AGRICULTURE

ANNUAL REPORT

2012

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Minister's Foreword

In 2012, the Ministry of Agriculture continued its efforts to enhance Fiji's economy through the Ministry's development programmes. All the seven divisions, Animal Health & Production, Extension, Land and Water Resource Department, Land Resource Planning, Economic Planning and Statistics, Research and Human Resource & Finance and Information Division have achieved mixed results. Agriculture remains the Ministry of Fiji's economy, accounting for around 50% per cent of export earnings, providing nearly 50 percent of the nation's total employment and contributing 9 per cent of its Gross Domestic Product (GDP).

The ministry would like to see for faster growth and is continuously seeking to identify new enterprises and commodities for which Fiji farmers have a comparative advantage in the world market, in order to ensure future export growth. It is also investigates new ways and methods of adding value locally to our traditional export commodities.

The results experienced during the year highlight the need for the Ministry to concentrate its collective efforts and skills on sectors which offer Fiji the greatest opportunity for export growth and reduce imports. Demand driven approach continues to be the driving force in capital projects.

As we continue to develop our resources, we must adopt the principal of sustainable economic development and the preservation of our environment. While Government is committed to free trade and de- regulation, any development or product must encompass the sustainable use of resources and achievement of consistency in supply and quality.

This is critical for our exports to compete efficiently in the world market. Building on the achievements of 2012 and learning from mistakes made during the year should be a compass to ensure that agriculture continues to play a major role in the economic progress of this country. We must foster closer working relationships with our farmers and stakeholders to achieve a successful Fiji.

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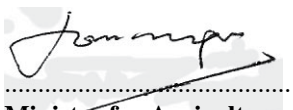

Minister for Agriculture
Mr Joketani Cokanasiga

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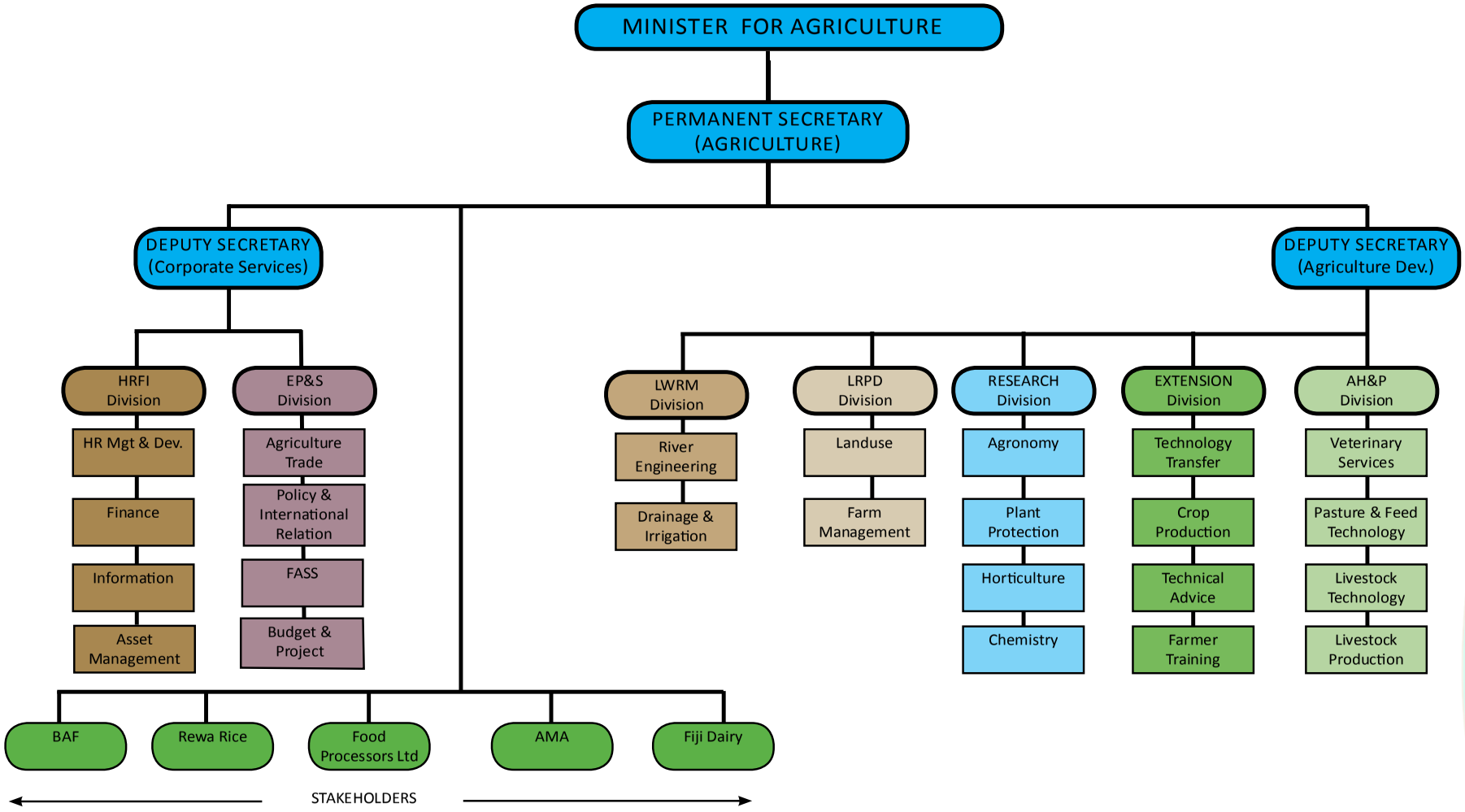
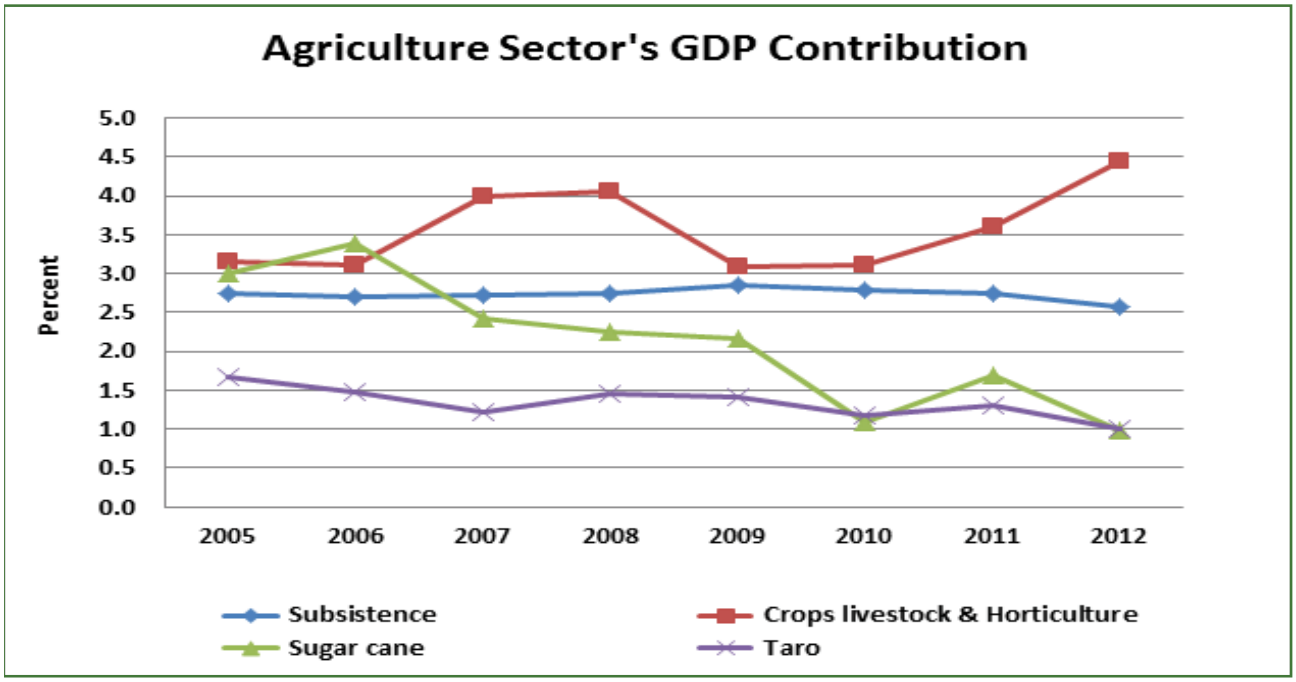
4.0 Organisation Structure

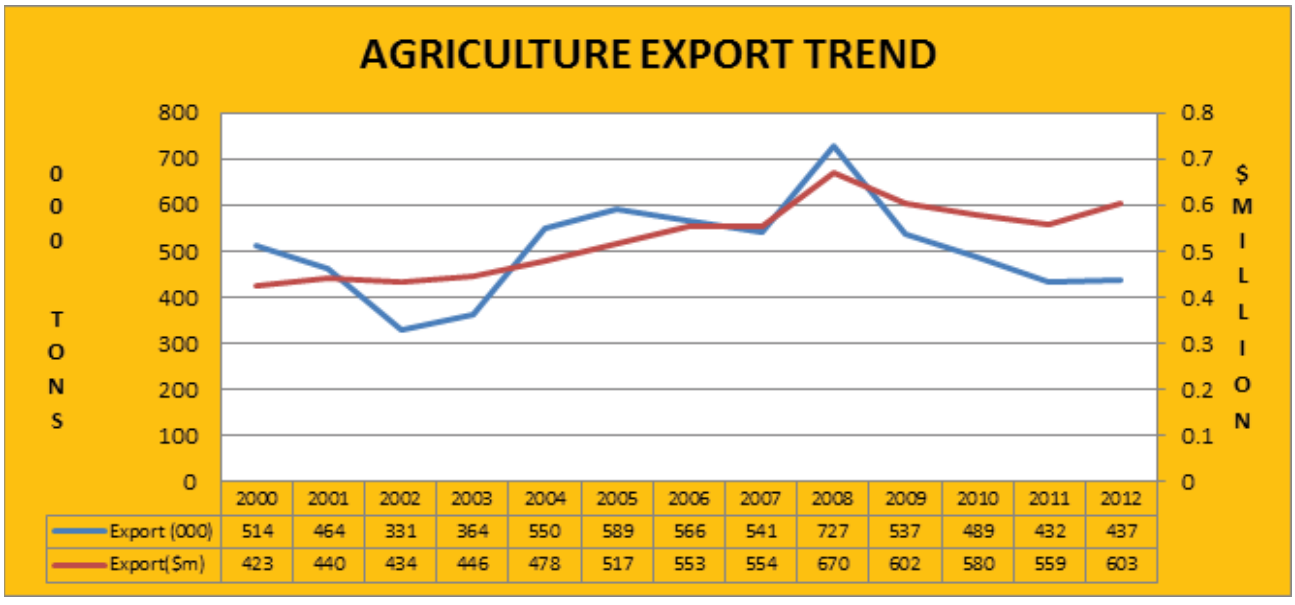


AGRICULTURE GDP CONTRIBUTION								
Agriculture's GDP Contribution (%)								
	2005	2006	2007	2008	2009	2010	2011	2012
Agriculture	10.56	10.69	10.37	10.49	9.51	8.2	9.36	9.0

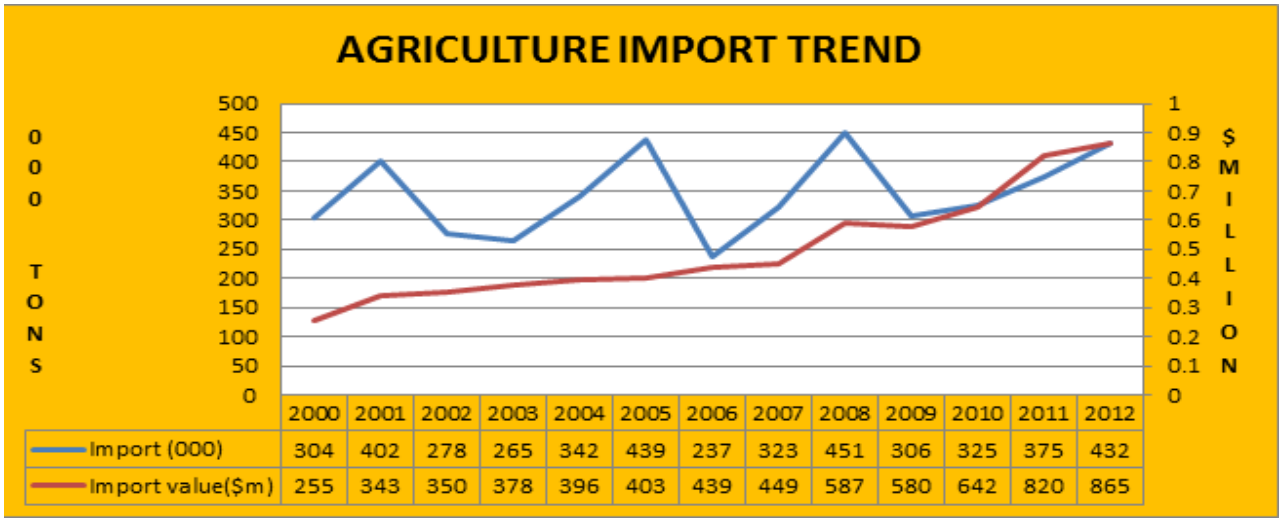


The contribution of the agriculture sector to the National GDP decreased by 4% in 2012 and has been the fourth largest contributor compared to the other sectors. Despite the declining trend in agriculture GDP, it continuesto play an important role the development of the sector as a whole. It provides food and income security, promotes community development in rural areas and an important source of foreign exchange earnings. The decrease in GDP contribution is largely attributed by the two floods that struck the Northern and Western Division during the year and the significant increase in the manufacturing and remittance sector.

AGRICULTURE TRADE



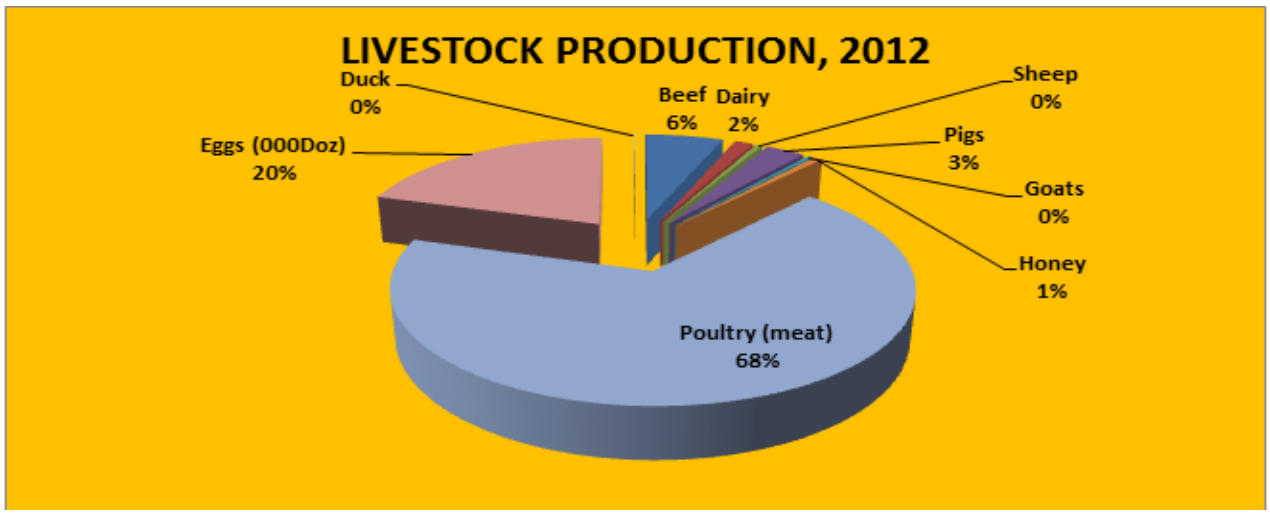
In 2012, agriculture exports increased by 5000 tons when compared with 2011, with a total earnings of of around $606 million dollars. Major export destination for Fiji's products during the year were : United Kingdom, United States, Australia, New Zealand, HongKong Vanuatua, The Carribean and Japan.

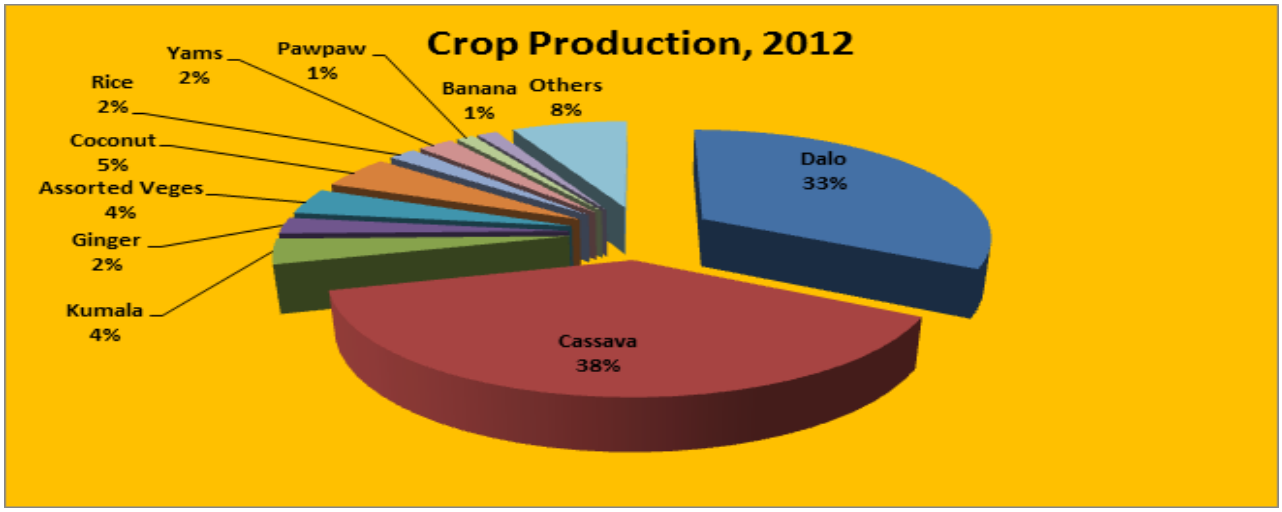


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Import (000)	304	402	278	265	342	439	237	323	451	306	325	375	432
Import value($m)	255	343	350	378	396	403	439	449	587	580	642	820	865

Value of imports in 2012 both increased in tons and value when compared with 2011. The widening gap between the volume and value of imports reflect high import prices due to the devaluation of our dollar which caused overseas products expensive. Major import destination during the year were: Australia, New Zealand, Thailand, Singapore, Malaysia and Vietnam.

AGRICULTURE PRODUCTION





LIVESTOCK

Beef

A total of 10,855 cows (breeders) were recorded with a total stock of 32,203 (Western 14,062, Central and Eastern 6699 and Northern 11,442). These stocks were recorded from 746 farms (Western 180, Central and Eastern 280 and Northern 286) which also include larger operation farms such as Yaqara Pastoral Company and two Estate farms. Beef production through the formal market recorded a decrease by 26% (584 ton) the number of animals recorded for slaughter in the 2 registered abattoirs (Vuda and Nasinu) and the rural slaughterhouse in the North were 6653 which indicated a decrease of 9.2% (619 head) less cattle slaughtered compared to last year's figures (7265). The total volume of beef imported (2547.1 ton), a total of 1272.9 ton (49.9%) was supplied by New Zealand and Australia supplied the other 50% (1274.1 ton (0.02%). A total of 1061.8 tonne of Beef and by products are being re-exported to 12 Pacific countries and including the Middle East and Japan. Per capital consumption reduced to 3.0 kg compared to 2011 (3.5kg) as 30% of the total population do not consumed beef. Percentage of local production to imports decreased by 20% compared to 2011(53%)

Dairy

A total of 10,310 milking cows were recorded compared to 9206 in 2011 and this showed an increase of the dairy herd by 12%. Additionally, replacement herd (heifers) recorded were 4,546 which were 44% of the current milking herd recorded. There were 536 bulls recorded in the Central Division and Eastern Division in comparison to current milking herd, the ratio was 1 bull to 19 milking cows.

A total of 284 farmers in the Central/Eastern Division were supplying raw milk to FCDL while 60 farmers were still supplying raw milk. However, a total of 161 farmers were supplying raw milk and ghee in the West compared to North (32) and one (1) farmer in the Eastern Division. A total of 3595 TMFE of various dairy products was imported during 2012. The largest increase in imports was FCMP (23.73TMFE) and followed by Butter (645 TMFE). There was no import recorded for skim milk. The self-sufficiency level based on milk supplied to FDL and non-factory production decreased to 21% compared to 2011 (22%). However, the per capita consumption decreased to 5 kg compared to 5.3 kg in 2011.

Sheep

There were 388 farms recorded in 2012 compared to 2011 (365) and this is 5.9% higher compared 365 in last year's annual figure. This also showed an increase in population by 17% from 10,104 in 2011 to 12,191 in 2012. Majority of the farms were located in the Northern Division (224) which was 56% of the total farms in Fiji.

Local production of 121.11 tonnes was produced during the year. This indicated an increase of 7% compared to 112.94 tons in 2011. Majority of the slaughter was done in the informal market with a total of 110.41 tonnes while 10.71 tonnes was recorded in the formal market

A total of 6795 tonnes of sheep meat and by products (considering carcass and boneless) was imported this year compared to 6593 tonnes 2011.

A total of 121.3 tonne of mutton and by products are being re-exported to 12 Pacific countries and including the Middle East and Japan.

The self-sufficiency level was 0.01% compared to 0.2% in 201 with a per capita consumption of 4.0 kg compared 3.0 kg in 2011.

Pigs

A total of 1,255 supervised farms were recorded during the year with 4,301 breeding sows and a total stock of 29,447. Majority of these farms were from the Central Division whicl was more than 70% the total number of farms and 78% in the total number of stock.

A total of 14,667 of pigs were slaughtered at the registered abattoirs producing 813.39 tonnes of pork. In comparison to 20,099 in 2011 , this indicated an increase in number of slaughter by 37% and tonnage by 45% respectively. There wa a decrease in average weight by 5.76% compared to the same period last year.

There was a decrease in imports by 41% (395.44 tonne) in 2012 as compared to 673.3 tonnes in 2011 and a total of 19.09 tonnes of pork and by products were being exported to 3 Micronesian countries and Tonga.

The self-sufficiency level increased to 67% as compared to 53.5% (2011).

Per capita consumption decreased by 60% to 1.5kg compared to 2.4kg in 2011 and this was based on 6.3% of total population not consuming pork.

Government is being requested through the Crop and Livestock Council to institute a 32% tariff on the import of subsidised cheaper pork meat from Australia inorder to safeguard the local Pig Industry

Goats

There were 540 farms recorded in 2012 compared to 421 in 2011 and this is an increase of 22% compared to last year's annual figure. This also showed an increase in population by 8% from 24,723 in 2012 compared to 22,929 in 2011.

A total of 6406 goat were slaughtered formal and informall producing a total of 96.09 tonnes of Chevon. The average carcass weight was 12.3 kilograms per animal at the abattoirs and 15 kg at farm gate sales.

Total Goat Meat imports increased by 72% (40tonne) compared to 2011 (11.2tonne) which may be due to the demand of Goat Meat in the festive season (4thQtr)

The self-sufficiency level was 70.4% compared to 92.3% in 2011 and the total production in 2012 contributed around $1,162,800.00 in monetary value

Per capital consumption was 0.17kg compared to 0.20 in 2011.

Honey

The industry recorded an increase in honey production by 24% to 187.93 tonnes compared to 142.4 tonnes 2011 but achieved 94% of the target in 2012 (200 tonne). The average honey production per hive was around 13.46 kg and the short fall in production is attributed to the prolonged wet weather experienced in the country.

The number of farmers recorded for the year was 1078, an increased by 4 %(48) compared to 1030 last year. The total number of hives recorded was 8828 which is a decreased by 7.5 % as compared to last year which had 9950 hives.

A total of 800kg of Honey was imported from Australia for Punjas Company and 1.5 tonne was exported to Australia by the Global & Cargo Traders from Rakiraki.

The self-sufficiency level remained at 100%. and Per capita consumption decrease to 2.2 kg compared to 2011 (0.17kg).

Poultry

Locally, a total number of 13,061,000 broilers were slaughtered through the registered slaughterhouse producing 18,285.4 tonne of poultry meat (average weight of 1.4 kg per bird). This indicated a decrease in number of birds slaughtered by 3.6% (776,468 birds) but an increase in production by 5.2 % (96.4 tonne) compared to the 2012 figures. The increased in production is attributed to the increased in average size of bird from 1.3kg last year to 1.4 in 2012. There was no figure recorded from small backyard farmers. The self-sufficiency level for poultry production in 2012 increased by 13 % to 99% compared to 86% in 2011 which is directly attributed to the shift in meat preference by consumers dictated by price and health issues A total of 7,029.13 tonnes of chicken and chicken products was exported to 12 Pacific regional countries and three African/European countries including Sudan, Liberia and France. A total of 794.18 tonnes of poultry meat was imported in 2012 compared to 2823.09 tonnes in 2011 and this indicated a decrease in import by 71% (2028.9 tonne) The per capita consumption in chicken and chicken products decreased to 21.8 kg compared to 24.8kg in 2011. A total of 35.5 tons of duck meat slaughtered was recorded during the year. This was recorded from one registered rural slaughter houses (Reddy) in the country. Other backyard productions were not recorded because of the unavailability of reliable data's. And a total of 13.01 tonne of Duck meat was imported from New Zealand for the year 2012. A total 5,462,902 dozens of egg was produced in the formal sector and part of the informal sector. Other informal was unrecorded due to unavailability of data. However, according to the data received, the production increased by 33.4% as compared to 2011 (3,640,475). A total 500,876 dozens of eggs was exported compared to 508,546 dozens in 2011 and this indicated an increase in export by 43.5%. Per capital consumption in eggs increased by 32.3% (65 compared to 44 in 2011)

CROPS

Taro (Dalo)

One of Fiji's largest non-sugar crops in terms of production is Dalo with more than a total of 60,000 tonnes produced annually. It is one of the funded commodities under the Export Promotion programme, under the Demand Driven Approach (DDA). Production is spread all around Fiji and is now planted commercially for local consumption and exports. Most of the production is taking place in the Central Division; however, 70% of the taro exported is sourced from Taveuni. The inclusion of the commodity in the EPP boosted exports of dalo in 2012. The exported countries include Australia, New Zealand, Canada, Hawaii, USA and some of the Pacific Island countries.

Kava (Yaqona)

Yaqona is an important cash crop and a major source of income for the rural and outer islands particularly for the Northern, Central and eastern parts of Fiji. In 2012, the total production of yaqona was estimated to be around 3255.4 tons of dried roots and stems, selling at an average of $25 per kilogram.

Papaya (Pawpaw)

Throughout the year, a total of 2864.4 tonnes of pawpaw was produced a 6.5% decline to last year's production. Decline in production was due to the two floods that struck the Sigatoka valley area in 2012. However, an achievement of 44 ha was planted during the year from a total of 63 farmers. This was through the Export Promotion Programme.

Rice

As of today, Fiji imports around 85% of rice at a value of around $40 million. Decline in rice production is a result of the deregulation policy allowing the importation of rice into the country. But like all other Asian countries, rice is the staple food for all ethnic groups of the people of Fiji. Rice in Fiji is generally grown under direct seeding and transplanting and during the year, a total target of 724ha was planted by 475 farmers from the Central, Western and Northern Divisions. A total of 2500 tons was produced during the year. Overall, production went down by 19%. The current selling price of rice remained at $750/ton. During the year Cassava production rose by 36% totalling 95,143.8 tonnes compared to 69,909 tonnes in 2011. Being one of the staple foods, cassava is grown throughout the country on different scales producing around 70,000 tons annually. Volume of Fiji's cassava exports hoevered around 2000 tonnes with 50% exported to New Zealand, and the remianing to Australia, USA, Canada, France, Korea, Nauru and other Pacific Island countries.

Pineapple

Pineapple had a production of 3605.3 tons which was mostly grown for local markets. The two most targeted areas were the Central, Western and Northern Divisions.

Assorted Vegetables

A total of 29031 tons of assorted vegetables was produced during the year. This comprised of commodities such as pumpkin, pulses, long bean, French bean, butter beans and other leafy vegetables. Apart from these, 709 tons was produced from the existing Export Promotion Programme. Vegetables are mostly grown in the Western Division, due to the availability of market for exports and the BQA pathway which concentrates mostly to the farmers in this division.

Ginger

Total production of ginger for the year was 3,763 tons, yielding an estimate of around $6.7million in gross revenue. Ginger being an income generating commodity, it was funded by the Rural Outer Island programme. Ginger is sold at $900 tons. Current market for ginger includes: local market, processors (crystallized ginger, fresh ginger paste, ginger lollies/ candy) and export market (Ginger fresh) – Australia, New Zealand, UK, Netherlands, Nauru, New Zealand, USA and Germany.

ANIMAL HEALTH & PRODUCTION DIVISION

OVERVIEW

The 2012 Annual Report for the Animal Health & Production Division encompasses the Demand Driven Programme Report, the Production Report, the Livestock Health and Disease Eradication Report and the Livestock Research Report. Firstly, the Demand Driven Approach Report includes the Food Security Programme and the Dairy Industry Support programme which was implemented during the year .Secondly, the production report covers the production figures of all the livestock commodities in the country, which also include the imports and export figures for some of the commodities. It also covers the Commercial Undertakings report; the total income earned and also the financial and administration report for the year. Thirdly, the Health and Disease Eradication report covers the Regulatory with Brucellosis and Tuberculosis Eradication programme carried out during the year. The total funds released for the year for the two (2) programmes was $1,077,852.00. This fund was used for the improvement of the premises and other important activities such as Tuberculosis and Brucellosis testing. Other works include veterinary cases, drug sales, castrations, tuberculosis testing, animal impounding, brand registration and dog licensing which were all part of the Regulatory unit and the extension arm of the Division. Moreover, the year was also significant as the Central Division Dairy farmers witnessed the distribution the New Zealand dairy cows to rehabilitate the Brucellosis stricken farms and the consecutive disbursement of $2,000,000 million dollars as Milk Gate Subsidy to local dairy farmers through the Fiji Dairy Cooperative Limited by the central government. Lastly is the Research report which covers the Livestock Research, the Agriculture Research Services and Feed Technology which are all part of Research programmes during the year. A total of $2,084,563.00 million dollars was allocated for these programmes which include activities such as renovation of research stations, purchase of breeding stocks, water reticulation improvement, pasture improvement and other important activities to establish a conductive environment for scientific livestock research.

DEMAND DRIVEN APPROACH (DDA) PROGRAMME

FOOD SECURITY PROGRAMME (FSP)

This programme targeted the food security component of 2011 budgetary allocation for the agriculture sector, and indirectly targeted the three components of the national agricultural development priorities or the road map- quick economic recovery, food and income security and poverty alleviation. The Food Security Programme in the Livestock sector targeted commodities such as Beef, Sheep, Goat, Pigs and Poultry. The programme was implemented all over the country through project proposals which was based on demand driven approach concept. A total number of 70 proposals were forwarded from Divisions for approval. However, only 40 projects were approved due to prioritizing of projects and lack of funding. Most of these projects were successfully implemented.
Funds Allocated: $395,195.00
Actual Expenditure: $208,210.00

Figure 1

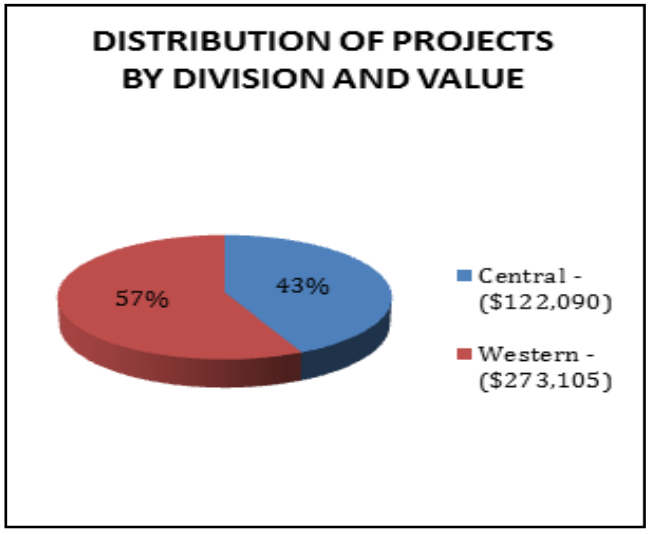


Figure 2

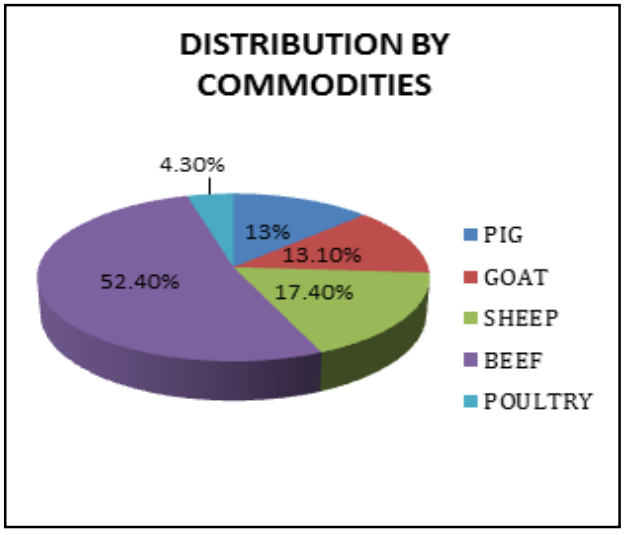


Figure 3

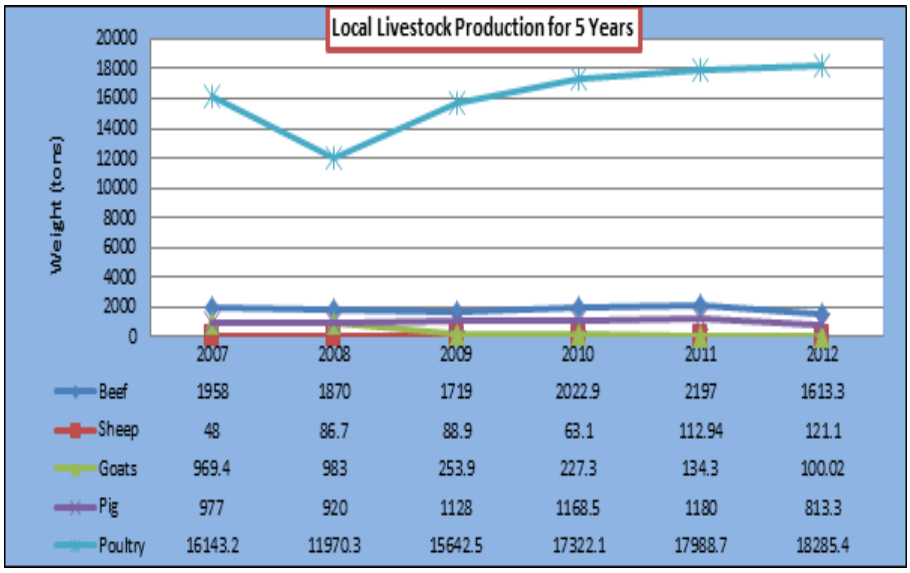
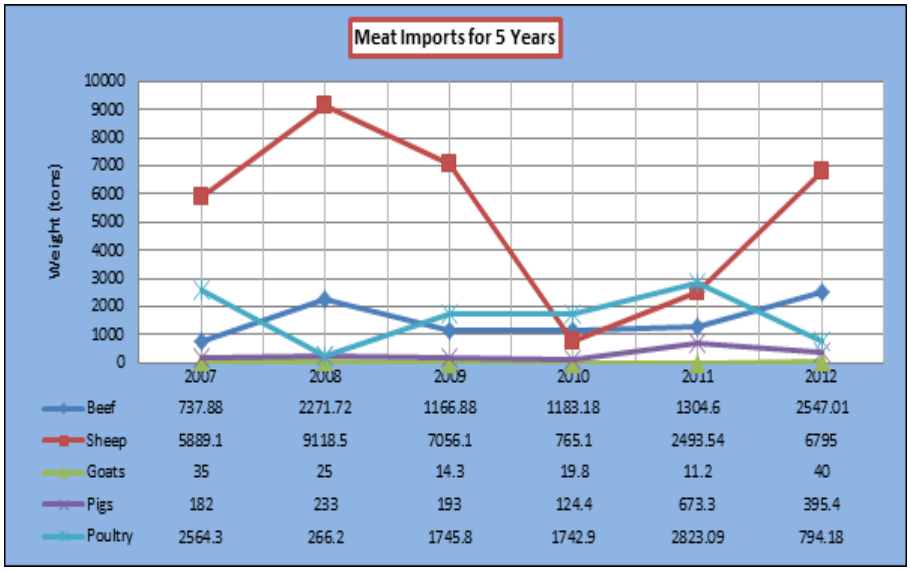


Figure 4



The significant impact on the production, income generation and food safety for the general public is eminent, especially for the Western Division farmers. In particular the establishment of the rural poultry slaughterhouse in Nadi has triggered smallholder & backyard poultry to spring up in the Nadroga/Nadi corridor and the opportunity to access hygienic poultry meat products. Overall, the programme in 2012 had significant impact on the production, income generation and employment. The unapproved projects had negative impact on the targets that were set for some commodities in the business plan. While those approved projects had significant impact socially and economically. It was noted that the demand driven approach concept ended up with increased number of project proposals forwarded for approval (70).

