



Guyana Rice Development Board (GRDB) Annual Report 2011



Guyana Rice Development Board



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Vision Statement

An integrated, sustainable, and profitable industry producing and marketing rice for the benefit of all Guyanese”.

Mission Statement

To efficiently utilize the resources of Guyana to produce and market high quality rice and rice by-products as a staple food for local and international markets, while providing employment and foreign exchange earnings.”



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The Functions of the Guyana Rice Development Board

Introduction

The Guyana Rice Development Board was established by Act Number 15 of 1994 and, as provided for under Section 3 (iii), the management, powers and functions of the Board are overseen by a General Manager, a Chairman, and Board-of-Directors.

By virtue of Section 4 of the Act, the Board-of-Directors shall comprise of no more than thirteen members, with three members representing the Guyana Rice Producers Association (RPA), two members representing Guyana Rice Millers and Exporters Development Association (GRMEDA), and one member representing consumers.

Organizational Structure

The Structure is as follows:

1. Administration
2. Finance
3. Export & Trade Facilitation
4. Quality Control
5. Research
6. Extension
7. Internal Audit

Administration

This department, which is staffed by a General Manager, Deputy General Manager, one (1) Occupational Health and Safety Officer, one (1) Administrative Coordinator, three (3) Confidential Secretaries, two (2) Drivers, one (1) Office Assistant, and two (2) Office Attendants. The Department is responsible for the day-to-day activities of the Board, the hiring of new staff members, conducting training, dealing with any legal matters, staff welfare and issuing of export and producer licences.

Finance

This department is staffed with an Accountant, two (2) Assistant Accountants, one (1) Senior and two (2) Junior Accounts Clerks, one (1) Cashier, one (1) Typist/Clerk, one (1) Data Entry Clerk, and one (1) Clerk. This Department is responsible for payment of paddy and/or rice grading, among other related duties.

Export and Trade Facilitation

Headed by a Marketing Assistant, staffed by one (1) Marketing Clerk, one (1) Customs Clerk, one (1) Confidential Secretary, and one (1) Typist/Clerk, this department is solely responsible for the preparation of all relevant documentation for exporting of rice and paddy from Guyana.



Quality Control

This department is responsible for ensuring that the quality of rice produced and/or sold by rice millers and exporters meet the requisite specification. This Department is headed by a Manager, who is supported by Coordinators in all the rice-growing regions. These officers work to make sure that the rice leaving Guyana is of the prescribed and required quality as per international standards.

Research

This component of the Guyana Rice Development Board activity forms an integral part of its operations.

The unit is based at the Rice Research Station at Burma, where new varieties and strains are developed, so that farmers can have access to plants that are more conducive to providing a better quality and higher volume of grain. Research at the Station is done in Plant Breeding, Entomology, Agronomy and Plant Pathology. The research section of the Rice Research Station is headed by a Chief Scientist, who oversees the operations of the Department. He is ably supported by Research Scientists, Research Assistants, Research Technicians and Labourers.

Extension

This department is responsible for the transfer of technology from the Research Station to the farmer. Extension Officers, based in all regions, regularly meet with farmers and serve as an advisory body to assist the farmers in the acquisition of inputs, the retooling with new technology available, and/or information dissemination of pertinent data that could lead to improved and more productive husbandry practices. Where demonstrations are needed the Extension Officers provide this service, thus also acting as educators/facilitators/enablers to the farmers.

Internal Audit

This department is comprised of an Internal Auditor and an Audit Clerk who audits the procedures of the Organization to ensure standards are maintained.

All the departments of the Guyana Rice Development Board work together in an adjunctive and collaborative endeavour, and so complement each other in order to achieve the Mission and the Vision of the Organization.



Chairman's Statement



2011 was a year of further progress for the rice industry in Guyana, which recorded its highest ever production of 402,450mt of rice and highest level of export revenue of US\$173,239,722.

Rice continues to remain one of the main pillars of Guyana's economy and to maintain its rating as the second most important agricultural industry in Guyana. Increased rice production was as a result of support from the stakeholders in the industry, with the Government being the main sustainer as the administration continues to provide significant intervention in the areas of drainage and irrigation, where facilities have been considerably improved, with ongoing works being undertaken in a continuum of efforts to mitigate the effects of the climate change phenomenon and other anomalies detrimentally affecting the agricultural sector.

Additionally, to further enhance rice production, the transfer of advanced technology achieved as a result of intense scientific research played a major role in realizing high production levels by farmers. New and improved farming practices, which include weed and water management, plant nutrition and other best agronomic practices, also was responsible for increased yield per acre.

More importantly, there is a renewed commitment from farmers across the country, who are encouraged to intensify their efforts in rice farming as a direct result of the favourable conditions for production facilitated by the Government. In addition to massive investments in drainage and irrigation, the Government was instrumental in the creation of an enabling environment that allows for competitive prices being paid to farmers for their produce, as well as facilitating timely payment to farmers.

Two new varieties were released in 2011. The two varieties, GRDB 11 and GRDB 12, will add to the pool of the other high-yielding varieties - GRDB 9 and GRDB 10, which were released in 2010. The GRDB 9 and GRDB 10 varieties are blast resistant and have gained widespread acceptance by farmers, occupying 30% of the total cultivation in Guyana. These modern high-yielding varieties have contributed immensely to raising the yield ceiling and enhancing productivity in the face of a changing and ever-evolving environment in the rice industry.

Over the past five years GRDB has restructured, improved and optimized its research efforts to better able serve farmers and other stakeholders in the rice industry. At the Research Station a reconfigured research programme has been developed in the context of the changing environment in which rice has to be grown in order to sustain viability in the industry. Increased investments in building the human resource capacity have resulted in GRDB now having specialists in all major disciplines of rice research. The agency is, for the first time, equipped to undertake advanced scientific research projects that will enhance productivity and sustainability and result in the increased viability of rice production in Guyana, in sync with international research programmes.

In 2011, the agency also acquired the certification of GRDB Central Laboratory with the GYS170:2009, which is the General Requirement for the operation of a laboratory. With consumer confidence crucial to maintaining the standards demanded and the ever increasing requirements for products of the highest quality as well as sustaining an increasing marketshare, it became necessary for the laboratory to be better



equipped to lend support to the rice industry. In 2012 GRDB is targeting the accreditation to the ISO/IEC117025 standard.

Guyana benefitted from acceptable rice prices from its traditional market in Europe, the Caribbean and Venezuela. On the international scene global prices for rice remain fairly high for most of 2011. This was due to consistent increases from 2010 continuing into 2011. The incremental rise in price for Guyana's rice has been attributed to erratic weather conditions in some of the rice exporting countries, with an increasing world population factored in to the equation. However, in the last quarter of 2011 global rice prices slumped after India lifted a three-year ban on exports of non-Basmati grain, allowing for increased stocks in the global market. In 2011 a significant shift in export destination for Guyana's rice was experienced, as for the first time ever over 50% of exports went to the Bolivar Republic of Venezuela. The favourable conditions agreed upon between the two neighbouring countries have contributed to the dramatic shift in rice and paddy export. The Guyana Government, along with the GRDB and in collaboration with the RPA, will continue to monitor international rice prices and pursue sustainable markets that will enable farmers to receive the optimum prices for their produce. However, rice trade is expected to decline somewhat in 2012 as a result in weakening demand by rice importing countries that are comfortably acquiring sufficient domestic supplies.

While the rice industry recorded a number of successes, many challenges lay ahead. Over the past decade large investments have been injected to rehabilitate and build new drainage and irrigation structures and open clear water ways, which are critical for successful cultivation. Water Management continues to demand and receive significant attention, especially in the context of climate change. With increased investments in the sector and consistent planning and operation of Water Management systems, irrigation and drainage can be sustained to enhance rice productivity.

As aforementioned, the continuous transformation and multi-dimensional successes achieved to date are by no means the fructification of efforts of any single player in the industry. A collective effort from all the industry stakeholders, including farmers and millers, the agencies under the MoA, as well as those who made interventions internationally have all contributed to the achievement of the many successes in the industry, and we thank everyone for their commendable support and look forward to strengthening our relationship as together we continue to propel the rice industry to new heights.

On behalf of the Board of Directors, I will also like to commend the Management and staff of the GRDB for their unflinching determination and focus that has catalyzed the dynamic transformation of the rice industry.

Nigel Dharamlall
Chairman



General Manager's Statement



The rice industry continues to make a significant contribution to the economy of Guyana. This is the third year in succession we have recorded a positive growth in this sector and it has again surpassed sugar as the most productive agriculture industry in Guyana. This significant achievement, which has great implications for Guyana's economy, was not one that came without the resilience of the stakeholders, especially our farmers and millers, who continue to invest both time and money during this period when major global economies are retracting.

The success story of the rice industry is a perfect example of a partnership of the private and public sectors that can impel and sustain initiatives to enhance growth in the international development paradigm, while simultaneously adding to the wealth-creational imperatives of the players in the various sectoral industries.

