SURVEY ON BANANA CHIP PROCESSORS IN REGION XI, XII & XIII

I. INTRODUCTION

Through a series of consultations and dialogues in the Municipality of New Bataan, ComVal Province, it finally came out that cardava banana is one of the potential crops in the upland that remained unattended in terms of technology updates to improve production and product quality. Marketing support system has low priority considering the presence of unfavorable marketing practices of the local traders to the banana producers.

New Bataan is blessed with rich soil and favorable agro-climatic conditions suitable for banana production. Although the crop has a simple cultural management practice, but still there are some farmers who are reluctant to increase production due to the lack of knowledge and enough information in marketing the product into commercial scale.

It is on the above premise that a discussion meeting with the Local Chief Executive of New Bataan and Programme staff was facilitated last February 2003. As a result, the former requested UDP-ComVal to help them (LGU-New Bataan) determine the opportunities of large-scale market to institutional buyers that commercially processed cardava banana into chips for local and export market. The MLGU links this effort by extending its initial support to banana (cardava) growers in terms of increasing the area of production and improvement of product quality.

On March 17-21, 2003, UDP-ComVal to conducted a quick survey to explore the existence and viability of cardava banana buyers and chip processors in Regions XI, XII & XIII.

II. OBJECTIVES

The survey aims to examine the following;

a.) Existence and viability of Cardava Banana Buyers and Chip Processors in Regions XI, XII & XIII.
b.) Demand & Supply situation of Cardaba Banana.
c.) Buying Price and Mode of payment.
d.) Quality requirements.
e.) Area of operation (sources of raw cardava banana)
f.) Hauling scheme
g.) Market of Banana chips.

III. METHODOLGY

The survey was conducted by the team composed of three (3) UDP & one (1) LGU staff of New Bataan and a cardava banana farmer cooperator from the UDP-MLGU third barangay San Roque, New Bataan, Compostela Valley.

The study focused on the pre-identified banana chip processors in regions XI, XII & XIII. At first, the team coordinated with the Department of Trade & Industry (DTI) to gather some secondary information. DTI facilitated access to the management of different banana chip processors. Gathering of first hand information was through informal dialogues and discussions with the plant managers together and the DTI technical personnel. Discussion covered mainly the commodity flow from the sources of raw materials, hauling scheme, buying price and mode of payment. Also discussed were the quality requirements and the supply situation of cardava banana against the daily plant capacity requirement. Discussed further were the companies' domestic and foreign cardava banana processed chips market outlets and its demand situation.

IV. SURVEY RESULTS

<u>Supply & Demand Situation</u>

a.) ***Raw Cardava***

Annex 2 also shows the design rated plant capacity and the average actual volume supplied to the eleven (11) processors in Regions XI, XII & XIII. However, the figures do not represent the entire supply & demand of cardava in three regions since the activity conducted was concentrated on the existing banana chips processors and the experiences in processing operation. Other information gathered, are the strategies and approaches in obtaining volume of raw materials from the fields and the relevant data that are necessary for data banking as ready reference. There are fourteen (14) processors identified where eleven (11) of which or 73% shared pertinent information on existing cardava banana chip processing in stated regions. Thus, the data gathered are utilized to derive indicative figures for supply & demand analysis of cardava banana business venture.

Direct exporters absorbed large volume of cardava banana compared to non-exporters. In fact, direct exporters are traveling as far as 300 kilometers away from the plant site to procure raw materials to satisfy the plant capacity requirements.

As an example, processors from Butuan City are getting 40% of total marketable cardava banana production from ComVal province and 30% from Zamboanga del Sur and Misamis Oriental. GSL Food Enterprise of Sta.Cruz, Davao del Sur purchased the supply from North Cotabato and Davao Oriental.

