



Cultivating Aren Trees With Environmental Insight: Preparing Rural Communities that Have Quality Especially for Aren Tree Farmers in Motoling Village



Yessy Kenny Jacob ^a

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Abstract

Seho or aren trees can produce many benefits for human needs, so it takes the right way to know exactly how to manage seho or aren trees properly and correctly. Seho or aren trees grow a lot in mountainous areas, especially in motoring villages. Almost all residents in the motoring village have gardens in which there are several seho trees. The community in the motoring village manages this seho tree because it produces "captikus" alcohol and aren sugar "brown sugar". The farmers in the motoring village make this the main cash flow for them. Managing seho or aren trees with environmental insight means taking into account the determining factors that exist in the environment to be managed and maintained properly. For example, paying attention to the land that will be used as a place for planting seho trees, paying attention to how to take care of seho trees, and the benefits for humans. This will prepare the seho or aren tree farmers to have employability.

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Corresponding author:

Yessy Kenny Jacob,
Department English Literature, UNPI Manado, Indonesia
Email address: yessyjacob@yahoo.co.id

^a Department English Literature, UNPI Manado, Indonesia

1 Introduction

Palm trees in Minahasa are known as seho trees. This tree thrives in the land of Minahasa and North Sulawesi in general, it turns out to be a hidden treasure that has not been processed optimally and professionally. According to Joppie, one of the initiators of the “Seho Minahasa revolution,” the assumption is that if 100,000 Minahasa farmers in a year can plant 100 seeds of Seho trees every year, then 10 million Seho trees will be obtained per year. Ten years later Minahasa will have the potential of 100 million seho trees. So later in the year 2025-2030 if 50% of the trees have been ineffective production with a potential of 20 liters of sagueer/tree for 1 liter of IDR 1,000 = IDR 20,000/tree, then the result is that 50 million Seho Minahasa trees every day will produce 1 trillion.

Palm plants can coexist with other plants. This palm tree belongs to the short-lived type of early palm because, by the time the tree reaches about 3 meters high, it has issued bunches of flowers, either female flower bunches or male flower bunches. So that these Early Palms produce quickly, however, their lifespan is also shorter (De Vos et al., 2011; Van der Heijden et al., 2009). The routine work of sugar palm farmers is climbing trees, slicing flower bunches, installing a container to collect sap, or beating potential bunches to be tapped until the bunches show signs of releasing the juice. Sugar palm farmers are indeed the *chosen* people because not everyone can live a routine life every day, even every morning and evening (Meuwissen et al., 2001).

Palm trees are less noticed by residents compared to oil palm plants because; Changes in sugar consumption are due to the sugar factory industry, the maintenance life is quite long, and research on sugar palm is not yet incentivized (Soerjani & Minur, 2008; Soemarwoto, 1991). The most dominant sugar palm cultivation that causes people to be reluctant to cultivate is the germination factor. Aren plant seeds are a bit difficult to germinate, otherwise, it can take a very long time, which makes people impatient. The difficulty of seed germination is the main cause of reluctance to cultivate Aren, so that people prefer to leave it to natural germination. Unfortunately, when removing the seeds that grow naturally, and then planting them in the field, many plants eventually die. Seeds that come from the fruit that is harvested or collected under the tree usually still contain substances that can cause itching on the skin. If people do not understand this difficulty, people eventually become impatient and then leave the sugar palm plant.

The above is not a problem if the knowledge and knowledge of this Aren calm are well understood. Something difficult is usually there must be a very profitable factor. By paying attention to how to cultivate sugar palm/seho plants, it will be profitable for phon seho/aren farmers, including: Palm trees are trees that are very suitable to be planted in tropical climates such as Indonesia. Plants that are wild or accidentally planted by residents are usually found in hilly areas, valleys, and mountains with a land height of between 9 and 2000 meters above sea level (Forrier et al., 2015). This plant can grow anywhere because it does not require fertile care.

The natural way of spreading the palm tree is through seeds. Usually, in the wild, the distribution is assisted by animals that eat the kernels of the palm fruit, such as civets. Seeds that cannot be digested by the ferret will be removed along with the feces of the ferret. These seeds will grow into new plant seeds (Bachleitner & Zins, 1999).

Palm tree cultivation technique

If we want to cultivate palm trees, of course, we can't depend on nature to get seeds. We have to find a way of cultivation to get good seeds. For breeding and looking for superior seeds, we can pick old palm seeds directly from the tree or look for seeds from fruit that falls near the tree. After that, the seeds are buried in compost or moist soil for about 15 days. This is done to facilitate the growth of sprouts. After that, the seeds are washed and then dried in the sun to dry. Then sown in polybags.

