

## Inventory of Local Fruit Plants in Badang Village, Jombang Regency

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### ABSTRACT

*Badang Village is one of the areas in Jombang Regency that has the potential for yards that are rich in biotic resources, one of which is fruit plants. This study aims to determine the diversity of fruit plant species in the yard area of Badang Village residents. This research was conducted from February to June 2022 in Badang Village, Ngoro District, Jombang Regency. The results showed that there were 22 types of fruit plants scattered in 6 hamlets of Badang Village, Ngoro Subdistrict, Jombang Regency, including: avocado, star fruit, durian, guava, orange, katilayu, longan, kersen/keres, mango, pineapple, jackfruit, papaya, banana, rambutan, salak, date palm, mustard, soursop, dragonfruit, grape, red pomegranate and sugar apple. The index of fruit plant diversity in Badang Village for each hamlet is different, for Badang Hamlet the diversity index value is 2.111, Wates Hamlet is 2.049, Wonoasri Hamlet is 1.973, Sukotirto Hamlet is 1.682, Wedani Hamlet is 1.443. The five hamlets are categorized as having a moderate diversity index. As for Watulintang Hamlet, the diversity index value is 0.957, so it is classified as low compared to other hamlets.*

**Keywords:** Fruit Plants; Yard; Inventory; Diversity

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### INTRODUCTION

The diversity of genetic resources of fruits that grow scattered in various regions in Indonesia is an invaluable wealth. Fruits that grow in Indonesia and are grown by Indonesian people are called local fruits. Fruit is one of the food sources that are rich in various vitamins, minerals and nutrients that are beneficial to the body. Fruits contain nutrients, vitamins, minerals and fiber that need to be consumed every day. Color diversity in fruit is not just a differentiator between one type of fruit with another. Fruit color is a source of information about its nutritional content. The content and type of phytonutrient in the fruit is indicated by the color of the fruit. Each has its own benefits for the body according to its color. Phytonutrients are important for health, it is necessary to pay attention to the portion of eating fruit and the color variation of the fruit eaten in order to maximize the benefits for health (Komarayanti, 2017).

The rich diversity of species and germplasm sources of native Indonesian fruits has not been optimally utilized until now. This can be seen, among others, by the number of imported fruits circulating in various cities in Indonesia. Therefore, the abundance of biological resources in Indonesia needs to be utilized as much as possible to meet food needs, especially fruits (Angio & Irawanto, 2019).

The population of fruit plants is highly dependent on the availability of land. Along with the development of technology and the advancement of human civilization, humans began to look for solutions so that narrow land can still be used and managed to increase economic influence. One form of land utilization that is often used in meeting needs is the yard. The yard is an open land located around the house. Yard land is one of the potential lands that can be utilized to grow plants such as ornamental plants, fruits, vegetables, spices, and medicines. Utilization of yard land for the development of home industry is one of the alternatives to realize household economic independence (Aditiameri et al., 2021).

Badang Village is one of the areas in Jombang Regency that has a potential yard that is rich in biotic and abiotic resources. Biotic components on garden land and home yards are important resources that if optimized their utilization will have a significant economic impact as well as a source of family food. Cultivation of various types of yard plants such as fruit plants will form an area rich in nutritious food sources produced by themselves from residential yards. In addition, the optimization of yard

utilization can also help reduce air pollution, increase oxygen supply and improve environmental quality and public health (Meidatuzzahra & Swandayani, 2020)..

An inventory of local fruit plant species in the Badang Village area needs to be carried out to determine the diversity of species and the information collected is expected to contribute to the local community and village government in the form of documentation of plant species and benefits as an effort that can be developed by local communities for food security and become a map of the local fruit center area in Jombang Regency.

