Cultivating Change: Exploring the Role of Floriculture in Sustainable Development among the Mao Tribe in Manipur

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Abstract:

Floriculture is a thriving industry globally, contributing significantly to economies like Kenya's. Yet, in Manipur, commercial flower cultivation remains largely overlooked, often relegated to a domestic pursuit. However, the Mao community, nestled in Manipur's northern reaches, embraced flower cultivation modestly in the late 1970s. Despite its small scale, the region's soil and climate proved conducive to diverse commercial flowers. Regardless of age, education, or socio-economic status, Mao women enthusiastically embraced this profession. This paper chronicles the inception of flower cultivation within Mao society, highlighting both its challenges and benefits. Through interviews with 42 women growers aged 14-62, it was found that flower cultivation typically began as a hobby before evolving into a small-scale enterprise. Lacking formal training and infrastructure, growers rely on organic methods. Nonetheless, this venture has significantly improved livelihoods and emerged as a crucial contributor to sustainable development.

Key words: Floriculture, Mao community, commercial flower cultivation, livelihoods, sustainable development

Introduction

Floriculture, encompassing the cultivation primarily of flowers, along with the broader flower industry, which involves the cultivation, production, and marketing of a diverse range of floral and non-floral plants, holds significant importance in global economies (Van Uffelen & de Groot, 2005). The perishable nature of floriculture products accentuates the necessity for efficient handling and swift transport systems, highlighting the crucial role of research and development within this sector (Chowlu and Das, 2007). In the context of India, the floriculture market is predominantly steered by small and marginal farmers, with traditional flowers like Marigold, Jasmine, and Rose being major contributors (Sindhu and Saha, 2010). Despite the acknowledged business potential emphasized by researchers (Byezynski, 1997; Siraj, 2008; Das, 2017), India encountered a decline in flower exports between 2007-2008 and 2009-2010, attributed to infrastructural impediments such as deficient roadways and insufficient refrigerated transport and storage facilities (Chowlu and Das, 2007).

Literature Review

Developing countries have witnessed a substantial rise in flower exports, contributing to income growth, particularly among small-scale producers (ITC, 2001; PANUPS, 2002). Roses and carnations dominate third-world exports, with significant increases during winter seasons (Khan, 2012). In recent years, studies have continued to highlight the growing importance of flower exports in the economic landscape of developing nations (Goyal, 2015; Smith et al., 2018). Despite existing challenges, such as market fluctuations and climate change impacts, the Indian flower industry holds commercial promise, contingent upon joint efforts from cultivators and government initiatives (Kaur and Saleem, 2011). Recent literature emphasizes the need for sustainable practices and technological innovations to overcome these challenges and enhance market competitiveness (Singh and Mishra, 2016; Sharma et al., 2019). Encouraging women-led floriculture emerges as a strategy for rural and tribal development, as recent studies underscore the socioeconomic benefits and empowerment opportunities associated with female participation in the flower industry (Journal of Agriculture and Rural Development in the Tropics and Subtropics, 2012; Singh and Patel, 2017). Moreover, the flower industry serves as a significant source of employment, particularly for women, offering both direct and indirect employment opportunities (Dolan and Sorby, 2003; Mishra et al., 2018). Recent research emphasizes the need for gender-inclusive policies and initiatives to further enhance women's participation and empowerment in the floral sector (Kaur and Sharma, 2019). These developments align with broader sustainable development goals, leveraging India's rich biodiversity and empowering rural women economically (Bhattacharjee and De, 2003). Recent literature also underscores the role of floriculture in achieving environmental sustainability through practices such as agroecology and organic farming (Singh et al., 2020).

History of Flower Cultivation in Study Population

Flower cultivation among the Mao tribe traces back to the late 1970s when a pioneering woman initiated the business by selling flowers at the Mao gate. Over time, the practice gained popularity, attracting more women who recognized not only the aesthetic value of growing flowers but also its commercial potential (Morung Express, 2016). Adaphro and Lophro (2016) emphasized the economic sustenance flower cultivation offered, marking its significance in the community's livelihood. Lophro (2015), Katini (2016), and Kaini (2017) highlighted the benefits of flower cultivation in their respective AIR talks on Floriculture and Self-employment. They emphasized the joy, satisfaction, and mental nourishment it brings, proposing floriculture as a viable part-time passion with promising returns. Despite the modest size of the Mao area, its conducive soil and climate conditions favour the cultivation of various commercial flowers, accessible to women of all backgrounds.

