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Postproduction Practices and Marketing of Abaca in North Cotabato, Philippines

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Abstract
The Philippines is one of the two countries commercially producing Manila hemp or the fiber from abaca *(Musa textilis Nee)* which is indigenous in the country. The abaca fiber or known as Manila hemp worldwide is highly demanded not only domestically but internationally. As a major producer of abaca fiber in the world, we need to meet the demand by increasing its supply and improving its quality. Thus, a baseline information on its production and postproduction is vital to understand the current practices of the Indigenous Peoples (IPs) who are producing the product. A focus group discussion, key informant interviews and surveys were conducted in North Cotabato to gather data on the farmer, trader and processor levels. Data were processed into descriptive and cost and return analyses. Research results showed that majority of the farmers utilized family labor in the production however, postproduction practices such as harvesting, tuxying, hand stripping, sundrying and bundling activities were entered into a sharing agreement. Postproduction activities were done manually and took them one month to finish a hectare of abaca plantation. Generally, abaca fiber outputs were in low quality thus, farmers received low price and consequently low income so women in the community were engaged into value adding activities to augment their family income.

Keywords: abaca fiber, hand stripping, indigenous people, sharing agreement, tuxying, value adding

Introduction

Abaca (*Musa textilis Nee*), is indigenous to the Philippines and its fiber is known worldwide as Manila hemp. The fiber is obtained from the leaf sheaths of the abaca plant which is like banana in appearance. At present, there are only two countries commercially producing abaca fiber, the Philippines and Ecuador. The abaca varieties in Ecuador originally came from the Philippines, particularly from Mindanao.
Abaca is grown practically all over the Philippines, except in the northernmost part of the country. At present, some 121,400 hectares are planted to abaca in the country involving 76,100 farmers. The abaca areas are mostly located in Bicol, Eastern Visayas, Southern and Western Mindanao and Caraga (Figure 1).

The Indigenous Peoples (IP) of North Cotabato grows abaca because it is one of the agricultural products most suitable to them. Abaca has a lot of advantages in the mountain areas. These advantages are: suitable topographic setting for abaca planting and abaca fiber production, easier fiber transportation, inexpensive abaca planting and production cost, high demand for abaca fiber in local and global market due to its versatility for industrial applications and finally, there is available government assistance for the farmers or producers of abaca product.

In environmental conservation perspective, abaca plantation is not a negative intrusion of species because it does not harm natural species of flora and fauna, in fact it could suitably adopt under forest floors without affecting endemic trees and other species (Lanaja, P.L. et al. undated).

A baseline information on the abaca production in this area is vital to understand the current situation of the indigenous people who are producing product demanded by the international market.

Materials and Methods

The study site was North Cotabato wherein the identified abaca plantations were located at Kidapawan City and Magpet (Figure 1).

A rapid rural appraisal and key informant interviews were conducted to have a grasp of the current situation of abaca production processing and marketing in North Cotabato. Moreover, focus group discussions (FGD) were conducted involving the farmers, traders and processors to have a holistic view of the local abaca situation in the study area.

For the benchmarking activities, the project team interviewed around 100 farmers from the site for their profiles as well as their existing production, postproduction, and marketing practices. Moreover, marketing research was done to identify the volume and quality requirements and the existing mode of payment of the potential markets for the information and future market linkage with the farmers. Value chain, cost and return and descriptive analyses were employed in the data analysis.

• Abaca areas Source: Google map • Study Site

Figure 1. Map of the Philippines indicating the major abaca producing areas and the study site, 2019

Results and Discussion

Farmer's Profile

The farmers in the project sites belong to the Indigenous People (IP) called Lumad tribal groupings of Mindanao. These include *Ata, Bagobo, Guiangga, Mamanwa, Magguangan, Mandaya, Banwa-on, Bukidnon, Dulangan, Kalagan, Kulaman, Manobo, Subanon, Tagabili, Takakaolo, Talndig,* and *Tiruray or Teduray.* Some of them specialized in woodcarving, basket making and weaving which could be useful as source of livelihood.

Majority of the abaca farmers were males aging from 19-86 years or an average age of 50 years old and cultivating around 1.30 ha of abaca using their own capital. Generally, families in the community household had five (5) members and majority of them are members of an organization.

Farmer's Production Practices

Abaca farmers in Mindanao grew varieties such as: *Maguindanaon, Tangongon, Bongolanon, Lawaan, Inosa, Baguisangon*. Planting spacing such as 2m x 2m, 2m x 3m, or 3m x 3m were observed by the farmers in North Cotabato.

