The Local Wisdom Model in Change of Farmer Behavior and Its Impact on Adoption of Technology Special Efforts (UPSUS) Maize Plants in North Central Timor District

Marsianus Falo[1,2], Sugiyanto[3], Keppi Sukesih[3], Yayuk Yuliati[3]
[1,2]Doctoral Program, Agricultural Extension and Communication, Faculty of Agriculture, Brawijaya University Malang
[2]Faculty of Agriculture, University of Timor, Indonesia
[3]Lecturers of Faculty of Agriculture, University of Brawijaya Malang, Indonesia

Article History: Received: 10 November 2020; Revised 12 January 2021 Accepted: 27 January 2021; Published online: 5 April 2021

Abstract: This study aims to describe the characteristics of farmers and analyze the role of local wisdom in changing farmers' behavior and analyze the level of adoption of Upsus maize technology in North Central Timor District. The unit of analysis in this research is Upsus farmer participants, the determination of respondents is done by technique: *first*, the determination of key informants to obtain in-depth data information from farmers is determined by *Snowball Sampling*. *Secondly*, the determination of informants which is carried out intentionally (purposive) addressed to figures who have direct or indirect involvement in the Upsus corn program. Primary data collection was carried out through a questionnaire that was prepared in August-December 2019. In-depth interviews (FGD) were conducted in Insana Sub-district, TTU-NTT District in Upsus participating farmer groups. Secondary data collection was carried out by collecting data from the Department of Agriculture, BPS and related agencies. The analysis showed that the characteristics of farmers (age is in the adult category, formal education, non-formal education in the low category, experience of farmers in the high category, while the area of land, and cosmopolitan is in the very low category), while the local wisdom model for changes in farmer behavior has not run optimally. The local wisdom model in TTU District by farmers is generally aware of the assistance provided by the government namely Upsus corn plants, but it does not take into account the farming cycle that is owned and known to farmers and greatly influences changes in farmer's behavior in corn farming. It can be seen that the harmonious relations in carrying out the corn plant rituals which have not proceeded as expected, namely the entire stages of maize farmings are not carried out such as the rituals of *Ta'poen Fi'ni* (Removing Seeds), *Pen Su'fa* (Corn Flowering Time), *Ta Fe ' u* (New Food), *T'sek Pena* (Harvesting Corn), *Ta'kbu Pena* (Tying Corn), *Tsef pen sma'naf (*Opening the Spirit of Corn), *T'hab nin* (Preparing for Storage), *Ta sae be noe Lopo* (Putting into Lopo). The changes in farmer's behavior towards the innovation of Upsus maize in TTU are in the low category. If it is seen from the farmers' acceptance in Upsus maize, the farmers experienced an increase in the innovator category, but there was also an increase in the *late adopter* category which showed that farmers were always careful about innovations in corn Upsus, waiting for many people to have tried and chosen / adopted an Upsus innovation applied to maize.

Keywords*: Local Wisdom, farmer behavior, adoption innovation, corn plants*

1. INTRODUCTION

TTU District since its establishment as a district in 1958, in the process of development until now has had a lot of progress, if it was compared with the previous conditions. Previously, the TTU area only had 4 districts as administrative regions. In the effectiveness of public services, this is not effective, because the distance between the village and / or district as an administrative center is very far, so that this condition complicates the social and economic life of the community. To facilitate mileage in public services and the socio-economic community, based on Regional Regulation (Perda) No. 08/2007, was expanded into 24 sub-districts, 182 villages and 640 hamlets with varying area sizes (BPS. TTU, 2018).

Corn commodity has a main role as meeting the needs of food, feed and industry, which tends to increase every year in line with population growth and the development of the food and feed industry. For this reason, the Ministry of Agriculture seeks to increase corn production. In connection with this, starting in 2015 the Ministry of Agriculture implemented a program to increase food production, especially corn in the form of a Special Efforts (Upsus) program for rice, maize and soybeans (Pajale) with an approach to expanding planting areas, the Integrated Crop Processing Movement (GP-PTT) , provision of seeds, fertilizers, pesticides, alsintan, and prevention of pest organisms. The corn in TTU Regency has been going on since four years ago through the socialization of the Department of Agriculture through extension workers / assistants to corn farmers in accordance with the potential land owned and innovation can be developed in each farmer's land. Based on data

from the Department of Agriculture TTU (2018) that the target of corn production in 2015: 26,462 tons, in 2016: 26,665 tons, and in 2017: 69,184 tons. But the results obtained, in 2015: 23,462 tons, in 2016: 23,462 tons, and in 2017: 79,184 tons, where the productivity were achieved an average of 2.62 tons / ha.

In Timorese society, the practice of mutual cooperation is divided into various forms. Among these forms are related to human life cycle ceremonies, such as marriage, death, and food crop farming activities that are packaged in the form of rituals. Local Wisdom is defined as ideas, values, and views of Timorese (local) people who are wise, full of wisdom, of good value, embedded and followed by members of the community. According to Fajarini (2014) that the local wisdom is interpreted as a way of life and science as well as various life strategies in the form of activities which are carried out by local communities in answering various problems in meeting their needs. The presence of the Upsus corn program which is developed at TTU actually facilitates, but the orientation of the corn farming which is known by farmers is to meet the basic needs of the household. Besides that, the existence of institutions in TTU has not been well accessed by farmers as a means of communicating information in bridging their problems, even though they already know that farmers have difficulty accessing them. The powerlessness of farmers in accessing capital providers, market institutions because the farmers are still vigilant with the return of capital loans which are obtained to support the sustainability of corn farming, the farmers must have the strength in increasing corn productivity if supported by innovative information that can be utilized by farmers in supporting their farming. Improving the ability of farmers can be obtained by the process of learning from the experience of farmers interacting with other farmers to share knowledge and information in a farmer's institution. The farmer organization facilitated by the facilitator carries out his role as a farmer room, a learning center through the provision of information that can be used by farmers in continuous improvement of corn farming.

From the description above, an in-depth study is needed in order to answer the problem related to the description of the characteristics of Upsus corn farmers based on local wisdom at TTU and how the impact of the local wisdom in behavior of farmers Special Efforts of corn farming at TTU.

2. MATERIALS AND METHODS

In this research method, the researcher describes the research design, data collection techniques, informant determination techniques, and data analysis techniques performed. The study was conducted in Insana Sub-district, North Central Timor District, East Nusa Tenggara Province. The research location was chosen purposively, with the following considerations: (1) Insana Sub-district is one of the 10 Sub-districts in TTU as the location for the development of the national corn Upsus. The selection of research sites in the Insana District with consideration: Insana District ranks first in the area of harvest, production, and productivity of maize at TTU since 2015-2018. 2) the local wisdom in the Insana Sub-district is still a major advantage preserved in corn farming. This research was conducted in Insana Sub-district, North Central Timor District (TTU), East Nusa Tenggara Province (NTT), which is begun in August to December 2019. In the design of this study, the researchers conducted research with a qualitative approach, in which to know and observe all things scientifically, and collect data in natural situations using face-to-face methods, and carried out by the researchers. Through this qualitative approach, it is expected to produce in-depth descriptions of the observed behaviors of respondents under certain conditions. This study aims to describe the characteristics of farmers and to analyze the role of local wisdom in changes in farmer's behavior and to analyze the level of adoption of the Upsus maize technology in North Central Timor District.

Respondents are the key informants and informants. In this study can be divided into two parts namely *first*, the determination of the key informants to obtain in-depth data information from farmers is determined by *Snowball Sampling*. *Snowball Sampling* is a sampling technique that starts with a small amount, then becomes large. Like a snowball that rolls into a long time big. In determining the sample, one or two people are first selected, but if these two people do not feel complete about the data provided, the researcher looks for others who are considered to know better and can complete the data provided by the two previous people and so on, so that the number of samples becomes large. *Secondly*, the determination of informants which are carried out intentionally *(purposive)* addressed to farmers, figures who have direct or indirect involvement in the Upsus corn program at the research location, which includes group administrators, community leaders, heads of agricultural services, village heads, instructor, and sub-district coordinator. Samples with a target of 161 people were taken. The data used are primary data and secondary data.

Data were analyzed descriptively, the data obtained were tabulated and then processed with qualitative analysis, namely the technique of studying data derived from the views that exist in the minds of the society (informants) which includes three activities simultaneously: *Data Reduction*, *Data Display*, and *Conclusion Drawing / Verification*.

3. RESULT AND DISCUSSION

3.1.1 Farmer Characteristics

The characteristics of farmers which are measured in this study consists of: age, formal education, non-formal education, farming experience, arable land area, and cosmopolitan. Table 1 shows the proportion of respondents based on the internal factor distribution of Upsus corn farmers in Insana District.

