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## Keywords:

The cultivation of marigolds, the Thon Hong District

**Dr.DaychoKhaenamkaew**

## Abstract

The objectives of this study were to describe the cultivation of marigolds. There were a total of 19 key informants who were studied using a qualitative approach. The results showed that 1) for cultivating marigolds, large varieties that yield fast-growing, early-flowering, and fruitful flowers should be selected. Marigold seeds have to be cultivated until the plants have 5–6 pairs of true leaves. Then, the plot has to be prepared by plowing, drying the soil, and increasing the quality of the plot by using fertilizers. Fertilizers are to be added at the bottom of the planting hole. Planting holes have to be dug and sprinkled with lime for 1–2 days. The marigold seedlings can then be transferred to the holes in the evening to reduce water loss. The plants have to be watered 1–2 times in the morning and the evening, and a small amount of manure and chemical fertilizers need to be added. The flowers and side buds have to be cut to increase the formation of new stems. Young large flowers can be collected at full bloom by cutting below the stem, as close to the base of the branch as possible.

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# The cultivation of marigolds: A Case study in the Thon Hong District, Nakhon Si Thammarat Province, Thailand.

Dr. Daycho Khaenamkaew<sup>a</sup>

<sup>a</sup>Lecturer of Program in Community Development, Faculty of Humanities and Social Sciences, Nakhon Si Thammarat Rajabhat University, Thailand

**Abstract:** The objectives of this study were to describe the cultivation of marigolds. There were a total of 19 key informants who were studied using a qualitative approach. The results showed that 1) for cultivating marigolds, large varieties that yield fast-growing, early-flowering, and fruitful flowers should be selected. Marigold seeds have to be cultivated until the plants have 5–6 pairs of true leaves. Then, the plot has to be prepared by plowing, drying the soil, and increasing the quality of the plot by using fertilizers. Fertilizers are to be added at the bottom of the planting hole. Planting holes have to be dug and sprinkled with lime for 1–2 days. The marigold seedlings can then be transferred to the holes in the evening to reduce water loss. The plants have to be watered 1–2 times in the morning and the evening, and a small amount of manure and chemical fertilizers need to be added. The flowers and side buds have to be cut to increase the formation of new stems. Young large flowers can be collected at full bloom by cutting below the stem, as close to the base of the branch as possible.

**Keywords:** The cultivation of marigolds, the Thon Hong District

## 1. Introduction

Marigold belongs to the genus *Tagetes*, which is also the name of the Etruscan people, native to Mexico. Later, there was a leading plantation in Europe. It is a very popular flower in South Asia and Southeast Asia. Marigold is used for Hindu rituals. It is also popular among Buddhists and is used in various auspicious rituals (Ruangram&Pimchan, 2016). There are three types of marigolds: (1) the American marigolds range between 10–14 inches (short variety), 14–16 inches (medium variety), and 16–36 inches (tall variety). (2) The French marigolds range between 1.5–2 inches (single-flower variety) and 1.5–3 inches (double-flower variety). (3) Hybrid marigolds, a hybrid of the American and French marigold varieties. They have strong, large flowers with many overlapping petals (Basic information of Marigolds, 2013). Marigolds are grown in different environments as they are easy to grow and raise, and are beautiful. Additionally, marigold plants look like flowering shrubs (25–60 cm high) and can grow well in all parts of Thailand. Marigold flowers are widely used for decoration and in religious rituals. Thus, selling marigolds can generate additional income for farmers (Ruangram&Pimchan, 2016).

For villagers in the Thon Hong Subdistrict, Phromkhiri District, Nakhon Si Thammarat Province. The Thon Hong Subdistrict is influenced by the northeast monsoon and receives heavy rain. Farming and gardening are the main occupations here. Many families in this subdistrict collectively grow marigold (MThai, 2017). Since it is a flowering plant that is well-known, easily grown, and visually attractive, calendula is commonly used to decorate the entrance of houses and to make garlands. It can also be used as a medicinal plant for the treatment of skin diseases and skin nourishment (Srisopa, 2010).

Due to the importance of marigolds mentioned above, the researcher was interested in studying marigolds, particularly their cultivation. The study area was at the Thon Hong Subdistrict, PhromKhiri District, Nakhon Si Thammarat Province. The specific aim of the study was to determine how to grow marigolds. The findings of this study will help people to recognize the commercial importance of marigolds that are widely available in the local area. This will allow them to earn, which, in turn, will cause economic growth of the community in the future.

## 2. Objectives of the Study

To describe the cultivation of marigolds: A Case study in the Thon Hong District, Nakhon Si Thammarat Province, Thailand.

## 3. Design and methodology

This research had key informants, consisting of farmers who grew marigolds in the Thon Hong Subdistrict. Sixteen families and three additional people who promoted marigold cultivation and use, the President of Thon Hong Subdistrict Administrative Organization, Agricultural district, and the owner of a horticultural and garden design shop, were involved in this study. The research methods consisted of (1) a questionnaire that was used by the researcher to ask questions, keep records of the research objectives, and collect relevant information. A voice

recorder was also used during the interviews as a backup. If the interviewee did not wish to record the audio, the recording was stopped. (2) A record form for participatory and non-participatory observations. During participatory observations, the observer engaged in activities with the study group; observations were made while interviewing the groups. On the other hand, in non-participatory observations, the researcher observed groups outside the interview and did not participate in any activities. They used a mobile phone camera to take photographs for research purposes. Certain procedures were followed for collecting information. Initially, the study area, where the community would be interviewed, was surveyed to gather preliminary information. Then, a friendly relationship was built with the local community before interviewing. Information on the cultivation and use of marigolds were obtained by taking appointments from individuals of the date, time, and location. The researcher then collected information on each issue by meeting and discussing it with the target group. If it appeared that the data lacked details, additional information was collected. We analyzed the data obtained from interviews and observations of both participatory and non-participating activities. We then summarized the important points. (Figure 1-2):



Figure 1-2. Keep records of the research objectives and collect relevant information

#### 4. Results

Growing marigolds in the community. The results of the study showed that several important steps are required to grow marigold plants effectively.

