Determination of seed plant in Jepara's urban farming during the pandemic Covid 19

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Abstract. Seed plants have an essential role in meeting food needs for human survival. During the pandemic, many people used their yards to plant various seeds. Urban farming activities improve people's lives by creating healthier and environmentally friendly lifestyles and contributing to food security. This study aims to determine the types of seed plants in urban farming activities and determine the use of seed plants for food security. The research was conducted in East Jambu Village, Jepara Regency. This type of research is exploratory observation. The sampling technique was purposive sampling to select urban farming houses with various types of plants. The results of the study of 5 house samples showed 20 families in 32 species of seed plants. The use of seed plants with the potential as foodstuffs consists of staple foods, cooking spices, vegetables, fruits, nuts, tubers, and herbs. Topographically, Jambu Timur Village is located in the lowlands with an altitude of 0.0 m to 75 masl. Utilization of potential land in the lowlands consists of 1) Utilizing dry land for growing vegetables and secondary crops 2) Use of irrigated rice fields to plant rice or other similar crops. 3) Use of plantations to produce fruit.

1. Introduction

The COVID-19 pandemic period forces everyone to stay at home to break the chain of spreading the virus. This condition does not necessarily make us less productive. Various activities can be carried out, especially those that can support household food needs. One thing that can be done is to implement an organic urban farming planting system. Urban Farming is planting and growing crops in densely populated areas for personal consumption and distribution to people around the region [1].

In gardening, it is essential to note the type of plant. Plant species' choice is inseparable from the climate zone division, consisting of hot, temperate, and cool climate zones [2]. Indonesia is a country with a tropical/hot climate, so it is suitable for rice, maize, sugar cane, secondary crops, rubber, coconut, and horticultural plants [3].

Seed plants are plants with the highest level of diversity whose plants dominate on this earth. Seed plants have many benefits in daily life, including as a source of staple food, like vegetables, as clothing, as ingredients for medicine, as building materials and household furniture, and to fulfill other living
needs [4]. Indonesian is also listed as one of the centers Vavilos is the center for distributing genetic diversity cultivated/ Agriculture plants.[5]

Indonesia has approximately 267 million people, each of whom is guaranteed a healthy, active, and productive life. Agung Hendriadi, head of the Food Security Agency of the Ministry of Agriculture (in the journal Food Security: Situations, Problems, Policies, and Community Empowerment, 2008), said that we must build food security based on food independence and sovereignty by consuming fresh food so that our body's immunity will be strong so that it can protect our bodies from a pandemic outbreak [6]. With this appeal, the Indonesian people took the initiative to take advantage of the pandemic period with urban farming activities [7].

Some of the ways that other urban farming activities must be prepared are (a) preparing the right place for farming, a place you can use like a pot or used bottle. (b) Please choose an area with good sunlight, because it is very helpful in plant growth. (c) Choosing quality seeds according to our tastes for farming. (d) Providing good compost to help the soil retain moisture as plant nutrition. (e) Using vertical gardening techniques that help improve circulation and keep plant leaves off the ground [4]. This preparation is suitable for use in Indonesia. A lot of plastic/bottle waste is wasted so that it can be used as a pot. Indonesia has two seasons, the rainy season and the summer season, so it is suitable for gardening [8].

This research was based on the COVID 19 pandemic, which makes all activities completely limited to take advantage of urban farming activities during the pandemic. Regarding this condition, the research aims to determine the kinds of seed plants in urban farming activities. In a further description, the determination of seed plants' use for food security could be clearly stated.

2. Methods
This research used a descriptive method with exploratory observation. Way taking data research used interview, literature review, exploratory interview, and observation. The detail of the data collection was in the following Table 1.

| No | Type of Data                                      | Aspects studied                      | way taking            |
|----|--------------------------------------------------|--------------------------------------|-----------------------|
| 1  | General Condition of East Jambu Village Mlonggo Jepara | The location and social conditions of the community | Literature review |
| 2  | Characteristics of urban farming correspondent houses | Application of urban farming, a variety of crops | Interview            |
| 3  | Study of seed plants for food security           | Species, family, and benefits of plants | Exploratory interview and observation |

The selection of the respondent's house was carried out by using the purposive sampling technique. In this case, the respondent only applied urban farming of seed plants to meet food needs during the Covid 19 pandemic.