Tabel 1. The Proportion of Maize Upsus Farmers by Factors Internal Farmers, 2019

Internal Factors of Farmers	Category	N	(%)	Average
(1)	*(2)*	*(3)*	*(4)*	*(5)*
Age (Years)	Youth (< 42 years)	32	20	
	Adult (42-55 years)	87	54	49,77
	Old (> 55 years)	42	26	
Total		161	100	
Formal Education	Lowest (< 4 years)	19	12	
	Low (4-7 years)	103	64	6,41
	High (8-11 years)	27	17	
	Highest (> 11 years)	12	7	
Total		161	100	
Non-formal Education	Lowest (< 2 times)	152	94	
	Low (2-3 times)	9	6	0,65
	High (4-5 times)	-	-	
	Highest (> 5 times)	-	-	
Total		161	100	
Farming Experience	Lowest (< 9 years)	20	12	
	Low (9-15 years)	24	15	17,72
	High (16-22 years)	77	48	
	Highest (> 22 years)	40	25	
Total		161	100	
Area of Cultivated Land	Very Narrow (< 0,65 ha)	90	56	
	Narrow (0,65 ha – 1,09 ha)	52	32	0,33
	Wide (1,10 ha – 1,54 ha)	11	7	
	Very Wide (> 1,54 ha)	8	5	
Total		161	100	
Cosmopolitan	Very Low (< 3 times/month)	102	63	
	Low (3 – 4 times/month)	51	32	2,33
	High (5-6 times/month)	5	3	
	Very High (> 6 times/month)	3	2	
Total		161	100	

Source: Data Primer, 2019

3.1.1.1. Age

Based on the results of the study (table 1) shows that most farmers are in the range between ages 42-55 years (54 percent) with age of farmers in this study ranged from 28 to 75 years. If seen from the average age of Upsus corn farmers in Insana Sub-district, TTU Regency is 49.77 or 49.77 years. Based on the productivity of farmers' age as in BPS TTU, (2018) that the age of farmers is classified as productive if they are between 15 years to 64 years, the majority of Upsus corn farmers (92.05 percent) are classified as productive age, only 7.95 percent are not productive. Farmers of productive age have the ability to work and to think higher than farmers who are not productive. Younger farmers usually have a high enthusiasm because of their curiosity so they try to adopt innovations more quickly even though they are actually inexperienced (Soekartawi, 2005). However, if seen from the average age of Upsus farmers, corn plants can reach 49.77 years which will enter old age. Older farmers have difficulty accepting and implementing new technology compared to younger ones because they are affected by the old ways so that they are slower in making decisions to accept innovation (Fatchiya, 2010).

3.1.1.2. Formal Education

Based on the results of the study (table 1) shows that most farmers are in the low category (4-7 years) as much as 64 percent, with the education level of farmers in this study ranging from 0 to 16 years. If seen from the average level of education of Upsus corn farmers in Insana Sub-district, TTU District is 6.41 years (SD). This means that the majority of Upsus corn farmers in Insana Sub-district, TTU District in this study are elementary schools. The low level of education at that time was due to several reasons, namely: 1) because of economic needs so many dropped out of school; 2) the absence of educational facilities in the area, especially for junior and senior high school and tertiary education; 3) the distance of the location of the residence is far away and the infrastructure of the highway is not yet adequate so that it causes only up to the elementary school level. It is assumed that the lower the level of education of a person, the lower the insight and knowledge to behave in carrying out the activities of Upsus corn. Therefore, the low education of Upsus corn farmers greatly influences the development

of corn Upsus. The low production of Upsus corn is caused by farmers in planting and maintaining corn not in accordance with existing technical instructions. This condition is supported by Rogers (2003) that education influences farmers' acceptance of innovation. For this reason, Upsus corn farmers in Insana Sub-district, TTU District need to be involved in training / course activities and learning with farmers who are more advanced continuously or routinely because by training / courses and learning with other advanced farmers, knowledge will increase, attitudes and skills of maize growers in developing sustainable maize technology.

3.1.1.3. Non Formal Education

Based on the results of the study (table 1) shows that the most Upsus corn farmers are in the range of <2 times (94 percent) with the level of non-formal education in this study ranging from 0 to 3 times. If seen from the average non-formal education of Upsus corn farmers is 0.65 times. This shows that Upsus corn farmers in relation to non-formal education are classified as very low. The training that followed was in the form of corn cultivation training (making organic fertilizer, controlling pests and diseases) organized by the Agriculture and Food Crops Office at TTU and NTT Provinces, which was only attended by some farmers and sometimes the participants were determined by group administrators and extension workers. Suratiyah (2006) states that low formal education is very important to develop non-formal education such as farmer group courses, counseling, demonstration plots, comparative studies and field meetings will open up farmers 'horizons, increase farmers' skills and experience in managing their farming. For this reason, group administrators, village / sub-district officials and advanced farmers who have received training are expected to be able to pass on the knowledge gained to their members or other farmers so that they can expand and develop from one farmer to another.

3.1.1.4. Farming Experience

Based on the results of the study (table 1) shows that the dominant farmer respondents were in the high category of experience with 16-22 years of 48 percent. The range of experience of farmers in this study ranges from 2-29 years with an average of 17.72 years. This means that corn farmers in Insana Sub-district, TTU District have experience in corn farming. The experience of the farmer can provide knowledge and skills for farmers in making improvements related to corn farming for the better. This is supported by the results of Arimbawa's study (2020) that the factors internal characteristics of farmers such as work experience as one of the factors that can affect one's innovation capacity. Rogers (2003) states that the longer a person's experience of farming, so it will be easier in understanding a technological innovation and tend to be easier to implement it. This is consistent with the results of research Falo, M (2011) found that the more experienced farmers in farming, the more they knew, meticulously, innovatively understood various problems in farming. Likewise, the same study conducted by Oluwasusi, J., and Akanni, Y. (2014) found that farmers in the Ekiti region of Nigeria who had high farming experience had a good influence on utilizing agricultural information on food crops. Based on this case, it can mean that the experience in cultivating corn for a long time must make farmers more informed and more mature in carrying out their farming activities.

3.1.1.5. **The Area of Cultivated Land**

The results of the study (table 1) show that the area of Upsus cultivated by dominant corn planters is in a very narrow category (<0.65 ha) of 56 percent, with an average land area of 0.33 ha which is entirely owned land. The range of land owned by Upsus corn farmers is between 0.2 - 2 ha. This means that the Upsus corn farmers in the study site have a narrow land area (0.2 ha) to a large land area (2 ha). The description of the area of Upsus cultivated by corn farmers shows that in Insana Sub-district, TTU District in terms of the area of cultivated land is very narrow which shows that the farmers are experiencing problems related to Upsus of corn cultivated by the government. This is because farmers have difficulty in working their land that is not having the capital in hiring labor so that the land used in the program referred to be managed according to his ability. The expansion of land is certainly related to the ability of workers to be used or in wages and will also relate to the capital owned by farmers. This is in accordance with Mosher (1987) that farmers feel happier to do business if the land they are cultivating is their own, because it gives a feeling of security and freedom, the farmers can manage it at any time as long as the farmer wants, without having to consider the wishes of others who become landowners.

3.1.1.6. Cosmopolitan Level

Cosmopolitan implies how many farmers come out of their villages or regions to interact with other sources of information in order to obtain information about corn plants. Based on the results of the study (table 1) shows that the cosmopolitan level of Upsus corn farmers in Insana Sub-district, TTU District is mostly in the very low category (<3 times / month) of 63 percent. If seen from the average score of 2.33, it shows that the level of cosmopolitan Upsus of maize farmers in Insana Sub-district, TTU District is very low. Usually, the farmers go out of their area just to wander, visit their relatives or deliver supplies for their children to school. This condition illustrates that the information search activities related to Upsus corn plants are still very low. In addition, the most farmers are always busy with social activities, and even if farmers go out to other areas not to look for information related to corn farming but to meet the needs of other households. This condition makes it difficult for farmers to accept new ideas from outside in the development of corn farming activities in a sustainable manner.

This is according to Arimbawa's research (2020) that if a farmer is more open to the outside world and is willing to accept new ideas in developing vegetable business, the farmer will have more knowledge, and will be a source of information for the needs of other farmers.

3.1.2 The Local Wisdom Model and Its Impact on Changes in Behavior of Upsus Corn Farmers in TTU

The local wisdom of corn farmers in TTU is done as a form of knowledge, belief, understanding or insight as well as traditions or ethics that guide farmers' behavior in life in the Dawan tribal community, to interact with ancestors and nature through rituals that are carried out. All forms of local wisdom are lived, practiced, taught and passed down from generation to generation while forming patterns of human behavior towards fellow humans, ancestors, nature, and God in the corn plant life. The model of the local wisdom on changes in the behavior of Upsus corn farmers in research in Insana Sub-district, TTU District can be interpreted as cultural values carried out in corn farming which are believed to provide growth and protect plants from various disturbances, which include: *Tfon Fani Benas* (Sharpening Matchetes and Axes), *Ta'sine mes ok nin* (Telling The Ancestors), *Ta'poen Fi'ni* (Removing Seeds), *Tsi'po Nopo* (Cooling the Land), *To'en Aut'fini* (Informing the Spirit of Nature), *T'eka Ho'e* (Stemming the flow of water), *Ta'meo lele* (Cleaning Land), *Pen Su'fa* (Corn Flowering Time), *Ta Fe'u* (New Food), *T'sek Pena* (Harvesting Corn), *Ta'kbu Pena* (Tying Corn), *Tsef pena sma'naf* (Opening the Spirit of Corn), *T'hab nin* (Preparing for Storage), *Ta sae be noe Lopo* (Putting into Lopo).

