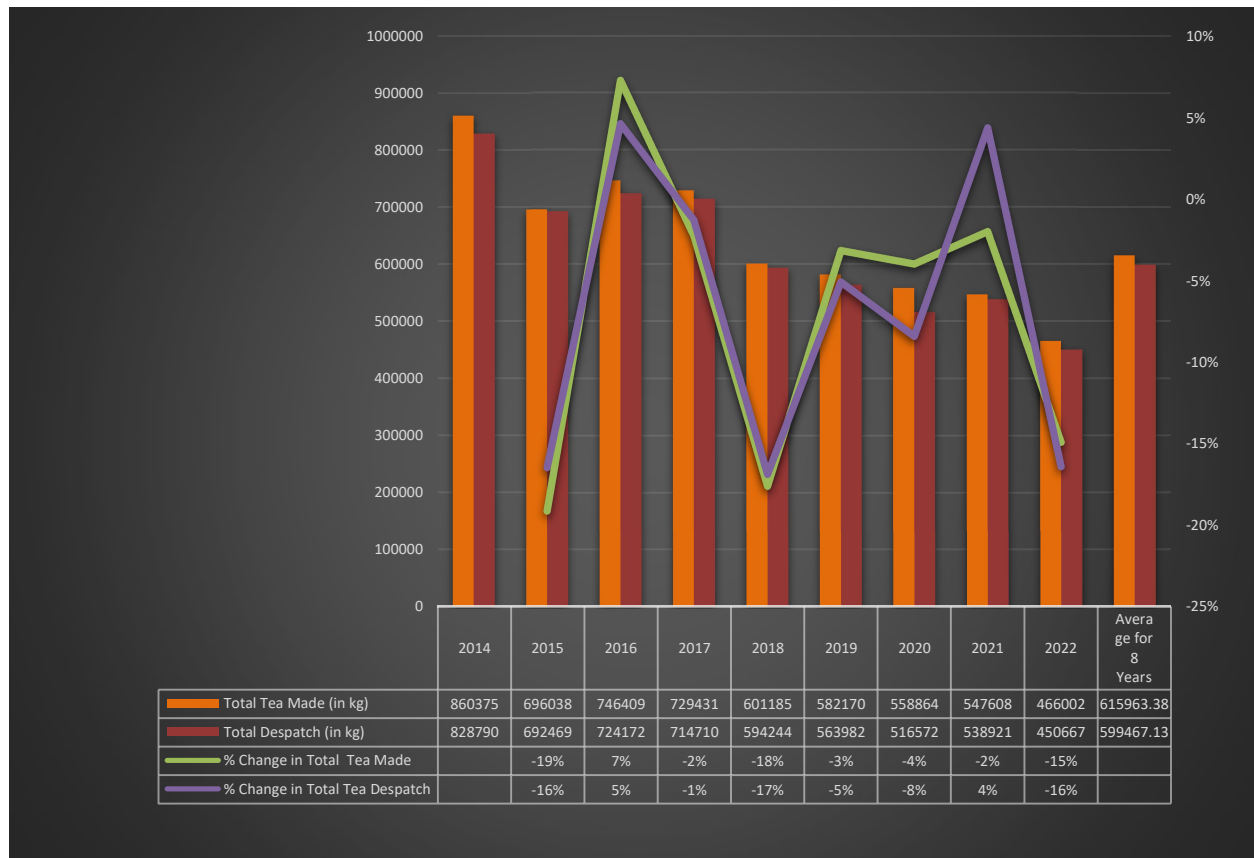
Fig.10.1.3: Total Tea Made by Boisahabi Tea Estate



Source: Recorded data from the tea estate

The fig.10.1.3 shows that the tea estate engaged more in CTC quality of organic production as compared to Orthodox. The orthodox quality of tea produces from 2016, in the first year it was 1,413 after that started the quantity increase. During the study period the highest orthodox made tea was in the year 2019 i.e.5,82,170 kg. It implies that demand for orthodox tea was highest in the particular year. While in the same year there was no demand for CTC quality tea so the they did not produce. In case of CTC quality of tea, the highest production in 2016 i.e. 7,44,996 kg. due to its demand.

Fig.10.1.4: Factory Report of Boisahabi Tea Estate



(Source: Recorded data from the tea estate)

Fig.10.1.4. depicts that total organic tea made was highest in the year 2016 i.e.7,46,409 kg. increased by 7% and the lowest in the year 2022 i.e. 4,66,002 due to decrease in demand. While total despatch in the year 2016 i.e.7,24,172 kg. percentage increased by 5% and the lowest in the year 2022 i.e. 4,50,667kg. The average total tea made for eight years from 2015- 2022 is 6,15963.38kg. The average despatch from 2015-2022 is 5,99,467.13kg. It implies that the highest the organic tea made the highest tea despatch and vice versa. It illustrates that as compared to conventional tea the organic tea decreases in quantity.