3. Results and discussion

3.1. General condition of East Jambu Village Mlonggo Jepara
Observations in the field show that 30% of Jambu Timur Village people, Mlonggo Jepara, own rice fields and plantations around their homes. Topographically, Jambu Timur Village, Mlonggo Jepara District, is located in a lowland area with an altitude of 0.0 m to 75 m above sea level. Utilization of potential land in lowland areas consisted of 1) Dryland usage for growing vegetables, crops, and herbs. 2) Irrigated rice field usage for planting rice or other similar crops. 3) Plantations usage for growing fruit [7].
3.2. Characteristics of the respondent's house for urban farming
The selection of correspondent houses was based on the implementation of urban farming and the variety of plants planted. At least five places were used as research. Based on observations in the field, urban farming activities have not been fully implemented by the people of Jambu Timur Village because of the lack of adequate knowledge about urban farming. Urban farming has many benefits, such as a useful food availability source. It can be done around the house to make humans closer to nature and overcome unemployment[4].

Based on field analysis results, people who applied urban farming are far more economical to make ends meet their food because they use plant products to keep their needs [2]. They are vegetables that can be made as side dishes and spices to enrich the taste. It can also increase environmental awareness about the importance of human interaction with nature [4,5].

3.3. Determination of seed plants as food security
Seed plants have an essential role in life, mainly to supply dietary needs for survival—vegetable foodstuffs derived from seed plants [9]. After conducting observations, 20 families consisted of 32 species of seed plants. The community used urban farming to keep their dietary needs during this pandemic—determination of seed plants as food security Table 2.

Family Solanaceae is a type of family widely used by the community as a commodity in their food needs. People like vegetables widely use Solanaceae or eggplant because it has many benefits, such as high protein. Moreover, the planting method is relatively fast, from the seedling period to the harvest period, which takes about 2-4 months from the first harvest [9].

The Cucurbitaceae family or pumpkin is widely used because of its diverse species and has a wide distribution in tropical areas [10]. Cucurbitaceae has a high protein compared to other grains and very important to support the metabolism process because it contains terpenoids, carotenoids, and alkaloid steroids to be secondary source metabolites[11]. The Cucurbitaceae family's harvest period can be done after the plants are 75-85 days old. The harvest period can last 1-1.5 months[12].

The Zingiberaceae is generally recognized for its ginger plants that have rhizomes below the soil surface. The Zingiberaceae rhizome contains aromatic compounds in essential oils that can be used for traditional medicine [13]. The harvest period of the Zingiberaceae family is 7-12 months from the planting period. Fabaceae is the second largest plant family used by humans after Poaceae as nutritious food, fiber, and even medicine. Fabaceae is used for animal feed, while the seeds are used as a source of vegetable protein, oil, and others [4].

| No | Family       | Scientific name | Utilization category |
|----|--------------|-----------------|----------------------|
| 1  | Poaceae      | Oryza sativa    | Staple food (Seeds)  |
| 2  | Zea Mays     | Staple food (Seeds) |
| 3  | Zingiberaceae| Zingiber officinales Rosc | Staple food (Seeds) |
| 4  | Curcuma domestica | Staple food (Seeds) |
| 5  | Kaempferia galanga L | Staple food (Seeds) |
| 6  | Boesenbergia pandurata | Staple food (Seeds) |
| 7  | Curcuma zanthorrhiza L | Staple food (Seeds) |
| 8  | Araceae      | Colocasia esculenta | Tubers |
| 9  | Amaryllidaceae| Allium ascalonicum | Spices (Seeds) |
| 10 | Amaranthaceae| Amaranthus gangeticus | Vegetables (Leaves) |
| 11 | Fabaceae     | Arachis hypogaea L | Legumes (Seeds) |
| 12 | Vigna cylindrica L | Legumes (Seeds) |
| No | Family            | Scientific name             | Utilization category          |
|----|-------------------|-----------------------------|-------------------------------|
| 13 | Euphorbiaceae     | *Manihot utilisima*         | Tubers (Root) / Vegetables (Leaves) |
| 14 | Solanaceae        | *Solanum melongena* L       | Vegetables (Fruit)            |
| 15 | Capsicum annuum L | Solanum lycopersicum        | Vegetables (Fruit)            |
| 16 | Convolvaceae      | *Ipomea aquatica*           | Vegetables (Fruit)            |
| 17 | Convulvaceae      | *Ipomea batatas*            | Tubers (Root)                 |
| 18 | Lamiaceae         | *Ocimum gratissimum*        | Vegetables (Leaves)           |
| 19 | Caricaceae        | *Carica papaya* L           | Fruits / Vegetables (Leaves)   |
| 20 | Cucurbitaceae     | *Momordica charantia*       | Vegetables (Fruit)            |
| 21 | Cucurbitaceae     | *Cucumis sativus* L         | Vegetables (Fruit)            |
| 22 | Sechium edule     | *Brassica rapa* L           | Vegetables (Fruit)            |
| 23 | Apiaceae          | *Apium graveolens* L        | Vegetables (Fruit)            |
| 24 | Punicaceae        | *Punica granatum*           | Fruits                        |
| 25 | Rosaceae          | *Fragaria X ananassa*       | Fruits                        |
| 26 | Rutaceae          | *Citrus x sinensis*         | Fruits                        |
| 27 | Musaceae          | *Musa paradisiaca*          | Fruits                        |
| 28 | Pandanaceae       | *Pandanus amaryllifolius*   | Fruits                        |
| 29 | Piperaceae        | *Piper betle*               | Fruits                        |
| 30 | Piperaceae        | *Piper nigrum*              | Spices (Seeds)                |

