MINISTRY OF AGRICULTURE
&
FISHERIES

2005

ACRONYMS

ACP	African, Caribbean and Pacific Countries
Agstat	Agriculture Station
AI	Avian Influenza
AQUIF	Aquaculture and Inland Fisheries
ASWAP	Agriculture Sector Wide Approach Programme
ATM	Automatic Teller Machine
BAHA	Belize Agricultural Health Authority
BAS	Belize Audubon Society
BELTRAIDE	Belize Trade & Investment Service
BEST	Belize Enterprise for Sustainable Technology
BFR	Belize Farm Registry
BGA	Banana Growers Association
BIARD	Belize Institute for Agricultural Research and Development
BLPA	Belize Livestock Producers Association
BMDC	Belize Marketing and Development Corporation
BOPA	Belize Organic Producers Association
BSE	Bovine Spongiform Encephalopathy
BSI	Belize Sugar Industries
CAC	Central American Agricultural Council
CARICOM	Caribbean Community
CARD	Community-Initiated Agriculture and Rural Development
CARDI	Caribbean Agriculture Research and Development Institute
CARIFORUM	Caribbean Forum
CARTF	CARIFORUM Agribusiness Research and Training Fund
CATIE	Tropical Agriculture Research & Higher Education Centre
CBO	Community Based Organization
CCU	Conservation and Compliance Unit
CDB	Caribbean Development Bank
CDE	Centre for Development of Enterprise
CFA	Cane Farmers Association
CFIA	Canadian Food Inspection Agency
CGA	Citrus Growers Association
CGWCU	Citrus Growers and Workers Credit Union
CITES	Convention for the Regulation of International Trade of Endangered Species
CORECA	Regional Council for Agriculture Cooperation
CREI	Citrus Research and Education Institute
CRFM	Caribbean Regional Fisheries Mechanism
CSF	Classical Swine Fever
CZMAI	Coastal Zone Management Authority and Institute
DAC	District Agriculture Officer
DFID	Department for International Development
EU	European Union
FAO	Food and Agriculture Organization

FAOR	Food & Agriculture Organization Representative
FDA	Food and Drug Administration
FTAA	Free Trade Area of the Americas
GAP	Good Agriculture Practices
GEF	Global Environmental Fund
GMO	Genetically Modified Organism
GMP	Good Manufacturing Practices
GOB	Government of Belize
HACCP	Hazard Analysis and Critical Control Point
HIVOS	Humanist Institute for Co-operation with Developing Countries
ICCAT	International Commission for the Conservation of Atlantic Tunas
IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
IICA	Inter-American Institute for Cooperation on Agriculture
IMMARBE	International Merchant Marine Registry of Belize
INFAL	International Network of Food Analytical Laboratories
LEO	Livestock Extension Officer
MAF	Ministry of Agriculture and Fisheries
MBRS	Meso-American Barrier Reef System
MOU	Memorandum of Understanding
MSY	Maximum Sustainable Yield
NARI	National Agriculture Research Institute
NCCARD	National Committee for Coordination of Agriculture Research & Development
NEAC	National Environmental Assessment Committee
NEMO	National Emergency Management Organization
NGO	Non Governmental Organization
OIRSA	Regional Organization for Plant & Animal Health
OSPESCA	Central American Organization of the Fisheries and Aquaculture Sector
PAHO	Pan American Health Organization
PHMB	Pink Hibiscus Mealy Bug
REMERFI	Meso-American Network for Plant Genetic Resources
RFS	Rural Financial Services
RK	Red Kidney
ROC	Republic of China (Taiwan)
RUTA	Regional Unit for Technical Assistance
SAQS	Strengthening Agriculture Quarantine System
SCPC	Sugar Cane Production Committee
SCQCA	Sugar Cane Quality Control Authority
SICA	Central American Integration System
SICB	Sugar Industry Control Board
SIRDI	Sugar Industry Research and Development Institute
SMP	Synoptic Monitoring Program
SPAGS	Spawning Aggregation Sites
SPFS	Special Project for Food Security

SPS	Sanitary/Phyto-sanitary
TCGA	Toledo Cacao Growers Association
TCP	Technical Cooperation Programme
TNC	The Nature Conservancy
UNDP	United Nations Development Programme
USA	United States of America
USDA	United States Department of Agriculture
UTN	National Technical Unit for RUTA
VDRU	Veterinary Drug Registration Unit
VPN	Virtual Privacy Network
WNV	West Nile Virus
WTO	World Trade Organization
WWF	World Wildlife Fund

THEME	Agriculture and Fisheries: Pillar of the Belizean Economy
VISION	A transformed/modern sector that is fully competitive, diversified and sustainable.
MISSION	To continue as the economic pillar of Belize, ensuring food security, generating income and foreign exchange, creating employment, and conserving natural resources, in order to grow the economy, reduce poverty and empower the local population for sustainable development.
STRATEGIC OBJECTIVES	1. Increase the efficiency, profitability and Competitiveness of the agriculture, fisheries and cooperative sectors 2. Accelerate the diversification in production, processing and exports 3. Improve and conserve the natural and productive resource base to ensure long-term sustainable productivity and viability 4. Improve access to productive resources and services and create economic opportunities for small/young farmers, women and indigenous people, particularly in poor, marginal areas 5. Strengthen the institutional capacities to provide effective support in marketing and trade, research and extension, as well as relevant education and training
OUR CLIENTS and PARTNERS IN DEVELOPMENT	Farmers Fishers Cooperatives Producers and workers Processors and manufacturers Distributors and exporters Consumers and investors National and local government Civil society Local and external donors

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Foreword

Hon. Vildo Marin
Minister of Agriculture
& Fisheries

The Ministry of Agriculture is firmly committed to sustainable rural development and sees the agricultural sector (including livestock and fisheries) as providing the economic base for enhanced economic growth of the country (in particular the rural areas) and addressing poverty alleviation. The Agricultural and Food Policies are designed to make the agricultural sector more efficient and competitive, while at the same time, contributing to the improvement of the economic and social well being of all Belizeans.

As the new Minister of Agriculture, I would like to highlight that the past year achievements and this years plans provides an opportunity for reaffirming agriculture as the engine of growth for the Belizean economy, and for expanding Belize's international trade through increasing exports and optimizing productive efficiencies, and as such offers an opportunity for Belize to improve its terms of trade and to meet its national poverty alleviation goals.

It gives me great pleasure to present to you this annual report that highlights the work accomplished for 2005 and the areas of collaboration with our clients, other stakeholders, collaborators and partners in development. For this I would like to extend my appreciation.

"We must remain in touch with the producers and other partners in development as the challenge to provide more with less continues." Despite the resource constraints faced, I am confident that we will build on this year's success. I remain proud and indebted to my Ministry's Staff for their resilience and professionalism. To them I say heartfelt thanks.

Together we are working for a Better Belize.

Hon. Vildo Marin
Minister of Agriculture & Fisheries

Acknowledgements

The Annual Report 2005 represents team work by the Departments of Agriculture, Fisheries, Cooperatives and the Trade/Policy Unit; together with the inputs from the Belize Livestock Producers Association, the Belize Agriculture Health Authority, the Belize Marketing & Development Corporation, the United States Department of Agriculture, the Caribbean Agriculture & Research Development Institute, the United Nations Food & Agriculture Organization, the Republic of China on Taiwan (Agriculture Technical Mission) and the International Regional Organization for Health in Agriculture. The support which the staff of the various departments, units, sections, projects, programs and partner-agencies provided in preparing respective reports, made possible the completion of the Annual Report 2005 for the Ministry of Agriculture & Fisheries.

Thanks also goes to farmers, fisher-folks, producers, distributors, exporters, importers, investors, other Government Line Ministries and Donor/Partner Agencies which continuously supported the Ministry's work during 2005; YOUR COOPERATION/Support facilitated and contributed towards the achievements as enunciated in the Annual Report 2005.

Executive Summary

Primary Output: During 2005 nominal agriculture output experienced a slight decline of 0.4% from $414 million to $413 million. The traditional sector grew from $171 million to $188 million as a result of a 62% increase in citrus earnings. Bananas, sugar and marine products declined by 2%, 5% and 3% respectively. The non-traditional sector experienced an 8% decline from $243 million to $225 million despite a 10% expansion in the fruits/vegetables sector; the main contributor to this reduction was the farmed shrimp industry which exhibited an income reduction from $84.3 million to $59.8 million; the livestock sector also shrank by 3%.

Primary Agriculture Output Value for 2005

Product	2004	2005	Change
Sugar-Cane	$ 52,956,313	$ 50,373,046	-5%
Bananas	$ 53,869,636	$ 52,616,369	-2%
Citrus	$ 35,566,755	$ 57,593,479	62%
Marine Products	$ 28,419,676	$ 27,462,348	-3%
Sub-Traditional	$ 170,814,384	$ 188,045,242	10%
Fruits/Vegetables	$ 79,435,991	$ $87,385,766	10%
Livestock	$ 79,606,929	$ 77,439,738	-3.0%
Farmed shrimp	$ 84,283,000	$ 59,763,000	-29%
Sub-Non-Traditional	$ **243,325,920**	$ 224,588,504	-8%
Total Output	$ 414,140,304	$ 412,633,748	-0.4%

Fruit/Vegetable Output: Nominal output in the fruit/vegetable sector expanded by 10%. In the fruit/vegetable sector 4 products (beans, papayas, corn and rice paddy) accounted for more than 67% of all nominal output. The remaining 33% of nominal output was made up of 50 other minor fruits/ vegetables. The four major commodities in fruits/ vegetables expanded by 16% or roughly $8 million; this expansion was mainly responsible for the growth in the sector. In the aggregate there was no expansion in the remaining 50 products which constitute the fruits/vegetable sector.

Fruit/Vegetable Production in 2005

Product	2004	2005	Change
Papayas:			
Quantity in lbs	60,989,421	58,168,955	-5%
Price per lb	$ 0.41	$ 0.43	5%
Value	$ 25,005,663	$ 25,012,651	0%
Beans:			
Quantity in lbs	8,958,576	11,722,100	31%
Price per lb	$ 0.79	$ 0.83	6%
Value	$ 7,078,764	$ 9,783,677	38%
Corn:			
Quantity in lbs	67,306,275	76,376,425	13%
Price per lb	$ 0.20	$ 0.20	0%
Value	$ 13,461,255	$ 15,275,285	13%
Rice Paddy:			
Quantity per lb	23,537,939	39,152,894	66%
Price per lb	$ 0.22	$ 0.22	0%
Value	$ 5,178,347	$ 8,613,637	66%
Sub-total	$ 50,724,028	$ 58,685,249	16%
% of Total	64%	67%	5%
Total Fruits/Vegetables	$79,606,929	$87,385,766	10%

Livestock Output: The livestock sector contracted by 3% from $79.6 million to $77.4 million. Contraction in beef output and egg production was responsible for the reduction. Beef output decreased by 21% from $16.1 million to $12.8 million, which might be indicating that the livestock population is declining and is unable to keep pace with both domestic demand and available export markets. With respect to the egg industry, demand outpaced supply but this situation should be corrected in 2006; egg production in 2005 recorded a contraction of 17% from $4.3 million to $3.6 million.

Livestock Production in 2005

Product	2004	2005	Change
Beef:			
Beef (Value) slaughtered & exports	$16,112,930	$12,774,420	-21%
Export Price on the Hoof	$1.10	$1.20	9%
Domestic Price (Dress weight - lbs)	$2.25	$2.50	11%
Pigs:			
Pigs (Value) slaughtered & exports	5,586,750	$7,730,794	38%
Export Price on the Hoof		$1.40	
Domestic Price (Dress weight- lbs)	$3.25	$3.00	-8%
Poultry (Value):*	$50,554,759	$50,164,143	-1%
Milk (lbs)	$2,551,957	$2,671,148	5%
Eggs (Value)	$4,276,885	$3,608,952	-16%
Honey (Value)	$375,597	$311,238	-17%
Total	$79,458,878	$77,260,695	-3%

* Refers to Commercial poultry, turkey and spent hens

Agricultural Exports: Agriculture export earnings expanded by 1% from $359.7 million to $363.4 million due to growth in citrus export earnings and non-traditional export earnings (papayas, RK beans, black eye peas and pepper sauce). The remaining traditional sectors experienced contraction of 13% and 4% for sugar & molasses and the banana sector respectively, and 5% increase for marine products.

Exports in 2005

Product	2004	2005	Change
Sugar & Molasses	$ 83,300,000	$ 72,720,000	-13%
Citrus Products	$ 89,048,705	$ 119,294,424	34%
Marine Products	$ 23,051,000	$ 24,107,500	5%
Bananas	$ 52,990,000	$ 51,080,000	-4%
Farmed Shrimp	$ 84,283,000	$ 59,763,000	-29%
Other Non-traditional Exports	$ 26,980,000	$ 36,440,000	35%
Agriculture Exports	$ 359,654,709	$ 363,406,929	1%
Percent of total Exports	88%	88%	
Agric/Non-Agric Exports	$ 410,130,000	$ 411,191,000	0%

Sugar: In 2005 sugar-cane output and consequent unit exports of sugar declined by 20% (112,000 tons to 90,000 tons) but export earnings decreased by only 14% ($81.5 million to $69.9 million) due to a 7% increase in the export price. Farm gate price increased by 17.6%, resulting in a 5% contraction of farm income from primary output.

Molasses production increased by 2% while the price received in the export market (from $0.35 to $0.55/ gallon) increased substantially by 57% resulting in nominal exports increasing by 60% from $1.8 million to $2.8 million.

Sugar Sector Exports in 2005

Product	2004	2005	Change
Sugar:			
Value	$81,534,000	$69,899,000	-14%
Quantity (Tons)	112,000	90,000	-20%
Price	$ 727.98	$ 776.66	7%
Molasses:			
Value	$1,766,000	$2,821,000	60%
Quantity (Gals)	5,037,000	5,129,000	2%
Price	$ 0.35	$ 0.55	57%
Sector Export	$83,300,000	$72,720,000	-13%

Citrus: The citrus sector exhibited significant growth during 2005. Grapefruit production expanded by 3% reaching 1.5 million boxes while orange production expanded by 27% reaching 6.3 million boxes. Total orange/grapefruit output amounted to 7.8 million boxes.

Citrus export earnings expanded by 34% due to improved prices for grapefruit concentrate (17%) and orange concentrate (21%), together with a 30% increase in unit exports of orange concentrate. Exports of orange concentrate amounted to $87.5 million while grapefruit concentrate amounted to $19.4 million due to a 30% reduction in unit exports of grapefruit concentrate. Nominal exports of citrus squash exports expanded by 23% in 2005.

Citrus Production/Exports in 2006

Grapefruit Prod:	2004	2005	Change
Production in boxes	1,478,788	1,527,802	3%
Price per 80 lb box	$ 3.84	$ 9.82	156%
Value	$ 5,678,546	$ 15,003,016	164%
Grapefruit Concentrate Export:			
In gallons	1,810,000	1,260,000	-30%
Price per gallon	$13.16	$15.41	17%
Value	$ 23,820,000	$ 19,420,000	-18%
Orange Prod:			
Production in boxes	4,946,717	6,264,847	27%
Price per 90 lb box	$ 5.03	$ 5.85	16%
Value	$ 24,881,986.51	$36,649,354.95	47%
Orange Concentrate Exports:			
In gallons	6,450,000	8,380,000	30%
Price per gallon	$ 8.60	$ 10.45	21%
Value	$ 55,490,000	$ 87,550,000	58%
Fresh Citrus exports	$2,328,705	$3,234,424	39%
Other Processed Citrus exports	$7,410,000	$9,090,000	23%
Orange/Grapefruit Prod (boxes)	6,425,505	7,792,649	21%
All Citrus Exports	$ 89,048,705	$ 119,294,424	34%

Other positive contributors to citrus exports were increases in fresh lime exports (49%), fresh oranges (18%), and fresh grapefruit (25%) which together accounted for a 39% increase in exports of fresh citrus fruits; exports of fresh citrus amounted to $ 3.2 million in 2005.

Other Fresh Citrus Exports in 2005

Product	2004	2005	Change
Fresh Lime:			
Quantity (lb)	158,400	236,591	49%
Price per lb	$ 0.06	$ 0.07	17%
Value	$ 9,504	$ 16,561	74%
Fresh Orange:			
Quantity (lbs)	15,082,519	17,782,032	18%
Price per lb	$ 0.15	$ 0.18	20%
Value	$ 2,262,378	$ 3,200,766	41%
Fresh Grapefruit:			
Quantity in lbs	227,294	284,942	25%
Price per lb	$ 0.25	$ 0.06	-76%
Value	$ 56,824	$ 17,097	-70%
Fresh Citrus Exports	$ 2,328,705	$ 3,234,424	39%

Non-traditional processed citrus exports amounted to $9.09 million which is equivalent to a 23% growth; growth came from increased unit exports in orange oil (71%) and grapefruit oil (258%). Unit exports of orange squash declined by 74% while grapefruit squash contracted by 89%.

Other Processed Citrus Exports in 2006

Product	2004	2005	Change
Orange Squash:			
Quantity in gallons	570,000	150,000	-74%
Price per gallon	$ 3.51	$ 3.60	3%
Value	$ 2,000,000	$ 540,000	-73%
Grapefruit Squash:			
Quantity in gallons	350,000	40,000	-89%
Price per gallon	$ 5.11	$ 0.75	-85%
Value	$ 1,790,000	$ 30,000	-98%
Orange Oil:			
Quantity in lbs	1,222,050	2,093,060	71%
Price per lb	$ 1.68	$ 0.92	-45%
Value	$ 2,050,000	$ 1,920,000	-6%
Grapefruit Oil:			
Quantity (lbs)	182,190	652,400	258%
Price per lb	$ 8.62	$ 10.12	17%
Value	$ 1,570,000	$ 6,600,000	320%
Processed Citrus Exports	$ 7,410,000	$ 9,090,000	23%

Bananas: Nominal exports declined by roughly 3.6% from $52.9 million to $51.1 million due to a 3.8% reduction in real exports from 79,430 to 76,420 metric tons. Prices remained stable at $668 per metric ton.

