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ANALYSIS OF PRODUCTION TECHNOLOGIES AND MARKETING PRACTICES OF BEEKEPERS IN BALETE AND LIPA CITY, BATANGAS

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Analysis of Production Technologies and Marketing Practices of Beekepers in Balete and Lipa City, Batangas

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I. Introduction

Over the years, beekeeping grew from a mere backyard hobby to a profitable industry. The country boasts on its abundant vegetation which is conducive to honey production. Prospect of the bee industry is high given the increasing demand for honey and honey-based products. There are great opportunities both in the local and international market. The current deficit on local supplies has prompted the national government to take an active role in the development of the bee industry. The Bee Industry Road Map was formulated to provide strategic direction for the industry players, research institutions and policy makers. In line with these efforts, the University of the Philippines at Los Banos (UPLB) has provided important technical assistance and expertise among beekeepers.

The UPLB Bee Program, an integrated research and extension program, was established in February 27, 1989. It was founded on the initial objective of promoting, integrating and coordinating all bee-related projects of UPLB. The vision of the program is to promote standardization of the quality of bee products. It has extended beekeeping technology to various parts of the country. In 2001, the program was awarded the "Outstanding Research Team" by UPLB. It was also declared as the National Center for Bee Research and Development in 2004 by the Asian Apiculture Association.

The program currently has its office at the UPLB Biological Science Building. It is a member of the Beekeepers Network Foundation (BEENET), an association of almost 500 beekeepers. Through BEENET, the UPLB Bee Program has established important linkages to disseminate beekeeping technologies.

The UPLB Bee Program conducts seminars in strategic locations. Its pool of experts teaches beekeepers to follow the standardized process of harvesting honey. This method of honey production does not require any heating process. After straining, the honey is allowed to settle for two weeks for the bubbles to go up. The process also humidifies the honey.

The program's mandate is not limited to technical assistance. It is also providing marketing support for honey and other bee products of beekeepers who are mostly members of BEENET. The office of the UPLB Bee Program serves as a trading center of honeybee products. Pure honey is sourced from Batangas, Cavite, Davao and Baguio.

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This study focused on the production and marketing practices of beekeepers in the province of Batangas, i.e. the towns of Balete and Lipa City. These areas are major sources of honey in Region IV. The methodology of this study is presented in section II. Summary of findings and conclusion were discussed in sections III and IV respectively. Finally, suggested future research areas on beekeeping are outlined in section V.

II. Methodology

A descriptive research design was utilized in this study. The aim is to present the profile of the honeybee raisers in terms of how they manage the enterprise. The production and marketing practices of the beekeepers were also analyzed. A survey was conducted among the beekeepers in the towns of Balete and Lipa. A total of 13 beekeepers were identified and interviewed in both towns. To asses the marketing and distribution practices of beekeepers, 14 traders were also surveyed. Information about the UPLB Bee Program was gathered through interviews with key people such as Prof. Analinda Fajardo. A store check of several honey brands was also conducted. The purpose is to compare Balete and Lipa City honey products to imported products in terms of prices and packaging materials.

Data collected from the survey respondents include socio-demographic profile, production technologies, marketing practices, distribution channels, production costs and price mark-up. Secondary data, on the other hand, came from DA-AMAD, UPLB Bee Program, and DTI.

The data were consolidated, tallied and interpreted with the use of descriptive analysis. Frequency tables were generated to present the profile and practices of the respondents. An estimate of the production cost was also derived from the information provided by the respondents. A partial budget was also computed to show the benefit from the practice of migration.

III. Summary of Findings

A. Profile of the Beekepers in Balete and Lipa City

Majority of the beekeepers in Balete and Lipa City are male, married and below 50 years old. Though beekeeping is a significant source of fund, most of the respondents have alternative sources of income such as sari-sari store (mini-groceries) and hog production. Three respondents are operating the beekeeping business for more than 16 years already. But a number of them are still new entrants in the industry. Since most beekeepers are micro and small scale producers, sole-proprietorship is the common business form. Start-up capital for the enterprise is not very high. Eight respondents started the business with less than PhP 15,000. The business is providing good returns considering the small

amount of investment. Six respondents reported a monthly income of at least PhP 5,000 from beekeeping alone. Table 1 summarizes the profile of the beekeepers.