The role of the Government in the rice sector is to facilitate the enabling mechanisms, thereby ensuring minimal or, ideally, no hindrances to production. To effect this, over the last nineteen years the Government has expended and continues to expend significant sums of money to: inter alia, a) almost completely rehabilitate the Drainage and Irrigation System, b) reorganize the Rice Research and technology transfer system; and c) aggressively pursue the marketing of Guyana's rice, which has resulted in the expansion of Guyana's global marketshare and better prices for rice/paddy.

Human resource development was also aggressively addressed by the Government, with the outcome of all various departments of the Rice Research Station being headed by post-graduate staff members.

The production of 402,450 tons of rice and export earnings of US\$173,239,722 will be recorded as the highest production and export earnings in the history of the industry. This was an increase by 12% in production and 11% in export earnings from the previous year 2010.

In 2011 the most significant occurrence in the Research Section of GRDB was the release of two new varieties with the accompanying technological package. To ensure the continuity of this programme GRDB's Research Station has sixteen elite tested lines/strains that continue to show excellent yields and other qualities. The other trials include the Observation yield trial (OYT) with forty five strains; Two hundred and eighty eight F₂ populations; 2,611 progenies (F₃ to F₈ generation) were studied in pedigree nurseries. In addition to maintaining some newness to this department they had sixteen hundred accessions that were rejuvenated in the second season of 2011.

In addition to the production of new varieties, the Research Station continues to work on the agronomy and plant protection strategies of the crop. Work at optimizing seed rates and fertilizer rates, improving spraying techniques and pesticides to be used including the optimum quantity and timing of application, are some areas that are being investigated for each variety released by GRDB.

Also, in 2011 we embarked on a project to decentralize seed production. During the first crop 2011, GRDB initiated the production of Pre-basic seed of two improved rice varieties viz. GRDB 09 and GRDB 10. This produced 150 kg Pre-basic seed of each variety. In addition, one and half acres Basic seed of GRDB 09 and GRDB 10 respectively were grown. This produced 40 bags (15 bags of GRDB 09 and 25



bags of GRDB 10) in the first crop of 2011. This was multiplied by RPA Seed Growers in the second crop to produce 1,020 bags CI, which was sold to farmers to cultivate the spring crop 2012. It is anticipated that at least 30,000 bags CII seeds will be produced for the second crop of 2012. This quantity is close to the ideal amount required to make Essequibo self sufficient in seed paddy.

The Farmers Field School (FFS) continues to be the main methodology used in the transfer of technology. From its humble beginning in 2003, with seven (7) FFS in 2011 the number of schools have increased to sixty six (66), with one thousand, eight hundred and forty eight (1,848) farmers participating. For the period (2003-2011), approximately nine thousand, four hundred and thirty (9,430) farmers had participated in the various training modules, either once or on repeated occasions. In addition to these direct training programmes, other farmers have benefitted indirectly from technology information transfer through exchange visits, television programmes, outreaches, media releases, exhibitions, etc.

The farmer exchange visit programmes have today become a major activity of GRDB, where farmers from one region visit other rice-growing regions to examine demonstration plots. This exercise not only brings together farmers from all backgrounds and performance levels in a collective gathering, thereby giving them an opportunity to interact and share their knowledge and experiences, which in and of itself is a training ground, but it also allows fellow Guyanese the opportunity to visit areas of the Country they never would have seen.

As a service to the milling sector GRDB continues to provide technical support, with the Quality Control Department providing almost daily advisories on various issues. Millers also benefit twice yearly from grading and warehouse management courses. To ensure the success of this initiative, on July 8, 2011 our Central Laboratory was accredited with GYS 170:2009 for the testing of rice and paddy.

In his acceptance speech, then Minister of Agriculture, Hon. Robert M. Persaud, MBA, indicated his pleasure with GRDB being the first laboratory outside the medical field that had the accreditation from the national standard body.

As a result of the high exports, GRDB was placed on a sound financial footing: we have recorded a surplus at the end of 2011 and this amount will be carried over to 2012 to be used in the upgrading programme of GRDB. Because of this we were able to execute all our programmes, in addition to assisting in numerous community initiatives in support of farmers who have suffered losses due to inclement weather patterns.

Coinciding with the enhanced technical programmes of GRDB, in 2011, we also embarked on equipping the Rice Research Station with the technical capacity to improve its technical and diagnostic skills. More than G\$800 million of equipment was purchased to contribute toward the improvement of the laboratory and the enhancement of field capacity. A similar programme was also initiated for the central laboratory at our Head Office.

Jagnarine Singh
General Manager

**Administrative Department**

For the period of January 1 to December 31, 2011, the following persons were appointed to the Board-of-Directors, namely:-

Name	Designation
Mr. Nigel Dharamlall	Chairman
Mr. Dharamkumar Seeraj, MP	Vice-Chairman
Mr. Leekha Rambrich	Director
Dr. Peter deGroot	Director
Mr. Bobby Gossai (jnr)	Director
Mr. John Tracy	Director
Ms. Shirley Edwards, MP	Director
Mrs. Prema Ramanah Roopnarine	Director
Mr. Ramsahai Ramnarain	Director
Mr. Jagnarine Singh	Ex-Officio member
Mr. Madanlall Ramraj	Secretary

There were eight (8) statutory meetings of the Board-of-Directors.

List of Research and Extension Sub-Committee Members is as follows:-

Name	Designation
Mr. Dharamkumar Seeraj, MP	Chairman
Mr. Jagnarine Singh	Member
Mr. Madanlall Ramraj	Member
Mr. Ramsahai Ramnarain	Member
Dr. Mahendra Persaud	Member
Mr. Bindrabhan Bisnauth	Member
Mr. Leekha Rambrich	Member
Mr. Jai Narine (September)	Member
Mr. Kuldip Ragnauth	Secretary

There were nine (9) meetings of the Research and Extension Sub-Committee.

**Staff Complement**

One hundred and ninety (194) employees comprised the staffing strength of the Guyana Rice Development Board. Supervision is provided by the respective department heads.

Staff Appointments

Appointments were made to fill vacancies at the following locations, viz:-

Head Office

Quality Control Department

Colwyn Torrington
Grading OfficerDianne Bagot
Grading Officer

Administrative Department

Carletta Walker
Office AttendantDindyal Seeraj
Security Guard

Anna Regina Office

Navin Persaud
District Rice Extension OfficerOveta Kalpoo
Grading OfficerSarojmattie Somaria
Secretary

Burma Rice Research Station

Atoya Felix
Grading OfficerRosemary Jaikaran
Typist/ClerkShaneza Massiah
Research TechnicianLatoya Jack
Research TechnicianAbdool DaSilva
Technical Assistant

Corriverton Office

Omesh Seecharran
Field Officer

Ministry of Agriculture

Deoram Prahalad
Agriculture Officer



Rene Benjamin
Research Technician

Cindy Sankar
Research Technician

We welcome these new staff members and wish them a long and productive stay at the Guyana Rice Development Board.

Resignations and Retirements

There were nine (9) resignations and one (1) retiree for 2011.

Occupational Health and Safety

The Guyana Rice Development Board continues to partner with the International Labour Organization and the Ministry of Health to aid in the national response of community development and health promotion: To achieve success in these mandated portfolios extension officers were trained and certified by the International Labour Organization in the following areas.

- Alcohol Abuse
- Gender-Base Violence
- Community Mobilization
- Domestic Violence
- Male norms and Behaviours associated with HIV

Beneficiaries are stakeholders, employees and rice-growing communities. Meetings are conducted through the Farmers' Field Schools, with the inclusion of knowledge-sharing of safe use of chemicals and agricultural machinery.

The Quality Control Department, in collaboration with the Ministry of Labour, continues to inspect rice mills under the watch of the Board.

Continuation of Routine Health and Safety activities

The Rural Enterprise and Agricultural Development Project (READ) once again sought the skills of GRDB'S Occupational Health and Safety Department to execute the Life Skills Component of the project, with the main objective being to improve the living conditions of the poor rural farming communities through life skills education. This project has its presence in Regions 2, 3, 3, 5, 6 and 10. With the areas of focus being:

- Suicide
- Teenage Pregnancy
- Gender Sanitization
- Domestic Violence
- Substance Abuse



Legal Issues

Matters involving farmers, millers/exporters and buyers were dealt with internally, and through the Board's Legal advisers, Cameron and Shepherd.

Medical Scheme

Employees contributed to this scheme, which is underwritten by Hand-in-Hand Mutual Insurances Ltd.

Union Recognition

There are two unions recognized by the Board, namely:-

- ☒ General Workers' Union(GWU), which represents staff at Head Office and the four regional offices; and
- ☒ Union of Agriculture and Allied Workers (UAAW), which represents staff at the Burma Rice Research Station.

During the year, Management met with the two unions to discuss matters of concern to employees. Discussions were held on staff welfare, sports, etc.

Provision of Uniforms

Female members of staff, drivers, laboratory assistants, office assistants and office attendants were provided with uniforms.

Projects for 2011

La Nina Assistance 2011

With the unseasonal rainy weather during the spring crop 2011, the Government of Guyana, through the Guyana Rice Development Board and Rice Producers Association, embarked on a programme to assist rice farmers who suffered losses. Farmers who suffered losses from the La Nina conditions each benefited from one bag seed paddy and half bag fertilizer per acre to a maximum of 20 acres.

