

# The Levels of Knowledge and Adoption of Cultural Practices of the Domestic Floriculture Growers in the Central Province of Sri Lanka: An Evaluation

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## Abstract

Floriculture industry has become a high-income generating agribusiness today in Sri Lanka. It also brings a considerable amount of foreign exchange to the country annually, which is an important factor for the country's economy. The objectives of the research were to identify the growers' personal characteristics, and their effect on their levels of knowledge and adoption on cultural practices. Required primary data were collected through personal interviews from a questionnaire. Data were analyzed using Statistical Package for Social Sciences (SPSS). The respondents' mean overall technical knowledge was 1.8 (out of 3), and mean overall adoption was 2.0 (out of 3) and adoption levels were 2.1, 1.8, and 1.9 respectively. Out of eight cultural practices, harvesting technology and post-harvesting technology had the lowest mean levels of knowledge (1.45 and 1.3 respectively) and adoption (1.4 and 1.3 respectively). It is recommended to motivate the growers to develop their levels of knowledge and adoption on cultural practices, produce quality products, and expand the business; also, to expose the business to the foreign market through the floriculture associations, the Department of National Botanic Gardens (DNBG), and the Export Development Board (EDB) of Sri Lanka.

## Keywords

Floriculture Industry, Technology, Knowledge, Adoption, Central Province, Sri Lanka

## 1. Introduction

### 1.1. Floriculture Industry

The global trade in floriculture was US\$ 6.8 billion in 1998 (Papademetriou, 1998), US\$ 49 billion in 2020, and is projected to reach US\$ 70 billion in 2026 (Facts and Factors, 2021). The Cut Flower Industry in Sri Lanka was formulated in early 1970s, and an export market was formulated in 1977 (Ekanayake, and Hagen, 1977). In 2021, the annual income in the floriculture industry in Sri Lanka was US\$ Million 16.19 and in 2022(March) it was US\$ Million 3.99 (EDB, 2022). Sri Lanka earns an average of US\$ 15 million annually, which is a considerable amount, especially in the present economic situation of the country. There were 701 registered floriculture nurseries in the Central Province of Sri Lanka and only 210 were selected for the study. The flower industry comprises cultivation and trade of cut flowers, cut foliage, potted plants and bedding plants. Potted plants and cut flowers have an almost 80% share of the world trade in ornamental plant production. It is also more profitable than other conventional crops, and products are high demand all over the world (DAWN Newspaper, 2022, <https://www.dawn.com/news/188009/issues-challenges-and-opportunities-in-floriculture>) The Department of National Botanic Gardens (DNBG) was established, in 2006 and the development of the floriculture industry in Sri Lanka became mandatory of the department (The Gazette of the Democratic Socialist Republic of Sri Lanka, 2006).

### 1.2. Objectives of This Study

The objective of this research is to study and evaluate the levels of knowledge and adoption of cultural practices of the domestic floriculture growers in the Central Province of Sri Lanka. It is also to study and analyze the characteristics of the growers, types of floricultural crops cultivated and their effect on the levels of knowledge and adoption of cultural practices.

## 2. Methodology

The researcher has selected the Central Province of Sri Lanka as the study area because this province shows an array of different climatic zones. In addition, most of the highly demanded floricultural crops are grown in this area. The province consists of three districts, namely Matale, Kandy, and Nuwara Eliya. The total sample frame consisted of 210 growers and the growers were selected randomly from the floriculture associations registered in the DNBG. A questionnaire was developed and pretested to collect data and other necessary information from the growers in the sample. The questionnaire was administered from mid-2019 to December 2019. The data were analyzed using descriptive statistical techniques such as percentage, frequency distribution, mean, standard deviation, etc., and analytical techniques such as chi-square, and correlations. The level of significance used to determine the significance was 0.05.

### 3. Results and Discussion

#### 3.1. Respondents Technical Knowledge of Common Cultural Practices

The main floricultural crops grown in this area are Anthuriums, Orchids, Foliage Plants, Roses, and other mixed flowers. However, Orchids and Roses are popular in *Kandy* and *Nuwara Eliya* districts respectively. The knowledge levels were measured by a list of questions and one point was given for each question. Knowledge levels were categorized into three groups based on a point system. In computing the knowledge of technologies, the individuals were grouped as, 1 = poor, 2 = average 3 = good (**Table 1**).