DAIRY INDUSTRY SUPPORT (DIS)

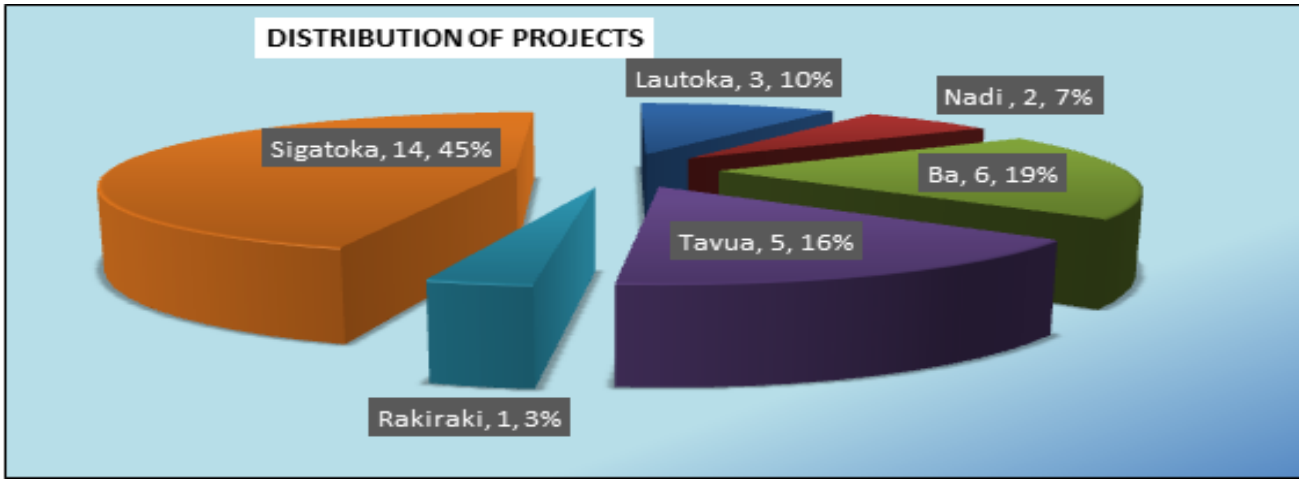
Overview

Fiji's domestic market demands 60 million litres of milk annually. The Fiji Dairy Limited (FDL) has the capacity of processing 40 million litres annually. Local production however has not exceeded 10 million litres per annum for the past five years, which accounts to 20 percent of national milk demand including non - factory supplies. Fiji Government has provided support to dairy producers through the Demand Driven Approach Programme (DIS). As usual the Dairy Industry Programme is a priority to the Animal Health & Production Division during the year. For 2012, the movement of the dairy industry to the West especially in the cane belt area which is seen, has the potential for extra production to meet the increasing demand of dairy products in Fiji thus reduces our imports. However the positive achievement about dairy development is the potential new smallholder farmers but needs to be trained in the right concept of dairy production. The strategies to be undertaken is to improve the individual cow performance through availability of high nutritive value of pastures, introducing of high performance dairy breeds and increasing the herd size through exploring the potential areas within the dairy zone and those outside the dairy zone. However, the priority area for the Western Division is infrastructure development in terms of dairy shed and milking equipment.

Funds Allocated: $850,000.00

Actual Expenditure: $317,255.00

Figure 5



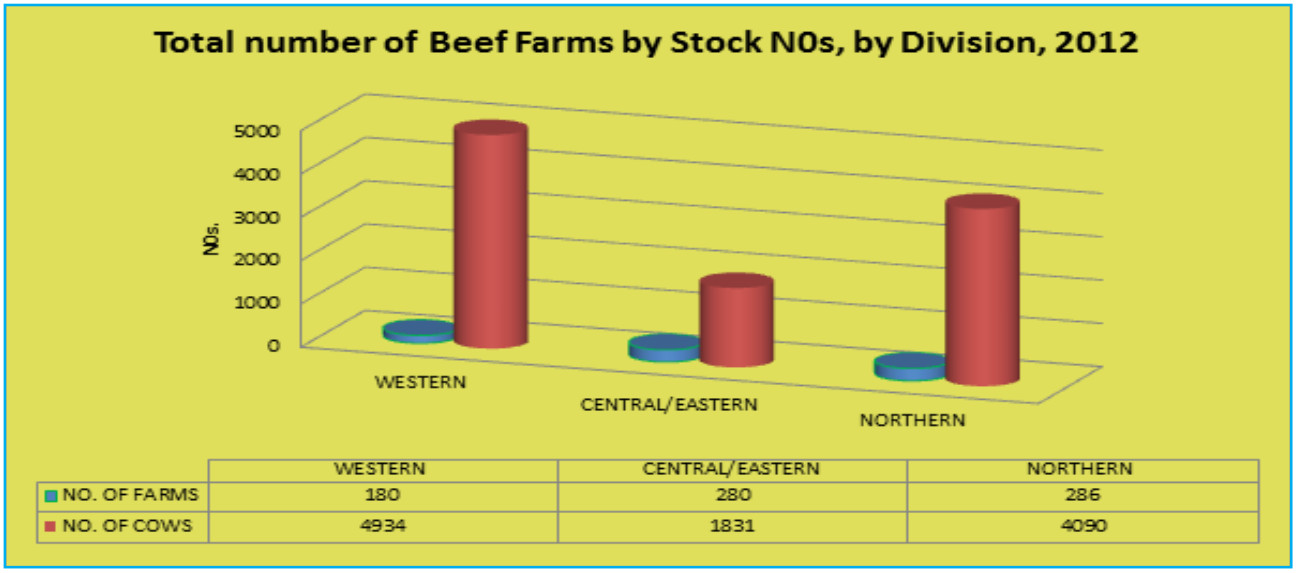
Strategies:

Expansion of the dairy industry to the west was conceived to take advantage of the existing milking cows and infrastructure in cane belt areas. The overall objective is to meet the needs of the local market, create rural employment and to pursue the avenues for value adding for export. Technical and Financial assistance for farm improvements (nutrition, breed and infrastructure) will address the Industry demand for milk in the country. As for the Western Division the programme focuses on priority activities such as infrastructure development and nutrition.

BEEF

There have been many government led initiatives to develop the beef industry over the years both on large and small scales. These include Verata. Tilivalevu, Uluisaivou, Yalavou and Yaqara. The industry is developed in a number of old coconut estates particularly in the Northern division, however, the bulk of the industry remains firmly in the orbit of culled dairy cows and working bullocks.

Figure 6



	WESTERN	CENTRAL/EASTERN	NORTHERN
NO. OF FARMS	180	280	286
NO. OF COWS	4934	1831	4090

For 2012, a total of 10,855 cows (breeders) were recorded with a total stock of 32,203 (Western 14,062, Central and Eastern 6699 and Northern 11,442). These stocks were recorded from 746 farms (Western 180, Central and Eastern 280 and Northern 286) which also include larger operation farms such as Yaqara Pastoral Company and two Estate farms. As usual most farms were scattered in the rural and very remote areas and that most of them ranges from semi-subsistence to semi-commercial level.

Figure 7

Beef production through the formal market recorded a decrease by 26% (584 ton). The total number of animals recorded for slaughter in the 2 registered abattoirs (Vuda and Nasinu) and the Rural slaughterhouse in the North were 6653 compared to 2011 (7265). This indicated a decrease of 9.2% (612 head) less cattle slaughtered compared to last year's figures. There is a high demand from the formal market to encourage farmers to supply first (1st) grade class animal. This is seen by the pricing policies set at two different rates; 1st Grade and 2nd Grade at $4.50 and $3.90/kg respectively

Table 1: Local Production and Import Figures (2008- 2012)

Year	Local					Imports				Total Beef Consumed BBEQ	% Local to Imports	Per capita consumption (kg)
	No Killed	Beef Carcass	Avg. Carc. Wt	Veal	Total BBEQ	Fresh Beef	Canned Beef	Boneless Beef	Total Beef BBEQ			
2008	7754	1870	241	0	1234	3442	0	0	2271.72	3505.72	54	10.2
2009	6860	1719	251	0	1135	1768	0	0	1166.88	2301.88	95	6.2
2010	7830	2022.9	258.4	0.6	1335.5	1792.7	2.5	0	1183.18	2518.68	88	3.6
2011	7265	2197	322	2.6	1450.02	19767	4.0	263	13046	14496	53	3.5
2012	6653	1613.3	280.5	3.3	1066.9	2232.6	20.0	1473.5	1480.1	2547.01	42	3.0

Source: Meat Inspection Report, 2012
Bureau of Stats (Pop. 837,271)30.01% non-beef consumer
BBEQ Conversion 0.66, Canned BEQ Conversion 0.33

A total of 1613.3 tons of beef was produced during the year. This was a reduction by 36% compared to 2011 (2197 t). The country was able to produce 42% of the total beef consumed whereas 58% was imported.

Per capital consumption reduced to 3.0 kg compared to 2011 (3.5kg) as 30% of the total population do not consumed beef. Percentage of local production to imports decreased by 20% compared to 2011(53%)

Government Involvement and Other Assistance

The Extension arm of the AH&P Division continued to provide on farm advice and special extension and disease investigation. Results of disease diagnosis and investigation were provided by the Veterinary and Pathology Laboratory (VPL) During the year, 18 smallholder Beef projects were funded through the DDA programme. From the total projects, 18 projects (Tailevu 3, Naitasiri 3, Serua/Namosi 3, Ba 7, and Ra 2) were funded through DDA with a value of $238,124.

Future Potential and Direction

There is great potential for beef production in Fiji as there is a strong local market. To do this there is a need to strengthen the services in the following areas

- **Existing farms improvement**

Essentially, existing farms should be given first priority in terms of development, since the establishment of new farms is very costly. This assistance should target pasture improvement, infrastructure development and breed improvement.

- **Increase production**

This can be achieved by establishing fattening farms to rear bull calves purchased from dairy farms. Fattening farms should also be established in existing farms to boost production in future.

- **Encourage Investors**

Apart from government assistance, there should also be more negotiations done to other investors to take part directly or indirectly for the betterment of the industry.

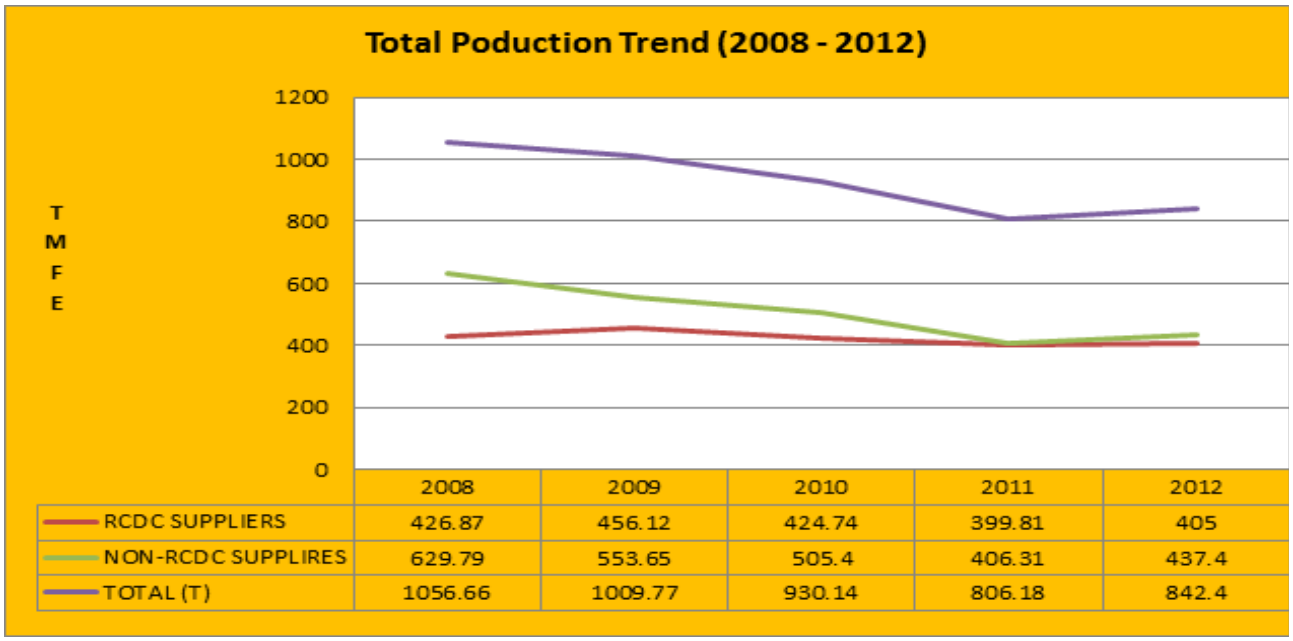
DAIRY

The local dairy sector (formal and informal) produced a total of 11,275,604 litres of milk. Formal market production in 2012 (9,745,337 litres) increased by 1.4% compared to 2011(9,613,160 litres). Additionally, this achievement (9.7 million litres) was at a short fall of 23% relative to the annual target of 12 million litres

Moreover, in the informal market; i.e. taking into consideration the total number of milkers around the country, total production truly indicated that there were still more milk outside the formal market compared to the actual milk supplied to FDL.

Therefore total milk this year for non-FDL suppliers was 437.40 TMFE and this showed a increase in production by 7.6% compared to 2011 (406.31 TMFE)

Production Figure 8



	2008	2009	2010	2011	2012
RCDC SUPPLIERS	426.87	456.12	424.74	399.81	405
NON-RCDC SUPPLIRES	629.79	553.65	505.4	406.31	437.4
TOTAL (T)	1056.66	1009.77	930.14	806.18	842.4

For 2012, a total of 10,310 milking cows were recorded compared to 9206 in 2011 and this showed an increase of the dairy herd by 12%. Additionally, replacement herd (heifers) recorded were 4,546 which were 44% of the current milking herd recorded. There were 536 bulls recorded in the Central Division and Eastern Division in comparison to current milking herd, the ratio was 1 bull to 19 milking cows.

A total of 284 farmers in the Central/Eastern Division were supplying raw milk to FCDL while 60 farmers were still supplying raw milk. However, a total of 161 farmers were supplying raw milk and ghee in the West compared to North (32) and one (1) farmer in the Eastern Division. There is a tremendous potential for dairy farming within the sugar cane production area and other

Table 3: Dairy Production (TMFE) 2008 – 2012

YEARS		Cream	Fresh Milk	Yoghurt	Condensed & Evaporated	FCMP	Infant	Skim	Butter	Ghee	Curd & Cheese	TOTAL
2008	Qty (ton)	293.9	1,177.2	52.5	326.6	2,272	350.7	42.2	2,341	118.4	1,068.7	8,043.2
	TMFE	102.9	42.38	2.57	107.8	724.8	111.9	2.1	1,896	118.4	352.7	3,461.5
2009	Qty (ton)	106.31	791.42	62.51	348.10	2748.29	156.29	19.5	2030.41	84	556.91	8081.86
	TMFE	37.2	28.4	3.0	114.8	679.4	50.0	0.95	1644.6	84.0	183.7	3425.07
2010	Qty (ton)	66.18	743.42	62.4	2055.92	2642.18	156.39	19.5	2030.41	51.3	634.53	8462.23
	TMFE	23.16	26.68	2.99	678.02	653.17	50.03	0.95	1644.60	51.30	209.30	3340.21
2011	Qty (ton)	628.1	425.2	30.2	208.1	5902.8	2633.7	0	743.5	322.5	333.3	11227.4
	TMFE	219.8	15.3	1.4	68.6	1459.2	842.5	0	602.2	322.5	109.9	3,641.56
2012	Ton	371	605	172	159.6	9889	18.6	0	807.4	O	456	12145.0
	TMFE	129	18	5.3	51.7	2373	436	0	645	O	150	3545.0

Source: Biosecurity Annual Report, 2012

Imported Dairy Products

A total of 3595 TMFE of various dairy products was imported during 2012. The largest increase in imports was FCMP (23.73TMFE) and followed by Butter (645 TMFE). There was no import recorded for skim milk.

Table 4: Dairy Production (TMFE) 2008 – 2011

Years	Total Factory	Total Non-Factory	Total Imports	Total Consumption	% of Local to Export	Per Capita Consumption (Kg)
2008	426.87	629.79	3,461.5	4518.16	23	5.46
2009	456.12	553.65	3415.03	4484.84	10	5.42
2010	424.74	505.40	3340.21	4270.35	22	5.02
2011	399.81	406.31	3641.56	4447.68	21	5.3
2012	405.0	437.40	3545.0	4387	23	5

Source: Dairy Annual Report, Fiji Quarantine, Bureau of Stats.
Official Population: 837,271

The self-sufficiency level based on milk supplied to FDL and non-factory production decreased to 21% compared to 2010 (22%). However, the per capita consumption decreased to 5 kg compared to 5.3 kg in 2011.

Constraints

The dairy industry has been affected by some major issues such as;

- Prolonged wet conditions.
- Unavailability of proper dairy breed- bulls
- Advisory Services / Veterinary service.
- Skills for pasture husbandry practices and also on new dairy technology.
- Inconsistency of feeds supply
- Poor soil fertility

Government Involvement and Other Assistance

Government continue to fund the Dairy Import Substitution (DIS) Programme in the tune of $750,000 for the establishments of 31 new smallholder dairy farms in the West and 1 in Levuka. This is to facilitate the new direction of moving West inorder to increase local production by 2 million litres

The Extension arm of the AH&P Division continued to provide on farm advice and special extension and disease investigation. Results of disease diagnosis and investigation were provided by the Veterinary and Pathology Laboratory (VPL)

During the year, 32 smallholder dairy projects were funded through the DDA programme. From the total projects, 32 projects (Lomaiviti 1, and 31- Ba) were funded through DIS with a value of $296,809.

Future Potentials

The future direction of the industry looking at the dairy area first is to improve the milking standards;

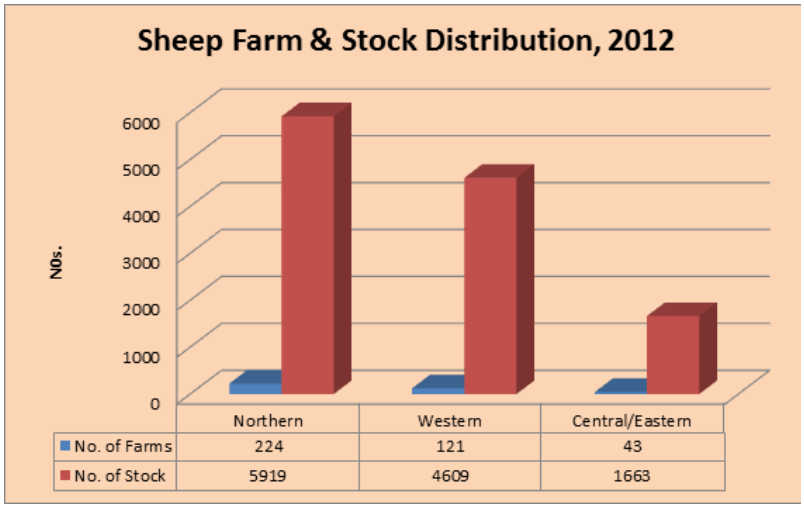
- Improve the efficiency such as small processing plant of milk such pasteurize for town supply.

- Improve the marketing system and method of milk collection from the smallholder farms.
- Government need to continue with project funding to improve nutrition looking drainage and pasture development and forage based nutrition.
- Development of more Dairy base Cartage Industry on value adds e.g. Cheese, panir and yogurt.
- Duty free zone promotion to establish business partnership on business development from Korovou to Tavua area e.g. milk production
- Establishment of two chilling centres by Southern Cross foods in Ba and one to be in Yaqara.

SHEEP

There were 388 farms recorded in 2012 compared to 2011 (365) and this is 5.9% higher compared to last year's annual figure. Thi also showed an increase in population by 17% from 10,104 in 2011 to 12,191 in 2012. Majority of the farms were located in th Northern Division (224) which was 56% of the total farms in Fiji. On private farms the mortality and conception rate was 15% and 90% respectively. High mortalities occurred due to dog attacks.

Figure 9



During the year, a total of 2135 stocks were recorded at the government research stations compared to 2011 (1906). This showed a decrease of 10.9%. The average mortality for the year was 6.5%, average lambing 110%, conception rate 95% and weaning 93%. The overall stock (supervised and government stations) recorded were 14,326 and this was 16% (2316) more compared to 2011 (12,010). The increase in stock count is due to the high reproductive performance that is being experienced in Government Sheep Station and Private Sheep Farms.

Local Production

Locally, a total of 53.29 tons of boneless was produced with a total production of 121.11 tons. This indicated an increase of 7% compared to 2011 (112.94 tons). Majority of the slaughter was done in the informal market with a total of 110.41 tons while 10.71 tons was recorded in the formal market The self-sufficiency level was 0.01% compared to 0.2% in 2011 with a per capita consumption of 4.0 kg compared 3.0 kg in 2011.

Table 5: Local Production and Imports 2008 - 2012 (tons)

YEAR	LOCAL			IMPORT			TOTAL		
	No. Killed	Carcass (t)	Boneless (t)	Carcass (t)	Boneless (t)	Canned (t)	B/Less (t)	% Local to Import	Per Capita Consumption (Kg)
2008	2494.0	60.2	26.5	13018.0	9092.0	0.0	9118.5	0.3	10.7
2009	2796.0	61.7	27.2	12637.0	7024.1	4.8	7056.1	0.4	8.3
2010	3549	35.4	27.7	6221.0	737.4	4.2	2734.2	0.9	8.4
2011	4359	78.4	34.54	6593	2900.9	-	2935.4	0.02	3.0
2012	4856	121.11	53.29	6795.01	2989.8	-	3043.09	0.01	4.0

Source: MAFF Quarantine, Bureau of Statistic, Official population: 837,271
BBE conversion: Carcass: 0:44.1
Canned: 1:33:1

Imports

A total of 6795 tonnes of sheep meat (considering carcass and boneless) was imported this year compared to 2011 (6593 tonnes). This amount worth an estimated value of $40.7 million compared to $39.5 million last year with an assumed price at $6000/ton. There was an increase by 3% (202 tonne) in the imported carcass compared to 2011 (6593 ton) Per capital consumption increased to 4.0kg compared to last year (3.0 kg). This is due to the preference of protein source available in the market or may be due to health reasons.

Exports

A total of 121.3 tonne of mutton and by products are being re-exported to 12 Pacific countries and including the Middle East and Japan. Lamb and products such as corned mutton, sausage, and chops. Corned mutton and lamb sausage accounts for 60% (75.6ton) of the export and is exported to the 9 Pacific countries.

Constraints

- Drug Cost

High cost of anthelmintic and drugs is a hindrance in maintain-

ing regular drenching program and the health of the sheep flock.

- Demand for Breeding Stock
- The high demand of breeding stocks from prospective farmers in the North, Western and Central Eastern Division is not be able to be met by the three (3) stations.
- Dog Control

Dog attacks continue to pose a serious problem on private Farms and Sheep Stations. The approving of laying poison dog baits is the only best alternative for curbing this problem.

Government Involvement and Other Assistance

The Sheep government Stations, funding was from the Small Holder Sheep Developments ($120,000) for repair and maintenance of the three (3) sheep stations in the country. The Extension arm of the AH&P Division continued to provide on farm advice and special extension and disease investigation. Results of disease diagnosis and investigation were provided by the Veterinary and Pathology Laboratory (VPL) During the year, 2 sheep projects were funded through the DDA programme. From the total projects, 3 projects (Tailevu 1, and 1 Ba) were funded through FSP with a value of $22,420.

PIGS

Table 6: Pig Farms and Stock Distribution by Division

DISTRICT	NO. OF FARMS	NO. OF SOWS	TOTAL STOCK
WESTERN	89	659	4543
CENTRAL / EASTERN	881	3295	23,105
NORTHERN	285	347	1,799
TOTAL	1255	4301	29,447

Source: Divisional Report, 2012

There were 1,255 supervised farms recorded during the year with 4,301 sows and a total stock of 29,447. Majority of these farms were from the Central Division which was more than 70% the total number of farms and 78% in total number of stock

Table 7: Local Production and Imports (2008 – 2012)

Year	LOCAL	Average Wt (Kg)	Total Wt. (t)	IMPORT	Total Consumption (t)	% Local to Imports	22 Capita Consumption (Kg)
	No. Killed						
2008	16693	55.11	920	233	1153	*	1.3
2009	19100	59.05	1128	193	1321	*	1.5
2010	17448	66.97	1168.5	124.4	1292.9	90	1.5
2011	20,099	58.7	1180	673.3	1853.3	57	2.4
2012	14,667	55.5	813.39	395.44	1208.83	67	1.5

Source: FMIB, Biosecurity Report, Bureau of Statistics
Note: Official population 837,271 (6.33% non-pork consumer)
No. of people consuming pork: 784,272

Local Production

A total of 14,667 of pigs were slaughtered at the registered abattoirs producing 813.39 tonnes of pork. In comparison to 2011 (20,099), this indicated an increase in number of slaughter by 37% and tonnage by 45% respectively. There was a decrease in average weight by 5.76% compared to the same period last year. The self-sufficiency level increased to 67% as compared to 53.5% (2011).

Imports

There was a decrease in imports by 41% (395.44 tonne) in 2012 as compared to 2011 (673.3 tons). Per capita consumption decreased by 60% to 1.5kg compared to 2011 (2.4kg) and this was based on 6.33% of total population not consuming pork.

Exports

A total of 19.09 tonne of pork and by products are being re-exported to 3 Micronesian countries and Tonga. Pork and products such as pork sausage and ham accounts for the total export.

Marketing Prices

- Farm gate live weight prices ranges from $7.00-$10.00 per Kg depending on the location of the farm
- Fiji Meat Industry Board (FMIB) - less than 50 kg @ $7.00 per Kg
- More than 50 kg @ $6.00 per Kg

Feed

- There was no change in price of feed price and yet farmers are finding a lot of difficulty in adjusting in their cost of production.
- Feed alone will be 50% to 80% of the cost of running a piggery farm depending on the type of feed used.
- There were 5 readymade feed sources namely Goodman fielder Fiji ltd, Pacific Feed, Waituri Feed, Ram Sami and Visama Rice.
- Other feed ingredient can be bought from Fiji meat Industry Board (FMIB), Flour Mills Ltd, Fiji Dairy Cooperative Ltd (FDCL), Copra Millers Ltd and the Local Virgin Oil Manufacturers.

Constraints

As highlighted earlier some of the difficulties faced were as follows;

- High feed cost continue to be the main drawback as research in alternative feed source and least cost ration is yet to be substantiated by Livestock Research.
- The impact of Deregulation which allow the imports of subsidised cheaper meat cuts from Canada via Australia present an unhealthy economic climate to our major pork producer in the country which can certainly lead to foreclosure of commercial pig enterprise.

Government Involvement and Other Assistance

Government is being requested through the Crop and Livestock Council to institute a 30% tariff on the import of subsidised cheaper pork meat from Australia inorder to safeguard the local

Pig Industry

Small holders had been continuously advised to improve management and husbandry practices through farm visits, training and workshops.

During the year, 4 Piggery projects were funded through the DDA programme. From the total projects, 4 projects (Naitasiri 1, 1 Rewa and 2 Nadroga/Navosa) were funded through FSP with a value of $40,334

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Research and Development

Breed Improvement

The main objective of the Koronivia Pig Breed Development Project is to improve and increase the production of desirable pig breeds for sale to farmers. Pig Breeds such Landrace, Duroc and Large White were used for both Artificial Insemination and natural mating. A total of 337 weaners were sold to farmers throughout Fiji with 70% in the Central/Eastern Division and 210 Breeding sows were inseminated during the on-farm AI program in the Central. There is a high demand for the Genetic improvement program through AI in the Central Division.

Future Potential and Direction

The Koronivia Piggery is committed to improving production parameters, breeding management, housing, mortality rates and litter size.

- To breed and supply improved pig breeds to farmers.
- Artificial insemination will be the future direction to bring about hybrid vigour with the local pig herds.
- To establish of few other larger farms like Vuda Piggery and Naikelemusu Piggery to ensure the consistent supply of pork meat to the hotel industry and magiti market.
- To control Waste management on the development of pig and dairy farms.

DAIRY

Table 8: Farm Type and Stock Distribution by District

DISTRICT	BULK	S/H	M/C	D/C	HFR 3 yrs	HFR 2 Yrs	HRF 1 Yrs	BULL	CALVES		TOTAL
									BULL	HFR	
TAILEVU	16	92	3247	2,246	762	761	753	169	632	899	**9,469**
NAITASIRI	2	134	1,898	1154	484	490	483	289	527	674	**5999**
SERUA NAMOSI	1	13	558	417	243	271	153	37	212	211	**2102**
REWA	0	26	186	161	41	34	51	37	86	70	**666**
TOTAL	19	265	5889	3978	1530	1556	1,440	532	1457	1854	**18,236**
EASTERN		1	14	22	8	5	7	4	4	2	**66**
NORTH		25	65	45							**100**
WEST		14	130	167							**297**
TOTAL	19	305	6098	4212	1538	1561	1447	536	1,461	1,856	**18,699**

Source: Dairy Commodity Report, 2012

For 2012, a total of 10,310 milking cows were recorded compared to 9206 in 2011 and this showed an increase of the dairy herd by 12%. Additionally, replacement herd (heifers) recorded were 4,546 which were 44% of the current milking herd recorded. There were 536 bulls recorded in the Central Division and Eastern Division in comparison to current milking herd, the ratio was 1 bull to 19 milking cows.

Table 9: Product Distribution by District

DISTRICT	FACTORY	RAW MILK	GHEE	TOTAL
TAILEVU	108	15	0	123
NAITASIRI	136	3	0	139
SERUA NAMOSI	14	3	0	17
REWA	26	4	0	30
TOTAL	**284**	**25**	**0**	**309**
EASTERN		1		1
NORTH	0	20	12	32
WEST	0	14	147	161
TOTAL	**284**	**60**	**159**	**503**

Source: Dairy Commodity Report, 2012

A total of 284 farmers in the Central/Eastern Division were supplying raw milk to FCDL while 60 farmers were still supplying raw milk. However, a total of 161 farmers were supplying raw milk and ghee in the West compared to North (32) and one (1) farmer in the Eastern Division. There is a tremendous potential for dairy farming within the sugar cane production area and other small holders farmers.

Table 10: Dairy Production (TMFE) 2008 – 2012

YEARS	RCDC SUPPLIERS	NON-RCDC SUP-PLIRES	TOTAL (T)
2008	426.87	629.79	1056.66
2009	456.12	553.65	1009.77
2010	424.74	505.40	930.14
2011	399.81	406.31	806.18
2012	405.0	437.40	842.40

Source: Dairy Commodity Report, 2012

Production

The local dairy sector (formal and informal) produced a total of 11,275,604 litres of milk. Formal market production in 2012 (9,745,337 litres) increased by 1.4% compared to 2011(9,613,160 litres). Additionally, this achievement (9.7 million litres) was at a short fall of 23% relative to the annual target of 12 million litres Moreover, in the informal market; i.e. taking into consideration the total number of milkers around the country, total production truly indicated that there were still more milk outside the formal market compared to the actual milk supplied to FDL. Therefore total milk this year for non-FDL suppliers was 437.40 TMFE and this showed a increase in production by 7.6% compared to 2011 (406.31 TMFE)

Table 11: Dairy Production (TMFE) 2008 – 2012

YEARS		*Cream*	*Fresh Milk*	*Yoghurt*	*Condensed & Evaporated*	*FCMP*	*Infant*	*Skim*	*Butter*	*Ghee*	*Curd & Cheese*	*TOTAL*
2008	***Qty (ton)***	293.9	1,177.2	52.5	326.6	2,272	350.7	42.2	2,341	118.4	1,068.7	8,043.2
	TMFE	102.9	42.38	2.57	107.8	724.8	111.9	2.1	1,896	118.4	352.7	3,461.5
2009	***Qty (ton)***	106.31	791.42	62.51	348.10	2748.29	156.29	19.5	2030.41	84	556.91	8081.86
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		129	18	5.3	51.7	2373	436	0	645	O	150	3545.0

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A total of 3595 TMFE of various dairy products was imported during 2012. The largest increase in imports was FCMP (23.73TMFE) and followed by Butter (645 TMFE). There was no import recorded for skim milk.