(1) Selection of marigold flowers: Selected seeds should be large that germinate and grow fast. The varieties should be disease-resistant, fast-flowering, and fruitful.

(2) Production of marigold seedlings: Seeds to be cultivated should be placed on a nursery tray with loamy soil and grown at moderate humidity till there are 5–6 pairs of true leaves. No fertilization is required at this stage.

(3) Preparations for marigold planting: The soil needs to be plowed to kill any bacteria and fungi present, which can reduce the occurrence of diseases. Then the quality of the plot has to be enhanced by applying base fertilizers, such as raw husk, nutshell, and manure, and organic fertilizers that are readily available in the local market. This optimizes the soil for cultivation.

(4) Preparation of marigold planting holes: In the soil, holes (15 cm wide, 2 -3 rows per square; 30 cm gap between rows, and 30 cm gap between plants) have to be dug as per the desired size. Then, lime has to be sprinkled to kill soil fungi. The soil has to be left for 1–2 days before the marigold is planted in the hole. After planting, the soil has to be filled, and the plants need to be watered moderately.

(5) Preparation for transplanting marigold seedlings: The seedlings should be transplanted at the age of 18–20 days after seeding or when three pairs of true leaves have emerged. Transplanting late causes the plant to stretch. The best time for transplanting is in the evening to reduce water loss. This allows the plants to set up quickly after transplanting.

(6) Watering marigolds: The plants should not be watered excessively as it may cause the roots to rot or the plant to fall. The plant should be watered in the morning and evening 1–2 times.

(7) Fertilizing marigolds: Manure, cow dung, and chicken excreta can provide most of the nutrients. Some nutrients can also be received from chemical fertilizers. The quantity of fertilizer used depends on the desired yield.

(8) Cutting flowers and buds: This should be done as it produces large flowers of high commercial value.

(9) Marigold harvest: The marigolds that are in full bloom can be collected. Flowers of the desired size should be cut below the shaft, as close to the base of the branch as possible.(Figure 3):

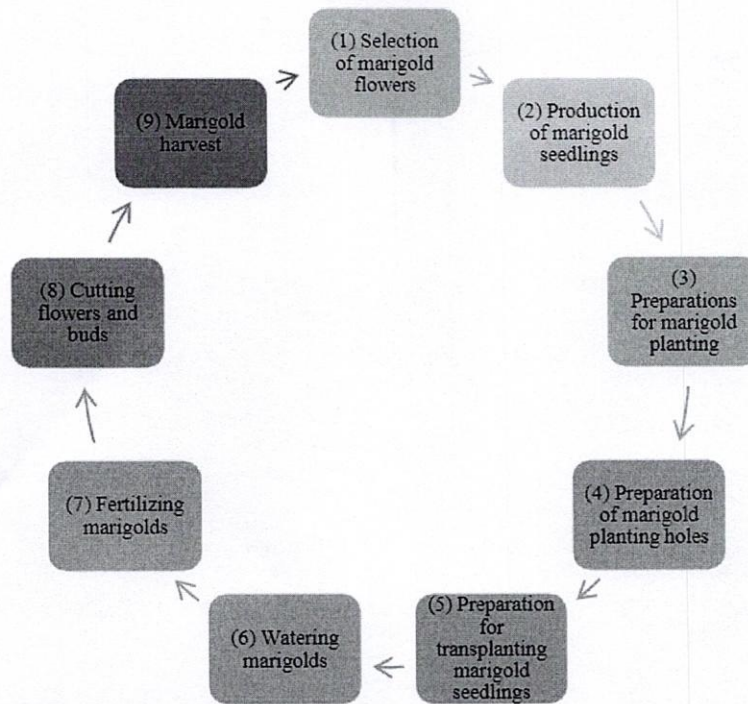


Figure 3. Growing marigolds in the community

## 5. Conclusion

Growing marigolds can promote careers in the community if selection, seeding, planting, and fertilizing are performed carefully. From this study, it can be concluded that marigold cultivation in the community has a variety of uses. The procedure for cultivating flowers practiced by the people of the Thon Hong Subdistrict is similar to that described in a study by Samanon (1992) in a flower planting manual. Since there are a variety of marigolds and a variety of flower colors, the desired and suitable species and variants can be selected to obtain specific phenotypes. A study by Wongsuban (2014) had concluded that while planting Marigold, the land should be plowed, the soil should be prepared, manuring or composting should be done, the groove should be 1 meter wide, and the plot should be watered one day in advance. Then a 15 cm wide hole should be dug, with three rows per plot and a 30 cm gap between the rows and the plants. About one teaspoon of 15-15-15 fertilizer should be added to the bottom of the hole, and the soil should be evened around the hole. Finally, a small amount of fertilizer should be removed to prevent the roots from directly touching the fertilizer. Then the seedlings aged 7-10 days from the date of seeding should be separated with a seedling material, or the roots should be covered with soil for protection. The seedlings should be planted in each of the prepared holes and watered thoroughly. The plants should be watered in the morning and evening for about seven days. After that, they should be watered in the morning when flowers start to bloom. Care should be taken to not pour water directly on the flowers as it may cause diseases. The plants should then be fertilized. Unwanted flowers should be cut, and after 60-65 days, the flowers can be cut for selling or use.

## 6. Acknowledgment

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