Table 1. Profile of the Respondents their Enterprises in Balete and Lipa City*

Parameter	% Distribution	Mean
Sex		
Male	77%	
Female	23%	
Age		
35 and below	8%	
36 to 45	38%	49
45 and above	53%	
Civil Staus		
Single	31%	
Maried	69%	
Sources of Income		
Beekeeping	31%	
Sari-sari store	10%	
Swine production	40%	
Others	19%	
Years in the Business		
1-4	46%	
5-10	15%	9
11 and above	39%	
Forms of Business		
Sole-proprietorship	92%	
Cooperative	8%	
Business Size		
Micro	46%	
Cottage	15%	
Small	39%	
Initial Capitalization		
5,000-10,000	46%	
10,001-15,000	15%	PhP 17,500
Above 15,000	39%	
Monthly Income from Beekeeping		
0-5,000	23%	
5,001-10,000	23%	PhP 11,556
Above 10,0000	54%	

*Source: Field survey, 2005

B. Production Technologies

Almost all respondents produced honey except for one who just started the beekeeping business. This new player ventured into queen rearing and pollen collection. Aside from honey, some beekeepers also produce beeswax, pollen and hives. Honey cider vinegar is also being produced in Balete and Lipa. The choice of product to produce was based mainly on the market need and cash cycle. For example, some beekeepers opted to rear queens since there is a demand for this product among other beekeepers. On the other hand, some do not want to produce honey cider vinegar because its production would take six months. For those with limited working capital, products with faster rate of cash conversion are preferred.

Two species of honeybees are commonly used by the entrepreneurs. It is worth noting that almost all beekeepers in Lipa City are using *Apis mellifera* (imported bees) while Balete beekeepers are all using *Apis cerena* (native bees). The native bees are cheaper hence Balete raisers prefer it. On the other hand, Lipa beekeepers prefer imported bees since it produces more honey relative to the native bees.

Another notable difference between the Balete and Lipa City beekeepers is the frequency and volume of harvest. Lipa beekeepers harvest semi-annually. Honey harvested per colony of the imported bees ranges from eight to sixteen kilograms. For Balete beekeepers, on the other hand, frequency of harvest is eight to nine times per year. However, only two kilograms of honey on the average can be harvested per colony. The amount of honey produced is affected not only by the species of bees used but probably also by the type and amount of food provided to the colony. Lipa beekeepers feed the colony once a week. One colony can consume four to nine kilograms of sugar per month. Balete beekeepers, in contrast, feed the colony twice a week. The amount of sugar provided by the beekeepers per colony can be as low as two kilograms to as high as twelve kilograms per month. An alternative way to supplement the food requirement of the bees is through the migration of the colonies. In this process, bees were transported during the sunset, the time when the bees have returned to the houses. This technique is especially beneficial during rainy months. Flowers and other plants serve as an abundant source of nectar and pollen. Unfortunately, this technique is usually not being practiced both in Balete and Lipa. Scarcity of land for migration is the usual constraint. Table 2 summarizes the production practices of Balete and Lipa beekeepers.

Migration of the colonies among beekeepers has always been recommended by experts. This practice takes advantage of existing vegetation in the area and at same time increase honey yield. However, migration is recommended only for farms with at least 100 colonies. It was estimated that the total cost from migrating 100 colonies per year is PhP 90,000 which is considerably lower than PhP 174,000 for sugar feeding. A partial budget shows that migration can provide an additional net benefit of PhP 102,000 per year.

There are also significant differences in harvesting techniques for those who raise *Apis mellifera* and *Apis cerena*. For those who are raising imported bees, combs were removed from the hives first. Then these are placed in a manually operated extractor. By turning

this equipment, honey will drip from the combs. Collected honey will be transferred in a drum with a capacity of up to 255 kg of honey. The honey will be stored for two weeks until the particles in the bottom float. For those who are raising *Apis cerena*, bees are removed from the frames first by exposing it to the smoke of coconut husk. The combs are then gathered from the frames and sliced into smaller pieces. The sliced combs are placed in an improvised filter until all honey is extracted. As much as possible, the traditional practice of squeezing the honey out of the comb is being avoided. This practice will result to bubbling which causes packaging problems.