3.1.2.1. *Tfon Fani Benas* (Sharpening Matchetes and Axes)

The local wisdom of corn farming in the activities of *Tfon Fani Benas* (Sharpening Matchetes, Axes, Crowbar) are carried out as an effort to prepare agricultural tools in opening agricultural land, usually carried out in August. The land was reworked after being left for 3-5 years and was considered to be fertile again. *Tfon fani benas* is the activity of sharpening machetes, axes, crowbars, which will be used to cut the scrub bushes, bushes and small trees, dig and turn over the land for the preparation of plantation land. The purpose of this activity is to ask for blessings from the ancestors of agricultural equipment that will be used until the activity of entering the harvest into Lopo. Based on the results of the study, showed that initially each tribe gathered in *Lopo (Lopo Tolas)* to confer together to agree on *Tfon fani benas* activities and their conditions, the agreement was conveyed to *Koko* or *Usif* in accordance with their respective places in order to be able to talk to the ancestors, if it is lacking in the said discussion, then another *Tobe* will be added. As stated by Mr. Yohanes Atok in a joint interview conducted on Friday, January 10, 2020 that:

> "*es esat nok in suku…mi bua mbi Lopo…mi uab ok oke….he lek at a moe le mepo tfon fani benas….oket mi naat ua ben noe Uis Koko es na uab mbi Lopo….oket na am nao moe autfini seperti autuf neonbat ija usfinit inja, autuf oken (maubesi), autuf ainiut…(Desa Manunain A, Nunmaffo, Fatoin, Bitauni), autuf Oinbi (Desa Oinbit) ….tsae on autfini he non sin….baru tbi tok a…esat nbi in autfini at onen…..noe uis fina na at misil fani benas.* (in each tribe gather together in Lopo meeting, agreed to determine the activities of sharpening machetes and axes after that the results of the agreement handed over to the King to pray to the ancestors. After that, we will go to the site to sharpen machetes and axes on the mountain (autfini) where each region has a place for the activities to take place. Then, after the prayer is done, the blessing of agricultural tools will be used in land clearing activities).

In the Upsus program, the majority of maize plants can carry out activities such as *T'fon Fani Benas* (Sharpening Machetes and Axes). As stated by Mr. Fransiskus Lini during an interview on Friday, January 10, 2020 that:

> *"mo et i hai moen maen mok ne…nako un nu….nlekan naen kai….kalo hai ka moe le of hai mi pen menas…..mo et im sa he nait an pao kit mbi le mepo tpaek le hit benas, fani, a pali, a hok in na, an paok kit heta ao min….nbi plente on le pen mol e…hai minaobem sa…..*(This activity has existed since we were born ... was told it was always to be done. If we forget, we will get sick both in plants and ourselves, this activity is also so that the spirits keep us healthy so that we always work using knifes, crowbars, as in the Upsus program of this corn plant, we also do).

This activity is usually carried out by men who are old and decent in the ritual, if they do not have a decent man, can be assisted by his family. Furthermore, according to Mr. Fransiskus Lini in his interview continued that when performing rituals, it should be strengthened by slaughtering a chicken with the meaning that the ancestors strengthen us in using agricultural tools so that we who work with enthusiasm as in the customary speech:

> *"Tait tan le maonbe naof ne tao be noe le mes ok ni na mbi le fat u ta tokob mes ok nina tak kam…au uis kina es i neno i he nao ben oe le lel ni na…a nai ta mfe kau ma koe piut ta es le u ton nan kit es le i he nait u ma oet nen sa benas ma fani le i he na ik mpao mam tiut kau he ma koe piuta. ….tuis on le i eut on le i.* (take two or three quill feathers and store in the place provided for the ancestors and say today I will go to the land tiller, give me the will to work diligently using this machete and ax when I use it always sharp and keep me diligent ... this is my delivery, thank you).

This activity is believed to bring enthusiasm to work because the tools used are strong, sharp, and last until the end of the land till harvest. If this activity is not carried out, it will cause various kinds of difficulties in land management activities such as accidents, illness, and laziness in working, and others.

3.1.2.2. *Ta'sine mes ok nin* (Telling The Ancestors)

The local wisdom corn farming in *Ta'sine mes ok nin* (Tell ancestors) is an activity as a form of respect for ancestors who are still attached to everyday life in Insana Sub-district of TTU. Purbadi (2010) stated that the wisdom of respect for ancestors is an important character for the community, especially farmers in TTU and Harmawati, Abdulkarim, (2016) stated that the local wisdom is related to the formation of human character (Insana's people). This type of activity is believed and carried out to request the blessing of the ancestors so that the corn farming activities carried out can run smoothly, kept away from various obstacles. The purpose of this activity is to invoke the blessing of the ancestors, so that every step taken in the corn farming is always accompanied and kept away from various obstacles. If this activity is not carried out, it will cause difficulties in the activities of corn plants that will be cultivated such as accidents, and so on. In the Upsus program, the majority of corn plants can do *Ta'sine mes ok nin* (Tell ancestors). As stated by Mr. Martinus Afoan during an interview on Saturday, October 5, 2019 that:

> "*hai am naes tini na to nan naen kai….he nai kam tan hai….kait mi pen menas… ai mep be ka nao fa…i hai moe he nait haim nek mes mok hai am naes ti ni nai ka na fe ten kai mes hai mok sin mbi le me po kait lel pen a.* (Our ancestors have told us not to forget what has been maintained, if we will not get accidents / illness, if it does not work, it will not go well. This is done so that we unite with the ancestors, so as not to release us but always with us in work in each of these corn crop businesses).

Next will be disclosed *Ta'sine mes ok nin* (Tell the ancestors) to always follow in the release of seeds as can be conveyed as follows:

> "*….au usi sin… i he meup lel na, nait mpao kai na ko a nao lal ne, ai a sae haub. Alaha a meup leok leko nait okem haim se ne nmoen nek alekot nte namunit te hai mi pen haes le na lekom sa…uabe ona lei tu a le'I .* (Ancestors, now I want to work in the garden. Accompany us and take good care of natural disturbances, whether walking or from a tree. When we use it (planting) it can flourish and will be able to obtain abundant harvests later ... thus my expression like this).

It is believed that the activity in cultivating land to grow corn is not done alone but with ancestors. Thus, every knowledge and attitude of farmers in farming is believed that there is strength and protection because it is blessed and shared in working and guarded by ancestors from various obstacles in corn farming.

3.1.2.3. *Ta'poen Fi'ni* (Removing Seeds)

Local wisdom of corn business in *Ta'poen Fi'ni* (Removing Seeds) activities is an activity that is usually done when removing seeds from the granary (*lopo*). The purpose of this activity is carried out as a form of respect for the ancestors who have taken care of the seeds stored in the granary in daily life in every farm household in Insana Sub-district, TTU, where the *Ta'poen Fi'ni* (Removing Seed) activities are only carried out by the mothers in each house, while the traditional speech is carried out by the head of the household or the elder in the family and after the activity is mentioned, the seeds can be removed**.** According to Mr. Lasarus L. Usfomeni in an interview conducted on Saturday 12 October 2019 said that:

> " *Fi'ni le haim tao be mbi lopo nmui in a paot….ta poen ne ma ka ta ton of in na fe ten fi'ni nan tsen nem sa at kaun e na le on…ai an mo nem sa at nap eh nain…..* (The seeds that we keep in Lopo, there are those who guard. If when we are removing without asking permission, so the seeds which we plant, it will be damaged by the pests, grows unenthusiastic or infertile).

The same thing was said by Mama Vebronia S. Usfunan in her interview on Saturday, October 19, 2019 that:

> "*Tapoen fi'ni hai bi'fe es mi poen. Nat tuin hai es mi hin nam mbi uim le nane. Okem msa natuin le ta saebe neo lopo nfe kai uab noes man fi'ni he nok kai mbi le ne'no-ne'no at ulus mna'hat uim le nan",..* (removing the seeds is just us, mothers because we know the management and storage time have been given the role of the ancestors, so that the management of food needs in the household is met).

In connection with the Upsus corn business, farmers at the research location did not carry out the same activity at the same time as the tradition was carried out, because the seeds were distributed late, so they did not follow the tradition in the Ta'poen Fi'ni (Removing Seed). This is according to Mr. Lauren Nese Uskono in an interview conducted on Friday, January 10, 2020 that:

> "*le poen fi'ni i ja in lo he ta sin e noe a hoen ti'ni ok oke mbi le'uab be he'nao la'lan mese….nok pen meot'a…..he'na na'leok….natuin li'so haim sen mi lael pen meot'a kat tfaen koet fa len…*(the tradition of removing seeds must be the same when releasing local corn seeds, running together when the customary speech is done so that it is good going forward because if we have planted local maize it means that the tradition has been skipped and we don't come back anymore)

The tradition of *Ta'poen Fi'ni* (Removing Seeds) carried out in accordance with the habits of the Insana Dawan tribe may be expressed as follows:

"Au uis kin na ma tua kin ni, *neno i je he u poen pen fini noe moen e nait am mpao kai he kaun'na huma huma he kais' sa na le'on he nat no'net nas'be he'nait fe kai pu nem sa a naek…au uabe ona le i…nheo ba ha le i…* (Ancestors ... today I want to give out seeds. Take care of us so that the seeds we will plant do not have pests but the leaves become thick ... strong stems ... puler is also good and big ... so I say).

In the activities of *Ta'poen Fi'ni* (Removing Seeds) it means that the corn seeds that will be used in planting on the land are sanctioned by the ancestors. Thus, the seeds which are planted will flourish because they are guarded and later will bring good results. Motivation that arises is a strong spirit of confidence because it is not alone but with the ancestors in the venture.

