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Performance of The Trigona,Sapiens Honey Agribusiness Developed By Communities Around The Laiwoi KPH Forest Area In Amonggedo District, Konawe Regency, Southeast Sulawesi Province

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Abstract

The Trigona sp bee is a type of biodiversity that has high economic value and is a leading commodity for Non-Timber Forest Products (HhBk), which is developed by the community around the KPH Laiwoi forest area, Amonggedo District, Konawe Regency. The community and government of Amonggedo Baru sub-district, Mataiwoi Village, Puasana Village, and Amonggedo District have formed farmer groups and Gapoktan to cultivate Trigona sp bees. as a sector of economic improvement for society. This community partnership activity was conducted in Mataiwoi Village and Amonggedo Baru Village, Amonggedo District, Konawe Regency. The method used in this survey research is the Agribusiness Technology Transfer Approach. Data was collected through observation and interview methods. Based on the community profile above, the problem of research on the performance of the Trigona Honey Agribusiness developed by the community around the KPH Laiwoi Forest area, Amonggedo District, Konawe Regency is presented in detail as follows: 1. The performance of the Trigona, sp Honey Agribusiness is determined by human factors, capital, processing tools and machines, honey management methods and technology, markets, and non-economic environmental factors carried out using a Technology Transfer approach to the Trigona—Sp Honey Bee Agribusiness subsystem. The community around the KPH Laiwoi Forest Area, Amonggedo District, Konawe Regency developed them. 2. Trigona, sp honey bee production management developed by the community is moving the colony from the primary habitat on a dead tree to an artificial habitat in artificial STUP boxes with a start-up of 20 boxes per group.

Keywords: *Trigona Sapiens Honey, Agribusiness, Laiwoi KPH Forest ,Amonggedo District*

INTRODUCTION

Agricultural development is the core of national development (*Cord development)* which is implemented through the *Agribusiness approach* . Agribusiness development can be implemented in 4 (four) pillars, namely; (1) Farming business development , (2). procurement of production facilities and infrastructure, (3). application of farming product processing technology and (4). marketing distribution. Apart from the four pillars above, there are key success factors for agribusiness which are determined by those outside the agricultural sector such as price policy, capital and investment owned or *farm. capital* , and institutional (*farm institutions*) as well as aSapiensects of community empowerment and legal enforcement of agricultural product businesses that must be considered universally, comprehensively and integrated.

Community empowerment is one of the keys to successful agricultural development. This shows that advanced agricultural development must be able to increase productivity, be able to be independent as a Farmer of Your Own Country (PNS) and be modern through the application of contemporary technology so that the goal of food security can be achieved. Developing agriculture lies in how to improve existing human resources (HR) in terms of skills, education and farmers' mental attitudes. So that farmers are able to analyze and solve the problems they face independently.

Resource people in the District Amonggedo , which is domiciled around the Laiwoi Forest Unitary Forest (KPH) area, Konawe Regency, is an amalgamation area for Javanese and Balinese extra-migrants . Still potential to develop a region based on its natural resource Agribusiness potential. Agribusiness activities carried out by

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communities around the KPH Laiwoi forest area, Amonggedo District are based on the potential for agricultural products in general and non-timber forest products (HHBk) that have been produced by the community. The core of agribusiness activities is formed on four pillars that support agricultural success, namely the development of the farming sub-system , the Agro-industry sub-system, the production facilities and infrastructure sub-system including farmer groups and/or supporting institutions, as well as the pillars of the trading or marketing system sub-system . However, human resources are still weak and lack understanding in the development of non-timber forest product (NTFP) based agribusiness and/or there is still limited utilization of biologically diverse natural resources in forest areas.

The profile of the community around this forest area has many productive human resources marked with Still exists inhabitant society as it should be productive times aged 20 to 50 years . The workforce decreased during the Covid 19 pandemic ie 0.47% in 2020 and unemployment increased 15.69% from the previous year and or around 2.98% of the population of 254695 people, matter This caused various factors (source : source: Konawe PKBM Forum and National Education Department Regency . Konawe, January 2020).

The condition of the community around the KPH Laiwoi forest area, Amonggedo District, Konawe Regency is as follows, (1). The main livelihood of the community is generally farming and livestock farming and forest encroachment, a small portion are civil servants, (2) The average community education is middle school/high school and the gross enrollment rate at tertiary level is low (3) The community income is still low and the status is above the poverty line, (4), The public health situation is quite guaranteed because the level of availability of health institutions is sufficient (5) the circulation of agricultural goods from fields/gardens to primary/traditional markets, (6) The geographical conditions of the area are around the Lahumbuti river basin and the Amonggedo forest area . (7)). The land partly contains nickel mining soil so that the community partly collaborates with the company and mining workers (Lapanga, et al. 2020).

Bee *Trigona Sapiens* is one of Biodiversity has high economic value and has become a commodity superior Non-Timber Forest Products (H h B k) developed by the community around the KPH Laiwoi forest area Subdistrict Amonggedo Konawe Regency . The community and government of Amonggedo Baru subdistrict, Mataiwoi Village , and Puasana Village, Amonggedo District have form farmer groups to Gapoktan to cultivate Trigona bees Sapiens. as a sector of economic improvement for society. Because in every large forest area there is a type of biological biota that lives on the border of the forest and agricultural cultivation, namely the type of honey-producing bee, namely the Apis and Trigona,Sapiens bees . Biodiversity that lives from the nectar of wood trees and flowers of agricultural plants and produces honey which is very good for humans is the Trigona Bee, Sapiens . This Trigona Bee commodity lives in dead wood trees and is saprophytic so it is categorized as a non-timber forest product (HHBk). Trigona bee cultivation is still only recently known among the public, because initially this bee house was discovered by forest encroachers and seekers of honey sugar from Apis insects in forest areas. Nowadays Trigona honey bees are famous for their properties which are better than Apis honey but can adapt to their environment.

