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Geo-Environmental Problems on Menthol Mint Production with Special Emphasis on Barabanki District Uttar Pradesh India

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Abstract:
The present paper evaluates the research problems of the Menthol Mint in Barabanki district Uttar Pradesh. In this research gap, we conclude by studying the major problem faced by the growers, processors, distillers and traders and throw a brief light on Menthol Mint oil cultivation, Exposing Menthol Mint's agricultural field to study the present condition of Menthol Mint cultivation and Menthol Mint formers. To illuminate the problems and present situation of the farmers engaged in Menthol Mint cultivation. The objectives of the research gaps are to evaluate the socio-economic, political and environmental sustainability of the Menthol Mint production through Uttar Pradesh up to the India level.

Keywords: *Menthal Mint, Environment, Production, Methodology, India*

1. INTRODUCTION

Menthol Mint Avensis, also known as common mint, is the source of Menthol Mint oil. It is a plant that produces aromatic, pleasant-smelling leaves every year that is categorized as a commercial crop. Menthol Mint cuttings are planted in December and harvested in March and April. Menthol Mint oil is the final result. Menthol Mint oil is produced by processing and steam distillation of mint stems. Menthol Mint, also known as common mint, is a shrub. The United States has embraced the European mint plant Menthol Mintaruensis. It is a hardy, quickly growing herb with hairy leaves that, given the right circumstances, can grow as tall as 1 to 5 metres. With the aid of the steam distillation method, Menthol Mint oil is obtained from the fresh leaves of that plant, which is followed by the separation of Menthol Mint oil. "Menthol Mint" is the Latin word for "mint." In 1973, a US-based MNC installed the country's first distillation plant at Sitapur. Subsequently, local distilleries appeared in Barabanki, Sambhal, Chandausi, and Moradabad. A survey by Richardson Hindustan Ltd. revealed that the Tarai area of Uttar Pradesh would be an ideal location for the cultivation of Manthaaruensis. Menthol Mint was effectively grown as a crop, and its oil was successfully extracted by a steam distillation machine in the Nainital district's phoolbehar unit. They provided the technical know-how and planting materials needed to grow the Menthol Mint herb. As a consequence,

the area used for Menthol Mint crops significantly increased throughout the Tarai and western districts of Uttar Pradesh, particularly in Barabanki, Lakhimpur Kheri, Moradabad, Badaun, and, more recently, Bareilly.

1.1. Objectives of the Study

- To study the major problem faced by the growers, processors, distillers and traders.
- Throw a brief light on Menthol Mint oil cultivation.
- Exposing Menthol Mint's agricultural field.
- To study the present condition of Menthol Mint cultivation and Menthol Mint formers.
- To throw light on the problems and present situation of the farmers engaged in Menthol Mint cultivation.

1.2. Selection of the Study Area & Topic

The Barabanki region is located approximately 22 kilometres (km) east of Lucknow, the state capital of Uttar Pradesh. As one of the four districts of the Faizabad Division, this district is situated in the heart of the Awadh area between latitudes 26°30'N and 27°19'N and longitudes 80°58'E and 81°55'E. Districts Faizabad in the east, Gonda and Bahraich in the northeast, Sitapur in the north, Lucknow in the west, Raibareilly in the south, and Sultanpur in the southeast encircle district Barabanki. The Ghaghra River serves as the northern boundary dividing Gonda from Bahraich and Barabanki. It is conveniently accessible from Lucknow. 3,260,699 people called Barabanki home in 2011, with 1,707,073 males and 15,53,626 females. According to the 2011 census, 15% of the district's total population lives in urban areas, while the majority (89.95%) of residents of the Barabanki district reside in rural areas of their villages. The district's economy is primarily dependent on agriculture. District out-irrigated is 84.2 percent in Barabanki as made to up 79%. Barabanki has a 176% irrigation rate. Agriculture for sustenance is encouraged in Barabanki. Formers can harvest up to five harvests annually. Overall, 68.4% of the area in Barabanki is devoted to cereal crops, compared to 78.5% in the U.P., where 84.9% of the area is dedicated to food cereals. The nation's top producer of Menthol Mint oil is located in the Barabanki region. Over 83000 hectares are used for the production of Barabanki Mantha oil. Menthol Mint is grown throughout the region's 15 districts and six tehsils. Menthol Mint is produced in every village in Barabanki, with the majority of it being grown in the Fatehpur tehsil. This greater cultivation has led to the prosperity of Barabanki. Farmers have to face many problems to do farming. These problems are as follows:

- Lock of infrastructure
- Lock of scientific quality distillation tank
- Expensive distillation unit
- Lock of the relation between formers and market

2. REVIEW OF LITERATURE

A thorough review of the literature is crucial to any scientific inquiry and is required to familiarize us with the work done previously to define the issue. Therefore, a systematic effort has been made to show chronologically all the studies that are relevant to the current investigation in this paper. A thorough review of the literature is crucial to any scientific investigation and is required to familiarize us with Lawrence's (2006) analysis of the export trend for menthol oil. It was discovered that increased manifolds more than doubled in 1992–1993 over 1991–1992 and that upward trend prices of Menthol Mint oil also continued to increase significantly. In the northwestern Himalaya region, Sharma et al. (2007) examined the area, production, and productivity of vegetable crops. He argued that the rise in output and efficiency outpaced the rise in land area. Vegetable crop output, area, and productivity increased significantly; however, production growth was higher than area growth (7.51% vs 2.85%), and productivity growth was higher than area growth (4.617). The findings emphasize the comparative advantage of growing vegetable crops due to the diverse agro-climatic conditions of Menthol Mintarvensis, which was first cultivated in Japan around 1070 and introduced as a legume for Rabi. Swan was the cause of the winter season. It is still the scenario as of right now. This crop thrives in sandy soil with high water content, but crop development is hindered by water logging and insufficient rainfall. The crop

is harvested once it has reached the flowing stage because this is when the oil content of the plant is at its greatest. The crop is then dried for a total of 2-4 hours per day until it has lost one-third of its weight and is then sent for distillation. It has been desiccated because distilling dried leaves is much less expensive than distilling non-derived leaves. Crops that have been over-dried risk having their oil content absorbed. Menthol Mint can be combined with potato and, i.e. maize to get a higher return and increased profitability. Harvesting is done at least twice a season.

3. RESEARCH METHODOLOGY

A study on the environmental impact assessment of Menthol Mint cultivation in Barabanki district (UP) methodological aspects has been discussed under the following:

- Sampling technique
- Collection of data and method of enquiry
- Period of enquiry
- Analytical tools

3.1 Sampling Technique

A two-stage stratified multi-stage sampling technique was used to select the block, village and respondents (Menthol Mint Growers)

- Selection of district
- Selection of Block
- Selection of Village
- Selection of Mint Growers

For each of the chosen, an inventory of all mint growers was created and classified. Farmers from each group to percent mint products sample of 25 formers chosen from five villages of Barabanki district in the categories 0-1 ha, marginal 1-2 ha small, and more than two ha.

3.2. Collection of Data and Method of Enquiry:

Both primary &secondary data were used for the study.

3.2.1 Sources of Secondary Data

Secondary data on area, output, field, and exports were gathered from reports already in print, journals, the Lucknow-based Control Institute of Medical and Aromatic Plants (CIMAP), magazines, ICAR websites, and other sources.