Region	Seed Paddy Distributed (bags)	Fertilizer Distributed (bags)
2	138	69
3	4	2
4	93	46.5
5	1,499	664
6	428	181.5
Total	2,162	963

Grow More Food Campaign Phase 2

In August 2011, the Government of Guyana, through the Ministry of Agriculture, launched the second phase of the Grow More Food campaign, which benefitted farmers in the agriculture sector. GRDB was tasked with the responsibility of distributing fertilizers to rice farmers across the rice-growing regions to provide support to preserve the food security in Guyana. A total of seven thousand, two hundred and sixteen farmers benefitted.

Region	Area	No of Farmers	Fertilizer Distributed (bags)
2	Charity to Bush Lot	1,354	6,784
	Reliance to Supenaam	1,199	4,367
3	Wakenaam	164	849
	Leguan	263	1,195
	West Coast Demerara	449	2,070
	East Bank Essequibo	120	769
4	Golden Grove to Cane Grove	475	2,460
5	Little Baiboo to Fairfield	231	1,738
	Fairfield to Macouba	409	1,529
	Left Bank M/cony River to Right Bank Abary River	242	1,594
	West Coast Berbice	710	5,407
6	Adventure to Crab Wood Creek	833	5,148
	Hogstyle to East Canjie	198	1,429
	Lesbeholden to Mibicuri	291	2,082
	Johanna to Yakasuri	278	1,976
Total		7,216	39,397



Hinterland Rice and Beans Project Update

Rice and beans cultivation continue to benefit Moco Moco and the surrounding villages. 70 acres of paddy was sown, which produced 271 bags rice, 118 bags broken and 229 bags bran; while 5.5 acres beans was sown, which produced 1,648 lbs beans. The produce was sold to the villages at a reduced cost; allowing families that could not afford to purchase a complete bag of rice to do so now.

As a result of the low cost of rice, it is observed that the staple food among the villagers, i.e. farine, is now substituted with rice. Moco Moco villagers continue to participate in the production process as they volunteer their time to aid in land clearing, land preparation, sowing of paddy and beans plants, fertilization of crops, etc.



Finance Department

1. Details of Revenue Earned

Revenue for the year 2011 is above the budget by G\$12.6M. There was 31% increase in seed paddy sales and a 95% decrease in funds received from ASSP.

Table 1: Revenue Earned for the year 2008 - 2011

(G\$000)

	ACTUALS			2011	
	2008	2009	2010	ACTUAL	BUDGET
Sale Commissions	279,629	268,185	440,837	381,376	384,940
Seed Padi Sales	119,116	92,843	68,859	105,320	80,000
Income from Investments	196	152	2,069	2,386	800
Licences - Mill	6,415	6,250	6,855	6,345	6,000
- Export	3,625	4,650	4,100	3,830	5,500
Grading & Inspection	396	239	289	139	-
Wharfage & Moorage	1,168	9	-	-	-
Gain on Exchange	53	118	376	854	200
Miscellaneous	13,285	19,464	7,769	2,224	3,000
Cleaning of Seed Padi	-	-	96	100	-
By-products	947	1,347	1,373	997	1,000
ASSP	-	34,105	47,646	500	10,000
TOTAL	424,830	427,362	580,269	504,071	491,440

2. Current Expenditure

Current Expenditure for the year 2011 was G\$68.1M, or 15.3% above Budget of \$440,079M. This is due to an increase in employment costs, contribution to community and payment for rental of land at Burma Rice Research Station.

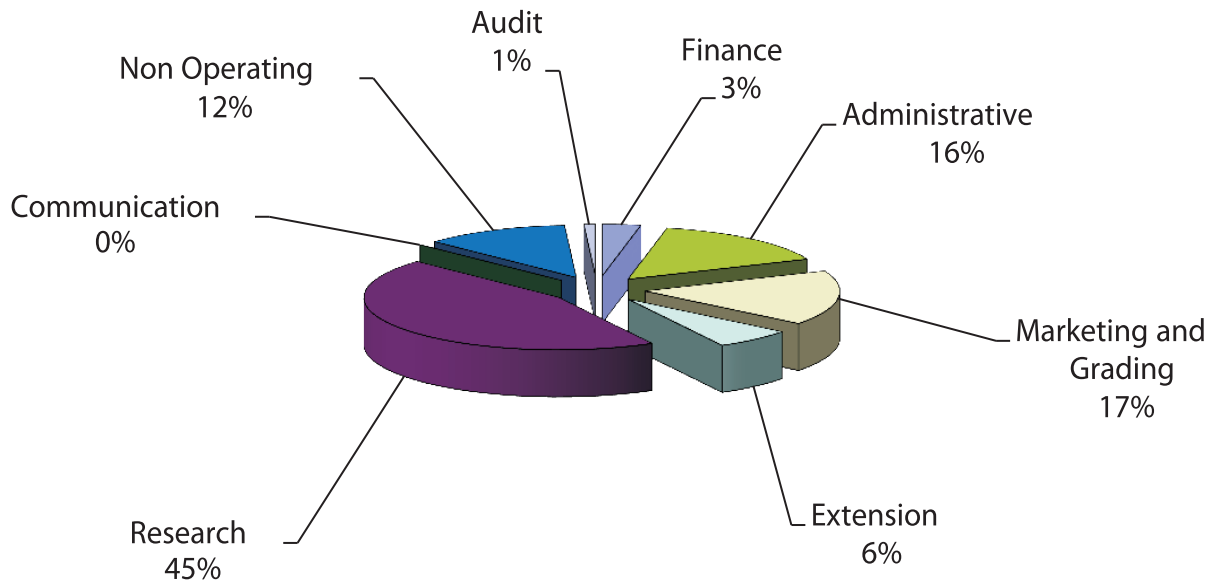
3. Divisional Expenditure

Table 2: Divisional Expenditure for the year in 2011

DIVISION	G\$'000	%
Finance	16,455	3
Administrative	79,321	15
Marketing and Grading	86,602	17
Extension	32,954	6
Research	230,369	45
Communication	-	-
Non Operating	61,551	12
Audit	4,963	1
TOTAL	512,215	100



Divisional Expenditure



4. Financial Performance

The Board recorded an operating deficit of G\$8.1M, a decrease of G\$55.5M below the budget. The deficit reflected is mainly due to an increased in expenditure, which was not budgeted in the period.

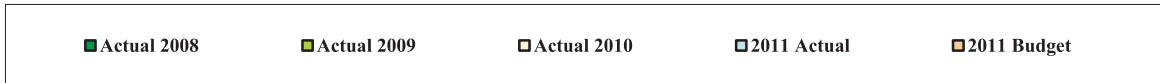
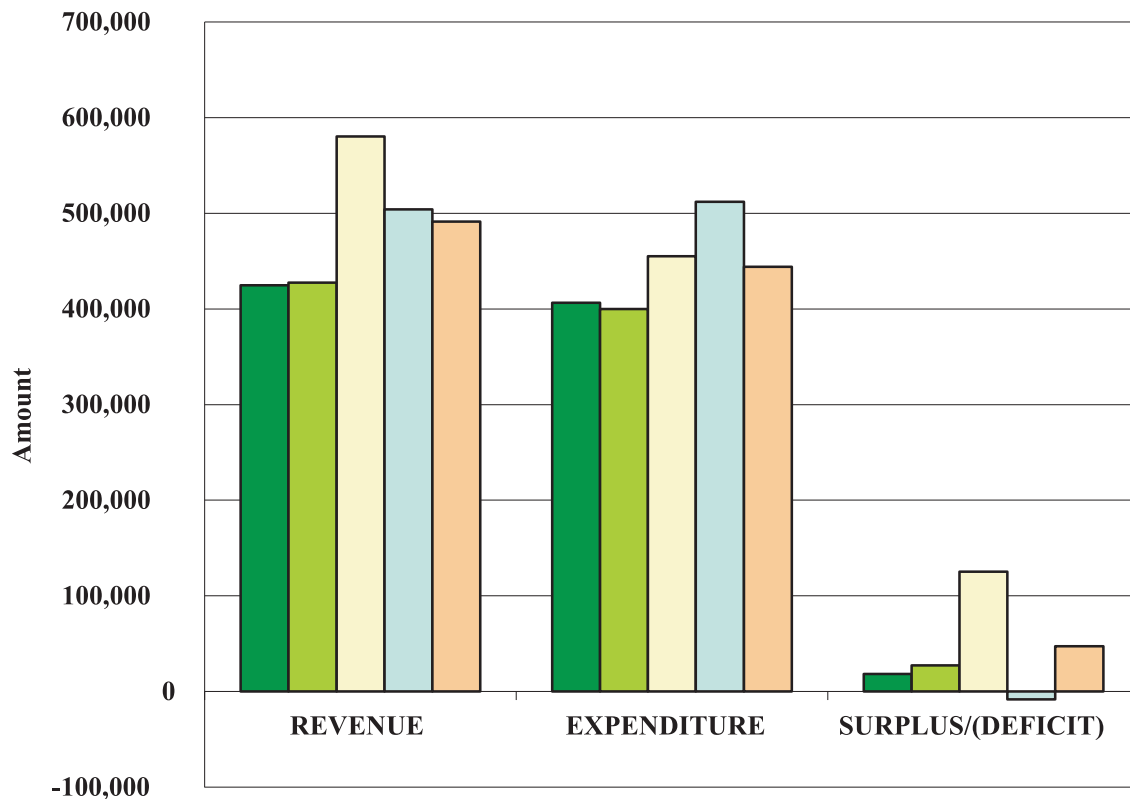
Table 3: Financial Performance further years 2008-2011