LITERATURE REVIEW

Knowledge of Biological Characteristics of Trigona Bees, Sapiens

Development Indonesian beekeeping is opportunity very good effort for public Rural. Rural communities generally work in the agricultural and forestry sectors and use forests as a source of life. Indonesia's forest potential still has a variety of flora and fauna, and various forms, both in the form of protected forests, production forests, natural forests, wildlife reserves and natural resource conservation forests . Potency Diversity Indonesia's biodiversity is very high like variety type bees , variety type plant feed , variety suitable environment for development creature life . Business benefits beekeeping is: a). Innovation farming, b) Handling Post-harvest for product; honey, beepollen & propolis, c) Improvement efforts income, d). Fulfillment of nutrition community, e) Support preservation resource natural life.

Potential types of bee's cultivation are Trigona, Sapiens. Because the product is raw propolis more abundant , friendly to humans , honey No as much Apis bees , and also young adapt to the environment new . Trigona is

insect social , lively group form colony . One colony bee there are 300-80,000 heads . Identified 500 Sapiensecies grouped into 5 genera, namely Melipona, Trigona, Meliponula, Dectylurina, and Lestrimelitta.

Trigona has 11 sub genera. Sapiensread across Mexico, Argentina, India, Sri Lanka, Taiwan, Salomon, Australia and Indonesia. Indonesia identified 37 types, and 2 types Trigona among them in Lombok namely Trigona sapiens, and Trigona clypearis.

Characteristics biology second Trigona type, Sapiens p which lives in forest areas and residential areas and/or agricultural cultivation areas presented in the table:

Table 1 . Characteristics Biology Bee *Trigona Clypearis* and *Trigona Sapiens,*

No.	Characteristics	Trygona clypearis	Trigona sapiens
1.	Head color bee worker female	Black arrived chocolate old	Black arrived chocolate old
2.	bee mesosoma worker female	brownish	brownish
3.	Size body bee worker female	Body length 3.2-3.7 mm	Body length 3.2-3.7 mm
4.	Size wing including bee tegula worker female	Measuring 3.4- 3.7 mm	Measuring 4.2-4.5 mm
5.	Mesopleuron section behind	Some have hair	Some have hair
6.	Anterior	Fully hairy	Fully hairy
7.	Malar	Hairy rare and short	Hairy rare and short , more wide .
8.	Mesoscutum	Be marked with no limits very clear hair	Be marked with no limits hairy not enough clear
9.	Male Bee	Own the same color with bee worker	Own the same color with bee worker
10.	Size bee male	Body length 3.0-3.6mm	Body length 4.0-4.5 mm
11.	Size wing including bee tegula male	Measuring 3.5-3.8 mm	Measuring 4.1-4.6 mm
12.	Hind tibia of bees male	Size more wide and flat	Size more narrow , convex and not parallel with end his tongue
13.	Rear tergum male bee	-shaped and tip his tongue tapered	-shaped and tip his tongue tapered
14.	Abdominal color	Gray until black	Brownish yellow
15.	Activity Bee worker	Less aggressive gather nectar and pollen	Aggressive gather nectar and pollen
16.	Production honey , bee pollen and propolis	Production honey and beepollen , more A little	Production honey and bee pollen more Lots

Source , Balitbang West Lombok NTFP Technology , 2018.

Agribusiness Development

Agribusiness is a business sector that has become the mainstay of government income in the Indonesian archipelago. Nutmeg, cloves, pepper, resin, sandalwood, aloes, coconut and rice were important commodities that were links in the world trade chain at that time. When the Japanese came to the archipelago, business was forgotten and until the 1990s, industrialization was more dominant . In early 2000, after the multidimensional crisis, the Indonesian nation saw the beginning of the revival of agribusiness. The public considered agribusiness to be the savior of the economic crisis at that time, but knowledge about agribusiness was still very limited. The level of agribusiness dependence on nature is very high. This means that agribusiness has a very high volume value and local components because they come from nature, such as air, water and sunlight, which are free local components. Agribusiness 's dependence on nature can create high risk if there is a flood, drought, wind , landslide or pest and plant/livestock disease.

Agribusiness as explained by David JH and Golberg RA (1997) and Saragih B (2010) often confused with agriculture Good in perception nor updating it. By comprehensive, agribusiness defined as *the sun total of operations involved in the manufacture and distribution of farm supplies: Production operations on farm, processing and distribution of farm commodities and items made for them.* Whereas understanding agriculture in a broad sense is all over eye harvesting process chain energy Sun in a way direct or not direct through photosynthesis and process supporter other for life man covers aSapiensect knowledge knowledge, technology and society and includes field plant food, horticulture, animal husbandry, fisheries, plantations and forestry. So agriculture just one part from agribusiness which includes three matter that is as following . (a) Industry upstream agriculture or also called agribusiness upstream , that is industries that produce means agricultural production (*input*) (*the manufactured and distributed on the farm supplies*). (b) Agriculture in the broadest sense (*Production operations on the farm*) is also called *on-farm agribusiness* , that is agriculture plant food , plant horticulture , plants medicine , plantations , animal husbandry , fisheries sea and fresh water as well as forestry . (c) Industry downstream agriculture or also called

agribusiness downstream that is activity processing industry results agriculture become products processed Good product between (*intermediate products*) and product end (*groe processing and distribution of farm commodities and items made from them*).