Table 12: Dairy Production (TMFE) 2008 – 2011

YEARS	Total Factory	Total Non-Factory	Total Imports	Total Consumption	% of Local to Export	Per Capita Consumption (Kg)
2008	426.87	629.79	3,461.5	4518.16	23	5.46
2009	456.12	553.65	3415.03	4484.84	10	5.42
2010	424.74	505.40	3340.21	4270.35	22	5.02
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Official Population: 837,271

The self-sufficiency level based on milk supplied to FDL and non-factory production decreased to 21% compared to 2010 (22%). However, the per capita consumption decreased to 5 kg compared to 5.3 kg in 2011.

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The dairy industry has been affected by some major issues such as;

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The future direction of the industry looking at the dairy area first is to improve the milking standards;

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- Duty free zone promotion to establish business partnership on business development from Korovou to Tavua area e.g. milk production

- Establishment of two chilling centres by Southern Cross foods in Ba and one to be in Yaqara.

SHEEP

Table 13: Sheep Farm and Stock Distribution by Division (2009 – 2012)

Division	2009		2010		2011		2012	
	No. of Farms	No. of Stock	No. of Farms	No. of Stock	No. of Farms	No. of Stock	No. of Farms	No. of Stock
Northern	222	5896	226	5767	224	5919	224	5919
Western	130	4572	112	4688	112	3255	121	4609
Central/ Eastern	42	375	28	813	29	930	43	1663
TOTAL	**394**	**10,843**	**366**	**11,268**	**365**	**10,104**	**388**	**12,191**

Source: Divisional Reports, 2012

There were 388 farms recorded in 2012 compared to 2011 (365) and this is 5.9% higher compared to last year's annual figure. This also showed an increase in population by 17% from 10,104 in 2011 to 12,191 in 2012. Majority of the farms were located in the Northern Division (224) which was 56% of the total farms in Fiji. On private farms the mortality and conception rate was 15% and 90% respectively. High mortalities occurred due to dog attacks.

Table 14: Local Production and Imports 2008 - 2012 (tons)

YEAR	LOCAL			IMPORT			TOTAL		
	No. Killed	Carcass (t)	Boneless (t)	Carcass (t)	Boneless (t)	Canned (t)	B/Less (t)	% Local to Import	Per Capita Consumption (Kg)
2008	2494.0	60.2	26.5	13018.0	9092.0	0.0	9118.5	0.3	10.7
2009	2796.0	61.7	27.2	12637.0	7024.1	4.8	7056.1	0.4	8.3
2010	3549	35.4	27.7	6221.0	737.4	4.2	2734.2	0.9	8.4
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Source: MAFF Quarantine, Bureau of Statistics
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Canned: 1:33:1

Local Production

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Imports

A total of 6795 tonnes of sheep meat (considering carcass and boneless) was imported this year compared to 2011 (6593 tonnes). This amount worth an estimated value of $40.7 million compared to $39.5 million last year with an assumed price at $6000/ton. There was an increase by 3% (202 tonne) in the imported carcass compared to 2011 (6593 ton) Per capita consumption increased to 4.0kg compared to last year (3.0 kg). This is due to the preference of protein source available in the market or may be due to health reasons.

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Constraints

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- Demand for Breeding Stock
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dog baits is the only best alternative for curbing this problem.

Government Involvement and Other Assistance

The Sheep government Stations, funding was from the Small Holder Sheep Developments ($120,000) for repair and maintenance of the three (3) sheep stations in the country.

The Extension arm of the AH&P Division continued to provide on farm advice and special extension and disease investigation. Results of disease diagnosis and investigation were provided by the Veterinary and Pathology Laboratory (VPL) During the year, 2 sheep projects were funded through the DDA programme. From the total projects, 3 projects (Tailevu 1, and 1 Ba) were funded through FSP with a value of $22,420.

PIGS

Table 15: Pig Farms and Stock Distribution by Division

DISTRICT	NO. OF FARMS	NO. OF SOWS	TOTAL STOCK
WESTERN	89	659	4543
CENTRAL/ EASTERN	881	3295	23,105
NORTHERN	285	347	1,799
TOTAL	1255	4301	29,447

Source: Divisional Reports, 2012

There were 1,255 supervised farms recorded during the year with 4,301 sows an a total stock of 29,447. Majority of these farms were from the Central Division which was more than 70% the total number of farms and 78% in total number of stock.

Table 16: Local Production and Imports (2008 – 2012)

YEAR	LOCAL	Average Wt (Kg)	Total Wt. (t)	IMPORT	Total Consumption (t)	% Local to Imports	22 Capita Consumption (Kg)
	No. Killed			Weight (t)			
2008	16693	55.11	920	233	1153	*	1.3
2009	19100	59.05	1128	193	1321	*	1.5
2010	17448	66.97	1168.5	124.4	1292.9	90	1.5
2011	20,099	58.7	1180	673.3	1853.3	57	2.4
2012	14,667	55.5	813.39	395.44	1208.83	67	1.5

Source: FMIB, Biosecurity Report, Bureau of Statistics
Note: Official population 837,271 (6.33% non-pork consumer)
... No. of people consuming pork: 784,272

Local Production

A total of 14,667 of pigs were slaughtered at the registered abattoirs producing 813.39 tonnes of pork. In comparison to 2011 (20,099), this indicated an increase in number of slaughter by 37% and tonnage by 45% respectively. There was a decrease in average weight by 5.76% compared to the same period last year. The self-sufficiency level increased to 67% as compared to 53.5% (2011).

Imports

There was a decrease in imports by 41% (395.44 tonne) in 2012 as compared to 2011 (673.3 tons). Per capita consumption decreased by 60% to 1.5kg compared to 2011 (2.4kg) and this was based on 6.33% of total population not consuming pork.

Exports

A total of 19.09 tonne of pork and by products are being re-exported to 3 Micronesian countries and Tonga. Pork and products such as pork sausage and ham accounts for the total export.

Marketing Prices

- Farm gate live weight prices ranges from $7.00 - $10.00 per Kg depending on the location of the farm
- Fiji Meat Industry Board (FMIB) - less than 50 kg @ $7.00 per Kg
- More than 50 kg @ $6.00 per Kg

Feed

- There was no change in price of feed price and yet farmers are finding a lot of difficulty in adjusting in their cost of production.
- Feed alone will be 50% to 80% of the cost of running a piggery farm depending on the type of feed used.
- There were 5 readymade feed sources namely Goodman fielder Fiji ltd, Pacific Feed, Waituri Feed, Ram Sami and Visama Rice.
- Other feed ingredient can be bought from Fiji meat Industry Board (FMIB), Flour Mills Ltd, Fiji Dairy Cooperative Ltd (FDCL), Copra Millers Ltd and the Local Virgin Oil Manufacturers.

Constraints

As highlighted earlier some of the difficulties faced were as follows;

- High feed cost continue to be the main drawback as research in alternative feed source and least cost ration is yet to be substantiated by Livestock Research.
- The impact of Deregulation which allow the imports of subsidised cheaper meat cuts from Canada via Australia present an unhealthy economic climate to our major pork producer in the country which can certainly lead to foreclosure of commercial pig enterprise.

Government Involvement and Other Assistance

Government is being requested through the Crop and Livestock Council to institute a 30% tariff on the import of subsidised cheaper pork meat from Australia inorder to safeguard the local Pig Industry

Small holders had been continuously advised to improve management and husbandry practices through farm visits, training and workshops.

During the year, 4 Piggery projects were funded through the DDA programme. From the total projects, 4 projects (Naitasiri 1, 1 Rewa and 2 Nadroga/Navosa) were funded through FSP with a value of $40,334.

Research and Development

Breed Improvement

The main objective of the Koronivia Pig Breed Development Project is to improve and increase the production of desirable pig breeds for sale to farmers. Pig Breeds such Landrace, Duroc and Large White were used for both Artificial Insemination and natural mating. A total of 337 weaners were sold to farmers throughout Fiji with 70% in the Central/Eastern Division and 210 Breeding sows were inseminated during the on-farm AI program in the Central. There is a high demand for the Genetic improvement program through AI in the Central Division.

Future Potential and Direction

The Koronivia Piggery is committed to improving production parameters, breeding management, housing, mortality rates and litter size.

- To breed and supply improved pig breeds to farmers.
- Artificial insemination will be the future direction to bring about hybrid vigour with the local pig herds.
- To establish of few other larger farms like Vuda Piggery and Naikelemusu Piggery to ensure the consistent supply of pork meat to the hotel industry and magiti market.
- To control Waste management on the development of pig and dairy farms.

GOAT

Table 17: Farms Distribution and Population by Division (2010 – 2012)

DIVISION	2010		2011			2012		
	No. of Supervised Farms	Goat Population	No. of Supervised Farms	No. of Does	Total Stoc	No. of Supervised Farms	No. of Does	Total Stock
Central/Eastern	49	926	25	641	1590	112	904	1996
Western	160	10074	188	4512	11,822	186	4512	11,822
Northern	197	10689	208	4994	9517	242	4994	10,905
TOTAL	**406**	**21689**	**421**	**10,223**	**22,929**	**540**	**10,410**	**24,723**

Source: Divisional Reports, 2012

There were 540 farms recorded in 2012 compared to 2011 (421) and this is an increase of 22% compared to last year's annual figure. This also showed an increase in population by 8% from 24,723 in 2012 compared to 2011 (22,929). Majority of the farms were located in the Northern Division (242) while the Western Division accounts for 48 %(11,822) of the total stock in Fiji. On private farms the mortality and conception rate was 10% and 90% respectively. Mortalities occurred due to dog attack and poor management and infrastructure (housing).

Table 18: Goat Production and Imports (2008 - 2012)

YEAR	LOCAL					IMPORTS	TOTAL	
	No. Killed	Total wt. (t)	Average wt (Kg)	Other Killed (t)	TOTAL (t)	Imports (t)	Total Consumption (t)	% of Local to Import
2008	1,334	14	10.5	969	983	25	1,008	98
2009	1,392	15.9	11.4	238	253.9	14.3	268.2	96
2010	1246	14.2	11.4	213.1	227.3	19.8	247.1	92
2011	566	6.95	12.3	127.35	134.30	11.2	145.50	92.3
2012	300	3.1	10	6461	100.02	42.0	142.02	70

(For every one goat killed through slaughterhouse an estimated 15 killed outside)
Source: MAFF Meat Inspection Service, MAFF Extension Service Estimate, MAFF Quarantine Service, Bureau of Statistics, Official population: 837,271

Local Production

Locally, a total of 300 goats were slaughtered in the registered abattoirs which produce 3.1 tonnes of Chevon. This indicated a 47% less of slaughtered animals registered compared to 2011 (566) and this was mainly due to the restriction of female slaughter. However, majority of slaughter was done informally producing a total of 96.09 tonnes of Chevon. The average carcass weight was 12.3 kilograms per animal at then abattoirs and 15 kg at farm gate sales.

The self-sufficiency level was 70.4% compared to 92.3% in 2011. Total production in 2012 contributed around $1,162,800.00 in monetary value

Imports

Total Goat Meat imports increased by 72% (40tonne) compared to 2011 (11.2tonne) which may be due to the demand of Goat Meat in the festive season (4thQtr)

The per capita consumption was 0.17kg compared to 0.20 in 2011.

Table 19: Government Station Stock

STATION	2012					TOTAL
	B/Does	B/Buck	Young Buck	Young Does	Kids	
Sigatoka Research Station	229	21	58	152	37	497
TOTAL	229	21	58	152	37	497

Source: (CUT Annual Report-2012)

The Vatuwaqa station is the central dispatching centre for livestock and fencing materials to farmers and other interested clients. It also accommodates culled livestock, which are sold to the general public. Other centers' for livestock and fencing materials are Koronivia, Waidradra, Nacocolevu, Lawaqa, Seaqaqa/Batiri, Nawaicoba, Nabouwalu, Labasa, Dreketi and Savusavu.

Some farmers are unable to sell their livestock because of irregularities in the selling prices. In such cases, CUT assists the farmers by buying their animals at fixed price using its own vehicle and staff and charges 5% handling fee. The productive animals from these sales are sold to other livestock farmers and the remaining stock sold to butchers or to individuals for 'magiti' purposes.

It was also a year whereby a lot of feeding of cattle was done due to the demand of holding the female breeding stock from free farms that would have gone to FMIB for slaughter (in this case Tiko Eastgate cull cows). This is taking into consideration some of the limitation CUT have in terms of labour availability, land area and the available edible pasture in the premises. Towards the end of the year, another request from the Rotuma Council was tasked to CUT to purchase and sell the stock at 10% mark-up.

EXTENSION DIVISION

INTRODUCTION

Being the frontline of the Department of Agriculture (DoA) the Crop Extension Division continued to embrace and showcase the divisions' mission through the provision of Quality Services for Stakeholders throughout the year despite of unforeseen circumstances and challenges.

The year greeted us with two (2) floods in January and late March coupled with the devastating effect of Cyclone Evan in December. Even though Mother Nature affected the livelihood of some of our officers, this did not deter the morale of the Extension Staffs as they took the leading roles in attending to affected sites and victims who were mostly ordinary farmers. The changing weather pattern is something that is here to stay and be part of us which will challenge our work as technical advisors and implementers of development programs to the farmers and the Agriculture stakeholders. Staffs continued with their normal extension services with more emphasis on the rehabilitation program in order to restore both food and income security for our farmers in Fiji.

Apart from that, the Crop Extension Division Team jointly cooperated with other divisions and stakeholders in ensuring the timely implementation of all DDA Programs. The respective PAOs and team continuously carried out their internal monitoring to ensure activities were carried out as planned.

Majority of the Extension Staffs were also engaged on the planning and implementation of other program funded by other line ministries and non-government organizations. As always, the Division values team building and human resource development through staff trainings and consultation. This is apart from all the effort in trying to maintain consistency and quality reports at all levels within the division.

Other significant activities achieved by the Division during the year included the launching of the Nadarivatu Development Program in June by the Honorable Minister Mr Joketani Cokanasiga which witnessed the handing over of a new farm tractor with implements to the people of Nadarivatu, installation of the new Coconut Machines impo from Malaysia for the Mua Coconut Training f ity in Taveuni, review of the Minimum Qualifica Requirements (MQR) for the Extension Divis significant contribution to negotiation on Pin ple and Ginger Market Access to New Zealand Australia, assisted in the identification of farms carrying out the Taro Pathway Trial Runs in Tave Naitasiri and Namosi farms, the payment of R Allowance to all our eligible officers tirelessly s ing out in the Rural and Maritime areas, Res fling of Extension Officers, facilitating the Joint tension/Research meeting which culminated clear outcomes statements outlining activitie focus on in 2013, Divisions PSIP consultations all Principal Agriculture Officers, Senior Agricult Officers which clearly states the strategies to c out activities in 2013. The division also particip in the inaugural National Agriculture Show 201 successful event held at Churchill Park, Lautoka Finally, this report entails the program analysis Capital Program, Food Security Program, Adm tration and Financial components for the Crop tension Division.

ROLE OF EXTENSION DIVISION

The role of the Extension Division is to directly sist farmers especially in the transitioning of sistence to commercial standard through the motion of appropriate technologies for adoptic is also responsible for training, preparation of t farm programmes to assist in boosting produc of mostly export commodities.

FUNCTION

The major function of the Division is to provide quality advisory services to stakeholders.

FOOD SECURITY PROGRAM

Overview

The Ministry is committed to the cultivation of identified crops that will substitute imported commodities. The main emphasis is to boost production through the enhancement of producing locally in order to reduce the current import bills. Projected ISP commodities included vegetables, rice and potato.

Assorted Vegetables

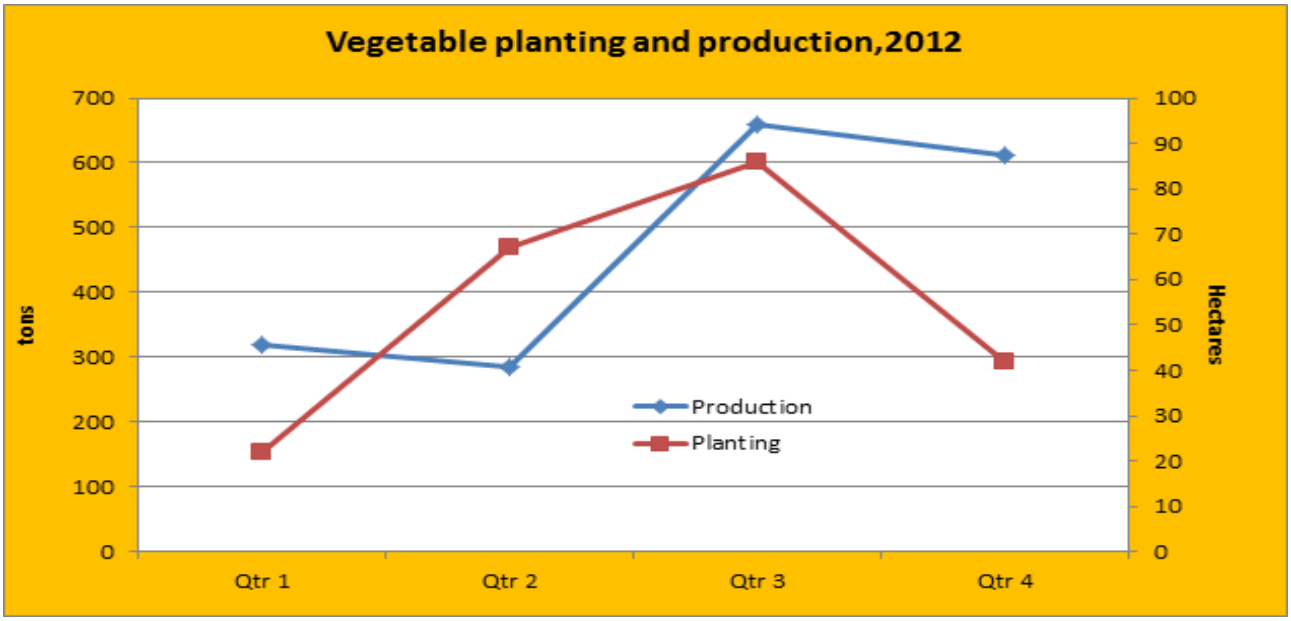
A total of 210ha was targeted under the Program out of which 217ha was achieved by 257 farmers. These vegetables include tomato, capsicum, lettuce and carrot. Out of the targeted production of 1,682mt, 1,873mt was produced. The impact of DDA Programme resulted both to the increased in planting area and production.

Table 27: Vegetable Production – 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Western Target	22.4	330	63.9	421	73.4	415	41.3	426	201	1,592
Western Achievement	15.5	272	64.3	245	72.7	533	42.1	611	195	1,661
Northern Target	9	30	-	60	-	-	-	-	9	90
Northern Achievement	6.4	47	2.3	40	13.4	125	-	-	22.1	212
TOT. Target	31.4	360	63.9	481	73.4	415	41.3	426	210	1,682
TOT. Achievement	22	319	67	285	86	658	42	611	217	1,873

Source: Extension Division Report 2012

Figure 11



The selling price was $1000/mt.

POTATO

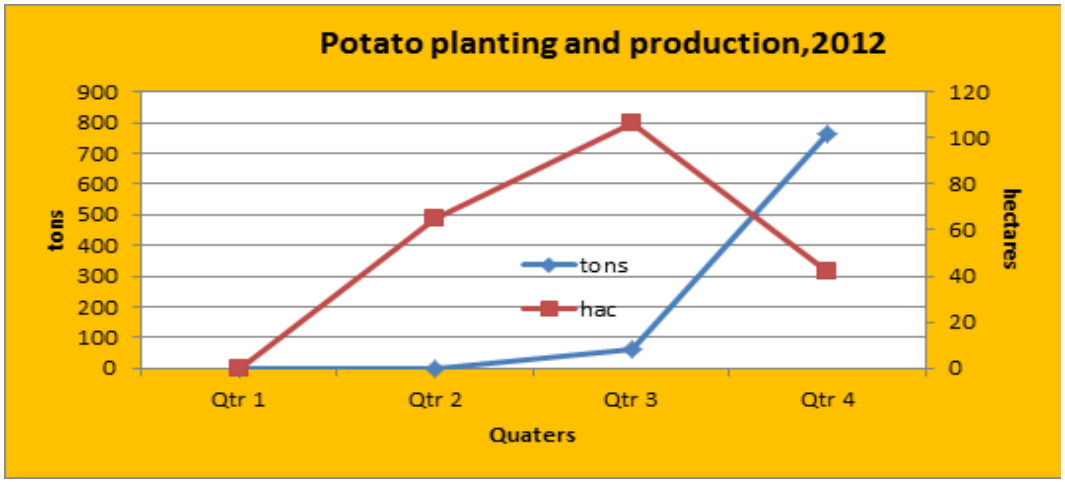
A total of 163ha of potato was targeted under the Program out of which 171ha was achieved by 510 farmers. Assistance provided to the farmers under this program was mainly agro inputs, land preparation and farm implements while the planting material was paid from the Potato Development Program. Potato produced was 827.3mt from the 1,692mt targeted for the year and was sold at $0.80 to $1/kg.

Table 28: Potato Production – 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Western Target	-	-	140	-	23	1444	-	248	163	1,692
Western Achievement	-	-	65	-	106	62.6	42.1	764.7	171	827.3
TOT. Target	-	-	140	-	23	1444	-	248	163	1,692
TOT. Achieve-ment	-	-	65	-	106	62.6	42.1	764.7	171	827.3
TOT. Target	31.4	360	63.9	481	73.4	415	41.3	426	210	1,682
TOT. Achievement	22	319	67	285	86	658	42	611	217	1,873

Source: Extension Division Report 2012

Figure 12



RICE

A total of 1666ha was targeted under the Program out of which 134ha was achieved by 330 farmers from the Central, Western and Northern Divisions. Rice has been used as a diversification crop for sugarcane farmers. Out of the targeted production of 4,164mt, 505mt was produced. Food security Program assisted the commodity in terms of procurement of rice planting materials while machines were procured under rice revitalization. Swamp Dozer was targeted to be bought to assist farmers especially in the Northern division in land preparation. This could not be achieved as well as the procurement of other small rice machines which was the deterring factor in the non-achievement of the targets.

Figure 13

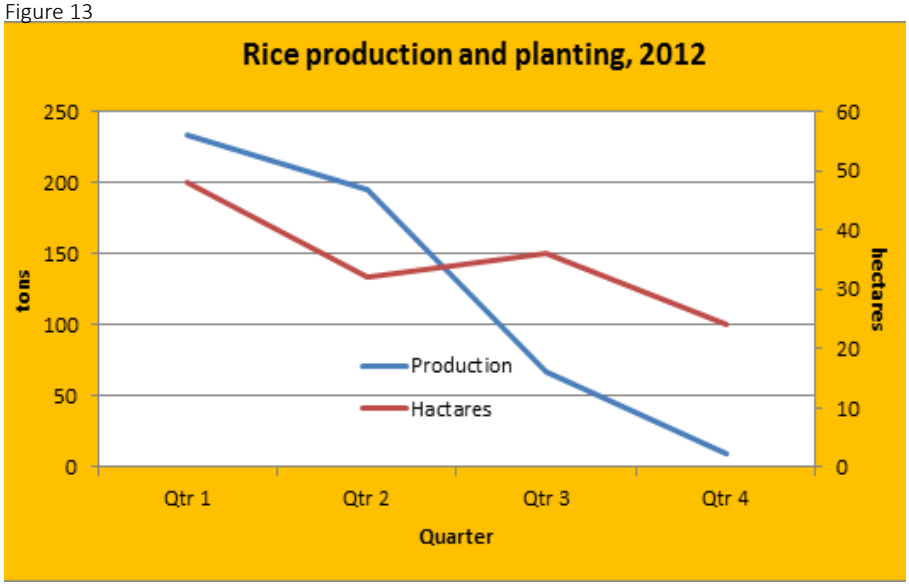


Table 29: Rice Production 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Central Target	-	-	12	37	12	35	76	178	100	250
Central Achievement	3	57	5	20	0.9	3	3.8	10	12.7	90
Western Target	13	40	-	144	-	75	91	-	104	259
Western Achievement	7.7	118	-	129	-	-	20	-	27.7	247
Northern Target	841	-	-	3155	200	-	421	500	1462	3655
Northern Achievement	37	58	27	46	35.5	64.2	-	-	99.5	168.2
TOT. Target	854	40	12	3336	212	110	588	678	1666	4,164
TOT. Achievement	48	233	32	195	36	67	24	10	139	505

Source: Extension Division Report 2012

The selling price was $750/mt.

EXPORT PROMOTION

Overview

The Ministry is committed to the enhancement of exporting opportunities by promoting and ensuring the cultivation of identified crops entirely to cater for exports.

Projected EPP commodities included Dalo, Cassava, Vegetables, Pawpaw and Ginger.

DALO

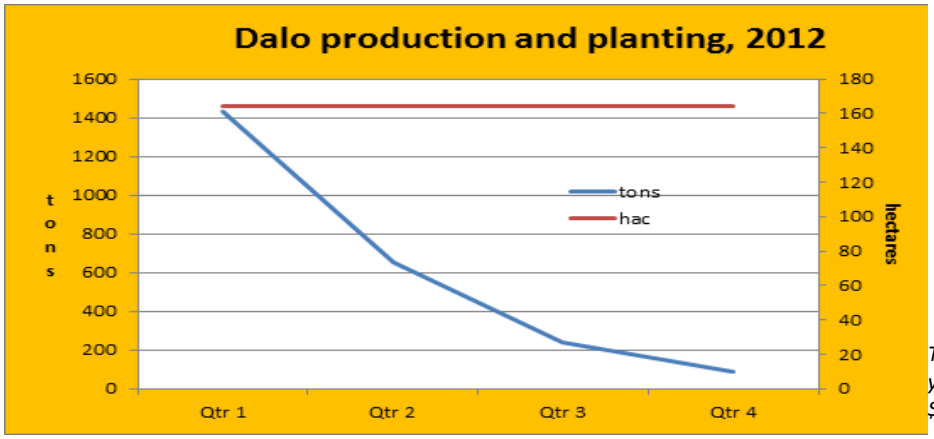
Tausala, Uro ni vonu and Rewa are the most common varieties of Dalo exported to countries like Australia, New Zeland, Canada, Hawaii, USA and some Pacific Island Countries. A total of 339ha was targeted under the Export Promotion Program out of which 288ha was achieved by 587 farmers.

The impact of DDA Programme including the demand from the export markets resulted both to the increased in planting area and production.

Table 30: Dalo Production – 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Central Target	-	-	-	-	-	-	-	-	-	-
Central Achievement	1.3	20	-	-	1.5	178	5	21.6	7.8	219.6
Western Target	3.9	81	8.1	109	12.9	169	15.1	171	530	40
Western Achievement	2	88	0.5	138	4.8	60	3	69	10.3	355
Northern Target	68.3	1047	79.3	1502.5	82.3	3175	69.3	952	299.2	6676
Northern Achievement	161	1321.9	109	514.7	-	-	-	-	270.1	1836.6
TOT. Target	72.2	1128	87.4	1611.5	95.2	3343.5	84.4	1123	339.2	7206
TOT. Achievement	164.4	1429.9	109.5	652.7	6.3	238	7.5	90.6	287.7	2411.2

Figure 14



The total production of dalo for the year was 2411mt. The selling price was $1000/mt.

CASSAVA

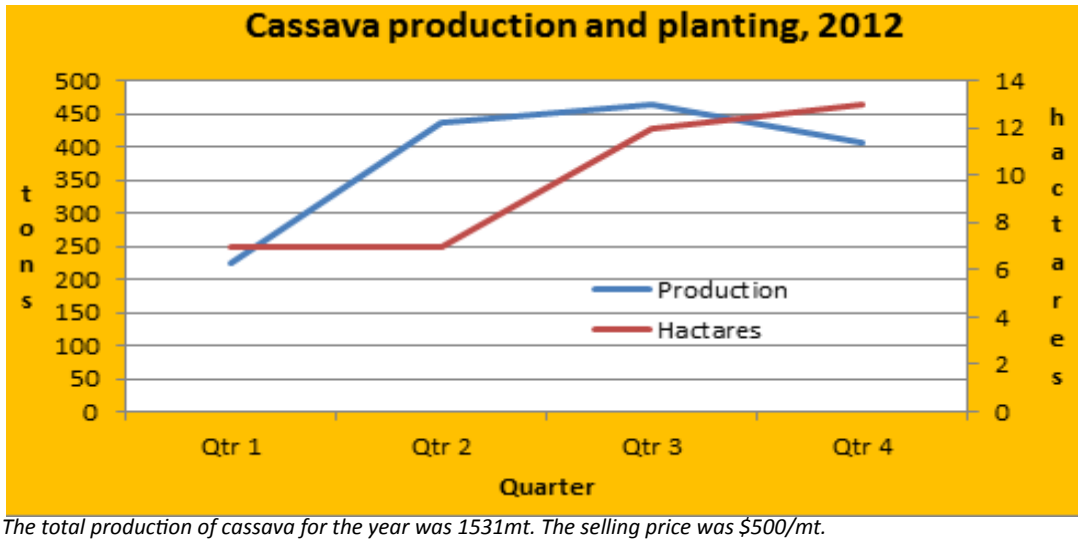
Apart from dalo, cassava is also exported fresh and or frozen to countries like Australia, New Zeland, Canada, Hawaii, USA and some Pacific Island Countries. A total of 310ha was targeted under the Export Promotion Program out of which only 39ha was achieved by 37 farmers. The non-achievement of the target was mainly due to the few projects approved for the commodity during this reporting year. The only project approved was the cassava processing plant in Nadroga/Navosa Provinces.

Table 31: Cassava Production – 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Central Target	-	-	-	-	-	-	-	-	-	-
Central Achievement										
Western Target	28	81	45	109	87.6	169	87.4	171	248	40
Western Achievement	2	88	0.5	138	4.8	60	3	69	10.3	355
Northern Target	-	-	62	620	-	-	-	-	62	620
Northern Achievement	0.9	-	0.2	-	0.1	-	-	-	1.2	-
TOT. Target	28	285	107	984	88	725	87	861	310	2861
TOT. Achievement	7	224	7	438	12	463	13	407	39	1531

Source: Extension Division Report 2012

Figure 15



The total production of cassava for the year was 1531mt. The selling price was $500/mt.

VEGETABLES

One of the main focuses of the Government is to increase foreign earnings through export of agro based commodities including BQA and non BQA vegetables. During the year a total of 84.5ha was targeted under the Export Promotion Program out of which 169ha was achieved by 116 farmers.

The impact of DDA Program including the demand from the export markets resulted both to the increased in planting area and production.

Table 32: Vegetables Production – 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Central Target	-	-	-	-	-	-	-	-	-	-
Central Achievement										
Western Target	28	81	45	109	87.6	169	87.4	171	248	40
Western Achievement	2	88	0.5	138	4.8	60	3	69	10.3	355
Northern Target	-	-	62	620	-	-	-	-	62	620
Northern Achievement	0.9	-	0.2	-	0.1	-	-	-	1.2	-

TOT. Target	28	285	107	984	88	725	87	861	310	2861
TOT. Achievement	7	224	7	438	12	463	13	407	39	1531

Source: Extension Division Report 2012

The total production of vegetables for the year was 1298mt. The selling price was $1000/mt.

PAWPAW

A total of 38ha was targeted under the Export Promotion Program targeting farmers from the Western division out of which 44ha was achieved by 63 farmers.

The impact of DDA Programme including the demand from the export markets resulted in the increased in planting area but on the other hand production was drastically affected by the natural disaster, in particular the cyclone and the disease outbreak. Pawpaw planting continued to be focused in the Western division because of the favorable weather condition and adaptability.

Table 33: Pawpaw Production – 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr.	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Western Target	-	460	18	475	15	465	5	500	38	1900
Western Achievement	3	82	9	112	17	30	16	56	45	280
TOT. Target	-	460	18	475	15	465	5	500	38	1900
TOT. Achievement	3	82	9	112	17	30	16	56	45	280

Source: Extension Division Report 2012

The total production of Pawpaw for the year was 280mt. The selling price was $1000/mt at farm gate

GINGER

There was no assistance provided under the program for the commodity however production was derived from area planted last year. Most of the assistance for the commodity was provided for by the Ginger Development Program. The total production of Ginger for the year was 570mt at the price of $900/mt.

(Source: Extension Division Report 2012)

RURAL AND OUTER ISLAND PROGRAM

Overview

The primary role of facilitating and implementing all projects under the Rural & Outer Island Program has been entirely left with the Ministry of Provincial Development and National Disaster Development with the assistance of the Crops and Animal Health & Production Extension officers.

There were a number of projects approved under the program during the third and fourth quarter and were mostly Income generating Crops for farmers within the outer island and rural areas. Productions tabulated in the tables below are for the new and existing projects.

IMMATURE GINGER

Projects approved under the program for the year were from the Central division and mostly Naitasiri and Tailevu Provinces well known as the ginger growing areas. There was no planting and production targets set for the year whereas from the approved projects 21.2ha of ginger was planted and 2563.8mt was produced from the existing projects by 132 farmers.

Table 34: Immature Ginger Production – 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr.	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Central Target	-	-	-	-	-	-	-	-	-	-
Central Achievement	-	190.8	-	-	13.8	2373	7.4	-	21.2	2563.8
TOT. Target	-	-	-	-	-	-	-	-	-	-
TOT. Achievement	-	190.8	-	-	13.8	2373	7.4	-	21.2	2563.8

Source: Extension Division Report 2012.

Selling price was $900/mt.

YAQONA

Yaqona is one of the crops earmarked for this program. Out of the 355ha targeted for the year 252ha was achieved while by 825 farmers.

Table 35: Yaqona Production – 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Central Target	17	32	19	30	19	30	15	34	70	126
Central Achievement	7	6.6	8.5	4.5	7.8	18.4	7.2	14	30.5	43.5
Western Target	7.6	11.8	9.6	25	9.2	16.2	8.6	59.6	35	112.6
Western Achievement	14.5	81.4	3	21.7	20	13	-	-	37.5	116.1
Northern Target	-	82.5	75	72	75	90	-	130.5	150	375
Northern Achievement	14.5	1.9	23	4.6	19.4	10.3	-	-	56.9	118.7
Eastern Target	20	40	30	60	30	60	20	40	100	200
Eastern Achievement	19	30	28	30	45	30	35	30	127	120
TOT. Target	44.6	166.3	133.6	187	133.2	196.2	43.6	264.1	355	813.6
TOT. Achievement	55	119.9	63	60.8	92	71.7	42	44	252	296.4

Source: Extension Division Report 2012

The total production of Yaqona for the year was 296.4mt. The selling price was $20,000/mt.

ASSORTED VEGETABLES

There was no project approved for the commodity under the program during the year, however planting and production achievements were derived from the existing sustainable projects. 86.2ha was achieved from the 39ha targeted for the year by 131 farmers.