Table 2. Comparison of Production Practices Among Balete and Lipa Beekeepers

Parameter	% Distribution	
	Balete	Lipa
Species Raised		
Apis mellifera	0%	86%
Apis cerena	100%	14%
Frequency of Harvest		
Monthly	100%	14%
Semi-annually	0%	86%
Volume of Harvest in Six Months		
0-500kgs	33%	58%
501-1000kgs		14%
Above 1,000 kgs.	67%	18%
Number of Colonies		
1-50	33%	72%
50-100	17%	14%
Above 100	50%	14%
Practice migration		
Yes	0%	29%
No	100%	71%

Source: Field survey, 2005

C. Marketing Practices

Product packaging is an important consideration in the beekeeping operation. Used or recycled bottles are the common packaging materials. Catsup bottles and mayonnaise jars with a capacity of 310g, 330g and 500g are being utilized. Alternatively, other beekeepers are using long-neck bottles with sizes of 750ml and 1000ml. Small catsup bottles with a capacity of 220g are used for honey cider vinegar. Packaging materials costs are presented in table 3. Bees and honeycombs are the usual pictures presented in product labels.

Pricing strategy is another important decision that a beekeeper has to make. The prevailing market price has become the benchmark of beekeepers. The majority usually

implement competitive pricing strategy. Prices of different brands are usually not very different from each other. From the point of view of an uninformed buyer, the honey products are not highly differentiated hence a beekeeper could not command a higher price relative to its competitors. Only knowledgeable customers can detect quality differences of various honey brands.

For some beekeepers, on the other hand, mark-up pricing is usually being practiced. A mark-up of Php10-20 per bottle are usually being added to the production cost. Table 4 shows the wholesale and retail price of some bee products.

Table 3. Costs of commonly used packaging materials

Material	Size	Cost of Materials (PhP)				Total cost (PhP)
		Bottle	Seal	Cap	Label	
Catsup bottle	320g	0.90-1.00	1.00-1.25	0.80-1.25	1.50-2.00	4.20-5.50
	400g	1.00	1.00-1.25	0.80-1.25	1.50-2.00	4.30-5.60
Mayonnaise jar	310g	1.00-2.00	1.00-1.25	1.00-1.25	1.50-2.00	4.50-6.50
	500g	2.50-4.00	1.00-1.25	1.00-1.25	1.50-2.00	6.00-8.50
Long neck bottles	750ml	2.00-5.00	1.00-1.25	0.80-1.25	1.50-2.00	5.30-9.50
	1000ml	2.00-5.00	1.00-1.25	0.80-1.25	1.50-2.00	5.30-9.50

Source: Field survey, 2005

Table 4. Prices of Bee Products

Products	Price per kg. (Php)	
	Wholesale	Retail
Pure honey	100-210	200-300
Beeswax		60-300
Pollen	500-800	1,000
Honey cider vinegar	15	20-25

Source: Field survey, 2005

To promote the products, signboards along roads are the usual promotional materials being used. Passive raisers, on the other hand, rely only on referral or word of mouth to increase awareness on their products. However, there are also some beekeepers who are aggressively marketing their products. These beekeepers join trade fairs and exhibits in Batangas and Manila. DTI and DAR assist the farmers in joining these events. Television shows such as “Kumikitang Kabuhayan” (Profitable Business) of ABS-CBN and other programs are also an important way to increase product awareness.

The beekeepers sell their products to retailers and contract buyers. Intermediaries also play an important role in the distribution of bee products. These intermediaries buy the beekeepers’ products in bulk and then sell it to individual and institutional buyers. Since the products are displayed along the roads, tourists and travelers are also the common

customers of the beekeepers. Government institutions such as DAR also assist in the distribution of the products. The honey products are displayed in the DAR office for sale. A 40% mark-up is being charged by DAR. The distribution channel of Balete and Lipa City beekeepers is significantly different (figures 1 and 2). Lipa city beekeepers sell the products to contract buyer who then sells it to food and biscuit companies. Balete beekeepers, on the other hand, sell the products to other beekeepers, retailers, and institutional buyers who will then sell it to the final consumers.