In Indonesia, agricultural businesses or companies can be grouped into six categories: (1). Companies engaged in providing input (Agroinput). (2) Companies operating in the primary production sector (*Farm)* . (3) Companies engaged in the processing of agricultural products (*Agroindustry*), (4) Companies engaged in the marketing of agricultural products (*Marketing*), (5) Agricultural companies engaged in equipment and tranSapiensortation of agricultural products (supporting institution partnerships), (6). Companies operating in the agricultural services sector (Agroservice). These six areas of activity in the partnership model assessment can be realized in vocational skills (La Panga , P. and Hardin, 2020).

MATERIALS AND METHODS

Time and Location of PKM Implementation

This community partnership activity was carried out in Mataiwoi village and Amonggedo Baru Village, Amonggedo District , Konawe Regency **.** The location selection was based on the consideration that Mataiwoi village and Amonggedo Baru village were located nearby forest areas and nickel mining areas. Most of the population earns their living by farming and animal husbandry. Because the people of this village make a living from farming and livestock and live around forest areas and nickel mining, the farmer group uses non-timber forest products (Trigona Bees , Sapiens) as their livelihood business. The PKM implementation time is from January to December 2022.

Approach and Data Collection Methods

The approach method used on study this survey is *Agribusiness technology transfer Approach.*

Data collection done through floating observation and interview methods Focus Group Discussion (FGD) activity extension (*Agribusiness Extension*) and training *(training*), *virtual community* -based monitoring and evaluation system *vocationally or* WashApps -based community education . Data collection is carried out as follows :

Extension FGD

On activities counseling and training activity group cattle Trigona Sapiens. bee between other:

a. Counseling about attribute biology and cultivation bee Trigona Sapiensp,

b. Counseling about proSapiensect development business farm Bee Trigona honey, Sapiens.

c. Counseling about technology harvesting and handling post harvest Bee Trigona honey, Sapiens,

d. Counseling about system management organization group business small and management system marketing.

Training and Technical FGD

a. Training making nest artificial (STUP) and queen tracking Trigona Bees, Sapiensp.

b. Training technique harvesting product honey and technique packaging.

c. Training and guidance management effort , and recruit power work , bookkeeping finance , as well marketing product processed to consumers , traditional markets nor supermarket .

Partner Technical Guidance Role group Trigona honey agribusiness is ;

a. Prepare box maintenance trigona Sapiens insect as material nest and materials standard queen bait.

b. Prepare place activity counseling or studio group farmer.

c. Prepare container and or packaging product honey and propylsis .

d. Do promotion product honey and propolis as type quality honey .

e. Do activity production honey and propolis together sustainable including promotion and marketing.

Steps operational requirements for overcome problem are: (1) do accompaniment in practice removal of trigona habitat from trees to a new habitat (STUP) in the group partners to have adequate knowledge for increase results production, (2) do assistance to the group partners in the field.

Data Analysis

The data obtained was analyzed using descriptive qualitative methods. For analysis of success levels implementation Agribusiness technology in the Trigona honey business requires an assessment to serve as a guideline for each trainer, lecturer, standard instructor and basic assessment category for each training participant so that ultimately the abilities and skills of the Trigona Honey agribusiness can be determined , Sapiens.

Trigona Bee Cultivation Competency Analysis.

1. Elements of ability include: 1. Capital and business partnership cooperation , 2. Manage the business thoroughly according to quality standards, 3. Increase business income, 4. Cultivate Trigona bees, Sapiens and feed. 5. Realizing production with good quantity and quality.

2. Skill elements include: 1. Having the skills to move Trigona colonies from natural resources to artificial colonies (stup). 2. Skilled in making Trigona,Sapiens cultivation stock . 3. Skilled in harvesting and post-harvest processing. 4. Skilled in packaging or labeling technology for Trigona honey products . 5. Skilled in recording, administration and *online marketing networks line.*

Analysis of the Success of Honey Agribusiness.

The value scale according to the Likertz scale in the description is assessed using the assessment criteria:

1. Very good : 76 - 100 (%)
2. Good : 50 - 75 (%)
3. Medium : 26 - 50 (%)
4. Less: 25 (%) and below

Analysis of the level of competence and skills in applying Agribusiness technology in the categories:

1. Category Unable and less skilled score = 1.
2. Category Capable but not naturally skilled score = 2.
3. Category Less able but naturally skilled score = 3
4. Category Has abilities and skills score = 4

RESULTS AND DISCUSSION

Building Ideas Trigona Bee Business, Sapiens.

Desire For building a Trigona Honey Agribusiness, Sapiens. must know the biology of Trigona bees as honey producers and their habitat. Therefore, the initial idea was to partner with various parties , though can happen that partnership arise consequence role party third . This matter related to two things; **first,** if We remember that cultivation bee Trigona Sapiens honey only is one sub- system from system agribusiness Non- Timber Forest Yield (HhBk) in terms of thoroughly, then group cultivation Trigona Sapiens. bee No can stand Alone; **second,** consideration that strengths and weaknesses is on each party and has desire For each other filling

(Salam. et al , 2006). If group public cultivation Bee trigona, Sapiens in the production process walk smooth, relationship This each other profitable, then partnership will Keep going sustainable (Dewanto, 2005). Partnership in a way general intertwined when there is the party who feels it exists weakness in implementation A business idea only become *focus of interest* One party just . On the other hand that partnership actually is the right solution for the party who builds the idea because it exists acceleration development .