3.1.2.4. *Tsi'po Nopo* (Cooling the Land)

Local wisdom in the *T'sipo Nopo* corn plant business is a ceremony to cool the land and cool all equipment used when processing and burning land (Foni, 2002). Rituals or ceremonies are also performed on land that has been prepared in advance attended by garden workers and their families. The main prayer is to request smoothness and success in further activities. After the ritual of *Tsi'po Nopo*, the garden workers made a carefully determined fence and terrace *(ba'han nok a'bata)* so as not to obstruct the route taken by natural spirits *(Pah Tuaf)*. If something goes wrong, disasters can occur, for example the harvest will fail. The construction of fences and terraces must be strong so that the pets cannot pass and are damaged by the water flow.

The activities after the *Tsifo Nopo* ritual continues, especially the construction of strong fences and terraces (made of wood or stone) so that the working area or garden that is tilled will not be disturbed by animals. The activities stop when natural cues (takaf) appear in the form of rumbling sounds (*kelo* or *ken neno*) and rain bird chirping (kol ulan) as a sign of the rainy season has arrived (Foni, 2002). Another sign is usually also from the presence of fireflies (*ma'lafu)* that accompany the coming of dusk. When the signal appeared, the gardeners hurried to finish their garden fence.The results showed that this activity was conveyed by the Tobe or tribal chief to the ancestors. In the belief of Dawan people in Insana, it is necessary to carry out a tradition of cooling the land so that the planted land is not hot, but cold which results in the seeds being planted, growing well and fertile. This was stated by Mr. Agustinus Be Ase in his interview conducted on Saturday, November 9, 2019 which stated that:

"*ija tmeop tok fun man se nmaput…tpoe mat meot ta eok tok ni ja'ne tuan….on le bes nem sa'at ma put'tun ni ja'ne nma'put, on le'i het hai'nik je he na at sen'nat nija'ne kaisa nma'lal mes a'la ha mai'nik na'ma oe' te'ne*"… (We work the land preparation in the summer ... when the work meets the landlord, the tools used are also hot so we have to cool through the tradition of cooling the land so the land is not hot but cool).

s generally carried out because the activity is in conjunction with local maize, because this activity is usually carried out after all the land in maize planting is completely planted. The expression *Tsi'po no'po* tradition (cooling the land) can be done as follows:

" Au uis kin ni ma tua kin es nbi le'ku ma tabu i hai etun kit ma hem ntoet kit hen nait mfe kai halinat tek kem mpao le mepo i he nait ta mnah te nai kai nma pa put a ala ha mai nik na ma oe tene…" (the ancestors, in the current time and place we are telling and asking that we give grace to keep food sources from getting hot, but only grace of coolness so that these plants can flourish ....So my expression and thank you).

Picture 1. The tradition of farming before the tradition of *Tsi'po no'po* (cool the land)

T*si'po no'po* (cooling the land) activities can be carried out and it is believed that the planted land will provide freshness of life that will give rise to a source of life for plants in the form of resistance to natural, fertile shocks, and ultimately bring good results.

3.1.2.5. *To'en Aut Fi'ni* (Informing the Spirit of Nature)

The local wisdom of the corn plant business in the *To'en Aut Fi'ni* (Telling the Spirit of Nature) activity is to inform the natural spirits because it is believed that every land to be cultivated has been prepared by its possession that belongs to several spirits and is integrated into the natural spirits in each tribe. Likewise, it was also experienced in the research location that in the corn crop business the *To'en Aut Fi'ni* (Informing the Spirit of Nature) activity which have the power to protect nature from other enemy interference. This was stated by Mr. Paulus Sau Uskono in his interview conducted on Friday, January 10, 2020 which said that:

"*ija tmeop tok ni ja'ne tuan….es-es sam mbi baeles nok in tuan ne…. mbi insanam sa on ne… mbi hai of mi sin na sin he nahinan kalo ka mi sinne sin of na le un hai sen ti ni…..es on le kau leu, ai a kelo, bijae, ai aenne… ai no be sat pen a nas kek nmuen kan sae fa…* (we work with landlords ... every area has landlords as well as in Insana and in every effort we can tell the corn plant natural spirits, because if not told it will damage plants like snakes, grasshoppers, strong winds, cow pests, or sometimes corn is infertile).

Picture 2. Interview with one of the traditional leaders in Unab-Insana Village TTU

Based on the results of the research, it shows that the *To'en Aut Fi'ni* (Informing the Spirit of Nature) activity in the Upsus corn program is generally carried out because these activities are in conjunction with local maize, because these activities are usually carried out after all the land in maize planting has been planted. The activity of inviting natural spirits was conveyed by the head of the tribe *(Tobe)* who invited all of his natural spirits along with their ancestors with the expression of the tradition of *To'en Aut Fi'ni* (Notifying the Spirit of Nature) as follows:

> *"He ta teb noe uis fi na es le pa ha autuf fauk on le hi tab naitim mbi pa ha us ne of to en sin … au uis ina hi mim tisim mim no hai moen ki he mim ketem mim noe hai he miop le le ijaben a hai mi sina ki leok leok ma mitonan ki leok leok hem pao kai nok le a sae hau ma a nao nai jan mpao kai leok leok he kai na la le un masi ul ne ha muit kai bo nai ka in ba ne kono in no nem sat na leok…"* (when we want to tell the natural spirits in several places, when in the delivery we call the natural spirits according to their names and say ... I have all of your ancestors who are with us calling to sit together that we have tried corn plants ... we ask permission in order to keep us from disturbing those who walk or who climb our trees take good care, so as not to damage the plants, even if prolonged rain or prolonged heat, do not let the roots of the plants washed away but the plants remain fertile, ... so I say and thank you)

The confidence of the Dawan in TTU and Insana in particular that each region has a landlord in the form of autfini (natural spirits) who need to be notified at the same time requesting permission so that they take care of the developed farming and keep the plants away from snake disturbance, grasshoppers, strong winds, cow pests, or sometimes infertile corn, and others. Thus, the plants will be protected and free from such disturbances and the seeds planted will grow well and flourish until the harvest is safe.

3.1.2.6. *T'eka Ho'e* (Stemming the Flow of Water)

The local wisdom of the corn plant business in the ritual *T'eka Ho'e* (Stemming the flow of Water) is done at the beginning of the rainy season. This activity is intended to request the safety of the garden from rain disasters (floods, erosion, and loss of soil fertility), so that plants thrive and harvest is successful (Foni, 2002). In addition, this ceremony also requested that plants be kept away from all pests (cocoons, grasshoppers, birds, mice, monkeys, pigs, goats) and other pests. This ceremony is usually performed during the peak of the rainy season which lasts for one week. Tobe or the elder conducts rituals in the space provided and begs the ancestors for the harvest to produce abundant yields. This ceremony is usually held in various places that are considered vulnerable, for example, at the confluence of rivers and other places that are considered vulnerable.

Based on the results of the study, it shows that the tradition of *t'eka ho'e* is carried out by the chieftain (tobe) at the place of natural spirits and each tribal chief is present. This was conveyed in an interview with Mr. Fransiskus Leu Naisau conducted on Saturday 12 October 2019 which said that:

> "*Mo'et T'eka Ho'e hai moe le es le olas at sen ta lael…….he tatonan a hoen tini hen mpao kit nok le oele sain ne ai mnao hae ai a sae hab he nai ka na leon hit sen ti'ni he sen na nae alekot ….he nait nmoen, nmoen mas pet,"* (our *t'eka ho'e* tradition is done after planting, to tell the ancestors, natural spirits to keep the flow of water not too much but according to the ability of plants and to store topsoil for plants so that plants thrive and give much yield).

The tradition of *t'eka ho'e* in the Upsus corn crop activities 91 percent did not do because it was late in planting due to seeds coming late. And 9 percent carry out this tradition because they buy their own seeds from seed seller shops in the district capital. As for the traditions carried out by filling the food places provided with sago and traditional speeches such as:

> "*au uis ini es i…i hem sen milail na ben nait tam pao kai he nait sen te es le i na pen nem mnahat. mpao be na ko oe anaot, asaet he nait an moen leok leok….naika nmui mleot he tau net nah hel…no net na mep…moen mas pet…….au uabe ona le'i….ntu'a le'i* (My natural spirit ... We have planted hope to keep this plant in order to get food from the topsoil available through this water stream so that the plant is strong, dense leaves.... And can grow well ... and later get good results. So my delivery ... thank you)

Maize farming activities in the tradition of *T'eka ho'e* can be carried out and it is believed that the planted land is protected by the natural spirits in the form of soil humus and the plants will be protected from natural

disturbances such as pests (cocoons, grasshoppers, birds, rats, monkeys, pigs, pigs , goat) and other pests. Thus, the plants will flourish and ultimately bring good results.

3.1.2.7. *Ta'meo le'le* (Cleaning the Land)

Maize farming activities in the *Ta'meo le'le* ritual or cleaning the land are carried out a few weeks after planting the seeds are completed, especially when grass and weeds begin to grow on the land. The *Ta'meo Le'le* ritual is always accompanied by the song tofa grass (muistatili), in each song verse begins with a shout "nel" by the farmer who is the elder as the trigger of the poem and then is welcomed by other workers (Foni, 2002). The poems they sang were related to the theme of cleaning grass and weeds, as well as being uplifting. The working atmosphere of the garden becomes very crowded, intimate and vibrant.