Banana Exports in 2005

Product	2004	2005	Change
Quantity	79,430	76,420	-3.79%
Value	$52,990,000	$51,080,000	-3.60%
Price	$ 667.13	$ 668.41	0.19%

Fishery Products: Fishery exports contracted by 22% from 107.3 million to $83.9 million. The main product responsible for this sharp reduction was white farmed shrimp which experienced a 35% reduction in price resulting in reduced earnings of 20% from $84.3 million to $59.8 million, in spite of a 9% increase in real exports. The market environment for pink sea shrimp was positive; price increased by 93%; however, because unit exports declined by 54%, export earnings contracted by 11%.

Fishery Exports in 2005

Product	2004	2005	Change
Other Fish Except aquarium:			
Quantity (tonne)	118	202	71%
Value	$ 1,228,000	$ 1,681,000	37%
Price per tonne	$ 10,407	$ 8,322	-20%
Lobster:			
Quantity (tonne)	244	231	-5%
Value	$ 15,142,000	$ 14,499,000	-4%
Price per tonne	$ 62,057	$ 62,766	1%
White Farmed Shrimp:			
Quantity (tonne)	7,662	8,345	9%
Value	$ 84,283,000	$ 59,763,000	-29%
Price	$ 11,000	$ 7,162	-35%
Pink Sea Shrimp:			
Quantity (tonne)	48	22	-54%
Value	$ 870,000	$ 771,000	-11%
Price per tonne	$ 18,125	$ 35,045	93%
Conch:			
Quantity (tonne)	270	238	-12%
Value	$ 5,810,000	$ 7,156,000	23%
Price per tonne	$ 21,519	$ 30,067	40%
Total Exports	$ 107,334,000	$ 83,870,500	-22%

For the lobster sector, a price increase of 1%, along with a 5% reduction in quantity of exports resulted in a 4% reduction in export earnings from $15.1 million to $14.5 million. The conch sector experienced a 12% reduction in quantity of exports; however, a 40% increase in price more than compensated for the reduced unit exports resulting in 23% increased export earnings from $5.8 million to $7.2 million. Other nominal fish exports (mostly tilapia) expanded by 37% from $1.23 million to $1.68 million due mostly to a 71% increase in unit exports from 118 tonnes to 202 tonnes.

Non-traditional Crops:

Non-traditional crop export earnings expanded by 35% from $26.98 million to $36.44 million. Expansion came from all the major non-traditional crop products, since all commodities experienced a good external market reflected by price increases and increased domestic supply which allowed for increased unit exports. Papaya exports increased by 13% while price increased by 3% resulting in a 17% increase in export earnings from $22.8 million to $26.77 million. RK beans had a 143% increase in unit exports while price experienced an 11%

increase, giving rise to 171% increase in export earnings from $1.87 million to $5.06 million. Unit exports of black-eye peas increased by 134% while price increased by 4%, both factors contributed to a 144% increase in value of exports. Nominal pepper sauce exports expanded by 32% due to a 14% increase in real exports and a 16% increase in price increase.

Non-traditional Crop Exports in 2005

Product	2004	2005	Change
Papayas:			
In tonnes	25,220	28,620	13%
Value	$ 22,820,000	$ 26,770,000	17%
Price per tonne	$ 904.84	$ 935.36	3%
Pepper Sauce:			
In lbs	513,130	582,730	14%
Value	$ 870,000	$ 1,150,000	32%
Price per lb	$ 1.70	$ 1.97	16%
RK Beans:			
In lbs	3,060,000	7,430,000	143%
Value	$ 1,870,000	$ 5,060,000	171%
Price per lb	$ 0.61	$ 0.68	11%
Blackeye Peas:			
In lbs	3,170,000	7,430,000	134%
Value	$ 1,420,000	$ 3,460,000	144%
Price per lb	$ 0.45	$ 0.47	4%
Other :			
Total Exports	$ 26,980,000	$ 36,440,000	35%

1.0 AGRICULTURE DEPARTMENT

The Ministry of Agriculture & Fisheries continues to diversify the agriculture base in an effort to generate employment, earn foreign exchange from exports and save foreign exchange by reducing importation. The aim is to achieve increased food security and poverty alleviation.

The creation and formation of trading blocs among nations and the gradual removal of preferential markets for traditional commodities like bananas and sugar by the European Union will greatly impact the crop sector. It is essential, therefore, that small economies like Belize modernize the agriculture sector to maintain an edge in an ever growing competitive world. In this regard, it is of utmost important that all key stakeholders take a consolidated approach to address the immediate needs of the crop sector.

1.1 Sugar

The drought that extended from 2004 into 2005 affected sugar-cane production and productivity substantially. From the 929,393 long tons of sugarcane milled 100,435 long tons of sugar were produced as compared to 1,049,476 and 116,577 long tons in 2004, respectively. The milling was 30 days shorter than the year before. The TC/TS was 9.25 as compared to 9.00 in 2004. The sector continues to suffer from the structural reforms of the European Union (EU) due to pressure by other WTO members like Brazil and Australia. The WTO ruled that the 40-year guaranteed pricing system afforded to ACP member countries was illegal. Initially the EU had proposed to reduce prices by 39% but finally in November agreed to reduce the price paid for sugar by 36% over four years beginning in 2006/07. This would bring prices closer to world market prices. In the first year it will be reduced by 20%, in years two and three by 5% and in year four by 6%. In an effort to assist those ACP countries that have agreed to remain in sugar to become competitive or diversify, a EUR40 million funds was established. It is projected that disbursements of these funds may not occur until 2006 or 2007. ACP countries argue that if the assistance is delayed its usefulness and intended impact will come too late to have the desired impact. Belize has taken the strategic decision to remain in sugar production for the foreseeable future.

The past year witnessed an intensification of preparatory activities by the Sugar Industry Control Board supported by a Sugar Stakeholders' working group to formulate a long term development plan for the sugar cane industry. The following studies and reports were completed

- Value Chain Analysis covering the cane production transportation, processing and fobbing elements of the sugar production chain. - Prepared by consultants of the inter-American Institute For Cooperation In Agriculture (IICA)
- Strategic Analysis And Action Plan - Prepared by consultants Jose Alpuche and Tracey Hutchinson
- Belize Country Sugar Adaptation Strategy- prepared by Dr. Dowlat Budhram, IICA consultant

The industry is now poised to embark on the implementation of the recommendations of these studies, anticipating substantial support from the funding to be allocated by the European Union as part of the accompanying measures resulting from the revamping of their sugar regime. The

studies indicate that Belize can sustain and enhance its viability in sugar into the long term once measures are quickly introduced to increase field cane productivity, reduce costs of cane and sugar transportation, and improve factory efficiency.

Another important facet has been the initiative to procure and install a core sampling unit which will enable the introduction of an incentive creating quality based cane payment system. The various initiatives now underway have meant a higher level of activity by the SICB's agencies - the Sugar Cane Production Committee, and the Sugar Cane Quality Control Authority, together with a renewed imperative to activate the Sugar Industry Research and Development Institute.

On the industry diversification side, BELCOGEN is in the final stages of concluding arrangements for the construction of its 32.5 mw cogeneration facility. This should come into operation in late 2007

In summary notwithstanding the effects of drought, the sugar industry enjoyed a profitable year with cane farmers receiving a higher payment for cane delivered than had been anticipated. Industry stakeholders are confident that the level of intra industry cooperation attained over the past year bodes well for the future of Belize's sugar cane industry

1.2 Citrus

Citrus prices and production for the 2004-2005 crop year was among the best in the industry's history. A record production of 7 .8 million boxes was realized, of which 1.5 million was for grapefruit and 6.3 for orange. Not only did production improve, so was the average yield of pound-solids which was a reflection of the inherent quality of the fruit produced and the effort by farmers to improve management of groves. Farmers reaped the fruits of their labour as prices for orange increased by 16% while that of grapefruit increased by 156%. The main reason for this landmark development was the destruction of citrus fields in Florida by hurricane and the frost that affected fields last year. Citrus prices are projected to increase or remain constant for the next two years. Fields in Florida will take at least two to three years to rebound from the damages suffered. An improved delivery system was also implemented to assist with the orderly delivery, which also contributed to the improved quality of the fruits processed. The industry will also benefit from a project from the International Atomic Energy Agency to control and manage fruit flies, which will allow the industry to export fresh fruits.

1.3 Bananas

Banana production in 2005 was 76,000 tonnes, a still laudable figure though a 3.8% decline from 2004. Several farms experienced increased yields through continued support from the EU Banana Support Programme (BSP), and the overall decline reflects decrease in production by one large company in the industry which eventually went into receivership in 2005. Up to December 2005 the EU BSP had allocated a total of Euro 21.77 million to the Belize banana industry but only Euro 6.9 million had actually been received in Belize. The amount of funds accessed in 2005 through the

project was about Bze 1.5 million dollars.

At the end of 2005, the industry had recorded completion of 49% of banana field rehabilitation, 90% drainage infrastructure and 70% irrigation works. The annual Special Framework of Assistance (SFA) for 2005 was submitted with a focus on plant nutrition aimed at decreasing the costs of fertilization, environmental monitoring to minimize adverse effects of industry practices on the environment and a component on rural development/diversification of the banana belt communities. An international tender was launched for a Rural Development Expert to finally start the "rural development/ diversification" aspect of the EU BSP, for which funds had been allocated in several of the previous SFA's; in support of this component a social survey undertaken by a local NGO, BEST, went through its concluding phase and preparations were made for the same NGO to undertake a micro-credit survey, all geared to identify pressing needs of the banana belt communities that would be served through EU BSP project assistance.

A disease management and monitoring expert requested under SFA 2004 was recruited, with a first mission planned for January 2006. His task is to improve the efficiency of black sigatoka management in the industry with a view to decrease cost of production. Through the various cost reduction measures the banana industry maintained its strategy to compete in the tariff only era.
Despite much effort from the BSP project management unit and supporting agencies project implementation was still slow due to delays in disbursements from EU headquarters. Belize had not qualified for decentralized management of project funds but a devolution process took place whereby more decision authority was lodged at the EU delegation in Jamaica. This new development is expected to improve the disbursement process for future activities.
Modifications to the transition strategy for compliance with the new EU financial regulations took place whereby the ministry of agriculture was designated as the implementing agency for the EU BSP with direct supervision responsibility for the project management unit. This transition is expected to take full effect in 2006.

1.4 Crop Development

Papaya
Exports increased from 25,220 Metric tons in 2004 to 28,620 tonnes in 2005 generating about $26.7 million in foreign exchange. The company Belize Fruit Packers reported that they lost approximately 20% of the harvested crop to fruit oversize, hence these fruits were sold on the local market. Of the total export, Belize Fruit Packers (BFR) a subsidiary of the Fruta Bomba Co. produced 99%. Little Belize Fruit Packers (LBFP) and Mayaland Produce Co. Ltd. produced the remaining balance of 1%. It is expected that this industry will continue to grow in the foreseeable future as Fruta Bomba continues to expand its field operations.

Coconut
At Central Farm (CF) the production of coconut seedlings of Maypan and Yellow Malayan Dwarf varieties increased significantly from 6,028 in 2004 to 13,435 in 2005. The increase in production is attributed to the new 5-acre field of pure yellow Malayan Dwarf which came into production in 2005. Central Farm supplied Stann Creek and Orange Walk with 500 seeds to initiate seedling production at the nursery for sale to farmers. This effort will afford farmers

easy access to coconut seedlings. A total of 4 acres of coconuts were planted at Central Farm to expand the existing coconut field to be able to accommodate the growing demand.

Pineapple
The total production in 2005 was about 5 million lbs, of this amount 1.1 million lbs was sold by producers ($0.16/lb for Sugar Loaf and $0.18/lb for Smooth Cayenne) to the Citrus Products of Belize Limited (CPBL) for processing. Currently producers are unable to supply CPBL annual demand of 8 million lbs of the Smooth Cayenne variety. In an effort to assist farmers take advantage of the available market and mindful of the shortage of seeds of the desired variety the Ministry imported 25,000 Smooth Cayenne seeds for seed multiplication purposes at the Stann Creek station.

Soursop
The production for 2005 was about 8,145 lbs from 16 acres harvested. The domestic demand is high and prices are attractive at $3.00/lb. There are plans to establish a commercial plantation of 1,000 plants in the Blue Creek area. The land is ready and the fruit trees have been ordered from Central Farm. The objective is to produce and process the fruits for the local market. This year the Government nurseries continued to supply plants to farmers to expand the production of this commodity. The Extension Service continues to promote this commodity since it has a very good local market.

Cashew
The Ministry of Agriculture along with the Belize Cashew Producers Cooperative continues to build on the long-term relationship of support to ensure sustainable growth of the cashew industry. In April 2004 the factory at MaxBoro started to operate but this was short-lived as it only lasted for a period of six months. During the few months of operation, management learnt that the market was not elastic and could only absorb three hundred pounds per week. The equipments used at the factory were labor intensive and not cost effective. The quality of nuts was not determined when it was delivered at the facility by producers. There were limited packaging materials available in the country and it was expensive to import small amounts. The distribution system was also a challenge as it was difficult to get someone to sell on the streets for a commission. Competition from Guatemalan vendors affected the local market. Working closely with the Belize Agriculture Health Authority (BAHA), the cooperative was able to reduce the contraband practices. The gravest of the challenges was when the factory was broken into and vandalized.

Despite these challenges the cashew industry continued to make progress in the rehabilitation of new fields with new improved varieties through close coordination with the Sylvesters of Cashew Groves. The Sylvesters were able to secure seeds from a research done by Nabisco Company in Australia. They have established two plots with 1,000 plants. These three- year old trees are now producing seeds with an average of ten pounds of nut per tree. The conversion ratios from these improved varieties are 3: 1 as compared to the local varieties of 6: 1 converting raw nut to finish kernel. Since 2004 most of the effort of the cashew cooperative and the Ministry of Agriculture has focused on the establishment of new groves and the training of producers in selection of the best trees. Farmers are encouraged to improve the management of

their fields in the area of pruning, use of compost, harvesting and storage practices in order to increase profitability.

After the closure of the processing facility the cooperative focused on finding a stable and viable processing and marketing enterprise. It was agreed by the cooperative to lease the equipments to a North American Company now operating out of Teakettle Village, Cayo District. A memorandum of understanding is to be signed with these investors to take on the processing and marketing with the use of existing equipment. The company took the equipment to the U.S. with the purpose of automating it. The investor has secured a market for cashew in the United States. The capacity of the existing factory is 1000 pounds of crude nuts per day. To meet the current market demand the company will require an additional 600 acres. Considering that the factory will not receive all of the production annually the company will need to get more farmers to plant the improve varieties so that they can fill a container monthly for export.

There are over 2,315 acres of cashew in the country with an average yield of 138 lbs of nut per acre for a total production of 319,470 lbs. The average age of trees is 10 years and older with little care, poor management, and low yields.

Fruit Tree Nurseries

A total of 2,000 assorted fruit tree plants were produced by the Central Farm and Stann Creek nurseries and sold to the general public. These nurseries will continue to supply plants to the public to expand the fruit tree programme. Furthermore, it serves as a training facility for students and farmers in plant propagation.

Hot Pepper

The total production of hot pepper increased from 407,680 lbs in 2004 to 606,521 lbs in 2005. The increase in production can be attributed to the growing demand in the export market for processed peppers. As a result farmers increased production to meet the local demand of Marie Sharp Ltd. Seed supply from Barbados had become inconsistent and farmers were complaining about the quality of the imported seeds. Therefore, in collaboration with Caribbean Agriculture Research and Development Institute (CARDI), the Ministry provided the funding to initiate a seed production program. CARDI in 2005 produced 12 lbs of Caribbean Red hot pepper seeds. The Hot Pepper Steering Committee met four times, in an effort to plan and consolidate the development of the industry. Through the BIDFOMIN/OIRSA Project one training was conducted for farmers in hot pepper production and marketing. A symposium was also conducted with key stakeholders to address constraints and opportunities of the hot pepper industry.

Onion

The total production of onion increased sharply from 1.3 million lbs in 2004 to 2.1 million lbs in 2005. The yield per acre this year was 24,795 lbs. A total of 87 acres were harvested. The average price was $0.60/lb. The increase in production can be attributed to higher yields since farmers are now using better technology to produce this commodity. Though production

increased several farmers lost considerable onions to rotting due to insufficient storage capacity. The Ministry held four meetings with the National Vegetable Task Force to coordinate the production and marketing of onions. This year 10 storage structures were constructed. The capacity of these structures ranges from 20,000 lbs to 40,000 lbs.

This activity was made possible through the FAO Telefood Project in partnership with the farmers. In 2004 with the assistance of funding from the Taiwanese Mission (ROC) 10 storage facilities were constructed.

Irish Potato

The total production increased from 1.6 million lbs in 2004 to 2.2 million lbs in 2005. The average yield was estimated at 12,000 lbs/acre. The increase in production was attributed to an increase in acreage from 132 acres in 2004 to 230 acres in 2005. In 2005 the country was able to produce 71% of the internal demand of 3.1 million lbs. The main activities realized was the organization of potato producers to address production and marketing needs; coordination was done with seed importers in order to import quality seeds for farmers; research was conducted on identifying promising varieties for farmers.

Carrot

Carrot production decreased from 569,000 in 2004 to 484,000 lbs in 2005. The decrease in production can be attributed to marketing problems experienced in 2004; farmers decided to plant less to stabilize prices in 2005. The quality of carrots was better this year since the Ministry facilitated about 20 lbs of seed of the Royal Cross variety. This variety has very good consumer acceptability as it has a smaller core and is sweeter than the Brazilia variety which farmers have been planting for the past years.

Cauliflower, Broccoli, Celery, Lettuce

The Ministry has carried out research on these four commodities and promoted their production as part of its import substitution agenda.

The total production of **celery** in 2005 was 43,500 lbs. The main constraint in expanding production is that the current variety commonly grown by producers is susceptible to stem rot and fusarium wilt. The variety recommended to farmers, 'Bolivar' was removed from the market by the Bejo Seed Co. There is also need to assist farmers from Cayo in irrigation to increase production since this district is the main producer.

A total of 84,000 lbs of **broccoli** and 5,700 lbs of cauliflower were produced in 2005. It is expected that production of these two commodities will continue to increase in the future. The reason is that these commodities are easy to produce during the cooler months of the year and the cost of production is low. The technology to produce this commodity is readily available and accessible through the Extension Service.