Principles in building network ideas among them are : (a) Similar Vision-Mission. Similarity vision and mission become motivation and glue pattern partnership . (b) Trust . Trust is the basic capital in build synergistic and mutualist partnerships . For can trustworthy , then built communication must based on good and upholding intentions tall honesty . (c) Mutual Benefit . Mutual principle profitable is strong foundation in build partnership . Partnering parties must each other give contribution in accordance their reSapiensective roles and must each other feel benefited. (d) efficiency and effectiveness . E efficiency can increase the quality of the process and products achieved is moderate level effectiveness achievement objective become more tall if the process works We involve partner Work so that achievement objective expected will become more effective . (e) C ommunication dialogic . Form mutual communication held in a way dialogic on base each other value One The same other . (f) Strong commitment and permanent . Is a building strategy networking Work is effort For anticipating a partnership the No meet permanent obstacles and failure

Growing the Soul of Trigona Honey Agribusiness , Sapiens

U pay a grow enthusiasm for agricultural business Honey Trigona, Sapiens is how to manage diversity biological non-timber forest products (HHBk) in the KPH Laiwoi forest area by recognizing biology Trigona bee, Sapiens. in a way individual and community groups. Forest encroaching community groups and farmer groups around forest areas discovered the habitat of Trigona bees and recognized them as the same group of honey bees as Apis bees . With consumer preferences for honey produced by Trigona Bees which provides benefits to humans, this emerged A brilliant idea for keeping or raising Trigona bees . To develop business farm Trigona bees must be taken seriously to understand the life of Trigona bees which are not the same as Apis bees , through approach Business agr i Good aSapiensects of cultivation (*on farm*) and post- harvest (*off farm*). Grow soul agribusiness Trigona Sapiens. Bee means build Sapiensirit of performance in efforts to manage the biological resources of Trigona bees as a non-timber forest product which has the potential to create a source of income and welfare for the community through the 4 pillars of Agribusiness are the farming system, the production facilities system and supporting institutions, the Argoindustry system or harvest and post-harvest system and the honey product marketing system.

Trigona Bee Business Production Management

Production management is Trigona Bee biological resource management sub system , Sapiens. as a non-timber forest product becomes a beekeeping by local communities. Livestock or Cultivation Business Planning Trigona bees , it begins with survey searches for and finds colonies experience found in dead trees in forest areas or plantation trees . Natural colonies are the first habitat of Trigona bees, Sapiens . which live in dead wood or nest in plantation plants in various types , namely ant nest types , bullet casings , and/or hanging like Apis bees

Trigona Bee Sapiens is a type of *stingless* honey bee *honey bees*) and easily adapt to new environments so they can be found in areas with tropical climates and some areas with sub-tropical climates. According to Inoue *, et.al.* (1984) in Supriyadi, 2020, several variations in body organs and color degradation cannot determine the type of Trigona bee , Sapiens., because of the closeness of the subgenus. Trigona,Sapiens is often known by local names such as klenceng (Java), *gala-gala* and t *euweul* (Sundanese).

Sakagami , et.al. (1990) in Indonesia there are several types of Trigona bees Sapiens that have been identified are: *T. Laviceps , T. Itama, T. Drescheri , T. Apicalis , T. taracica and T. Terminata* . Trigona,Sapiens bees are found nesting in hollow places such as logs, tree holes, and gaps in house walls (Michener , 1974) in Supriadi, 2020. The entrance to the nest is made of plant resin mixed with soil and mud, with a shape and different colors depending on the Sapiensecies. The nest is a place for the bee colony to take shelter, store food and produce. The structure of the Trigona,Sapiens bee hive is different from the apis honey bee hive , where in the

Trigona,Sapiens hive the place for storing pollen and honey (*storage pot*) is separate from the brood cells . *chamber*).

The daughter cells are where the queen lays her eggs and where the offSapiensring develop from egg to imago phase. The developmental phases of the Trigona,Sapiens bee include; egg, larva, pupa and imago. After hatching into imago, this baby chamber cannot be reused like in apis bee nests (Michener, 2007). Storage pot and brood The chamber is strengthened by involucrum which is made from a mixture of tree resin, wax and soil. (Roubik, 2006). Storage The Sapiensot is a storage place for pollen and honey, in a round shape coated with wax which is attached to the wall of the nest. Worker bees search for food throughout the day and during the flowering season, excess food is stored in storage pots. The more honey produced by bees indicates the greater abundance of food in the surrounding environment (Gojmeracc , (1983), Supriyadi, 2020.