The results showed that the grass and weed work was usually done individually or in groups because Timorese liked to work together. If the work is carried out involving many people, then the *Ta'meo Le'le* ritual is carried out at the ritual site like the pattern of the previous ceremony. The difference is at the core of prayer, which is prayer of hope to be kept away from various disasters that inhibit plant growth. This activity is conveyed by each head of household and if he is not married or young he can be carried out by his oldest or existing traditional elder brother. This was conveyed in an interview with Mr. Fransiskus Lini conducted on Friday, January 10, 2020 which said that:

"*Mepo ta meo lele…….haim onen he a hoin tini hem mpao kai he mi meo le le nmoikai meop lab lab, oket le sen tem sa'at nmapet…..,"* (tradition of *ta' meo lele that* we do and pray to our ancestors to take care of us while clearing the land of weeds, we also work spirit so that plants thrive).

Picture 3. Interview with one of the Indigenous Leaders in Insana-TTU

The *Ta'meo le'le* tradition in the Upsus corn activity as a whole (100 percent) performs the ritual activities referred to, but the activity of clearing the land would require group cooperation, so completing it appropriately for the growth of the corn plant. The form of communication in the *Ta'meo le'le* ritual tradition is as follows:

> "*au uis ini es i…i hai he mi meo lel ja ben…mpao ma mtiutkai nako mepo i he nait a nao lab-lab…ta aibab kai nako anao lalan…he kais a na au nu kai..mfe kai ao ma nafat…nim a helat he nait mepo i nma luil he na hit usi mnah te….nmoen a lekkot…natuin hit nek salit…..moen mas pet……..au uabe ona le'i….ntu'a le'i* (my ancestors ... now we want to clear the land, keep us well so that the work will run smoothly ... keep us away from the walking (snake, scorpion) so as not to disturb us ... give us a light body ... strong hands so that this work is easily completed so that this plant grows well according to our desires .... It will get good results ... so my delivery ... thank you)

In ers at the study site are not done just like that but are accompanied by rituals to be facilitated, avoided, and always eager to work.

3.1.2.8. *Pen Su'fa* (Corn Flowering Time)

Maize farming activities in the *Pen Su'fa* ritual or when corn is flowering is a happy ritual, because the villagers will taste the fruits of their gardens and their efforts for months before (Foni, 2002). The *Pen Su'fa* ritual is very special because it is an event to ask permission from the universe and ancestors to reap and enjoy the harvest in the garden. The yields are usually short-lived maize *(pen saijan)*, cucumbers, barley and other plants. Pen Su'fa ritual means to arrange to be able to eat new food *(tah fe'o)* and other products grown in the garden. This means that the *Pen Su'fa* ritual is an initial ritual of picking produce from the garden, because if this ritual has not been implemented, then a ban on enjoying the results of the garden will apply. If the prohibition is violated, then disaster will come to be a disaster. *Pen Su'fa* ritual activities were initially carried out at the traditional tribal houses of the big tribes *(son'fa)* and the prayers were carried out by the traditional chiefs, then afterwards the traditional houses of each of the small tribes were carried out by the head of his tribe.

The results showed that in the Upsus activities of corn plants in general (100 percent) carried out the activity because it was realized that there would be illnesses that would be experienced if the rituals were not done first. As stated by Mr. Martinus Afoan in an interview with him on Saturday 5 October 2019 as follows:

"*haim mbi i…..na ko un unu he mait mnahat fe'u nako le'le….hai fe am onen man noe hai autfini nok ahoin tini he nait an mpao kai le oras mheut utan ka….ai li an ina nekon okam ka…ai olabe, ai henkon pen tunu….he kaisa nabok kan kai..es le ta'men…..ai le am leut bian…(* We were here a long time ago if we wanted to take new food from the garden ... we had to tell the spirit of nature and our ancestors to take care of us and not disturb us like sickness or other disturbances).

Picture 3. *Pen Su'fa* ritual or corn time to flower

The form of communication in the *Pen Su'fa* ritual tradition is as follows

"*Toe noe ba aut fi nan o'ke in tuan….ta nakab noe uis fin na hem heut utan ai het seo okam… ai le pen ana….hoe bae i him mim tisim mim no i je hai moe le pen sufa ihe nait haim nao moe le le hem heout le utan kais sa mi b abo kan kai….au eut se ntu'ala lei ……* (Ancestors ... now we will pick young vegetables .... cucumbers ... and young corn in the garden ... we will go to the garden ... when we want to take new food in the garden, do not reprimand us ... ... so I say ... thank you).

After this activity, everyone in each tribe in Insana is allowed to pick vegetables, take young corn, or take cucumbers to eat with the children, or kusambi fruit. It is believed that the results taken will not cause pain or other disorder.

3.1.2.9. *Ta Fe'u/U'sa* (New Food)

In the Upsus corn activity, the ritual activities are generally carried out by Upsus participating farmers. Maize farming activities in the ritual of *Ta fe'u* or eating new corn food, were initially carried out by means of some corn stems and pulernya cut and brought to the synagogue (church) to be offered to God as an expression of gratitude because God has given blessings in the form of plant products corn is achieved and protected from various disturbances. After the activity is completed, in the following weeks the *Ta fe'u* will be held at each traditional house, the time of which will be mutually agreed upon in each tribe in Insana. Activities in the form of prayer will be delivered by the tribal chief to inform the ancestors that the corn plants that have been done may be consumed by everyone in the tribe, because previously it was only consumed by children. This is consistent with what was said by Mr. Paulus Sau Uskono in an interview with him on Friday, January 10, 2020 that:

" *au uis ina…..au nitu leu au usi naesin na hai mi ton nan kit nneno i hit taufin nteaben he nait mnaom esam nfe kai bi moen ina kais am nmui tone ala mainik na ma oe tene…au uabe on le i heu ba ha lei.* (Our ancestors .... we told that we have already harvested corn .... keep us so that in our journey of life there are those who give, and want to eat, no problems but there are only abundant blessings. Thus, our conveying ... thank you).

Picture 4. *Ta fe'u* Ritual or Eat New Corn Food

With the expression of prayer delivered as follows:

" Ije tmoen hit Uis e esat nmoe kit es le pena i. Onan hit fe ta tame noe uis neno mbi klei'je…na neon klei'je sat ta bua he ta tam noe uim faon i'na…..ta tet ini noe le nija…oket na tek ja noe autfini…(We live because God created us ... including the results of this corn. Therefore, we have to offer it to God ... after that, one week later we enter the traditional house of each to be offered to our ancestors ... and finally to the spirit of nature).

Maize farming activities in the *Ta fe'u* ritual are carried out as an expression of gratitude offered to God, ancestors and natural spirits, that the corn plants cultivated so far have been blessed and produced. This form of gratitude is manifested in joint prayer in different times and places. However, each of these expressions of gratitude, after the completion of the prayer, will only be cooked together by mothers in their respective tribes, for further consumption together. The results obtained from this activity are that there is togetherness, and harmony of relationships formed in each character of the Dawan.

3.1.2.10. *T'sek Pena* (Harvesting Corn)

Maize farming activities in the *T'sek Pena* ritual are carried out after the corn has been planted, showing signs of being harvested, such as leaves, puler yellowing. The *T'sek Pena* (corn harvest) ritual is related to corn harvesting activities and is somewhat different from other rituals (Foni, 2002). Corn for Timorese is rather special, especially in Insana. The joint prayer is held in a designated place, then the harvest of corn around the place is carried out. After completing the ritual, then, the workers harvest in their respective gardens.

This activity is carried out and each farmer from each family brings a chicken to the cottage in the garden. After arriving at the cottage garden cleaned then the chicken that was brought was used to inform the ancestors and took one puler corn with the stalk (this activity was carried out in the garden) and prayed:

> "*Au usi sin au aumen otonan ko he natan mpao he naiti t'abut hit fuak nutu…he kai sa he kau na an sau kit…mes nameo kaisa npun…* (Ancestors .... I came to tell us to collect this corn, take care of us so that no snakes bite, corn puler still good, don't damage)

after that hatching a chicken, the women went out to harvest and were piled in a pile then took a stone plate and covered *(ta'beka)* a palm leaf, after which the mothers cleaned and sorted it according to the size of the puler. Towards night, put in a hut which is stored in seven corn stalks that have been stored on a pole *(ni'ainfa)* after being saved can be given strength *(nas man'e)* with a darling with a white chicken for God.... Red chicken for the ancestors of men and women in the form of prayer:

> *"au uis i na…au neno i u to nan kit au he sek jen nait mpao kau he naikam mui abokan au he u loetan hit tam mnahat mpanat kai he a sek nok alekot, au uabe nheo ba ha le'i"* (the ancestors, today I will harvest corn, take care of us so that there are no obstacles, I will take care of the results of this corn protect us so that we harvest well, so my delivery).

T'sek Pena (harvesting corn) is done in a cheerful atmosphere, beginning with taking some corn stalks with the ears, then tied to a pole in the middle of the corn hut, and accompanied by traditional prayers. The process of harvesting corn starts from the "foot of the garden" *(lele haen)* gradually to the "head of the garden" *(lele nakan)*. This process is exactly the same as when planting the seeds, because there is a belief that the magical power of each garden is on the head of the garden *(lele nakan)*.

The Upsus corn activities based on local wisdom in the *t'sek pena* (chopping corn) ritual at the study site as a whole did not carry out the activity and the reason for harvesting Upsus corn was carried out before the harvest season, mostly consumed when the local corn was flowering, the harvest was still there cleaned and dried. On the other hand, in post-harvest treatment farmers have not understood yet in detail the management of post-harvest so that sometimes the farmers have difficulty resulting in rotten corn due to pests. For this reason, it is hoped that there will be ongoing training related to postharvest management to farmers, so farmers will not suffer losses.