During the 2nd inaugural event of the Flower Show in 2016, the District Collector recognized the economic value of flower cultivation, particularly in a border/transit area like Mao. The Mao Flower Growers Association (MFGA), established in 2015, boasts over 80 members, further underlining the growing interest in floriculture within the community. The introduction of flower festivals, notably the Cherry Blossom Festival and Mao Flower Festival, attracted media attention, showcasing the rich diversity of flowers cultivated in the region.

Objectives

The primary objective of this paper is to delve into the origins of flower cultivation among the Mao tribe, documenting its evolution and significance within the community. Additionally, it aims to explore the potential of floriculture as a sustainable business venture by elucidating its socio-economic, health, and other associated benefits. By shedding light on the challenges faced by growers, the study seeks to identify avenues for sustainable growth and development in the floriculture sector.

Materials and Methods

In 2017, the study involved a comprehensive examination of 42 women flower growers ranging in age from 14 to 62, hailing from various Mao villages including Pudunamei, Punanamei, Rabunamei, Song Song, Kayinu, Phikomei, Tadubi, Shajouba, Kaibi, and Daili. These villages were selected purposively to represent a diverse range of flower cultivation practices within the Mao tribe. The sample selection process ensured randomness to capture a representative sample of flower growers from the community. Data collection primarily relied on structured interview schedules administered to the participants. These interviews aimed to gather detailed information about various aspects of flower cultivation, including cultivation techniques, challenges faced, economic aspects, and the socio-cultural significance of floriculture within the Mao community. Additionally, anthropological research techniques such as participant observation and case studies were employed to complement the interview data, providing deeper insights into the cultural and social dynamics surrounding flower cultivation among the Mao tribe. In addition to primary data collection, secondary sources were consulted to enrich the understanding of flower cultivation practices and their socio-economic context. These secondary sources included existing literature, reports, and records related to floriculture in the region. By triangulating data from multiple sources, the study aimed to provide a comprehensive understanding of flower cultivation among the Mao tribe, encompassing both quantitative and qualitative aspects.

Results and Discussion

Socio-Demographic Diversity of Flower Growers:

Table - 1 reveals a diverse range of ages, spanning from a 14-year-old student to a 62-year-old woman. The majority, exceeding 80%, fall within the age bracket of 26 to 45, indicating a significant presence of younger individuals in this business. This youthful demographic presents opportunity for future growth and expansion within the industry. Regarding marital status, approximately one-third of the flower growers, or 33.33%, are single, suggesting a varied personal background among participants. Women with differing levels of educational attainment and from various walks of life are involved in flower cultivation, either as their primary source of income or as a supplementary occupation. Notably, none of the women have received formal training in floriculture; instead, they have acquired technical expertise through self-learning.

The vast majority of flower growers, almost all, are self-taught in this field, demonstrating their resourcefulness and adaptability. Additionally, approximately 15 women are engaged in mobile flower sales, while others operate from fixed locations where buyers or intermediaries collect the flowers, whether in potted form or in poly bags. This distribution of business models underscores the flexibility and versatility within the flower cultivation sector.

Economic Advantages of Floriculture Ventures:

Traditionally, the Mao community primarily residing in hilly regions have been engaged in agriculture, cultivating a variety of vegetables, fruits, and now, flowers. Both traditional methods like jhum and modern practices like terrace cultivation are prevalent, especially in remote areas. During agricultural off-seasons, they diversify into activities like weaving, logging, and gathering forest produce. Interestingly, many flower cultivators initially pursued it as a hobby, which gradually evolved into a source of income, showcasing growth potential. However, data suggests that only a small fraction invest significantly in flower cultivation, citing reasons like financial constraints, uncertainty, and lack of government support. Floriculture operations are predominantly small-scale and lack strategic planning. Surprisingly, none of the growers have received formal training in plant tissue culture. Organic fertilizers are commonly used. Despite the modest scale, floriculture has positively impacted household incomes, particularly empowering women, entrepreneurs, and unemployed youth. The vibrant display of potted flowers not only uplifts growers' spirits but also captivates visitors. The investigation presents data on annual investments and income in floriculture, with respondents categorized by the amount of investment and income in thousands of Rupees (Rs.) shown in Table - 2. It shows the number of respondents and the percentage of respondents for different ranges of annual investments in floriculture. For instance, 13 respondents (31.0%) reported annual investments of less than Rs. 10,000, while 10 respondents (23.8%) reported investments between Rs. 10,000 and Rs. 20,000. Similarly, the table presents data on annual income from floriculture. For example, 6 respondents (14.3%) reported annual incomes of less than Rs. 25,000, while 5 respondents (11.9%) reported incomes between Rs. 25,000 and Rs. 50,000.

Profits vary across different flower products, with significant returns from cut flowers and bouquet arrangements. Popular varieties include Alstroemeria, Lilium, Snap dragon, and various dried flowers. Additionally, foliage like ferns and Eucalyptus add value to bouquets. Despite varying incomes, stable yields contribute to financial stability, with some growers reportedly earning upwards of 2 lakhs annually. Return on Investments (ROI) ranges from 100% to 500%, showcasing the sector's profitability. However, infrastructural limitations, like inadequate greenhouses or sheds, hinder scalability. Only a few individuals possess proper facilities, while most operate on a small scale with limited space. This lack of infrastructure could impede business expansion. The study reveals that only a minority have proper greenhouse setups, while others lack adequate infrastructure. Limited cultivation space poses a challenge to scaling operations, affecting more than 80% of growers. Table - 3 provides information on the types of infrastructure used for cultivation and the cultivation area in square feet, with respondents categorized by the number of respondents and the percentage of respondents. In case of types of infrastructure, The table lists different types of infrastructure used for cultivation; respondents are categorized based on the type of infrastructure they utilize; and For instance, 5 respondents (11.9%) use Polyhouse + Greenhouse, 2 respondents (4.8%) use Greenhouse Temporary shade, 10 respondents (23.8%) use Temporary shade, and 25 respondents (59.5%) have no separate space or open area for cultivation. At the same time, It is observed the 5 respondents (11.9%) have a cultivation area larger than 1000 square feet, 10 respondents (23.8%) have a cultivation area between 500 and 1000 square feet, and 27 respondents (64.3%) have a cultivation area less than 500 square feet. Thus, the finding offers insights into the distribution of respondents based on the types of infrastructure used for cultivation and the size of their cultivation area.

Fig - 1: Mixed cultivation

Fig - 2: Open space cultivation

Challenges Faced by Flower Growers:

i) Space Constraints: Many Mao households lack adequate space for flower cultivation, limiting expansion opportunities. Some resort to cultivating flowers alongside vegetables in kitchen gardens.
ii) Limited Raw Materials: Procuring sufficient raw materials poses a challenge, often necessitating exchanges with friends or purchases from other sellers. Dependency on raw materials from Nagaland's horticulture department highlights regional scarcity.

iii) Lack of Processing Techniques: Growers lack specialized plant knowledge and rely on self-acquired skills. Limited knowledge of plant and tissue culture and minimal pesticide usage underscore the need for training.
iv) Infrastructure Deficiency: Inadequate infrastructure exposes growers to weather-related losses, hindering growth.
v) Transportation and Marketing Hurdles: Transporting delicate flowers for sale is challenging, exacerbated by a lack of marketing networks. Language barriers add to communication challenges.
vi) High Investment Costs: Floriculture demands significant investment in physical structures, raw materials, and labour.
vii) Packaging and Storage Shortcomings: Absence of proper packaging and storage facilities hampers product quality and sales.
viii) Limited Government Support: Greater government support could foster sustainable floriculture development, benefiting marginalized communities and improving economic and health outcomes.
ix) Lack of Publicity: Enhanced publicity, especially through social media, is essential for raising awareness and demand for flower products.
Addressing these challenges can not only improve the floriculture sector's sustainability but also uplift marginalized communities and stimulate economic growth.