SWOT Analysis

STRENGTHS:

1. Organic tea involves Environmental sustainability by promoting, biodiversity, conservation, soil health and contributing to agricultural system.
2. The tea manufacturing process is an age-old tradition that has been perfected over time, it is a highly human resource intensive process which work as the helping hand in the economy.
3. The organic tea is the part of a sustainable lifestyle, also the most important sources of foreign exchange earnings and provides employment opportunities for thousands of workers.
4. The production of organic tea internationally recognised for ensuring food safety and quality, which involves identifying and controlling dangers throughout the production process.
5. The demand for organic tea increases awareness of health benefits, exclusive production and special features. Raise in income creates money power to looking for something traditional, unique, superior and handmade organic teas of Assam, which produced with meticulous attention to invite consumers.
6. The tea estate has certificate of RAINFOREST ALLIANCE, Jaivik Bharat, India organic, USDA ORGANIC, National Organic Program (NOP), National Programme for Organic Production (NPOP), Agricultural and Processed Food Products Export Development Authority (APEDA) etc. these indicate about official recognition, adherence to organic standards and consumer trust.

WEAKNESSES:

1. Proper marketing is the major problem faced by the tea estate. They despatch the made tea to Kolkata auction centre for private sales, as the auction centre in Assam are offer low price for their product.



2. Difficulty in obtaining organic certification after a particular period, international exposure, proper tools and technologies are some of the major problems faced by the tea estate.
3. The tea estate requests finance and business experience, they need consistent help and encouragement from government agencies at this stage. This involves trailing the whole tea production procedure so that quality-related problems can be acknowledged and resolved speedily.
4. The tea estate facing problems from pest, fungus which create difficulties to maintain its quantity.

OPPORTUNITIES:

1. The tea estate has an opportunity to capitalise on the growing global demand for organic tea. In long term there is a probability to coordinate with international markets, to expand their customer base and build brand awareness.
2. The rising health consciousness and growing demand for organic products, the industry can explore new product development opportunities, such as flavoured teas, herbal teas, and speciality teas, organic tea candies, organic tea bares, organic restaurant etc.it differentiate the products, attract new customers, and as a result increased revenue.
3. Organic tea manufacturers, stakeholders can contribute to the growth and sustainability of organic tea, fostering a positive impact on the environment, communities, and the overall tea industry.
4. The tea estate has an opportunity to invest in technology to expand efficiency and cut expenses, which may include adoption of AI tools, automation of production processes, etc.
5. Tea organic tea manufacturing creates ample export which helps to rise foreign exchange earnings.
6. The organic tea production intense in certain areas, promoting regional development. Manufacturing directly contributes to creating jobs and facilitates income for the local people.

THREATS:

1. The organic tea estate involves obtaining certificates from government bodies or third-party certification agencies to ensure products meet the desired quality standards, sometimes the criterions, rules are contradictory in nature. It creates difficulties for special segment of tea.
2. The tea estate should try to improve e-commerce platform to reach a broader customer base and promotion for products, online store, online marketing activities.



3. The tea estate facing pest, fungus related problems with the green tea leaves, as a result quantity suffers as those area or tea plants leave freely without plucking.
4. To maintain quality with quantity is the major threat for profit margin of the company.

Findings of the Study

1. In the recent years the research associations, educational institutions have introduced many courses in the field of tea education such as Department of Tea Husbandry and Technology at Jorhat, Centre for Tea Plantation Management at Golaghat, Centre for Tea and Agro Studies in Dibrugarh University, various diploma courses etc. are accessible in Assam.
2. The organically grown tea has a purer taste, natural flavors of the tea leave to shine through. It takes 48 hours to made organic tea starting from plucking to packing.
3. Organic tea is produced without synthetic pesticides, herbicides, or fertilizers, appealing to health-conscious consumers seeking natural and wholesome beverage options. The tea estate started purely producing organic tea from 2015 till now.
4. The tea estate use to spray cow urine, in off season use to spray molasses which is organic liquid, used for plant health, within a gap of 1-2 months.
5. The tea estate has some recognized certificates those are- RAINFOREST ALLIANCE, Jaivik Bharat, India organic, USDA ORGANIC etc. The certification planes for organic tea build trust among the buyers, which ensure the reliability of organic labeling and fair-trade practices.
6. To protect the organic tea gardens from chemicals the tea estate use to keep buffer zone areas where tea leaves were not plucked, the minimum width should be 100 meters.
7. The tea estate stope collecting bought leaf from 2018 due to make qualities and flavors of organic tea, positioning it as a premium and conscious choice.
8. The tea estate produced green tea in 2020 for 30 kg which is complementary to the tea estate.
9. The tea estate produced black organic tea- both Orthodox and CTC quality. According to consumers demand the tea estate produce the different grades.
10. The grades of orthodox produced by the tea estate are- STGFOP, SFTGFOP-1, FTGFOP-1, FTGFOP, TGFOP, TGFOP-1, GFOP, GFOP(S), FOP, TGFBOP, TGBOP, GBOP, GBOP-1, FBOP, FBOP-1, BPS, GOF, FOF, OPD, OP, OCD, ORD, SFTGFOP, GFBOP, STGFOP-1, BOPF, OD etc.
11. The CTC grades produced by the tea estates are- BPS, BOP, BOPSM, BP, PF, PD, DUST, CD, BOP-1, BP-1, PF-1, DUST-1, CD-1, RED DUST etc.