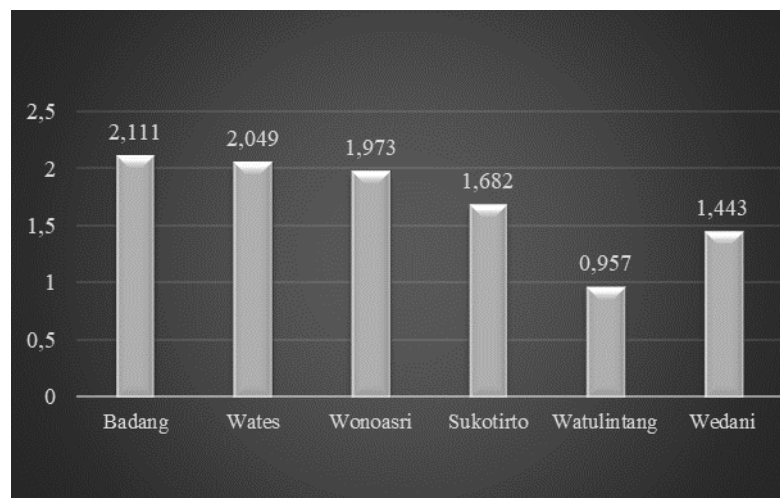
## METHOD

This research was conducted from February to June 2022 in Badang Village, Ngoro District, Jombang Regency. Determination of sampling plots in this study was carried out by purposive sampling by taking 10 samples in each hamlet in the Badang Village area. This research used an exploratory descriptive method by conducting direct observations and semi-structured interviews. The resource persons in this study were yard owners who had knowledge in the utilization of home yards. All types of fruit plants found were collected and identified by local names and habitat characteristics. Literature studies were also conducted to enrich information on the potential utilization of local fruit plant species. The data obtained, then analyzed descriptively and processed in the form of tables and graphs, so that the number of species and their potential utilization can be known.

## RESULT AND DISCUSSION

### Result

Bandang Village consists of six hamlets, including Badang, Wates, Wonoasri, Sukotirto, Watulintang, and Wedani. The research results (Figure 1) show the Diversity Index (Sannon-Winner) of fruit plants from each hamlet, the results obtained are: Badang Hamlet has a diversity index of 2.111 (moderate diversity category), Wates Hamlet has a diversity index of 2.049 (moderate diversity category), Wonoasri Hamlet has a diversity index of 1.973 (moderate diversity category), Sukotirto Hamlet has a diversity index of 1.682 (medium diversity category), Watulintang Hamlet has a diversity index of 0.957 (low diversity category) and Wedani Hamlet has a diversity index of 1.443 (medium diversity category).



**Figure 1.** Fruit Plant Diversity Index Value in Each Hamlet in the Badang Village Area

Badang Hamlet is an area that has the highest diversity index value in the Badang Village area. Table 1 shows that in Badang Hamlet there are 16 types of local fruit plants that grow in residents' yard areas, including avocado, star fruit, durian, guava, orange, katilayu, longan, kersen/keres, mango, pineapple, jackfruit, papaya, banana, rambutan, salak, and sugar apple. These fruit plants can grow naturally or be deliberately planted by the owner of the yard. Data obtained from fruit plants that grow naturally are 11 trees and planted as many as 101 trees. Most fruit plants have an age of less than 10 years, but there are also plants that are less than 1 year old, namely longan and papaya plants.

**Table 1** Data on local fruit plants in Badang Hamlet, Badang Village

Name	Scientific Name	Plant Origin		Total number of plants	Plant Age			Fruit Season Time
		Natural Growing	Planted		<1 year	<10 year	> 11 year	
Avocado	<i>Persea americana</i>	3	3	6	-	3	3	November-January
Star fruit	<i>Averrhoa carambola</i>	-	2	2	-	1	1	July-August
Durian	<i>Durio zibethinus</i>	-	4	4	-	-	4	December-February
Guava	<i>Psidium guajava</i>	1	4	5	-	5	-	September-October
Oranges	<i>Citrus sp.</i>	1	1	2	-	2	-	May-August
Katilayu	<i>Erioglosom rubiginosum</i>	1	1	2	-	-	2	Throughout the Year
Longan	<i>Dimocarpus longan</i>	1	5	6	1	5	-	February-April
Kersen/keres	<i>Muntingia calabura</i>	1	1	2	-	2	-	Throughout the Year
Mango	<i>Mangifera indica</i> L	-	4	4	-	2	2	November-December
Pineapple	<i>Ananas comosus</i>	-	5	5	-	5	-	August-October
Jackfruit	<i>Artocarpus heterophyllus</i>	-	1	1	-	1	-	Throughout the Year
Papaya	<i>Carica papaya</i> L	-	6	6	2	4	-	Throughout the Year
Bananas	<i>Musa sp.</i>	-	49	49	-	33	16	Throughout the Year
Rambutan	<i>Nephelium lappaceum</i>	-	12	12	-	1	11	November-February
Salak	<i>Salacca zalacca</i>	3	-	3	-	3	-	March-December
Srikaya	<i>Annona squamosa</i> L	-	3	3	-	3	-	January-March