Lettuce production was 356,300 lbs as compared to 31,000 lbs produced in 2004. The main varieties of head lettuce planted were the Tropical Emperor and Jupiter. This year the Ministry facilitated seeds to farmers with the objective of promoting larger areas of this commodity to meet local demand. Research was also conducted in an effort to find superior varieties of head lettuce. Farmers were also trained in the proper post-harvest packaging and handling to address quality requirements demanded by consumers.

Ginger & Yampi

This year the Ministry established demonstration plots at the Agriculture Station in Stann Creek with the purpose of elaborating reliable cost of production figures. This information is necessary in order to determine if these commodities can be competitive in the export market. The total production this year was 193,000 lbs of ginger and 176,000 lbs of yampi. The main markets for ginger are Bel- Cuisine and Belize Travelers Ltd.

Corn

The production of corn was 104.2 million lbs, of which yellow corn accounted for 76.4 mn and white corn 27.8 mn lbs. The production of this commodity is expanding since there is a high demand for yellow corn for animal feed and white corn for human consumption. The main producers are the Mennonites. This year the Spanish Lookout community exported about 4 million lbs to an aid agency in Guatemala.

Rice

The total production of paddy increased significantly from 23.5 million lbs in 2004 to 39.6 million lbs in 2005. The increase was attributed to improvement in productivity and additional acreage planted. In 2004 the extended drought affected overall production. A total of 9,100 acres were planted of which 55% of rice production was flood irrigated from rivers mostly in the Orange Walk District. The remaining 45% was rainfed production in the Orange Walk and Toledo districts. Some major achievements were the production of 93,000 lbs of seeds; research on new varieties to improve the productivity and quality of rice and purification of the CARDI 70. The National Rice Technical Committee (NRTC) held four quarterly meeting to plan and chart the direction of the industry. In 2005 a Rice Action Committee was created in the Toledo district as a stakeholders group to chart the future of the struggling industry in that part of the country. Through the FAO Special Program for Food Security vertical component, 15 acres of irrigated rice was established in the Santa Ana area of the Toledo district in order to demonstrate to rice producers from that area the potential of irrigated rice.

Beans (RK, Black and Other Beans)

This year Belize produced about 8.5 million lbs of R.K beans of which 6 million lbs were exported to several CARICOM countries. The demand of beans from Belize by CARICOM is 8 million lbs. This is encouraging to bean producers and preparations are underway to increase the

production of this commodity to supply the demand. The Ministry is closely working with key stakeholders in Belize to improve the quality of beans for export. An export company from the Spanish Lookout area exported 185,000 lbs of pinto beans to CARICOM; it is expected that in 2006 production will be increased to meet a growing demand in the Caricom region.

Soybean

Total production was 750,000 lbs from 550 acres planted. The main producers are from the Blue Creek area in the Orange Walk District. It is expected that production will increase significantly in 2006 as most Mennonites have expressed the desire to plant this commodity in rotation with rice. CARDI conducted variety demonstration plots with 1088, Huesteca, F15 and F89. The Belize Marketing & Development Corporation continued with the construction of the last phase of the Soybean plant at the Yo Creek Station which is 95% complete. Soybean continues to be an important crop of economic importance; currently, the country imports about $20 million dollars in soybean products. The aim is to continue to expand production to reduce importation. Soybean has been promoted as a crop for sugarcane producers to diversify into and as a crop to rotate sugarcane with to improve soil fertility and structure. This has not been achieved for several reasons, the main one being the delay in the completion and commissioning of the processing plant. The plant has been offered for sale to the private sector. The sale/commissioning of the plant should occur in 2006, when it is also expected that production will expand.

Cowpea

The total production was 5,049,000 million lbs from 4,195 acres harvested. This commodity is grown exclusively for the export markets in the Caribbean and the Middle East. It is grown mainly by farmers from Spanish Lookout in the Cayo District.

Organic Cacao

The total production decreased from 70,369 lbs in 2004 to 47,030 lbs in 2005. The main cause of the decline was the effect of the drought of 2004 accompanied by forest fires, together, with the abandonment of some old plantations. It is expected that production will recover in 2006 as new plantation will come into production. The threat of the Monilia disease continues and two new cases were reported this year. The fields were quarantined to contain the disease from spreading. This disease poses a real threat to the industry as in Central America the disease is widespread and has caused substantial economic and production losses. In 2005 a Task Force was established to spearhead the monilia action plan. The CARD project also approved a project proposal submitted by the Toledo Cacao Producers Association (TCGA) for the sum of $247,000. The project aims at expanding production, improve productivity and strengthen the institutional capacity of the association. The Ministry also approached the Regional Unit for Technical Assistance (RUTA) to spearhead the elaboration of a study to analyze the sector by focusing on a SWOT analysis that will assist with the development of an action plan for the industry. The final report is due in April-May of 2006. Production and exports are expected to be much improved in 2006 as 650 acres planted via the expansion program of 2004 will come into harvest. According to a survey carried out by a Peace Corps volunteer there are 820 registered cacao producers and 1600 acres of cacao.

Xate

The ministry continued to pursue the mandate from Cabinet to promote the production of xate as a commercial crop. Several alliances were established with other institutions that are conducting R & D in xate production with the aim of fostering collaboration. One such collaboration has been with the Botanical Gardens that donated some seedlings for the demonstration plot established at Central Farm. BELTRAIDE was approached and agreed to identify a consultant to carryout a market study for xate. This study is due in April of 2006.

1.5 LIVESTOCK PRODUCTION

District Livestock Agricultural Stations

The Ministry of Agriculture in 2005 continued to promote and support the National Livestock Industry through the continuous supply of improved genetics and better animal nutrition (high yielding forages, legumes and pastures) combined with livestock management skills in an effort to reduce the risk of inbreeding and increase productivity.

The Beef Breeding Herds at Central Farm and Yo Creek were reduced by around 30% due to the rigid culling of old and crossbred cows with the aim to only maintain and produce beef cattle of the American Brahman breed and to allow the private sector to specialize in other breeds such as Nelore, Indu-Brazil, Hereford, and others. However, Ministry proposed to import a small nucleus herd of Red Angus cattle with the purpose of producing a more meaty type breed to improve carcass yield. This was unsuccessful due to a Mad Cow disease incidence in the USA, where the animals were to be imported from. In addition, there was also the intention to import two (2) American Brahman Breeding Bulls of superior genetics to continue to maintain the quality of the breed as well as to minimize the risk of inbreeding.

With regards to pasture, fifteen (15) acres at the Yo Creek Station was given up to make it accessible for Community lots, resulting in a further reduction of grazing area to 65 acres. Two years ago the Soybean processing facility also absorbed 20 acres of land.

Breeding and Genetic Improvement

The effect of the 2001/2002 importation of breeding stock (dairy, beef and swine) was seen this year through the improved quality of our livestock in Belize. Productivity improved across the country as hundreds of farmers are now producing heavier cattle and higher milk yields. The demand for breeding stock continued to exceed supply from the government stations, which only sold 80 heads (50 bulls and 30 heifers). Farmers from the Toledo District alone purchased 15 with more farmers showing interest to expand their present herds. At the end of December 2005 the milk yield at the Livestock Section increased to 31.52 lbs/cow/day as compared to 29.90 lbs obtained in the same period last

year. The introduction of the PIC swine genetic stock also made an impact and farmers obtained a better price for their hogs because of superior quality. In 2005 there was very little imports of new bloodlines, except for small ruminants, which was given priority due to the high incidence of inbreeding being encountered countrywide. The Ministry facilitated the importation of a few animals to assist sheep and goat producers through the rental breeding service and the supply of improved lambs and kids from Central Farm. A dozen small-stock farmers have so far benefited from the ram rental service being provided at Central Farm. Under the FAO Small Ruminant Project, the importation of Barbados Black Belly (BBB) breeding rams and ewes from Barbados was facilitated in order to improve the local herds. However, this was discontinued due to transportation problems via the U.S., thereby the plan was adjusted to import semen and inseminate the ewes. With the assistance of funding from this project a semi-intensive rotational systems for sheep and goat were established – three sheep and a goat production models.

Feeding and Nutrition

Significant improvements were obtained this year in the quality of the feeding for livestock through improvement in pasture development. With improved feeding the cattle performed more efficiently and fetched a higher price at market time. Dairy cows supplemented with the legume "Dolicus Lab Lab" in the Cayo District produced a higher percentage of cream. Over 1,000 acres was established countrywide to improve grass species and fodder plants and legumes. The Toledo District alone established 360 acres of Humidicola, Brizantha and Mombassa. In addition, the use of Molasses Urea Blocks (MUB), which was more widely used in cattle farms contributed to significant increases of meat and milk. At the government station in Central Farm the feeding of Dolicus Lab and other shrub trees (Mulberry and Nacedero) was expanded to improve the nutrition quality of dairy cows. This technology was also promoted to the district stations and farmers.

Marketing

As a direct result of the rapidly growing tourism sector and also due to increased purchasing capacity of local consumers, there was significant growth in the local market for beef, mutton and to a certain extent swine. Belize continued to export cattle-on-the-hoof to Guatemala, which demands more than Belize can currently supply, resulting in recent high farm-gate prices being paid to farmers. Prices offered to cattle farmers reached a high of $1.35 per pound, and the Belize Livestock Producers Association (BLPA) estimates that as much as 50-75 heads were exported per week. In regards to sheep since the introduction of the Dorper, farmers are highly motivated as the average market price fetched was $1.50 per pound. On the other hand the local market for swine was saturated toward the end of the year causing a reduction in prices offered by butchers and processors. Average price dropped as low as $1.00 per pound. This was further aggravated by the illegal and unprecedented importation of green and processed hams around the peak periods.

Belize Livestock Producers Association (BLPA)

The Board for the Belize Livestock Producers Association is working closely with the Ministry of Agriculture. It currently administers the FONDO GANADERO program, a revolving fund

providing a credit scheme to livestock producers. The delinquency rate of this program is considerably high and the Fondo Board was practically inactive in 2005. The new Board of BLPA pretends to improve its services to livestock farmers in the entire country. BLPA estimates the present beef cattle population to be around 55,000 to 60,000 heads.

The Cattle Industry seemed to take a swing towards improvement and expansion. There was increased export of live animals to Mexico and Guatemala. The impact of imported breeds is now being realized and exploited. During the year, producers invested significantly in herd improvement. The national herd is now of a much better quality than it was a few years ago. Cattle exported fetched prices as high as $1.35/lb live weight.

Slaughter Returns:
Figures cited in this report are based on CESS collection.

Slaughter figures for beef cattle indicated that there was a decrease in local slaughter. In 2004 the number slaughtered was 6,114 and in 2005 the number slaughtered was 5,496. This fall may be explained by farmers' preference to sell to exporters. The decrease in domestic slaughter appeared to be the trend over the past two years. The figures showed a continuous decrease since the end of 2003. The slaughter returns for 2003, 2004 and 2005 are 6,828, 6,114 and 5496 respectively.

The number of pigs Slaughtered locally in 2005 was 12,664. This figure is a decrease from 14,934 in 2004. The amount of animals slaughtered in 2004 was higher than in 2003 (13,754).

Consumption of sheep in 2005 (830) was higher than in 2004 (785). The figures over the past three years show that Belize is consuming more and more sheep. There has been significant increase in consumption annually each year since 2003. Slaughter returns for 2003, 2004 and 2005 were 535, 785 and 830 respectively.

Export:
In 2005 exportation of live beef cattle to Mexico and Guatemala increased by 14.5% approximately. Exportation over the past three years were estimated at 593, 2804 and 3,210 for 2003, 2004 and 2005 respectively. The increase exportation has an inverse relationship to local slaughtering. This may suggest that, if the number of the national herd remains stable, then animals that would normally go to local slaughter are now being exported. This would not be surprising because the price paid for live animals is better than it had ever been. The price paid for steers range from $1.15 to $1.35 depending on the condition of the animal. Cows fetch a price ranging from $0.90 to $1.00.

Exportation of pigs took a little dip this year. The number of pigs exported in 2004 was 2,804; in 2005 the amount exported was 2,083. In 2004 there was an overproduction and farmers had trouble getting rid of their pigs. This year all saleable pigs were sold without any problem.

Imports:
Towards the latter half of the year, farmers from the Belize District, Cayo District and Mennonites from the Blue Creek Village in Orange Walk imported a total of 12 top quality Nelore Bulls from Yucatan, Mexico.

Belize Poultry Association

The Ministry was fully represented in the Belize Poultry Association (BPA) especially with the advent of avian influenza (AI). In this regard the Ministry participated in meetings, trainings and seminars that were associated with the poultry production industry. Through the Poultry Health Committee (PHC) in collaboration with BAHA and the Ministry, a draft project proposal for Belize's AI Action Plan to strengthen the veterinary service was prepared and is being finalized. Due to the threat of the pathogenic form of the disease the veterinary services must be prepared to be able to detect and control any introduction of the disease especially as there will be public outcry, panic and fear if Belize or any of its neighbours reports the highly pathogenic form of the disease. Cabinet approved the Preparedness Plan presented by the Ministry of Health (MOH) in November 2006. Since then, DACs and LEOs countrywide were exposed to trainings and seminars on Poultry Disease Identification and AI to keep them abreast of the threats of this pandemic disease. AI (H5N1) in its highly pathogenic form is highly lethal to poultry and it has the potential to infect humans. Countries reporting AI have seen dramatic fall in poultry consumption and have ordered chickens to be kept indoors.

Paralytic Rabies

Almost every year Belize has had cases of rabies, especially in the Cayo district. The Zoonosis Committee, which consists of personnel from BAHA, MAF, MOH, BLPA, OIRSA and BPA worked tirelessly to put all sporadic rabies outbreaks under control. Only the Cayo District reported rabies in bovine with vampire bats as the main vector of transmission. A number of cattle deaths were reported during the period and all were attacked by vampires. The control of rabies was achieved through a campaign of vaccination of all cattle and dogs in the affected areas and trapping and pasting of vampire bats. Technicians from MAF and MOH joined forces to implement the control measures put in place.

Honey Production

The Ministry of Agriculture, mindful of the need to reorganize production and increase productivity fostered good strategic alliances with key stakeholders. In conjunction with **Just World Partners,** all LEOs received training in Bee Management held in Peten, Guatemala. The Northern Beekeepers Cooperative were provided with the necessary support to reorganize and as such were assisted with imported wax sheets and training. Beekeepers in the Cayo District got their cooperative registered under a new name of the "Cayo Quality Honey Producers Cooperative". This Cooperative, which consists of 12 members, realized that they needed to market as a group to fetch better prices and prevent competition. The treatment of bee colonies for varroa mites using Timol, Formic Acid and Oxalic Acid was given the necessary logistical support by the MAF. Varroa is one of the pests of major economic importance for beekeepers and the industry. The Ministry supported the installation of a bee wax machine in Cayo; this will help beekeepers countrywide to reduce production cost of honey. LEOs in all six (6) districts received complete beekeeping equipments to better service producers and their communities in swarm eradications.

Training and Capacity Building
The Ministry promoted and facilitated information and technology transfer to over 100 livestock producers through seminars, workshops, field visits and method demonstrations. Producers were exposed to husbandry practices and training in beef, dairy, sheep, goats and swine production including improved feeding and nutrition such as the making of Molasses Urea Blocks (MUB) as well as the use of live and electric fencing. The Livestock section at Central Farm completed a Beef and Dairy Management Handbook which is presently being revised in Belmopan. Honey production was also supported by the Ministry as some 50 beekeepers were trained in Good Agricultural Practices (GAP), and disease control. All 6 districts received new beekeeping equipments to better service producers and the community.

1.6 AGRO-PROCESSING

Agro-processing is a priority program for the ministry as there is great potential for future development in the country. It is one means of saving foreign exchange and can be an important source of income for the poor people. Most of the agro-processors are small and medium scale processors which are scattered through the entire country. Most of them work individually and have no interest in working together or in an organized manner. With the assistance of the Taiwanese mission at Central Farm several new products have been developed but these have not been commercialized.

The agro-processing program in 2005 concentrated in improving the quality of products, product presentation, packaging and marketing. Four labels were designed and provided for products such as honey in bear-shaped plastic bottles, "Erebalyte" energy drink, dehydrated fruits and white cheese. Nine thousand labels were supplied to assist different processors in the marketing of their products. The procedures for the production of new products were fine-tuned and cost of production was developed to give the processors an insight of the net profit that is generated from their products. The unit also coordinated several workshops in food safety and food handling to train producers in good manufacturing practices (GMP).

Some equipment (blanching pot, sealers, industrial stoves, containers, strainers and stainless steel strainers) were procured to equip the Agro-processing Training Centres in the Orange Walk and Toledo Districts.

Honey/Pollen
In the Cayo District the honey producers were assisted with 3000 bear-shaped plastic bottles and a set of 3000 high quality labels to assist them with the presentation and marketing of their honey. One producer, Mr. Tun, was assisted with the marketing of his pollen by putting him in contact with buyers. The ROC was purchasing most of the pollen but he identified new outlets

in Belmopan City and Belize City. Mr. Tun is the first beekeeper to produce large amounts of pollen in the country. The ministry also assisted Mr. Tun with the technique to dry the pollen properly before bottling and storing.

Yellow Ginger Powder

Indian villages in the Toledo District, plant and process yellow ginger into powder. The traditional methods include drying the ginger in the sun and then grinding it into powder with a hand mill. In an effort to assist this group a test run was carried out to identify a more efficient method of drying and pulverizing the product. A test run was done drying the ginger using a commercial dryer. The ratio obtained was 1:8, 8 lbs of fresh ginger yielded 1 pound of ground product. The cost of production was in the vicinity of $3.55 per pound. The spice company Bel-Cuisine has expressed interest to purchase at least 100 lbs per month of yellow ginger powder.

Dried Fruits

Three groups produced dried fruits, namely the Santa Familia Women's Group, Fruit-a-Plenty in the Cayo District and the CET in the Toledo District.