3.2.2 Sources of Primary Data

The information regarding the intermediaries, their margins, the cost involved, problems encountered, etc., were collected wing a separate design for the study schedule from the middleman involved. Primary data with regard to cost and return, and marketing aspects were collected through the personal interview with Menthol Mint growing formers. The production and productivity of Menthol Mint in Uttar Pradesh's 100000 hectares rose to 65.50 thousand, 77.70 thousand, and 188 thousand hectares in the years 2010-11 and 2011-12, respectively. In the years 2002–2003, Uttar Pradesh produced 60.21 thousand Tons of menthol oil. Due to higher productivity levels, it increased to 75.89 thousand mt in 2003–04, a 26.04% rise over the previous year. The following year, it increased once more to 100.56 thousand unit smt. In the Uttar Pradesh district of Barabanki, Menthol Mint production peaked in the years 2002–2003 at 29.8 metric tonnes, then grew to 38.19 metric tonnes in 2012–2013 and 43 metric tonnes in 2017–18.

4. RESULTS

4.1 Worldwide Scenario of Menthol Mint Oil:

Natural Menthol Mint oil is currently selling for between $38.1 and 40.00 kg per kilogramme, which is about 30% more than the commodity's February 2016 price. Due to the low processor stocks of whole arvensis and their difficulty making commitments for deliveries after March 2017, it is anticipated that the price of Menthol Mint oil will rise even further. Recent spot price movement on the MCX Futures Commodity Exchange and market sentiment indicate that the price of whole arvensis is likely to rise to $37 to 40.00 kg. As the supply will exceed demand by the years 2017–2018, the introduction of synthetic Menthol Mint oil in significant quantities from German manufacturers is likely to alter the price of natural Menthol Mint oil globally. According to the Spice Board of India, India exports a significant amount of terpeneless de-mentholated oils and peppermint oil, with annual volumes of roughly 8,000 and 1,500 mt, respectively. Future price changes for natural Menthol Mint oil are predicted to have a negative impact and sharply raise the cost of these extenders.

4.2 India Scenario of Menthol Mint Oil

Since the last couple of years, the production of Menthol Mint oil has significantly increased, with India contributing more. In Uttar Pradesh, Menthol Mint is grown on a large basis for commercial purposes (Barabanki, LakhimpurKheri, Chandausi, Sambhal, Bareilly, Sitapur etc.) About 32,000 tons of Menthol Mint petroleum oil are produced annually in India's Panjab (Jalandhar), Haryana (Ambala), and Bihar (Muzaffarpur) provinces (average for the last five years). Production has been rising in recent years, and according to Karvy, high production of close to 50,107 mttonnes is anticipated for the current year, 2015–16. Go per cent of India's agricultural review is produced in Uttar Pradesh, with the remaining 10% produced in Punjab, Haryana, and Uttrakhand. In recent years Menthol Mint herb was developed in Madhya Pradesh. In Uttar Pradesh, major Menthol Mint growing areas are Barabanki, Faizabad, Gonda, Bahraich and Moradabad.

4.3 Classification of Menthol Mint: In India, there are four kinds of Menthol Mint crop

(i) Menthol Mint Arvensis
(ii) Menthol Mint Piperita
(iii) Menthol Mint Spearmint
(iv) Menthol Mint Citrata

Table 1: Overall Production of Menthol Mint Spearmint & Citrate

Time of Plantation Crop	Time of Plantation	Oil Field Per Acre
Menthol Mint Arvensis	January 2nd week to February Last	60 kg to 90 kg
Menthol Mint Piperita	December last week to January last	40kg to 65kg
Menthol Mint Spearmint	December last week to January last	40kg to 70kg

5. DISCUSSIONS

The Central Institute of Medicinal and Aromatic Plants (CIMAP) recommended 22 lines of improved Menthol Mint cultivation practices that were used to measure adoption. A respondent's adoption score is calculated as a percentage of the scores they received for each of the 22 items up to the minimum adoption score. The mean adoption score for the Barabanki district was (40-34%). When this formation created numerous diversions in the Barabanki district, there were also some issues, including the ones listed below.