To sum it up, 440,000 kilos (***annex-1***) of raw cardava banana are the total combined daily volume requirements of the eleven (11) processors while the actual average volume supplied daily totaled to 242,000 kilos which indicated a supply-demand gap of 198,000 kilos (45%) everyday or 59,400,000 kilos per year (300 working days plant operation/year). Twenty-five (25%) is the average recovery rate for cardava banana chip which is approximately equivalent to 14,850,000 kilos on a per year basis. The raw material supply deficit against the total plant requirement shows that most of the plants are operating under its design rated capacity. Fact to this, is the temporary closure of one processing plant in Sarangani Province due to scarcity of supply despite of several orders of banana chips from foreign buyers.

Figure of supply-demand gap may still increase if the other three (3) existing direct exporters of banana chips in region XI, namely; Tropical Fruits, Bunawan, Davao City, Royce Food Corporation., Magdum, Tagum City, and ARCMEN Industries, Panabo City would have been sourced out relevant market information.

The above information is conclusive enough that there is a wide and great opportunity for upland farmers to develop and amply expand respective farms if suitable for growing and raising the crop. It is an alternative assurance of improving the quality of life by refocusing labor investment direction into this succulent tree plant.

b.) *Banana Chips*

Since the survey was focused only to the existence of institutional buyers in three (3) regions, the team has no enough data on the supply and demand of banana chips in other uncovered areas. However, with limited information taken from the direct exporters and compiled data during the 3rd National Banana Congress last November 20-21, 2002, we derived a conclusion that there is a greater and wider opportunity of banana chips in export market.

Annex 2 shows that in the year 2001, only 41 countries were importing the products with a total volume of 13,471,498 kilos and from January to August of 2002 (eight months period), Philippines has exported 15,754,224 kilos of banana chips to 47 countries. The tremendous increase of 16.94% in volume from 2001 to 2002 exceeded the processors’ projections of 10% growth of export market for five (5) years. It is an assurance indicator that there is really stable market of the product despite global economic crises.

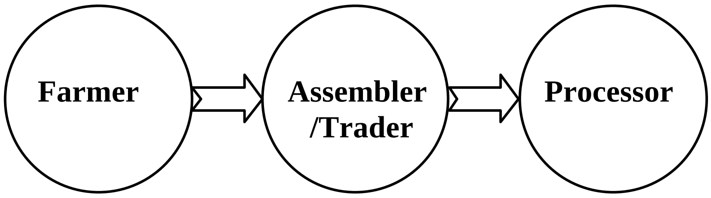
Banana chip processors acclaimed that greater volumes of banana chips in the foreign market are coming from the Philippines atop to the living competitors from Thailand, Indonesia and Malaysia.

Statistical data on export market of banana chips correspond to the statement of all Plant Managers with regard to the sales outlets. Shown on the table that in the year 2002, United States of America (USA) contributed a bigger share of importation at 19.18% in volume followed by Hong Kong, 14.34%; Taiwan, 12.24%; Great Britain, 11.04; Germany and Japan with 9.17% and 8.49%, respectively.

Processors Buying Operation ***(Annex-3)***

Most of the processors have a large area of operation to buy cardaba banana that covers on respective municipalities, neighboring towns, provinces and even buying the banana fruits from other regions. Processors have maintained local traders/product assemblers in the area of sources of raw materials to support plant operation requirements. Attractive incentives are offered to the traders who are loyal to the processors.

Illustration below shows the usual flow of the commodity as made mentioned by most of the buyers interviewed;



Other buyers can accommodate group of farmers/cooperatives who wanted to engage on organized selling or collective marketing. But normally, the processors always protect the accredited traders for sustainability of the demand-supplier relationship. In the same manner that there are buyers who are willing to entertain individual farmers delivered directly the produce to plant sites through "***suki***" system on agreed buying price provided prior arrangement should have been done.

Quality Requirements

Processors have common indicators of quality requirements, that it should be matured but unripe, no "bogtok disease" and at least three to four inches in length.

Prime Fruits Industry processor in Tagum City adopted a unique indicator of quality requirements that it should contain a minimum of fourteen (14) fingers/kilo per hand. Another processor in Davao City has three (3) categories of maturity index, pre-mature, quarter mature (75% maturity) and fully matured. The company considered only the third category, while other buyers accepted the quarter matured fruit category.