12. The organic tea contains more catechins such as epicatechin, epigallocatechin gallate, and epicatechin as compared to conventional tea. Awareness of aforementioned nutrient in organic tea attract the demand from other countries.
13. The tea estate use foil laminated bag for packaging to protect organic tea quality.
14. The average price for primary organic tea in bulk is around 350 per kg, usually for private sales, in retail stores the average price for organic tea is Rs.300 for 100 grams.
15. It is very difficult to continue, production, control and manage the organic tea estate, to earn profit margin the company can increase quantity or quality, this the main task for management which signify strategic and change management.

Recommendation

Encourage awareness campaigns to educate consumers about the benefits of organic tea, fostering demand for sustainable products. Some foreign countries have organic certification programs in which farmers can participate in to receive, the Indian government can conduct and guide this kind of certification programs for smooth production function.

Government should support for policies that promote organic farming such as offering incentives, research and innovation, encourage partnerships with governments, leads to improving efficiency and environmental outcomes and promote widespread adoption. Facilitate market access for organic tea producers, for both nationally and globally, toward enhancement of commercial prospects.

Some governments offer financial incentives/ subsidies for organic farming, incentives can be helpful in starting from manufacturing to dispatch of end product. The state govt. of Assam should try to make this kind of policies to encourage organic tea producers.

The organic tea cultivation helps to discover innovative and sustainable farming practices. This contributes to the long-term success of organic tea initiatives. As far as possible leave the tea plant to grow naturally. In Assam a few tea estate produce green tea, the study encourage the tea estate to produce organic green tea as well though in small quantity.

Conclusion

As the passage of time Indian tea industry has adopted many changes for long run survival. The demand for organic products is increasing worldwide day by day due to its nutritional content and antioxidants compared to conventionally grown tea due to the absenteeism of chemical residues.



Farming of organic tea presents a unique opportunity to align consumer preferences with sustainable and environmentally friendly agricultural practices. The growing demand for organic products, including tea, creates a favorable market for producers who adopt organic cultivation methods. Producers can access premium markets and prices, availing economic incentives for sustainable agricultural practices by producing organic tea. The organic tea production remains feasible and economically achievable for future generations.

References

- Baruah, P. (2008). *Tea Industry of Assam: Origin and Development*. EBH Publishers.
- Baruah, P. (2017). *Types of Indian Tea, Production and Marketing of Traditional and Handmade Teas of Assam*. India Journal of Tea Science Research. <https://hortherbpublisher.com/index.php/jtsr/article/html/3304/>
- Chandlury, R. (2008, December 15). *Tea industry comes of slump*. The Assam Tribune.
- Dabbert, S., and Haring, A. M., and Zanolli, R. (2004). *Organic Farming Policies and Prospects*. Zed Books Ltd., London, UK.
- Goswami, K., Deka, N. (2022). *Organic cultivation and sustainable value chain development for tea smallholders: Findings from Assam*. India Sustainable Production and Consumption <https://www.sciencedirect.com/science/article/abs/pii/S2352550922001245>
- Liu. X., Shangwen, F., Zhangyu, Amin, S., and Zhichang, W. (2004). *The development of organic tea in Chinese mainland*. Proc. Intl, conf. on O-CHA (tea) Culture and Sci., 4-6, Japan.
- Mudoi, DK., & Dutta, S. (2018). *Organic tea Products: A Study on Perception of Consumers in Golaghat District of Assam*. [https://ijer%20v9%20i3%20\(2\)%20\(2\).pdf](https://ijer%20v9%20i3%20(2)%20(2).pdf)
- (n.d.). (2021). *Organic Tea Market Size In 2023: Share, Latest Trends & Forecast 2023 To 2030 Tea industry in Assam – tough challenges ahead*.