(G'\$000)

PARTICULARS	ACTUAL			2011	
	2008	2009	2010	Actual	Budget
Revenue	424,830	427,362	580,269	504,071	491,440
Expenditure	406,365	399,995	454,978	512,215	444,079
Surplus/(Deficit)	18,465	27,367	125,291	(8,144)	47,361



Financial Performance





Export & Trade Facilitation

Once again the rice industry has proven to be one of the leading entities in the Agriculture Sector. Rice exports for 2011 totalled 305,382 MT, as compared to 336,313 MT for 2010. Although the tonnage is 9% less than total exports for 2010, it represents the second highest rice exports level in the history of the rice industry. The major market for Guyana’s rice has taken a different twist, with Venezuela leading with 170,180 Mt; which represents 56% of the total exports, followed by CARICOM with 79,644 MT or 26% of the total exports; and European Union with 55,523 MT, or 18% of total exports. The European Union, for the first time over a decade, has recorded the lowest exports. This decline can be attributed to the low prices being offered for rice in Europe.

The re-entry of India as a major exporting country has caused international prices to be reduced. They commenced their export with a minimum price of US\$700, but it was quickly reduced to an approximate US\$400).

A much more positive note for 2011 is that the rice export values of US\$173,239,722 were the highest ever, compared with the second highest of US\$151,321,910 in 2010. This represents an increase of 14.48% in the overall value of rice exported in 2011, compared to 2010. This increased in the overall value of rice prices can be attributed to the increase in prices for all rice types; but, significantly, the exports to Venezuela have contributed to this in a significant way.

While exports have decreased, prices have increased significantly. The following increases were observed:

Paddy moved from	US\$420 to US\$520	} Venezuela Market
White Rice moved from	US\$700 to US\$800	
Cargo Rice moved from	US\$435 to US\$545	} Europe Market
White Rice moved from	US\$590 to US\$660	} Caricom Market
Parboiled Rice moved from	US\$695 to US\$775	
Cargo Rice moved from	US\$465 to US\$565	

Additionally, two new contracts were signed by the Guyana Rice Development Board and La Casa for the exportation of paddy and rice from Guyana to Venezuela in 2011. The new contract for white rice has increased from 20,000 tonnes to 30,000 tonnes, while the contract for paddy remains at 50,000 tonnes.



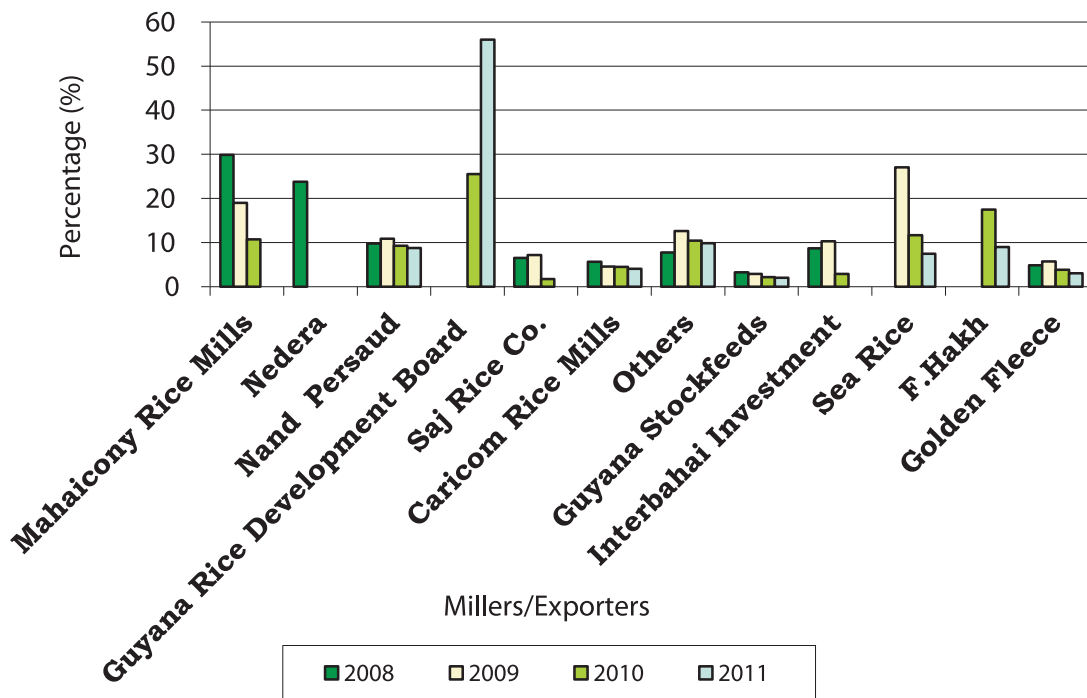
However, the Guyana Rice Development Board will continue in its quest for new markets, which will increase its economic base and catalyse its agricultural drive to expand production.

1. Export Market Sales

The table below show the percentages of total exports by exporters for the period 2008-2011. GRDB has the highest level of exports of 56%, followed by others (9.86%) F. Hakh Rice Mill(9%) Nand Persaud (8.73%) and Sea Rice (7.41%)

Exporters	2008	2009	2010	2011
Mahaicony Rice Mills	29.9	18.98	10.71	-
Nedera	23.8	-	-	-
Nand Persaud	9.8	10.83	9.28	8.73
Guyana Rice Development Board	-	-	25.50	56.00
Saj Rice Co.	6.5	7.15	1.68	-
Caricom Rice Mills	5.6	4.55	4.44	4.00
Others	7.7	12.6	10.43	9.86
Guyana Stockfeeds	3.2	2.9	2.14	2.00
Interbahai Investment	8.7	10.24	2.88	-
Sea Rice		27.04	11.64	7.41

Exports for 2008 - 2011





2. Export Sales as per Product

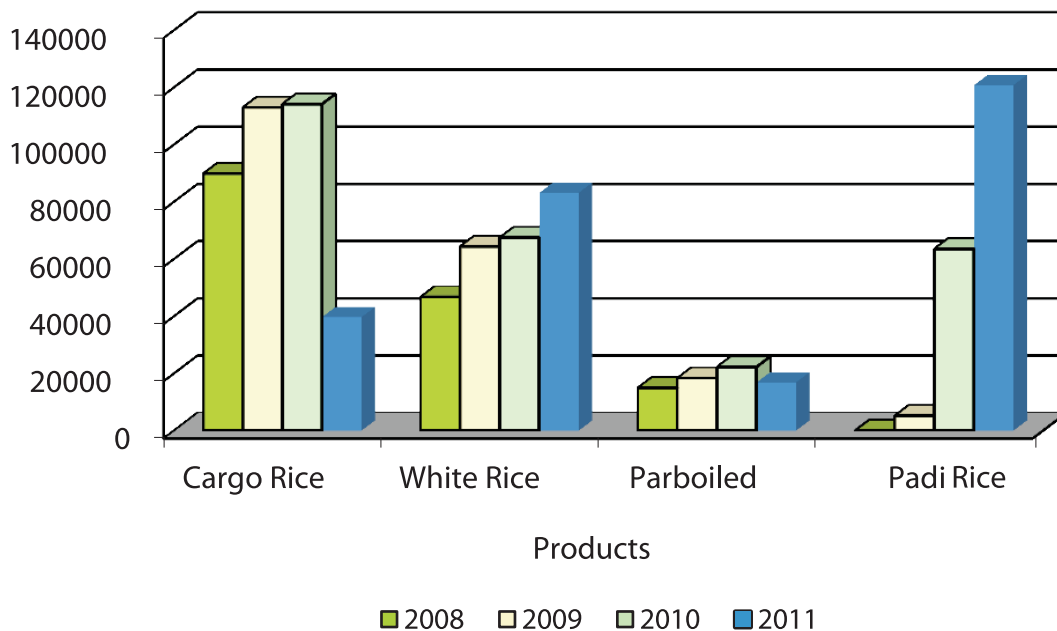
The table below indicates paddy exported for the review represents 39% of the total exports, followed by white rice (27%) cargo rice (13%) white broken (6%) and parboiled rice (5.5%)

Table 1: Export Sales as per Product further years 2008-2011

Product	Actual			2011	
	2008	2009	2010	Actual	Budget
Cargo Rice	89,915	113,027	114,168	39,660	86,500
Cargo Broken	5,190	8,068	13,445	9,931	9,800
White Rice	46,771	64,405	67,479	83,134	65,700
White Broken	18,471	31,309	31,733	19,471	10,100
Parboiled Rice	15,017	18,408	22,275	16,841	24,800
Parboiled Broken	2,483	2,601	3,316	1,970	4,500
Cargo Parboiled Rice	9,300	5,198	5,168	485	15,400
Pkt Parboiled Rice	119	1,275	8,410	7,135	-
Padi	36	5232	63559	120,779	71,000
Bran	545	2,061	3,218	2,844	-

Cargo broken, white rice, white broken, packet parboiled rice, paddy, bran and other product exports exceeded budgeted levels, whilst there was a shortfall of the remaining products compared to the budget.