Table 36: Assorted Vegetable Production – 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Central Target	6	30	7	30	7	35	6	35	26	130
Central Achievement	10	237	16.4	72.8	19	114.1	18	158	63.2	581.4
Northern Target	5.5	1	1.5	51	1.5	11	0.5	11	9	74
Northern Achievement	6.4	7	2.3	12	-	-	-	-	8.7	19
Eastern Target	-	-	2	-0	2	10	-	10	4	20
Eastern Achievement	0.2	-	3.8	16	5	34	4.9	54	14.3	104
TOT. Target	11.5	31	10.5	81	10.5	56	6.5	56	39	224
TOT. Achievement	16.6	224	22.5	100.8	24.4	148.1	22.9	212	86.2	704.9

Source: Extension Division Report 2012

The total production of Assorted Vegetables for the year was 704.9mt. The selling price was $1,000/mt.

PINEAPPLE

There was no project approved for the commodity under the program during the year, however planting and production achievements were derived from the existing sustainable projects. 3.4ha was planted by 15 farmers while 76mt was produced.

Table 37: Pineapple Production – 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Central Target	4	-	5	-	4	-	4	-	17	-
Central Achievement	0.1	3	0.1	-	-	-	0.5	28	0.7	31
Northern Target	-	-	-	-	-	-	-	-	-	-
Northern Achievement	1	20	1	21	0.7	4	-	-	2.7	45
TOT. Target	4	-	5	-	4	-	4	-	17	-
TOT. Achievement	1.1	23	1.1	21	0.7	4	0.5	28	3.4	76

Source: Extension Division Report 2012

The total production of Pineapple for the year was 76mt. The selling price was $500/mt.

BANANA

Planting and production achievements were derived from the new and existing projects. 2.9ha was planted by 10 farmers.

Table 38: Banana Production – 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Central Target	3	-	4	-	4	-	4	-	15	-
Central Achievement	-	-	1.3	-	1.5	-	0.1	-	2.9	-
TOT. Target	3	-	4	-	4	-	4	-	15	-
TOT. Achievement	-	-	1.3	-	1.5	-	0.1	-	2.9	-

Source: Extension Division Report 2012

VANILLA

Planting and production achievements were derived from the new and existing projects. 1.2ha was planted by 5.

Table 39: Vanilla Production – 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Central Target	-	-	-	-	5	-	-	-	5	-
Central Achievement	-	-	-	-	-	-	1.2	-	1.2	-
TOT. Target	-	-	-	-	5	-	-	-	5	-
TOT. Achievement	-	-	-	-	-	-	1.2	-	1.2	-

Source: Extension Division Report 2012

OTHER CAPITAL PROGRAMS

Apart from the DDA programs, there were twelve (12) other commodity and geographical capital programs. This included Potato Development Program, Rice Revitalization Program, Coconut Development Program, Cocoa Revitalization Program, Ginger Development Program, Vanilla Development Program, Agriculture Extension Services Program, Rotuma Island Development Program, Sigatoka Valley Development Program, Saivou Valley Agriculture Development Program, Nadarivatu Development Program and Cottage Industry Development.

Rotuma Island Development Program

Apart from livestock, there are six (6) commodities targeted for the program which includes Dalo, Cassava, Kumala, Vegetables, Coconut and Pawpaw.

Table 40: Rotuma Island Development Program - 2012

CROPS	Target (ha)	Achievement (ha)	Target (mt)	Achievement (mt)	No of Farmers
Dalo	21.8	32.4	200	335	177
Cassava	5	15.8	200	168	177
Kumala	6.7	3.8	200	68	65
Vegetables	6	4.2	60	32	15
Coconut	18.3	3.5	-	-	5
Pawpaw	1.2	-	-	-	-

Source: Extension Division Report 2012

Nadarivatu Development Program

This year marks the launching of the Nadarivatu Development Program with the handing over of a Tractor with implements by the honorable Minister, Mr Joketani Cokanasiga in June, 2012 which coincides with the Potato Planting in Nadarivatu. Apart from the tractor, farmers were assisted with agro inputs, farm equipments like crates, sylon cloth and vegetable seeds.

Table 41: Nadarivatu Development Program - 2012

CROPS	Target (ha)	Achievement (ha)	Target (mt)	Achievement (mt)	No of Farmers
Assorted Vegetables	25	7.3	250	-	100

Source: Extension Division Report 2012

Saivou Agriculture Development Program

Funding for this program was redeployed during the year due to non- utilization however planting and production for the earmarked commodities, Potato, Rice Cassava and Assorted Vegetables still continued as a result of the drainage work that was carried out in 2011.

Table 42: Saivou Development Program - 2012

CROPS	Target (ha)	Achievement (ha)	Target (mt)	Achievement (mt)	No of Farmers
Potato	4	4	40	26.8	30
Rice	30	18	85	33	15
Cassava	30	32	172	96	67
Vegetables	5	9.1	76	62.3	18

Source: Extension Division Report 2012

SIGATOKA VALLEY DEVELOPMENT PROGRAM

Funding for this program was used to procure Assorted Vegetables planting materials which are mostly BQA commodities, agro inputs and farm implements. Crops earmarked were Papaya, Eggplant, Chilies, Maize and Tomato.

Table 43: Sigatoka Valley Development Program - 2012

CROPS	Target (ha)	Achievement (ha)	Target (mt)	Achievement (mt)	No of Farmers
Papaya	40	9.1	1800	487.8	40
Eggplant	10	5.6	200	87.5	38
Chilies	8	-	200	-	-
Maize	102	15.4	222	54.5	162
Tomato	16	53	100	216.2	36

Source: Extension Division Report 2012.

Selling price ranges from $1,000/mt - $6,000/mt

Rice Revitalization Program

Funds allocated under the program were used to procure small rice machines, rice mills and a Swamp Dozer. Unfortunately the latter could not be purchased hence is a major draw-back in the achievement of the target as this machine was intended to assist with rice cultivation. Out of the targeted planting of 3034ha, only 724ha was achieved by 475 farmers from Central, Western and Northern divisions.

Table 44: Rice Revitalization Production – 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Central Target	-	82	12	-	11	30	27	28	50	140
Central Achievement	38	-	6	26	13	96	10	25	67	147
Western Target	19	-	-	169	-	126	181	230	200	525
Western Achievement	2.7	58	-	35	-	-	3.2	-	5.9	93
Northern Target	1706	-	-	5566	225	-	853	5566	2784	11132
Northern Achievement	275	280.8	-	900	376	-	-	-	651	1180.8
TOT. Target	1725	82	12	5735	236	156	1061	5824	3034	11797
TOT. Achievement	316	339	6	961	389	96	13	25	724	1420

Source: Extension Division Report 2012

The total production of Rice for the year was 1420mt. The selling price was $750/mt.

COCONUT DEVELOPMENT PROGRAM

Fund allocated under the program was mostly used to furnish equipments for the Coconut Centre, establish coconut nurseries for the supply of planting materials, cartage cost for seed nuts from Taveuni to Vanualevu and Vitilevu. Out of the targeted planting of 750ha, only 315ha was achieved by 1557 farmers from all the divisions.

Table 45: Coconut Development Production – 2012

DIVISION	PLANTING (ha) & PRODUCTION (mt)									
	QTR 1		QTR 2		QTR 3		QTR 4		TOTAL	
	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)	Pl. (ha)	Pr. (mt)
Central Target	10	290	12	85	13	115	15	310	50	800
Central Achievement	-	-	-	-	-	-	22	-	22	-
Western Target	-	54	8	102	34	780	33	264	75	1200
Western Achievement	-	0.3	-	1.1	0.6	0.4	16.7	0.4	17.3	2.2
Northern Target	62	1200	77	1200	82	1200	79	1200	300	4800
Northern Achievement	33	334	120	978	82	738	-	-	235	2051
Eastern Target	125	520	200	1560	-	1560	-	1560	325	5200
Eastern Achievement	3.5	201	2	800	6	328	29	328	40.5	1657
TOT. Target	197	2064	297	2947	129	3655	127	3334	750	12000
TOT. Achievement	36.5	536	122.2	1779.1	88.5	1066.8	67.8	328.4	315	3710.2

Source: Extension Division Report 2012

The total production of Coconut for the year was 3710.2mt. The selling price was $600/mt.

COCOA REVITALIZATION PROGRAM

The main focus of this new program was to rehabilitate the existing cocoa farms that have been left neglected for years. For this, funding allocated was mostly used to purchase farm equipments that will assist in the rehabilitation which include chainsaws, brush cutters, secateurs, tree loppers, pruners, drying and fermentation equipments. Tree Crops Research was also assisted tor the Cocoa germplasms and rehabilitation work at Naduruloulou which will extend to Wainigata and Dobuilevu Research Stations. Out of the targeted rehabilitation area of 101ha, only 78.7ha was achieved by 120 farmers from Central, Western and Northern divisions. A production of 23.5mt was recorded for the year which was sold at $2000/mt.

VANILLA DEVELOPMENT PROGRAM

The main focus of this new program was to rehabilitate the existing Vanilla farms that have been left neglected for years. For this, funding allocated was mostly used to purchase farm equipments that will assist in the rehabilitation which include chainsaws, brush cutters and curing equipments. Demonstration plots were also established to assist with the raising of planting materials. Out of the targeted rehabilitation area of 14ha, only 1ha was achieved by 3 farmers from Central, Eastern and Northern divisions. Only 30kg dried beans production was recorded for the year which was sold at $50,000/mt.

NON CAPITAL PROGRAMS

Overview

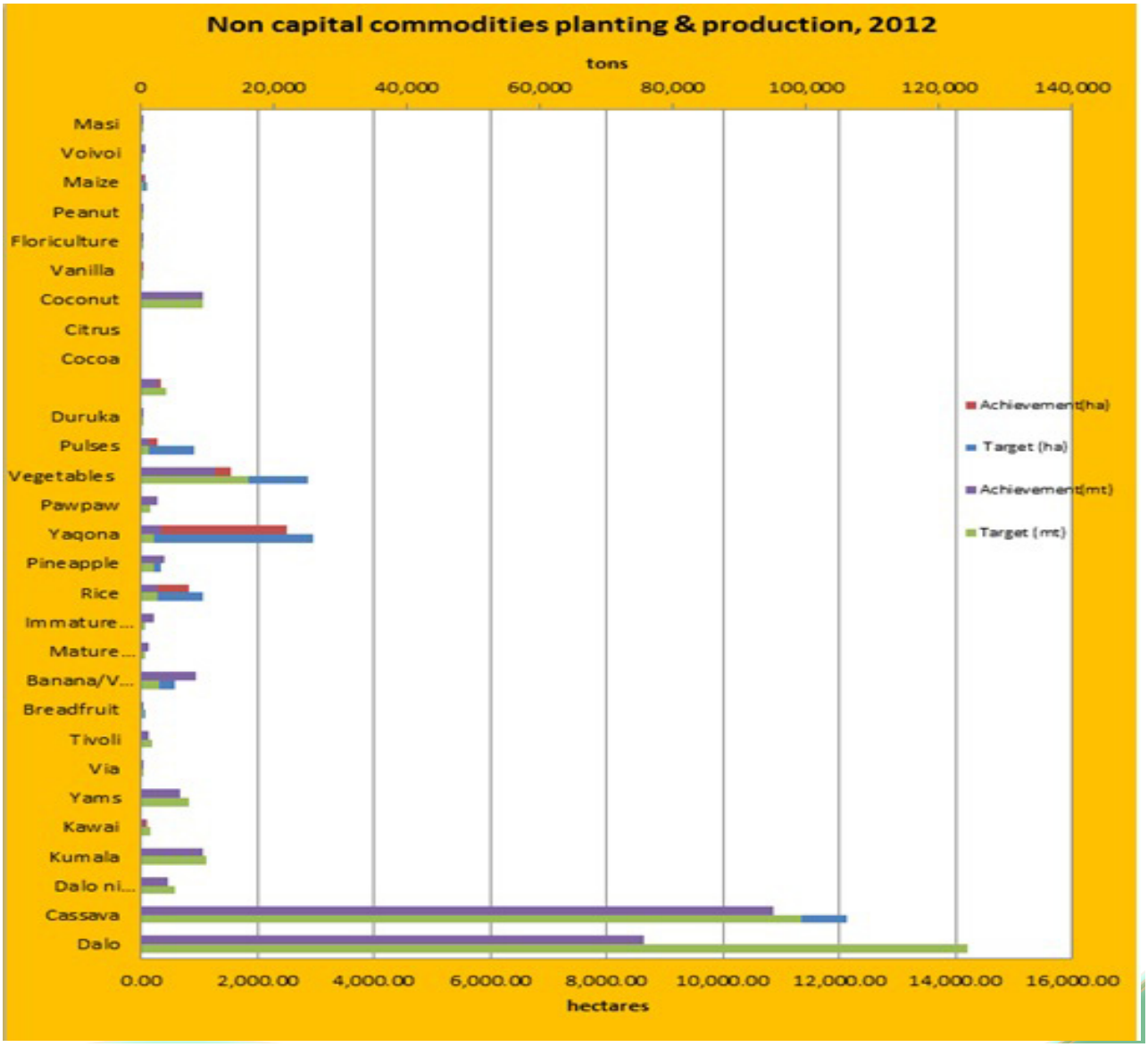
The Crop Extension Division continues to promote the importance of producing local crops, fruits and vegetables to address the need for Food Security in Fiji. A number of crops are classified under the this category including Vegetables, Dalo, Dalo ni tana, Via, Kumala, Rice, Duruka, Banana, Vudi, Cocoa, Citrus, Vanilla, Voivoi and Floriculture.

Table 46: Summary of Crops grown under Non Capital Program -2012

CROPS	Target (ha)	Achievement (ha)	Target (mt)	Achievement (mt)	Farmers	Remarks
Dalo	13,390.5	7,500.80	124,195	75,482.2	26,505	
Cassava	12,129	7,359.2	99,350	95,143.8	27,108	
Dalo ni tana	561.2	377.9	5,052	4,162.5	5,057	
Kumala	1,109	814	9,856	9,276	9,243	
Kawai	154	92.7	1,540	476.6	592	
Yams	820.9	451.9	7,109.4	5,872	3,460	
Via	34.6	36.7	50	185	129	
Tivoli	173	135.5	1,731	1,158	1,276	
Breadfruit	62	14.5	333	483.7	825	

Banana/Vudi	568	486	2,799	8,355	17,551	
Mature Ginger	40	45.3	677	1,185.1	211	
Immature Ginger	48	179	680	2,008	265	
Rice	1,076	811.6	2,500	2,500	617	
Pineapple	338	139.6	1,890	3,605.3	3,370	
Yaqona	2,955	2,498	1,870	2,959	12,463	
Pawpaw	158	92.6	1,540	2,584.4	7,210	
Vegetables	2,862	1,543	16,041	11,217	19,073	
Pulses	900	292	1,118	1,104.8	1,514	
Duruka	44	47.6	124	61.5	477	
Watermelon	375	348.3	3,660	2,586.2	1,235	
Cocoa	0	0	0	0	0	Maintenance of existing trees in Central, Northern and Western.
Citrus	0	0	0	0	0	Maintenance of 117.8ha : 100%- north
Coconut	18	68.2	9,420	9,420	9,413	Maintenance of 15086ha of coconut palms in the eastern division

Figure 16



Source: Extension Division Report 2012

ECONOMIC PLANNING & STATISTICS DIVISION

Provision of appropriate policy advice, marketing information, effective project formulation and evaluation and collection of reliable agricultural statistics are always the main objectives of the Economic Planning and Statistics Division.

The core function of the Division is to facilitate policy advice through policy analysis utilizing appropriate economic and econometric tools and modules formulating appropriate ministerial support relevant to the overall development of the sector.

POLICY ANALYSIS AND INTERNATIONAL RELATIONS

The unit's core function is to provide policy advice and execute support to Management, analyze trade agreement and collaborate on International elation (Bi-lateral and Multilateral) that benefits the Agriculture Sector.

HIGHLIGHTS

A number of networks were established, workshops attended and presentation with stakeholders;

International Relations

- MOUs facilitated with local counterparts (FMIB, Goodman Fielder, Sun News, FBC, SPC and bilateral partners (China and MOUs in progress with India, Taiwan, Indonesia and Bangladesh);
- Briefing on Tropical Fruit Trees with Ambassador Ratu Tui;
- Meeting with H.E.Yogesh Karan, Fiji's Ambassador to India; Meeting and presentation to Minister of Foreign Affairs – Qatar
- Briefing to Counselor Designate to Fiji Embassy Tokyo, attended the courtesy call to the Minister by the Indonesian Delegates, Presentation brief to Ambassador to Abu Dhabi
- Briefing to the Hubei Delegation from China at DOA, consultation with Chinese Delegation on Rice
- Attended Cocotech Meeting in India, PHAMA Meetings in North

Policy

•01

Meetings and Consultations and Workshops:

- Meeting with MoFA climate change Unit on National Climate Change Policy, Fiji Gender and Climate Change Training Workshop, Vulnerability and Adaptation Thematic Group
- Meetings with Director MET
- Meeting with PARDI/ACIAR and UNWOMEN
- China Sub-Group Meeting with SPC, and on Key Services to Agriculture in Fiji
- Meet with International Trade Centre (ITC) representative Fiji Makete for discussion on method of market survey technique
- Hosted Donor Agency consultation meetings with FAO, AusAid, GEF, UNDP, SPC, MoF and UNOCHA.
- Disaster Coordinating Unit established at DOA, workshop hosted with stakeholders (local, regional and sub-regional agency) and SOP formulated for DRM; attended DRM Pilot Course workshop
- At Southern Cross for NDMO on formulating the National Drought Action Plan
- Agriculture Short Codes launched, launching of Potato planting and Nadarivatu Development Project
- Consultation workshop at the Novotel Hotel in Lami on Labour Mobility and Labour Migration
- Global Conference on Agriculture Food Security and Climate Change in Hanoi, Vietnam
- Hosted the opening of National Agriculture Show
- CBA Workshop with SPC, Economic Analyses on Invasive Species Workshop Report
- Fiji Economy Update
- Global Survey on International Conference on Population and Development Action Plan
- Facilitating the Rehabilitation of 2 floods and Cyclone Evan Damage Assessment and Rehabilitation reports, Consulta tion meeting with UNDP of Flood Adaptation Fund Meeting, DOA participated in Livelihood Recovery Cash-for Work Program,
- Consultation meetings for Mushroom projects with China representatives, workshop in China
- Workshops attended in Vanuatu for High Level Kava,
- Cabinet Presentation of Asia Pacific Coconut Community
- ACP Retreat at Warwick Sigatoka

AID FUNDED PROJECTS ACHIEVEMENTS IN 2012

The Department of Agriculture (DOA) appreciates the partnership and overwhelming support of International agencies to support the challenges and needs of the sector in combating the issues and problems at hand. DOA by 2012 technically administered 36 aid funded projects in Fiji. From 2008 – 2012, there were a total of 23 completed projects, 5 ongoing and in progress, 2 are waiting to be implemented while 6 are awaiting approval. The projects in progress in 2012 were funded by United Nation Development Programme and Global Environment Facility (UNDP/GEF), Australian Centre for International Agriculture Research (ACIAR). There were 2 projects completed by ACIAR/SPC and FAO.

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURE RESEARCH PROJECTS (ACIAR) -

Policy Options for Improving the Value of Smallholder Agriculture in Fiji

This project was aimed to develop a system for measuring and forecasting the magnitude of smallholder subsistence production, consumption, sales and incomes. In 2012, there was no work conducted due to delay in funds approval.

Taro Pathway Project

The project aims at Developing Cleaner Export Pathways for Pacific Agricultural Commodities. This project was completed in 2012 with 1 post trial harvest in Nairaiyawa village, one disinfectant trial in Bens Trading Export, awareness and Hot water dipping trail.

AUSTRALIAN CENTRE FOR INTERNATIONAL AGRICULTURE RESEARCH PROJECTS (ACIAR)/ SECRETARIAT OF THE PACIFIC COMMUNITY (SPC) –

Improving soil health in support of sustainable development in the Pacific

Declining soil fertility and biological soil health represent a major threat to sustainable agricultural development in Fiji. In Taveuni, soil health issues in intensive taro production have arisen mainly through unsustainable practices and an over-reliance on inorganic fertilizer and weedicides and this project entails looking into solutions to these problems. In 2012, sites were established with mukuna beans in Taveuni, treatment were applied to selected sites, plant phonology taken, foliar samples collected, materials purchased for nursery in Taveuni.

FIGURE 17: Trial planting in Taveuni in September

FIGURE 18: : Trial planting in Taveuni in September

UNITED NATIONS DEVELOPMENT PROGRAMME/GLOBAL ENVIRONMENT FACILITY (UNDP/GEF) –
Pacific Adaptation to Climate Change Project (PACC) -

Piloting Climate Change Adaptation through improved drainage networks and infrastructure to ensure food security

This project is part of the wider GEF Pacific Integrated Water Resources Management project being implemented in 13 other Pacific island countries. The project has adopted an Integrated Flood Risk Management approach where water-related issues and the concerns of all stakeholders are considered to improve flood preparedness and management in the Nadi Catchment. During the year, site was prepared for demonstration in Navua and Rewa, workshop for CBA, 4km dredging works in Nakelo, mid term evaluation completed, participation in Agriculture Show, consultant completed consultation in pilot sites, documentary filmed with SPREP/UNDP, awareness in Nakelo village and Deuba, training for 20 community facilitators, meeting attended in Doha, visitation by UNDP reps, attended GIS Community Mapping training at Solomon Islands, project manager was appointed, workshop attended for Inter Provincial Adaptation Forum, Climate Change Policy workshop, and consultancy study by NIWA.

FIGURE 19: Taro Varieties that are Salt and Water Tolerant ted in the Field

FIGURE 20: : Field Trip to Qaranaki Creek

Capacity Building and Mainstreaming of Sustainable Land Management in Fiji

The project aims to bring about awareness and educate the nations land administrators and users on better land use management technologies through research, technology transfer, capacity building, generation and compilation of reliable data to realize and support such activities, create awareness on the government's recently adopted Rural Land Use Policy and all other relevant legislations. The project is a basis for sustainable environmental, social and economic development and will address sound land management issues that will assist in mitigating land degradation problems and minimize the degradation or destruction of Fiji's land resources.

In 2012, training workshop were conducted with SPC, participation in Agriculture Show, Tailevu Youth empowerment workshop, data conversion for catchment areas, land use maps produced, demo plots established, planting and managing of nursery, capacity building, Data survey, classification and soil survey, launching of land use capability guideline, land-use summit, NAP workshop, and model farms.

Figure 21: Model Farms display – Agriculture Show

Figure 22: Farm site in Semo Village

Figure 23: Group discussion

GLOBAL ENVIRONMENT FACILITY –

Integrated Water Resource Management Nadi Demonstration Project

This project aimed to improve Nadi's Preparedness and Flood Resilience, adopt an integrated approach to improve management of our land and water resources, establish and Integrated Flood Risk Management Plan for Nadi. The LWRM division participated in National Water Resources Management and Sanitation Policy consultation. There was three subcommittee meetings held which were technical community and land and water use.

Under this project, IWRM Learn Corner was launched; flood warning siren was imported, awareness, 9 CDRP's handed over to villages, consultations attended in Noumea, New Caledonia, MOU signed between DM and Response in Nadi, Flood Warning System established, and Promotion of health communities.

Figure 24: Pre siren Awareness session in Nawajekuma

Figure 25: TOKO TREK Participants

F***AO PROJECT – TCP/FIJ/3302: Emergency Assistance to Support the Recovery of Agriculture Livelihoods systems of cyclone affected families.***

US$373,000 of funds was approved under this project in 2010. This project aimed to:

(1)Re-establish 12,000 affected farmers in their food crop plantation and home gardens.

(2) Re-establish 1,000 affected livestock farmers to re-grow their damaged pastures.

(3) Establish three (3) green house nurseries to continue propagation of planting materials for farmers in affected areas.

This project was completed in 2012. An FAO consultant was engaged to conduct an evaluation of the project.

TCP/FIJ/3401: Development of a National Agriculture Sector Policy Framework for the Republic of Fiji

Technical assistance in the development of Agriculture Policy for Fiji

The project will provide the services of an international and a national consultants and technical support. This project will be implemented in 2013 upon the appointment of the consultant.

Highlights of FAO activities in 2012

- DOA formulated request for Emergency Assistance to FAO.
- Regional meeting on FAO Fisheries Forum Agencies was held at Nadi attended by the Minister for Primary Industries and Senior Staffs from the Department of Fisheries.

BUDGET AND PROJECT

The projects and Budget section was responsible for the coordination of all capital programmes and undertaking preparation of PSIPs for 2013. These included the ongoing – Demand Driven Projects (DDA), Export Promotion (EPP), Sigatoka Valley Improvement Programme (SVIP), Dairy Industry Support Programme (DIS) and Rural Outer Island (ROI).

The section continued its core function in the preparation, vetting and submissions of requisitions to incur Expenditure (RIEs) and quarterly reports for Line-Divisions for the release of funds from Ministry of Finance. The team also continued with the monitoring of DDA projects for 2010 to 2011.

AGRICULTURE STATISTICS & CENSUS PROJECT

Collected and collated data on production volumes, prices, values, exports and imports of agricultural products.

Source of information to international institutions such as the UNDP/FAO and IMF. "Quick response" data requests were also made available to the private sector, NGOs, and regional organizations.

Continued a major task, in conjunction with the Fiji Bureau of Statistics, National Planning Office, and the Reserve Bank of Fiji to re-calculate the GDP of the primary sector.

Processed over 120 data request from different stakeholders.

FIJI AGTRADE

The core function of the section is to facilitate and improve trade of agriculture products both locally and abroad. Three major areas of focus includes : Market survey, Market informationa and Trade facilitation.

Market Survey – a total of 48 weekly markets surveys were carried out and reports prepared.

Market Information – The section compiled quarterly bulletins and commodity plans during the year.

Trade Facilitation – Facilitated attendance of Market Scoping team and other trade meetings.

LAND RESOURCE PLANNING & DEVELOPMENT DIVISION

LAND USE PLANNING SECTION

INTRODUCTION

This report provides an update of the sections achievements during the year 2012. The section's main objective is to implement the Capacity Building & Mainstreaming of Sustainable Land Management in Fiji Project. One of the highlights of 2012 activities was the reactivation of the National Land Care Steering Committee, the launching of Land Use Capability Classification handbook which was initiated by the section in collaboration with the SPC and under the co-financing of the Fiji Government and the UNDP SLM Project during the annual National Agriculture Show in Lautoka. Another major highlight is the review of the Land and Water Resource Management Decree. Another two similar workshops is schedule for the Northern and the Western Division. This had been regarded as a timely drawn due to the recent flooding that devastated areas in the Western Division which draws the need for proper land use planning. In addition, the approach taken on SLM initiatives continued on community level and re-focusing to a larger scale at catchment and watersheds. The section also continues to work in partnership with WWF in the Building Resilience to Climate Change Project which is Aus Aid funded. There has been an on-going consultation with the Solicitors Generals Office who is currently vetting the finalized Land Water Resource Management Decree before its lodgment for the cabinet endorsement.

Despite the challenges, such as the staffing issues; the section manages to achieve most of these quarters' forecasted activities through team work.

ROLES OF THE SECTION

The section provides scientific, technical, research and advisory services to:

- Ensure that the land is sustainably used according to its capabilities.
- Implement the provisions of the Land Conservation and Improvement Act of 1953.
- Conducts applied research, development, and validation of farming systems packages.
- Disseminates appropriate sustainable land management technologies.
- Develop and manage the Geographical Information Systems.
- Consolidates land resources information and its management.
- Build capacity and mainstreaming of SLM in Fiji
- Combat land degradation in Fiji through the promotion of SLM
- Disseminate information on sustainable land management.
- Regional and international collaborations, cooperation and consultations

Activities Update

The promulgation of the new Land and Water Resources Management Decree (the amended LCIA) and regulation is now finalized and is still under vetting with the Solicitor General's Office. The section is now preparing a submission for cabinet paper for the endorsement and promulgation of th new decree and there is an on-going consultation between with the SG's office.

Organize National Land Care Steering Committee meeting (NLCSC)

One of the major highlights of this year was the Re-activation of NLCSC. The first revival meeting was conducted at the UNDP office on the 31st January. The first official meeting for the NLCSC involves the finalization of the TOR for th committee (15th Feb, 2012 @ the strategic Planning Office and the endorsement of the recommendation for the re-activation of the NLCSC. The Committee members are:

- Chairman: National Strategic,
- Secretary: WWF
- Members: DOA, USP,NGO,s, SPC-LRD ,SPC/GIZ, UNDP Office

Enhanced individual and institutional capacities for SLM

Conduct stakeholder workshop on LUC guideline

In order to promote proper land use planning and sustainable agricultural developments, the section in collaboratio with LRD/SPC under the UNDP SLM Project, has conducted one of the three Land Use Capability Classification workshops in the Central Division. The other two workshops is schedule in the Northern and Western Division.

On 9th March 2012, the Fiji Department of Agriculture, in collaboration with the Secretariat of the Pacific Community (SPC) Land Resources Division (LRD) held a workshop on Fiji's land use capability classification at the Holiday Inn, Suva. The aim of the one-day workshop was to bring togetl er various stakeholders involved in land use planning and natural resource management so that they could gain an insight into Fiji's land use capability system. It is anticipatec that this awareness workshop will form the basis for the us of land according to its capability for future development i order to minimise land degradation.

Land use planning is a logical process for resolving demanc for competing land uses. It is a spatial allocation of land for different uses, and is becoming increasingly important for Fiji. The primary purpose of land use planning is not only t support development initiatives but to also encourage sustainability, identify optimum management practices, foster economic growth and thus improve living standards.

If the present indiscriminate land use and demographic trends continue, there will be an increasingly urgent need to match land systems, soil types and land uses in the mos rational way possible in order to optimise sustainable land resource development and management to meet the need of society. The present system is often in the confines of sectoral planning in isolation without accurate and comple

data is often unsustainable.

The recent flooding that devastated areas in the Western Division have drawn the need for proper land use planning. In order to promote attention to the need for a land use planning and sustainable agricultural developments, land use capability classification is needed to assist land users in making informed decision on farm planning. It should recommend land use and conservation measures based on land used capability classes.

In the absence of proper land use planning, unsustainable land use practices which are prevalent in Fiji will continue and encroachment onto good agricultural lands by other uses pushing agriculture to unsustainable steeper slopes causing land degradation problems.

Land Use Capability Classification is a systematic arrangement of different kinds of land according to properties that determine its capacity for sustained production. This classification is to assess, classify and map land according to its capability to support a range of crops on a sustainable basis. The evaluation is based on the degree of limitation imposed on the land by a variety of physical factors which include erosion, soils, wetness and climate. Land is evaluated on the basis of the range of potential crops, productivity, and ease of management and risk of degradation.

Land capability assessment provides a ranking of the ability of an area to support a range of agricultural activities on a sustainable basis. As a basis for this assessment, an inventory is made on the facts about land, to assess the capacity of the land for permanent sustained production. The classification provides for three categories of grouping of the land inventory units, all of which are decided objectively, but which are based on physical qualities of a soil and its particular site.

The Fiji classification system comprises eight classes ranked in order of increasing degree of limitation in relation to agricultural use, and decreasing order of agricultural versatility. Class 1 is the best land and Class 8 the poorest. Class 4 is considered marginal for intensive cropping activities.

Although a Land Use Capability Classification system is currently being used by Department of Agriculture and various agencies and organisations as a basis for land use planning, very few understand what the guideline entails and how classifications are carried out, hence the need for this workshop.

This report details the findings emanating from the workshop.

Objective of the Awareness Workshop

The main workshop objective is to create awareness to various stakeholders involved in land use planning and natural resources management on the importance of land use capability classification as a tool for land use planning in ensuring environment sustainability.

Participants of the Workshop

It was attended by senior officers from the Department of agriculture and together with representative from the following agencies:

1. Department of Forestry
2. Department of Lands
3. Department of Environment
4. iTaukei Land Trust Board
5. Live and Learn
6. Partners in Community Development (PCDF)
7. Secretariat of the Pacific Community-Land Resource Division
8. United Nation Development Programme (UNDP)

In total, there were forty four attendees. Most of the participants are also members of the National Landcare Steering Committee. Few organisations (Department of Town & Country Planning, University of the South Pacific-Land Management Programme, Ministry of Strategic Planning and German Technical cooperation) were invited to the workshop but unfortunately could not attend.

Contents and Procedure of the Workshop

The Fiji Land Use Capability Guideline and the land use inventory system were presented to the participants.

The morning session focused on the Importance of land use planning in Fiji. The SPC-LRD presentation raised the importance of proper land use planning, protecting the land and the need to match crops to the right type of soil. This is crucial in combating land degradation and the vulnerability of the agriculture economy to adverse weather patterns such as the recent flooding.

Highlighted also was the need for development of participatory land use plans which is drawing up of land use plans using a participatory bottom up planning process working with the local communities to identify priorities and how they want their land resources developed

A case study on the above shows results of a participatory tikina based land use survey carried out at Bemana Tikina in Nadroga. Strategies involved in the surveys were the biophysical assessment of the land, socio economic survey, participatory rural appraisals and an economic analysis of potential crops suitable for the tikina. This exercise gave an overview of what the tikina is capable of producing if their land resources are wisely used.

There was also a comprehensive presentation on the Land Use Capability Classification, which included the basis of classification, description of land classes and limitation classification of the different land classes.

The Case study of the Nadi catchment gave some good images of the different land classes, the causes of land degradation in the catchment and the initiative taken by the Department of Agriculture to minimize the impact of land degradation.

The three presentations raised a lot of questions from the participant all with a common suggestion of the need to have more of this awareness to higher decision makers and land users and the need for integration and stakeholder involvement in the process of land use planning.

The Permanent Secretary of the Department of Agriculture, Col. Mason Smith, opened the workshop. Mr. Smith expressed the need for proper land use planning which is needed to sustain agriculture production.

Mr. Ropate Ligairi, the Deputy Secretary for Agriculture Department, officially closed the workshop. Mr. Ligairi agair stressed the importance of an initial land use classification assessment before and developments takes place and encouraged for integration with the Department of Agriculture. He reminded participants of the need to work together and have a good network and to involve all relevant stakeholders in the process of land use planning

Review of National Action Plan on UNCCD

On the 28th -29th of March 2012, the National Workshop to Realign the National Action Plan (NAP) to Combat Land Degradation was held at Studio 6 Apartments, Waimanu Road, Suva. The NAP realignment is one of the outcomes that is of a highest priority in this year Sustainable Land Management Annual Work Plan (AWP). The workshop was facilitated by Secretariat of the Pacific Regional Environment Programme and its overall aim was to realign NAP with relevant stakeholders from government sectors and non government organization that plays an important role in the land use arena. The recent major flooding and ongoing concerns about agricultural productivity, the need for sustainable land and forest management and the competing need for limited land resources make it imperative that the review and realignment of the NAP was a much needed action that was carried out in 2 day workshop.