The method of planting is to make a hole measuring 5x5m or 9x9m to put the seeds that have been sown. The planting hole is 30 x 30 cm so that the seeds are ready to grow and develop. To speed up growth, the seeds must be given fertilizer such as manure, urea, TSP, in the new hole inserted in the seeds. Newly germinated seeds should be given shade. For the growth to be more perfect, it must also be prepared how to deal with damage such as anticipation of pests. The pest in question is a type of beetle that can suck sap and flowers such as bees, bats, and weasels. This can be done by spraying pest poisons and felling plants affected by pests.

2 Materials and Methods

Judging from the type of data, the research approach used in this study is qualitative (Holliday, 2010; Marshall et al., 2013; Bengtsson, 2016; Adhabi and Anozie, 2017; Champe and Kleist, 2003). As for what is meant by qualitative

research, namely research that intends to understand the phenomena of what is experienced by research subjects holistically, and using descriptions in the form of words and language, in a special natural context and by utilizing various scientific methods (Moleong, 2007; Sugiyono, 2010; Reay, 2014; Sgier, 2012; Miles & Huberman, 1994). The type of this research approach is descriptive. Descriptive research is research that seeks to describe current problem solving based on data. The type of qualitative descriptive research used in this study was intended to obtain information on how to manage palm trees/seho.

3 Results and Discussions

Humans together with plants, animals, and micro-organisms occupy a certain space, except for living things, in that space there are also non-living things, such as air which consists of various gases, water in the form of steam, liquid and solid, soil and stone. The space occupied by a living thing along with living and non-living things in it is called the living environment of that creature.

The scope of an environmental review can be narrow, for example, a house with a yard, or wide, for example, the island of Irian. Layers of the earth and air that have creatures, can also be considered as a large living environment, namely the biosphere. Even our solar system or even the entire universe can be the object of scrutiny (Inoue et al., 2013).

The nature of the environment is determined by various factors. First, by the type and amount of each type and element of the environment. We can easily see, an environment with 10 humans, a dog, three turtle turtles, a coconut tree, and a rock hill will be different from an environment of the same size but there is only one human, 10 dogs, covered in lush greenery by bamboo trees and flat not rocky. In the group of types of environmental elements including chemical substances.

Second, the relationship or interaction between the elements and the environment. For example, in a room, there are eight chairs, four tables, and four pots with elephant ear plants. In the room, eight chairs were placed along one wall, with a table in front of each two chairs and a pot on each table. The nature of the room is different if two chairs with a table are placed in the middle of each wall and a pot in each corner.

Third, the behavior or condition of environmental elements. For example, a city whose residents are active and hardworking is a different environment from a similar city, but its inhabitants are relaxed and lazy. Likewise, an area with sloping and fertile land is a different environment from an area with sloping and terrorist land.

Fourth, non-material factors of temperature, light noise. Tips can easily feel this. An environment that is hot, glaring, and noisy is very different from an environment of cool, sufficient light, but not glare and quiet.

Humans interact with their environment. He influences and is influenced by his environment (Han et al., 2018). It shapes and is shaped by its environment. Humans as they are, namely the so-called *phenotype* is the manifestation produced by the interaction of heredity traits with environmental factors. Hereditary traits, which are contained in genes that are part of the chromosomes in each cell of the body, determine the potential for human manifestations, namely *genotype*. Whether a trait in the genotype will manifest or not, depends on the presence or absence of environmental factors that are suitable for the development of that trait. Dobzhansky, a well-known hereditary scientist, said that genes are not determinants of traits, but rather determine reactions or responses to the environment. This can be seen in leafy green plants placed in a dark room. The plant is not able to form leaf green matter, even though it has the gene for the formation of leaf green matter. After it is removed from the darkroom and exposed to light, a green leaf substance is formed. So the creature is also formed by its environment. The interaction between humans and their environment is very complex because in general there are many elements in the environment. The influence of an element will propagate to other elements so that its influence on humans often cannot be immediately seen and felt.

Humans live from the elements of their environment: air for breathing, water for drinking, household needs and other needs, plants and animals for food, energy, and pleasure, and land for housing and agricultural production. The oxygen we breathe from the air in our respiration, mostly from plants in the process of photosynthesis, and conversely, the carbon dioxide gas we produce in our respiration is used by plants for the process of photosynthesis. Humans are an integral part of their environment. It cannot be separated from him.

Palm trees include trees that provide many benefits so that almost all parts of this tree can be utilized by humans. If we are observant, the palm tree can be used as a mainstay in supporting our economy. It's just how we can think about using it, cultivating it, and processing this tree to produce something useful.