Export Sales





Quality Control Department

1. Introduction

The highlight of the Department’s work this year was the Certification of the Central Laboratory to the GYS170:2009 General Requirement for the operation of a laboratory’s standards on July 8, 2011. This certification was obtained after years of hard work, which culminated in the production of a Quality Manual and seventeen (17) operating quality procedures.

This certificate will remain in force for two (2) years, after which it will be reviewed. Notwithstanding, the Guyana National Bureau of Standards (GNBS) continues to audit the laboratory frequently to ensure the maintenance of standard operational procedures under the aforementioned standards.

Increased exports of paddy and rice to the Venezuelan market again engendered heightened activity within the Department, which has the mandate to ensure that the requisite quality as per contractual obligations are maintained.

Monitoring of paddy intake at mills again fell under the purview of the Quality Control Department and this exercise continued to draw on all our available manpower, at times demanding working very late into the evening and on a seven (7) day work-week basis.

Inspection for licensing, licensing of mills, collection of data and training of licensed graders and other stakeholders were all part of the responsibilities of the Department.

The Department continued to meet the challenges set out before it and has set itself the target of obtaining accreditation to the ISO/IEC17025 standard in the year 2012.

2. Mill Licencing

- a) Licensing commenced on January 3, 2011. Sixty eight (68) mills were licensed at the end of December 2011. These mills together account for a total of 280.25mt of the mill production hourly.
- b) Breakdown of the milling capacity of licenced mill as per Region.

Table 1: of Licensed Mills and Milling Capacity

Region	2	3	4 & 5	6	Total
No. of Licensed Mills	16	17	15	20	68
Milling Capacity (mt/h)	69.75	40.0	121.5	49.0	280.25

- c) An analysis of the type of mills operating countrywide.

**Table 2: Showing Mills in operation**

Mill Type	Number in Operation
Buying Centre	4
Toll Mill	23
Milling Capacity below 5mt	42
Milling Capacity 5mt and above	22

N.B – Toll mills are mills which mill paddy on behalf of farmers
– Buying Centres purchase paddy only

3. Staff/Offices

a) The Department operates in all rice-growing regions viz 2, 3, 4, 5 and 6.

Table 3 : Staff Complement

Region	Research Assistant	Regional Superintendant	Regional Supervisor	Grading Officer	Technical Assistant
2	-	1	-	4	-
3	-	1	-	3	-
4	1	-	1	7	3
5	-	1	1	2	2
6	-	1	-	3	1
Total	1	4	2	19	6

b) All staff operating within the Department are qualified with either first degrees from University of Guyana/Cuba and/or diplomas and certificates from the Guyana School of Agriculture. Continuous training sessions are also conducted intermittently, on a needs perceived basis, during the year to ensure that all operating procedures are being followed countrywide.

During the year GRDB lost two (2) staff positions due to restricting of the Department and migration.

Meetings are also held monthly (last Saturday in each month) between all heads managing the regional operations and the Quality Control Manager. Operational systems, queries, management reviews and instructions are dealt with during these meetings.

4. Training

a) **Stakeholder Training:** Training sessions in post-harvest management and grading were conducted during July and were held as per schedule below:

Table 4: Post-harvest Management and Licenced Grader's training course schedule 2011.

Date	Location	Venue
July 5-7, 2011	Region 3	GRDB Office- Crane, W.C.D.
July 12-14, 2011	Region 2	GRDB Office- Anna Regina, Essequibo
July 19-21, 2011	Region 6	GRDB Office- Corriverton, Berbice



July 26-28, 2011	Region 4 & 5	Burma Rice Research Station
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b) **Licensed Graders:** Fifty four (54) persons were trained as Licensed Graders during the period under review. A breakdown is seen below as per Region:

Table 5: Number of persons trained as Licenced Graders by Regions.

Region	Number Trained
2	21
3	8
4&5	14
6	11

c) **Staff Training:** Staff of the Department attended several training programmes during the reporting period. These programmes were done at locations within the Department and externally.

Ten (10) sessions of internal training were held for staff from all the operating regions. Training was done to reinforce the grading procedures, operation of new laboratory equipment, and the identification of paddy varieties and grade factors of white and parboiled rice.

Several external training sessions were held between GNBS and GRDB. Four (4) sessions, held at mills countrywide, were directed towards the correct operation of weighbridges, with special guidance being given to assist in the monitoring of possible tampering of the devices at mills.

5. Data Collection

Data is routinely processed regarding the quality and stock within the industry available at mills and points of sale; as well as the general performance of production within the industry and documented as follows:

- Quality of paddy purchased at mills (padi intake by grades)
- Monitoring of payment according to the Rice Factories Act (Padi prices/payment)
- Availability, pricing and quality of rice being sold locally (Market Survey)
- Regional Superintendents’ Monthly Report of Operations within their operating regions.
- Fortnight report on stock levels at mills.
- Monitoring and Evaluation (M&E) monthly report.

6. Monitoring of Paddy intake at mills

There has been a reduction in non-payment and malpractices at mills due to the heightened monitoring/surveillance during both spring and autumn cropping seasons.

Twenty-three (23) persons were employed on a temporary basis during the two crops, in addition to the thirty-two (32) permanent staff within the Department, to conduct this operation. The temporary staff undergoes a period of training in preparation of performing the tasks required during the season on behalf of the Department.



Research Department

The Rice Research Station is concentrating its efforts in developing high-yielding varieties (>6.5 t/ha) with tolerance to lodging, stable resistance to blast, high milling (HRR 55/TRR 70), excellent cooking qualities; efforts are also concentrated on evolving aromatic and salt tolerant varieties. Attempts are being made to develop a package of practice with respect to weed management, water management, seeding density, plant nutrition and other agronomic methods for the release of new varieties and for specific locations. Another key feature is providing remedies to short-term problems or situations such as salinity, acidity, crop nutrition, etcetera. Additionally, screening of germplasm and breeding lines for tolerance/resistance to various pests and diseases and monitoring resistances are done. Evaluating new pesticides (insecticide, fungicide and herbicide) for possible use in the rice industry is a seasonal routine. Monitoring for disease incidence and insect populations, as well as timely advisory and training to farmers are also crucial activities that are undertaken. Maintaining genetic purity of commercial varieties and production of sufficient quantity of seeds of high genetic purity is a priority for the Station. Research was conducted under five major disciplines that are highlighted here under.

1. Plant Breeding

- a) **On-farm trials (OFT):** On-farm testing of two new strains viz. FG06-98 and FG07-35 during the second crop of 2011 confirms their superiority over older commercial varieties being grown. The grain yield performance over that season for FG06-98 and FG07-35 were 6.5 t/ha and 6.7 t/ha respectively. The corresponding checks used were mainly the recently released GRDB 9 and GRDB 10, with yields of 6.1 t/ha and 7.0 t/ha respectively. Both strains FG06-98 and FG07-35 showed 99% resistant lodging. These new strains possess excellent milling and cooking quality, with resistance to disease. FG06-98 and FG07-35 were named as GRDB 11 and GRDB 12 and have been tentatively released as commercial varieties for cultivation in Guyana, whilst their performance are still under observation by the research and extension team.

The two recently released varieties (GRDB 09 and GRDB 10) continue to expand in cultivation around the country and already accounts for 30% of the total area grown by rice nationally. GRDB 10 has received better preference by farmers, primarily because of its yield performance. Occasionally farmers have encountered some difficulties in securing excellent germinations of this variety in cases where less than ideal conditions prevailed between harvesting and germination. Also, it must be emphasized that GRDB 10 does not possess the extra early vigor as compared to GRDB 09, and the growth during incubation is slower. Also occasional sprouting of grains on the panicle at maturity has been noted when harvesting is delayed in conditions, and it is known for its ability to withstand delayed harvesting.