Trigona Honey Agribusiness is determined by the Agribusiness management plan as follows :

a). Cultivation of Trigona Sapiens

Transfer Colony Trigona bee, Sapiens. Generally, Sapiensace in the nest experience relatively narrow, so knock needs cultivation colony obtained from natural and necessary long time. Because of that allegedly colony Trigona bee can manipulated and moved to other places through colony artificial (Artificial *Stup)* cause the bee No stings and can adapt. Type of colony found in the field There is three ie *nest type ants* and *types of casing* on wood weathered or door enter similar slonsong barrel guns and or *used type bite insect* pest beetles on plants plantation .

b). Making a Stup

(*Artificial Stup*), necessary taken into account condition humidity and aeration air in nest as well as distance Sapiensread bee Trigona, Sapiens. in look for Nectar between 4-6 km. Making stop addressed For expanding habitat areas and materials standard nest must use board old wood or almost weathered , with size 40 x 20 x 20 cm, which is given door enter like hole slonsong decay . For the transfer the colony can taken part the nest Then placed in crib stop artificial then on slonsong door enter smeared with brown sugar so that the queen can tracing the scent of a moved nest . Queen diSapiensersal takes place in a way experience from natural habitats to stop artificial. Another method for that Sapienseed up transfer colony is with cut wood place nest Then moved to place maintenance stop artificial. This matter intended for adaptation trigona bee with stop the more near .

c). Election Location

For placement nest artificial (*stup)* usually at the end wood behind home, and make it cottage producer like the ward that is at most 5.0 km from source feed good area trees forestry nor plant agriculture. Condition a little air suitable is at the border area forests and areas cultivation agriculture and or border area forest with area settlement around area Genre River (watershed). Necessary thing noticed in election location cultivation Trigona bee, Sapiens besides condition climate is: (1) Availability source adequate feed, (2). Adequate water needs , (3). Far with agricultural uses pesticide

d). Maintenance cultivation Trigona Sapiens.

Activity necessary maintenance done is: (1). Cleaning Stup and surrounding areas from dirt for avoid organism bully bee come, (2). Guard bee Trigona honey from disturbance other insects and keep them away from birds (3). Checking colony bee every two weeks or every month For ensure development and health . Like amount cell egg , pouch honey and pollen sacs do not increase , tend decrease quantity and quality .

Stages Harvesting and control post harvest Trigona bees, explained as following:

a. Harvest done approaching end season flower

b. Tools harvest; container honey (boiler drainer), pollen and propolis container (basin), knife cut, Sapiensoon, filter and mask.

c. Harvest hygienic use clean equipment with system drain.

d. Make sure queen bees do not lifted

e. Sapiensoon honey and separate from pollen

f. Leave it part nest containing honey and beebread as reserve food colony bee .

g. Closed meeting box nest place position beginning .

h. Open the bag honey and drain on the Sapiensot closed

i. Remove the bee bread (pollen) with slashing bagged and ready For dried .

j. Honey is filtered place bottle packaging and a water content test is carried out

k. Dregs noticed skin pocket *bee bread* and skin kangtong honey Ready For processed become propolis .

Management of Production Facilities and the Bee Cultivation Business Support Institution Trigona, Sapiens

ASapiensects of production facilities for bee cultivation business Trigona, Sapiens . is food available around the bees ' natural habitat Tigona, Sapiens (flower trees, dead wood, manufactured houses, artificial habitat modifications from wood board (*stup*), teardrop flower plant bride and groom, and equipment post-harvest. The distribution of insects or bees is influenced by suitable geological and ecological factors, resulting in differences in the diversity of insect/bee types. This difference is due to differences in climate, season, altitude, and type of food (Borror and Long, 1996). The complex behavior of Trigona,Sapiens bees and their abundance make them pollinators that play a very important role in helping successful pollination (Mechener, 2007.).

Institutional a Sapiensects of Honey Agribusiness Trigona, Sapiens

Initially, efforts to develop the Trigona Honey Agribusiness were carried out by forest encroaching communities , but after it was recognized that it had great benefits for humans and had the potential to improve the people's economy, it was carried out through a *triple approach. Hellyx Agribusiness Benchmarking* . Triple Hellyx Agribusiness is an actor in improving the economy and community welfare related to non-timber forest product farming . The parties involved are the sub-district/village government, and universities as academics, as well as the community as partners. (AGC) So the implementation of community partnerships in developing the Trigona Honey Agribusiness business is carried out by AGC partners (*Academic , Government and community*). Development of the Trigona Honey Agribusiness farming partner group through the *Benchmarking method* at the KTH KPH Laiwoi Honey Group Unaaha . However, to develop community partnerships through coaching business Trigona Honey Agribusiness Sapiens is expected to be able to collaborate with MSMEs, BUMD/BUMN through appropriate technology exhibitions, lively MSMEs so that the partners of the Trigona Honey Agribusiness group , Sapiens grow and develop under the guidance of ABCG (*Academic , Business, Community and Government)*. The criteria for realizing the pillars of Trigona Honey agribusiness development , namely; development of the Trigona honey bee cultivation farming system , subsystem distribution of production facilities and infrastructure, post-harvest and agro-industry handling subsystems , distribution and marketing subsystems for Trigopna honey processing products , and development of supporting services subsystems and Trigona honey business institutions, Sapiens in the District Amonggedo Konawe Regency, Southeast Sulawesi Province with the following steps :

(1). Development of the main livelihoods of the community in general are farmers and livestock breeders and forest encroachers, a small portion of civil servants, (2) Training the average middle school/high school community and the gross enrollment rate at tertiary level is low (3) Increase in community income is still low and status above the poverty line, (4) Encouraging *stunting control* through empowering Trigona Honey as an alternative nutrition. (5) Expanding access to the distribution of agricultural goods from fields/gardens to primary/and secondary markets, (6) Maintaining and preserving the resources of the Lahumbuti river basin and

the Amonggedo forest area . (7). Empowering land that contains nickel mines so that communities can collaborate with companies and mine workers.