Buying Price

Buying domestic price of green cardava banana usually goes down during the month of December down to February in the late 1990s but the processors observed the higher demand of banana chips abroad which resulted to high price competition of raw banana in the year 2000 onward. *Thus, during the time of conduct of the survey on March 17-21, 2003*, buying price ranges from Php 3.40 to Php 4.00 per kilo on either pick-up or delivered to plant sites (Annex 2.List of Banana Chip Processors). So, that the average price is Php3.70 a kilo.

Mode of Payment

Most of the buyers will do payment transactions at the plant site in form of cheque or cash for security reasons. Usually done after product sorting and weighing. However, El Coco in Tagum city offered partial cash payment upon receiving the product.

Hauling Scheme

Out of eleven (11) buyers interviewed, there are three (3) of them that do not pick up the produce at the farm gate due to unavailability of transport facilities. But the processors preferred for customers to transport the bananas to the plant sites. Further, upon prior arrangement the cardava banana buyer are willing to pick up the products in the area to allay competitions.

Labor Force(Personpower)

The processors commonly employed the piecework system to undertake the routine activities of banana chips processing. However, most of them used the mechanized chopping machines (slicers) to obtain at least a uniformed thickness of cut banana meat into chips.

Smaller plants like SUNBLISS International Eximport, Koronadal, South Cotabato has 28 workers, while plant with bigger capacity like CELEBES Agricultural Corporation in Butuan City employed 300 workers. Workers are distributed to different sections, from receiving (weighing and quality control)-peeling-slicing-frying-sorting-sweetening & packaging sections.

Product Packaging

Product packaging is dependent on the customers' demand (importer) on the size of boxes to be adopted with certain weight specification. One processor disclosed that the packaging system is strictly in accordance with the buyers' requirement, i.e., a box of banana chips should contain a net weight of 13 kilograms. But there are times that importers preferred bulk packaging to bigger cartoons (source: El Coco, Tagum City).

__Common Problems of Producers and Institutional Buyers__ (Recorded during interviews with SUNBLISS, Koronadal, South Cotabato and KOKI Food International, Bunawan, Davao City and Four Seasons Fruits, Tagum City).

Producers side	Buyers side
Poor road condition	Unstable Peso-Dollar exchange
Lack of transportation facilities to deliver the product in order to avail better price	Limited supply of raw materials to satisfy the demand of banana chips abroad
Lack of price/market information due to lack of communication facilities.	Sudden price fluctuation of cooking oil, sugar and other packaging materials.
Lack of technology to improve the quality of the products	Peace and order situation in areas of operation.
Unorganized cardava growers to benefit bargained higher price.	
Limited knowledge on maturity indices to conform the buyer's requirement.	
Unstable buying price of traders	
High incidence of "***bogtok disease*** " to some production areas.	

V. RECOMMENDATIONS

Since survey result shows the greater demand of cardava banana all over in the three (3) regions identified, hereunder are recommendations to address the specific issues and concerns:

1. Initiate with Local Government Units covered by the Programme to create level of awareness in the municipality and to address the concerns to its constituents the expansion of production areas. As this develops, the derived supply & demand gap of **2,400** hectares in area on high density planting of cardava banana must be fully understood by potential cardava banana farmers in both upland and lowland on the significance of the result of the survey;

2. Ensure upland farmers considered cardava banana (if thrives in the area) as the medium term commodity which eventually will improve the monthly cash flow since harvesting happens every quincena or even weekly on large-scale production. Facilitate the already cardava growers to group themselves into organized marketing to arrive at bargaining power representation with the institutional buyers;

3. Institute with the Local Government Units (LGUs) to establish support system on product marketing and production of good planting materials in favor of the cardava banana growers;

4. Functionally install collaboration mechanism with concerned agencies for the conduct of good agricultural practices of the cardava banana crop to attain the quality requirements of the buyers through the following:

   -Bogtok disease control measures
   -Proper cultural management
   -Maintain better yield
   -Maturity indexing
   -Appropriate post harvest handling

5. Exposure of groups of farmers already engaged in cardava production to successful producers and pilot areas in San Isidro, Davao Oriental and Santo Tomas, Davao del Norte.