- b) **Advanced yields trials (AYT):** Sixteen elite/lines strains were tested along with two checks (GRDB 09 and GRDB 10) in a Randomized Block Design, with three replications at four locations viz. Rice Research Station, Black Bush Polder, West Demerara and Essequibo over two seasons. Strains G07-02 and FG06-123 were identified as candidate varieties and is promoted for further testing at a semi-commercial level. The former holds promise as an early (100-105 DAS) duration variety with excellent plant type and a yield potential of 6-7 tonnes/ha. It is also resistant to blast disease and possess(es) excellent milling and cooking qualities. The latter is a high yielding (6-7 t/ha) medium duration (115-118 DAS) line with an excellent over performance,



- except that it showed some tendency to lodging (0-5%); as such this trait needs to be looked at closely in larger plot size.
- c) **Observation Yield Trials (OYT):** Initial assessments of new materials, for yield potential and other important characters, were made in an observational yield at the Research Station. Forty-five strains were studied along with three checks in an augmented design over two seasons. No strain was promoted for further testing in the Advanced Yield Trials during the first and second crop 2011. It was recommended to study these entries for one more season, along with newer entries during 2012.
 - d) **Breeding Material:** two hundred and eighty-eight F_2 populations were studied during the first and second crops of 2011, of which 2438 selections were made. During the first season 2611 progenies ($F_3 F_8$ generation) were studied in pedigree nurseries and 4079 selections were taken. In the second season 4079 progenies were evaluated and 3058 single plant selections were taken. Thirty-five (35) strains in the first season and four (4) strains in the second season were bulked and promoted for initial yield testing in the first season in 2012.
 - e) **Creating variability and raising F_1 generation:** One hundred and fifteen crosses were made during 2011 (65 in first crop and 50 in second crop). Hybridization aimed at creating variability for the increasing yield potential, salt tolerance, aroma and submergence tolerance. The crosses made in the second crop will be raised in the first crop 2012.
 - f) **Germplasm Management:** Sixteen hundred accessions were rejuvenated in the second season of 2011. Two hundred and eighty-three entries were received from FLAR during the crop of 2011. Twenty accessions for moisture stress were received from the International Rice Research Institute (IRRI) during the second season.
 - g) **Strain Purification:** One hundred strains were purified during the autumn 2008 season. These lines were grown in progenies rows (10-25) progenies per strain) for the purpose of purification during the first season.
 - h) **Maintenance Breeding and Seed Production:** More than eight thousand (8,000) progenies of all the varieties were grown and studied during both seasons of 2011. The genetic purity of the varieties was maintained and more than ten thousand (10,000) selections were made. More than three thousand, nine hundred (3,900) kg of pre-basic seed (for all the Varieties) were produced over the two seasons of 2011.

Over the two seasons 91.3 tonnes of basic seed were produced from nine (9) varieties and four strains (Rustic, G98-22-4, G98-196, 98-30-3, G98-135, G 04-08, FG 05-259, FG06-98, GF07-35, IR, G07-2, GP18, G07-106, FG06-123) at the Research Station. Seed generated here were supplied to seed production of the Research Station and to seed growers in the various regions for multiplication.

- i) **Decentralization of seed paddy:** Guyana Rice Development Board has embarked on a project to decentralize seed production, Region #2, Essequibo has been selected as the area of focus for the implementation of the project. The aim is to:

- I. Produce sufficient quantity of genetically pure seeds of all classes (pre-basic, Basic, CI and CII) in the region.
- II. Providing seeds on a timely basis to farmers
- III. Train and empower seed growers and farmers to produce high quality seed stock
- IV. To secure in the event of any unfortunate circumstances at RRS Burma.

The GRDB has been partnering with the Rice Producers Association (RPA) in the implementation of this programme. The seed produced by GRDB will be incorporated into the RPA seed system for multiplication and distribution.

In first crop of 2011, GRDB initiated the production of Pre-basic seed of two improved rice varieties viz GRDB 09 and GRDB 10 (150 progenies each). This produced 150 kg Pre-basic seed of each variety. It is important to note that this is the first time that Pre-basic seeds were grown out the Central location (RRS). In addition, half and one acre Basic seed of GRDB 09 and GRDB 10 respectively were grown. This produced 40 bags (15 bags of GRDB 09 and 25 bags of GRDB 10) in the first crop 2011. This was multiplied by RPA seed growers in the second crop to produce 1020 bags C1, which was sold to farmers to cultivate the spring 2012 crop. It is expected that will produce at least 30,000 bags C11 seeds for the second crop 2012. This quantity is close to what is required to make Essequibo self-sufficient in seed paddy.

2. Agronomy

- a) **Evaluation of advanced breeding line at four levels of seeding density:** four new strains (FG06-98, G07-2, GF07-35 and FG06-123) were evaluated at four levels of seeding density at three locations across the country. Strain GF06-123 dominated in all locations for grain yield, averaging 45.5 bags ac^{-1} , while G07-2 and FG07-35 yield 38.3 and 35.8 bags ac^{-1} respectively. Regarding seed rate (80, 100, 120 and 140 lbs ac^{-1}), no significant differences were observed at any of the locations; the seed rate 100 to 120 lbs ac^{-1} still holds as the recommendation.
- b) **Evaluation of advance breeding lines at four levels of nitrogen:** four new strains (FG06-98, G07-2, FG07-35 and FG06-123) were evaluated at four levels of nitrogen at three locations across the country. Results showed that all strains performed at par for grain yield (40.2 bags ac^{-1}). In terms of nitrogen rate (75, 100, 125 and 150 kg ha^{-1}), 100 kg N ha^{-1} had the highest grain yield at the Black Bush Polder location. There were no significant differences at the other locations. Black Bush Polder's response to nitrogen may be attributed to the nature of the soil; it is high in loam and sand. As a result more nitrogen is required due to leaching properties and its inability to hold nitrogen for a long period. The nitrogen rate of 75 to 100 kg N ha^{-1} still holds as the recommendation.
- c) **Evaluation of Agrisure as a complement or replacement fertilizer in rice:** Applying Agrisure (as seed treatment and with foliar application) with recommended fertilizer application didn't have any significance difference in yield and yield parameters. Perhaps lowering the recommended NPK rate and applying Agrisure may well show some effect on growth, yield and yield parameters since recommended NPK may be optimum for good yields. Head and total rice recoveries were improved significantly with application of Agrisure; however, these are preliminary findings and more experimentation is required to substantiate them. Improved milling



recoveries can be regarded as major findings to the experiment. More evaluation is necessary with reduced recommended NPK fertilizer application on saline/drought soils.

- d) **Evaluation of Monty's product as a complement or replacement fertilizer in rice:** Significantly taller plants were recorded when 100% and 50% NPK were applied. Variable tillers m^{-2} were observed and this may be attributed to the land topography and preparation. Monty's products and the inherent soil fertility proved adequate to produce yields equivalent to 100% and 50 % NPK. Regrettably, the chemical status of the soil before and after experimentation was unknown, thus making it impractical to confidently prove the soil before inherent status and Monty's Products. However, this is the first trial and more experimentation and evaluation is needed to confirm results. Revision of the treatments may be necessary as well to determine the chemical analysis of the soil before and after experimentation and crop at maturity.
- e) **Evaluation of Evergreen as a complement or replacement fertilizer in rice:** Results from three locations showed there were no significant differences among grain yield for the different treatments. It was important to note that the yield for treatments 1 and 2 (100% and 50% NPK respectively) were lower than the treatments that had Evergreen applied. In addition, the yields of treatments 1 and 2 were lower than treatment 11, where only 2.0 L ha^{-1} Evergreen was applied. When NPK was used at 50 and 25%, their yields were higher than when no Evergreen was applied. Evergreen must be further evaluated to ascertain whether it can supplement NPK fertilizer or reduce its rate by using Evergreen as a foliar application at three application timing in rice.
- f) **Evaluation of various levels of N, P and K for higher grain yield:** Increasing the levels of nitrogen to 120kg and 80 kg ha^{-1} didn't have any significant difference in grain yield. The old recommendation of 75 kg N, 30kg, P_2O_5 and 40 kg K_2O still stands.
- g) **Effect of single or split applications of nitrogen on grain yield of rice:** Splitting nitrogen into 2 applications at 18-21 DAS and 42 DAS produced highest grain yield than single application before sowing; however, it was at par with single application at 18-21 DAS and three splits. Split application may be a better option since the single application is insufficient and some losses may occur.
- h) **Effect of timing of nitrogen application on grain yield for rice:** Application of nitrogen in three splits (18-21, 42 and 60 DAS) produced best yields and was similar to two splits (18-21 and 42 DAS) when compared to other three splits when the final application is delayed to 68 and 76 DAS, four equal splits and two splits when the second application is delayed to 55 DAS.
- i) **Evaluation of different sources and rate of phosphorous:** Evaluation of different sources of phosphorous (TSP, MAP, SSP, DAP and Phortify) at 30, 50 and 70 kg $P_2O_5 ha^{-1}$ revealed that there were no significant differences in grain yield for different treatments, even when compared to the control. Unfortunately, the soil P content and PH was unknown at the time of experimentation. Hence, the results are unconfirmed, so more trials are necessary with more chemical analyses to be conducted.



- j) **Evaluation of deep urea versus broadcasted urea:** three rates of nitrogen (57, 84 and 122 kg ha⁻¹) were evaluated in the form of briquettes and prilled urea, these produced similar grain yield. However, UDP briquettes kept the plants greener, taller and had more filled grain per panicle. Briquettes at 84 kg N ha⁻¹ had the best yield in rice. This technology may only benefit Guyana if the application method can be mechanized, due to high labour costs. Briquettes are only required to be applied once before sowing, or around 14 DAS as compared to three (3) applications of broadcasted urea.
- k) **Field demonstrations for farmers' adaptation:** Several demonstrations were carried out during the past year, which included Schoonard grass control, seeding density and improved management practices. These demonstrations were well received by farmers and have been adopted throughout the country.
- l) **Training of Technical Staff and Extension Officers:** Extension staff and some research technicians were trained in the area of weed management, nutrient disorder and management, principles of fertilizer application and correction of problematic soils. The training was conducted in classroom, followed by field activities. Reading materials with relevant information were also provided.