Pineapple

The CET in the Toledo district dried a total of 8,000 lbs of fresh pineapples. The ratio of fresh to dried pineapple was 1: 8. A small amount was marketed at the different schools in the Toledo District. A portion of the dried fruits was used for testing the market in the Toledo District. Cost of production was calculated at $4.92 per lb. The unit has been selling the final product for $7.00 /lb making a profit of more than 40%.

Papayas

The Corozal district is the largest papaya producer. Every year thousands of pounds are rejected because it does not meet the requirements for the export market. However none of it is dried in the district as there is no processing facility. Nonetheless in 2005 CET in Toledo dried a total of 1,000 lbs of fresh papayas. Papayas in this region are expensive; the cost of production was too high, about $5.90 per lb. It is not recommended to dry papayas in the Toledo District until the price for the papayas is cheaper and can guarantee a profit for the processors and competitive prices for the finished product.

Bananas

A total of 15 boxes (450 lbs) of bananas were dried at CET Toledo for demonstration purposes. The drying was assisted by the ROC and the Ministry of Agriculture. The BDF indicated their interest in purchasing dried bananas as it is cheap and very easy to handle by soldiers patrolling in the jungle.

Hot Pepper Processing

At the hot peppers symposium organized by the Agriculture Officers in the Orange Walk District producers were advised on how to store rejected hot peppers for future processing. The peppers should be cut into at least 2 small pieces and completely soaked in a saline solution of 8-10% salt. This is an excellent environment to keep the peppers from spoiling for more than one year.

This can be a pre-treatment of the material before it is processed into pepper sauce, pepper jelly etc.

Orchata and Sorrel Drinks
Orchata and a sorrel drink were developed by Mr. Aquinaldo Arceo from Libertad Village in the Corozal District. The Orchata is a traditional Mayan drink made from rice. Mr. Aquinaldo is marketing about 50 litres of orchata every other day at $4.75/litre. The orchata has a shelf life of about a month without refrigeration.

Sorrel drink is a new beverage in Belize. This drink is made from the sorrel flower (flor de Jamaica) mixed with water, citric acid and sugar, which is then concentrated by cooking the mixture to evaporate some of the water which also sterilizes the solution.

Soya Products
The Nutri Soya Women's Group of the Orange Walk district has developed several products from soybean. The group produces soy milk, soy pudding and soy black cake. Most of the products are processed for home consumption. Training was carried out for the Nutri Soya Women's Group to train them in cooking the soymilk properly to inactivate the enzyme "Trypsin" which retards the growth of young children.

Training
A total of eight women from Trial Farm Village in the Orange Walk District were trained in making white cheese, jam and jelly. A total of 45 farmers/processors from the Toledo and Cayo Districts were trained in dried fruits production, food handling and food safety. The Minister of Agriculture, Hon Michael Espat, presented 45 certificates to the participants in the Toledo District. Ms. Lee from Tumul Kin in the Toledo District was trained at the ROC Agro-processing lab at Central Farm on how to prepare cacao powder from the roasted bean. The program also did research in the following commodities: craboo Juice, yogurt, lime juice, orchata (new commercial method), hot pepper sauce (formulation for Mr. H. August), hot pepper preserved in 8-10% saline solution, natural juice (mango, pineapple, guava and grape fruit-formulation), soy sauce (ROC), cacao powder, butter and chocolate (ROC).

Expansion Regional Training Center
A new building is under construction for the expansion of the ROC Agro-processing Lab at Central Farm. The total cost of the building is estimated at $125,000.00. This is a joint initiative of the ROC and the Ministry. At the end of December of 2005 the building was near beam height for casting the floor. The Ministry has invested so far over $25,000.00 in materials. The labor is being provided by personnel from Central Farm.

1.7 EXTENSION SERVICES

The National Agriculture Extension Service continued its focus on building a service that is supportive of an agriculture sector that is competitive, diversified and economically sustainable.

These efforts included training and capacity building of officers and farmers, promoting the formation of agricultural organizations, institutional support, information dissemination and project implementation.

Training and Capacity building

Trainings focused on imparting skills and technical know-how. Integrated crop management was the main thematic area with an agro-ecological emphasis to solving field problems associated with crops. Thirty Extension officers, lead farmers and participants from sister agencies were also introduced to the participatory approach of extension. This initiative, funded through the OIRSA/BIDFOMIN Project, was facilitated by local and regional experts.

During the course of 2005, about fifty percent of the extension officers attended workshops addressing issues such as: Trade agreements and opportunities for Belize, Trade Policy Matrix Analysis facilitated by FAO, Food Safety, computer skills, safe and appropriate use of pesticides. Seven officers completed the "Small Business and Entrepreneurship" course at Galen University. Another officer received training in electronic production and publishing of agriculture extension materials. The Extension Service also organized and facilitated trainings and field trips for farmers to build their capacity in small ruminants, management of apiaries, nutrition in livestock, agro-processing, post-harvesting handling and organization of groups.

Organization

The Extension Service organized the formation of District Development Committees that will play a key role in the implementation of the Belize Rural Development project, an EU funded project. Three of the six committees were realized. Criteria's for selection of Farmer of the Year award for NATS was revised. Extension officers, in collaboration with the Cooperative Department supported farmer groups, in particular the Corozal Agriculture Producers Association (CAPA) and promoted the formation of other commodity groups in the Belize and Cayo Districts, but with mixed success. Trimester reporting sessions were organized as a planning and monitoring mechanism for the Extension Service.

Personnel

The Extension Service experienced a number of staff changes. Two officers were hired to fill vacant posts: one as information officer and the other as District Agriculture Coordinator (DAC). To streamline the service and increase its efficiency, two officers were transferred between the Stann Creek and Toledo Districts, and similarly between the Corozal and Orange Walk Districts. Two officers from the Corozal District resigned from the service and two others went on to pursue further studies. The Service remained with five DACs with Bachelors degrees, one with an associate degree, and three field extension officers in each district, with the exception of Orange Walk that has six field officers.

Vehicle, equipment and material

The mobility of the extension service was severely restricted after Government decided to reduce the fleet of vehicles from two to one per district. This impeded the delivery of service and the timely collection of field information for decision making. In an effort to alleviate this major

challenge of transportation, five motorcycles were procured. In addition, funds were provided to repair and overhaul three motorcycles. Other equipments obtained for the districts included one digital camera, three photo-copiers, and six Global Position System (GPS) receivers were received OIRSA and two mist-blowers were received from the FAO Food Security Project.

Information

To strengthen the information unit, a mini-library was established to store printed material for easy access through cataloguing. Brochures and fact sheets were also compiled in ginger, pitahaya, livestock management, and coco-yams and distributed to field officers, farmers and the public in general.

Although an editorial committee was formed and formats developed for a newsletter, publishing of the newsletter was deferred to 2006. An administrative and operational guide to standardize procedures and facilitate activities within the Extension Service was also begun with the technical assistance of IICA and should be completed in early 2006. Finally, resource materials in integrated pest management (six CDs) were also provided to extension officers for reference and training of farmers.

Projects

Under the FAO Special Program for Food Security project, ten acres of irrigated rice were established in the Toledo District from which 55,000 pounds of paddy rice were harvested. In the Stann Creek District, six one-acre plots were planted with different varieties of yams. The project also provided twenty diesel water pumps for distribution among project farmers to lower cost of pumping water for irrigation to their vegetable crops.

The Extension Service also organized well drilling in collaboration with the department of Rural Development. In Corozal, from thirty-one wells drilled, twenty-four yielded adequate water for agricultural activities. In Orange Walk, only fifteen wells drilled yielded success from a total of forty-five wells attempted.

Another project pursued was a macro-irrigation infrastructure to assist Central Farm with water for irrigated agriculture. This was a collaborative effort among Central Farm, ROC Technical Mission, CARDI and University of Belize at Central Farm. The installation of the system, however, was delayed because two wells that were drilled for the project collapsed. A new site for a well will have to be located to complete the project in 2006.

Extension Linkages and other activities

The Extension Service collaborated very closely with partners in development in particular CARDI, BAHA, IICA, BMDC and ROC Technical Mission. It also collaborated with the Meteorological and Hydrology Department through the Pro-Temp Water Commission, NEMO with disaster preparedness, and the Food Security Commission through its involvement and facilitation of World Food Day in the Corozal District. Finally, it assisted the community of San Isidro with the installation of a pumping system for its potable water supply.

2.0 BELIZE FISHERIES DEPARTMENT

The mission of the Belize Fisheries Department is "to provide the country and the people of Belize with the best possible management of its aquatic and fisheries resources, with a view to optimize the present and future benefits through efficient and sustainable management". Through this mission, the Department continues to provide the stewardship for the steady development of the sector to contribute significantly to the Belizean economy and at the same time ensuring that the integrity, productivity and sustainability of our ecosystems is not compromised. The mandate of the Department is executed through its three main programs which are the Capture Fisheries Program, the Aquaculture and Inland Fisheries Program and the Ecosystems Management Program.

2.1 PERFORMANCE

In 2005, the Fisheries Sector continued to contribute significantly to the Belizean Economy with export earnings valued at approximately $60.0 M Bze, and $22.0 M Bze from aquaculture (white-farmed shrimp) and capture fisheries, respectively. This sector also provided direct employment to 2,026 fishers and over 1,182 processing plant personnel (123 personnel involving in wild capture fisheries and 1,059 in aquaculture).

Capture Fisheries

Fisheries production for the year 2005 showed an increase of 89.8 %, 21.6 %, and 60.0 % for conch fillet, stone crab claws and squid compared to 2004, respectively. However, the production for lobster tails, lobster head meat, market clean conch, marine shrimp, fish fillet, and whole fish showed a decrease of 12.4 %, 11.9 %, 0.28 %, 57.0 %, 8.3 %, and 19.6%, respectively.

Lobster head meat and crab claws were marketed and sold primarily to the local tourism sector. The decrease in the fin fish production could be a reflection of the inability of the data collection system to adequately capture the fin fish sold directly to the tourism sector since data collection efforts primarily target the fishing cooperatives. Marine shrimp production has shown a constant decrease over the years due to the reduction in fishing effort. In 2005, only two trawlers were operating in Belizean waters. The cooperatives have been steadily reducing their operations in shrimp trawling as a result of the inability of their shrimp to compete on the American Market. Finally, 2005 did see a reduction in lobster production; there were no major event that could have accounted for the reduction and the production will be closely monitored in the 2006-2007 season to determine if there is a decreasing trend in lobster production or if the 2005 production levels were as a result of natural changes in the environment.

Shrimp Farming

There was no expansion in production area for the shrimp farms in 2005 hence the production area remains at 6,888 acres of production ponds in operation. The production figures for the year 2005 was 18,463,892 pounds of shrimp tails

Finfish Farming Operations

The production area for small-scale fresh water aquaculture was 15 acres with mostly tilapia species being farmed. For the commercial scale freshwater aquaculture, there is currently 140 acres under tilapia production. Fresh Catch Belize Limited, which is the only commercially-oriented tilapia farming operation, was formally inaugurated in December 2002. To date over

150 acres (60.7 Ha) of production ponds have been developed. These facilities have a capacity of **4,000 MT per annum** with estimated annual revenues of over **Bz$12 million** (US$6 Million).

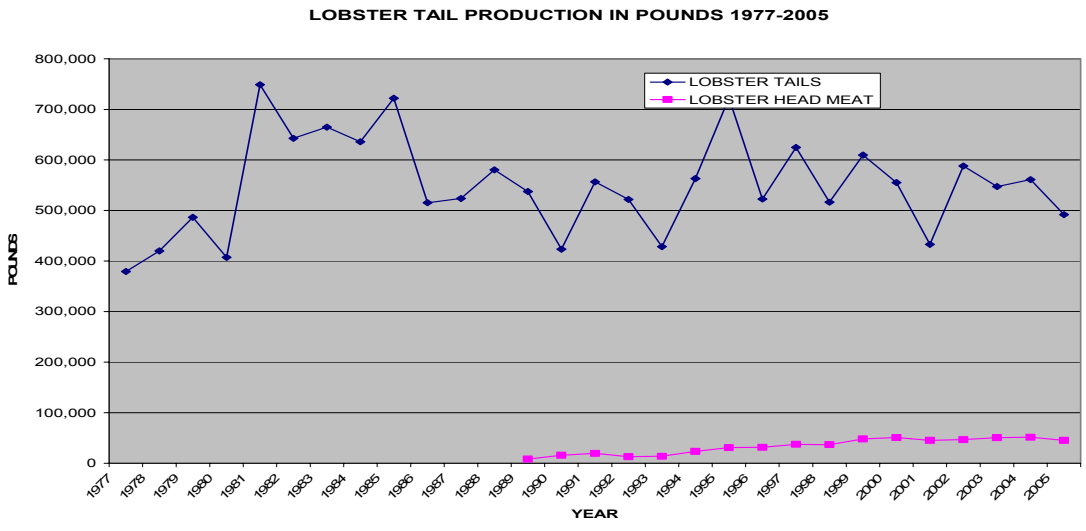
Whole fish and fillets from Fresh Catch Ltd

2.2 CAPTURE FISHERIES

The Capture Fisheries Unit (CFU) is the arm of the Belize Fisheries Department responsible for providing the necessary legislative and management interventions to facilitate the continued development and proper management of Belize's marine fisheries resources. In 2004, important resource assessment exercises were carried out on the lobster (*Panulirus argus*), conch (*Strombus gigas*), shrimp (*Penaeus notalis)* and welk (*Cittarium pica*) populations in Belizean waters.

Status of Lobster Fishery

The spiny lobster (*Panulirus argus*) is still commercially the most important fishery in Belize. Lobster production has been fairly stable over the last 10 years ranging between 400,000 and 600,000 lbs with over 491,616 lbs of lobster tails and 45,185 lbs of head meat produced in 2005. The 2005 production level showed a decrease of 12.4 % in lobster tail and 11.9 % in head meat production compared to 2004. Lobster production represented 41.4 % of the total wild marine commodities produced. Although the slight decrease (12.4%) in production is not a cause for concern to the fisheries administration at present, it is advisable that the current fishing effort be controlled and/or reduced to allow for a natural recovery of the stock.

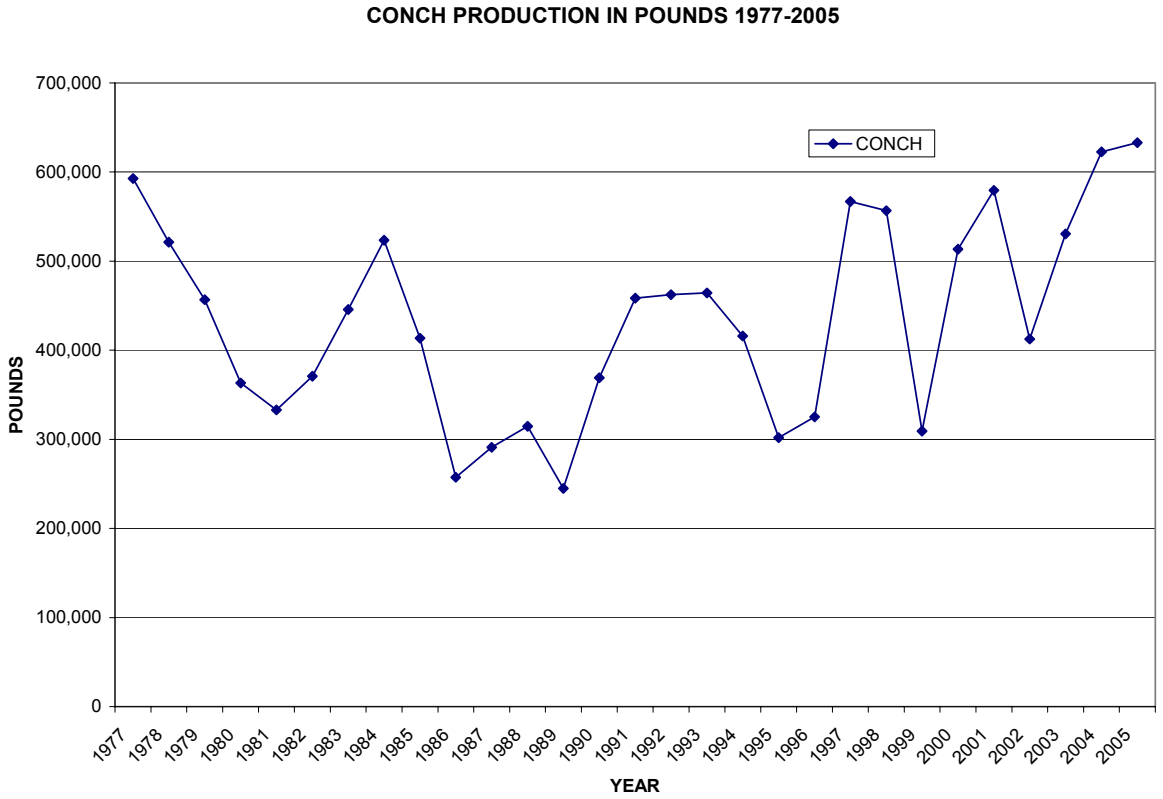


Status of Conch Fishery

Conch production has been stable over the past 14 years ranging above 310,000 lbs. with over 633,070 lbs. produced in 2005. This showed an increase of 1.7% in production compared to the year 2004. In 2005, the fishermen cooperatives produced 602,491 pounds and 26,980 pounds of conch meat and fillet, respectively. This represented 48.5% of the total wild marine commodities produced.

As a result of the requirements by the Convention for the International Trade of Endangered Species (CITES), the Belize Fisheries Department established a conch export quota of 650,000 pounds for the 2005-2006 conch season. This was based on MSY estimates of 324 MT (712,601 lbs) using the Schaeffer Model in the 2004 studies.

The conch catch and export quota will be reviewed on a bi-annual basis and adjusted accordingly. Catch and export quota estimates will be forwarded to CITES every 2 years and will be based on the results of the bi-annual conch surveys that will be carried out to gather the conch field data in order to estimate conch abundance. This information will be forwarded to CITES through the Belize - CITES Managing Authority on a timely manner.