VI. CONCLUSION

The overall result of the segmented market survey shows that by going into productive effort for cardava banana production would pave the way for better opportunities in life socially and economically. The wider gap between supply and demand in volume of production and in expansion of production area propels interest of farmers and development facilitators to venture deeper into this market-led entrepreneurial undertaking that only requires very simple production technology.

Increasing export market as indicated in the survey would firm up local initiatives on production expansion that is also inching a little into the supply-demand gap which eventually farmers derive more benefits in increasing household income. The outlook of the cardava banana market indicates that more farmers dipping into production realization would sustain spirally the viability and continued existence of all industry players.

VII. Team Composition

Godofredo V. Berdon	UDP
Grace J. Gana-an	UDP
Maria Teresa E. Funa	UDP
Vetus Sotero Vigil	LGU-New Bataan-Marketing Point Person
Samuel Bacarro	Farmer Cooperator Chairperson Mapaso Small Banana Farmers Cooperative Mapaso, San Roque, New Bataan, COMVAL

Annex 2. Statistical data of export market for cardava banana chips (source: Statistics on Export of Banana Chips, 3rd National Banana Congress Nov. 20-21, 2002, Grand Men Seng, Davao City)

Year 2001/January-August 2002

Country	2001(net in kilo) 1 year	2002 (net in kilo) 8 months	Difference in kilo	%change
1.U S A (excl. Hawaii & Alaska)	2,399,199	3,021,928	622,729	**increase**
2.Japan	1,011,930	1,336,805	324,875	**increase**
3.Hongkong	1,846,398	2,259,385	412,987	**increase**
4.Great Britain & Northern Ireland	1,378,140	1,739,515	361,375	**increase**
5.Taiwan	1,843,049	1,928,968	85,919	**increase**
6.Germany	1,586,491	1,445,168	(141,323)	*decrease*
7.France	306,259	640,752	334,493	**increase**
8.Korea (South)	399,020	652,777	253,757	**increase**
9.Netherlands	443,779	553,378	109,599	**increase**
10.Singapore	583,642	352,788	(230,854)	*decrease*
11.Italy	137,954	123,047	(14,907)	*decrease*
12.Cananda	264,794	297,074	32,280	**increase**
13.Sweden	131,483	272,654	141,447	**increase**
14.Australia	265,207	219,672	(45,535)	*decrease*
15.Czech Republic	70,862	96,547	25,685	**increase**
16.Belgium	80,937	73,288	(7,649)	*decrease*
17.Thailand	184,576	84,935	(99,641)	*decrease*
18.Israel	46,510	56,323	9,813	**increase**
19.China	34,393	70,363	35,970	**increase**
20.Latvian Soviet Socialist Republic	32,640	59,369	26,729	**increase**
21.Norway	74,028	59,896	(14,132)	*decrease*
22.Spain	43,563	57,070	13,507	**increase**
23.South Africa (Rep.of)	12,615	48,028	35,413	**increase**
24.Poland	58,349	45,902	(12,447)	*decrease*
25.Russian Federation (USSR)	0	45,961	45,961	**increase**
26.Denmark	40,116	32,091	(8,025)	*decrease*
27.Lithuania	11,080	30,735	19,655	**increase**
28.Micronesia (federated states of)	1,640	27,615	25,975	**increase**
29.Portugal	6,537	21,227	14,690	**increase**
30.Canary Island	0	23,406	23,406	**increase**
31.N.Zealand (excl. Western Samoa)	37,113	11,997	(25,116)	*decrease*
32.Brunie Darussalam	357	11,686	11,329	**increase**
33.Bulgaria	0	12,500	12,500	**increase**
34.Finland	0	6,947	6,947	**increase**
35.Greece	0	8,527	8,527	**increase**
36.Jordan	0	10,886	10,886	**increase**