3. Pathology

- a) **Evaluation of breeding lines/materials for blast disease (*pyricularia grisea* (cooke) Sacc.):** during the spring crop 2011 at Von Better 2,772 test entries screened on the Upland Blast Nursery (UBN) for resistance against blast disease. Three entries were found to be highly resistant, 1,949 resistant, 538 moderate resistant, 185 susceptible and 5 highly susceptible. At three other locations viz. Crabwood Creek, Timehri and Black Bush Polder 111 common entries/lines were evaluated. 50, 63 and 43 test entries showed resistance respectively. Similarly 8, 4 and 19 were moderately resistant.

In the autumn crop of 2011 the Upland Blast Nursery (UBN) at Von Better were composed of 4,368 test entries. The results indicated that 1,283 entries were resistant, 1,981 moderately resistant, 1,049 were susceptible and 39 highly susceptible. At Crabwood Creek, Timehri and Black Bush Polder 83, 63 and 82 test entries were noted as resistant respectively. Also, at the same locations 19, 38 and 10 were scored as moderately resistant. Black bush Polder had 19 entries that were highly resistant. The reaction of blast at Crabwood Creek, Timehri and Black bush Polder was not considered to be good as the susceptible check variety recorded scores of 3 to 7 only. Reaction of blast at Von Better was very good, with the susceptible check scores ranged from 5 to 9. Scoring was done according to Standard Evaluation System (SES) for Rice (INGER, 2002).

- b) **Determining the most effective rate of new/all available fungicide for the control of gungal pathogens:** During the first crop of 2011, the trial for screening all new/available molecules, which include Carbendazim, Manzate and Stratego at different rates along with a 0 control and the recommended rate of Fuhi-one (200-300 mls/ac.) were conducted at the 'hot spot' located at Von Better; however, evaluation of these fungicides on this trial did not materialize and would not have been meaningful, since the disease incidence recorded was too low for any screening



work. Therefore, it was recommended that this trial need to be repeated for at least two more seasons.

In the second crop of 2011 a trial replicated was conducted in 3 locations. The following fungicides: Carbendazim 50 SC at 4 rates (300 mls/ac., 200 mls/ac., 100 mls/ac. and 50 mls/ac.), Manzate at 3 rates (300 g/ac., 200 g/ac. and 100 g/ac.), Super Blast 40 EC at 4 rates (300 mls/ac., 100 mls/ac., 100 mls/ac. and 50 mls/ac.), Stratego 25 EC at 5 rates (101 mls/ac., 201 mls/ac., 304 mls/ac., 405 mls/ac. and 607 mls/ac.) along with 0 control and the recommended rates of Fugione (200 mls/ac. and 300 mls/ac.) were screened. In general, all fungicide treatment applied was shown to be very promising, since the level of disease did not increase significantly after treatment was applied, as was the case in the control plot where increase in the disease severity was observed. These trials need to be repeated in 2012 for confirmation and to come up with accurate recommendations.

- c) **Evaluating the incidence of diseases (*Pyricularia grisea*, *Helminthosporium oryzae*, *Rhizoctonia solani*) and other diseases on current varieties and new lines and their impact on yield:** Twenty-six advanced breeding lines/commercial varieties were evaluated in the Disease Severity Study trial at the 'hot spot' location at Von Better, in the first crop 2011, another eight entries were included for the second season trial. In the first crop, 2011 blast disease (*Pyricularia grisea*), scored ranged from 0-3. Sheath blight (*Rhizoctonia solani*) ranged from 1-3, brown spots (*Helminthosporium*) scores ranged from 1-3; while few entries recorded incidence of sheath rot (*Sarocladium oryzae*) with score 1. In the second crop, 2011 slightly higher levels of disease were recorded, where blast disease (*Pyricularia grisea*), scores ranged from 2-5, brown spots (*Helminthosporium*) scores ranged from 2-7, sheath rot (*Sarocladium oryzae*) score ranged from 0-5 and sheath blight (*Rhizoctonia solani*) recorded a range from 0-5. No significant impact on yield was noted, probably due to the low level of infection or inherent resistance/tolerance against the various diseases.
- d) **Fungal disease monitoring on seed production fields at rice research station 2011:** Nine varieties were monitored during first and second crop, 2011: (GRDB 10, GRDB 12 (FG 07-35), G98 135, GRDB 9, Rustic, G98 22-4, G98 30-3, G98 -196, GRDB 11 (FG06 98)). Blast disease, *Pyricularia grisea*, was noted on variety Rustic with a score of up to 5. Brown spots (*Helminthosporium spp.*) scores ranged from 1 to 6, with variety G98 135 recorded the highest score for this disease. Sheath blight (*Rhizoctonia solani*) ranged from 0 to 3, and Sheath rot (*Sarocladium oryzae*) score ranged from 0 to 5. All scoring was done according to SES for Rice, (INGER, 2002).
- e) **Training of new employees/extension officers on disease identification:** In the year 2011, through the Research Outreach Programme, which the department participated in region number 2, 3, 4, 5 and 6, approximately 200 and 275 farmers in the first and second crops, respectively, were trained in the area of *Rice disease recognition and management*, with special emphasis given to the Brown spot disease (*Helminthosporium spp.*). Similar training sessions were held at RRS for employees of GRDB (particularly extension officers) and RPA Extension Officers. The session entailed theoretical and practical sessions on the various rice diseases, both major and minor, affecting the rice crops in Guyana.

(Pls note: I only edited the foregoing under sub-head “pathology” for grammar, typo mistakes, and punctuation. Verification of the technical terminologies need to be done by an expert.)

4. Entomology

- a) **Population Dynamics of Insects in the Rice Field Ecosystem:** In the rice sector there is no organized system of forecasting, so therefore generating an accurate database is fundamental for any attempt of predicting trends for insect pests. For the application of timely control measures one must have prior knowledge of the time and severity of the outbreak of the pest, and this can be done by establishing the population dynamics of these insect pests. Population dynamics studies involve monitoring of insects, using the light and weekly sweep net sampling of the cropped and non-cropped areas.

Light trap data for 2011 showed the number of paddy bugs (*Oebalus poecilus*) was significantly high in the months of June and September - October. This increase coincided with the period of susceptibility to paddy bug (*Oebalus poecilus*) attack (milk and dough stage) in the Burma Rice Research Station. Paddy bug numbers were considerably low in the months of January - March, July - August and November- December. The decrease in paddy bug (*Oebalus poecilus*) numbers occurred simultaneously with periods of limited, or a decline in food sources available for the pests. Sweep net samples also recorded a significant increase in paddy bug population during the months of September - October.

- b) **Seed Treatment:** Sofion (19.81% Fipronil), Flip 800 DF (80 % Fipronil) and Pronto (70% Imidacloprid) were evaluated as seed treatment during the first crop. Sofion at 1.0ml / kg seeds was most effective against early season pests, while there was no significant difference in seeds treated with Flip. There was considerable difference in Pronto treatments. Pronto at 0.5 g / kg seeds had low early season pest infestation levels similar to Cruiser 35 FS.
- c) **Foliar Application:** Prontax (70% Imidacloprid), Admajor (70% Imidacloprid), Hyperkill (26.5 % Cypermethrin) and Alphacypermethrin (Alphacypermethrin 5%) were evaluated against paddy bugs (*Oebalus poecilus*). Application of Prontax was proven effective in reducing bug numbers; however, there was no significant difference observed between the various treatments. Similar results were obtained for plots sprayed with Alphacypermethrin, Admajor and Hyperkill. Alphacypermethrin at 60 ml/ac and 80 ml / ac and Admajor at 80 ml / ac were the most effective treatment in reducing paddy bug numbers.
- d) **IPM (Integrated Pest Management) Sensitization:** Integrated pest management is the rational approach to the regulation of rice insect pest populations. To effectively implement this management technique, a proper identification of the pest complex and an understanding of the biological and ecological factors that regulate insect pest populations are required. With these understandings, farmers will have a firm foundation for properly characterizing and monitoring insect populations; develop various pest control tactics and implement them into their pest management practices. To convey this, researchers from the various departments (Entomology, Pathology, and Agronomy) and Extension Officers visited a total of 22 locations in Regions # 2, 3, 4, 5 and 6 during the first and second crops of 2011, with the sole purpose of providing need and demand-based knowledge and skills to farmers in an informal, participatory manner.