According to **Table 1**, most of the respondents have an average technical knowledge on all technical fields. Only a few respondents have good knowledge of different technical fields. There were also considerable percentages of respondents with poor technical knowledge on some fields such as harvesting and post-harvesting technology. These are very important technical fields in floriculture. Since floricultural products are perishable, the growers must pay a special attention on these techniques to protect their harvests until they are delivered to the market or the consumers. Therefore, the growers have to develop knowledge and adoption on these areas.

#### 3.2. Mean Technical Knowledge of the Growers According to Districts

**Table 2** shows that mean knowledge of the respondents in Nuwara Eliya district is comparatively less than the other two districts. The mean knowledge of harvesting and post-harvesting technologies in all three districts is less. Anyway, these two technologies are important in the transportation of the products. Otherwise, they will not be able to provide a quality product to the customers.

#### 3.3. Respondents' Adoption of Floriculture Technology

**Table 3** shows that the first six cultural practices have a mean adoption higher

**Table 1.** Distribution of respondents according to level of technical knowledge.

Type of technical knowledge	Poor (%)	Average (%)	Good (%)	Mean knowledge
1. Popular species	2.4	62.2	35.6	2.18
2. Shade conditions	4.3	70.0	25.7	2.23
3. Growing media	2.1	75.8	22.1	2.14
4. Cultural practices	2.1	73.6	24.3	2.20
5. Pest & disease control	2.0	86.7	11.3	2.07
6. Fertilizer applications	1.9	85.6	12.5	2.17
7. Harvesting technology	58.0	38.0	4.0	1.47
8. Post-harvest technology	67.6	31.4	1.0	1.33
<b>Overall</b>	<b>11.38</b>	<b>77.24</b>	<b>11.38</b>	<b>1.78</b>

**Table 2.** Mean technical knowledge of the growers in three districts.

Type of technical knowledge	Kandy District mean	Matale District mean	Nuwara Eliya District mean
1. Popular species	2.6	2.2	2.2
2. Shade conditions	2.5	2.1	1.9
3. Growing media	2.3	2.1	1.9
4. Cultural practices	1.8	2.1	1.9
5. Pest & disease control	1.2	2.1	1.9
6. Fertilizer applications	2.3	2.0	2.0
7. Harvesting technology	1.4	1.4	1.6
8. Post harvest technology	1.8	2.1	1.9
<b>Overall</b>	<b>2.0</b>	<b>2.0</b>	<b>2.0</b>

**Table 3.** Distribution of respondents according to level of adoption of floricultural technology.

Type of technical knowledge	Poor (%)	Average (%)	Good (%)	Mean adoption score (out of 3)
1. Popular species	7 (3.3)	138 (65.9)	63 (30.0)	2.27
2. Shade conditions	5 (2.4)	35 (64.3)	67 (31.9)	2.30
3. Growing media	5 (2,4)	159 (75.8)	43 (20.5)	2.18
4. Cultural practices	4 (1.9)	155 (73.8)	48 (22.9)	2.21
5. Pest & disease control	6 (2.9)	167 (79.5)	34 (16.2)	2.14
6. Fertilizer applications	3 (1.4)	151 (71.9)	53 (25.2)	2.14
7. Harvesting technology	133 (63.3)	66 (31.4)	8 (3.8)	1.40
8. Post-harvesting technology	151 (71.9)	53 (25.2)	2 (1.0)	1.28
<b>Overall</b>	<b>18.9</b>	<b>63.0</b>	<b>19.2</b>	<b>2.01</b>

than 2. It means their adoption of those cultural practices is higher and satisfactory. However, their adoption in the last two practices was poor. These shows that majority the respondents must develop their adoption in the last two practices to have a good product. There may be many factors affect the adoption of the growers (Dennis *et al.*, 2009). There also may have technological gaps in adoption (Beulah *et al.*, 2020).

### 3.4. Mean Adoption of Floricultural Technology by Respondents in Districts

According to **Table 4**, the mean adoption in all three districts on post-harvesting technologies is less (1 to 1.3). The adoption of post harvesting technology is important to provide a quality product to the market. The respondents in the Kandy district have a higher level of adoption compared to other two districts.