Objective

Reviewing and realigning of National Action Plan (NAP) through broad base consultative process.

The key points that were addressed by the participation expectation of the workshop include the needs;

- to strengthen awareness raising on the overall purposes of the National Action Plan
- for participants to share experience and lesson learnt on the utilization of land occurring in the different thematic areas
- for more collaboration and partnership in addressing land use issues in the relevant government sectors and non-governmental organization

Output 2: Environmental Rehabilitation and Protection.

Increased knowledge & awareness on land degradation & the utility of SLM

Generation and improvement of information systems for SLM

The section has a geographic information system (GIS) unit that captures, stores, analyses and produces cartographic outputs of all mapping requirements for the ministry. The system stores geographic information for informed decision making in land resources planning. GIS tools allow analyzing spatial information, editing data, maps and present results in maps. The results are usually land use capability maps, soil maps, present land use maps, land tenure maps, and topo maps. The GIS Unit currently stores, manipulates and analyzes land use data (cadastral, topography, vegetation, soils, land use capability, FLIS, TLTB leases, registered aerial photographs and tikina based land use information). The section provides GIS Services to not only Department of Agriculture, but offers its services to a wider range of clients such as farmers, land developers, investors, agencies such as ITaukei Land Trust Board, Forestry, FSC, National Planning, NGOS's, and the new Land Use Unit in Lands Department on the provision of mapping services and land use information and assisting USP,FNU and secondary students on their projects especially on soil data gathering. Other works conducted within the quarter includes:

- Continuous Acquisition and conversion of data for Tikina Qaliyalatina, Bulu, Nailaga, Nalotawa in the Ba watershed.
- On-going production of LUC, Soil and other thematic maps.
- Labeling and conversion of data for the Navukailagi and Vanuaso Tikina
- Continuous hands-on in house training on Arc View GIS 3.2 software.
- Obtaining of quotes for GIS database improvement from office product.
- GIS File server
- The section had purchased a new file server and three new computers through the ITC approval. The server is now installed in the section GIS Unit at Koronivia. This will enhance the network distribution to the GIS unit in the West and North with the storage of high volume GIS files and will be able to facilitate the transfer of this large GIS data files to other division. The file server will also serve as a backup system for all GIS data which is the only GIS unit in the Department of Agriculture. Hence the unit database will now be improved for efficient and effective services to clients.

Community Awareness on Sustainable Land Management Technologies

Within SLM the section focuses on efforts to combat land degradation through capacity building and soil conservation technologies. The main objective of Sustainable Land Management (SLM) awareness is to motivate and raise the capacity of land users for better land use management and adoption of conservation measures. It is hoped that building the capacity of local communities will promote human coexistence with nature with a long –term perspective and ensuring food security, poverty alleviation, livelihood improvements, and improved ecosystem services.

i) ***"Building Resilience: Strengthening community adaptation measures to effects of climate change in the Fiji Islands"***

February 2012

Project Goal: By 2013, the vulnerability to the impacts of climate change of targeted communities in two provinces in Fiji is proactively reduced through a strengthened, coordinated and integrated approach within a national Climate Change Policy and Strategy Framework, safeguard and improve coastal ecosystem services and protection, and the long-term food security, livelihoods and well being of coastal communities.

Sectoral Goal: Land Use Planning Section in the Land Resource Planning and Development Division, under the Agricultural Department aims in the initialization of Sustainable Land Management in the two targeted areas namely Ba and Labasa Catchment to enhance the long term food security and at the same time improve the ecosystem services and conservation.

Actual Activity: Labasa Catchment Community Awareness training on Land Degradation effects and Sustainable Land Management.

Land Use Planning Sections

- Apart from only facilitating training, the Land Use team also come out stronglyon the initialization of Sustainable Land Management
- Emphasis made on the roles of Land Use Section towards the implementation of SLM in Fiji
- Presentation on the update of the biophysical data

of the Labasa Catchment

- It was followed up with the SLM awareness packages which includes:
  - Soil (profiles and description)
  - Raising awareness on bad land use practices and its effects towards the ecosystem as a whole
  - Clips of such practices being shown to participants
  - Soil conservation practices
  - Land use capability classification
  - Good land husbandry practices
  - Use of vertiver grass
  - Agro forestry concept
  - The section concluded its presentation by challenging the participant on good land management for food security and environmental conservation
  - The section also strongly implicated to the community of the importance of adapting to climate change through the community empowerment towards Sustainable Land management.
- The team then round up the day by participatory effort where participants works in groups to draw up the changes in land use pattern over a period of 20 years. Individual groups then present on their findings creating a general discussion among the participant.
- The training was then concluded with an inspiration speech from the head of the Yavusa of Vunimoli and Waisavulu, reiterating on the importance of working together for the conservation and wise use of their resources to better their living condition without compromising the lives of their future generation. Participants were urge to disseminate whatever they have learnt from the training to their community.

Facilitator de-briefing

The debriefing was held at the Land Use Office in Labasa with the Land Use acknowledging the support from in the line government departments i n the conduction of the SLM training at Vunimoli and Waisavulu Village.

Evaluation and discussion was carried out amongst the group and it was noted that all stakeholders were indepthly satisfied with the programs. However it was suggested to include the ILTB and FSC in future training. Majorly, training participants mainly included the I-taukei, while concern raised that most of the land users are Indo-fijian communities and there is a need to include theme in future training. From the debriefing exercise it was felt that an integrated approach to community is an essential step towards the resilience building to Climate Change mitigation.

Figure 26: Vunimoli Training

Figure 27: Waisavulu Training

ii) **Awareness Training and Establishment of a Model farm as well as a Construction of a Nursery at Navunitawa in the Nadi catchment - 6th – 7th March, 2012**

Navunitawa village is a 45 minutes drive from Nadi in the upper catchment of Nadi basin. It is a farming settlement to the people of Nagado village.

Objective:

1. For food security
2. Better livelihood for the villagers
3. To practice a better farm conservation plan for future generation.

Carry out Participatory Land Use Planning Survey

PLUP is a tool used for gathering information from the target audience in a more holistical and bottom-up approach. It involves the whole community members-men, women, youths and children

During this quarter the section was involved mostly with the Preparation work on the PLUP survey for Labasa, Wairiki & Koroalau-Tikina, Macuata (Labasa Catchment) and Navunitawa village, Nawaka Tikina, Ba. This is to be done in collaboration with the BR Project partners – WWF and will involve the participatory of our in line governmental departments: Forestry, Extension Division.

Establishment of Demonstration Farms

Demonstration plots are established around the country to assist in the training and awareness activities in promoting sustainable land management practices. These demonstration plots or model farms show the different types of good adoptable land husbandry practices suitable for the area or site and will assist in training the communities in promoting such practices. The demonstration plots or model farms show the different types of good adoptable land husbandry practices (use of soil conservation measures- vetiver grass hedgerows, pineapple hedgerows).

During this quarter the section manage to establish one demo plot that is in the western division. Apart from that, continous technical advisory services were provided upon request individual farmers. They were assisted in the following areas; planting of conservation measures- vetiver grass hedgerows, agro forestry plants and fruit trees for soil erosion control measures on sloping lands.

Navunitawa Demo Plot

The section had established a demonstration plot at Navunitawa village which followed up the awareness training. A total of 500 pineapple slips with 2500 dalo suckers were planted on the demo farm. With the pineapple slips as hedgerows being inter planted with other fruit trees. Three double rows of pineapple hedges were established along with two hedges of vertiver grass- upper and lower slope. Such practices demonstrated to the farmers the good land use practices with sloping agricultural land technology as a means of Sustainable Land Management.

Figure 28: Constructions of the Nursery at Navunitawa

The section also involve in the establishment of the Nursery in Navunitawa. Its main priority was for the seed raising purposes and to enhance farmers to learn planting in a control environment.

Figure 29: The Nursery

In conclusion the land use team is very fortunate to have work in collaboration with extension division and other in line departments. The section with the community is now working towards the provision of a secured food source through sustainable land management in a bid of raising their standard of living.

Awareness Raising Activities During National Events

The section involves mostly on the initialing the SLM concept at community level. SLM information dissemination was conducted through display materials- posters, display model and boards and production of SLM documentary. During this quarter, the section was involved mostly with the World Water Day Road show and Celebration and the Fiji Meteorological Day which was conducted in the West in collaboration with SOPAC/SPC, LWRM division and IWRM project.

The United Nations General Assembly declared March 22 as World Water Day way back in 1993. The UN and its member nations devote this day to implementing UN recommendation and promoting concrete activities within their countries regarding the world's water resources.

This year the Global theme is Water & Food Security which is around water and food. SOPAC is responsible for the celebration of this event in the region working with key partners and stakeholders in the country to make the event a success.

As part of awareness raising this year in coordination with the theme the two focus areas will be around water and food on how much water is used in food production. The other focus will be on water management and conservation as all life depends on water for living.

Launching of the Weeklong Celebration

From Rakiraki on Monday 23rd , Ba on Tuesday , Wednesday was in Lautoka and the main celebration was held in Nadi – Prince Charles Park on Thursday from 8am-2pm.

The Land Use Section represented the LRPD division to this event and actively involved in the display the discussion and talanoa session later in the evening. Land Use team in the West participated from Rakiraki to Lautoka while the Central team will prepare the display boards and assist the west team on the Display during the main event which was schedule in Nadi on the 22nd. The Team then moved to Sigatoka for the Fiji Metereology Day Celebration together with the World Water Day Awareness and Celebration in Sigatoka on Friday.

Launching of blue ribbons were done on all sites with quiz prizes for school students.

Display was conducted although out the selected schools from Rakiraki to Lautoka. The team also participated in the Talanoa Session which was conducted in some of the recent flood affected communities. This includes Tavualevu Village in Tavua and Votua Village.

Participants

Some of the participated schools includes: Penang Sangam School, Penang Primary, Tavua College, Tavualevu College, Khalsa College, Khalsa Primary, AD Patel, DAV Primary & Secondary, Lautoka Central Primary & College, University of Fiji, Vishnu Deo, Nadi Muslim, Ratu Navula Secondary, Swami Vivekananda high, Nadi primary, Saint Mary Primary and Nawaka Public School.

Communities members also attended the Talanoa session

and finds time to look around the sections display booth during the road show and the celebration events.

Technical Support for SLM at District, Provincial and National Level Enhanced

Conduct Surveys to Identify Land Uses and Assess Impacts

In order to promote proper land use planning and sustainable agricultural developments, the section carries out land capability classification studies of requested areas to assist clients in farm planning. Maps supplied were new and existing ones in the section while majority were GIS outputs from the soils database. Soil surveys, characterization and mapping are also carried out on request basis.

Town and Country Planning

In order to ensure the protection of good arable lands, the Section provides recommendations to TCP on proposed land subdivisions. These recommendations are given to ensure the protection of good arable land on these proposed subdivisions and lots.

FARM MANAGEMENT

INTRODUCTION

This Annual Report highlights the achievements and challenges that the Farm Management Section encountered during 2012. The major constraints encountered by the section to execute its roles are also reflected. Solutions and recommendations to enable the section to focus on the changes needed in order to achieve the 2013 targets in the Business Plan are also incorporated.

It will also focus on the physical performance since it is a capital programme which has a total funding of $150,000. The financial aspect of this funding will be highlighted in the financial report.

The Units core role is to contribute to the Agricultural development in Fiji through the dissemination of vital farm management information to farmers, Extension officers and other stakeholders. Accessibility to an updated Farm Management Information system will ensure informed decisions made at all levels hence improved profitability and efficiency of farming systems. This is made possible through its designed trainings, workshops and publications of the Farm Management Manual.

The year 2012 was a challenging and also a memorable one that will be recorded in the history of Farm Management section in Fiji. This is because of the approved funding allocated for the unit to execute its activities after a lapse of almost ten years.

The first quarter RIE came late started with three Staff trainings on Farming System Development [FSD] conducted for Extension Officers from Central Eastern, Northern and Western Divisions and one training this specifically for Principal Agricultural officers and Senior Agricultural Officers in Nadave.

In addition to that the second quarter was focused more on the categorisation and identification of Farming systems in the Geographical divisions and the third to fourth quarter was more on the documentation of these Identified Farming Systems Development.

Core Function of the Farm Management Section

To build the capacity in the Farm Management Discipline within the Department of Agriculture and the Agricultural Sector.

Role of Farm Management Section

- To establish and update a Farm Management Database, Capturing all types of Farming Systems in Fiji
- To provide a Farm Appraisal and Advisory Consultancy Services to all individuals and organizations as and when required
- To assist in the identification and preparation of all Agriculture Projects
- To assist in the monitoring and Evaluation of all Agriculture Projects.
- To train staffs and farmers in the Farm Management discipline with the emphasis on the Farming Systems Development Approach and its role in the Project Cycle.
- To attend to other tasks and when required by Management

VISION AND MISSION OF THE SECTION

Vision

Viable and sustainable farming systems

Mission

Effective and efficient Farming Systems Development information collated and analysed to strengthen farm business and Project Planning.

2012 ACP OUTPUTS ACHIEVEMENTS

PORTFOLIO LEADERSHIP, POLICY ADVICE

Provide Quality advice to Management on Farming Systems and Development issues

Consultation Meetings – Target 20, Achieved-31

Most of these meetings done throughout the year either with farmers or Stakeholders during Farm Visits, Field trips or during farm diagnosis for project proposals, business plan All these meetings lead up to preparation of farm plans and project proposals. These farm plans rather submitted to commercial banks or DoA Demand Driven Approach Programmes.

Farm Visitation and Appraisals

There were 20 farm plans and related visits done in 2012 that were important for project documentations. However, more 20 farm visits were done during the field trips, trainings and farm diagnosis exercise. Most of these farm visits and plans will focus on technologies the farmers are using or the farming systems or basically just for farm advisory service.

Market Survey-Target 12 - The section depends on market survey information released by Agtrade Unit which is part of Economic Planning and Statistic Division. This is because the unit is lack of staffs and also there was well established market survey team on the ground. Most of this information was used during preparation of project papers, business plans and gross margins.

Compile of Gross Margins and Documentation Farming Systems Budget - 13

The section had a target of 13 gross margins but available to produce 14 gross margins as stipulated in the table below.

Table 47: Updated Gross Margins for prioritized crops and livestock in DOA

Gross Margins	Types of Gross Margin
1.1 Ha of Yasi	Crop
2. 0.4 Ha Cassava	Crop
3. 0.4 ha Coconut	Crop
4.0.4 ha Dalo hybrid	Crop
5. 0.4 ha Duruka	Crop
6.1 ha Matured Ginger	Crop
7.1 ha Kava	Crop
8.1 ha watermelon	Crop
9. 1 ha Pineapple	Crop
10. 100 bee hives	Livestock
11. 1 ha Capsicum	Crop
12.1 ha Rotuman Tall	Crop
13. 1ha Immature Ginger	Crop
14. 1 ha Long Bean	Crop
15. 400 sow Units [Vuda]	Livestock
16. Yaqara Limited	
[2000 - 4000 cow units]	Livestock

Out of the 14 gross margins done, one was for Livestock and 13 were crops

Documentation of farming systems and issues on development constraints

This activity was one of the major activities for the section. The section had identified around 20 different farming systems in Fiji in 2011. In 2012, the section was able to document 6 farming systems; all were for Koro, Lomaiviti.

Updating FMIS Database and Manual

This activity was missed out last year because of no 3rd and 4th quarter funding. However, there were data available for updating of the manual. The section will definitely strengthen this activity in 2013.

Impacts of climate Change on farming systems identified

This documentation was done in 2nd quarter of 2012. Whether we like it or not, Climate change is here and it is our responsibility whether to get it on board or just ignoring it. This document focused more on the how climate change affects the farming systems in Fiji. In short, the agriculture sector in Fiji is experiencing climate change through adverse weather conditions such as changing precipitation, increase in temperature, shifting of rainfall season and excessive rain, frequent flooding and prolong droughts, coastal degradation, erosion and salt water intrusion, increase salinity in coastal areas and low lying atolls, high incidence of extreme events [tropical cyclones/flooding] and coral bleaching and mass coral mortality.

Profitability of farming systems known for the priotizied crops/livestock

There were 3 profitability of farming systems done for 3 farmers in Koro, Lomaiviti. The first one was for Mr. Tomu Baca Mateiwai of Nasau Village who was intercropping Dalo, Yaqona, Yams and assorted vegetables under coconut. He was a full time farmer and practising Yaqona based at subsistence level. With the Yaqona and Dalo, the farmer used agro-inputs such as Paraquat to assist him with land clearing and weed control. From the consolidate budget prepared he has a profit of $7,215 while for first year [2013], he will be making around $10,350. For Yaqona he has a gross margin of $63,745 for current crops with 2% used of variable costs. As for Dalo Tausala his current gross margin for 2000 plants was $5,400 and $10,800 for the first year.

The second profitability of farming system was on a semi subsistence Yaqona farm also from Nabuna Village in Koro. Mr.Aisea Busa, a full time farmer has an Operating Profit of $37,965 for Yaqona and Dalo Tausala. He used 0.17% for procurement of weedicides. He had 400 matured Yaqona plants on the ground and 3000 dalo plants.

Mr Illiesa Raqaqawa of Vatulele, Koro is a semi commercial Yaqona farmer. Currently, he had an operating profit of $60,960 for 1000 matured Yaqona plants. His farming system is very labour intensive and also uses a

lot of agro inputs such as weedicides.
Therefore the profitability of the Yaqona based farming from subsistence level to semi commercial level in Koro ranges around $43,125 to $63,745.
Apart from the above, the profitability for Vuda Piggery and Yaqara Pastoral Limited also had been done by the unit.

DoA Capacity Building Exercise for Staffs and Farmers
This was one of the major achievements for the section, after a lapse of 11 years, the section managed to carry out its core function with the assistance of Extension Division. The Farm Management Training Course for the Department of Agriculture [DoA] Extension Officers and other Stakeholders in particular Fiji Sugar Corporation Field officers and Farm Advisors was conducted during the second quarter due to late release of funds from MoF. Most of the first quarter activities were carried to 2nd quarter. It took over 2 months period, covering the four geographical divisions, namely, Northern, Central, Eastern and Western. A total of more than 70 officers participated during the two weeks program that covered Farming Systems Development Concept, Farm Business Planning Systems and Processes Theory and Farm Business Planning Field Practical and presentation by trainees on the analysis of farming systems on constraints and solutions followed in the development of Better Farm Plan Reports.
The need for this training for extension officers had been around for a long time. This was clearly evident from the different types of farm reports which were produced within and were of unsatisfactory standards. They were often confused with project proposals and most proposals are more like better farm plans for individuals when they are meant to be submissions proposing government interventions to a group of Farmers who are facing similar limitations in their farming systems.
The sole purpose of the training is to streamline the preparation of farm reports and analysis of farm profitability with Extension Officers and also to clarify the designed and Monitoring Framework [DMF] process and the use of the whole farm budgets in the financial and economic analysis of capital projects.
There was no other better tool available for Extension Officers to use in advising farmers systematically and holistically other then the Farm Planning Process used in the Farming System Analysis. Farm Plans must be based on verifiable data that should be properly documented and verified by those involved in the technology generation that is research.

OUTPUT2 - CONSULTING SERVICES-AGRICULTURE DEVELOPMENT

Updating Farm Management Database
This was the key activity for the section, however due to no 3rd and 4th quarter funding, the activity was incomplete and it will continue on under the 2013 major activities.

Updated gross margin analysis for 13 prioritised crops and updated farming systems budget: Field Visit -13
The updating of gross margins analysis is very important towards the Farm Management Database. This activity, if done properly it will be an important information or tool for implementers. Also it will make our work easier, since it will give updated technical information, prices on different commodities and their farming systems budget. Please refer to the annex 1.

Project Identification and Preparation
There were 20 projects identified and also prepared by the team to access funding either from Demand Driven Approach [DDA] or other financial institutions such as commercial Banks and Fiji Development Bank or other Non government organisations. Please refer to the farm plan lists under the Policy Advise. Farm Management Unit is responsible for major projects especially from investors or farmers investing commercially.
There were several large projects done in 2012

- Navuso Master Plan which secured funding of $150,000 from stakeholders including Regional Development, Ministry of Education and Department of Agriculture to construct new poultry sheds, procured a new tractor and improved drainage and plant over 80,000 dalo.
- Vatuboro Property of Doreen Smith Robinson; where the unit prepared a proposal for refinance of her FDB Loan to Westpac. Westpac bank approved $250,000 to takeover and refinances other farming activities. As result, Ms Robinson went to Vanuatu to understudy their Kura industry and new Asian markets are now opening for South Pacific Kura especially Vanuatu and Fiji. This is estimated to be around 4 containers a month and hence the need to identify farmers to be linked to this new opportunity.
- Mul Chand Export Business Plan was done by the unit to venture into the agriculture produce export markets to Australia .The proposal has secured funding from the Reserve Bank of Fiji and awaiting another $1,000,000 from Fiji Development Bank who is currently doing their due diligence before the approval of the loan.

Project and Farming Systems Monitoring
The activity was affected by the non-approval of the 3rd and 4th qtr fund from Ministry of Finance [MoF]. However, three projects were monitored by the team during the recent trip to Koro Island. The projects were Koro Biofuel, Vatuligiligi Farming scheme and Aisea Busa of Nabuna. Please refer to annex 2.
One of the major activities done here was the monitoring of the National Potato project that was implemented by DoA. This was done in Nadarivatu and Sigatoka areas. The gross margins for potato under different zones were prepared by the section and advise were given to

relevant stakeholders.

NON ACP ACTIVITIES

Agriculture Show /National Disaster Awareness week at Levuka

The Farm Management section continuously shown their support by taking part in the Crest Agriculture Show and the National Disaster Awareness week displayed at Nasau Park, Levuka, Ovalau as a way to get close to the public and create awareness of their roles in Agriculture and also to promote to public at large, the concept of "Farming as a Business". Agriculture show was on August 6-11 and Display for National Disaster was on 6/10-13/10, 2012.

Navuso Young Farmers Training Programme

The section had been working together with the staffs and 28 students of Navuso Methodist Training Centre on a new curriculum aiming to teach young farmers the importance of farming and also as the concept of farming as a business. The better farm plan and the master plan for Navuso were prepared by the section and as result the school secured $20,000 funding from European Union for Poultry Sheds, and over $150,000 for tractor and farming inputs from other stakeholders including Regional Development.

The section had been teaching farm Management principles to the young farmers in Navuso in order to become successful farmers by adopting and practising farming as business.

DISMAC Involvement

The Farm Management section had been involved in DISMAC operation during the Macuata, central and western floods that affected Fiji and her agriculture sector.

Documentation of process and systems to drive the agricultural Development in Fiji

This paper was compiled by the section on the processes and systems that will the drive the agriculture sector in Fiji forward. It also highlighted how systematic the agriculture sector is and the how the different divisions linked with each other. This is very important in terms of decision making and policy advice within and outside of Agriculture sector.

Major Constraints

Lack of Funding for third and fourth quarter really affects the Farm Management section to carry out some of its important tasks and cover important areas such as Eastern Division, updating of Database and review of Farm Management Manual

The staffing of the Farm Management Section with qualified officers in the discipline.

The section felt the pinch when staff was sent on leave on medical ground and the non-filling of all the 6 posts for the Farm Management Section. Posts need to be advertised and qualified officers in the discipline identified and recruited to the vacant positions.

Slow adoption of Farming System Development [FSD] by Implementing Divisions [Crop and AH/P Extension Officers.]

Land And Water Resource Management Division

Executive Summary

The year 2012 was an extraordinary year in which the western Division experienced two major floods in February and March. This caused damages to the drainage and watershed management infrastructure. All major river systems were affected with the Division tasked to undertake an assessment for dredging of the Nadi, Ba, Rakiraki, Penang, Lomowai and Tova Rivers. This was a major challenge to accomplish with the current survey staff resources.

Under the Land Drainage and Flood Protection Programme, dredging of the Labasa, Rewa, Navua, Nadi and Ba Rivers was undertaken and the Sigatoka River EIA study awarded to Environmental Consultant 'Coreraga Environment Consultants.

Under the Watershed Management Programme, $1.5 million was re deployed by Ministry of Finance due to the low utilization. The unit is constrained by lack of staff, and due to work priorities to undertake flood assessment of the affected rivers was only able to award contracts for the rehabilitation works in September. As a result the Division's schedule for implementation of the watershed management program was delayed.

Under Irrigation services programme, 8 schemes were maintained for rice cultivation in Northern Division and Central Division and the Vatubogi Rice Development Project in Bua, Northern Division implemented.

Under the Drainage Subsidy Programme, the three (3) Drainage Boards carried out regular maintenance of drainage schemes. The Central Division Drainage Board maintained 40 schemes and Labasa Drainage Board maintained 12 schemes. Flood Rehabilitation Works were undertaken by Western Division Drainage Board where 24 schemes were maintained.

In support for agriculture developments, drainage flood rehabilitation works

in the Sigatoka Valley and Sigavou drainage works in Rakiraki was undertaken.

The Division provided technical support assistance to undertake Daku Village Climate Change Adaptation Works jointly funded by PM's office, PACE (USP) and Local Government, Qaraniki Creek Channel Improvement and Port Denarau Dredging works undertaken by Ministry of Works, Transport and Public Utilities. Investigations for Rural Development activities were undertaken for 15villages and various stakeholders.

The Division has twenty three (23) vacant staff positions. Delay in filling professional and technical posts had been a challenge to meet the delivery of services.

The Divisions received $9,470,249 in capital funds; total expenditure was $9,117,010.40 which is 96% utilization.

FLOOD PROTECTION – RIVER DREDGING

Labasa River Maintenance Dredging was undertaken where 236,280m³ of dredged spoil was removed from the river bed exceeding the plan of 150,000m³. The dredging works was carried out by the department's dredger Dau Qeu Qeu.

Rewa River Maintenance Dredging was undertaken by the department's dredger Mana Bati Bati (MBB) where 13,350m³ of dredged spoil was removed from the river bed. Dredging programme was revised due to extended slipway maintenance works and mechanical defects requiring the procurement of gear box spare parts from the manufacturer IHC, Holland.

Navua River maintenance dredging was outsourced and undertaken by China Railway First Group (CRFG), 472,390m³ of dredged spoil was removed from the river bed.

Ba River Maintenance Dredging was outsourced and undertaken by China Railway First Group, 185,195m³ of dredged spoil was removed from the river bed. Dredging commenced from the river mouth to the Nawaqarua Village. The works was delayed due to the Tropical Cyclone Evans which affected the western division in December.

Nadi River Maintenance Dredging was outsourced and undertaken by HALL Contracting of Australia, 282,256m³ of dredged spoil was removed from the river bed. The dredging commenced from the river mouth to the Moala Village. The works was delayed because of hard rock encountered in the river bed and Tropical Cyclone Evans which affected western division in December.

The dredging of the Ba and Nadi Rivers was funded by the Prime Minister's Officer. The works will continue in 2013 and expected to complete by end of February.

Environmental Impact Assessment (EIA) for the Proposed Sigatoka River Dredging Works was awarded to Environmental Consultant, "Corerega Environment Consultants". The study and EIA expected to be completed in 2013.

The Nawaqarua Village Bank Protection Rehabilitation Works in Ba river was advertised. This was withdrawn due to the high prices tendered and will be undertaken in 2013.

WATERSHED MANAGEMENT

The watershed management promotes the construction of small scale check dams (retention weirs) to regulate the flow of flood waters to minimize the impact of flooding in the developed lower river basin areas. The project is in the Nadi Watershed.

The plan to construct an additional dam did not eventuate due to the damage to the Nawaka Dam 1 & 2 in January/ March floods following intense rainfall. The rehabilitation works is in progress and expected to be completed by 1st quarter 2013. This works is funded by the PM's office.

The EIA "Terms of Reference" for the proposed Namosi Dam No: 2 in the Nadi Watershed Management Project was submitted to Department of Environment for endorsement. This will be undertaken in 2013.

Irrigation Services

A total of eight (8) irrigation schemes maintained under which 1,700 hectares of land developed is used for rice and vegetable crops cultivation.

In Northern Division the works were undertaken in seven (7) schemes Korokadi, Vunivau, Dreketi, Nasarawaqa, Bua, Droca and Votua. In the Central Division the works were undertaken in the Navua irrigation scheme.

Table 48: The following works were undertaken and completed

Activity	Target	Performance
Northern Division		
• Number of schemes	• 7schemes	• 7schemes
• Drain desilting	• 84km	• 78.686km
• Excavate & Dispose spoil	• 600m³	• 731.23m³
• Sluicegate maintenance	• 10no	• 4no
• Floodgate door maintenance	• 3set	• 1set
• Boulder protection	• 370m²	• 151.46m²
• Canal Bund Repair	• 200m³	• 529.76m³
• Repair of Naruwai Weir	• 1No	• 1No
• New culvert crossing	• 1place	• 1No
• Repair of underground irrigation supply pipes	• 1place	• 1place
• New checkgate structure		• 1No
Central Division		
• Number of schemes	• 1 scheme	• 1scheme
• Drain desilting	• 24,000m	• 41,300m
• Desilt outlet waterway drain	• 700m	• 623m
• Construct underground siphon crossing	• 1No	• 1No
• Upgrade irrigation sluice gates	• 6No	• 6Nos
• Upgrade floodgate doors	• 1set	• 1set
• Boulder protection works	• 376m³	• 80m³

Vatubogi Rice Development – Bua, Northern Division
This development undertaken is an adaptation strategy to protect land from salt water intrusion which the community depend upon for their livelihood and in support of rice revitalization in the Northern Division.
The scope of works includes 3km of seawall, drainage outlet structure construction and internal farm drains. The works has been facing delays due to the wet weather and will be completed in 2013.

Drainage Subsidy
There are three (3) Drainage Boards namely the Central Division Drainage Board, Western Division Drainage Board and Labasa Drainage Board in the Northern Division.
The Board is responsible for the maintenance and improvement of the drainage schemes within the drainage area for which it is appointed.

Table 49: The following works were undertaken

Activity	Target	Performance
• Drainage schemes	• 40no	• 40no
• Drain desilting	• 190,000m	• 201,400m
• Desilting outlet waterways	• 1,100m	• 250m
• Construct New flap gate structures	• 2nos	• 2 Nos
• Upgrade floodgate doors	• 6sets	• 2 set
• Fabricate upper bracket hinges	• 0	• 4sets
• Repair floodgate doors	• 0	• 1set
• Repair flap gate doors	• 0	• 7sets
• Seawall upgrade	• 9,000m²	• 12,000m²
• Seawall gravelling	• 200m³	• 320m³
• Culvert crossing construction	• 1no	• 1 No
• Upgrade culvert crossing	• 0	• 1 No
• New Drain	• 870m	• 248m³
• Fabricate MS flap gate doors	• 2no	• 2 No
• Nakorovou Seawall & Floodgate structure	• 1no	• 75% comp

CENTRAL DIVISION DRAINAGE BOARD
The Central Division Drainage Board comprise of 40 schemes covering an area of 12,000 hectares. Under its jurisdiction the Board is responsible for the maintenance of 516 km of drains, 47 km of seawalls, 58 outfall (floodgate and flapgate) structures and 1,010 associated drainage structures.

Note: construction works delayed due to wet weather and shortage of cement supply for concrete

LABASA DRAINAGE BOARD

In the Northern Division 12 sugar drainage schemes with some 3,700 hectares developed and reclaimed. Under its jurisdiction, the Labasa Drainage Board is responsible for the maintenance of 163 km of drains, 34 km of seawalls, 36 outfall (floodgate and flapgate) structures and 282 associated drainage structures.

Table 50: The following works were undertaken

Activity	Target	Performance
Drainage schemes	12no	12no
Drain desilting form 1 side	95,500m	111,652m
Drain desilting from both sides	12,000m	13,739m
Desilt outlet waterways	1,800m	1,708m
Desilt & dispose	5,500m	2,411m
Fabricate MS flapgate doors	2no	2no
Maintenance of floodgate doors	8sets	8sets
Fabricate upper bracket door hinges	6no	6no
Fabricate lower pintles of floodgate doors	5no	3no
Storm drain repair	700m³	233.43m³
Soil filling	1,200m³	267.45m³
Stone pitching	200m²	21.71m²
Boulder protection	1,300m³	417.99m³

Table 51: The following flood rehabilitation works undertaken

Activity	Target	Performance
Drainage schemes	30no	24no
Drain Desilting 1 side	35,500m	57,908m
Drain Desilting from both sides	11,600m	6,741m
Upgrade culvert crossing	3no	4no
Construction of culvert crossing	4no	2no
Flapgate door upgrade	6no	6no
Timber bridge maintenance	3nos	3no
Rehab. Flapgate structure	1no	1no
Rehab. Spillway structure	1no	1no
Upgrade floodgate doors	7set	9set
Fabricate upper bracket	15set	15set
Repair of MS flapgate door	1no	1no

WESTERN DIVISION DRAINAGE BOARD

The Western Division comprises of 40 sugar cane drainage schemes with some 12,400 hectares of sugar cane land improved for cultivation. Under its jurisdiction the Western Division Drainage Board is responsible for the maintenance of 272 km of drains, 18 km of seawalls, 28 outfall (floodgate and flapgate) structures and 425 associated drainage structures.

Agriculture Development

Sigatoka Valley Drainage Improvement Works

The area suffered extensive flooding which resulted in farm drainage networks covered in sediments.

Table 52: The works were undertaken in the following areas

Area	Location	Drainage
East Bank	Nabitu	2.568km
Lower Valley	Barara Flats	4.877km
Mid Valley	Dubalevu	1.801km
	Naqalimare	0.44km
East Bank	Kavanagasau	4.40 km
Total		32.3km

Sigavou Drainage Improvement Works

7.645km drainage improvements and construction of six(6) culvert crossings were undertaken in Tova, Cavucavu and Wailailai areas in Rakiraki. The funds were provided by the extension division. MOU was formalised between the Ministry of Agriculture and Western Division Drainage Board to carry out this works.

Nabua Drainage Improvement Works

9.5km of drainage works undertaken to support rice farming, funded by National Planning.

Engineering Investigation Works

- Engineering designs undertaken in Dawasamu, Vunaniu and Calia in the Central Division and Nabua in the Northern Division for rice development.
- Design of dog kennel building for Biosecurity, 2storey building for AH&P vet laboratory, 3bedroom quarters and packing shed for Extension Division
- Road surveys for upgrading Dobuilevu Research Station
- Wainibokasi Fisheries office building

Regional Projects

To meet the challenges of climate change, sea level rise and the flooding problems, the Division has through assistance from regional agencies obtained funding from the Global Environment Facility (GEF) to undertake the following projects.

INTEGRATED WATER RESOURCE MANAGEMENT (IWRM)

The objective of the project is to develop an awareness of the flooding problem and water resource issues in the Nadi Catchment and to develop an integrated flood risk management plan that addresses sustainable development.