3.4. Utilization of seed plants in urban farming for food security

Result in the use of seed plants of urban agriculture for protection in Figure 1.

![Figure 1](image)

**Figure 1.** Utilization of seed plants in urban farming for food security. (X = Seed plants species, Y=number of seed plants)

Based on the utilization of seed plants with the potential as foodstuffs, they consist of several categories: stapled foods, cooking spices, vegetables, fruits, legumes, tubers, and herbs. Food
commodities must contain nutrients comprised of carbohydrates, proteins, fats, vitamins, and minerals that are beneficial for human growth and health. Food-producing plants are the primary source of life for people in rural areas [12].

Vegetables are a category of seed plants that are widely used, consisting of 12 species. Besides the easy and fast way of planting, vegetables are also rich in protein, minerals, and vitamins. People use it as fresh vegetables or side dishes for eating [14]. Vegetables are an essential source of many nutrients, including potassium, folic acid, dietary fiber, vitamin A, vitamin E, vitamin C, and different nutrition or nutrients from one vegetable to another [15].

Fruits and spices were consisting of 5 species each. The fruit is a source of sugar and other carbohydrates, vitamins, minerals, and also fat. The fruits that are used are ripe fruits that can be consumed directly [13]. Many people use spices or herbs as a flavor enhancer for dishes that contain essential oils. Essential oils that evaporate in cooking give off a distinctive aroma and taste in a container. Spices are used in dishes such as opor, curry. Spices can also be used as traditional medicine or as body warmers.

As a cultivated crop, legumes are mainly harvested from seeds rich in protein and fat [14]. These seeds can be eaten raw, boiled (in the pods), fried, or roasted. Peanuts are rich in fat and contain high protein, iron, vitamin E and calcium, vitamin B complex and phosphorus, vitamins A and K, lecithin, and choline. And calcium. The protein content in peanuts is much higher than in meat, eggs, and soybeans. Peanuts have a sweet taste and are widely used to make various types of cakes [15].

Tubers are used as the third source of carbohydrates after rice and corn. This carbohydrate-producing plant species is used as a staple food in the morning, also used as a side dish or daily snacks such as chips and cakes [13]. Tubers, other than being a food source of carbohydrates, too rich in vitamin A (especially in tuber fleshy cultivars orange) and vitamin C and minerals, especially iron (Fe), phosphorus (P), and calcium (Ca). Tubers contain protein and fat in a concentration low on the tubers. The leaves rich in protein, vitamins, and minerals tubers have bioactive components that function as antioxidants, anticancer, anti-inflammatory [15].

Food is an essential requirement in the formation of organ cells in the human body, and it is also used for metabolism. Most of the food ingredients come from plants, consisting of 98% calories, 90% protein, and 93% dietary fat from plants [13]. The utilization of plant food is effectively the primary key in fulfillment because food plants can be used as alternative food or as main/staple food [12].

4. Conclusion
This study concluded that from 5 respondents who implement urban farming during the covid 19 pandemics, 20 families of seed plants consisting of 32 species used by the community through urban agriculture to keep their food needs during this pandemic. The utilization of seed plants with the potential as foodstuffs consists of several categories, such as staple foods, cooking spices, vegetables, fruits, legumes, tubers, and spices. Food commodities must contain nutrients comprised of carbohydrates, proteins, fats, vitamins, and minerals that are beneficial for human growth and health. Food-producing plants are the primary source of community life.

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