Trigona honey bee commodity lives in dead wood trees and is saprophytic so it is categorized as a non-timber forest product (HHBk). The cultivation of Trigona honey bees is still only recently known among the public, because the initial discovery of this bee house was discovered by forest encroachers and seekers of honey sugar from Apis insects in forest areas.

Handling Harvest and Post-Harvest Trigona Honey (Agro industry)

bee colony , Sapiens In one nest there are thousands of individuals. In a colony there are strata, namely; queen, worker bees, male bees and brood. The queen is reSapiensonsible for reproduction. In general, one colony has one active adult queen lay eggs and future queen (*virgin queen*) which is prepared if ratau dies. Diversification the product produced from post-harvest bee Trigona Sapiens. is honey and *bee pollen* . The honey produced by worker bees comes from nectar produced by plants, in the form of a sweet liquid, from plant glands. Trigona Honey contains vitamins such as vitamins B1, B2, B3 and C, as well as minerals such as calcium, iodine, sodium, iron and magnesium (Sihombing, 2005). Pollen is a means of male reproduction in plants which is located in the anthers. Apart from pollen, worker bees also collect resin which is used as a material to repair and protect the nest from attacks by fungi and parasites.

Product besides honey and bee pollen , is propolis yet can processed . According to Anggraini, (2006.) to produce propolis, working bees need to visit many plants that collect resin. The sticky properties of propolis are used by bees to repair hives. Propolis is also used as a means of defense against microbial and fungal attacks because it contains antimicrobial compounds . Propolis is known to have beneficial properties for health because it contains flavonoid and phenolic compounds . Data on the number of STUPs, honey harvest results in the KTH Kahuripan farmer group and the Makmur and Gapoktan farmer groups in 2021 are as follows :

Table 2. Development of Artificial Colonies (STUP) and Honey Harvest Results at the Research Location in 1 year in Amonggedo District , Konawe Regency.

No.	Location and Group Name.	Number of Members (people)	Number of STUPs (units)	Fri.Stup which harvest (Unit)	Honey Prod. (ml)/bottle	% Harvest success
1.	Amonggedo New, KTH . Kahuripan*	20	80	75	45,000/ 225	93.75
2.	Mataiwoi . KT. ProSapienserous**	20	40	30	18,000/ 90	75.00
3.	Fasting . Gapoktan ***	20	15	15	9,000 / 45	100.0
	Total	60	135	120	72,000/360	

Source, Research Results, Lapanga , 2022.

Ket . *) KTH Kahuripan Lestari, 2020. **) KT. ProSapienserous, 2021 .***). Gapoktan , 2022. Start up Bee Cultivation Trigona , Sapiens.

Table 2 above shows the differences in honey productivity for each group of Trigona Bee cultivators . This is because each group has a different start up in cultivating Trigona bees . KTH Kahuripan Lestari started 2020 early, KT. Makmur in 2021 and Gapoktan in 2022. Likewise, the number of artificial STUP production facilities available depends on the ability of the group members , namely: KTH Kahuripan Lestari from the initial 20 boxes of stupas after the first year's harvest added 30 stups and in the third year it became 80 stups.

This group is very active in hunting queens in the field through collaboration with forest encroaching communities which is valued at IDR 75,000 per Trigona beehive . Because of this, the number of Stup harvested on average reached 93.75% KT. ProSapienserous Mataiwoi reached 75.0%, while Gapoktan had just harvested its first harvest of 15 boxes of Stup after 4 months of raising Trigona bees .

Management Marketing

of Trigona,Sapiens Honey processing results refers to the concept of production and product (Kotler , 1997). The production concept referred to in the community partnership model in the Trigona,Sapiens Honey Agribusiness Development is an effort to manage the market starting from the farming business (cultivation), to post-harvest, diversification of the final product or from upstream to downstream (downstreaming). While the product market concept means market become the only source of final product from farming . Every market niche embraces it distribution and tranSapiensortation . Because of that distribution product to partner trade done in a way family and system market and consumer information honey Trigona, Sapiens . Product diversification tailored to market segments, standard prices, market share information.

Management Marketing and Quality product honey will released on the market is honey that has fulfill standard quality in system trading national. Draft marketing carried out in agribusiness Trigona honey is *Marketing production concept.* (Kotler, 1997, Keegan, 1997, Kerin et. all . 2013). This matter intended that draft marketing honey triogona system initiated marketing with development cultivation Trigona bees arrive produce / product honey. However in distribution the product need partner trade , distributor and sales so We can create channel distribution marketing . Trigona,Sapiens honey products consist of honey, bee pollen and propolis . Trigona honey marketing system , Sapiens determine the quality of honey.

Quality honey, *bee pollen* and propolis Trigona Sapiens , is determined by proper post-harvest processing, reducing water content, propolis extraction techniques and packaging. Standard desired quality is in accordance standard national Industry (SNI) as in the following table:

Table 3 . Trigona Honey Laboratories Test Honey Quality Requirements based on SNI 01-3545-2004

No.	Types of Laboratory Tests	Unit	Quality standards
1.	Water content	%	Maximum 22.0
2.	Ash content	%	Maximum 0.5
3.	Reducing sugar content	%	Maximum 65
4	Sucrose sugar	%	Maximum 5.0
5	Acidity	MI NaOH 1N/kg	Maximum 50
6.	Solids not dissolved in water	%	Maximum 0.5
7.	Lead Level (Pb)	Mg/kg	Maximum 1.0
8.	Copper Content (Cu)	Mg/kg	Maximum 5.0
9.	Arsenic (As) Levels	Mg/kg	Maximum 0.5