The following were the major activities undertaken

- Two[2] l rainfall gauges installed at Votualevu and Ratu Nalewavada
- Training of 4 communities in Disaster Risk Reduction
- Governance Review of the Nadi Basin Catchment committee
- Co-host 4th meeting of the Regional Steering Committee for the SOPAC/UNDP/UNEP/GEF project
- Establish IWRM corner launch at Western Regional Library
- Installation of two flood early warning siren system

Pacific Adaptation to Climate Change Project (PACC)

The objective of the project is to build resilience of communities to the impacts of climate variability on food security and to demonstrate through improved drainage networks and research on crop adaptability.

The major highlights for the Project are:

- Training of Community leaders for Nakelo/Nuku district comprises of 16 villages and 2 settlements. Main focus was on awareness of the community leader's role in considering Climate Change in the districts development programme. The participants were able to put together Nakelo/Nuku District Climate Change Action Plan.
- Training of Community Leaders was held for four villages of the Deuba District. The participants were able to put together District Climate Change Action Plan.
- Community Leaders Workshop was held at Nakaulevu for the communities of Rovadrau site. The multicultural gathering of leaders in this farming community comprised of men, women, and young leaders. This group also put together Climate Change Action Plan.
- 3.2km Qaraniki Creek improvement works
- Invitation from GEF to participated in Doha Meeting (UNFCCC) to present PACC Fiji's work. The documentary of the project was also presented during a special session on adaptation programs that are on-going internationally.
- UNDP Representatives visited the PACC sites, to inspect results and impact of the works undertaken.

Other Activities – Consulting Services

Daku Village Drainage Improvement Works

This works were jointly funded by PM's office, PACE (SD) USP and Local Govt. Funds (DOE). The works were mostly drainage improvement works and salt water intrusion protection works.

Port Denarau Dredging Works

The Division provided technical support services to Ministry of Works, Transport & Public Utilities for the management of the Port Denarau Dredging Works.

Rural Development

The following works were undertaken:

a) **Central Division**

- Nabitu Village and Nausori river bank protection works design
- Lami River bank erosion investigation
- Galoa Village and Navua river bank protection works design
- Sawani Village, Nausori, Waimanu river bank protection works, Serea Village, Nausori, Wainimala river bank erosion investigation

b) **Western Division**

- Nailaga Village, Ba, river bank protection investigation

STAFF

The Division has an establishment of seventy three (73) staff of which seventeen (17) are professional positions, five (5) occupied by expatriates at senior management level. Local staff comprise of 1 senior surveyor, 1 senior engineer and 1 engineer. A total of seven (7) engineer posts are vacant. This is a major challenge the Division faces in resources to meet the demand for its services.

The major constraints faced by the Division are the shortage of qualified local staff in the engineering/technical discipline. The Division has twenty three (23) vacant staff positions. Delay in filling professional and technical posts had been a challenge to meet the delivery of services.

CONSTRAINTS

- The major constraint faced by the Division is the loss through resignation and retirement of qualified local personnel in the engineering and technical discipline. The Division currently has only one local engineer.
- The Division has 23 vacant positions. Delay in filling professional and technical posts due to non-suitable candidates has also hindered the delivery of services.
- Aging dredge equipment, delays faced in sourcing spare parts from the manufacturer.
- Vandalism of drainage structures, planting along drainage reserve, rubbish disposal in drains and squatter settlement in the drainage schemes has hindered the maintenance of drainage schemes.

FUTURE DIRECTION

The Division will continue to build upon its Human Resource and the introduction of new technology to improve in the delivery of its services. Key issue to address will be the review of organisation structure, decentralising authority to divisional staff and staff establishment positions to meet functional outputs.

CROP RESEARCH DIVISION

EXECUTIVE SUMMARY 2012

Research continued as planned with 5 crop programmes (root crops, tree crops, vegetables, tropical fruits, pulses), farming system research, and general service program.

In root crops, research activities were carried on major root crops (dalo, cassava, kumala, yams, ginger & turmeric). Funding for these projects were mainly from government under the Agricultural Research Services programme, while other projects for funded by donors like GEF, ACIAR & CSIRO. Maintenance of food crops germplasm collection continued, the evaluation of dalo elite lines continued to look for desirable traits for local market and export qualities.

Introduced drought tolerant kumala varieties were evaluated at the dryer zones of Viti Levu and Vanua Levu; this is part of the support from SPC to Pacific Islands Countries to have access to climate ready crops to combat the effects of climate change. The multiplication of Taro Leaf Blight (TLB) dalo varieties continued during the year for future breeding programmes with local varieties and the review of the fertilizer application due to the rising costs of NPK fertilizers in Fiji. Turmeric was introduced and assessment blocks were established to further evaluate this crop. As part of information dissemination to farmers, posters were prepared and disseminated to farmers to increase awareness on research programs.

In tree crops, the research activities during the year were mostly concentrated on conservation, improvement and utilization of plant genetic resources mainly for cocoa, indigenous and exotic fruits and spices, duruka and yaqona. The plant genetic resources of both the indigenous and exotic assembled over the years were conserved, expanded and complimented with raising the plant seedlings and planting materials for the interested public. Cocoa research work resumed in 2012 after a lapse of 16 years from 1996 when the research of cocoa was abandoned. During the last 16 years only 82 varietal clones of cocoa were maintained at Naduruloulou with minimum maintenance.

The rehabilitation work to rejuvenate the 82 varietal clones of cocoa has been started during 2012 and will continue in 2013. In addition, a varietal evaluation trial of 5 cocoa varieties was laid in the existing cocoa crop which was planted in the early 1980's. The supply of fruits and spices seedlings to the interested general public continued to increase with increasing demands for citrus, avocado pear and jackfruit for food security and for export. Another crop was added to the station plant germplasm when 900 Dalo-ni-tana suckers were planted at Naduruloulou for planting material supply to our clients, stakeholders and farmers.

In tropical fruits, a total of 5 fruits trees were conserved during the year including: Breadfruit - 18, Pineapple – 5, Banana – 17, Exotic fruits – 22, Indigenous fruits – 7. Fruit germplasm was damaged due to Cyclone Evan devastation. Seedling production was stopped in August by plant pathologist (PP/SPC/BAF) due to the papaya disorder protocol. However, sowing and supplying of seeds was done prior to the directives given by plant pathologist. More than 10,000 pineapple seedlings died as the result of prolonged wet weather in January and March. The suspected Anthracnose disease wiped off mango seedlings at Legalega Research Station.

The research & development of potato varieties at Sigatoka Research Station was one of the main activities that were carried out in 2012. Under this project, the conservation and maintenance of plant genetic resources, evaluation of 8 potato varieties, and development of appropriate practice were part of the activities carried out in 2012. The introduction and evaluation of exotic vegetables and cereal varieties remains as the major activity at Sigatoka Research Station. Different varieties of English cabbage, Water melon, Eggplant, Lettuce, carrot, Chinese cabbage and Maize were introduced and evaluated at Sigatoka Research Station and Koronivia Research Station during the year. Hybrid maize that was introduced from Pioneer Seeds (Aust) was grown in a greenhouse to be used for livestock feed and the yield of (8.8 t/ha) was recorded at Sigatoka Research Station. An open pollinated sweet corn variety, Hawaiian super sweet was introduced and evaluated with a yield of 3.1 t/ha. Domestication of Ota has been an on going activity of the section with demonstration plots established at the National Food and Nutrition Center and SPC for public awareness and promotion. Trials using a variety of shades were conducted on the three vegetables, capsicum, tomato and lettuce to determine the most cost effective material to be used. Unfortunately, this trial was damaged by Cyclone Mick together with our seed blocks.

The research & development of pulses varieties at LRS was also one of the main activities carried out in 2012 with continued research on Pulses varieties including wheat, mung, chicken pea, cow pea, pigeon pea and peanut. Intercropping of pulses and vegetables in the sugar cane belt areas was also carried out to showcase best farming practices that farmers can adopt as to maintain sustainable production. Conservation and maintenance of plant genetic resources are an important component of research activity and continued to be carried out in 2012 with the production and supply of foundation seeds and farmers' seeds.

ROOT CROPS 2012

Tropical root crops provide unique opportunities for the sustainable development of around 600 million rural poor people in the tropical and subtropical regions of Africa, Asia, South Central America, and Oceania. In the region including Fiji root crops still plays a vital role in food production, food and income security to majority of the population. Its importance is through production and trade, value addition and it's significant to our tradition and cultures.

During the year 2012 research activities were carried on major root crops (dalo, cassava, kumala, yams, ginger & turmeric). Funding for these projects were mainly from government

under the Agricultural Research Services programme, while other projects for funded by donors like GEF, ACIAR & CSIRO Maintenance of food crops germplasm collection continued, it is often under rated but has a national significance in ensuring that wide genetic diversity of Fiji's root crops species and varieties, which are the country's heritage are conserve for future research work and preserve for future generation. The evaluation of dalo elite lines continued to look for desirable traits for local market and export qualities. Yams consultation was carried out with some stakeholders on yam varieties characteristics for development. Introduced drought tolerant kumala varieties were evaluated at the dryer zones of Viti Levu and Vanua Levu; this is part of the support from SPC to Pacific Islands Countries to have access to climate ready crops to combat the effects of climate change. Some remedial work was carried out on ginger as part of the review of the package of practice for ginger cultivation in Fiji. This year activities were mainly concentrating on the review of the fertilizer application due to the rising costs of NPK fertilizers in Fiji. The multiplication of Taro Leaf Blight (TLB) dalo varieties continued during the year for future breeding programmes with local varieties. Turmeric was introduced and assessment blocks were established to further evaluate this crop. As part of information dissemination to farmers, posters were prepared and disseminated to farmers to increase awareness on research programs.

As research activities were carried out according to the cropping seasons of certain root crops, some of the activities have been carried forward to 2013 and activities to be completed by 2013 with results obtained.

CONSERVATION AND IMPROVEMENT OF PLANT GENETIC RESOURCES (PGR)

GERMPLASM COLLECTIONS

The main objective of this activity is the conservation, management and sustainable use of plant genetic resources. These materials are conserved as they're of national importance to future crop improvement, future generation and contribute the sustainable development of the agricultural sector in Fiji. Farmers can also access some of these genetic resources with true to type characteristics.

This activity is part of Fiji's obligation to the International Treaty for Plant Genetic Resources for Food & Agriculture (ITPGRFA). It ensures conservation & sustainable use of plant genetic resources, facilitates benefit sharing arising from their use

Dalo especially traditional varieties were introduced back to some farmers due to their interest in planting traditional varieties compared to hybrids. Three farmers requested for some varieties to be established in their farm so that they can multiply and distribute to nearby farmers.

AGRONOMIC STUDIES

Dalo

Evaluation Dalo Elite Lines & Shelf Life Studies

A randomized complete block design (RCBD 8 x 3) trial was established in 2011 was completed in 2012. The objective is to evaluate growth & yield performance of 8 dalo elite lines and study their shelf life under three conditions. Growth parameters were recorded, collate and analyzed using STATIX 8.0 to find the significance difference of the treatment means.

The trial was established at F4 Koronivia Research Station on 10/8/2011 testing 8 dalo elite varieties from the existing 13 varieties. Monthly data collection was carried out to assess the growth parameters such as plant height, leaf sizes, suckering abilities, diseases, while at harvest the following data were collected: corm sizes, corm grading using the standard quarantine standards, corm shape, disease rating & yield in t/ha. From the sample 6 corms were selected, scraped and trimmed similar to exported types, packed in plastics and placed under three different conditions to study their shelf life for 23 days.

Discussion

From the end of 2011 – middle of 2012, frequent rainfall was experienced followed by dry spell. This unpredictable weather condition could contribute to the satisfactory growth and yield performance of dalo elite lines. This has an effect in the formation of leaves, petiole and corm quality. This was evident in the disease rating where most of the varieties were susceptible to corm rot sustained by water logging from the prolonged wet weather conditions. Petiole sizes were small and plant height was stagnant.

Conclusion

E 12 will be eliminated from further evaluation of these varieties. Variety is very susceptible to corm rot, flowers earlier, produced a lot of suckers and does have good quality corm sizes. The variety will be maintained in the germplasm.

Ginger

Effect of Mineral Fertilizers as Basal Application on Ginger

Objectives

The main objective of this project is to revise the current fertilizer application for ginger in Fiji. The effect of 4 mineral fertilizers as basal application against the recommended fertilizer NPK13:13:21 as well as evaluating the cost benefit of using these fertilizers.

Results

Results showed that there is no significant differences in the growth and yield parameters ($P<0.05$) as in table 4.0. However the response of the mineral fertilizers to the growth and yield performance was greater. The result showed a very good germination rate from the basal application of mineral fertilizers compared to NPK 13:13:21. Alroc NPK SB & Alroc no.3 showed a significant improvement in crop establishment in less than 5 weeks. Germination % was assessed weekly until100% germination is attained.

Result showed that mineral fertilizers enhances the tillering ability of ginger, thus enables the formation of bigger quality rhizomes. Mineral fertilizer showed a uniform plant height ranges from 80.7 - 89.3m. Rhizome formation in ginger is determine by the tillering and plant height, but this also depends on the soil type, spacing and general cultural practices carried out.

The yield obtained from the trial were significantly very high with yield ranges from 30.7 – as high as 55.4t/ha. This is well above the average yield obtained from previous studies and also farmers yield.

Discussion and Observation

The higher yield obtained from the experiment could be attributed to the effect of mineral fertilizers, which most are slow releasing fertilizers compared to NPK 13:13:21. Preliminary result from the experiment, found out that application

of mineral fertilizers using lower rates has significantly improved the growth and yield performance of ginger and attained higher yield in t/ha.

From the cost benefit analysis of using mineral fertilizers compared to the recommended NPK 13:13:21, it was found out that application of Ausphos fertilizer at 700kg/ha increased crop yield by 45% and a reduction of 60.2% in fertilizer costs with an average maximum yield of 45t/ha. Other mineral fertilizers that have significant effect in terms of costs and yield were Alroc no.3 and Alroc Extraphos & Potash. NPK 13:13:21 and Alroc NPK Super Blend were found to be expensive to use.

Conclusion & Recommendations

From the experiment it can be concluded that mineral fertilizers have a positive effect on the growth and yield performances of ginger. There is a need further evaluate these fertilizers on other soil types, farmer's field on major ginger growing areas in Fiji. A positive result from the experiment can be scientific background studies on revising and recommending other alternative fertilizers for ginger in Fiji. It is recommended that further studies to be carried out outside Koronivia Research Station to ascertain the effect of mineral fertilizers on ginger production in Fiji.

MINERAL FERTILIZER STUDIES AT DOBUILEVU & SEAQAQA 2012 – 2013

Towards the end of 2012 two trials were established at Dobuilevu Research Station in Ra and Seaqaqa Research Station in Vanua Levu. This is due to the expansion of ginger cultivation to these areas apart from main producing areas such as Naitasiri, Serua/Namosi & Tailevu.

A trial was established at Dobuilevu on 1/11/12 and is a replication of the trial carried out at Koronivia using the same fertilizer to study the effect of fertilizer on intermediate zones and on a different soil type. The trial at Seaqaqa was established on the 2nd week of October is an RCBD 4 x 3 factorial with three additional mineral fertilizers (Platinum Horti, Platinum NPK 957, Al roc No. 3 & NPK 13:13:21) using two different spacing.

The two experiments will be completed in 2013 with growth & yield data presented.

Production and Supply of Seed and Planting Materials

The main objective of this activity is the use of plant genetic resources maintained at research station for the purpose of food and income security for farmers and the general public. This is also a back up support activity to the Extension Division for farmers to have readily supply of planting materials. Farmers are also advised on the importance of maintaining their seeds and planting materials for future use and sustainable agriculture.

HORTICULTURE SECTION

Vegetable and Cereal Research

The introduction and evaluation of exotic vegetables remains as the major activity at the Sigatoka Research Station. Different varieties of tomatoes, chillies were introduced from AVRDC through the Intergrated Crop Management Project and evaluated at SRS and at an on farm site at Nabutautau in the Upper Navosa. In collaboration work with AVRDC there was a Field Day where stakeholders, farmers, and hoteliers conduct organoleptic tests which contribute to the assessment of the varieties.

The conservation of our PGR was also conducted at SRS Fields where varieties are planted and displayed with their growing methods. Crops ranges from capsicum, tomatoes, herbs, long beans, french bean, watermelon, cabbages, carrot and indigenous vegetables such as bele. Indigenous vegetables such as bele and ota were also collected and conserved in the genebank.

Improved method for propagation was tested by grafting eggplant on tomatoes. This was successful and grafted tomatoes and eggplant was tested on open fields. It was observed that the plants were bearing fruits after 3 - 4 months from a normal tomato crop. This is to be further evaluated and confirmed in 2013.

Training on vegetable production was provided for prisoners under the Yellow Ribbon Programme in a collaborative activity with Taiwan Technical Mission and trainings of farmers as per their request were also accommodated.

Funding for seed production was provided through SVIP. We have managed to produce some seeds to farmers as required under the Bilateral Quarantine Agreement and DW's as per their request.

Natural disaster also contributes to the standing crops on the field, which ranges from off season tomato variety trial, off season observation on grafted tomatoes and eggplant and also vegetable seed block mainly eggplant. All were completely destroyed and trials being abandoned that somehow affects our sectional targets and objectives..

One staff of the section is on study leave in Japan and sectional staff also received various local trainings in relation to their fields of work.

The section attended and displayed information and its technologies during the National Agriculture Show in Lautoka and displays around Viti Levu upon receiving requests.

We accommodated 47 school visits and students were briefed about the activities undertaken by the section while regular consultation and advice were given to stakeholders.

VEGETABLE SECTION

Vegetable Variety Screening and Evaluation

Tomatoes

A trial with 13 varieties of tomatoes introduced from Asian Vegetable Research and Development Centre (AVRDC) was evaluated at Nabutautau in Upper Navosa. There was significant evidence that the introduced varieties were significantly different (P=0.00) to each other and to the control variety – Alafua large.

The variety CLN2071D and CLN2464A gave higher yield than the check variety. It can be inferred that some of the introduced varieties significantly (P=0.05) out yielded the check variety Alafua Large and therefore the varieties need to be further evaluated.

Potato Trials

Introduction of Potato

Four varieties of potato, Red Pontiac, Sebago, Sequia and Nicola were introduced from Austraila and grown inside greenhouses at Sigatoka Research Station as per requirement by the Biosecurity Authority of Fiji.

These potato varieties will need to be further evaluated in the field

Seed Production

Funding was provided through the SVIP to produce seeds to farmers. The targets and the production for the year 2012 are summarized in Table 6.

FRUITS RESEARCH

The supply of seed and planting materials continued to be one of the components of this project, which includes the supply of seedlings for papaya, pineapple, citrus, assorted exotic and indigenous fruits for food security and export.

Most of the research activities for 2012 were hindered thus aborted due to the adverse thus unpredictable weather condition. This will then be duplicated next year, 2013.

CONSERVATION AND IMPROVEMENT OF PLANT GENETIC RESOURCES (PGR)

Germplasm Collections

The conservation, improvement and utilization of plant genetic resources continued to be one of the core functions of the research division. Fruit crop varieties were maintained at three centers: Sigatoka, Legalega and Seaqaqa with the main purpose of conserving Fiji's indigenous and introduced genetic resources for sustainable agricultural development thus supporting stakeholders in the identification of right and true to type crop varieties.

This activity is part of Fiji's obligation to the International Treaty for Plant Genetic Resources for Food & Agriculture (ITPGRFA). It ensures conservation & sustainable use of plant genetic resources, facilitates benefit sharing arising from their use

During the year field germplasm at the 3 stations were well maintained with proper weed control, pruning and fertilizing. A new citrus germplasm was established as well as the expansion of Balekana this year at Sigatoka. A new avocado germplasm with 13 accessions collected from around Viti Levu, was established at Nubutautau village, Navosa to evaluate avocado potential on highlands. A new Tissue cultured breadfruit orchard was also established at Seqaqa research station to evaluate potential of TC for mass production of planting materials as well as conservation of breadfruit varieties in Fiji.

Sixteen (16) Citrus varieties, papaya and five (5) plantain varieties were sent to the laboratory at KRS for analysis of food values that will support processing for value adding to these crops.

There still a need to collect more local varieties for conservation and evaluation for food values.

Agronomic Studies

Pineapple

Revise Package of Practices on Pineapple.

A trial on 5 different recommended practices on pineapple production were investigated to find out the best package of practices in terms of yield and sweetness/ brix percentage.

For Ripley Queen variety trt.5 shows the highest mean in terms of yield and sweetness (brix-%) when compared to the other 4 treatments. For Smooth Cayenne, all the treatments show significant difference in terms of yield per hectare and mean yield is well above the expected yield under the recommended practice (60 to 70 t/ha). Moreover, trt.4 shows highest mean yield per hectare whereas trt.5 has the highest brix percentage compared to the rest of the treatments.

Since this is the second ratoon (third stage of experiment), there has been a gradual decrease in yield as compared to the first harvest and first ratoon yields. In addition it could be recommended for dry zone and flat land localities. This experiment will be duplicated in 2013.

Vegetable

Organic Fertilizer Trial on Assorted vegetables.

An on-farm fertilizer trial was conducted on assorted vegetables at Waivula, Savusavu. Potential of the 3 organic fertilizers were evaluated against the recommended synthetic fertilizers. The trial was carried out during the main season for vegetables. However, there was severe incidence of Bacterial wilt disease which was below threshold during the off season (wet season). Furthermore, despite the non application of Urea the response was still favorable based on the treatments.

Dalo

Organic Fertilizer Trial on Dalo.

The first on-farm fertilizer trial was conducted on dalo in 2011 at Waivula, Savusavu. Potential of the 3 organic fertilizers were evaluated against the recommended synthetic fertilizers. Furthermore, despite the non application of Urea the response was still favorable based on the treatments. The following table shows the mean yield based on the four treatments.

Papaya

Conventional and Mineral Fertilizer Experiment.

Site was selected at SRS followed by establishment of preliminary experiment using both the conventional fertilizers and mineral fertilizers available in local outlets. The experiment was aborted as a result of prolonged adverse weather condition and devastation of cyclone.

The laboratory result shows the nutrient content of the fertilizers particularly the major elements. However, gypsum, urea and safe coated urea contain only single elements.

The tabulated data was recorded 4 months after planting before the cyclone. This preliminary experiment was aborted due to the devastation of the cyclone. This trial will be carried in 2013.

Supply of Seed and Planting Materials

This project is a support services to Extension and farmers for the supply of fruit seedlings for food security & income generation projects. The project was funded under the Agricultural Research Services.

Table 54 below shows the amount of seed and planting materials for fruits produced and supplied from Sigatoka, Legalega & Seaqaqa.

Table 53:Supply of Fruit Seedlings

Crop	Target	Amount Produced
Pineapple	100,000	113,350
Papaya seed	5kg	5.3 kg
Papaya seedling	70,000	25,300
Citrus	2,000	4,000
Assorted fruit seedling	2,000	3,136

PULSES RESEARCH

Introduction and Evaluation of Varieties

Varietal Evaluation of Wheat Varieties

Introduction

Wheat is a new commodity for Fiji. It was introduced from CIMMYT in 2008; initially 50 varieties were brought to test its performance under Fiji's climatic conditions. In 2009 seed multiplication was done and in 2010 a monthly trial with 30 varieties were screened for its performance. 9 varieties were chosen to carry out an evaluation trial this year. Wheat can be successfully grown during the cooler months.

Objective

To identify a suitable wheat variety for local market potential.

Results

These 9 varieties will be further evaluated at Sigatoka Research Station in 2013.

Performance Studies of Chickpea Varieties

Screening and Seed Multiplication of Chickpea Varieties.

Introduction:

Chickpea is a new commodity in Fiji but very common in Indian and vegetarian diets. It contains 22- 25% crude protein and is a good substitute for meat. It is a good crop in relation to soaring food prices and could be used in providing a balanced meal. 34 Chickpea elite lines were introduced in year 2008 from ICRISAT and 2009 seeds were multiplied and a screening trial was established in 2010 where these 34 varieties were tested under local climatic conditions. 15 varieties did not perform well. From the 34 varieties, 10 varieties were selected for further performance testing in 2011.

Objective:

To study performance of chickpea under local conditions and multiply seeds for further testing.

Cultural Details:

One chickpea block with 10 treatments was planted on 30/05/11 in Nadi series soil type. The land was ploughed twice, with 1 harrowing and 1 disking. The screening area was 18m X 32.5m. The plot size was 5m X 3.255m. The spacing used in the trial was 65 cm between rows and 20cm between plants. Blend C was used at the rate of 200kg/Ha. Bird scarring was done for 4 days to avoid disruptions in plant stand. Thinning was done to get even spacing amongst the plants. Irrigation was done to get even germination and during drought to maintain plant stand. 1 weeding was done in the plots. 3 bio brew (growth) application was done and 8 weekly insecticide application and 1 fungicide application was been done. Trial area was cleared twice. All necessary recordings and observations were taken.

Results:

These 10 varieties will be further evaluated on the highlands in 2013.

Varietal Evaluation of Ground Nut for Local Snack Market.

Introduction:

Peanut can be grown successfully in fertile sandy loam soil. Farmers in the western division mostly grow for local production. Present recommended varieties of peanuts are Local Spanish, Volasiga and Vishaal which had been released about 15 years ago. Ten cultivars of peanuts were introduced from ICRISAT in India in 2005. 7 varieties were planted in 2012 to assess their performance under local conditions.

Objective:

To identify a suitable peanut variety for snack production for local market.

Results:

These 7 varieties will be further evaluated in at Seaqaqa Research Station in 2013.

Varietal Evaluation of Mung Beans

Introduction:

Mung beans are considered for niche markets as fresh or dried (dhal). Farmers mainly in western and northern division are planting mainly as subsistence. Mung bean is considered nutritious and is a common dish in Asian community. At LRS one RCBD trial using 6 elite lines from AVRDC with one local farmer selection, and one check variety was planted to see the difference and to identify a suitable variety.

Objective:

To identify a suitable mung variety for local market.

Results:

These 8 varieties will be further evaluated at Seaqaqa Research Station in 2013.

Varietal Evaluation of Pigeon Pea for Dry Pod Production

Introduction:

Pigeon pea Pigeon pea is one of the traditional promising crops for the drier areas of Fiji. The greater production areas are in Western and northern division of Fiji since the crop adopts well in these climatic zones. The crop is for dual purpose and can be grown either as vegetable or as a grain crop for dhal. There are two types of pigeon pea, "Photo-period sensitive (seasonal) and Photo-period non sensitive (year round production). The photoperiod non-sensitive type is new to this country and only 3 varieties, one for green pod and two for dhal have been released to farmers. Dhal is a staple food for all races in Fiji, with increase in food prices and shortage in supermarkets, locally grown pigeon pea becomes a great substitute to cater for this shortage and to increase production locally.

Objective:

To identify a suitable pigeon pea variety for dry pod production for local market.

PLANT GENETIC RESOURCES

Maintenance of Mung Plant Genetic Resources

Introduction:

Conservation and maintenance of plant genetic resources are an important component of research activity. In order to conserve and sustain plant biodiversity, crop varieties need to be maintained and revived to combat future crop production constraints and maintain true genetic characteristics. Mung seeds need to be revived every 5 years to maintain its viability. 61 varieties of mung are maintained at Legalega Research Station.

Objective:

To map the characterizations of mung varieties and renew the seeds.

Results:

61 mung varieties characterized and conserved at Legalega and Koronivia Research Stations

Production and Supply of Seeds & Planting Material

Introduction:

Seed production program is an ongoing activity of the station. All recommended pulse crops are planted, maintained, harvested, dried, good quality seeds selected and stored. This program has to be done every year to have viable seeds of recommended pulse crop, which may be needed in future by the Research and Extension Division or the Private Sec-

tor for large-scale seed production. Also seeds are supplied to farmers through Extension Division to increase production for local and export market. The benefit from this program is that seeds of these various pulse varieties will be available at hand for next year's planting.

Objective:

To produce and supply quality seeds of released pulse varieties to farmers.

Cultural Details:

Fields were prepared well for good germination. The planting areas were marked and basal fertilizers Blend A and Blend B at 200 kg per hectare applied before crops were planted. Irrigation and weed control was done as and when required. Foliar application of sodium molybdate (for Mo) at the rate of 1 kg per hectare was applied to Pigeon Peas at 2 weeks and 5 weeks after planting. Bio-Brew Growth was applied during vegetative phase, and Bio-Brew harvest was applied during production stage of crops. Pest control was done during the vegetative and flowering stage, and after each harvest of crops.

CROP DIVERSIFICATION

Intercropping in Cane Belt Areas

Introduction:

Intercropping is the agricultural practice of cultivating two or more crops in the same space at the same time. It is a well developed technology in many countries and is also investigated on many crops with sugarcane. A practice often associated with sustainable agriculture and organic farming. In intercropping, there is often one main crop and one or more added crops, with the main crop being the one of primary importance because of economic or food production reasons. However, farmers are still unaware of the benefits of this technology and thus this demonstration will provide an opportunity for the farmers to learn.

This is a well tested system within the country and those farmers currently using the system are benefitting through increased income from the exiting farms. Vegetables and pulses are a widely used crop within the farming community thus crops can be utilized within the households. Intercropping in cane farms will significantly reduce financial overheads incurred by cane farmers as this technology absorbs part of the cost which otherwise would be subjected to cane only. The introduction of the intercrop will have no adverse effect on the cane yields. It overcomes the problem of land area for agricultural cultivation.

Objective:

To demonstrate production of potatoes, pulses and vegetables as interr-crops with plant sugar cane, for maximum utilization of land, supplementary income and food security.

Cultural Details:

Fields/plots were prepared well for good germination. The planting areas were marked and basal fertilizers Blend A and Blend B at 200 kg per hectare applied before crops were planted. Planting was done manually according to the crop spacing and for easiness in using machines for other maintenance work. Row spacing was 65cm, and 10cm to 30cm in-between plants depending on the crops. Irrigation and weed control was done as and when required. Foliar application of Molybdenum at the rate of 1g/litre was applied to Pigeon Peas at 2 weeks and 5 weeks after planting. Bio-Brew Growth was applied during vegetative phase. Pest control was done during the vegetative and flowering stage, and after each harvest of crops.

PLANT PROTECTION SECTION

The Plant Protection Section is mandated to provide support and advisory services on the management of insect pest, plant diseases and weeds to the people of Fiji. The section also undertakes research on major pests affecting agricultural production. The main research activities, diagnostics and advisory services conducted in 2012 are summarized below.

Coconut Rhinoceros Beetle

Rhinoceros Beetle, Oryctes rhinoceros is one of the major pests of coconut. Adults fly to the central crown of the palm, crawl down the axial of a young frond, and then bore through the heart of the palm into the unopened fronds to feed. The damaged fronds unfold later, revealing tattering and V-shaped cutting of the leaflets (Bedford, 1976). The consequent loss of the leaf area affect the palms adversely thus weakening the palm and reducing nut production per tree, may kill both seedlings, young & old palms and discourage replanting (Bedford, 1980).

Various methods were used to control the O. rhinoceros. These include releasing of Baculovirus-infected beetles in the field, placing Metarhizium anisopliae fungus in ground traps, use of pheromone traps and physical control such as removing breeding grounds and creating awareness to stakeholders.

There were 29 new fungus inoculated ground traps built this year and nine existing traps serviced. The new traps were constructed in Viti Levu (2), Vanua Levu (4), Taveuni (15) and Koro Island (8). Pheromone Traps- The use of pheromones/lures (ethyl-4-methyl octanoate) to control the beetles continued this year with the assistance from the Secretariat of the Pacific Community (SPC). SPC provided the pheromones and buckets for traps set in infested sites. A total of 70 new pheromone traps were placed (Viti Levu 50; Cikobia Island 8; Taveuni 6 & Koro Island 6) and 13 existing traps were serviced at different O. rhinoceros infested sites around the country while some were removed since they were damaged by Cyclone Evan. This year a new lure manufactured in the United Kingdom was tested for its effectiveness against the existing Costrican Lure in local environmental condition. Results from five traps indicated that the new lure was not as effective as old lure. In addition, coconut pest awareness trainings were conducted in Cikobia, Mali and Koro Island.

Coconut Stick Insects

The Stick Insect is native to South West Pacific and the main host plant is coconut palm. The insect feeds on the leaves, leaving the mid rib on the plant. At times if the damage is very severe it could defoliate the whole plant which could lead to death of the plant. Damage to coconut palms is done by both nymphs and adults feeding on the foliage (MAFF, 1994). The population of the Coconut G. crouanii infestations has become severe in recent years and it has affected the coconut palms on parts of Taveuni, Vanua Levu and Viti Levu. The effects of G. crouanii are localized. In Savusavu the main affected area is Wailevu and Buca Bay, in Bua Province the most affected area is Daria and in Viti Levu the areas affected are mainly on the coral coast. The biological control is the most effective, sustainable and cost-effective method to control Stick Insect population in the field. Egg parasitoids

(Paranastatus nigriscutellatus), native wasp which parasitizes the eggs of Stick Insects has proven itself in the past to kill up to 80% of Stick Insect eggs in Fiji (Waterhouse & Norris, 1987). The number of parasitoids released at various sites were Suva/Nausori (3,842), Tailevu (171); Rakiraki (486); Navua (116); Lautoka (58); Sigatoka (77); Taveuni (405) and Koro Is (282).

Determine the Major Role of Natural Enemies and Seasonal Abundance of Insect Pests in the Management of Brassica Crop

The objective is to study the seasonal abundance of major natural enemies and insect pests without any usage of pesticides. One plot, of 1000 plants of English cabbage, variety FS Cross were planted at Koronivia Research Station. All recommended agronomic practices were followed accordingly to manage the plots. Pest monitoring was done on weekly basis either early morning or late afternoon from July to October. On each monitoring 30 plants form each plots were selected at random and all the life cycle stages of insects present on them were recorded. The results revealed that the monthly average population of Large cabbage moth (360) and Diamond-back moth (32). However, the populations of the natural enemies were low ranging from 3 to 18.

Bioassay work on both Waite and Sigatoka Valley DBM populations

This is a periodic screening of DBM field population in Sigatoka region to find out the resistance levels by DBM against applied insecticides. This is an important activity for Fiji as farmers continuously manage insect pest in brassica crops with insecticides every season in order to obtain reasonable yield. When resistance builds up, current recommendation dosage does not work thus, farmers tend to increase the dosage as well as the frequency. This change in farming practice increases the residue levels of pesticide in the crop during the production cycle. The most critical time is before harvesting and that's where the farmer would like to protect the crop to avoid any damage in order to fetch a good market price, thus, the pressure to apply insecticide up to harvest time prevails. Health hazard is on the line when such practices are rife. Human health and environment is what the project is interested in to reduce health risk from consumption of such products in both short and long term effects. Finding ways and means of reducing such risk and not comprising farmer's crop yield is the ultimate aim of this project. The preliminary result showed that:

- Pravthon – some evidence of resistance build up but not being resistant yet
- Steward – resistance is still rising
- Match – resistance is slowing down
- Suncis – resistance is stable
- Bt – no resistance

Management of Taro Beetle

Dalo is considered one of the most important staple food crops in Fiji and is ranked higher than other crops because of its traditional significance but more so now because of its income generating potential for many farmers. This multi-million dollar industry contributes significantly to the country's GDP.