3.1.2.11. *Ta'kbu Pena* (Tying Corn)

The local wisdom of corn plant business in the ritual activities of *Ta'kbu Pena* (tying corn) is a series of rituals of *T'sek Pena* (corn harvest). After the corn is harvested, the corns are placed in a place that has been provided in the hut (corn altar), then the activities are done to tie the corn *(ta'kbu pena)*. The *Tak'bu Pena* ritual starts with a traditional prayer at the corn altar. Corn tying activities will take place all night interspersed with drinking coffee, betel nut, and fried corn treats. The workers usually sing the song binding the corn (na kobe), which honors the kings *(usif)*, namely Uis Usfinit and Uis taolin according to their region believed to be the founder of the kingdom of Insana. The ritual in this activity is in the form of:

"*I au he hab nin..mpao be leok leok he kaisa mes okan na ko le me…. Nemat kaisa nhel la…ala ha na ba ba laha ta la hai mi sop le kbu pen na i…* (ancestors ... it's time we will take care of this crops, take good care of this crop so that the ancestors from anywhere do not eliminate the existing crops but always remain until the corn binding activity is finished .... Thank you)

Picture 5. *Ta'kbu Pena* Ritual (tying corn)

The core of this activity is binding puler corn then collected which will be brought to the house to be stored in Lopo. At the end of the activity, the yields are calculated with *aisaf* size (1 *aisaf* = 6 corn puler), or *anit* (1 *anit* = 4 corn *aisaf*), *ta'hela* or *ta'koso* (1 *ta'hela* = 8 *aisaf*), and count *bakase* (1 *bakase* = 30 *aisaf*). Abundant yields add to the fragrance of farmers and producing villages. In the corn crop Upsus, this activity is not carried out because the Upsus corn program is harvested by not doing *ta'kbu pena* activities, but rather the activity of cleaning the corn husk from the puler then drying it. This activity resulted in the yield of the crop being able to survive because when compared to the previous year the farmers did not really know which resulted in the harvest

of corn being attacked by pests (rotten). Therefore, communication in postharvest management needs to be followed up with trainings that are assisted with supporting facilities such as drums for storing corn products.

3.1.2.12. *Tsef pena sma'naf* (Opening the Spirit of Corn)

The local wisdom of the corn plant business in the *tsef pena sma'naf* (opening the spirit of corn) ritual is done after tying the corn and going back to the house to live in the village. This activity is related to cleaning the garden from the pile of corn husk around the binding place of corn *(ta'kbu pena)* as a place to dwell on the spirit of food (Foni, 2002). This activity is carried out in two forms of delivery namely 1) for the ancestors with prayer:

"au uis ina….tpoe het naot faen jen toe kua ne mpao mam mtiut kai mbi lal ne he leok leok tala ha te kuan mbi hit uem le es nai
(ancestors ... now we are going back to the village, we are out for the road already ... keep us on the way always well until we arrive safely)

Picture 6. *Tsef Pena Sma'naf* Ritual (Opening the Spirit of Corn)

2) for the spirit of nature with the form of prayer:

"*au uis paha es i…hai hem mpoe jen moe uim le es kua ne nan au mat kais sa maem kau nte ton naen na ta ekot ten* (the spirits of nature .... We want to return to the village, if you come don't look for us and in the coming year or season we will meet again).

Usually, even though the process of carrying corn varies among farmers, they place an aisaf (one bunch) of corn tied to the main pillar of the farmers' hut in their garden as a sign of waiting for the *tsef pen sma'naf* ritual to be held together. Ritual tsef pena sma'naf is essentially a ritual that invites the spirit of corn in the garden to return to the village. The ritual prayer of *Tsef Pena Sma'naf* is performed by Tobe, Atone Amaz, or an elder person in the space provided, essentially to thank ancestors for the harvest that has been obtained, as well as the invitation of the spirit of corn to return to the village and reside in the family home in the Insana's family.

3.1.2.13. *Thab nin* (Preparing for Storage)

The local wisdom of the corn plant business in the ritual of *thab nin* (preparing for storage) is carried out after arriving at home. The harvests that are brought are not directly input into the top of Lopo but are stored first under Lopo. Furthermore, it will use a type of conditioning wood leaves *(hau manikin)* mixed with salt water to bless the harvested corn that was kept in Lopo. After the harvest of corn arrives in the village (the residential complex of villagers), the corn is tidied up and arranged in a round house *(umebubu)* (Foni, 2002; Purbadi, 2010). Furthermore, the ritual can be carried out:

"*au uis ina…. mau tut ek hit pen fuak nute nte hit balem mhit ta tokon… Kaisa ma mui a he lat kain mui a pit a la ha na baba laha…au uabe onale i,* (We have brought the results of corn and have arrived at this place, take care of these results so that no one takes, but always remain and good ... so our delivery).

C

Picture 7. *Thab nin* (Preparing for Storage) is done after arriving home

Corns in neat ties are placed under the Lopo as a preparation to be put on top of the Lopo house, the composition will be made beautifully so as to create the ceiling form of the Lopo house. Corns prepared in the Lopo house will be preserved naturally by hot temperatures every day. The corns that are used as seeds are placed right above in the Lopo to remain durable, because it receives the sun's heat. The consumed corns are taken from the edge of the corn circle and moves to the center in a circle. *Thab nin* ritual is a ritual in the Lopo house, essentially saying thank God and ancestral spirits who have provided abundant harvests, also beg for protection so that the corns that have been stored in a round house are free from rodent pests or powder (fufuk), or others.

3.1.2.14. *Ta sae be Noe Lopo* (Putting into Lopo)

The *Ta Sae be noe Lopo* ritual is carried out after all the series of harvesting of agricultural products (especially corn) have been completed and have arrived in Lopo. Literally, the *Ta sae be noe Lopo* ritual means giving rights to mothers in the household to arrange and manage food for household consumption needs. This ritual aims to invite and entertain food spirits, so that they stay in the family home until the next planting season,

the family of the owner of the harvest is kept away from wasteful attitudes and upholds the frugal nature of using the harvest, so that the food supply is sufficient until the next planting season. In the form of the following prayer:

"Au Uis in na….mnahte hai misae be ben es hit uim la ma hit baele else i, mpao mam mtiut kai nok le am mnahat i he nait kaisa nam leo, kaisa na fufu, oket nokai ntea ton am nem te. Au uabe nheo ba ha lea i….. (Our ancestors .... we have saved this harvest here, keep this food so that it is not damaged and is always available until the following year. Thus, our request.

Picture 8. Corn Yields are stored in Lopo

Ta Sae be noe Lopo ritual is filled with eating together where food is mixed with a certain order, then circulated to all participants of the ritual to be eaten together. The meal was begun with a prayer led by the oldest residents. This ritual in the Upsus of corn plants cannot be carried out because the yields of harvesting activities are generally not carried out by corn binding but are dried in the sun.

Based on the ritual cycle of corn farming in the Insana research area in TTU, it can be concluded that communication in Insana is illustrated as going to be effective if it recognizes several principles of respect that emerge from the close relationship of the five parts or five elements: government, humans, nature, ancestors, and God. The harmony of the communication system relations is derived from the chart of "five determinants", namely: (1) government relations with humans, (2) human relations (atoni) with ancestors, (3) human relations with nature, (4) relations between humans (fellow brother, fellow atoni), and (5) atoni's relationship with God.

Relationships with the government in TTU District as a principle of respect for regional leaders who provide protection and security, justice, and convenience in life in the Insana region. The principle of government that manages the elements that exist in its territory, by having the same relationship meaning together with the target (society / human).

The relationships with predecessors / ancestors in TTU, there are two principles of respect related to ancestors. *First*, the principle of respect for origins. TTU residents, especially Insana, respect the hill *(Bnoko)* as a sacred hill, where the first generation of Insana people lived in the past. At the top of the hill there is the king's tomb *(Usi Usfinit, Usi Taolin)*. Local wisdom "respect for ancestors" becomes an important character for TTU people, parallel with the findings (Harmawati, Abdulkarim, 2016), local wisdom is related to the formation of human character (TTU people). *Second*, the principle of respect for the hill *(Bnoko)* is actually the same essence as respect for the sacred stone *(fatukana, faotkana)* of the Insana tribe, because the hill in Insana is the sacred stone of the Insana tribe (the tribe of founders and village leaders). Every tribe in Timor, especially in Insana, always has three sacred elements, namely the sacred stone *(faotkana)*, the holy spring *(oekana)* and the traditional house *(umekana)* which is always involved. Respect for sacred elements in the form of natural elements becomes local wisdom that preserves the environment, including among others related to forest preservation (Tamalene et al., 2014), environmental preservation (Thamrin 2013), (Wibowo, Wasino, and Setyowati, 2012), and preservation of water resources (Sumarmi 2015), (Aulia and Dharmawan 2010). There is also local wisdom associated with environmental management (2015 Expertise), (Siswanto 2009).