**Table 4.** Mean adoption of floricultural technology by respondents in three districts.

Type of technical knowledge	Kandy District mean	Matale District mean	Nuwara Eliya District mean
1. Popular species	2.6	2.0	1.9
2. Shade conditions	2.7	2.1	1.9
3. Potting mixture	2.4	1.8	2.0
4. Cultural practices	2.3	2.1	1.9
5. Pest & disease control	2.1	2.1	1.9
6. Fertilizer applications	2.4	2.1	2.0
7. Harvesting technology	1.2	1.3	2.2
8. Post-harvesting technology	1.0	1.3	1.3
<b>Overall</b>	<b>2.0</b>	<b>1.85</b>	<b>1.88</b>

### 3.5. Correlation between Personal Characteristics of Respondents and Overall Knowledge

The age of the respondent does not have a significant relationship ( $p = 0.543$ ) with the overall knowledge. This could be due to lack of training on cultural practices. The number of years of schooling has a significant positive relationship ( $p = 0.024$ ) with overall knowledge of practices. The educated growers could develop the knowledge of practices related to agribusiness. On the other hand, number of years involved in the business shows a significant ( $p = 0.005$ ) negative relationship with the knowledge of practices. This also could be due to lack of proper training on floriculture.

### 3.6. Personal Characteristics of Respondents and Overall Adoption

There is a positive significant ( $p = 0.030$ ) relationship between years of schooling and overall adoption. The educated growers are better able to adopt the knowledge of practices fast. There are no significant relationships between age ( $p = 0.882$ ) or the number of years involved ( $p = 0.650$ ) in the business with overall adoption. This could be due to lack of proper training on new technology and due to personal reasons.

## 4. Conclusion and Recommendations

According to the results, the floriculture growers in the Central province of Sri Lanka are poor in technical knowledge and adoption of some cultural practices such as harvesting and post-harvesting technologies. The factors such as educational level, personal feelings and fear of changing, high-cost materials, types of crops cultivated, and lack of proper trainings would be the reasons for poor knowledge and adoption. Therefore, they must be motivated through proper trainings to get a good crop production and income. The domestic floriculture growers could develop their business to reach the foreign market through the

well-organized floriculture associations, and the assistance of the DNBG and the EDB. The followings are some of the recommendations for planning the floriculture development programmes and future research.

Proper training programmes could be organized by the DNBG to increase required knowledge and motivate adoption of the growers in all three districts.

The relevant authorities could develop a close relationship between the growers and the private companies that provide other services and materials to the growers through a new approach.

The DNBG and the EDB could contribute a lot to developing the present floriculture industry by improving the local market, opening the opportunities for foreign market, strengthening the Public Private Partnership (PPP), providing government and non-government financial benefits, etc.

### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

### References

- Beulah, A., Jergin, J. I., Kumar, K. M., & Selvin, R. (2020). Technological gap in Adoption of Recommended Practices of Loose Flowers in Tamil Nadu, India. *International Journal of Current Microbiology and Applied Sciences*, 9, 1806-1813. <https://doi.org/10.20546/ijcmas.2020.905.205>
- DAWN Newspaper (2006). Issues, Challenges and Opportunities in Floriculture. <https://www.dawn.com/news/188009/issues-challenges-and-opportunities-in-floriculture>
- Dennis, J. H., Hall, T. J., Lopez, R. G., & Marshall, M. I. (2009). Factors Affecting Growers' Willingness to Adopt Sustainable Floriculture Practices. *HortScience*, 44, 1346-1351. <https://doi.org/10.21273/HORTSCI.44.5.1346>
- Ekanayake, D. T., & Hagen, P. W. (1977). *Handbook for Cut-Flower Growers* (1th ed., pp. 1-5). Lanka Pradeepa Printing Works. [https://www.abebooks.com/servlet/BookDetailsPL?bi=18270527791&ref=ps\\_ggl\\_177387604](https://www.abebooks.com/servlet/BookDetailsPL?bi=18270527791&ref=ps_ggl_177387604)
- Facts and Factors (2021). *Global Market Research Reports*. <http://www.fnfresearch.com>
- Papademetriou, M. K. (1998). *Cut Flower Production in Asia*. FAO.
- Sri Lanka Export Development Board (EDB) (2022). *Floriculture & Ornamental Foliage Export from Sri Lanka*. <https://www.srilankabusiness.com/floriculture/>
- The Gazette of the Democratic Socialist Republic of Sri Lanka, Part 1: Section (1) (2006).