The presence, distribution and spread of a major dalo insect pest, the dalo beetle (Papuana uninodis) in Fiji poses a significant threat to the production of dalo in Fiji. The dalo beetle affects both the yield and the quality of dalo.

A survey was conducted in the Lomaiviti group to establish the presence of taro beetle in Gau, Nairai and Batiki. The result of the survey revealed that taro beetle was present in 13 of the 16 villages in Gau, however, no beetle damage was found in Nairai and Batiki Islands.

Development of quarantine treatments and pathways

The significance of this activity is to ensure the availability of fruit flies required for research. In the mass-rearing laboratory at the Koronivia Research Station, the two economic species were reared, namely B. passiflorae (Froggatt) and B. xanthodes (Broun).The work program in the laboratory involved the weekly maintenance of flies such as feeding with sugar, protein hydrolysate, water, egg collection, larvae rearing, pupae processing, setting up of new cages for emergence of adult flies and general laboratory hygiene.

During the year, watermelon was tested under Host Specific Test (HST) and found to be a host to Bactrocera passiflorae and not B.xanthodes. Confirmatory tests on wi (Spondias dulcis: var. Fiji local) were conducted in conjunction with the visit of staff from New Zealand's Ministry of Agriculture and Forestry. Although initial work on the proposed pathway document for wi have been done, results of this exercise are yet to be finalized and reported. This activity was carried out in collaboration with Nature's Way Co-operative, the Pacific Horticultural and Agricultural Market Access Program and the Biosecurity Authority of Fiji.

Increasing and Strengthening Quarantine Preparedness for fruit flies

Fruit Fly Trapping

Fruit fly trapping confirms the presence of fruit fly species in a locality, their distribution and seasonal abundance. Most importantly, it is an early warning system for the incursion of exotic pest species. Modified Steiner traps are baited with chemical lures (pheromones) and malathion (a pesticide), which are suspended from host and potential host trees. The commonly used lures are male attractants, namely cue-lure for B. passiflorae and methyl eugenol for B. xanthodes. A third lure, trimedlure, is used to attract the males of the species Ceratitis capitata (Mediterranean fruit fly), which are not found in the Fiji islands. The Research Division and the Biosecurity Authority of Fiji maintained the national quarantine surveillance system for fruit flies, which were mainly focused on Viti Levu. Installation, servicing and maintenance of traps were also carried out on Rotuma, the Southern Lau Group, the Mamanuca Group and Taveuni. The major constraint noted during the year was the irregular trap clearances as shown by the absence of data for the outer islands. The Biosecurity Authority should take the leading role in ensuring that traps for all sites are serviced, as they have funds allocated for fruit fly surveillance work. The roles that the Research and Extension Divisions play are supportive in nature.

Host Fruit Surveys

Just like fruit fly trapping, host fruit collections are an early warning system for the incursion of exotic fruit fly species. This is more so for fruit fly species that are not attracted to the pheromones used in traps. This activity also confirms the hosts for the various fruit fly species, determines new hosts and seasonal abundance of each species.

Weighing 98.32 kg, a total of 617 fruit samples were collected from around Viti Levu. Of these, a total of 24 samples showed

positive signs of fruit fly infestation. For those infested fruits, 10 samples showed positive signs of fruit fly parasitism by the biological control agents Fopius arisanus. Only one female Diachasmimorpha longicaudata was reared from one guava (Psidium guajava) fruit sample.

Other fruit samples that reared B. passiflorae included breadfruit (Artocarpus altilis), bullock's heart or custard apple (Annona reticulata), soursop (Annona muricata), "vao" (Ochrosia oppositifolia), "dalice" (Terminalia litoralis), powder-puff tree (Barringtonia racemosa), Sinu-ni-baravi (Phaleria disperma), Ivi or Tahitian chestnut (Inocarpus fagifer), O. vitiensis and black sapote (Diospyros digyna).

B. xanthodes were reared only from breadfruit (A. altilis). B. distincta was reared from sapodilla (Manilkara zapota), "qalaka" (Planchonella costata) and "tarai" (Manilkara vitiensis). It is significant to note that three new hosts were discovered for B. passiflorae (Barringtonia racemosa, O. vitiensis and Diospyros digyna), and two new hosts for B. distincta (P. costata and M. vitiensis).

Quarantine Surveillance Database

There are two separate files maintained by the fruit fly unit – one for fruit fly trapping and the other for host fruit surveys. The database is updated by the staff at the end of each activity

Development of Field Control Strategies

Bio-control Agents

The known biological control agents of the two economic fruit fly species are Fopius arisanus and Diachasmimorpha longicaudata, both of which are Braconid wasps. Towards the end of the year, F. arisanus were reared from infested guavas, which are currently being maintained for further research.

Impact of Wedelia and its Management

Wedelia (Spagneticola trilobata; Asteraceae) is widespread along road sides, river banks, pasture fields and vacant lands in Fiji and was found as one of the weeds in taro production in the eastern region of Viti Levu (Macanawai et al., 2010) and Taveuni (Macanawai A pers. obs). Wedelia is native to the tropics of Central America and has naturalized in many wet tropical areas in the world. It has very wide ecological tolerance range and found to be equally suited to dry and moist sites (Pier 2005). Wedelia grows very well on almost all soil types. It spreads vegetatively and encroach the neighbouring area easily.

The soil seed bank under Wedelia (Sphagneticola trilobata) monospecific stand

The aim of this study is to determine the identity and population of plant species in the soil seed bank underneath a wedelia infested field. This study may reveal the plant species that wedelia may have displaced i.e. the history of the site and the potential future plant community if wedelia is controlled. Four Wedelia infested sites (2500m2) were selected each from Sawani, Wainibokasi, Wainivesi (Tailevu) and Valase (Nadroga) areas for the soil seed bank study. At each site, 10 quadrats were randomly sampled. The soil samples collected from each quadrat were placed into one plastic bag and transported to KRS where they were processed immediately and placed in seedling trays. The soil seed bank in these samples was estimated by counting the viable seeds germinating from the soil seed bank tray. A large population of plant species were found underneath Wedelia monospecific stand (Figure 2). There were 12, 16, 24 and 22 plant species found in Sawani, Wainivesi, Wainibokasi and Valase sites, respectively. It is significant to note that from this study, Wedelia was found to produce large number of viable seeds and was one of the most dominant species in the soil seed bank under a monospecific stand of Wedelia.

Efficacy of different rates of Escort (Metsulfuron methyl) on Wedelia

Escort (Metsulfuron methyl) is one of the most effective herbicides for controlling wedelia (Sphagneticola trilobata). Escort contains 600g/kg metsulfuron as methyl ester in the form of a water dispersible granule.

The objective of this study was to determine the effect of different rates of Escort (Metsulfuron methyl) (lower than 0.4g/L) on wedelia (Sphagneticola trilobata).This information will provide options for farmers of the cost effective rate to manage wedelia on their farms and suitable for Fiji condition. Two wedelia infested sites were selected for the study; Valase (Nadroga) and Wainibokasi. From this study, it was revealed that Wedelia can be completely eradicated with Escort herbicide at the rate of 0.2gL, 0.3g/L and 0.4g/L of water. For the rates lower than 0.2g/L, most wedelia stems were killed but there was a rapid re-growth after one month of spraying. Wedelia above the ground level was killed but the roots were still alive and healthy due to which there were re-growths. Therefore, the recommended rates for Escort herbicide for complete eradication of Wedelia were 0.2g/L, 0.3g/L and 0.4g/L of water.

Wedelia and African tulip tree survey and awareness training in Koro, Gau, Nairai & Batiki islands in Lomaiviti

The objectives of this survey were to identify Wedelia and African tulip trees infested sites in Koro, Gau, Nairai & Batiki islands in Lomaiviti and to create awareness on the management and eradication of the two invasive species in the islands. This survey results showed that 10 villages in Koro, two villages in Gau, one village each in Nairai and Batiki were infested with Wedelia. Interestingly, no African tulip trees was found in any of the survey sites on the four islands. The farmers have been made aware of two of the most invasive weeds in Fiji and their impacts and method of eradicating the weed from their farms. The brochures were distributed to the farmers to provide additional information about the weeds and their management.

Merremia peltata (wa damu, walai) is a coarse climbing vine with underground tubers. Its stem is about 20m long which are smooth and twine at the tips. Merremia peltata is an invasive plant in the Pacific region invading both dry lowland and moist inland natural communities (Meyer 2000). In Fiji, merremia has been found to smother coconut palms and in the process kill the tree. It is commonly found in gardens, plantations, pasture, and forests plantations (Smith, 1991). The aim of this study is to identify the most cost effective rate of glyphosate to completely control M. peltata . Glyphosate 1 :1 was the most effective rate for controlling Merremia with average efficacy of 80%.

Identification of Common Weeds of Economic Crops in Koro Island

Weeds are the most underestimated pest in tropical agriculture, but they have influenced human activities more than other crop pests (Akobundu 1987). Composition of weeds in root crop production system in the island ecosystem in Fiji is relatively unknown. The aim of this study was to determine the composition and distribution of weeds in root crops in Koro Island. A zig-zag method of sampling and the use of quadrats was employed in the weed survey. There were 33 farms surveyed in Koro and in total 52 weed species found infesting taro and cassava farms on the island. The two most common weeds were Spermacoce assurgens (button weed) and Ageratum conyzoides (Goatweed).

Disease Surveys

Two surveys were carried out to determine the presence of Chillie Anthracnose Disease. The first survey was conducted in Viti Levu and the other one in Vanua Levu. Most of the sample collections were from backyards of family houses. Fungus were isolated from actively growing areas of the diseased fruits and cultured onto PDA plates.

The disease was found in these areas in Viti Levu: Sigatoka (SRS, Dubalevu), Nadi (LRS), Lautoka (Field 40, Buabua Place), Tavua (Yaladro), Ra (Naiyala, Savusavu Village). In Vanua Levu, the disease was found in Labasa (Korotari & Dreketi lailai).The disease was not found in these areas: Nadarivatu (Nadala village, Nasomo village), Tavua (Waikubukubu village, Vatubo settlement, Tavota Settlement, Malele settlement, Korovou village, Kavoli settlement) Rakiraki (Golden Point Resort, Narewa settlement, Vatumami settlement, Nakorovou village).

Papaya Disorder

In August 2012, a papaya disorder was identified from a papaya farm in Malaqereqere, Sigatoka. The symptoms included yellowing and necrosis along leaf edges followed by water-soaked areas on the bases of leaf stalks, crowns and along leaf mid-ribs.

The isolates were sent to CABI UK for diagnosis, but results came back negative for Erwinia papayae and E. maltivora. The papaya farm where the symptoms were found was the only standing crop in the Malaqereqere area after the two major floods earlier in 2012. Similar symptoms were also found in the same area of Sigatoka in 2010 after Cyclone Tomas. Is this disorder caused by biotic factor or abiotic factor or both factors? There is a need to carry out more research work to confirm this.

Registration of Pesticides

Pesticide Registration is one of the key activities of the Research Division. Plant Protection Section has been given the responsibility to register all pesticides that are imported into the country. At present, the Pesticide Registrar is governed by the Pesticide Act no. 41 of 1971.

In 2012, 11 pesticides were registered in Fiji. In addition, routine surveys of pesticide retailers were also undertaken. Surveys were carried out to determine the level of registered pesticide and the number of breaches existing in the country. A total of 93 companies were surveyed in the Western, Central & Northern Division. From these surveys the following were observed:

- Selling Cockroach Powder in a clear plastic bag
- Selling rat bait in a clear plastic bag with no precautionary measure
- Selling mosquito coil without proper registration
- Selling Agricultural chemicals without proper registration.

Plant Protection Diagnostics & Advisory Services

The section provides advisory services to growers, Extension officers, Biosecurity Authority of Fiji (BAF) officers, Exporters/ Importers and other stakeholders. Services provided to growers include diagnostic work, field visit and advising farmers/ growers on recommended control methods of plant diseases, insect pests and weeds

Table 55: Number of pest identification, diagnosis and advisory services including pest complaints attended to by Plant Protection Staff in 2012

Unit	No. of Pest Identification & Diagnosis	No. of Advisory Services including Pest Complaints Attended To
Entomology	10	22
Pathology	120	30
Tropical Weed Research	81 plant spp. incl weeds	42

During the year, the section also hosted a number of students on work attachments. The students were mainly from the FNU College of Agriculture. This is part of the college curriculum, where students are required to have a 3-month work attachment to gain work experience. This year there were altogether seven (7) students undertaking their practical/work experience in the section; five (5) FNU students, one (1) USP student and one (1) USP graduate. At the end of the attachment, these students presented to section staff their experience including knowledge and skills gained during their work attachment.

School Visits

The Plant Protection section was also involved in conducting information disseminations to school students. The students who have visited the section include kindergarten, primary, secondary and tertiary students namely FNU and USP students. In total 28 schools visited the section in 2012.

FIJI AGRICULTURE CHEMISTRY LABORATORY 2012

The Chemistry Laboratory provides analytical services to the Ministry of Primary Industries (MPI), other government departments, private industries and the public throughout the Republic of Fiji. These services include soil, foliar, animal feed, pure food analyses, forensic, water and general chemical analyses, some advisory services, training and coopera-

tion with other laboratories. The laboratory is actively engaged with external proficiency program to ensure accurate and reliable results are delivered to our clients

General Analytical Services

The laboratory is engaged in an international program as the International Plant and Soil Exchange Programmes conducted by the Australasia Soil and Plant Analysis Council (ASPAC).

During the year the laboratory received 5,940 samples (5,9 in 2011, 15,333 in 2010, 29,115 in 2009 and 16,998 in 200 and conducted a total of 24,836 tests (27,186 in 2011, 39,7 in 2010, 45446 in 2009, and 16,998 in 2008). About 75.8% the tests performed were associated with research and de velopment in agriculture and 24.2% for other purposes.

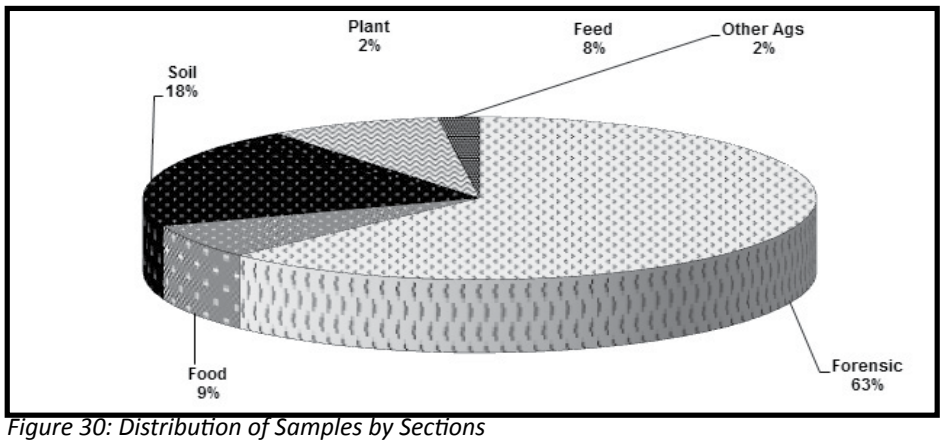


Figure 30: Distribution of Samples by Sections

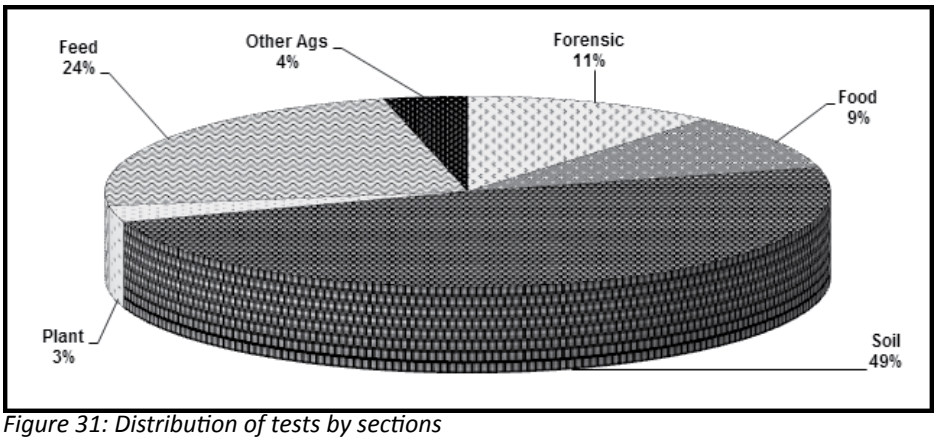


Figure 31: Distribution of tests by sections

FOOD ANALYSIS

This section conducted 2291 tests (2,507 in 2011, 3,154 in 2010, 2,999 in 2009 and 6,075 in 2008) and received a total of 402 samples (518 in 2011, 560 in 2010, 622 in 2009 and 6,075 in 2008).

FORENSIC ANALYSIS

This section received a total of 3,716 samples (12,833 in 2010, 12,133 in 2009, 14,965 in 2008 and 8,832 in 2007). Out of these 3551 were of Cannabis Sativa (Marijuana samples). These were received as either dried leaves (57%) or dry and green plants (43%). The main bulk of the work that is carried out in this section is from the Police Department. Table 10 shows the distribution of samples and tests by type.

The Government Analyst received a total of 34 summons throughout the year but attended 12 court cases due to other work commitments

PRODUCT DEVELOPMENT UNIT

The objective of the unit is to research and develop value adding agricultural products. This year, the Unit is fortunate to receive the voluntary assistance of Sister Ana, an Indonesian lady currently serving at the Nausori Catholic Parish.

Sister Ana developed products from various agricultural commodities in Fiji.

Training was also conducted on the preparations of these f representatives from Agro-Marketing Ltd, Food Processors Ltd and various interested individuals who sought to furthe broaden their knowledge.

Further food product development research and trainings are anticipated in the coming year.

PROJECTS

Improving Soil Health in Support of Sustainable Development in the Pacific

Introduction

Declining soil fertility and biological soil health represent a major threat to sustainable agricultural development in the Pacific. Traditional land management systems on the Pacifi islands were based on a long bush-fallow system, or in the case of atolls, recycling of large amounts of organic materia in pits or heaps. However, smallholders who have intensified crop production to supply growing urban and export markets, have typically failed to replenish soil nutrients an organic matter adequately. They have consequently experi

enced falling yields and increasing problems with soil-borne diseases and nematodes that are symptomatic of declining soil health. FACL plays a very crucial role in providing analytical and advisory services to the core arms of the research projects. The data provided by the laboratory enable the research team to take appropriate actions in executing and concluding the trials and experiments.

. It has three objectives:

- To elucidate crop production and related soil health problems at specific pilot sites and develop physical, chemical and biological indicators underpinning an integrated approach to improving soil management.
- To evaluate best-bet soil improvement practices for sustaining intensive Pacific crop production.
- To increase the understanding of soil health concepts (including physical, chemical and biological processes) among smallholder horticulture producers and their service providers and enhance their capacity to apply these concepts for sustained productivity.

Expected outputs of the project are an enhanced understanding of the role soil biology plays in sustaining productivity, along with strategies and best practices for improving soil health in key cropping systems, and soundly-based indicators appropriate for monitoring the health status of soils by researchers, extension officers and smallholders. A soil health testing and reporting system will also be developed and the capacity of farmer intermediaries to use participatory methods in support of improving soil health will be enhanced.

Community-level impacts of the project will include more sustainable incomes from key commodities (taro, bananas and vegetables) with reduced environmental impacts from agriculture (including reduced clearing of forests due to improved taro yield), more efficient use of agricultural inputs and reduced soil erosion.

Soil sampling and Tests conducted.

Four trial sites were identified, namely Matei, Mua, Vione and Delaivuna. Soil samples from each site were taken for nutrient analysis and physical determination. Organic materials of different nature which have potential source of high value nutrients were also analysed to ascertain its nutrient composition. This activity took place in Mid of March.

Details:

Harvesting of Trials

The trial is due to harvest in March where number of measurements will be taken for data analysis. Another set of s and plant samples will be taken from the trial sites.

Since the duration of the project is for four years, FACL involvement as support service will continue. At the conclusion of the project a research report will be published.

ACCREDITATION PROJECT

Under the Lab Accreditation project, Institute of Applied Sciences came in as consultants. They conducted an initial assessment of the current laboratory operations with recommendations for necessary improvement and implementations. The following documents were setup by IAS in line with the requirements under ISO/IEC 17025.

- Laboratory Quality Manual
- Laboratory Safety Manual
- Standard Operating Procedures (SOP)
  - SOP – Test Methods
  - SOP – Equipment Operation & Calibration

Activities undertaken this year included, strengthening proficiency programs for soil and plants through ASPAC programs, feed and food through Global Proficiency Ltd.

HUMAN RESOURCES, FINANCE, INFORMATION & COMMUNICATION DIVISION

ROLE OF DIVISION

The Corporate Service Division's core role in this Ministry is to facilitate the best and excellent service support. These roles are guided by the Public Service Commission General Orders, Financial Instructions and State Service decree or other relevant approved procedures.

The objective of the Division is captivated by the Public Service Deliverables which has been handed down by Public Service Commission as the common work output factor for all government departments and Ministry's "Corporate Services Division" to follow. It is anticipated that these PSC deliveries will enhance the Corporate Services Division's workflow to be effective and efficient in line with vision and mission of this Ministry.

The Corporate Service Division's responsibility is divided into five (5) sections namely Administration, Finance, Information & Communications, Training and IT Services.

The supportive role of the Information and Communication Section in this Division is critical in enhancing the Ministry's corporate image. The Division will pay special attention to "capacity building" to ensure that priority areas and succession training programs are undertaken, hence building the Human and Intellectual capability of the Ministry.

VISION

Commit to providing Good Governance in Managing Human Resource, Finance and Effective Communication and ICT Services

MISSION

To recruit, develop, motivate and retain personnel of exception ability, character and commitment by providing superior leadership promotion on the basis of merit performance and adherence to Public Service Values and Code of Conduct.

VALUES

Professionalism/ Ethical Practice

Provide best, professional, diligent and ethical advice to the Minister, Permanent Secretary, Clients and Stake holders of Ministry of Primary Industries (MPI).

Honesty & Integrity

Always be accountable for our actions, advice and continue to act with integrity in all our dealings with clients & stakeholders

Teamwork

We believe in working together as a team through the participation and involvement of staff and stakeholders in decision making.

Good Governance

Continue to uphold the principles of good governance, in terms of Rule of Law, Transparency and Commitment/Perseverance

Committed to provide quality and responsive customer services and uphold Public Service Code of conduct and Public Service Values at all times.

PERSONNEL SECTION

Role of the Personnel Section

The role of the Personnel Section is to manage and supervise Leave Section for effective leave administration. To manage Personnel Section for effective and efficient advise for Management's decision and directives. To ensure timely processing of all personnel matters for Established, Temporaries and GWE, Project Staff and Casual Staff.

POST PROCESSING UNIT

The role of the Post Processing Unit is to effec¬tively and efficiently manage post processing mat¬ters and provide accurate information on line posts status, forecasting vacancies, prepare va¬cancy returns to PSC, timely processing of estab-lished and Government Wage Earners vacancies, from initial advertisement stages to promulgations.

The Section was able to advertise 123 Established positions during the years and 154 for Government Wage Earner positions. 93 contracts were issued for Established positions and 128 contracts were issued for Government Wage Earners. A total of 128 post were processed and filled in 2012.

Vacancies Processed

ESTABLISHED STAFF		UNESTABLISHED STAFF	
Vacancies Advertised	149	Vacancies Advertised	154
Papers submitted to Staff Board	135	Positions Filled	128

ETHICS AND DISCIPLINE

Ethics and Discipline manages the process of disciplinary cases. The independence of the Ethics and Discipline Unit is important given its core role of monitoring the standards of ethics and disci¬pline, the upholding of the Public Service Values and compliance with the Public Service Code of Conduct.

A total of thirty (39) cases were registered dur¬ing the year. Twenty six (26) of the cases were cleared and thirteen (13) cases were carried forward to 2013.

Figure 32: PENALITIES OF THE CASES CLEARED

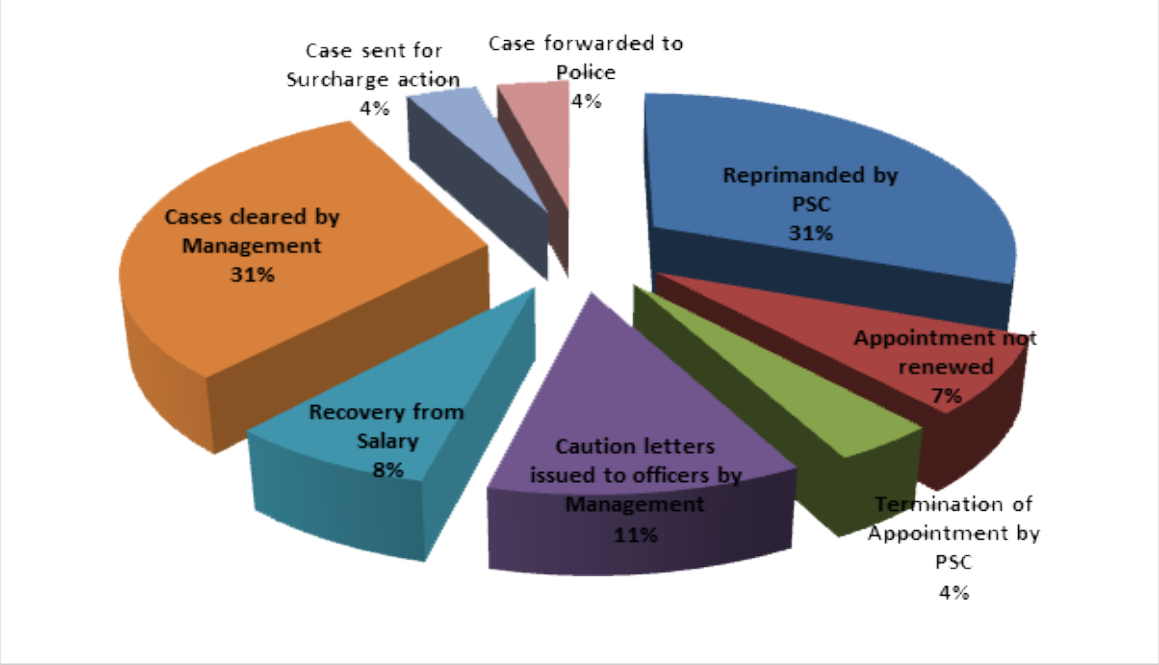
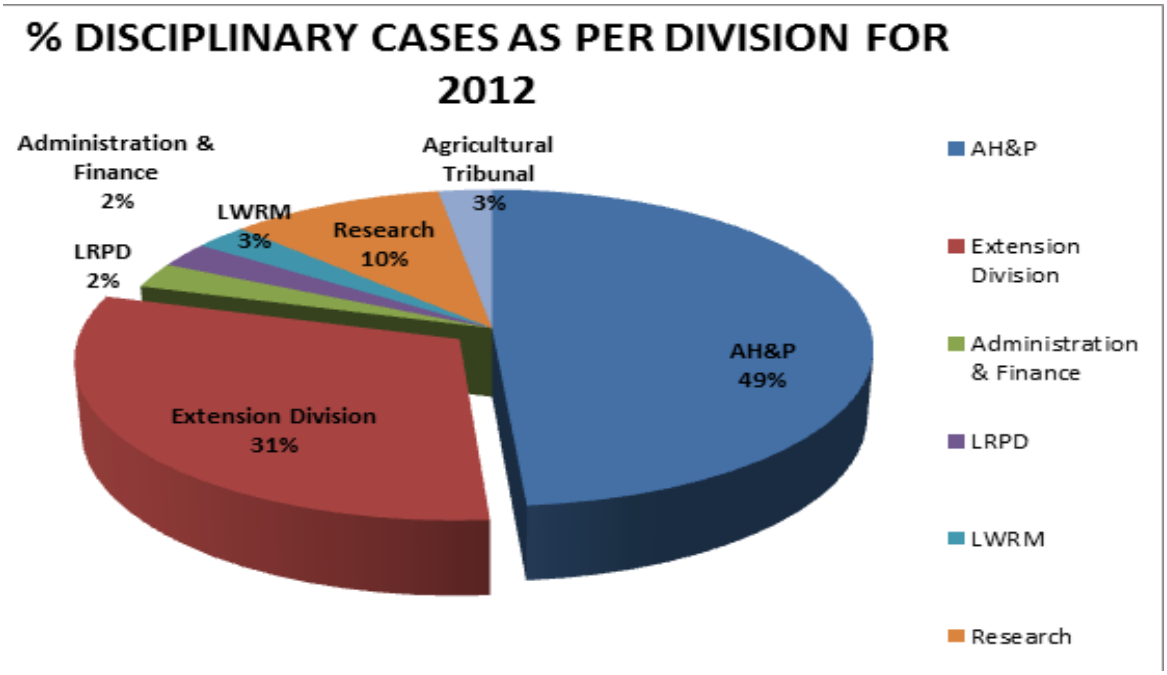


Figure 33: DISCIPLINARY CAS



TRAINNING SECTION

Introduction

The Training Section of the Ministry of Agriculture has again mark another milestone achievement in terms of capacity building and up skilling programs of staffs. 2012 is also the first year of implementation of the Staff and Framer PSIP.

This report highlights the activities undertaken during the period under review.

Overview of the Activities

- Provide Training Policy Directions and Guidelines to DHR
- Administration of all in-service, local, academic and overseas trainings
- Coordinate and Facilitate In-House Training Programs on the approved Training Year Planner
- Updating of Course Reference Materials
- Provide guidance and direction based on TNA
- Manage Physical & Financial Resources
- Provide guidance and direction on Service Excellence Award

Unit Activities and Achievements

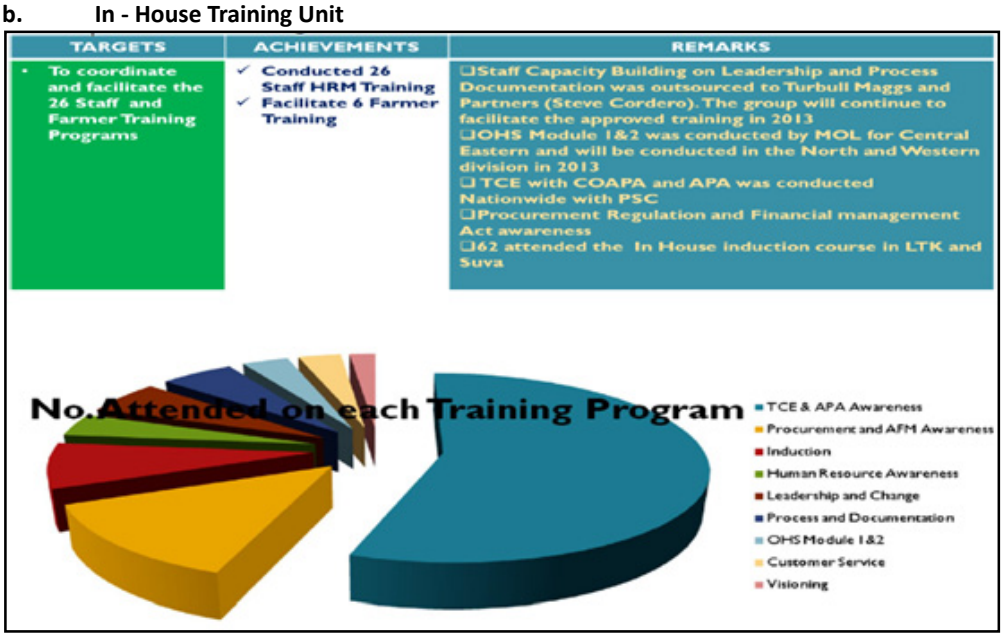
The MOA Training section has 4 operating units that collectively deal with training matters and activities of the targeted outcome.

a. Administration and Policy Direction Unit

SAO T and AO T are directly involved in the formulation of the Training Plan and policy guidelines. The unit is administer and coordinate all training programs and correspondence including monthly updates and reports

b. In - House Training Unit

TARGETS	ACHIEVEMENTS	REMARKS
• To coordinate and facilitate the 26 Staff and Farmer Training Programs	✓ Conducted 26 Staff HRM Training ✓ Facilitate 6 Farmer Training	❑Staff Capacity Building on Leadership and Process Documentation was outsourced to Turbull Maggs and Partners (Steve Cordero). The group will continue to facilitate the approved training in 2013 ❑OHS Module 1&2 was conducted by MOL for Central Eastern and will be conducted in the North and Western division in 2013 ❑ TCE with COAPA and APA was conducted Nationwide with PSC ❑Procurement Regulation and Financial management Act awareness ❑62 attended the In House induction course in LTK and Suva

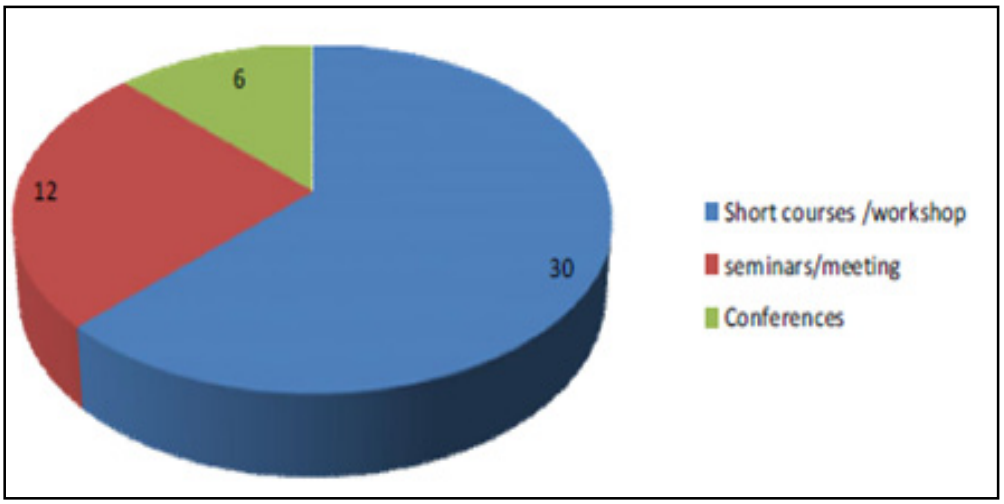


c. Overseas and Academic Training Unit

The key role function for CO overseas training is to:

- Facilitate all the overseas training.
- Facilitate all the academic training
- Update the DOA training database (Local & Overseas)

Figure 34: Overseas Short Courses, Conference and Seminars



It has been noted with great concerned that officers are not submitting overseas training reports. Various reminded that were issued to the concern officers were all in vain.