Human relations with nature are important for TTU people in general and Insana in particular. There are three important principles in human relations with nature. *First*, the principle of respect for agricultural land, is found in traditional ceremonies in agricultural cycles, which amount to 14 rites, from the preparation of seedlings to harvesting and thanking the "food gods" as blessing giver. The farming system in Insana Sub-district is "permanent land" within customary / tribal land, and the land that is bought by yourself. In reality there are no clear land lots, but customary land in Insana has been divided according to ethnicity by tribal chiefs in the past. The plots of tribal and family gardens are characterized by natural elements, such as large rocks or long life trees, or others. Every plot of land has a name (Purbadi 2010). Local wisdom related to the relationship with nature is in line with the findings of using local wisdom for forest preservation (Tamalene, et al. 2014), environmental preservation (Thamrin 2013), (Wibowo, Wasino, and Setyowati 2012), water resources conservation (Sumarmi 2015), (Aulia and Dharmawan 2010), and environmental management (Dahliani 2015), (Siswanto 2009). *Second*, the principle of respect for plants, especially corn (the main food of Insana residents). Corn for TTU and Insana people in particular is a "sacred plant" and gets special treatment. The agricultural cycle with rituals is treated for the process of planting corn, ranging from the "*tfon fani benas* ritual" to the "*ta sae be noe lopo* ritual (inserting corn yields into the Lopo granary". *Third*, the principle of respect for the unity of agricultural land with residential complexes is also realized through the existence of Customary rituals The behavior of individuals in the cycle of corn farming activities in Insana is comprehensive, starting from "kuan" (human habitation), moving to agricultural land around "kuan" (called: lele, garden). Spatial movements in the process of farming, ritual and technical agriculture, are movement from kuan to lele and vice versa. Thus, the unity of "kuan and lele" become

the core of the life of Insana people based on wisdom in Insana, meaning that farmland (lele) is technically and ritually integrated with the location of the garden.

Relations between humans, brothers and sisters (atoni) become important life joints in TTU. There are two important principles related to human relations. *First*, the principle of respect for the older generation. Respect for the older generation shapes character, which is really the application of local wisdom in human character education (Fajarini 2014). TTU people always think and acknowledge that older people are early generations in TTU and Insana in particular. *Second*, the principle of respect between tribes is realized by the existence of the lopo and the traditional house of each tribe. Traditional house is a place to meet, negotiate, make decisions. Uniquely, "traditional democracy" exists in Insana by means of gradual meetings, from the traditional houses of the male and female tribes, after which they are brought to the Usfinit traditional house, and the Taolin tribe as customary gathering points. In the process of real life, respect between tribes is manifested and becomes part of the lives of all Insana residents. This principle fits the findings of the application of local wisdom in human character education (Fajarini, 2014) and multi-cultural education (Amirin, 2012).

Human relations (atoni) with God perfect other relationships and are very important in the life of the people at TTU. The main principle of human relations with God is the principle of respect, gratitude for His creation where after the ritual they always pray to God.

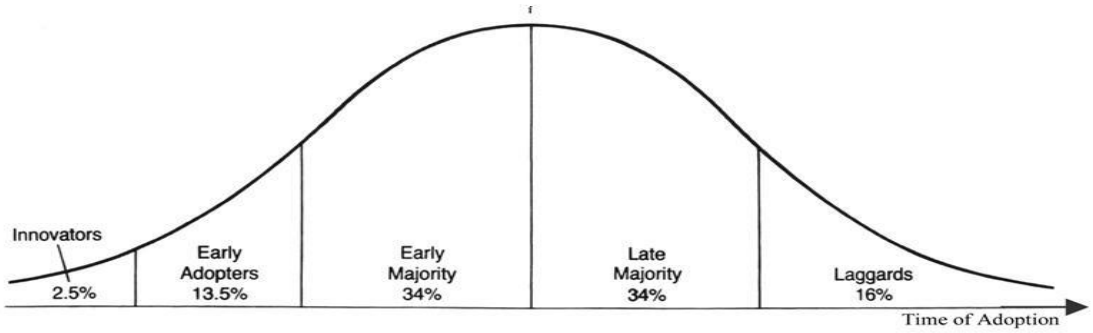
3.1.3 Level of Adoption of Upsus Maize Innovation by Farmers based on Local Wisdom in Insana Sub-district, TTU District and Adopter Grouping

The speed of the individual in adopting or the level of individual innovation is the speed of acceptance of a new innovation. Adoption of new technology does not occur simultaneously, because a person can receive faster or slower than someone else. The speed is measured by the amount of acceptance that adopts a new idea in a certain period (Leeuwis 2009). Based on the time in adopting innovation, (Rogers, 2003) states that the process of adoption of innovation is changing in every country, especially developing countries like Indonesia. The distribution of technology and information related to agriculture in Rogers' mindset is considered to be the same in each region, whereas in every farmer in different regions there has been progress and / or lagging in adopting a different innovation.

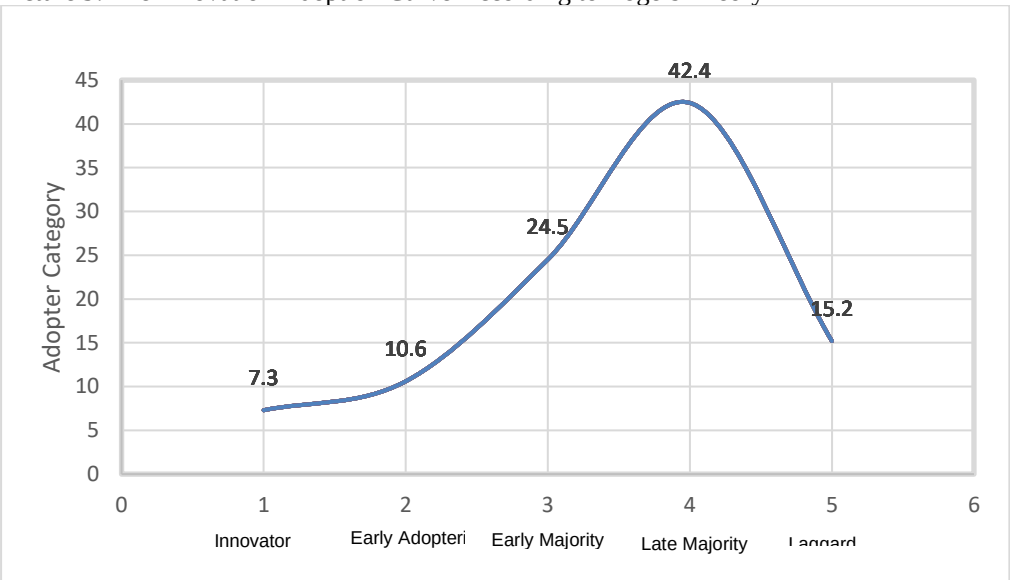
The theory mentioned above, in cultural and institutional aspects also helps to maintain the level or stratification and discrimination of farmers in every relationship between people in urban and rural areas. Since the development of hybrid corn from the Mass Guidance (Bimas) program, mass intensification, training and visits (behavior), up to the era of agribusiness corn, farmers still continue to use the diffusion model and the adoption of the Rogers innovation. It must be recognized that the development of agricultural technology and communication technology is developing rapidly.

The rapid development of agricultural technology and communication technology is the existence of positive changes for the development of the agricultural world. However, these changes have not necessarily been followed by farmers in each particular area due to limited knowledge, attitudes, and skills that are still not affordable and only made by certain people. Rogers divides the level of individual innovation in the distribution of adopter categories into five categories: innovator, early adopter, early majority, late majority, and laggard. Innovators of 2.5 percent of individuals who first adopted innovation. This innovator has the courage to take risks, intelligent, high economic ability. 13.5 percent of Early Adopters are pioneers in accepting innovation. The characteristic: role models (opinion leaders), respected people, access inside is high. Early Majority, as many as 34 percent are the initial followers. Characteristics: thoughtful, high internal interactions. Late Majority as much as 34 percent are the final followers in accepting innovation. The trait: skeptical, accepting due to economic considerations or social pressure, being too careful. Laggard as much as the last 16 percent are old-fashioned / traditional. Characteristics: traditional, isolated, limited insight, not opinion leaders, limited resources. Late people are the last in a social system to adopt an innovation.

The results showed that there was a shift in the Rogers innovation adoption curve where there was a change in the category of *early adopter*, *early majority*, *late majority* and laggard, due to limitations in aspects of human resources, limited infrastructure, lack of access to information and the role of instructors is low, and for clarity can be seen in the following figure:



Picture 9. The Innovation Adoption Curve According to Rogers Theory



Picture 10. The Innovation Adoption Curve Shifts According to Research Results

Based on the picture above, it appears that there is a shift in the adoption of the Rogers version of the Innovation curve, from the Innovators / pioneering category, more farmers have adopted it. The results showed that the two graphics above had a significant change in which the adoption process by rice farmers according to Rogers in the innovator group was only 2.50 percent and in this study the results had increased to 7.3 percent. This is because the farmers are often active in accessing information related to Upsus corn plants both from friends and from extension workers, as well as cosmopolites, besides that farmers are brave and ready to discover new things that are owned by Upsus corn plants or ideas from the information obtained (as seen from the group members or farmers who attend high school and junior high school).

Furthermore, according to the results of the study, in the category of early followers and early followers, there is a shift in the downward curve from the Rogers normal curve. This is due to the fact that farmers are still not looking for and understanding / analyzing every information from Upsus maize innovation, giving more opinions, thoughts, views, and one's opinion / opinion, but not daring to take a stand in justifying their understanding (always careful). In the category of final followers, there was also a shift from 34 percent to 42 percent from Rogers's normal curve. This means that according to the results of research farmers are more in the category of final followers. This is because the farmers are afraid of failing to manage the Upsus corn crop innovations that are assisted by the government, so they will continue to receive the innovations intended but will be sought on a small scale (in the yard). In the laggard category, there is also a downward shift from 16 percent to 15.2 percent of the Rogers normal curve. This means that farmers in the research location are still implementing traditional farming systems, even though they are receiving assistance from the existing infrastructure but are not implementing it.