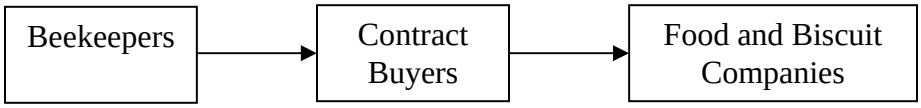

Figure 1. Distribution Channel of Lipa Beekeepers

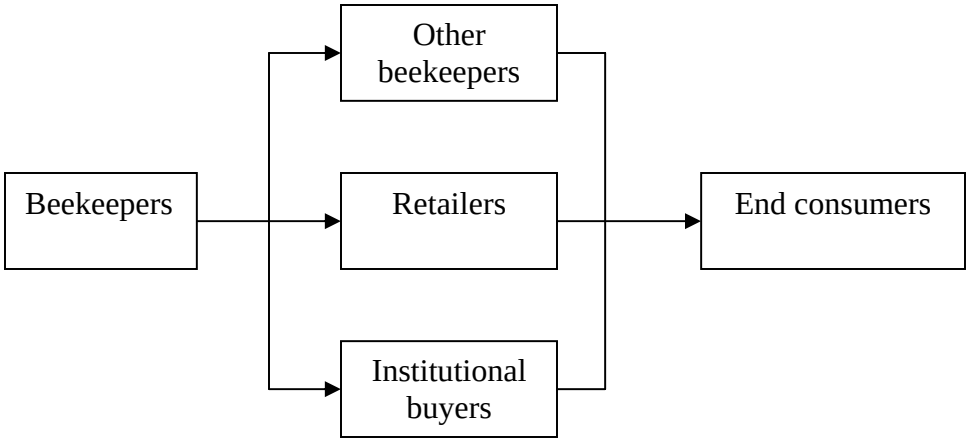

Figure 2. Distribution Channel of Balete Beekeepers

From the store check of various honey products, it was revealed that prices offered by the Balete and Lipa City beekeepers are competitive, however it has no match when it comes to packaging. Honey produced in Batangas is cheaper by 10 to 20 pesos compared to imported brands. It is also important to note that there are only few competing brands of honey in the supermarket. This is an opportunity for the Batangas beekeepers. But supermarkets require large volumes, BFAD accreditation and long-term consignment agreement. These provisions make locally produced honey less competitive. These are also the main constraints in entering this lucrative market. Nevertheless these requirements are not impossible to achieve.

D. Comparison by Scale of Operation

The practices of the beekeepers are affected not only by the location of the farm but also the size of the enterprise. To facilitate the comparison by size, the beekeepers were classified into three categories namely small-scale, medium-scale and large-scale. The basis of classification is the average semi-annual production (Table 5). Market reach is affected by the size of the enterprise. Large producers were able to produce more thus satisfying not only the requirement of the barangay but other municipalities as well. Large producers can also afford to integrate forward, i.e. establishment of own retail outlet.

Table 5. Comparison of Beekeepers' Practices by Size of Operation

Parameter	**Small-Scale**	**Medium Scale**	**Large-Scale**
Average semi-annual production	Less than 500kg	500 to 1,000 kg	Greater than 1,000kg.
Business Size	Micro	Cottage	Small
Accreditation/ Registration	None	None	Mayor's permit/ DTI
Market reach	Within the barangay	Other municipalities	Other municipalities
Integrated forward			
Yes	33%	50%	100%
No	67%	50%	0%
With other business			
Yes	33%	100%	0%
No	67%	0%	100%

Source: Field Survey, 2005

Size of operation also seems to affect profitability. The operating profit margin of small and medium scale producers is estimated to be 30%. Direct material which is mainly sugar constitutes a large portion of the enterprises' costs. For large scale producers, direct material also has a significant share in the total production costs. However, the result of the survey (table 6) showed that operating profit margin among large scale producers is considerably lower relative to the small and medium scale producers. This seems to violate the concept of economies of scale. The data suggests that large scale producers are less efficient. Because of the size of its operation, large-scale producers are using more sugar. The increase in sugar consumption appears to have no proportional impact on the honey yield. In other words, there is diminishing benefit from additional supply of sugar. Even though the data strongly exemplify the inefficiency of large-scale producers, these entrepreneurs continue to adhere with their existing practices. This is due to the fact that they are realizing larger absolute profits. Volume of production is high, hence revenue is also high.

Table 6. Average Production Costs and Profit Margins of Beekeepers by Size of Operation

Parameter	Small-Scale	Medium Scale	Large-Scale
Direct Materials (%)	29	36	54
Direct Labor (%)	22	19	9.5
Production Overhead (%)	11	4	6.5
Marketing cost (%)	8	11	10
Profit Margin (%)	30	30	20
TOTAL	**100**	**100**	**100**
Operating Profit (PhP)	34,594	90,765	289,657

Source: Field Survey, 2005

E. Problems of the Balete and Lipa Honey Industry

The cost of inputs is one of the main problems of the bee industry in Batangas. Sugar represents a big part of the enterprises' total costs. Too much reliance on sugar can be attributed to the absence of idle lands which can be used for bee migration. The excessive use of sugar not only increases costs but also affects quality. Some beekeepers and experts consider honey produced with the use of so much sugar as adulterated (i.e. not pure).