The results of research in Wates Hamlet showed that there are 11 types of local fruit plants that grow in residents' yards, including: avocado, star fruit, durian, guava, orange, longan, mango, papaya, banana, rambutan and soursop (Table 2). Most fruit plants have an age of less than 10 years, and there are also plants that are more than 11 years old, namely durian, mango, rambutan and soursop.

**Table 2** Data on local fruit plants in Wates Hamlet, Badang Village

Name	Scientific Name	Plant Origin		Total number of plants	Plant Age			Fruit Season Time
		Natural Growing	Planted		<1 year	<10 year	> 11 year	
Avocado	<i>Persea americana</i>	1	1	2	-	2	-	November-January
Star fruit	<i>Averrhoa carambola</i>	-	4	4	-	4	-	July-August
Durian	<i>Durio zibethinus</i>	2	6	8	-	2	6	December-February
Guava	<i>Psidium guajava</i>	-	1	1	-	1	-	September-October
Oranges	<i>Citrus sp.</i>	2	4	6	-	6	-	May-August
Longan	<i>Dimocarpus longan</i>	-	1	1	-	1	-	February-April

Mango	<i>Mangifera indica</i> L	-	11	11	-	6	5	November-December
Papaya	<i>Carica Papaya</i> L	5	1	6	-	6	-	Throughout the Year
Bananas	<i>Musa sp.</i>	-	23	23	-	23	-	Throughout the Year
Rambutan	<i>Nephelium lappaceum</i>	-	12	12	-	7	5	November-February
Soursop	<i>Annona muricata</i> L	2	1	3	-	1	2	March-December

There are 15 types of fruit plants that grow in the yard area of Wonoasri Hamlet, including: avocado, grape, star fruit, durian, guava, orange, longan, date palm, mango, jackfruit, papaya, banana, rambutan, sapodilla, and salak (Table 3). The fruit trees varied in age, with 3 fruit trees less than a year old, 61 trees less than 10 years old, and 75 trees more than 11 years old. Most of the fruit trees were planted intentionally in the yard, but there were also plants that grew naturally, including star fruit, longan, jackfruit and papaya

**Table 3** Data on local fruit plants in Wonoasri Hamlet, Badang Village

Name	Scientific Name	Plant Origin		Total number of plants	Plant Age			Fruit Season Time
		Natural Growing	Planted		<1 year	<10 year	> 11 year	
Avocado	<i>Persea americana</i>	-	1	1	1	-	-	November-January
Grapes	<i>Vitis vinevera</i> L	-	3	3	-	3	-	July
Star fruit	<i>Averrhoa carambola</i>	1	-	1	-	-	1	July-August
Durian	<i>Durio zibethinus</i>	-	6	6	1	2	3	December-February
Guava	<i>Psidium guajava</i>	-	2	2	-	2	-	September-October
Oranges	<i>Citrus sp</i>	-	1	1	-	1	-	May-August
Longan	<i>Dimocarpus longan</i>	1	2	3	1	2	-	February-April
Dates	<i>Phoenix dactylifera</i>	-	1	1	-	1	-	Throughout the Year
Mango	<i>Mangifera indica</i> L	-	13	13	-	3	10	November-December
Jackfruit	<i>Artocarpus heterophyllus</i>	1	7	8	-	6	2	Throughout the Year
Papaya	<i>Carica Papaya</i> L	2	24	26	-	26	-	Throughout the Year
Bananas	<i>Musa sp</i>	-	54	54	-	8	46	Throughout the Year
Rambutan	<i>Nephelium lappaceum</i>	-	9	9	-	6	3	November-February
Sawo	<i>Manilkara kauki</i> L	-	1	1	-	1	-	December-February
Salak	<i>Salacca zalacca</i>	-	10	10	-	-	10	January-April

The results of research in Sukotirto Hamlet showed that there were 13 types of local fruit plants growing in residents' yards, including: avocado, star fruit, durian, guava, orange, longan, mango, jackfruit, papaya, banana, rambutan, salak, sawo (Table 4). Most of the fruit plants are intentionally planted by the yard owner but there are also fruit plants that grow naturally including: durian, guava, mango and jackfruit.