- Economic profitability
- Increased social status
- Increase in cost of cultivation
- Decrees in the availability of other crops
- Increase the divide between the rich and the poor
- Increased social relations
- Increased contact with the extension agents
- Change in existing cropping pattern
- Decrease in the yield of the next crop
- Decrease soil fertility and quality
- Decrease in the water table

Due to their enormous untapped economic potential, especially in the use of herbal medicines, medicinal and aromatic plants are getting a lot of attention worldwide. The term "Japanese peeling" refers to the aromatic herb plant Menthol Mint, which is native to Japan and has pleasant-smelling leaves. Due to its prior growth in Argentina, Brazil, and Olivia, Menthol Mint is also known as the Japanese mint.

Tewari (2016) noted that both on a national and international scale, the supply of Menthol Mint oil has steadily grown. However, demand's elasticity was lower than supply's. He noticed a sudden, sharp change in Menthol Mint oil's price. Menthol and menthone, two of the oil's main components, as well as sweet basil oil and two of it, were found to be vapours, according to Edris et al. (2003). While menthone alone did not exhibit any impact at all doses, essential oils' main individual aroma constituents and blends of those major individual constituents are what give Menthol Mint oil its antifungal properties.

Kumar et al. (2011) conducted the current study in Haryana State to examine the option level, cost, and returns variation in price and field and

marketing positioning of medicinal and aromatic plants (Map). The findings show that, with the exception of Menthol Mint, no significant differences were found. However, FYM was used at 2 to 5 times the suggested amount in all crops other than Menthol Mint when cultivating aromatic plants. Due to MAP farmers' lack of knowledge and ignorance, MAD cultivation was not carried out in accordance with scientific advice. In the bazaar in the Menthol Mint of June-July. Menthol Mint oil is the main derivative product of Menthol Mint oil majority of the oil is converted into Menthol Mintoil, and it is regarded as one of the fundamental uses of mint oil. According to the trade union 2017, India currently produces the most menthol oil in the globe, accounting for about 73% of the total. Although the origin of the mint is unknown to the general public, it is believed that it was first grown in Europe in antiquity. Japan began cultivating mints commercially in 1870. At the time, fevering was known as Japanese mint, and Japan was the industry leader, Subsequent to the Second World War. Some Japanese goods were interested in Brazil because mint was discovered in Brazilian forests, and Brazil began to produce mint as well. Similarly, mint output grew in those South American nations as well. Around 1960, the manufacture of mint also spread to other countries, including China and India.

In reality, India used to import menthol oil, but after the green movement of 1960–1965, mint became a prevalent agricultural crop. Before 1964, there was no production of Menthol Mint oil in India, despite the dramatic and extremely successful tale of Menthol Mintarvensis cultivation. Currently, India produces the most menthol oil in the world, accounting for about 95% of the total output. China, Brazil, and the U.S. make up the remaining 5%, while India accounts for between 30% and 40% of the total menthol product. China, the U.S., and European nations disobey.

With respect to area and production in Uttar Pradesh, Barabanki district earned first place as India is the largest exporter of Menthol Mint oil. The demand for Menthol Mint oil, both domestically and internationally, is rising over time. In light of the aforementioned fact, it is deemed essential to carry out a micro-level study and look at marketing's overall cost and return as well as the safety of producers when dealing with various marketing channels. The purpose of this research was to assess the profitability, market margins, price spread, and export potential of Menthol Mint oil. The single biggest product category in the export basket, comprising mint products such as oils, crystals, and powder, accounts for 27% of all spices exported from India.

6. CONCLUSIONS

The economic backbone of India is agriculture because it is an agricultural nation. Menthol Mint's agriculture in the Barabanki region stakes its claim not just in India but also internationally. As a result, research on this topic is crucial. Barabanki District has its own identity in the production of Menthol Mint Barabanki District alone produces 33% Menthol Mint oil of alone Menthol Mint cultivation is taking. This makes our country well known in the global market, not only in the state but in the entire world, located on 90% of the district of Barabanki's agricultural territory. Menthol cultivation has altered the social, economic, and political circumstances of previous residents of the Barabanki District. Therefore, it is even more crucial to research these cultivation's impacts.

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