Land clearing and preparation depends on the type of soil and the location of the area. In North Cotabato, they did not practice plowing the land since the farm was located on rolling or mountainous area. They just clear the area and bore a hole of about 6 inches wide and 12 inches deep in which the sucker or corm of

abaca was planted. Around 89 percent of the farmers used suckers as planting materials priced at P5-15 per piece. However, some farmers opted to produce their own suckers for planting. On the other hand, farmers in Barangay Perez, in Kidapawan City, North Cotabato planted tissue-cultured plantlets donated by the World Vision as planting materials.

For those who practiced land preparation, they used tools such as *lagaraw* or sycthe, *asarol* or hoe and *bareta* or crowbar and utilized family (80%) and hired (20%) labor. Four laborers did the land preparation in five days and were paid at P 150-P300 per day. Some entered to an agreement of '*pakyawan*' or contract basis ranging from PhP2,000 – PhP3,000 per hectare. Abaca plants were usually intercropped to banana, rubber trees, tiger grass (used in making soft brooms), cacao, coconut, coffee, vegetables, and fruit trees.

On the crop care practices, abaca farmers in the area generally not applying fertilizers (71%) and pesticides (95%). But all of them were practicing manual cleaning the farm twice or thrice a year and utilized hired (56%) and family labor (44%), respectively. Usually, about 5 laborers per hectare were doing the weeding for 2.5 days. Labor payment were at P150-P300 per day or in contract basis ranging from P1,000 to P3,000 per hectare.

Farmer's Postproduction Practices

The general labor payment practice in the area was at 60:40 sharing agreement that covers the harvesting/tumbling, tuxying, stripping and drying abaca fiber activities. The 60 percent of the total harvest was the share for the laborer and the 40 percent for the owner. This activity was done 2 to 3 times a year and normally the laborer completed the whole process in 2 weeks to 1 month. The average volume of harvest was around 200 kg of dried fiber per hectare. From the abaca trunk weighing around 19 kg, tuxy and dried fiber recoveries were 4 kg per trunk and 200 g, respectively. One kg of dried abaca fiber requires 4 abaca trunks or 20 kg of tuxy.

Figure 2. Tuxying with tuxying knife by farmers in North Cotabato, Philippines, 2018

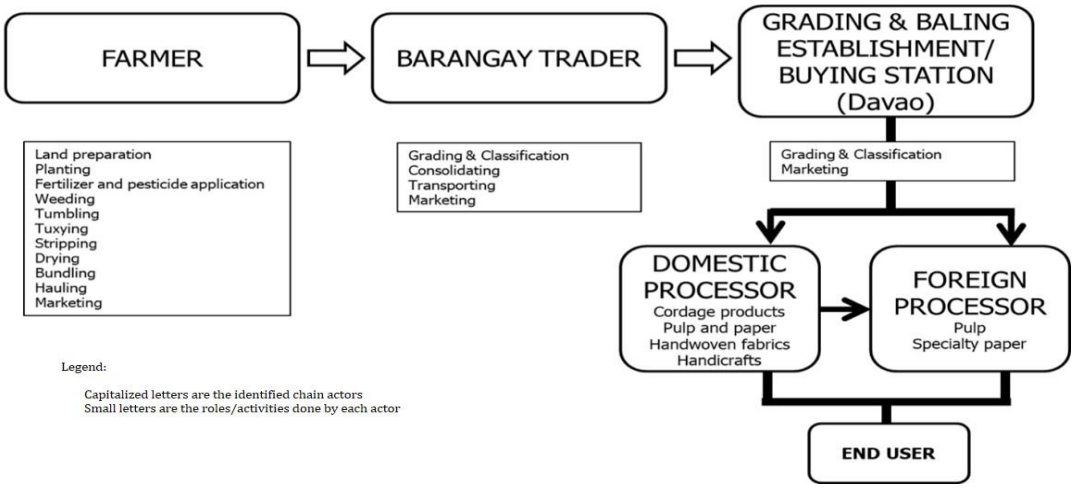
Before the harvesting or tumbling, topping activity was the process of cutting the leaf stalks of abaca was done to avoid damaging abaca when the stalk was about to be tumbled. Tumbling was the process of cutting of the abaca trunk using a bolo or scythe. On the other hand, tuxying was the process of separating the leaf sheaths of abaca with a tuxying knife (Figure 2). Since all the activities were done in the farm with sloping areas, hand stripping was convenient for the laborers. They usually mounted two pieces of wood slabs parallel with each other wherein abaca tuxy was inserted in between and by tightening using a weight hanging from one end of the slab, stripping abaca fiber was done. The volume output was around 15-25 kg of fiber per day. After stripping, drying was performed right there in the farm for 1-3 days with an average volume of 10-15 kg dried fiber per day depending on the sunlight (Figure 3). Prices of the abaca fiber depend on its quality. Three classifications of the fiber were adopted by the market wherein the first class was priced at P65 per kg; second class at P45 per kg and all-in at P35 per kg.