**Table 4** Data on local fruit plants in Sukotirto Hamlet, Badang Village

Name	Scientific Name	Plant Origin		Total number of plants	Plant Age			Fruit Season Time
		Natural Growing	Planted		<1 year	<10 year	> 11 year	
Avocado	<i>Persea americana</i>	-	1	1	1	-	-	November-January
Star fruit	<i>Averrhoa carambola</i>	-	2	2	-	-	2	July-August
Durian	<i>Durio zibethinus</i>	1	11	12	1	3	8	December-February
Guava	<i>Psidium guajava</i>	1	7	8	1	7	-	September-October
Oranges	<i>Citrus sp.</i>	-	1	1	-	-	1	May-August
Longan	<i>Dimocarpus longan</i>	-	5	5	-	5	-	February-April
Mango	<i>Mangifera indica</i> L	2	5	7	-	4	3	November-December
Jackfruit	<i>Artocarpus heterophyllus</i>	3	10	13	-	3	10	Throughout the Year
Papaya	<i>Carica papaya</i> L.	-	77	77	5	72	-	Throughout the Year
Bananas	<i>Musa sp</i>	-	136	136	5	39	92	Throughout the Year
Rambutan	<i>Nephelium lappaceum</i>	-	63	63	-	7	56	November-February
Salak	<i>Salacca zalacca</i>	-	10	10	-	-	10	January-April
Sawo	<i>Manilkara kauki</i> L	-	1	1	-	1	3	December-February

Watulintang Hamlet is the area that has the lowest diversity index value in the Badang Village area. There are 13 types of local fruit plants that live in residents' yards, among others: star fruit, red pomegranate, durian, guava, orange, longan, mango, dragon, papaya, banana, rambutan, sapodilla and soursop (Table 5). Most of the fruit plants are deliberately planted by residents in their yards but there are some plants that live naturally, among others: guava, mango, banana, and rambutan.

**Table 5** Data on local fruit plants in Watulintang Hamlet, Badang Village

Name	Scientific Name	Plant Origin		Total number of plants	Plant Age			Fruit Season Time
		Natural Growing	Planted		<1 year	<10 year	> 11 year	
Star fruit	<i>Averrhoa carambola</i>	-	2	2	-	2	-	July-August
Red Pomegranate	<i>Punica granatum</i>	-	2	2	-	-	2	October-January
Durian	<i>Durio zibethinus</i>	-	1	1	-	1	-	December-February
Guava	<i>Psidium guajava</i>	1	-	1	-	1	-	September-October
Oranges	<i>Citrus sp.</i>	-	1	1	-	1	-	May-August
Longan	<i>Dimocarpus longan</i>	-	1	1	-	1	-	February-April
Mango	<i>Mangifera indica</i> L	1	6	7	1	6	-	November-December
Dragon fruit	<i>Selenicereus undatus</i>	-	1	1	-	1	-	November-March
Papaya	<i>Carica papaya</i> L.	-	3	3	-	3	-	Throughout the Year

Bananas	<i>Musa sp.</i>	1	115	116	-	36	80	Throughout the Year
Rambutan	<i>Nephelium lappaceum</i>	2	11	13	-	2	11	November-February
Sawo	<i>Manilkara kauki</i> L	-	1	1	-	-	1	December-February
Soursop	<i>Annona muricata</i> L	-	1	1	-	1	-	March-December

The results of research in Wedani Hamlet showed that there were 11 types of local fruit plants growing in residents' yards, among others: star fruit, guava, orange, katilayu, kersen/keres, mango, dragon, papaya, banana, rambutan and sugar apple (Table 6). Most of the fruit plants were intentionally planted by the yard owners, but there are also fruit plants that grow naturally, such as katilayu and srikaya.