Status of Shrimp Fishery

In 2005, 69,964 lbs. of marine shrimp was produced showing a decrease of 57.0% in production compared to 2004. This decrease was due primarily to the late harvesting of shrimp at the opening of the season and also due to the fact that only two shrimp trawlers (Northern Fishermen Cooperative Soc. Ltd) participated in the fishery. The shrimp production represented 5.4% of the total wild marine commodities produced. In 2006, marine shrimp production is expected to increase since the reduction in effort in the fishery for 2005, would have a positive effect on the growth and biomass of young cohorts not harvested during that season.

Shrimp Trawler Northern II in Victoria Channel

Whelks

In 2005, the Belize Fisheries Department discovered that a fishery in whelk (*Cittarium pica*) was established in Belize. In response to the identification of the fishery and the lack of specific management regulations for whelks in Belize, the Fisheries Department carried out a study on the abundance, distribution and population structure of whelks in Belize.

The study results indicated that a population of approximately 2,449,786.8 exploitable adult whelks existed and MSY was estimated at 1,359,631.7 whelks. Several management recommendations were made and will be implemented in 2006 to ensure that the Whelk fishery is developed in a sustainable manner.

2.3 Management of the High Seas Fishery

Belize became a full member of the International Convention for the Conservation of the Atlantic Tuna (ICCAT) in 2005, and as a result of Belize's sustained cooperation and compliance with various Regional Fisheries Management Regimes, International Conventions and Agreements as well as FAO Code of Conduct for Responsible Fishing, Belize was granted quotas for the fishing of tuna and tuna like species on November of 2005. The following quotas were secured by Belize: Big Eye Tuna- 2100 tons, Yellow Fin Tuna-2000 tons, Skip Jack-unlimited, North Atlantic Albacore-200 tons, South Atlantic Albacore -200 tons and small tunas such as Wahoo, dolphin fish and mackerels unlimited quantity.

Belize will seek membership and cooperating status with other important Regional Fisheries Management Organizations to ensure that its fleet and their operations are well regulated. As of 31st December 2005 a total of 182 licenses had been issued. The fishing fleet is composed of 55 vessels between 100 Gross Tonnage (GT) or less, 53 vessels between 101 GT to 200 GT, 12 vessels between 201 GT to 300 GT, 13 vessels between 301 GT to 500 GT, 10 vessels between 501 to 1000 GT, 15 vessels between 1001 GT to 2000 GT, 9 vessels between 2001 GT to 5001 GT and 7 vessels greater than 5000 GT.

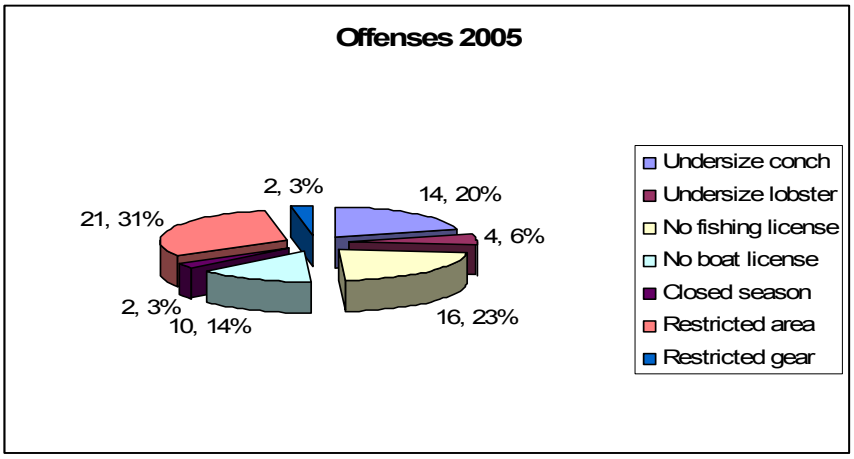
2.4 ECOSYSTEMS MANAGEMENT

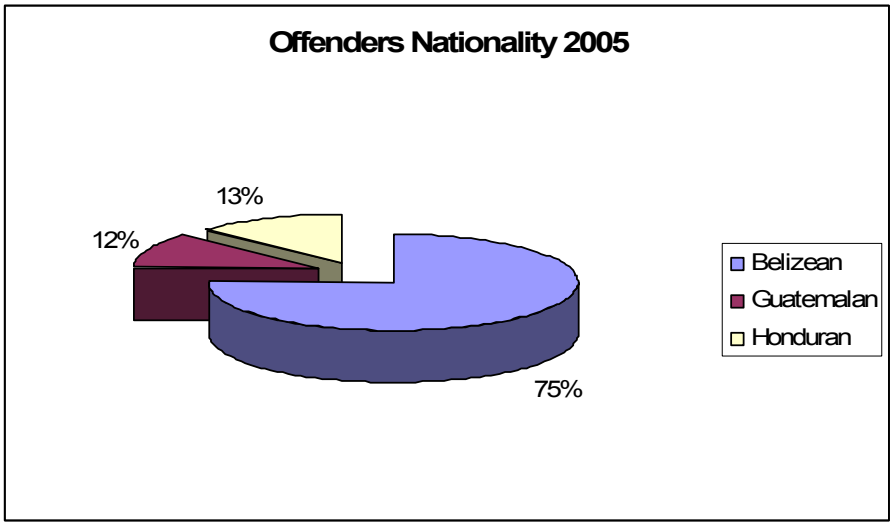
The Ecosystems Management Unit (EMU) of the Fisheries Department consists of the marine reserves and the Conservation Compliance Unit (CCU). The new management paradigm has shifted from specific species and site protection to the protection of entire ecosystems and the regulation of the activities within those systems.

Enforcement

In terms of patrols, illegal activity hotspots received priority while patrols were designed to intercept marine products landing at receiving stations. CCU personnel continued to assist the marine reserves with various officers to cover for personnel on vacation, sick leave and training; this facilitated the enforcement presence for longer times on those areas. The Fisheries Prosecution had fifty-five convictions from sixty-nine arrests contributing $98,230.00 in fines and penalties to the general revenue. Fifty-six cases were prosecuted and only one case was not successful due to technicalities. First time offenders with small numbers of illegal products were not prosecuted.

Seventy-five percent of the offenses were caused by Belizeans, 13 % by Hondurans and 12 % by Guatemalans. The number of arrests has remained stable over the past three years. The largest number of Belizean offenders (44 %) came from the Corozal District. This is as a result of the Sarteneja Village having the largest number of fishermen in the country. The most common offense was fishing in a restricted area within a marine reserve. Personnel from the different marine reserves also contributed significantly to enforcement by making 55 % of arrests.





Monitoring

Synoptic Monitoring Program (SMP): The SMP looked at seagrass and mangrove productivity as well as coral reef health in 2005. The data was collected in all marine reserves and will be inputted into the Regional Environmental Information System (REIS) database created by the MBRS to facilitate the SMP. Results of the analysis will be shared with the other MBRS countries.

Spawning Aggregation Monitoring: The staff from the various reserves and CCU participated in the national grouper aggregation monitoring for all months in 2005. The staff from the various reserves and CCU participated in the national grouper aggregation monitoring program for key months in 2005. This was a joint effort by the Grouper Spawning Aggregation Monitoring Working Group and funded by The Nature Conservancy, WWF and MBRS. The SPAGS monitoring results for 2004 were made public in 2005.

Environmental Impact Assessments and Research Licenses: The Fisheries Department again played an important role in the National Environmental Appraisal Committee (NEAC), which assesses and approves national developments and Environmental Impact Assessments (EIAs). The biggest contribution was made on coastal and marine developments. Most of the coastal development site visits for 2005 were concentrated on dredging operations, pier construction, mangrove clearance and others. Most marine research licenses granted were for research on corals, fish, invertebrates, mangroves and others. Twenty-four percent of all research conducted in Belizean waters focused on coral. The coral research included genetic studies to see resilience, coral recruitments and bioluminescence to name a few.

2.5 AQUACULTURE AND INLAND FISHERIES

The mission statement of the Fisheries Department guides the overall mission for aquaculture development which reads as follows: "To guide the development of a competitive aquaculture industry while at the same time maintaining the viability of the environment and providing responsible stewardship for inland fisheries resources of the nation as well as the ecosystems that supports them, in order to provide sustainable benefits for Belizeans of present and future generations".

Finfish Farming Operations

Much of the interest in fish farming was in the Mennonite communities of Orange Walk and from farmers in the Toledo District hence most of the site visits and sale of fingerling was done in these areas. In coordination with the Agriculture Extension Officer of the Cayo District three potential farmers received assessment in that district. A total of 15 farmers with 5 acres of production ponds were supplied with mostly tilapia fingerlings. The revenues generated was deposited to the AQUIF Unit funds, and has assisted in the purchasing of operational supplies for the farm such a fuel, feed, white lime, fertilizer, oxygen cylinders, and packing supplies. The revenues generated were also critical in sustaining the repair and maintenance of equipment.

The Biscayne Seed Stock Production Facility continued to receive infrastructure upgrades to improve the production capacity of the facility. In 2005 the major up-grade was the de-mudding of 10 ponds and the construction of a bathroom for the new building. There was also the need to replace 3" water pumps which is a critical piece of equipment, especially during the dry season. Despite the improvement in the production capacity of the facility there was a drastic reduction in the sale of fingerlings. Seed stock production had to be reduced since there were no orders for the supply of fingerlings. This situation was due to the loss of interest in fish farming by the Mennonites of Little Belize. The cause of this situation was the loss of their product to thieves causing them great discouragement. Another factor was the harvest of fingerlings by the same Mennonites and sale to other farmers in their community.

After much negotiation with the Taiwanese Mission in Guatemala and BAHA, the Fisheries Department was finally able to import 8000 red hybrid tilapia fingerlings which are to be used as brood stock. This new batch of brood stock should improve the production of fingerlings which has been greatly affected by the aging of the brood stocks at the farm. In the case of the native cichlids (bay snook, crana tuba and musmus) these are obtained in the Black Creek area. Baysnook fingerlings are integrated with tilapia fingerlings and serve as a biological population

control for stocked tilapia in grow out ponds. This technique has proven quite effective in several trials in tilapia grow out ponds.

PREPAC

The Unit was actively involved in the final stages for the inventory phase of the PREPAC Project and is cooperating in the second phase of the project. The second phase of the PREPAC Project entails the characterization of the New River Lagoon. Activities for the second phase include the collection of socio-economic, physical, biological and environmental data of the lagoon. This information will form the basis for the formulation of a management plan for the New River Lagoon, which will in turn assist in the formulation of a Continental Fisheries and Aquaculture Management Plan for the Central American Isthmus.

3.0 Cooperatives Department

The Department of Co-operatives is a governmental regulatory agency with the responsibility of ensuring transparency and accountability at all levels within co-operative institutions in Belize.

The National Co-operative register shows 195 registered co-operative organizations, including 5 registered during 2005. These co-operatives are further broken into sectors and are as follows: 63% of the total registered co-operatives are Agriculture Co-operatives, 9.23 % are Housing Co-operatives, 12.31% are Transport Co-operatives, 7.6% are Fishing Co-operatives, 2.56% are Tourism Cooperatives, 0.51% are Consumer Co-operative, 0.51% are secondary institutions and 0.51% are considered tertiary institutions in Belize.

During 2005, the Department of Co-operatives re-evaluated the National Co-operative Register and is recommending that 45.12 % of the total registered co-operatives be liquidated, as these societies have been non-productive and dormant for the last 15 years. This action will strengthen

the co-operative sector while building on a new image for small and medium-size producers or service providers that are interested in registering their small enterprises as co-operatives.

Although the fishing co-operatives constitute 7.6 % of the total registered co-operatives, only 45.45% are considered active and can account for $24.14 million dollars in foreign exchange earnings and $0.513 million in local marine sales. The majority of product exported is Lobster tails and Conchs. These co-operatives with more than 1900 fishermen and over $32.6 million dollars in assets are directly channeling $ 12.5 Bze million dollars to small and medium-size fish producers in Belize.

The Taxi Co-operatives is another sector that grew significantly during 2005. The sector has a total membership of 148 members with more than 25,000 dollars in assets and providing services to more than a million users per year. The most successful co-operatives are found in the Western Region of the country mainly San Ignacio and Benque Viejo del Carmen. The Department of Co-operatives facilitated the needed expertise to consolidate the Belize City Taxi Co-operatives to ensure transparency, accountability and sound decision making. Today the taxi co-operative members can be identified with yellow t-shirts, which form the international colors of the co-operative movement and acts as a tool for building credibility, reliability and safety to the growing tourism industry.

Housing Co-operatives have not been able to turn over the needed capital for expansion, as they are plagued with high delinquency. It is expected, that during fiscal period 2006/2007, priority will be granted to the housing sector given the need for additional low-income housing schemes.

Fifty Six members at Valley of Peace Village operate the only consumer co-operative in Belize; it has assets of $168,212.22 Bze dollars and indirectly benefits more than 1500 villagers by providing credit facilities, a wide assortment of grocery and agricultural products, high rebates and patronage refunds to its members. The co-operative has a yearly cash flow of $383,000 Bze dollars. During the year under review, the co-operative received technical assistance from the Department of Co-operatives in areas of capacity building and the completion of a three-year audit for transparency and sound decision-making.

Northern Peseros is the only financial institution under the co-operative act, they are comprised of 39 members with assets of over $50,000.00 Bze dollars and providing financial services (money exchange services) at the northern border but whose legal status is still uncertain since the law that regulated them is no longer there, “The Casa de Cambio Act”. During 2005, the Department of Co-operatives provided them with technical guidance to ensure that the business remains strong and healthy and mediated in many cases with other financial institutions.

The Agriculture Co-operatives constitutes 63% of the total registered co-operatives in Belize but not all of them are functioning. Figures reveal that only 18.9% are considered active, producing and contributing to Belize’s GDP. Honey, pineapple, cashews, carrots, potatoes, onions and hot pepper producing co-operatives, combined produced over $1.5 million dollars. These agriculture co-operatives are also involved in producing broccoli, lettuce and cauliflower. Challenges facing these cooperatives may be categorized into five major areas: Land, Credit Rates, Infrastructure, Education, Organization and Markets.

During the same period under review the Department of Co-operatives networked with other governmental and non-governmental agencies to provide needed capacity development programs for co-operatives in areas of records management, conflict resolution, entrepreneurial development, auditing services, accounting and regulatory functions to ensure transparency and accountability.

In consolidating management and administrative capacities the technical staff of the department provided effective and efficient technical advice, developed business plans and recommended alternative commodities or services that are in line with the Ministry of Agriculture's mission of creating opportunities for small and medium-scale entrepreneurs.

4.0 Projects & Statutory Bodies

4.1 Projects

Eighteen externally funded projects were undertaken during 2005. Four FAO Technical Cooperation Projects (TCP) in strengthening Belize's bio-security framework, preparation of bankable investment project profiles, assessment of Telefood school gardens projects and identification of special/ sensitive products under WTO were initiated. The FAO regional food security and small ruminant development projects continued and the national operational strategy for the ministry of agriculture was concluded. Six FAO funded Telefood projects (three approved in 2005, two approved in late 2004 and one carrying over from 2004) were actively implemented. The Telefood projects addressed onion storage, bee-keeping, school gardens, crop/livestock production and pineapple (Smooth Cayenne) seed propagation. EU funding for the Banana Support Programme continued, and the 9th EDF Belize Rural Development Project (BRDP) was signed by GOB. A consortia was selected for the project management unit of the BRDP and work commenced on the development and orientation of the District Development Committees. The UNEP funded bio-safety project focused on the development of Belize's policy framework for the regulation of GMO's. OIRSA's Bid-fomin project facilitated training courses for producers and extension officers in hot pepper, bee-keeping and the participatory approach to Integrated Pest Management. The OSPESCA funded PREPAC project (Regional Fisheries Project) conducted an inventory of inland water bodies.

Seven project proposals in spiny lobster management, potato storage, disaster mitigation, organic systems development and strengthening of BOPA (Belize Organic Producers Organization), organic rice production, cassava production improvement and potato post harvest systems were submitted for funding to FAO, RUTA and IICA (Red Sicta) respectively. Pre-preparation consultations for four more projects in the areas of deep-slope fishery, coconut water preservation, incorporation of school gardens into the school curriculum and fruit tree development were undertaken, with expectations of funding through FAO for the former three and IICA for the latter. Closure of the CARD project was announced and an exit strategy was developed to include business plans development for six productive organizations, community development plans for four communities, and implementation of already identified projects in roads upgrading, organic cacao improvement and institutional strengthening of project allied credit unions.

4.2 Community-Initiated Agriculture & Resource Management/Rural Development Project (CARD)

Improvement of Cocoa Production Technology: The Toledo Cacao Growers Association TCGA), an export driven producer organization, received further assistance from the CARD Project to improve the technology of cacao production. The cost of the project is $267,000. Marco Figueroa a cacao commercial production expert was hired as a consultant to provide assistance in pest management, fertilizer production and application, and cultural practices. The consultant is training extension personnel and farmers affiliated to the TCGA. The TCGA has a rolling five year marketing agreement to supply 200 metric tons of organic cacao to Green and Black, a fast growing British chocolate company.

Business Plans For Productive Organizations: The CARD Project contracted the services of ENVIC Consulting to prepare profiles and business plans for the following organizations: Toledo Grain Growers Association, Toledo Livestock Producers Association, Toledo Ecotourism Association and three groups involved in honey production: Southern Beekeepers Cooperative, Punta Gorda Beekeepers and Maya Mopan Beekeepers. The value of the contract was $72,000.00.

Infrastructure: A project valued at $237,000 was initiated to provide culverts and bridges for ten communities in the Toledo District to enable farmers to have better access to their farms particularly during the rainy season. This project will assist with the reduction of post harvest losses. The Ministry of Works is collaborating with CARD in implementing the project while community residents provide Labour to place the headwalls on the culverts.

A fruit dryer was placed at the Toledo CET located at Dump in the Toledo District. In collaboration with the Ministry of Agriculture and the Taiwan Agriculture Mission several trials were done at processing papaya, banana and pineapple for the Belize Marketing and Development Corporation. CET Toledo has pledged to continue with these trials to train students and to generate income for the school.

Community Development: Eight community profiles were completed for the following villages: Trio, Silk Grass, Dolores, San Benito Poite, Indian Creek, Santa Anna, Santa Elena and Otoxha. The communities expressed satisfaction at the completion of these profiles. They made a public presentation of the information to national and international development agencies. Assistance has been forthcoming as a result of the presentations.