The adoption stages carried out by Rogers in different times and spaces, there was a shift in the innovation adoption curve. Farmers now with the development of information technology in the form of the internet, android smartphones, can quickly exceed these stages, but the problem is often the information needed by farmers is not available, not timely, not suitable, and does not see the usefulness of the information. This happens because of the readiness of human resources in obtaining existing information sources.

The response of farmers in the movement of access to information Upsus corn plants are not quickly matched by the ability of farmers to adapt their business. While the existing skills are lagging behind with the

Farmers in Insana generally have been cultivating for generations, but they have not followed technological developments. Despite having experience, the farmers must adapt to the advancement of information technology due to limited human resources, capital, and market access. Regarding the late assistance in terms of seeds, fertilizers and pesticides. Indeed, at first, we had difficulties with the assistance of Upsus corn, and we needed training so that we had information for farmers, but hopefully in the next planting season there would be improvements.

latest information by not updating their science and technology. The results of the interview with researchers in the Manunain B extension village, Insana Sub-district, a.n Yakundus Sali, on October 14, 2019 stated that::

The presence of local government assistance related to the Upsus of maize in supporting the achievement of the program in utilizing existing communication media as a source of information, as revealed by Insana District. Extension Coordinator Mr. Benny Ndona on October 14, 2019 that:

> *Among our extension agents, we often use direct communication or indirectly use the aid of mobile communication devices. When with farmers, we often communicate directly because of limited communication tools (cellphones). As extension agents, we always motivate farmers to make an effort according to the technical instructions provided. However, the implementation has not fully run according to the instructions. The obstacles have still not accustomed to technology-based farming patterns in addition to the limitations they have, therefore we hope that this program will be sustainable so that farmers will get used to this pattern over time*

Extension officers in the development of Upsus in Insana Sub-district, TTU District, are very important to be involved in training activities so that they become more skilled in mobilizing and motivating farmers in addition to being able to solve problems experienced by farmers. The results of interviews with the Secretary of the Agricultural Service of TTU, Mr. Richardus Subay, SP., M.Sc conducted on December 12, 2019 that:

> *The Upsus corn program is carried out every year according to the allocation from the Ministry of RI and has been running for 4 years. Production results in general have not reached the desired target, besides marketing we have not accessed it well. It is expected that extension agents will be given training so that they are able to assist farmers with regard to postharvest management and yield marketing*

Based on the results of conversations with extension workers, coordinator instructors, and leaders of the TTU District Agriculture Office, it can be concluded that the instructor as a source of information needs to be considered to be given training related to corn Upsus, so as to be able to provide further training to farmers who are ultimately expected to achieve production target.

CONCLUSION

Based on the results of research and discussion, it can be concluded that:

1. Internal factors of farmers (age is in the adult category, formal education, non-formal education is in the low category, and the experience of farmers are in the high category, while land area, and cosmopolitan are in the very low category).
2. The role of local wisdom on changes in farmers' behavior in TTU by farmers in general is aware of the assistance provided by the government, namely Upsus corn plants but does not take into account the farming cycle that is owned and known by farmers and is related to harmonious relations because there are several steps that are not implemented activities local wisdom such as *Ta'poen Fi'ni* (Removing Seed) rituals, *Pen Su'fa* (Corn Flowering Time), *Ta Fe'u* (New Food), *T'sek Pena* (Corn Harvesting), *Ta'kbu Pena* (Tying Corn)), *Tsef pen sma'naf* (Opening the Spirit of Corn), *T'hab nin* (Preparing fof Storage), *Ta sae be noe Lopo* (Putting into Lopo).
3. The level of adoption of Upsus maize technology by farmers in the District of Insana, North Central Timor District is in the low category. When viewed from the category of farmers' adopters in Upsus maize, farmers experienced an increase in the innovator category, but there was also an increase in the late adopter category which showed that farmers were always careful about innovations in corn Upsus, waiting for many people to have tried and chosen / adopted a new Upsus corn plant innovation is implemented.

References

[1]. Amirin, Tatang M. 2012. "Implementasi Pendekatan Pendidikan Multikultural Kontekstual Berbasis Kearifan Lokal Di Indonesia." Jurnal Pembangunan Pendidikan: Fondasi Dan Aplikasi 1 (1): 1– 16. https://doi.org/10.21831/jppfa.v1i1.1047.

[2]. Arimbawa,P. 2020. Peran Komunikasi Dalam Kelembagaab Petani untuk Peningkatan Kapasitas Petani Mengembangkan Kakao Di Kabupaten Kolaka Timur. Disertasi. Fakultas Pertanian Universitas Brawijaya. Malang

[3]. Aulia, Tia Oktaviani Sumarna, and Arya Hadi Dharmawan. 2010. "Kearifan Lokal Dalam Pengelolaan Sumberdaya Air Di Kampung Kuta." Jurnal Sodality.

[4]. [BPS]. Badan Pusat Statistik Kabupaten TTU. 2018. Timor Tengah Utara dalam Angka, Kefamenanu

[5]. Dahliani, D. 2015. "Local Wisdom in Built Environment in Globalization Era." International Journal of Education and Research 3 (6): 158–59.

[6]. Fajarini, Ulfah. 2014. "PERANAN KEARIFAN LOKAL DALAM PENDIDIKAN KARAKTER." SOSIO DIDAKTIKA: Social Science Education Journal 1 (2). https://doi.org/10.15408/sd.v1i2.1225.

[7]. Falo, M. 2011. Tingkat Adopsi Teknologi Jagung Hibrida oleh Petani Di Lahan Kering Kabupaten Timor Tengah Utara Provinsi NTT. Thesis. IPB. Bogor

[8]. Fatchiya A. 2010. Tingkat kapasitas pembudi daya ikan dalam mengelola usaha aquakultur secara berkelanjutan. *Jurnal Penyuluhan*, 6 (1):11-18
[9]. Foni, Wilhelmus. 2002. "Ritus Agama Suku Atoni Pah Meto Dalam Kegiatan Pertanian Lahan Kering, Studi Di Kevetoran Tunbaba Kabupaten Timot Tengah Utara, Nusa Tenggara Timur." Universitas Kristen Satyawacana.
[10]. Harmawati, Yuni, Aim Abdulkarim, and Rahmat -. 2016. "Nilai Budaya Tradisi Dieng Culture Festival Sebagai Kearifan Lokal Untuk Membangun Karakter Bangsa." Journal of Urban Society's Arts 3 (2): 82– 95. https://doi.org/10.24821/jousa.v3i2.1477.
[11]. Mosher AT. 1987. Menggerakkan dan Membangun Pertanian: Syarat-syarat Pokok Pembangunan dan Modernisasi. (terjemahan, Krisnandhi dan Bahrin Samad). CV. Yasaguna. Jakarta
[12]. Leeuwis 2009. Komunikasi untuk Inovasi Pedesaan: Berpikir Kembali Tentang Penyuluhan Pertanian. Terjemahan: Kanisius. Yogyakarta
[13]. Purbadi, Yohanes Djarot. 2010. "Tata Suku Dan Tata Spasial Pada Arsitektur Permukiman Suku Dawan Di Desa Kaenbaun Di Pulau Timor." Disertasi. https://doi.org/10.13140/RG.2.2.18372.326 40
[14]. Rogers EM. 2003. Diffusions of Innovations. 5th Edition. New York : Free Press. London Toronto Sydney.
[15]. Silalahi, Ulbert. 2015. Metode Penelitian Sosial Kuantitatif. PT. Reflika Aditama. Bandung
[16]. Siswanto, Ari. 2009. "Kearifan Lokal Arsitektur Sumatera Selatan Bagi Pembangunan Lingkungan Binaan." Local Wisdom 1 (1): 37–45. http://localwisdom.ucoz.com/_ld/0/5_1ed_5 _JLWOL_ari.pdf.
[17]. Soekartawi. 2005. Prinsip dan Dasar Komunikasi Pertanian. Universitas Indonesia. Jakarta
[18]. Sumarmi, Sumarmi. 2015. "Local Wisdom of Osing People in Conserving Water Resources." KOMUNITAS: INTERNATIONAL JOURNAL OF INDONESIAN SOCIETY AND CULTURE 7 (1): 43. https://doi.org/10.15294/komunitas.v7i1.34 29.
[19]. Suratiyah K. 2006. Ilmu Usahatani. Jakarta : Penebar Swadaya
[20]. Tamalene, M Nasir, Mimien Henie, Irawati Al, Endang Suarsini, and Fatkhur Rochman. 2014. "The Practice of Local Wisdom of Tobelo Dalam (Togutil) Tribal Community in Forest Conservation in Halmahera , Indonesia." International Journal of Plant Research 4 (4A): 1–7. https://doi.org/10.5923/s.plant.201401.01.
[21]. Thamrin, Husni. 2013. "Kearifan Lokal Dalam Pelestarian Lingkungan (The Lokal Wisdom in Environmental Sustainable)." Kutubkhanah 16 (1): 46–59. http://ejournal.uin
[22]. Wibowo, Hendro Ari, Wasino Wasino, and Dewi Lisnoor Setyowati. 2012. "KEARIFAN LOKAL DALAM MENJAGA LINGKUNGAN HIDUP (STUDI KASUS MASYARAKAT DI DESA COLO KECAMATAN DAWE KABUPATEN KUDUS)." Journal of Educational Social Studies 1 (1): 25–30. https://journal.unnes.ac.id/sju/index.php/jes s/article/view/79.