Source: SNI 01-3545-2004, in Ridoni, R, et al. 2020

Test result Quality of Trigona Honey in the Group Kahuripan Lestari Forest Farming (KTH) in the Village Amonggedo new Subdistrict Amonggedo averages around 25%. The water content in honey caused a number of things, humidity air, kind nectar, production and storage processes. Nectar contains about 70% water at a time collected or sucked bee . When bees worker flutter with wing can lower water content reaches 17%. And make honey with content water content is around 17-21% (Sihombing*, 2005).*

Marketing distribution is carried out in family promotions Sapiensread across sub-districts, Konawe Regency, Southeast Sulawesi Province, Jakarta, Central Java, Surabaya and Kalimantan as carried out by the KTH Kahuripan Lestari Group in 2021 and 2022. Because the product is starting to become known throughout Indonesia, it is necessary to Maintaining product quality requires assistance with Agribusiness technology and increasing the capacity of Cultivation Business products Trigona , it is necessary to analyze income and profits for farmers. Analysis of costs, income and profits of the Trigona Honey Agribusiness business can be presented in the following table:

Table 4. Analysis of costs, income, profits and B/C Ratio of Trigona Honey Agribusiness in three villages around the KPH Laiwoi Forest Area , Kec. Amonggedo District. Konawe in 2022.

No.	Variable	KTH. KL*)	KT.Mak - nut **)	Gapoktan ***)	Ket .
1.	Fri. Members Klp .(org)	20	15	15	50
2.	Number of STUPs (units)	80	30	15	125
3.	Fri. STUP harvested (units)	75	30	15	120
4.	Amount of honey product (ml)	45,000	18,000	9,000	72,000
5.	Fri. Honey Packaging (bottle /200ml)	225	90	45	360
6	Selling Price (Rp)/bottle	75,000	75,000	75,000	75,000
7	Total Oprs Costs (Rp.000)	4,000	1,500	1,000	
8.	Total Revenue (Rp.000)	16,875.	6,750.	3,375	
9	Profit (Rp.000)	12,875	5,250	2,375	
10.	B/C Ratio value	3.22	3.50	2,375	
11	Level of success (%)	93.75	100	100	

Ket . *). KTH.KL = KTH. Kahuripan Lestari Amonggedo Only 3 years old

**) KT. Mak . = Makmur farmer group, Mataiwoi village , 2 years

***) Gapoktan = Puasana Village klepoktani association for 1 year

Performance of Trigona Honey Agribusiness , Sapiens .

Trigona Honey Agribusiness Performance Elements

The human element of management (*Labor*)

Humans in every business or group always carry a portrait (identity) be it their physical condition, motivation, level of education, experience and most importantly the culture of the previous life in which they lived (existed). Because of this, the development of trigona cultivation Sapiens as one of the *level rate factors* for the development of non-timber forest products (HHBk) is carried out through an agribusiness approach with four pillars, namely; Farming , production facilities and supporting institutions, agro-industry and marketing , (La Panga, P. ibid. 2020).

Capital (*Capital Goods*)

the Trigona honey bee business Sapiens can be seen from various aSapiensects including , land *for* business premises (production houses), human resources *, operational* funding for Trigona bee cultivation . The capital referred to is primarily operational funding capital, whether it is your own capital, sharing capital among group members, and bank loans that require handling and caution in their use , all of which have a risk of failure, and if handled well will certainly have a *significant impact.* towards the desired goals, targets. Because capital goods are the main element in the production process and also a larger input in the production process. This is as explained by *Paul A. Samuelson* in his book entitled *Economics Introduction* Complete *analysis :*

Capital goods , then represent producer goods that can be used as factor inputs further production . Where as labor and land are primary factors inputs not useful thoughtof as being themselves produced by the economics system . Samuelson (1961 :47)

Equipment

The equipment used requires knowledge and ability for each group member to use it. Because equipment has its own Sapiensecifications, eSapiensecially the use of technology, namely tools ranging from the simplest to the most sophisticated technological equipment. The most important equipment in cultivating Trigona honey bees is the creation of production houses and artificial habitat boxes (SETUP) where Trigona bees can be cultivated. Apart from that, dead and hollow tree trunks which are a natural habitat can be used as a place to sit in boxes (SetUp) to facilitate the movement of the queen from the natural colony to the SetUp. artificial which eventually developed to produce trigona honey .

Management methods and Technology Honey

Honey bees initially lived in the wild, in logs with holes to grow. So the trigona bees were taken carefully from above where the trigona valley lives. Care must be taken to determine when picking it up to move it and then put it in the boxes where it will be cultivated. And her main concern is as a mother (consort as a local community/group consort), so that other bees don't run/fly elsewhere .

The use of technology was carried out during the innovation of moving colonies through preparing boxes for cultivation, taking materials in the form of wood, logging required a senso machine , which produces logs to be made into boards, and logs for box seating, processing required a saw machine to produce boards. which can be made into a stop box . This condition requires human abilities and skills in mastering the use of technology in carrying out their activities. Mastery of technology in today's digital economic era, eSapiensecially information technology, is very important for members of the main marketing group to market Trigona honey production which is carried out *online.*

Market

At the business level, both small, medium and large scale, it is very important to know market conditions regarding the distribution of the products produced. As a target market for sales of Trigona honey production : in the market in the form of a monopoly market, duopoly market, oligopoly market and free market. The target market level for product sales, in local markets, regional markets, national and overseas. current mainstay of the Tigona honey product is Trigona honey , which is a favorite on the consumer market. Strategy for products marketed in bottles and packaging with labeling .