Naturally, palm trees have a protective function, namely to protect the environment and preserve natural resources. Palm trees can prevent erosion, landslides and can also be used as good water absorbers, thus avoiding

flooding because palm trees have dense leaves and stem covered by a layer of injuk. This of course will be an effective tool as a rain barrier. Furthermore, the water will be absorbed by the trees and not directly into the soil surface which will reduce the absorption of rainwater that falls. In addition to the above functions, the palm tree also has a high economic value because the production of the palm tree can be obtained from the tree parts from roots, stems, leaves, flowers, and fruit. Some parts of the palm tree that can be used are as follows.

Uses and processing of palm tree products that we need to know

Palm tree trunk

From the trunk of the palm tree can produce palm flour which can later be used as raw material which is usually sold in the market. You must know meatball right? Now that's one of the snacks that use ingredients from the palm tree, namely palm flour. There are a lot of foods that use ingredients from processed palm trees such as noodles, empe-empempe, and even often used as raw materials for making glue.

How to process aren tree into flour? The main requirement for the palm tree trunk material to be used must be a tree that is aged and ready to be harvested because in addition to sustainability it will also determine the quality of the starch or flour. How to cut a small part of the tree, then check on our tool for flour or starch attached. If there is then we can do the logging. It is better to cut down the palm trees in a place where there are approximately similar trees and the felling should not be too much. This is to avoid the extinction of this plant species. Split and separate the outer skin from the stem with the pith then cut into small pieces and grate. The grated product is then given water and filtered. The filter results are then deposited overnight. Then there will be a separation between water and starch. The resulting clean sediment can be taken and then dried in the sun.

Palm tree leaves

In addition to stems, leaves can also be used for various purposes. The shape of the palm tree leaves that are pinnate like coconut leaves can be used as material for one part of the house (perhaps nowadays we rarely find it). The use of palm leaves for building materials can be found, especially in rural areas ([Sahari et al., 2013](#); [Bankole et al., 2015](#)). Another use of palm tree leaves is that they can be used as a wrapper for merchandise such as palm sugar or durian fruit, these leaves are often spun into rope. We often see the leaf buds that are still in buds as a sign that a wedding is taking place which we know as janur, from the leaf buds we can also use it as cigarette leaves which we know as kawung leaves.

Palm tree roots

From the roots of this palm tree, it also functions as a rope or whip. And from the fiber is used as a woven material. In addition, the fresh roots of the palm tree can be used for various medicines such as constipation medicine, lung dysentery, and so on. By understanding the figure of the palm/seho tree and the meaning of the environment, how should the community, especially palm/seho tree farmers, develop their quality, with environmental insight ([Adesina et al., 2000](#); [Bekele & Drake, 2003](#)). To further develop their ability to manage seho/palm trees so that they produce better results without damaging the environment.

By understanding the meaning of processing seho/aren trees with environmental insight. The processing ability they had previously was only limited to the knowledge of the capabilities they had, they did not understand the meaning of processing seho/aren trees and the meaning and meaning of the environment properly. Therefore, by focusing on the above facts, how to manage palm/seho trees with environmental insight is the right form to improve the quality of seho/aren tree farmers ([Sadguna et al., 2017](#)).

4 Conclusion

As has been done by palm tree farmers/seho. They develop the abilities they have with the learning they receive. From here they understand correctly how to process seho/aren trees with environmental insight. The environment is the place where humans live, as well as plants and animals. And as a living space, the determining factors for life and must be maintained.

Living things as a whole are the main cause of various changes in living systems. But since time immemorial, except humans, other living beings have been the cause of natural change, which is characterized by steadiness, balance, and harmony. Meanwhile, humans have the potential and ability to change it differently, because of the development of science and technology under their control in particular, as well as the development of culture in general. So in environmental science there is a problem of right or wrong, or in other words environmental science is ecology coupled with moral considerations of right or wrong. Therefore, environmental science must incorporate the "morals" of nature into human morals.

Suggestion; 1) By preserving the environment, they pay more attention to the processing of seho/aren trees properly. By taking good care of seho trees, both those that have grown/existing and those that have not been/planted themselves. 2) Similarly, in understanding the meaning of the environment, they pay more attention to the use of firewood in processing the production of palm trees/seho which they make into commodity materials, such as rock sugar, and "captikus". Realizing the meaning of the environment that cutting down trees carelessly to be used as firewood is the same as damaging the environment and deforestation can occur and this ultimately hurts the surrounding community. Because this can cause flooding and cause landslides. 3) By seeing and understanding the meaning of the environment, processing trees/seho or sugar palm, they are made very carefully so as not to fire because the processing of this sap production requires quite a lot of fuel and the fermentation process takes a long time to burn so that it can produce raw materials good commodity. 4) The processing of trees/seho or sugar palms is further improved by replanting. 5) Besides managing seho/palm trees, they also improve their other capabilities by processing sawa, and planting other plants.

Conflict of interest statement

The author declared that she has no competing interests.

Statement of authorship

The author has a responsibility for the conception and design of the study. The author has approved the final article.

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