Marketing/Women Development: A survey was conducted to determine the availability of naturally produced processed products in the Southern part of the country. This was done in collaboration with the Ministry of Agriculture, Taiwan Agriculture Mission and the Belize Marketing Development Corporation. The products that were found to have the most potential for development were: processed annatto and Chuk wa or sweet tortilla. These are produced primarily by women in the Toledo District.

Rural Financial Services: The RFS Component of the CARD Project continued to assist financially both the Citrus Growers and Workers Credit Union of Stann Creek District and the

Toledo Teachers Credit Union of Toledo District in 2005. RFS approved and disbursed a Line of Credit of BZD 125,000 to the Toledo Teachers Credit Union. RFS also continued providing financial support for institutional strengthening to the Toledo Teachers Credit Union for an estimated amount of $98,000.

4.3 BELIZE MARKETING & DEVELOPMENT CORPORATION

Marketing has been identified as the number one constraint to agricultural development in Belize. Marketing intelligence and information, knowledge of the organization and infrastructure is lacking as well as a clearly defined policy with objectives and strategy. This requires that an enabling environment be created and that the resources be readily available.

The BMDC has been a key player in marketing of commodities on the domestic level. Its' activities continue to be dominated by agricultural products, particularly rice.

1) Current Financial status of the BMDC

Current Loans at 14% interest.

a) Loans	-	$1,300,000.00
b) Hot pepper purchase	-	$ 56,782.35
c) Truck purchase	-	$ 14,511.22
Subtotal	-	$ 1,371,293.57

Overdraft limit of $400,000.00.

Total liabilities of the BMDC *are $ 1,771,293.57.*

Operational costs are:

Salaries -	$34,224.00/ month
Operating expenses -	$22,600.00/ month
Bank charges -	$5,499.88/month
Loan repayments -	$70,000.00/month
Subtotal -	$132,323.88/month

***2)* Factors affecting BMDC:**

1) With the new rice agreement where the Mennonite rice producers can sell directly to the market and with the new prices agreed on, **the profit margin has been reduced by 65% on the sale of rice.**
2) This year BMDC has been unable to acquire funding for the purchase of rice. **There is no longer any GOB subvention as was the tradition.**

***3)* Business Plan –Strategic Action Plan started this year**

1. Increase the effort in collecting the receivables using collection agencies as is being implemented at the moment.

2. Marketing of traditional products.

a) Rice – Sell 500,000 lbs per month. *This is an essential service that allows 1,200 rice farmers in Southern Belize to survive.*

3. Marketing of packaged and value added products.
    a) Beans – Sell 20,000 lbs per month in presentation of 5 lbs bags of RK, Pinto and Black beans.
    b) Sugar – Sell 100,000 lbs of sugar, repackaged in 5 and 10 lbs presentation.
    c) Onions and potatoes will be sold in net bags of 5 lbs and 10 lbs presentation.
    d) Chilly Willy peppers will be distributed in 5 oz bottle presentation.
    e) Honey – will be bottled and distributed.

4. Marketing of export products
    a) Hot peppers – support to this non-traditional export will continue and it will allow income earnings of least $5,000 per month.
    b) Cocoyam – this is a promising commodity that can be exported.
    c) Apple bananas – this crop needs to be reactivated with farmers in the south.

5. Marketing and promotion of Organic Rice - Currently, rice being produced in Toledo is in the process of being certified as organic. The plan is to export organic rice abroad at premium prices. The BMDC will seek to market and promote organic rice for local consumption through its various outlets in the country. It will do so by packaging the product in an attractive form in various sizes.

6. Establish a Handicraft/ Processed Food outlet - Create an additional source of income by establishing a handicraft outlet on the premises of the BMDC compound targeting tourists which arrive on the cruise ships.

7. Establish HACCP certified processing units – Operate and administer of HACCP certified processing units in Orange Walk Town and Toledo. The units should be equipped with appropriate equipment to carry out a variety of processed foods or a variety of products that can be enhanced for value adding and to do product transformation such as dehydrated fruits including hot peppers that can be sold and distributed to various outlets.

8. Marketing of inputs to producers and small and medium-size enterprises – The plan is to supply sacks, bottles, jars and other form of packaging for producers and small and medium-size entrepreneurs at accessible prices. This service will include labeling and special orders.

9. Marketing intelligence and information – A web page will be set up that will allow the linking of producers to domestic markets as well as export markets.
10. Importation of onions and potatoes – This will assist in financing the purchase and sale of local production.

11. Marketing of other products – There is a market for mill feed. The demand for UHT low fat milk exists. Other products that can be exported include broken rice.

4.4 Belize Agriculture Health Authority (BAHA)

In April 2005, the Belize Agricultural Health Authority (BAHA) entered its sixth year of operation. As a country Belize ratified the Revised Text of the International Plant Protection Convention (IPPC) and became a member of the International Atomic Energy Agency (IAEA). BAHA has been cited by many in the international fora as a model institution that countries should consider establishing in their own territory for providing necessary agricultural health and food safety services. The Authority continues to work closely with international/ national partners and local industry and has created an export certification manual, participated in the negotiation of a partial scope agreement between Belize and Guatemala, and initiated mutual recognition of disease and pest free status for Classical Swine Fever and Mediterranean fruit fly with Guatemala, and has benefited from technical assistance and consultancies.

Animal Health

BAHA ensures that the livestock sector valued at $77 million remains healthy so as to promote food safety/ security, food production, and trade in livestock products.

Through BAHA's prevention, detection, control, and eradication activities and its strict import controls, the Authority played a significant role in helping Belize remain *free* of World Organisation for Animal Health (OIE) listed diseases, such as, foot-and-mouth disease, Classical Swine Fever, Newcastle disease, and the highly pathogenic avian influenza. In addition, BAHA staff helped Belize remain free of many of the other listed diseases that must be reported to the OIE. A total of 4,481 import permits were issued over the reporting year.

The Authority's quarantine and disease control efforts continued to work toward controlling and eradicating diseases, such as vesicular stomatitis, rabies, west Nile virus and tuberculosis. In support of Belize's agricultural export trade, BAHA staff issued more than twelve (12) international veterinary certificates certifying Belizean animal products to satisfy the requirements of importing countries.

Food Safety

The Authority worked to ensure that food produced in Belize is safe and wholesome to consume, resulting in expansion of both local and international market access for trade in these products and increased competitiveness.

The inspection programme of the Food Safety Department deployed food safety inspectors that provide regulatory sanitary oversight of Belizean food processing plants of fish and fishery products, meat and poultry, and to a lesser extent, milk, dairy, fruit and vegetable packers. An attempt was made to elevate the meat inspection programme to another level by developing a "BAHA Label" to be applied to meat retail packages that are placed on the Belizean market through local meat shops and supermarkets. A team comprised of the Bureau of Standards, Public Health Department and BAHA food safety personnel carried out sanitary audits of food processing establishments. Currently, there are four shrimp processing facilities in Belize that are

HACCP certified by BAHA. Over 340 sanitary certificates were issued for marine products valued at roughly $83.9 million.

The food microbiology and residues laboratory continues to be enrolled in proficiency testing through its affiliation with the **International Network of Food Analytical Laboratories (INFAL)** proficiency testing programme. A series of product and surveillance testing services for the food and agricultural industries and other regulatory bodies in Belize were provided. Tests were performed for various microbiological parameters and water quality.

Plant Health

The Authority worked to prevent, detect, control and eradicate plant pests within Belize. Passive monitoring of *Thrips palmi* and monilia was given particular attention granted their recent introduction into Belize. *Thrips palmi* is rapidly becoming a major pest affecting various vegetable groups including cucurbits, solanaceas, and leguminous crops. Monilia has been kept in check with only five new farms found infested.

Surveillance activities have focused on pests of quarantine importance for citrus, through surveys to determine presence or absence of Citrus Canker (*Xanthomonas axonopodis* pv *citri*), Citrus Leprosis Virus, and Citrus Greening (*Liberobacter asiaticus*). Results have indicated that none of these pests are present in the country. However, as a result of a national survey of citrus, Citrus Psylid (*Diaphorina citri*) was found distributed throughout the country. This insect is of great concern since it is the vector for Citrus Greening and has prompted the inclusion of Citrus Greening in the list of pests that needs to be monitored.

Other surveys as part of a regional OIRSA initiative included a general survey for the Rice Mite (*Steneotarsonemus spinki*) and Teak Rust (*Olivaea tectonae*). The Rice Mite was found present in Central America but not in Belize; however, Teak Rust was discovered in Belize and the rest of Central America and Mexico.

In the latter part of the year, an outbreak of Moko disease of plantains (*Ralstonia solanacearum*) was found in the Cayo District, distributed in at least twenty locations. Eradication efforts will be conducted to eliminate the focal points. In January and February of 2006, reports from CARDI indicated the infestation of soybean fields with apparently a new rust organism. The problem was diagnosed as the Asian Soybean Rust (*Phakopsora pachyrhizi*). This pest was recently introduced to the Americas and is capable of covering vast areas through the movement by wind. This pest cannot be eradicated and growers will have to depend on strict monitoring and timing of fungicide to obtain control.

The Authority continued to play an important role in regulating the introduction of new germplasm through pest risk assessments and helped assure that shipments of Belizean plant and forestry products valued at $289.5 million meet the import requirements of other countries. The Authority also worked to maintain Belize's medfly free status and controlled the pink hibiscus mealybug. The certification programme continued to ensure that established markets for papaya and hot pepper that signifies a major source of foreign exchange and employment were maintained.

Quarantine
BAHA carried out inspection of agricultural imports valued at $1,181.7 million at all official ports of entry into Belize to prevent the introduction of exotic pests and diseases and ensure that regulated products complied with national regulations.

Financial Sustainability of the Authority
The Profit & Loss Statement for the reported period shows an 8% increase in revenue collected compared to previous fiscal year. Government subvention accounted for 28.7% of total revenue, while BAHA generated 71.3% ($2,073,474) of total revenue. Overall, the performance of the Authority was constrained by a budget deficit of $60,313, despite the austerity measures implemented along with freeze in increments and salary increases of 5% & 8%, granted by Government in 2005.

For Belize, BAHA is good value for money. In 2005 BAHA safeguarded agricultural exports valued at approximately $364 million. This means that for every dollar Government invested in the Authority, the country received foreign exchange earnings equivalent to $428. This highlights the fundamental reason why the Government and Industry must continue to invest in and support the Authority in carrying out its vital mission for all the people of Belize.

4.5 Coastal Zone Management Authority

The Coastal Zone management Authority and Institute completed another phase of work this January 2006. This agency with inception in 1992 has now covered substantial grounds in creating and designing the groundwork for Integrated Coastal Zone Management in Belize. It's work in the second phase which was totally project based resulted in setting up the marine protected areas as a way of giving the World Heritage site-Belize Barrier reef a management support which was ecosystem based. The financial sustainability for this network of marine protected areas was instituted and today the Fisheries Department continues to ably manage the reserves.

Public Consultations has resulted in the production of draft policy papers for dredging, aquaculture, and bio-prospecting. The Coastal Development Guidelines, whose objective is sustainable coastal development, continues to serve as a reference for development projects along the coast. Though much of it's visibility has been scaled down due to limited resources, CZMAI continues to participate in relevant committees such as the PACT advisory Council, the Maritime Security Coordinating Committee, NEAC and other initiatives relevant to the issues of coastal management and development.

Goff's Caye Special Management Area, is one of CZMAI's challenges as it is managed for research as well as for tourist activities. It receives visitation from cruise ships every week which has placed a demand for the upkeep of basic infrastructure which at times is difficult since the island revenue generation must pay for its operations. A management plan for the area is to be designed and the pattern of this plan is really expected to be similar to that of a protected area.

The next twelve months will see CZMAI readjusting into a new phase which must take into consideration continued work in coastal issues integrating the now added slants of watershed management, the National Protected Areas Policy and System Plans, its role in the MBRS project Phase two, and finally participation in the issue of Climate Change.
It is therefore in a stage where strategic considerations will be given as a way of refining and updating its role as the legal agency for Coastal Zone Management.

5.0 Partner Agencies/Programs

5.1 USDA/ APHIS

Plant Health:
The United States Department of Agriculture is committed to supporting Belize in maintaining a Medfly free status. In 2005 four drums of Success were donated to help in containing medfly outbreaks in the Stann Creek, Plancencia and Toledo areas of Belize. The value of each drum was approximately US $2,000.

Animal Health:
Training was provided for one veterinarian from BAHA to attend ten day training in Exotic Disease Diagnostics at the USDA high security laboratory in Plum Island, New York.

Given that Avian Influenza is taking great importance in the world, USDA sponsored an Avian Influenza Diagnostic Training for a BAHA laboratory technician at National Veterinary Services Laboratory (NVSL) in Ames Iowa.

Quarantine:
Because most of the medfly detections occurred in the Big Creek and Placencia area, USDA saw the need for a proper quarantine station in Big Creek. USDA provided the funds for a "30 X 33 feet" feral concrete building with a concrete roof. The value of this building is US $43,000.00. The USDA is committed to continue supporting Belize in Plant and Animal Health issues, especially Exotic Pest and Diseases.

5.2 ROC (Taiwan) Technical Agriculture Mission

The Mission consists of thirteen local employees, and ten staff members from Taiwan, including a Chief, two agronomists, one horticulturist, one food processing specialist, one mechanic, two assistants, and two volunteers. The Mission is currently undertaking three agricultural programs--the Rice Program, the Horticultural Program, and the Food Processing program. The ICT (Information, Communication and Technology) program, the volunteer program and credit scheme are also part of the Mission's operation.

I. **The Rice Program** is aiming to produce quality rice seeds, to transfer seed multiplication technology to interested groups, and to assist in improving production systems of rice. The major achievements during 2005 are as follows:

1. Sales (acreages planted) of quality rice seeds:
   a. 'CARDI 70': 25,400 pounds (275 acres).
   b. 'Jasmine 85': 43,000 pounds (425 acres).
   c. 'Taichung Sen 10': 7000 pounds (80 acres).
2. A new seed production farm was established in Blue Creek, Orange Walk. Ten acres are being developed in the first phase; this will, eventually, be expanded to forty acres.
3. As a collaborated effort with the MAF, two Replicate trials of 121 varieties from ICTA and Nicaragua have been conducted in Pappy Show and Blue Creek respectively. Forty varieties were selected with high promises.
4. In a collaborative effort with MAF/FAO, the Mission provided technical and physical assistance in rice production to farmers in Santa Anna, Toledo- the aim being to encourage milpa farmers to practice irrigated rice production.
5. Training students from FANR, Tumul Kin and other schools as part of the Rice Program.

II. **The Vegetables, Fruits and other Agronomic Crops Program** The focus of the program is on agriculture diversification. The major achievements during 2005 are as follows:

1. A five-acre demonstration farm in Central Farm demonstrated a combination of vegetables and fruits which can be grown in the country. The demonstration farm was also used to introduce a viable farming system that combines annual and perennial crops to offer constant and even cash flow to growers.
2. Demonstration and promotion of papaya production by using the dwarf planting technique. The papaya is an important crop to Belize for its foreign currency earnings and is one of its major export fruits. The Mission did this research to facilitate harvesting, reduce production costs and increase Belize's competitive position for export of papaya in the world market.

   An improved method of cultivating papaya called the "slanting transplant method" results in reduced plant height, lower fruit placement and reduced harvest costs.
3. Training of students from FANR and '4H' on vegetable production continued.
4. Four field days were organized for some 120 farmers to introduce a mixed

   Farming system, that combines annual and perennial crops at various production stages. The farming system helps to maintain a constant and continuous income flow for farmers.
5. Helping two schools' gardens in Benque Viejo.

III. **The Food Processing Program** The major achievements during 2005 are as follows:

1. The Program developed promising processed products from materials available in

Belize, including vacuum fried pineapple, mangos, papaya, breadfruit, jack fruit, plantain, and banana. A number of vegetables such as peanut, dasheen, and many more can also be processed in this way. Under vacuum condition, vacuum fry is processed at lower temperature that helps to maintain the original colors of the food and also minimizes oxidation.

2. Bee pollen was another highlight for the Mission. The bee pollen was considered as a perfect food. It was placed on the market through the help of a Taiwanese distributor Mr. Daniel Chang.
3. Intensive efforts were invested by both the MAF and the Mission to enhance the operations of the Agro Processing Facility at CET Toledo.
4. Development of new products continued on breadfruit and papaya chips. The results of cost analysis and local market tests showed that these products had highest potential in Belize.
5. It has been noted that fruit pulps can be produced and well marketed in the country using rejected fruits such as mangos, pineapples, etc. Serious initiatives are needed to promote them for restaurants and hotels.

IV. Small Farmer's Financial Scheme

Totally more than 220 farmers benefited from the "Small Farm holders' Financing Scheme" at BEST and BMDC. The delinquency rate reached 40% at BMDC and 28% at BEST two years ago. The performance of loans has gradually improved due to efforts from both institutions. The delinquency rate has been reduced to 31% at BMDC and 11% at BEST. Loan performance needs to improve for long-term sustainability of the program.

V. Volunteer Program

Volunteers come for a period of less than two years and the length of stay depends on the task assigned. There were six volunteers in the country in 2006; they worked at UB and one was attached to the ICT program. Two volunteers were teaching agriculture; one was an assistant teacher in crop science at ANRI and the other taught agro-processing at Tulmul Kin Vocational School in Toledo.

VI. Importation of Pure Red Nile Tilapia

The Taiwan Mission facilitated the importation of 8000 red tilapia fingerlings including 200 pure ones from Guatemala on August 31st, 2005. Support from the Belize Fishery Department and the Belize Agricultural Health Authority greatly facilitated this endeavor.

VII. Bamboo Craft and Furniture Training in Guatemala

In Response to a request from BELTRAIDE to enhance the production of craft and furniture in Belize, the Mission in Belize and in Guatemala jointly organized a three-month bamboo craft and furniture training in Cayuga Bamboo Training Center, at the Taiwan Technical Mission in Guatemala. Seven men and two young women received training in the making of necklaces, earrings, vase, photo frame, pen holders, and furniture.