37.Austria	0	3,529	3,529	**increase**
38.Saudi Arabia	1,772	3,348	1,576	**increase**
39.Switzerland	36,013	2,994	(33,019)	*decrease*
40.United Arab Emirates	28,373	759	(27,614)	*decrease*
41.Bahrain	100	707	607	**increase**
42.Brazil	11,864	1,023	(10,841)	*decrease*
43.Eritria	0	1,361	1,361	**increase**
44.Trust Territory of Pacific Island	20,385	512	(19,873)	*decrease*
45.Qatar	0	519	519	**increase**
46.Guam	1,831	196	(1,635)	*decrease*
47.Lebanon	457	66	(391)	*decrease*
48.Sri Lanka (Ceylon)	18,000	0	(18,000)	*decrease*
49.Hawaii	10,041	0	(10,041)	*decrease*
50.Argentina	10,001	0	(10,001)	*decrease*
TOTAL	**13,471,498**	**15,754,224**	**2,282,726**	**16.94486%** increase for 8 months

SUMMARY OF SUPPLY-DEMAND GAP OF RAW CARDABA IN REGION XI, XII & XIII

Annex 1

REGION/ PROVINCES	NUMBER OF PLANTS INTERVIEWED	TOTAL PLANT REQUIREMENTS (tons/day)	ACTUAL AVERAGE DAILY VOLUME OF BANANA PROCESSED (tons/day)	SUPPLY-DEMAND GAP (tons/day)
REGION XII				
Sarangani	1	40	30	**10**
South Cotabato	2	80	45	**35**
REGION XI				
Davao del Sur	1	50	30	**20**
Davao City	2	80	40	**40**
Davao del Norte	3	100	32	**68**
REGION XIII				
Agusan del Norte	2	90	65	**25**
TOTAL (Daily**)**		**440**	**242**	**198**
Total (Annually) @ 300 working days		**132000**	**72600**	**59400**

EXISTING BANANA CHIP PROCESSORS IN REGION XI, XII, & XIII

Annex 3

Name of Processors	Address	Rated Plant Capacity (tons/day)	Actual Production (tons/day)	Current Buying Price (Php./kg) *	Mode of Payment	Quality Requirements	Hauling Scheme	Sources of Raw Materials	Market of Processed products
Four Seasons Food Corp.	Tagum City, Dvo del Norte	20	12	3.70 (delivered) 3.40 (pick-up)	Cash, payment after sorting & weighing	Matured but not ripe, at least 3" in length & not "bogtokon'	Deliver to plant site & Pick-up at Farm gate	Dvo. Or., Dvo del Norte, COMVAL	Europe, U.S., & other Asian countries
El Coco	Tagum City, Dvo del Norte	40	20	3.80 (delivered) 3.50 (pick-up)	Cheque payment after sorting & weighing, partial cash payment upon delivery	Matured but not ripe, at least 4" in length & not "bogtokon'	Deliver to plant site & Pick-up at Farm gate	Dvo. Or., Dvo del Norte, COMVAL	All over the world except Africa.
Prime Fruits International	Tagum City, Dvo del Norte	40	Initial Operation starts April'03 Full implementation after 6 mos.	3.70 (delivered) 3.40 (pick-up)	Cheque payment after sorting & weighing	Matured but not ripe, <14 fingers/kg/hand & not "bogtokon'	Deliver to plant site & Pick-up at Farm gate	Dvo. Or., Dvo del Norte, COMVAL	no info
Koki Food Int'l	Bunawan, Dvo City	30	22	3.90 (delivered)	Cheque payment after sorting & weighing	Matured but not ripe, allows 25% of total vol for 3" in length, not bogtokon	Deliver to plant site	Dvo City, Dvo Sur, Dvo Or, COMVAL	Japan, Europe, U.S., U.K.
Philexson	Bago Aplaya, Dvo. City	50	18	3.90 (delivered)	Cheque payment after sorting & weighing	Fully matured but not ripe,at least 3"length of meat,not "bogtokon"	Deliver to plant site	Dvo City, Dvo Sur, Dvo Or, COMVAL, Dvo Norte	Japan, Europe, U.S.