The insufficient financial support from the government and financial institutions also hinders the growth of the honey industry in Batangas. Like other agricultural ventures, beekeeping is greatly affected by climatic conditions. Lenders view the beekeeping operation as a risky enterprise. Hence, beekeepers' access to credit is limited.

Consistency in the quantity and quality of honey being supplied by the Balete and Lipa City beekeepers is also a problem. Supermarkets and groceries require honey producers to provide continuous supply of the product. Customer loyalty is also gained if quality is consistent. Deviations from the prescribed production process of the UPLB Bee Program results to unstable yield and quality. Lack of accreditation from BFAD and DTI of some players also prevents these beekeepers from supplying large supermarkets and groceries.

IV. Conclusion and Recommendations

One of the main challenges faced by beekeepers in Balete and Lipa, Batangas is the improvement of production efficiency. Sugar has been the major input in the beekeeping business. Around 30%-50% of the revenue of the enterprise goes to the purchase of sugar. Unfortunately, the beekeepers are not aware of the optimal amount of sugar that will lead to the highest yield and lowest cost. Hence, there is a need for the UPLB Bee Program to further increase it extension efforts to help the beekeeping industry in

Batangas to achieve higher efficiency. Knowledge-based technology is usually forgotten over time. People tend to go back to the traditional production method. Therefore, continuous training is essential.

More innovation on the production process should also be introduced to the beekeepers. Again, the aim is to further reduce production cost and increase profit margins. For areas with numerous idle lands, migration of the bee colony should be encouraged. This method takes advantage of the existing vegetation in the locality. It also reduces too much reliance on sugar as the main food of the colony. This practice is recommended for beekeepers with more than 100 colonies. Migration period should be done during the months of November up to May since this is the time when honey is abundant. The mountainous areas in Lipa City such as Barangays Tipakan, San Benito, Sto. Nino, San Celestino, San Isidro and San Francisco, can serve as a good migratory location for bees. The practice of migration can provide mutual benefit to the beekeepers and the landowners. Honeybees help increase the yield of certain crops. It also facilitates pollination.

There is also a need for the beekeepers to aggressively market their product. Good packaging of the product will allow the beekeepers to command a higher price for their product. It will also attract more buyers. The purity of the honey products must be emphasized. This means, there is a need to establish a well accepted industry quality standard for honey. The products should undergo DTI accreditation. DTI can also give the consumers an assurance that the products passed strict quality and sanitary inspections. DOST and other related institutions may provide assistance in designing labels and packaging materials. The long-term goal is to come up with a product that will be acceptable in the global market. The beekeepers should also take advantage of the services being provided by BEENET and the UPLB Bee Program. Assistance from these institutions is not limited to technical expertise. As mentioned earlier, marketing of the products can be facilitated through these institutions. Beekeepers can seek support in identifying the appropriate market for the honey products.

The beekeepers in Balete and Lipa City should form an organization to increase its bargaining power. Problems of production volume can be addressed if these beekeepers can get together in supplying large supermarkets. This scheme will also be convenient on the part of the institutional buyers since they do not have to deal with a number of small suppliers. Financial assistance from government and private institutions can easily be obtained if the association will serve as a conduit of funds.

The UPLB Bee Program can further create a positive impact among beekeepers in Batangas. It is estimated that only 40% of the beekeepers in this province have attended trainings on honey production. With more seminars and trainings, the level of efficiency and effectiveness of these honey producers can be elevated to become more competitive. The LGU should sponsor these trainings.

UPLB has played a major role in developing the Philippine honey industry. Though a lot has been achieved, we are still very far from realizing the full potential of the industry.

Technology is a vital link to reach development. If the industry can not move forward, it will either stagnate or move backward. The UPLB Bee Program hopes to push the industry forward. Technology transfer is vital.

V. Areas for Further Research

This study focused mainly on the existing production and marketing practices of beekeepers in Balete and Lipa City, Batangas. It also presented the problems of the industry. However, there was no attempt to compare the financial and production performance of beekeepers who adopted the UPLB bee production technology and those who did not. This information is essential in showing the superiority of the UPLB technology relative to the traditional production method. It will also help in measuring the impact of the technology to the industry. These impacts maybe in the form of higher production volume or lower production cost. Future studies on the UPLB Bee Program may look into these aspects.

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