Future Prospects of Floriculture:

i) Strategic Geographical Advantage: Mao's location near state and international borders presents economic opportunities, positioning it as a hub for the flower trade.
ii) Increasing Demand: The evolving societal trends fuel a growing demand for flowers, especially for various occasions like weddings, birthdays, and anniversaries, indicating the need for expanded cultivation.
iii) Land Availability: Mao villages offer ample land for cultivation, particularly for greenhouse construction, utilizing community lands belonging to lineages, clans, or villages.
iv) Favorable Environment: The region boasts fertile soil and favorable climatic conditions, ideal for large-scale flower cultivation, offering employment opportunities.
v) Export Potential: Some growers already supply to local exporters who cater to international markets like Singapore and Australia. With rising living standards, the demand for exported flowers is expected to increase.
vi) Ecological Balance: Floriculture can be integrated with vegetable gardens, promoting dual cultivation and conservation of arable land. This practice not only optimizes space and time but also contributes to environmental sustainability.
These factors collectively suggest a promising future for floriculture in Mao, with opportunities for economic growth, employment generation, and ecological conservation.

Conclusion

The Mao tribe of Manipur may have ventured into the flower industry later than their counterparts, but their rapid recognition of its potential underscores their adaptability and resourcefulness. Situated on the border of Manipur and Nagaland, Mao is renowned among neighboring states for its horticultural expertise. The favorable climate and soil conditions have facilitated successful flower cultivation, allowing them to concurrently engage in vegetable gardening on the same plots of land. This integrated approach has significantly augmented their incomes, exemplifying a classic case of sustainable rural development. Floriculture has addressed key economic and social challenges within the community, such as unemployment and social upliftment, while also promoting mental well-being. Despite encountering typical business obstacles, the rewarding outcomes have been transformative. The sector's potential continues to expand with each passing season, driven by a growing demand. Moreover, with government support through schemes or loans tailored for small farmers, the prospects for future growers are boundless. To sum up, the journey of the Mao tribe into the flower industry serves as a testament to the transformative power of agriculture, demonstrating how strategic utilization of natural resources can lead to economic prosperity, social development, and enhanced well-being. With ongoing support and innovation, the future holds endless opportunities for flourishing flower cultivation in Mao and beyond.

Table - 1: Socio-Demographic Profile of the Respondents

Category	No. of respondents	No. of respondents (in %)
Age cohorts		
<25	3	7.1
25-35	17	40.5
36-45	18	42.9
46-55	3	7.1
>55	1	2.4
Marital Status		
Single	14	33.3
Married	18	42.9
Separated/ divorcee	9	21.4
Widow	1	2.4

Educational level		
Read & write	2	4.8
Under Matric	5	11.9
Matriculate	9	21.4
Under Graduate	9	21.4
Graduate & above	17	40.5
Primary Occupation		
i) Floriculture	5	11.9
ii) Govt. employed	7	16.7
iii) Petty business	26	61.9
iv) Private teacher	3	7.1
v) Student	1	2.4

Table - 2 Annual Investments and Income in Floriculture

Investments & Income (in '000Rs.)	No. of respondents	No. of respondents (in %)
Annual Investment		
<10	13	31.0
10-20	10	23.8
20-30	8	19.0
30-40	6	14.3
40+	5	11.9
Annual Income		
<25	6	14.3
25-50	5	11.9
50-75	10	23.8
75-100	16	38.1
100+	5	11.9

Table - 3: Types of Infrastructure & Cultivation Area (in sq. feet)

Parameter		No. of respondents	No. of respondents (in %)
i)	**Types of infrastructure**		
ii)	Polyhouse + Green house	5	11.9
iii)	Green house + Temporary shade	2	4.8
iv)	Temporary shade	10	23.8
v)	No separate space/open area	25	59.5
vi)	**Cultivation Area**		
>1000		5	11.9
500-1000		10	23.8
vii)	<500	27	64.3

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