VIII. ICT Program

In 2005, the Taiwan ICDF launched a regional ICT (Information, Communication and Technology) Development Program to bridge the digital divide. The program covers Belize, Guatemala, El Salvador and Panama. In Belize the focus was E-Government and E-awareness.

5.3 INTERNATIONAL REGIONAL ORGANIZATION FOR AGRICULTURAL HEALTH (OIRSA)

During 2005, OIRSA carried out several activities that were geared towards agricultural health such as Regional Consultancies on prospecting for teak rust, thrips palmi, the panicle rice mite, and preliminary assessment for the declaration of Classical Swine Fever free status. OIRSA is a member of several national committees such as Biosafety, committee of national zoonosis, committee of Sanitary and Phytosanitary Measures, citrus Committee, ad hoc group for pest risk analysis, working group for Monilia in Cocoa and coordinates bilateral meetings between Belize and Guatemala. OIRSA provides International Quarantine Treatment Service to all incoming foreign vessels, aircraft and vehicles.

OIRSA assisted in the implementation of various regional projects such as PREFIP II, BID/FOMIN-OIRSA, PREPAC and the Biological Control Program of Pink Hibiscus Mealybug. OIRSA also assisted in the implementation of national projects such as, the control of Monilia in Cacao, Control of thrips palmi and assisted in the implementation of ISPM No. 15 of 2002; all these projects were financed through local income.

OIRSA makes all efforts to avoid the entrance of exotic pest into the region. One specific objective is to avoid the further spread of the pink hibiscus mealybug into the other countries of the region; the biological control program is financed so as to repress the rapid growth of this pest and its possible introduction into the other countries. The Quarantine Treatment Service that OIRSA provides is designed to prevent the introduction of exotic pests into the region; modernizing of the system with state of art technology will assist with this aim.

OIRSA continues to provide financial and technical assistance to the Ministry of Agriculture with the objective being to assist the Ministry of Agriculture & Fisheries with its stated Vision, Mission and Objectives.

5.4 Inter-American Institute for Cooperation on Agriculture (IICA)

Results of Technical Cooperation for 2005

Environmental Management

Through the Belize Organic Producers Association (BOPA) technical support continued for revision of the national organic agriculture legislation as it goes through the process of revision by the Office of the Solicitor General prior to enactment. Through BOPA training on organic inspection was provided to local technicians in support of a national program for establishment of local markets for locally grown organic products. This is an ongoing activity from 2004 with a pilot project where a small group of producers are selected to supply organic fruit and vegetables to hotels and restaurants that cater to tourists. Technical assistance to TCGA continued in organic cacao management practices, specifically in field sanitation to reduce the spread of monilia.

Promoting Food Safety and Agricultural Health

Financial and technical support for participation of a BAHA technician, at the WTO/SPS Committee meetings held in Geneva continued in 2005. The participation of Belize at these meetings has strengthened local knowledge on international sanitary and phytosanitary issues that impact the ability of Belize to participate in international trade and safeguard its borders from the entry of exotic pests and diseases. Benefits from this information were clearly evident through the operation of the national SPS committee, which serves as an advisory body on SPS issues. Belize was represented at the first International Avian Influenza Conference by the Chief Executive Officer in the Ministry of Agriculture and Fisheries. This Conference which was held in Brazil was attended by policy makers for the development of a strategy to combat the establishment of pandemic diseases in the region.

Institutional Modernization

A workshop on strategic planning and curriculum development was coordinated and facilitated for staff from the Department of Agriculture of the Faculty of Science and Engineering of the University of Belize and Secondary Schools that have strong agriculture components in their curriculum. The objective of the workshop was to apply strategic planning in improving the quality and relevance of agricultural education in Belize.

Developing Human Capital

Funding was provided for the participation of two Belizean technicians at the first regional workshop on biotechnology held in San Jose, Costa Rica. This workshop provided updated information on the trends for use of biotechnology in the region and its implications for improved productivity and management of genetic diversity.

Strengthening Rural Communities

The Meso-American Regional Fruit Program, a regional program administered by IICA, was launched in Belize in November 2005. Activities included the presentation of a status report on the fruits sector in Belize and a consultation workshop with stakeholders where pineapple, pitahaya, coconuts and cashew were selected as priority crops with potential for development towards commercialization. The program will proceed with the preparation of a regional project

and identification of funds for the development of a regional strategy for expansion and export of fruits in the region.

Facilitating Competitiveness and Global Trade

Technical support was provided for the execution of a value chain analysis of the sugar industry in Belize utilizing the "Chains and Dialogue for Action" methodology developed by Danilo Herrera and Robin Bourgeois. The analysis aims to identify bottlenecks and recommend strategic interventions to make the industry more competitive. The analysis focused on production systems and costs, harvesting and transportation systems (field to factory), processing and fobbing (transportation from the factory to the ship). This is an ongoing comprehensive analysis with projection for completion during the first quarter of 2006. Outputs from this analysis will be integrated into the preparation of a national adaptation strategy for improving the overall competitiveness of the sugar industry as it adjusts to reforms being implemented in the EU-ACP sugar protocol. Contributions were also made for assessment of the need for establishment of a national export promotion center; the main recommendation from the assessment is for the institutional strengthening of BELTRAIDE with the addition of an export promotion unit along with capacity building for its staff to manage this unit; this activity will continue in 2006 with the application of the recommendations.

The office also participated in a regional project for preparation of an inventory of policies implemented by the countries in Central America that impact on the agriculture sectors. This information will serve as a foundation for preparation of a hemispheric data base of policy information that will be available for the Ministries of Agriculture. This information will help countries to take advantage of successful experiences and enhance the process of regional and hemispheric integration.

A national seminar/workshop "Trade Agreements: Opportunities for Belize" was jointly sponsored by IICA, OIRSA and the Ministry of Agriculture. The seminar was attended by persons from the public and private sectors and included presentations from Guatemalan and Mexican technicians who provided information on requirements for exportation of products from Belize to their respective countries. This activity supports the efforts of Belize in seeking and expanding trade opportunities with countries in Central America.

5.5 CARDI

The CARDI (Belize Unit) Annual Technical Report 2005 covers two cropping seasons, the November/December 2004 planted crop which was harvested in March/April 2005, and the June/July 2005 planted crop and harvested in September/October 2005. Additional crops planted in the November/December 2005 season are not covered in this report since harvesting would commence in March/April 2006.

Hot Pepper: Seeds of four (4) hot pepper cultivars, ***CARDI Red***, ***CARDI Green***, ***West Indies Red*** and ***Scotch Bonnet*** were set in October 2004 and seedlings were raised in the screen house for the production of Stock Seed. 'Mother Plants' were grown for the entire period in the screen house thus eliminating the possibility of cross pollination by insects. Fully mature fruits were

harvested and the seed manually extracted, dried and stored. Seedlings of the four cultivars were also raised for the production of Commercial Seed by selected farmers. Ripe fruits were received and the seeds extracted, dried, cleaned and stored at the Unit.

Grain Legumes: Ninety-two soybean entries were planted in November 2004 in an unreplicated preliminary evaluation trial and germplasm maintenance. Data was collected on 40 entries for the days to maturity and yield per plot. There were a few entries which matured in less than 100 days and also had higher yield as compared to the control entry, **CARDI S-15**, which matured in 109 days and had yield of 1,23.0 g $plot^{-1}$. Those entries would be further evaluated.

Forty-three entries of peanut were planted in June 2005 in an unreplicated preliminary evaluation trial and seed maintenance. Data was recorded from 12 entries only.

The CARDI (Belize) Unit has also been collaborating with the Belize Bureau of Standards in the production of the **'*Draft*' Regional Standards for the Marketing of Red Kidney Beans**. Laboratory analyses were completed on 100 samples of red kidney beans taken at various stages from harvest to export. The data collected are being compiled for analysis.

Seed Production: Nucleus and stock seeds of selected crop types and varieties were produced during November 2004 – March 2005 and June – October 2005 at Central Farm. The crop types were Chickpea, Cowpea, Mungbean, Peanut, Pigeonpea, Sesame, and Soybean. Commercial seeds of corn, cowpea and soybean were produced, cleaned and distributed to farmers.

A major constraint to soybean production in the tropics is the availability of adequate quantities of quality seed of adapted, high yielding cultivars. Contributing to the problem is the difficulty encountered in the storage of soybean seed in the hot, humid tropical environment. Over the years the CARDI Belize Unit had tried storing soybean seed in 100 lb poly-net bags in air-conditioned store rooms. Bag storage allowed for efficient use of available storage space; however observations after three to four months of storage showed that there was an increase in seed moisture content and a decline in viability. The Unit achieved success in storing soybean seed in 55-gallon metal drum silos in air-conditioned storage rooms. Although effective, use of the drum silos however did not allow for the most efficient use of available storage space. Investigations were therefore initiated to assess the effect of plastic lined poly-net bags on moisture content and viability of soybean seed in air-conditioned storage. Observations made on 100 lb bags of seed of two soybean varieties***, CARDI S – 15*** and ***CARDI S – 89*** that were stored in an air-conditioned seed storage room at 18 ^{0}C and 93 %RH for a period of about 200 days seem to indicate that seeds stored in plastic lined poly-net bags absorbed less moisture and maintained their viability better than seeds that were stored in un-lined bags.

Integrated Pest Management: Memoranda of Understanding to provide technical assistance, mainly in the entomological field, to the Belize Agricultural Health Authority (BAHA) and Citrus Research and Educative Institute (CREI) were prepared by CARDI in the last quarter of 2005. Dr. Kathy M. Dalip, Entomologist, joined the staff of CARDI Belize Unit on 7 November 2005 to help fulfill these MOUs. Draft work programmes for 2006, prepared and are being reviewed by the respective organizations.

NCCARD: CARDI is represented and participated in the National Coordinating Committee (NCCARD) meetings. CARDI Agronomist served as the Chairman of the NCCARD Technical Committee at the request of the Ministry of Agriculture.

Technical Assistance: In 2005 efforts continued to be directed at providing technical assistance, on request, to the Extension Service and the Research Division of the Ministry of Agriculture, and to the Belize Marketing Development Corporation (BMDC). The Unit continually provided technical support to other organizations in the agricultural sector including, the Pesticides Control Board (PCB), the Citrus Research and Education Institute (CREI), the Belize Agricultural Health Authority (BAHA), the Faculty of Agriculture and Natural Resources of the University of Belize, the Belize Enterprise for Sustainable Technology (BEST), International Regional Organization for Health in Agriculture (OIRSA), the Inter-American Institute for Cooperation on Agriculture (IICA), the Belize Bureau of Standards and other organizations. Technical assistance was given to the soybean producers in Orange Walk and Cayo districts. Technical support and advisory assistance have also been provided to a large number of individual farmers and farmer groups.

5.6 Food & Agriculture Organization (FAO)

The Food & Agriculture Organization (FAO) assisted Belize in 2005 with six technical cooperation projects (TCP), six Telefood projects and sponsorship of staff attendance at various meetings/workshops related to sanitary & phyto-sanitary measures under WTO, trade policy development, fisheries policy, food and nutrition security, land mapping and food safety.

Under the "Special Programme for Food Security" (SPFS) the vertical component of the regional Project "Promoting CARICOM/CARIFORUM Food Security" made great strides with assorted vegetable, root crop and rice production demonstration plots established over five districts. Noteworthy was the successful pilot production of ten acres of mechanized irrigated rice in Toledo district by a youth group of formerly milpa producers. Under the SPFS the TCP Small Ruminant Development project got under way with the establishment of four demonstration farms with appropriate infrastructure, pasture and legume banks, training in nutrition and overall management for farmers and technicians with the invaluable help of a South-South Cooperation technician recruited through a tripartite Belize-Cuba-FAO agreement.

A project entitled "Strengthening the Biosecurity Framework TCP/BZE/3003," designed to strengthen BAHA's legislation to effectively address pressing needs of the animal health and food safety systems in Belize was approved by FAO and a national legal consultant was recruited. The Agricultural Development Management and Operational Strategy (ADMOS) was launched in June 2005 with assistance from FAO staff and consultant project leader. This project TCP/BZE/3002 was initiated in late 2004 for the implementation of Belize's national agricultural policy. FAO assisted with funding consultancy services for the preparation of Belize's special & sensitive products.

In early 2005 the new Ministry of Agriculture administration identified agro-processing development, fisheries and the enhancement of the extension service as areas of major focus for FAO assistance. In addition to the latter, FAO's support was further enlisted through a TCP for

the preparation of bankable investment project profiles to support the productive sector through development of productive infrastructure including feeder roads and water management systems, improved livestock production systems and non-traditional fruit and vegetable enterprises for small and medium-scale producers.

At the request of ministries of agriculture and education two separate missions were fielded by FAO staff to develop TCP proposals for (1) introduction of different levels of coconut water preservation technologies to enhance Belize's coconut industry and (2) incorporation of school gardens and dietary guidelines into the school curriculum. A first draft of the "school gardens" proposal was prepared through consultations with the ministries of education, agriculture and other stakeholders.

Three Telefood projects approved by FAO in 2005 were undertaken, plus two more that were approved in late 2004. One other project continued from the year before and one new proposal for potato storage facilities was submitted to FAO headquarters. The active Telefood projects were in bee-keeping, school gardens, onion storage facilities, pineapple seed propagation, crop & livestock expansion at the Youth Hostel and grain drying/storage.

World Food Day was celebrated with an all day fair at Escuela Secundaria Tecnica Mexico in San Roman, Corozal District under the global theme "Agriculture and Intercultural Dialogue its our common heritage" on October 14th. Activities included radio programmes, agriculture, agro-processing, crafts, educational and cultural displays, a cultural food fair, poetry, poster and quiz competitions highlighting the 2005 World Food Day theme.

5.7 RUTA BELIZE

RUTA is a regional project supported by the governments of Central America and partner agencies. Its main goal is to contribute to the reduction of rural poverty, and to sustainable development in Central America.

Major accomplishment in 2005:

1. Supported the completion of project proposal of MAF/BOPA in organic production and submitted to RUTA Regional for identification of funding: Organic production is an activity that has acquired importance in Belize. Presently there are three institutions involved in organic production, which include Toledo Cacao Growers Association (TCGA), The Citrus Research & Extension Institute (CREI), and Janus Foundation. However for organic production to develop it requires assistance in aspects of administration, technology and marketing. It will need to develop the certification standards both at the national and international level for products of an organic origin. It is in this regard that the proposal was prepared to identify funding for the development of this industry.
2. **Support to the Exit Strategy of CARD:** RUTA strongly contributed to the reformulation of the CARD project and also provided support to IFAD on its mission to

Belize to evaluate the project. RUTA contributed to the development of the exit strategy and is presently engaged with IFAD and GOB to bring the project to a closure in June.

3. **Technical assessment of cocoa production in Belize:** In June of 2005, the Ministry of Agriculture & Fisheries requested the assistance of RUTA in conducting a technical assessment of cocoa production in Belize. The main objective of this work will include: an assessment of cocoa production systems in Belize; a feasibility study as well as collection of baseline data to determine cost of production, productivity, management practices and an estimate of potential income, for both small and medium-size farmers that mostly produce organic cocoa, analyzing and presenting the most important factors to be taken into consideration for each production system. The plan is to initiate the field survey in January of 2006.
4. **Country Strategic Opportunities Paper (COSOP):** RUTA assisted IFAD on its Mission to Belize during February and March 2005, to carry out a sectoral policy and institutional assessment to identify opportunities for future IFAD support in poverty alleviation and rural development activities in the country. The Mission met with various ministries and quasi-government institutions. We also met with representatives of nineteen non-governmental organizations, private sector organizations, and community-based organizations, and with representatives from the international cooperation community. Ruta is at the stage of procuring a grant of $ US 20,000.00 from IFAD to Belize.
5. **Support to MAF on Cocoa Training:** RUTA provided financial support for an extension officer to participate on a cocoa training course in Costa Rica. This assistance was approved with the objective of training our local extension officers to be able to provide technical support to cocoa farmers in the field.