**Table 6** Data on local fruit plants in Wedani Hamlet, Badang Village

Name	Scientific Name	Plant Origin		Total number of plants	Plant Age			Fruit Season Time
		Natural Growing	Planted		<1 year	<10 year	> 11 year	
Star fruit	<i>Averrhoa carambola</i>	-	1	1	-	1	-	July-August
Guava	<i>Psidium guajava</i>	-	2	2	-	2	-	September-October
Oranges	<i>Citrus sp.</i>	-	2	2	-	2	-	May-August
Katilayu	<i>Erioglossum rubiginosum</i>	1	1	2	-	-	2	Throughout the Year
Kersen/keres	<i>Muntingia calabura</i>	-	1	1	-	1	-	Throughout the Year
Mango	<i>Mangifera indica</i> L	-	2	2	-	1	1	November-December
Dragon fruit	<i>Selenicereus undatus</i>	-	1	1	-	1	-	November-March
Papaya	<i>Carica papaya</i> L.	-	5	5	-	5	-	Throughout the Year
Bananas	<i>Musa sp.</i>	-	39	39	-	39	-	Throughout the Year
Rambutan	<i>Nephelium lappaceum</i>	-	7	7	-	5	2	November
Srikaya	<i>Annona squamosa</i> L	1	-	1	-	1	-	January-March

## Discussion

The results showed that the yard area of Badang Village residents was overgrown by various types of local fruit plants with a moderate diversity index. Most types of fruit plants are fruits commonly consumed by the community, including avocado, star fruit, durian, guava, orange, longan, mango, jackfruit, papaya, banana, rambutan, salak, sawo. These fruit plants are commonly found in the front and back yards of people's homes. Yard fruit plants are part of biodiversity and have an important role as a source of nutrition for the community (Navia et al., 2017). The contribution of fruits and vegetables to household livelihood was also assessed, and it was found that fruits and vegetables in the homegarden highly contribute to the household's food requirement and income generation (Mathewos et al., 2018).

In addition to popular tropical fruit commodities, in the Badang village area there are also rare local fruit plants, namely katilayu plants found in the yard areas of residents of Badang hamlet and Wedani hamlet. Katilayu is a woody plant that is used for its fruit and leaves. Klayu fruit by residents is taken to eat and the leaves are used as herbal medicine. (Aprilia & Cintamulya, 2023).. Human activities that affect the population structure of katilayu include cutting down trees and utilizing other plant parts such as fruit without replanting (Fitriani & Dharmono, 2019).

Generally, most fruit plants are deliberately cultivated by Badang villagers, only a few of the fruit plants grow naturally in the yard area. Most of the fruit plants are over 1 year old and some are even over

10 years old. Based on the harvest season calendar, there are 5 types of fruit that harvest throughout the year, namely bananas, papayas, jackfruit, katilayu and kersen. While fruits that do two stages of harvesting, namely the main harvest and regular harvest are avocado, guava, mango, sawo. While grapes, durian, oranges, starfruit, pomegranate, longan, dates, dragonfruit, pineapple, rambutan, soursop, salak and sugar apple are harvested in certain months following the harvest season. Banana fruit is a type of plant that grows quite a lot in the Badang Village area because yard owners also have the initiative to multiply banana plants as a fruit that is easily accessible and economical for consumption.

## CONCLUSIONS

Based on the results of the study, it can be concluded that 22 types of fruit plants were found scattered in 6 hamlets of Badang village, Ngoro sub-district, Jombang Regency, including: avocado, star fruit, durian, guava, orange, katilayu, longan, kersen/keres, mango, pineapple, jackfruit, papaya, banana, rambutan, salak, date, sapodilla, soursop, dragonfruit, grape, red pomegranate and sugar apple. The index of fruit plant diversity in Badang Village for each hamlet is different, for Badang Hamlet the diversity index value is 2.111, Wates Hamlet is 2.049, Wonoasri Hamlet is 1.973, Sukotirto Hamlet is 1.682, Wedani Hamlet is 1.443. The five hamlets are categorized as having a moderate diversity index. As for Watulintang Hamlet, the diversity index value is 0.957, so it is classified as low compared to other hamlets.

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