Sunbliss Int'l Eximport	Koronadal, So. Cot	20	10	3.70 (deliverd), 3.40 (pick-up)	Cheque payment after sorting & weighing(plant site)	Matured but not ripe, at least 4" in length & not "bogtokon'	Deliver to plant & Pick-up at Farm gate	North Cot., Koronadal	U.S. China
El Coco **	GSC, Sarangani	40	30	3.20 (<5t), 3.40(>5t), delivered to plant site	Cheque payment after sorting & weighing	Matured but not ripe, at least 3" in length & not "bogtokon'	Deliver to plant site (offer vehicle plan to agents)	North Cot., Sarangani	U.S.A., Europe
Greenville Agro Corp	Polomolok, So. Cot.	60	35	3.40 (delivered)	Cheque payment after sorting & weighing	Matured but not ripe, at least 3" in length & not "bogtokon'	Deliver to plant site	North Cot., So. Cot., Sarangani	U.S.A.
GSL	Sta Cruz, Dvo Sur	50	30	3.70 (delivered) 3.40 (pick-up). Add'l 10 cents/kg for bigger vol	Cheque payment after sorting & weighing	Matured but not ripe, at least 4" in length & not "bogtokon'	Deliver to plant site & pick-up at farm gate	Dvo sur, Sarangani, North cot, Dvo Norte, Dvo Or	U.S.A., Europe
Celebes Agri'l Corp	Butuan City, Caraga	40	30	4.00 (delivered), 3.70 pick-up	Cheque payment after sorting & weighing	Matured but not ripe, at least 3" in length & not "bogtokon'	Deliver to plant site & pick-up at farm gate	Zambo Sur, Caraga Reg., COMVAL, Mis Or	Europe & Asia-pacific
BFC Worlwide Inc.	Butuan City, Caraga	50	35	3.70 (delivered)	Cheque payment after sorting & weighing	Matured but not ripe, at least 3" in length & not "bogtokon'	Deliver to plant site	Caraga Reg.,.COMVAL	U.S.A., Europe, Japan, China & other Asian countries
TOTAL		440	242						

* Buying price during the survey conducted March 17-21, 2003.

**Temporarily closed due to lack of supply.

Annex 4

NEEDED AREA (HAS) TO MEET THE SUPPLY-DEMAND GAP

Given data/Assumptions:

1. 198 tons per day (supply-demand gap)	-results on survey
2. Planting distance	-4m.x 4m.distance
3. Expected harvest	-14 months after planting
4. Average weight per bunch	-25 kilos
5. Harvesting period	-150-180 days after shooting.

Computation:

1. Population density per hectare (at 4m.x 4m. distance)	= 625 hills per hectare
2. Annual production per hectare:	
a.) 2^{nd} year after planting (single stem)- 25 kilos/bunch @ 625 hills	= 14,843 kilos (net from 5% field loss)/year
b.) 3^{rd} year onward 1:2 ratio with two stems/mat to bear fruits 1,250 bunches @ 25 kilos each	= **29,687** kilos (net from 5% field loss)/year
3. Estimated monthly production/hectare with 29,687 kilos/year by 12 months	= **2,474** kilos/month
4. Estimated daily production per hectare with 2,474 kilos per month @ 30 days	= **82.5** kilos/day/hectare (starts on the 3^{rd} year after planting)

THEREFORE;

Estimated area in hectares to supply the daily gap against the daily plant requirements of eleven processors is

$$= \frac{\text{198,000 kilos per day (supply gap)}}{\text{82.5 kilos production/day/hectare}} = \mathbf{2{,}400} \text{ hectares}$$