Non-Economic Environmental Factors

Factors that influence the chances of trigona honey bees in society include : **a.)** The public's opinion that trigona honey bees can sting and therefore can be dangerous to human health. Most people do not know that trigona honey has high economic value . **b).** Policies of both the government and village governments: (1) The government in terms of banking credit facilities; (2) Production protection in terms of legality for health and other facilities. **c).** The environmental conditions for trigona cultivation do not pay attention to environmental health, for example near household waste, etc.

Trigona Honey Agribusiness , Sapiens

Monitoring elements above, the assessment and evaluation of community partnership activities and agribusiness development for Trigona honey bees , Sapiens in the Kahuripan Lestari Forest Farmers Group (KTH), Amonggedo Baru Village, Amonggedo District , is described as follows:

Description of the evaluation or assessment of community partnership activities in the honey bee agribusiness Trigona,Sapiens . as follows :

a. Capable and Capable elements include; (1) working together , collaborating and coordinating, (2) establishing business partnerships, (3). Manage the business optimally according to quality standards. (4). Increasing farmers' income, (5) Cultivating TrigonaSapiens honey bees . (6) realizing quality and quantity production with quality assurance.

b. Skilled elements include (1). tranSapienslantation of Trigona, Sapiens . bee colonies . (2). Making stop boxes as a place for bees to live (artificial habitat). (3). Operate tools and materials for both cultivation and post-harvest. (4). Locating food sources for Trigona honey bees Sapiens. (5). Production management with the application of appropriate technology. (6). Building a marketing network and trading partners on line .

Based on the formulation for determining the success of implementing partnerships in developing the Trigona,Sapiens Honey Agribusiness in Amonggedo District , namely: (1). The criteria for a high or very good success rate are if the farmer is able and has the skills to manage the Trigona honey agribusiness Sapiens. (2). Criteria for a good level of success if the farmer is capable but lacks skills in managing farming , (3) Criteria for a moderate level of success if the farmer is not capable but has sufficient agribusiness skills . (4). The success rate criteria are less (low) if farmers are incapable and also lack skills in agribusiness. The results of assessing

the level of success of Community Partnership-based Agribusiness in developing Trigona,Sapiens Honey Agribusiness around the KPH Laiwoi forest area, Amonggedo District , Konawe Regency are presented in the following table:

Table.6. Recapitulation of the assessment of the success of implementing Trigona Honey Bee Agribusiness development Sapiens. in Amongedo District , Konawe Regency. Year 2022

No.	Rated aSapiensect	Capable an after Coaching (%)	Skills after Coaching (%)	Total Ratio (%)	Ket .
1.	Building Relationships & Honey Bee Farming Ideas	0.75	0.50	1.25	
2.	Availability of Capital and Social Finance	0.75	0.50	1.25	
3.	Agribusiness Organizational & Institutional Planning	0.50	0.50	1.00	
4.	Building a Trigona Cultivation Business,Sapiens	0.75	0.50	1.25	
5.	Procurement of production facilities & infrastructure	0.50	0.50	1.00	
6.	Application of Harvest & Postharvest Technology	0.50	0.50	1.00	
7.	Marketing Management & Trading Partner Strengthening	0.50	0.50	1.00	
8.	Building understanding and permits (Low Business)	0.25	0.25	0.50	
9.	Total & Average Score of Trigona Honey Business abilities & skills (%)	4.75 or average 59.375	3.75 or average 46.875	8.50 or 106.25	
10.	Success category Building the Sapiensirit of Trigona Honey Agribusiness , Sapiens .	Good	Less Skilled	Very good	

Information

That the Sapiensirit/Soul of the Trigona Honey agribusiness , Sapiens . Groups supported by KTH Kahuripan Lestari and KT. ProSapienserous with the very good category, La Panga , et al. 2022

CONCLUSIONS AND RECOMMENDATIONS

Based on the community profile above , the problem of research on the performance of the Trigona Honey Agribusiness developed by the community around the KPH Laiwoi Forest area, Amonggedo District , Konawe Regency is presented in detail as follows :

1. the Trigona.Sapiens Honey Agribusiness is determined by human factors, capital, processing tools and machines , honey management methods and technology, markets and non-economic environmental factors carried out using a *Technology Transfer approach to the Trigona.Sapiens Honey Bee Agribusiness subsitem* . which was developed by the community around the KPH Laiwoi Forest Area, Amonggedo District , Konawe Regency.

2. The Trigona,Sapiens honey bee production management developed by the community is to move the colony from the main habitat on a dead tree to an artificial habitat. Artificial STUP boxes with start up 20 boxes per group.

3. The need for production facilities and institutions that support the Trigona Honey agribusiness, including colony search groups (forest encroachers), box stalls , production houses and harvesting production facilities are carried out based on collaboration with academic, business, community and government partner institutions.

4. The application of harvesting and post-harvest technology for Trigona,Sapiens (Honey Agroindustry) bees developed by the community, starting from artificial colony technology from wood, queen transfer technology, harvesting technology, packaging technology and quality standards.

5. The marketing system for Trigona Honey is carried out using a *Production approach Concept and Sales Concept* Which sustainable, through family channels and trading partners.

6. Trigona Honey Agribusiness developed by the community is demonstrated with the Sapiensirit of agribusiness, it is in the *very good* category for the community around the KPH Laiwoi Forest Area , Konawe Regency

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