Pending reports as per Operational Divisions

- AH&P Division 4
- Research Division 14
- Extension Division 14
- EP&S 7
- HR&FI 4
- LWR&M 2

Figure 35: Pending Report

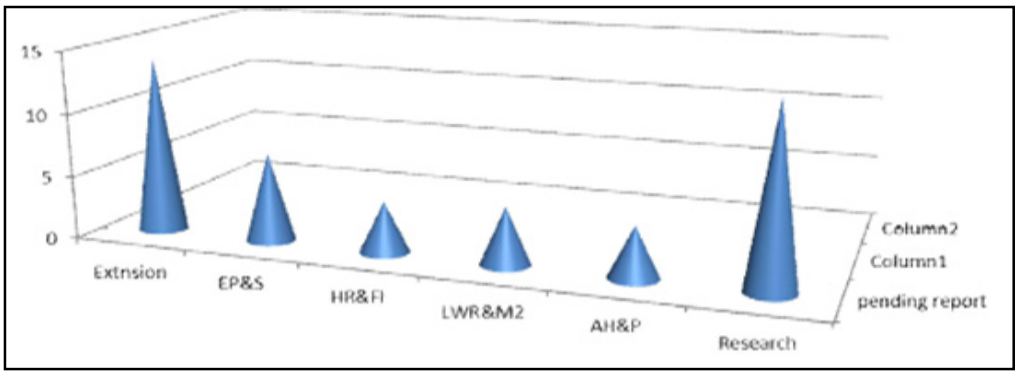
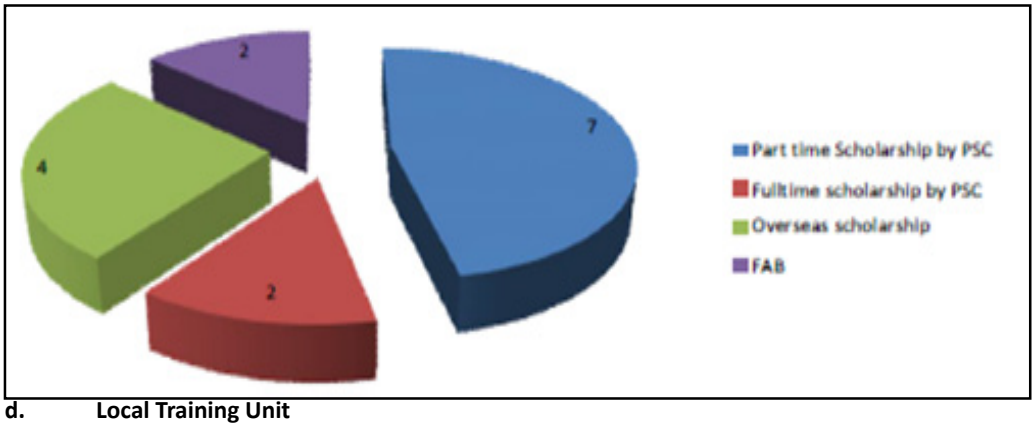


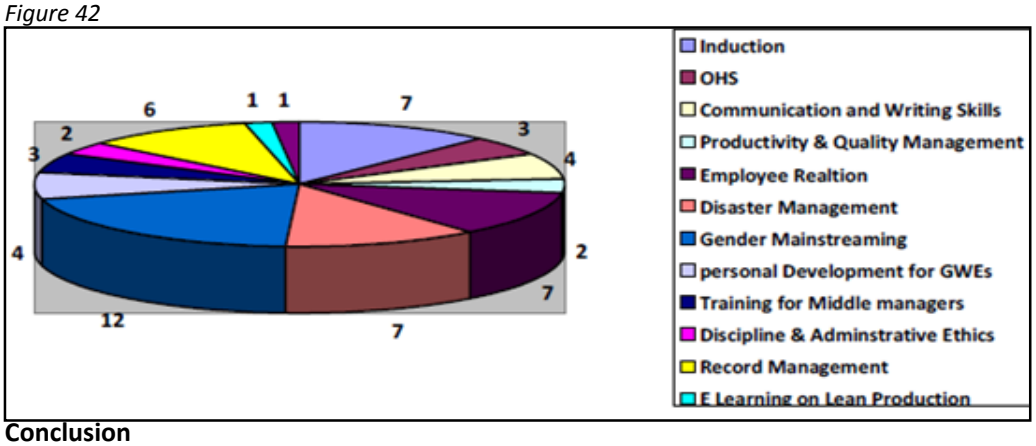
Figure 36: Academic Training – Local Scholarship



d. Local Training Unit

The unit administers and facilitates staff Local Training to FNU (TPAF), CTD and other local training providers. The unit is also in charge of inventory and assets within the Training section

Figure 42



Conclusion

The training section intends to strengthen its proficiency to monitor all training programs conducted in the MOA and capture the whole stats in the business plan provided enough finance is available. Staff and farmer PSIP concentrates mostly on staff capacity building and the lesson learned will be reciprocated in their respective field of activities in terms of farmer education and increasing production.A well-educated farmer contributes extensively on the improvement of food security and contribution to Nation wealth. Training plays the pivotal role and on the current trend; we can only do better if we work together.

INFORMATION AND COMMUNICATION

VISION

A well informed agricultural sector.

MISSION

To foster a productive and well informed agricultural sector through effective dissemination of timely and relevant information to our clients.

CORE ROLES

The core role of the Section are:

i. To provide agricultural information to farmers, staff, Ministry stakeholders and members of the public.

ii. To provide publicity for the Ministry activities and services using the mass media (Newspaper, Radio, TV, Internet, etc.)

iii. To improve Ministry image by responding quickly to negative media publicity and complaints or queries about Ministry activities and services.

OVERVIEW

The Information and Communication Section had a satisfactory achievement during the year 2012. The section was provided with the total budget of $265,764.00 for the year and managed to provide $560,946.13 of total publicity to the Department of Agriculture. The publicity value decrease by 26% from the $759,881.41 worth of publicity provided in 2011.

The decrease was mainly due to the drop in the target of press releases as there is less staff in the section compared to previous years.

HIGHLIGHTS

There was a decrease of 26 % (from $759,881.41 to $560,946.13) in the value of publicity of the Department of Agriculture in the mass media (Newspaper, TV and Radio) in 2012 compared to 2011.

Newspaper publicity value deceased from $318,931.41 in 2011 to $243,746.13 in 2012 – a decrease of 23%. This drop in publicity was mainly due to the drop in the target of press releases as there are less staff in the Section compared to previous years. Radio and TV publicity value also decrease by 28% from $442,700.00 in 2011 to $317,200 in 2012.

This value did not include the weekly (Hindi – 5 & I-Taukei – 5) Agricultural Radio programmes that were aired with Government sponsorship through the Fiji Broadcasting Corporation's radio Stations. It also did not include the talk back show on FBC television and Radio, and hits on Internet publicity through the Ministry's website.

SECTION ACHIEVEMENTS 2012

PRESS & PUBLICATION UNIT

Overview

The Press and Publication Unit is regarded as the flagship of the Information & Communication Section public relations efforts especially in urban and peri-urban areas. This is where most of the policy and decision makers of government live and are often influenced by what they read in newspapers.

The main function of the unit is to gather information from stakeholders, farmers and officers of the Ministry and package that information as a media release, farmers leaflet, technical bulletin, market watch, poster etc before disseminating the information to members of the public through media.

The total amount of newspaper publicity for the year was $243,746.13 – a decrease of 23% compared to $318,931.41 in 2011.

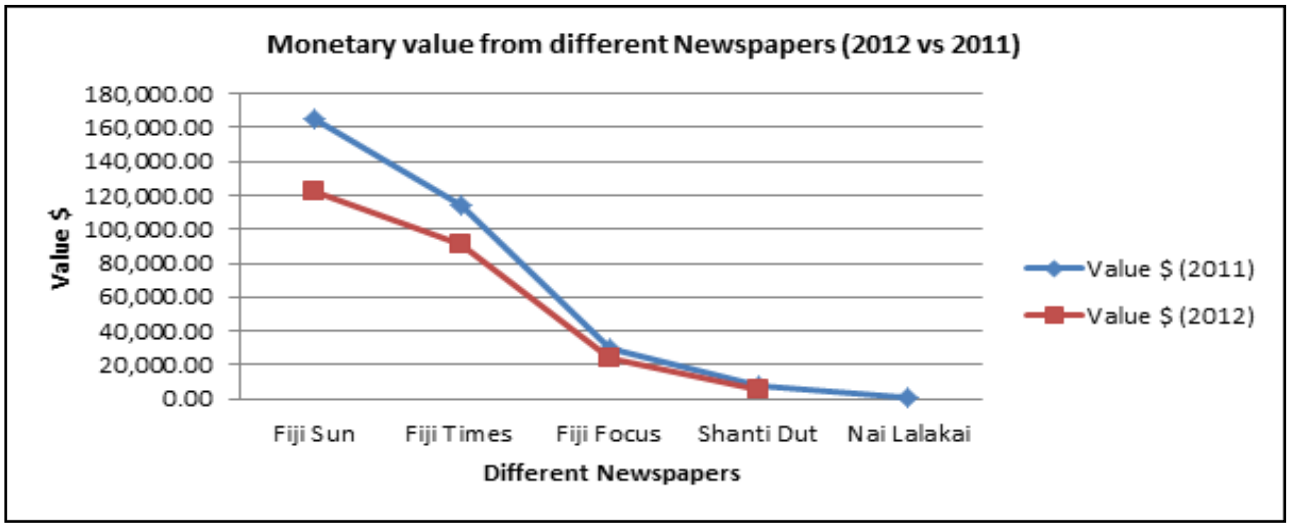
This drop in publicity was mainly due to drop in the target of press releases as there are less staff in the Section compared to previous years.

As for the publications, the production of publications for Crest Agriculture Show, Invitation cards for major events and the Farmers Leaflet, Technical Bulletin and Market Watch was a highlight of publication unit together with producing the newsletter partly in colour.

Media Releases

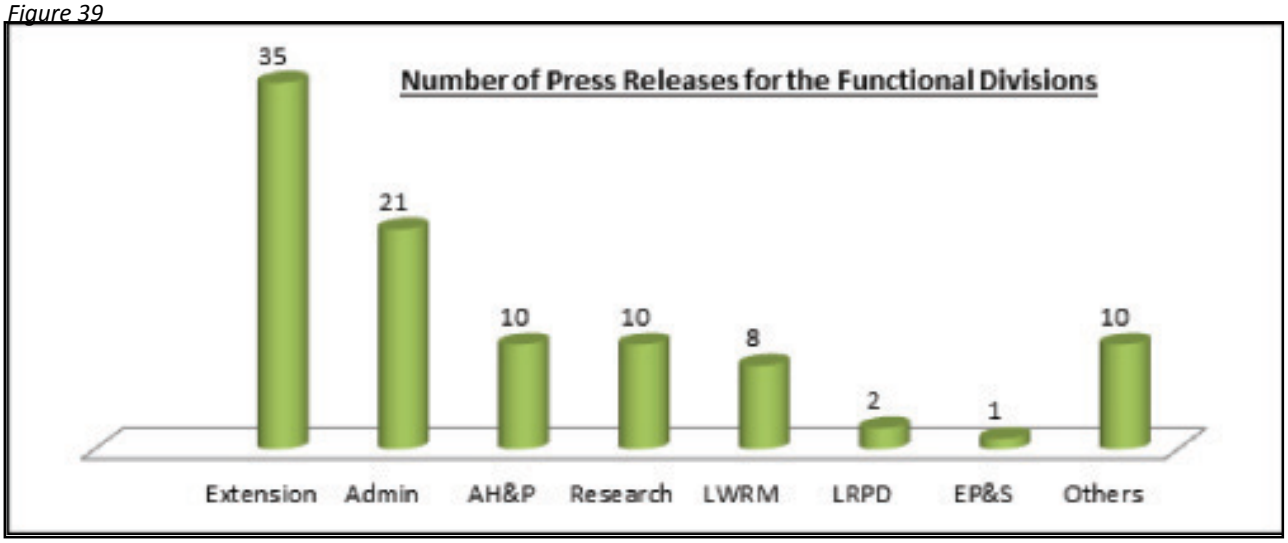
A total of 215 stories including English Press feature, Press release, Market Watch stories, Media responses and the vernacular translations were produced this year compared to 246 stories in 2011 which was a drop by 12.6%. The drop in the number of stories was due to reduction in the target of press releases due to the shortage of staff in the Section.

Figure 38



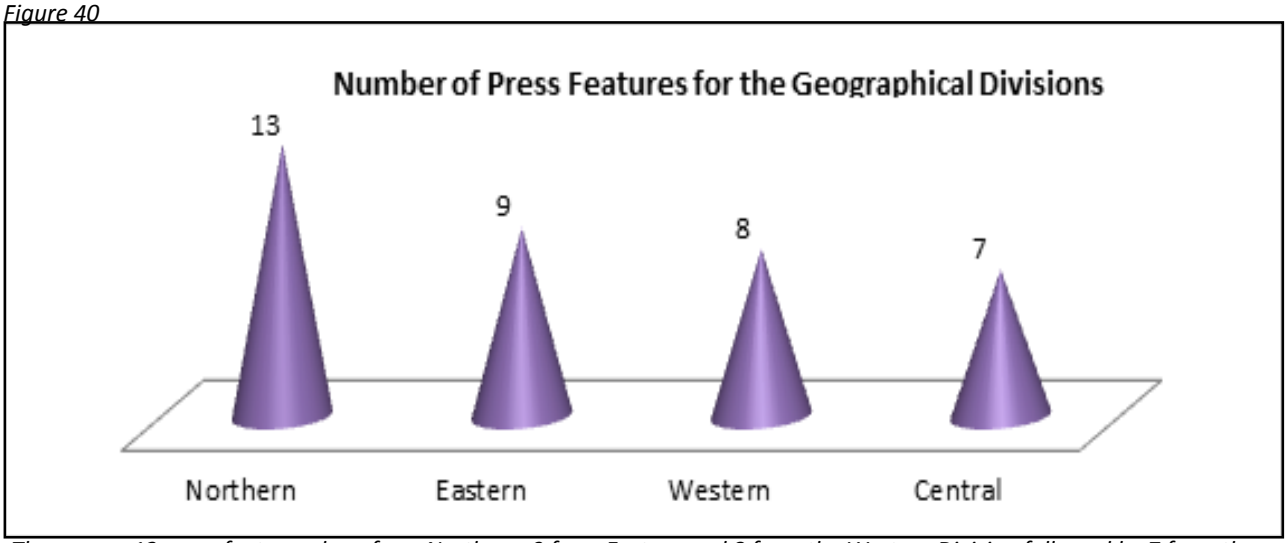
In 2012, Fiji Sun again provided the highest publicity to the Agriculture Department than any other newspaper. However, the publicity value decreased to $121,864.03 in 2012 compared to 165,659.17 in 2011. The decrease in publicity was due to low publicity of information articles. Fiji Times was on second spot and provided $90,849.72 worth of publicity in 2012 which was a drop of $23,582.28 compared to 114,432.00 in 2011 which. The Fiji Focus which is a publication released by the Ministry of Information from this year and is published every fortnight on a Sunday and inserted in Fiji Sun is in the third place and provided $23,422.88 worth of publicity to the agriculture sector in 2012 followed by Shanti Dut a Hindi paper which is part of Fiji Times.

Figure 39



Extension Division has accounted for most press releases as mostly the releases are based on crops and extension farming activities and the DDA projects. This is followed by Administration due to a number of tours and staff related comments made by the Minister and Permanent Secretary. AH&P and Research Division's are placed in the third place followed by others in the which includes releases from Fisheries and Forestry department and 2012 Crest Agriculture Show. Coverage on the LWRM is fifth followed by LRPD and EP&S.

Figure 40



There were 13 press features done from Northern, 9 from Eastern and 8 from the Western Division followed by 7 from the Central Division.

Gender and Ethnic Coverage by Press Features

More coverage was given to Indigenous Fijian farmers than Indo Fijian farmers. As expected, more coverage was given to men involved in agriculture than women. But with better collaboration with the Extension & AH&P Divisions, more focus can be given to activities with involvement of women in agriculture.

PUBLICATION UNIT

The major highlight of the Unit was the achievement of all the targeted activities for the year. The Unit produces publications such as:

- News today
- Newsletter
- Technical Bulletin

- Farmers Leaflets
- Market watch

In 2012 most of the targets of Publication Unit were met though there was short of staff. The unit had only one staff as one position is still vacant. This year Publication Unit designed and finalised the Pulses booklet. One of the major achievement was that the unit successful completion of Crest Agriculture Show publications.

Table 47: Publications produced during 2012 & 2011 against Target

Publication	2012 Target	2012 Achievement	2011 Target	2011 Achievement
News Today	252	211	249	237
Market watch	6	4	6	6
Farmers Leaflet	4	4	4	16 new
7 updated				
Technical Bulletin	6	6	6	4
Newsletter	6	6	6	6
Fiji Farmer	-	-	4	4
Research Release	-	-	-	1

All the publications were uploaded to the Ministry's Website (www.agriculture.org.fj) which has become a new tool for the dissemination of agriculture information.

OTHER PUBLICATIONS

Overview

Publications such as certificates, Business cards, programs, invitation cards, posters, scanning (for emailing) are mostly requested by other Divisions when there is a training or workshop locally and overseas.

Requests on publication have been coming for Farmers Leaflets and Annual Report. List of other Publication are on Appendix 1.

RADIO UNIT

Overview

The unit started the year very well in its effort to inform and educate farmers and other stakeholders of the agriculture sector. It has surpassed the publicity value for the Press Unit. Total publicity value for the year was $317,200.00 compared to $243,746.13 for the newspaper publicity. It was also a year in which the Radio Unit worked very closely with Fiji Television and Fiji Broadcasting Corporation in terms of supplying them with news releases.

A total of 36 TV news items were given to Fiji TV and FBC against a target of 12, and 16 Talk back show attended against a target of 4.

During the year, 96% of our programmes were aired representing a shortfall of 4% over the target. The shortfall has been mainly due to unavailability of presenter to produce the programme when they on sick leave and also during the soccer commentary on Radio Fiji Two the Hindi programme is not aired. These exclude the 19 direct interviews recorded by FBC with our Officers against a target of 4.

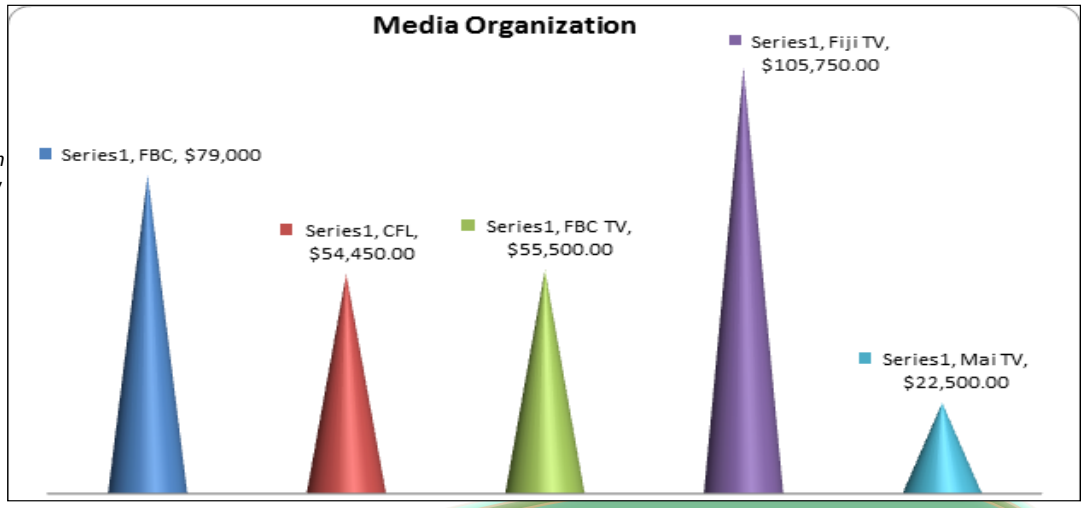
Activities and Achievements:

During the year, 482 radio programmes were aired against a target of 500 representing a shortfall of 18 programmes or 4%. This shortfall was mainly due to the unavailability of presenter to produce the programme when they on sick leave and also during the soccer commentary on Radio Fiji Two the Hindi programme is not aired.

Issues covered

A total of 1,159 issues were covered during the year against a target of 750, representing an increase of 20 percent. The increase was mainly due to the use of telephone recording to interview staff from the field and the support of Heads of Divisions.

Fiji Television has the highest value and it was a huge achievement for the unit in terms of media coverage. This value in Radio and TV publicity did not include the Radio and TV Talk Back Show organised by the department of agriculture.



ACCOUNTS SECTION

The Accounts Section's primary role is to be responsible for the stringent financial management measures that will be implemented to ensure Transparency and Accountability in financial transactions. This is to be in line with relevant rules and regulations (Agency Financial Manual, Finance Instructions, 2010, Financial Management Act 2004 and Procurement Regulation 2010).

The section is also responsible for managing the Ministry's Accounting System and the delivery of its outputs which includes forecasting, actual financial statement, annual reports establishing and monitoring government financial policies so that they are consistent with general accepted accounting practice. The Section is also responsible for the control and payment all expenditure and collection of Revenue.

The section is currently managed by a Principal Accountant , Senior Accountant (Operations), Senior Accountant (LWRM), Accounts Officer, three Assistant Accountants, nine Clerical Officer, one Temporary Clerical Officer, and three Government Wages Earners.

Management of Finance

Accounts Section has been focusing on effective cash management and internal controls as a way of proper utilisation of budgeted funds. Some areas, however, need improvement and streamlining to ensure efficiency and effectiveness.

SEG	Item	Budget Estimate $	Appropriation Changes (Note 4) $	Revised Estimate $	Actual Expenditure $	Carry Lapsed $	Over Appropriation $
1	*Established Staff*	*11,525,706*	*-*	*11,525,706*	*10,442,106*	*-*	*1,083.60*
2	*Government Wage Earners*	*5,073,021*	*-*	*5,073,021*	*4,642,540*	*-*	*430,481*
3	*Travel & Communication*	*665,385*	*-*	*665,385*	*603,569*	*-*	*61,816*
4	*Maintenance & Operations*	*1,887,584*	*-*	*1,887,584*	*1,645,243*	*-*	*242,341*
5	*Purchase of Goods & Services*	*666,800*	*-*	*666,800*	*604,173*	*-*	*62,627*
6	*Operating Grants & Transfers*	*2,651,537*	*(532,746)*	*2,118,791*	*2,108,385*	*-*	*10,406*
7	*Special Expenditure*	*1,350,009*	*(87,044)*	*1,262,965*	*791,325*	*-*	*471,640*
Total Operating Costs		*23,820,042*	*(619,790)*	*23,200,252*	*20,837,341*	*-*	*2,362,911*
	Capital Expenditure						
8	*Construction*	*19,008,424*	*(2,583,157)*	*16,425,267*	*15,303,347*	*-*	*11,219,201*
9	*Purchases*	*780,000*	*60,358*	*840,358*	*712,203*	*-*	*128,155*
10	*Grants & Transfers*	*7,914,000*	*(1,753,929)*	*6,160,071*	*6,137,172*	*-*	*22,899*
Total Capital Expenditure		*27,702,424*	*(4,276,728)*	*23,425,696*	*22,152,722*	*-*	*1,272,974*
13	*Value Added Tax*	*3,599,104*	*(388,476)*	*3,210,628*	*2,771,169*	*-*	*439,459*
TOTAL EXPENDITURE		*55,121,570*	*(5,284,994)*	*49,836,576*	*45,761,232*	*-*	*4,075,344*

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Website: http://www.oag.gov.fj
Excellence in Public Sector Auditing

MINISTRY OF AGRICULTURE
FNANACIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 2012

INDEPENDENT AUDIT REPORT

Scope

I have audited the special purpose financial statements which have been prepared under the cash basis of accounting and notes thereon of the Ministry of Agriculture for the year ended 31 December 2012, as set out on pages 7 to 17. The financial statements comprise the following:

(i) Statement of Receipts and Expenditure;
(ii) Appropriation Statement;
(iii) Consolidated TMA – Manufacturing Account;
(iv) Consolidated TMA – Trading Account;
(v) Consolidated TMA – Profit and Loss Statement;
(vi) Consolidated TMA – Balance Sheet; and
(vii) Trust Account Statement of Receipts and Payments

The Ministry of Agriculture is responsible for the preparation and presentation of the special purpose financial statements and the information contained therein.

My responsibility is to express an opinion on these special purpose financial statements based on my audit.

My audit was conducted in accordance with the Fiji Standards on Auditing to provide reasonable assurance as to whether the special purpose financial statements are free of material misstatements. My audit procedures included examination, on a test basis, of evidence supporting the amounts and other disclosures in the special purpose financial statements and evaluation of accounting policies. These procedures have been undertaken to form an opinion as to whether, in all material respects, the special purpose financial statements are fairly stated and in accordance with government policies in Note 2 and the Audit Act and the Financial Management Act 2004, so as to present a view which is consistent with my understanding of the financial performance of the Ministry of Agriculture for the year ended 31 December 2012.

The audit opinion expressed in this report has been formed on the above basis.

Qualifications

1. Included in the Trading and Manufacturing Account (TMA) Balance Sheet is TMA Surplus Capital Retained of $2,265,197 and TMA Accumulated Surplus of $769,284. I was not able to verify the amounts as the Ministry was not able to provide appropriate audit evidence to

support the balances. As a result, I was not able to ascertain the accuracy and completeness of the Trading and Manufacturing Account as at 31 December 2012.

2. There is an un-reconciled difference amounting to $53,899 between the General Ledger (FMIS) and TMA bank reconciliation for Cash at Bank. Accordingly, I have been unable to ascertain the accuracy and completeness of the TMA Cash at bank of $365,088 as shown in the TMA Balance Sheet as at 31 December 2012.

3. Included in the TMA Profit and Loss Statement is Special Fees and Charges and Miscellaneous revenue of $100,687 and $53,563 respectively. I was unable to verify the amounts as the Ministry did not provide appropriate audit evidences to support the balances. Accordingly, I am unable to ascertain the accuracy and completeness of the total income for the year ended 31 December 2012.

4. Included in the TMA Trading Account is Closing Stock of Finished Goods of $1,128,750. I do not express an opinion on the accuracy and completeness of Closing Stock of Finished Goods as the Ministry did not carry out an independent stock take for the year ended 31 December 2012.

5. I was not able to substantiate receipts and payments of $134,190 and $66,487 respectively as shown in the Trust Account Statement of Receipts and Payments as the Ministry was not able to provide appropriate audit evidence to support the amounts. As a result, I do not express an opinion on the accuracy and completeness of the balances shown in the Trust Account Statement of Receipts and Payments for the year ended 31 December 2012.

6. The Ministry did not submit a Statement of Losses contrary to Finance Instructions 2010 Section 71(1) (e). In the absence of the updated Fixed Assets Register and Board of Survey report, the losses, if any, that occurred during the year could not be substantiated.

Audit Opinion

In my opinion:

(a) Except for the matters referred to in the qualification paragraphs, the financial statements present fairly, in accordance with the accounting policies stated in Note 2, the financial performance of the Ministry of Agriculture for the year ended 31 December 2012.

(b) the financial statements give the information required by the Financial Management Act 2004 in the manner so required.

I have obtained all the information and explanations which, to the best of my knowledge and belief, were necessary for the purpose of our audit.

AUDITOR-GENERAL FIJI

Tevita Bolanavanua
AUDITOR GENERAL

24 May 2012
Suva, Fiji

MINISTRY OF AGRICULTURE

MANAGEMENT CERTIFICATE
FOR THE YEAR ENDED 31 DECEMBER 2012

We certify that these financial statements:

(a) fairly reflect the financial operations and performance of the Ministry of Agriculture and its financial position for the year ended 31 December 2012; and

(b) have been prepared in accordance with the requirements of the Financial Management Act 2004 and the Finance Instructions 2010.

Ropate Ligairi
Permanent Secretary

Date: 24/5/13.

Idrish Khan
Principal Accounts Officer

Date: 24/05/2013

MINISTRY OF AGRICULTURE

STATEMENT OF RECEIPTS AND EXPENDITURE (continued)
FOR THE YEAR ENDED 31 DECEMBER 2012

	Notes	2012 $	2011 $
EXPENDITURE			
Established Staff	3(b)	10,442,106	8,607,849
Government Wage Earners		4,642,540	5,247,554
Travel & Communication		603,569	576,794
Maintenance & Operations		1,645,243	1,646,266
Purchase of Goods & Services		604,173	489,382
Operating Grants & Transfers		2,108,385	3,146,294
Special Expenditure		791,325	795,779
Total Operating Expenditure		20,837,341	20,509,918
Capital construction	3(c)	15,303,347	10,705,714
Capital purchases	3(d)	712,203	600,405
Capital grants and transfers	3(e)	6,137,172	8,369,543
Total Capital Expenditure		22,152,722	19,675,662
Value Added Tax		2,771,169	2,201,394
TOTAL EXPENDITURE		45,761,232	42,386,974

MINISTRY OF AGRICULTURE

STATEMENT OF RECEIPTS AND EXPENDITURE
FOR THE YEAR ENDED 31 DECEMBER 2012

	Notes	2012 $	2011 $
RECEIPTS			
Agricultural produce & inspection fees		37,254	14,877
License		60,941	18,184
Meat inspection		21,928	19,876
Veterinary and animal quarantine		13,061	12,359
Sale of sheep & wool		15,233	39,942
Agriculture commercial undertaking		-	522
Rest house		6,446	4,394
Hire of plant and vehicle		4	22,664
Rental for quarters		36,165	38,350
Rental for building		2,311	1,422
Registration		2,096	2,416
Commission		7,006	7,503
Sale of farm product		32,203	36,996
Sale of surplus farm produce		4,628	5,380
Miscellaneous revenue		118,929	86,796
Overpayment recoveries		387,574	115,885
Agricultural landlord and tenant		2,851	3,567
Water charges		8,356	3,624
Rural electrification		2,055	1,402
Total Receipts	3 (a)	759,041	436,159

MINISTRY OF AGRICULTURE

APPROPRIATION STATEMENT
FOR THE YEAR ENDED 31 DECEMBER 2012

SEG	Item	Budget Estimate	Appropriation Changes (Note 4)	Revised Estimate	Actual Expenditure	Carry Over	Lapsed Appropriation
		$	$	$	$	$	$
1	Established Staff	11,525,706	-	11,525,706	10,442,106	-	1,083,600
2	Government Wage Earners	5,073,021	-	5,073,021	4,642,540	-	430,481
3	Travel & Communication	665,385	-	665,385	603,569	-	61,816
4	Maintenance & Operations	1,887,584	-	1,887,584	1,645,243	-	242,341
5	Purchase of Goods & Services	666,800	-	666,800	604,173	-	62,627
6	Operating Grants & Transfers	2,651,537	(532,746)	2,118,791	2,108,385	-	10,406
7	Special Expenditure	1,350,009	(87,044)	1,262,965	791,325	-	471,640
	Total Operating Costs	**23,820,042**	**(619,790)**	**23,200,252**	**20,837,341**	-	**2,362,911**
	Capital Expenditure					-	
8	Construction	19,008,424	(2,583,157)	16,425,267	15,303,347	-	1,121,920
9	Purchases	780,000	60,358	840,358	712,203	-	128,155
10	Grants & Transfers	7,914,000	(1,753,929)	6,160,071	6,137,172	-	22,899
	Total Capital Expenditure	**27,702,424**	**(4,276,728)**	**23,425,696**	**22,152,722**	-	**1,272,974**
13	Value Added Tax	3,599,104	(388,476)	3,210,628	2,771,169	-	439,459
	TOTAL EXPENDITURE	**55,121,570**	**(5,284,994)**	**49,836,576**	**45,761,232**	-	**4,075,344**

MINISTRY OF AGRICULTURE

CONSOLIDATED TMA – MANUFACTURING ACCOUNT
FOR THE YEAR ENDED 31 DECEMBER 2012

	2012 $	2011 $
Opening Raw Material	-	-
Add: Purchases	1,089,728	1,341,393
	1,089,728	1,341,393
Less: Closing Raw Material	-	-
Raw Material Used	1,089,728	1,341,393
Add: Direct labour	11,022	71,038
Cost of Manufacturing Goods transferred to Trading Account	1,100,750	1,412,431

MINISTRY OF AGRICULTURE

CONSOLIDATED TMA - TRADING ACCOUNT
FOR THE YEAR ENDED 31 DECEMBER 2012

	Note	2012 $	2011 $
Sales	3(f)	1,406,042	1,028,127
Opening stock of finished goods		988,079	624,036
Add: Cost of manufactured goods		1,100,750	1,412,431
		2,088,829	2,036,467
Less: Closing stock of finished goods		1,128,750	988,079
Cost of finished goods sold		960,079	1,048,388
Gross profit/ (loss)		445,963	(20,261)

MINISTRY OF AGRICULTURE

CONSOLIDATED TMA - PROFIT AND LOSS STATEMENT
FOR THE YEAR ENDED 31 DECEMBER 2012

		2012 $	2011 $
INCOME			
Gross profit/(loss) transferred from trading account		445,963	(20,261)
Total income		**445,963**	**(20,261)**
EXPENSES			
Travelling & communication expenses		17,447	9,208
Maintenance & operation		207,167	214,510
Other expenses		109,244	41,629
VAT		-	301,540
Total expenses	3(g)	**333,858**	**566,887**
Net profit/ (loss)		**112,105**	**(587,148)**

MINISTRY OF AGRICULTURE

CONSOLIDATED TMA – BALANCE SHEET
AS AT 31 DECEMBER 2012

	2012 $	2011 $
Current Assets		
Cash	365,088	216,488
Accounts receivable	2,075	2,075
Finished goods	1,128,750	988,079
	1,495,913	1,206,642
Current liability		
VAT payable	-	249,997
	-	249,997
NET ASSETS	1,495,913	956,645
Equity		
Opening balance	2,265,197	2,560,271
Net Loss	(769,284)	(587,148)
Add posting error by Ministry of finance	-	388
	1,495,913	1,973,511
TMA surplus capital retained to CFA	-	1,016,866
TOTAL EQUITY	1,495,913	956,645

MINISTRY OF AGRICULTURE
LAND WATER RESOURCE MANAGEMENT AND LAND RESETTLEMENT PLANNING AND DEVELOPMENT

TRUST ACCOUNT STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE YEAR ENDED 31 DECEMBER 2012

	2012 $	2011 $
RECEIPTS		
Retention money	134,190	767,675
Total receipts	**134,190**	**767,675**
PAYMENTS		
Retention money	66,487	746,635
Total payments	**66,487**	**746,635**
Surplus	**67,703**	**21,040**
Opening balance as at 1 January	262,240	241,200
Closing balance as at 31 December	**329,943**	**262,240**