Figure 3. Hand stripping and drying by farmers in North Cotabato, Philippines, 2018

Market Flow of Abaca Fiber in North Cotabato

Marketing abaca fiber from North Cotabato involves the players such as the farmer, barangay trader, the grading and bailing establishment (GBE), domestic processor or foreign processor and the end users. The farmers sold their produce of abaca fiber to the barangay trader who usually do grading and classification based on the physical appearance of the fiber, consolidates, transport and market them to the GBEs in Davao. The GBEs used the standards in grading and classification of the fiber then market them according to the requirements of the domestic processor and foreign processor. The domestic processor produced products such as cordage, pulp and paper products, handwoven fabrics and handicrafts. On the other hand, the foreign processors manufactured pulp with specialized paper products depending on the requirement of the end users (Figure 4).

With the simple chain of abaca fiber coming from the farmer to the trader and to the GBE in Davao, costs incurred by the farmer totaled to around P46.50 per kg for the maintenance, postproduction and transport. At a selling price of P55 per kg, the farmer received a net income of PhP8.50 per kg of fiber. On the other side, trader incurred costs were for the labor, transport, food, FIDA permit and the buying price with overall costs of PhP57.22. With the GBE market price at PhP60 per kg, net income of the trader was at PhP2.78 per kg. At the GBE buying station, the domestic or foreign processors market or buying prices was confidential (Figure 5). However, with some investigations unofficial information was disclosed that selling price of the GBE to the processors was more or less 67 percent higher than its buying price.



Note: USD 1 = PhP50

Figure 4. Marketing flow of abaca fiber in North Cotabato, Philippines, 2018

Figure 5. Existing abaca fiber marketing chain actors with their corresponding costs and income in exercising their marketing activities, North Cotabato, Philippines, 2018, per kg

Cost and Return Analysis per hectare

In establishing a one-hectare abaca plantation, a farmer would start to earn on the second year because abaca plant was matured enough to be harvested on its 18-month after the date of planting. The expenses incurred by the farmer were primarily on the land preparation, suckers for planting materials and weeding activities. On the first year of harvest, these expenses were deducted from the proceeds which reflects around 59.52 percent of the total expenses of the farmers. Additional expenses were on the postproduction activities done by a contract labor collecting around 60 percent of the gross income of the farmer to perform the harvesting/tuxying/stripping/drying and bundling. These expenses comprised around 39.29 percent and 1.19 percent for the transport cost during marketing of the total expenses of PhP33,600 per hectare incurred by abaca farmers. With the investment cost on establishing the plantation and the postproduction expenses and a buying price set by the trader at PhP55/kg (average price of 1st class and 2nd class abaca fiber), farmers would not recoup all the expenses in the first-year harvest. However, in the second-year the expenses were only on the crop maintenance of weeding and the postproduction activities, farmers would have a profit margin of around 23.03 percent at the same buying price. On the second year, the major expenses were on the postproduction activities that comprises around 91.88 percent of the total expenses. Around 5.18 percent and 2.32 percent were spent for the labor and transport expenses, respectively. With the total expenses of PhP25,400 per hectare and gross income of around PhP33,000 for the second year, the net income was at PhP7,600 per hectare (Table 1).

Table 1. Cost and return analysis of production and marketing abaca fiber in North Cotabato, Philippines, 2018 per ha

Particular	**First year harvest**		**Second year harvest onwards**	
	Amount, PhP	**%**	**Amount, PhP**	**%**
Labor, per ha/year	**20,000.00**	**59.52**	**5,000.00**	**5.80**
Land preparation and Planting	4,000.00		-	
Suckers and transport	11,000.00		-	
Weeding	5,000.00		5,000.00	
Harvesting/tuxying/stripping/drying, per ha (60% of gross income)	**13,200.00**	**39.29**	**19,800.00**	**91.88**
Transportation, P/ha	**400.00**	**1.19**	**600.00**	**2.32**
Transport/Hauling fee	400.00		600.00	
Total Expenses, per ha/year	**33,600.00**	**100.00**	**25,400.00**	**100.00**
Yield per ha/year (in kg)	400.00		600.00	
Unit cost (PhP/kg)	84.00		42.33	
Buying price (PhP/kg)	55.00		55.00	
Gross Income, per ha/year	**22,000.00**		**33,000.00**	
Net Income/(Deficit), per ha/year	**(11,600.00)**		**7,600.00**	
Profit Margin, %	**-**		**23.03 %**	

Source: Survey, 2018 Note: 1 USD = PhP 50.00

Abaca Fiber Classification

The Bureau of Agriculture and Fishery Products Standard (BAFPS) with the Philippine Fiber Development Authority (PhilFIDA) set a grading and classification standard for abaca fiber. Grades S2 and S3 were classified as excellent fiber, while the grades I, G and H were classified as good. The JK and MI grades fall under fair classification and grade L was coarse fiber (Figure 6). Residual fiber classification includes grades Y1, Y2, O, T and WS.