6.0 Senior Management Staff of the Ministry

(31st December 2005)

Ministry:
Hon. Michael Espat, Minister of Agriculture & Fisheries
Hon. Dave Burgos, Minister of State
Dr. Michael Tewes, Chief Executive Officer
Mrs. Cordilia Avila, Finance Officer
Mr. Jose Castellanos, Policy Analyst

Departments:
Mr. Eugene Waight, Chief Agriculture Officer
Ms. Beverly Wade, Fisheries Administrator
Mr. Hugo Miranda, Acting Registrar of Cooperatives

Statutory Bodies:
Mr. Sergio Garcia, Managing Director, Belize Marketing & Development Corporation
Ms. Neri Sanz, Managing Director, Belize Agriculture Health Authority
Ms. Virginia Vasquez, Managing Director, CZMA

Projects/Associations
Mr. Jose Novelo, Project Director, CARD
Mr. Harry Parham, Managing Director, BLPA

Associated Regional/ International Organizations:
Mr. Anil Sinha, Representative, CARDI
Mr. Salvador Monge, Acting Representative, IICA
Mr. Juen-Yi Chen, Head of Technical Mission, ROC Taiwan
Mr. Fermin Blanco, Representative, OIRSA
Mr. Crispin Blanco, Representative, USDA/APHIS

Appendix I: Primary Agriculture Output at Producer's Price

Economic Value of Agriculture Output 2005

Commodities	2004	2005	2004	2005	2004	2005
	Quantity (lbs.)	Quantity (lbs.)	Price** (BZ$)	Price* (BZ$)	Value (BZ$)	Value (BZ$)
Sugarcane	1,149,475	929,392	$46.07	$54.20	$52,956,313.25	$50,373,046.40
Bananas						
(40 lb boxes)	3,195,298					
(28 lb boxes)	387,516					
(36 lb boxes)	127,813					
(40 lb boxes)	7,668					
(37 lb boxes)	44,615					
(33 lb boxes)	387,712					
(26 lbs boxes)	330,352					
(31 lbs boxes)	136,685					
(28 lbs other)	96,736					
(28 lbs other 2nd class)	53,203					
Banana Products (lbs)	175,040,286	161,480,640			$52,991,271.00	$51,080,810.00
Apple Banana (Bunches)(30 lbs/bunch)	73,988	7,226	$3.00	$3.00	221,964	21,678
Domestic Consump (40 lbs/Box)	218,800	504,627	$3.00	$3.00	656,401	1,513,881
Total Value					$53,869,636.07	$52,616,369.00
Citrus						
Grapefruit **(80lb box)**	1,478,788	1,527,802	$3.84	$9.82	$5,678,545.92	$15,003,015.64
Orange **(90 lb box)**	4,946,717	6,264,847	$5.03	$5.85	$24,881,986.51	$36,649,354.95
Fresh Lime Export (lbs)	158,400	236,591	$0.06	$0.07	$9,504.00	$17,012.38
Fresh Orange Export (lbs)	15,082,519	17,782,032	$0.15	$0.18	$2,262,377.85	$3,248,356.00
Fresh Grapefruit	227,294	284,942	$0.25	$0.06	$56,823.50	$18,133.36

Export (lbs)						
Domestic Lime Consumpt. (lbs)	120,000	120,000	$0.50	$0.50	$60,000.00	$60,000.00
Domestic Grapefruit Consumpt. (80 lbs/bx)	63,089	15,278	$6.00	$6.00	$378,534.00	$91,668.12
Domestic Orange Consumpt. (90 lbs/bx)	279,873	313,242	$8.00	$8.00	$2,238,984.00	$2,505,938.80
Citrus Products					$35,566,755.78	$57,593,479.25
Marine Products (incl 4% for dom. Consump)					$112,702,676.45	$87,225,348.08
Lobster	537,947	509,955	$28.15	$28.43	$15,142,367.00	$14,499,251.00
Conch	596,093	524,146	$9.75	$13.65	$5,810,205.00	$7,155,860.00
Shrimp	16,998,908	18,444,993	$5.01	$3.28	$85,153,247.00	$60,534,749.00
Whole Fish	-					
Fish Fillet	-					
Other	261,042	445,411	$4.71	$3.77	$1,228,261.00	$1,680,667.00
Domestic Consumption	919,838	796,980			$5,368,596.45	$3,354,821.08
Other						
Papayas (export)	60,989,421	58,240,463	$0.41	$0.43	$25,005,662.61	$25,043,399.09
Cowpeas	5,951,000	5,049,000	$0.45	$0.45	$2,677,950.00	$2,272,050.00
Hot peppers (export)	76,152	269,969	$0.80	$0.80	$60,921.60	$215,975.20
Hot peppers (local)	331,528	336,552	$1.27	$1.22	$421,040.56	$410,593.44
Cocoa	87,369	47,827	$2.00	$2.00	$174,738.00	$95,654.00
RK beans	6,629,920	7,621,550	$0.79	$0.83	$5,237,636.80	$6,325,886.50
Black Beans	2,179,656	2,955,850	$0.79	$0.86	$1,721,928.24	$2,542,031.00
Other Beans	149,000	1,144,700	$0.80	$0.80	$119,200.00	$915,760.00
Corn	67,306,275	76,376,425	$0.20	$0.20	$13,461,255.00	$15,275,285.00
Rice paddy	23,537,939	39,152,894	$0.22	$0.22	$5,178,346.58	$8,613,636.68
Sorghum	17,954,000	14,901,100	$0.14	$0.14	$2,513,560.00	$2,086,154.00
Soybean	700,000	750,000	$0.34	$0.34	$238,000.00	$255,000.00
Cabbage	3,786,800	2,007,300	$0.59	$0.69	$2,234,212.00	$1,385,037.00
Cucumber	221,707	332,707	$0.50	$0.50	$110,853.50	$166,353.50

Okra	111,645	34,930	$0.65	$0.87	$72,569.25	$30,389.10
Squash	128,300	200,760	$0.45	$0.45	$57,735.00	$90,342.00
Pumpkin	350,965	249,900	$0.40	$0.40	$140,386.00	$99,960.00
Sweet Pepper	695,553	632,600	$2.12	$2.62	$1,474,572.36	$1,657,412.00
Tomatoes	1,301,617	1,191,179	$1.40	$1.43	$1,822,263.80	$1,703,385.97
Irish Potato	1,599,700	2,289,900	$0.69	$0.75	$1,103,793.00	$1,717,425.00
Onion	1,304,010	2,157,273	$0.74	$0.77	$964,967.40	$1,661,100.21
Carrots	569,200	484,740	$0.67	$0.71	$381,364.00	$344,165.40
Cassava	2,624,350	396,600	$0.39	$0.45	$1,023,496.50	$178,470.00
String Beans	13,000	6,300	$0.80	$0.80	$10,400.00	$5,040.00
Lettuce	31,037	356,300	$0.75	$0.75	$23,277.75	$267,225.00
Chinese Cabbages	118,800	43,800	$0.80	$0.80	$95,040.00	$35,040.00
Broccoli	51,560	84,000	$1.50	$1.50	$77,340.00	$126,000.00
Celery	55,400	43,500	$2.00	$2.00	$110,800.00	$87,000.00
Cho-cho	108,310	48,200	$0.75	$0.75	$81,232.50	$36,150.00
Sweet Corn (ears)	30,000	340,000	$0.70	$0.70	$21,000.00	$238,000.00
Cauliflower	10,175	5,700	$1.50	$1.50	$15,262.50	$8,550.00
Cocoyam	581,160	618,880	$0.58	$0.96	$337,072.80	$594,124.80
Sweet Potato	216,800	165,500	$0.43	$0.56	$93,224.00	$92,680.00
Yam	56,500	274,000	$0.46	$0.81	$25,990.00	$221,940.00
Yampi	101,400	176,000	$0.46	$0.81	$46,644.00	$142,560.00
Jicama	51,500	66,600	$0.50	$0.50	$25,750.00	$33,300.00
Mangoes	1,240,500	4,673,000	$0.50	$0.50	$620,250.00	$2,336,500.00
Local Papaya	120,000	1,164,809	$0.42	$0.42	$50,400.00	$489,219.78
Peanuts	169,380	249,200	$1.07	$1.33	$181,236.60	$331,436.00
Pineapple	4,759,880	4,963,188	$0.55	$0.31	$2,617,934.00	$1,538,588.28
Pitahaya	0	45,000	$2.00	$2.00	$	$90,000.00
Plantain (bunches)*	813,135	416,650	$5.00	$5.00	$4,065,675.00	$2,083,250.00
Watermelon	3,355,365	2,832,500	$0.30	$0.30	$1,006,609.50	$849,750.00
Coconuts (Nuts)	2,055,500	3,519,600	$0.51	$0.68	$1,048,305.00	$2,393,328.00
Cotton	0	80,000	$8.00	$8.00	$	$640,000.00

Canteloupe	434,440	617,100	$0.40	$0.40	$173,776.00	$246,840.00
Annato	30,800	49,800	$0.90	$0.90	$27,720.00	$44,820.00
Coffee	510,000	120,000	$1.35	$1.35	$688,500.00	$162,000.00
Avocado	225,750	168,000	$0.75	$0.75	$169,312.50	$126,000.00
Cashew (raw nut)	316,250	325,920	$1.00	$1.00	$316,250.00	$325,920.00
Ginger	185,100	193,000	$0.75	$0.75	$138,825.00	$144,750.00
Nutmeg	50,000	14,000	$15.00	$15.00	$750,000.00	$210,000.00
Grapes	0	0	$3.50		$	$
Craboo	166,750	130,000	$0.75	$0.75	$125,062.50	$97,500.00
Guava	0	26,000	$1.50	$1.50	$	$39,000.00
Other Fruit (sapodilla,mamey,etc.)					$137,500.00	$137,500.00
Other Vegetables (radish, cilantro, etc.)					$110,000.00	$110,000.00
Soursop	24,575	8,145	$2.00	$2.00	$49,150.00	$16,290.00
Fruits/Vegetables					$79,435,991.85	$87,385,766.95
Livestock:						
Dressweight:						
Beef	5,859,000	3,556,728	$2.25	$2.50	$13,182,750.00	$8,891,820.00
Beef Export (on the hoof) (lbs)	2,663,800	3,235,500	$1.10	$1.20	$2,930,180.00	$3,882,600.00
Pigs	1,719,000	2,353,398	$3.25	$3.00	$5,586,750.00	$7,060,194.00
Pigs Export (on the hoof) (lbs)		479,000		$1.40		$670,600.00
Sheep	49,350	59,681	$3.00	$3.00	$148,050.00	$179,043.00
Poultry	30,740,883	30,488,884	$1.60	$1.60	$49,185,412.80	$48,782,214.40
Turkey	317,449	321,643	$3.00	$3.00	$952,347.00	$964,929.00
Milk (lbs)	7,974,867	8,347,339	$0.32	$0.32	$2,551,957.44	$2,671,148.48
Spent hens (No. Heads)	139,000	139,000	$3.00	$3.00	$417,000.00	$417,000.00
Eggs (Dozen)	2,851,257	2,405,968	$1.50	$1.50	$4,276,885.50	$3,608,952.00
Honey (lbs)	83,466	69,164	$4.50	$4.50	$375,597.00	$311,238.00
Livestock					$79,606,929.74	$77,439,738.88

All Non-traditional products					$243,326,168.59	$224,589,254.83
Citrus/Sugarcane/						
Bananas/Fisheries					$170,812,134.55	$188,044,493.73
Total Agri. Output					**$414,138,303.14**	**$412,633,748.56**

* 1 Bunch = 45 lbs

Source: MAFC, District Agriculture Offices Reports

Appendix II-A: Nominal Food and Agriculture Exports ('000 Bz $)

Commodities [a]	2001	2002	2003	2004 r	2005 p
Sugarcane Sector:					
Sugar	$ 59,370	$ 65,981	$ 71,227	$ 81,534	$ 69,899
Molasses	$ 1,649	$ 2,678	$ 2,476	$ 1,766	$ 2,821
Sugar/Molasses	*$ 61,019*	*$ 68,659*	*$ 73,703*	*$ 83,300*	*$ 72,720*
Bananas	*$ 42,804*	$ 33,499	$ 52,579	$ 52,991	$ 51,081
Citrus Sector:					
Orange Concentrate	$ 68,853	$ 53,493	$ 65,538	$ 55,489	$87,547
Orange Squash	$ 4,653	$ 3,094	$ 1,479	$ 1,996	$ 542
Orange Oil	$ 385	$ 809	$ 566	$ 2,050	$ 1,919
Oranges	$ 760	$ 2,439	$ 2,406	$ 1,973	$ 3,248
Grapefruit Concentrate	$ 15,700	$ 13,950	$ 12,516	$ 23,817	$ 19,424
Grapefruit Squash	$ 1,946	$ 7,080	381	$ 1,792	$ 298
Grapefruit Oil	$ 102	$ 306	$ 24	$ 1,573	$ 6,600
Citrus	*$ 92,399*	*$ 81,171*	*$ 82,909*	*$ 88,690*	*$119,579*
TRADITIONAL EXPORTS					
Marine Products	$ 66,566	$ 70,363	$ 110,157	$ 107,334	$ 83,871
Lobster	$ 12,973	$ 13,236	$ 13,598	$ 15,142	$ 14,499
Conch	$ 4,647	$ 3,440	$ 3,741	$ 5,810	$ 7,156
Shrimp	$ 48,933	$ 53,563	$ 92,762	$ 85,153	$ 60,535
Whole Fish	$ 12	$ 124	$ 30		$ -
Fish Fillet	$ 0	$ -	$ -		$ -
Crab	$ 1	$ -	$ 26		$ -
Other Fish				$ 1,228	$ 1,681
Sub-total	*$262,789*	*$ 253,692*	*$319,348*	*$ 332,316*	*$327,250*
Other					
Pepper Sauce	$ 397	$ 414	$ 607	$ 866	$ 1,154
Papayas	$ 10,260	$ 15,508	$ 16,752	$ 22,818	$ 26,768
Red Kidney Beans	$ 3,247	$ 2,059	$ 1,659	$ 1,872	5,064
Black Eye Peas	$ 2,875	$ 2,457	$ 3,410	$ 1,418	$ 3,463
Mangoes	$ 0	$ -	$ 1	$ -	$ -
Cocoa Beans	$ -	$ 29	$ 94	$ 69	$ -
Honey	$ -	$ -	$ -	$ -	$ -
Peanuts	$ -			$ 12	$ -
Chicle	$ 15	$ 63	$ 22	$ -	$ -
Total Other	$ 16,793	$ 20,530	$ 22,545	$ 27,054	$ 36,449
Other Exc. Papayas	$ 6,534	$ 5,022	$ 5,793	$ 4,236	$ 9,681
Agriculture Export Earnings	$ 279,582	$ 274,222	$ 341,893	$ 359,370	$ 363,699

Source: [a] Central Statistics Office

[b] Marine Product values for 2001 are from Fisheries Department, Belize City

N/A = Not Available

p= Preliminary

r=Revised

Appendix II-B: Real Food and Agriculture Exports ('000 Units)

Commodities [a]	2001	2002	2003	2004r	2005 p
Sugarcane Sector:					
Sugar (Long Ton)	**94**	**103**	**99**	**114**	**90**
Molasses (gals)	**4,809**	**5,618**	**5,610**	**5,037**	**5,129**
Sugar Products					
Bananas (tonne)	**50**	**42**	**73**	**79**	**76**
Citrus Sector:					
Orange Concentrate (gal)	**4,901**	**3,621**	**4,921**	**6,445**	**8,380**
Orange Squash (gal)	**761**	**950**	**418**	**570**	**149**
Orange Oil (lbs)	**366**	**508**	**244**	**1,222**	**2,093**
Oranges (lbs)	**5,893**	**15,627**	**13,636**	**12,636**	**17,782**
Grapefruit Concentrate (gal)	**805**	**730**	**768**	**1,813**	**1,255**
Grapefruit Squash (gal)	**334**	**1,519**	**107**	**347**	**38**
Grapefruit Oil (lbs)	**58**	**58**	**11**	**182**	**652**
Marine Products (lbs)	**8,267**	**7,332**	**17,063**	**18,394**	**19,925**
Lobster	**468**	**499**	**536**	**538**	**510**
Conch	**644**	**465**	**450**	**596**	**524**
Shrimp	**7,145**	**6,330**	**16,052**	**16,999**	**18,445**
Whole Fish	**10**	**38**	**24**		
Fish Fillet	**0**	**-**	**-**		
Crab	**0**	**-**	**1**		
Other Fish				**261**	**445**
Other					
Pepper Sauce (lbs)	**196**	**285**	**399**	**513**	**583**
Papayas (lbs)	**13,786**	**24,465**	**36,522**	**55,606**	**63,105**
Red Kidney Beans (lbs)	**5,944**	**3,940**	**3,118**	**3,058**	**7,430**
Black Eye Peas (lbs)	**7,419**	**5,913**	**8,130**	**3,167**	**7,986**
Mangoes (lbs)	**0**	**0**	**10**	**-**	0
Cocoa Beans (lbs)	**66**	**55**	**45**	**45**	0
Chicle (lbs)	**0**	**27**	**19**	**-**	0
Honey (lbs)	**N/A**	**N/A**	**N/A**	**-**	0
Peanuts (lbs)	**N/A**	**N/A**	**N/A**	**21**	0

Source: [a] All export commodities figures are from Central Statistics Office

[b] Marine Product figures for 2001 are from Fisheries Department, Belize City

N/A = Not Available

p=Preliminary

r= Revised

Appendix III: Agriculture Imports 2001 - 2005

($' 000 Bze.)

IMPORTS	2001	2002	2003	2004	2005p
MEAT;#	**8,911**	**$ 8,323**	**$ 9,524**	**$ 9,120**	**$ 8,075**
BEEF	104	$ 101	$ 168	$ 126	$ 250
PORK	1,544	$ 1,599	$ 2,199	$ 3,502	$ 2,812
POULTRY	156	$ 98	$ 397	$ 329	$ 319
OTHER	7,107	$ 6,526	$ 6,760	$ 5,163	$ 4,694
DAIRY	23,148	$ 22,594	$ 23,053	$ 23,567	$ 24,291
EGGS	1,144	$ 1,030	$ 1,195	$ 895	$ 853
RICE	1,368	$ 821	$ 297	$ 136	$ 132
FLOUR	865	$ 696	$ 216	$ 210	$ 287
OTHER CEREALS*	15,434	$ 9,716	$ 18,595	$ 18,870	$ 18,612
FRUITS AND VEGET.	11,955	$ 11,236	$ 11,168	$ 12,353	$ 9,089
RK.BEANS	101	$ 339	$ 498	$ 45	$ 129
OTHER FOOD*	$ 36,964	$ 36,552	$ 32,147	$ 26,398	$ 45,117
TOTAL FOOD	**118,765**	**$ 107,840**	**$ 118,730**	**$ 109,232**	**$ 120,203**
exc Ani. Feed & Seed	$ 99,889	$ 91,307	$ 96,692	$ 91,594	$ 106,585
INPUTS:					
SEEDS	1,636	$ 1,561	$ 1,336	$ 1,273	$ 1,510
FERTILIZERS	6,109	$ 11,311	$ 9,423	$ 8,435	$ 6,802
HERBICIDES	3,286	$ 4,306	$ 3,903	$ 4,171	$ 3,900
INSECTICIDES	3,852	$ 4,711	$ 4,829	$ 3,890	$ 5,433
FUNGICIDES	1,713	$ 2,745	$ 3,043	$ 3,454	$ 3,243
ANIMAL FEED	17,240	$ 14,971	$ 20,702	$ 16,366	$ 12,108
TOTAL INPUTS	**$ 33,836**	**$ 39,605**	**$ 43,236**	**$ 37,588**	**$ 32,996**
TOTAL AG. IMPORTS	**$ 133,725**	**$ 130,912**	**$ 139,928**	**$ 129,182**	**$ 139,581**
OTHER IMPORTS	$ 899,925	$ 918,117	$ 964,246	$ 899,035	$ 1,042,136
TOTAL IMPORTS	**$ 1,033,650**	**$ 1,049,030**	**$ 1,104,174**	**$ 1,028,217**	**$ 1,181,717**

INCLUDES FRESH, CHILLED, PRESERVED, PROCESSED & PRODUCTS

* INCLUDES PROCESSED AND UNPROCESSED PRODUCTS

Source: Central Statistical Office

p=Preliminary