Moreover, according to PhilFIDA the spindle stripped abaca fiber were whitish in color and with thinner strands while the hand stripped abaca fiber was brownish in color and thicker strands. However, majority of the available abaca fiber in the market were hand stripped fibers because farmers could not afford to buy a spindle equipment (Figure 7).

Source: PhilFIDA

Figure 6. Grading and classification standards for abaca fiber, PNS/BAFS 180:2016

Source: PhilFIDA

Figure 7. Physical differences of spindled stripped vs the hand stripped abaca fiber in the Philippines

Gross Margins shared per actor

Assessing the gross margin shared by the actors involved in the abaca fiber marketing, Table 2 shows that from the market price of PhP60 per kg at the trader level, farmer shared around 91.67 percent by selling their fiber produced at PhP55 per kg. On the other hand, the gross margin of the trader contributed around 8.33 percent to the market price of the abaca fiber in North Cotabato.

Table 2. Gross margin shares per actor in marketing abaca fiber in North Cotabato, Philippines, 2018, per kg

ACTOR		SELLING PRICE, PhP	BUYING PRICE, PhP	GROSS MARGINS, PhP	PERCENT SHARE
Farmer		-	55.00	55	91.67
Trader		60.00	55.00	5	8.33
GBE		Confidential			

Market outlets

Aside from the barangay trader in Kidapawan City, there were market outlets located in Davao City offering good price to the farmers. However, they have requirements to the farmer sellers such as the abaca fiber should be grades S2 or S3. Results of a testing process of the company was the basis of the payment. Some of the traders paid the farmers 70 percent of the total delivery amount due upon receiving and checking the quality of the fiber, and the remaining 30 percent would be released after the final fiber classification. Majority of these market outlets pay in cash and few issue checks to the farmers. Cash payment was preferred by farmers since going to the banks for the encashment of checks was very inconvenient for them. Moreover, farmers shouldered the costs for the delivery (Table 3). Some of the identified market outlets had stopped buying due to the Covid-19 pandemic.

Table 3. Markets for abaca fiber in North Cotabato and Davao, Philippines, 2019

TRADER	QUALITY REQT	PRICE/KG	MODE OF PAYMENT	DELIVERY AGREEMENT
Barangay Trader	All-in	PhP50/kg	Cash	Delivered (shouldered by seller)
Provincial Trader 1	S2 and S3	PhP90/kg – S2	Cash	Delivered (shouldered by seller)
Provincial Trader 2	with Purchase Order (PO) *Stop buying*	PhP104/kg – S2	Cash	Delivered (shouldered by seller)
Davao Trader 1	Classified	PhP95/kg – S2 PhP97/kg (tip cutted and classified)	Cash	Delivered (shouldered by seller)
Davao Trader 2	S3 only *Stop buying*	PhP50-PhP55/kg	Check	Delivered (shouldered by seller)
Davao Trader 3	Classified (tip cutted dried) Non-classified	PhP98-100/kg = S2 PhP50/kg = S3 *Note: Pays 70% upon receiving and checking the fiber and 30% after fiber classification*	Cash	Delivered (shouldered by seller)

Value adding activities by producing other abaca products

Some abaca farmers' organization in other provinces of Mindanao ventured on producing other abaca end products from rejects. Classified residual abaca fibers could be manufactured into handmade paper or fiber crafts. Handmade papers were utilized for postcard making, envelopes, wallpapers, and the like. While fiber crafts could be made into lampshades, decorative items, and the like. Some women, who know how to weave made colorful and beautiful cloth from abaca fibers. These products were potential source of livelihood for the women of North Cotabato to actively participate in the community (Figure 7).

Weaving Handmade paper Fiber craft

Figure 7. Weaving, handmade paper and fiber craft making activities are some of the value-adding activities from abaca fiber, Mindanao, Philippines, 2018

Conclusion

Few of the farmers applied fertilizers and chemicals to the abaca plants resulting to the low production. Hand stripping activity by the farmers produced poor quality abaca fiber causing the meager income due to low price offered by the market. Measures on improving the quality of fiber produced by the farmers in the area should be instigated by the government or the local government units to support and for the betterment of the quality of life of the indigenous people of North Cotabato. More so, since the Philippines is one of the two countries producing commercially abaca fiber in the world, the more the government should help the farmers to increase the volume of production and improve the abaca fiber processing of the product in the country to provide and meet the quality abaca product demanded by the international market.

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