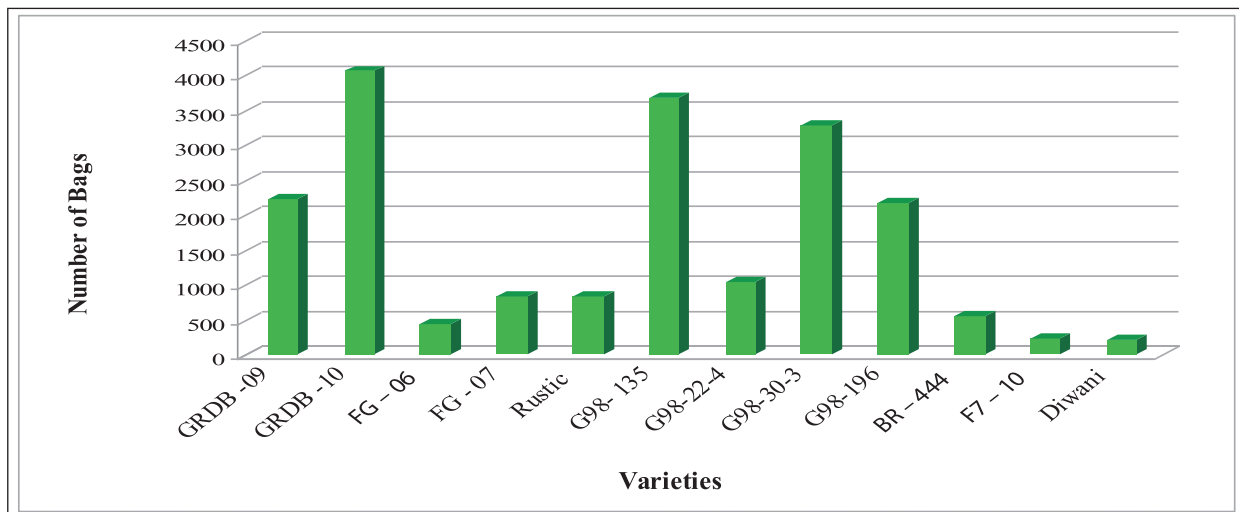


5. Seed Production

The primary objective of the seed production unit is to produce sufficient quantities of high-quality seed for farmers. During the year, 1248.2 tonnes (19,596 Bags of 140 lbs) of C-1 and C-II seed, consisting of 12 commercial varieties were produced (see table below). These seeds were distributed to farmers across the country. Fifty-two percent of the varieties consist of the G98 varieties, 11.4% GRDB 09, 20.8% GRDB-10, 4.3% Rustic 1.1% Diwani, 2.9%BR444 and 1.2%F7-10. For the Autumn Crop two new varieties were produced FG-06 and FG-07 were produced at 2.2% and 4.3% respectively. Varieties BR444 and F7-10 were not produced for the Autumn Crop 2011. An additional 14.6 tonnes (228.53 bags) were also harvested and sold as grains.

	Varieties	Spring Crop 2011		Autumn Crop 2011		Grand Total	
		Bags	Tonnes	Bags	Tonnes	Bags	Tonnes
1	GRDB -09	1,448	92.2	777	49.5	2,225	141.7
2	GRDB -10	1,821	116.0	2,249	143.2	4,070	259.2
3	FG - 06	-	-	434	27.6	434	27.6
4	FG - 07	-	-	837	53.3	837	53.3
5	Rustic	506	32.23	334	21.3	840	53.5
6	G98- 135	2,477	157.77	1,203	76.6	3,680	234.4
7	G98-22-4	651	41.46	399	25.4	1,050	66.9
8	G98-30-3	1,671	106.43	1,618	103.1	3,289	209.5
9	G98-196	940	59.87	1,239	78.9	2,179	138.8
10	BR - 444	559	35.61	-	-	559	35.6
11	F ₇ - 10	227	14.46	-	-	227	14.5
12	Diwani	206	13.1	-	-	206	13.1
		10,506	669.2	9,090	579.0	19,596	1,248.2

Graph below showing the different varieties of seeds produced at BRRS



Extension Department

The Extension Department continued to reach out and integrate farmers into the many activities it undertook during the year. These were in the areas of seed production and marketing, technology transfer, data collection and information and special or supporting activities. All were aimed at strengthening the capabilities of these farmers to become better and more efficient producers of rice.

1. Seed Production and Marketing

- a) **Marketing of seed produced at Burma Rice Research Station:** The Extension division distributes approved seeds produced by the Burma Rice Research Station to key farmers and contract growers in the various rice growing areas, for further multiplication. Towards this end a total of eighteen thousand, six hundred and forty-four (18,644) bags were uplifted by farmers over a period of two seasons.

VARIETIES (Bags)													
Region	Rustic	G98 22-4	G98 30-3	F 710	BR 444	G98 196	Diwani	G98 135	GRDB 9	GRDB 10	GRDB 11	GRDB 12	Total
2	210	436	81	25	105	288	-	208	152	477	-	-	1,982
3	40	122	422	34	15	193	22	418	458	776	-	-	2,500
4&5	394	489	2,182	81	384	1,112	127	2,060	1,221	2,269		368	10,687
6	136	32	603	28	60	583	58	1,028	329	548	5	5	3,415
9				60	-	-	-	-	-	-	-	-	60
Total	780	1,079	3,288	228	564	2,176	207	3,714	2,160	4,070	5	373	18,644

- b) **Monitoring the performance of Burma Rice Research Station:** Farmers' fields sown with seeds purchased from the Burma Rice Research Station are normally checked to ascertain performance of the crop in terms of establishment during the early stages of growth. In this regard, approximately four thousand, three hundred and twenty-nine (4,329) acres were inspected.
- c) **Monitoring of seed fields at Burma Rice Research Station:** Seed fields at the Research Station are inspected to ensure that seeds produced conforms to the required class. For the spring and autumn crops, a total of six hundred and eighty-eight (688) acres were monitored at various growth stages of the crop.
- d) **Monitoring/Certification of farmers seed production:** Farmer's fields grown with seeds supplied by the Research Station are routinely monitored so as to ensure that the intended class of seed is produced after multiplication. About nine thousand, four hundred and seventy-nine (9,479) acres were inspected in the process.

2. Technology Transfer

- a) **Developing Competency of Extension Staff:** Upgrading the agricultural and social skills and enhancing the knowledge-base of Extension Officers was done throughout the year. They participated in training on Schoonord grass management, use of Bio soil enhancers, gender violence, technical writing, agro tourism and obsolete chemicals management.
- b) **Technology Transfer:** The Department accelerated its technology transfer programme this year with the establishment of sixty-six (66) Farmers' Field Schools. These were used as the medium



to train farmers on the more improved crop management practices. A total of one thousand, four hundred and twenty-one (1,421) farmers participated in the sessions.

Region #	# of Schools	# of participants.
2	10	216
3	15	231
4	6	196
5	19	396
6	16	382
Total	66	1,421

Other activities, which complemented the formal Farmers' Field School sessions included:- end of season review (8), field days and exchange visits (6), infomercials (6), and radio programmes (20). Approximately one thousand, four hundred (1,400) brochures, covering various aspects of rice production, were produced and distributed to farmers.

A total of three hundred and seventy-five (375) soil samples were collected from farmers' fields, analyzed by Agroservices International, with the relevant recommendations subsequently forwarded to the farmers.

The on-farm programme (AYT trials and promising lines) comprising research and extension exercises continued with collaborating farmers.

3. Data Collection

Data collected included those on crop production, namely:- harvesting, sowing, pest and disease levels, drainage and irrigation status, fertilizer use and costs and prices for padi.

The Department prepared and submitted two hundred and sixty (260) weekly and sixty (60) monthly reports. Specific reports on schoenord grass infestation levels (2) and cost of production (2) were also compiled.

A register comprising all farmers and their respective acreages sown was completed during the year. During the autumn crop information from the register was used as a means of executing an assistance programme provided by the Government to farmers.

**4. Special Activities**

These are unplanned activities that the division is called upon to perform from time to time. They are of a complementary nature and supports regular extension activities.

Activity	Host	Regions	# of Days
Minister /Other Senior Officials Visits	MOA, GRDB, RPA	All Regions	53
MoA/GRDB Outreach programmes	MoA, RDC, RPA, GRDB, GLDA, NAREI,ASDU	All Regions	108
Other farmers' meetings	MMA, RDC, RPA, GRDB & NDC	All Regions	64
Meeting /Workshop	MOA, GRDB	All Regions	9
Flood Survey	GRDB,RPA	All Regions	33
Investigation	GRDB, RPA	All Regions	96
Opening of Mahaicony, and Waterloo Sluices	RPA, GRDB & MOA	Regions 3&5	2
Commissioning of Joyce Phillip Pump Station	MOA, GRDB, RPA	Region 4	1
Training of Extension Staff	GRDB	All Regions	1
Pesticide Training	Pesticide Board	Regions 4	2
Voucher distribution	GRDB,RPA	All Regions	17
Fertilizer distribution	GRDB,RPA	All Regions	60

Exhibitions in which GRDB and its various arms participated include Essequibo Nite, Mahaicony Day, MMA and GRDB Open Days and Berbice Expo. On several occasions the Minister of Agriculture and other senior Government functionaries visited the regions, which required the presence of extension officers. Outreaches are generally programmed to address farmers' issues/concerns, such as drainage and irrigation, flooding, accessibility of dams, cattle damage, diseases, red rice infestation, non or late payment by millers, etc. Other meetings are normally held with mainly NDCs to plan and monitor work programmes. Investigations conducted were in the areas of damages to structures, flooding and siltation of outfalls, and breaches of sea defence, salinity testing, disease outbreaks and red rice infestation. Fertilizers provided by Government were distributed to farmers as a form of assistance to increase their productivity.



Activities for 2011



Bursary Awardees 2011





Exhibition 2011



Staff explaining the different types of paddy



Display of different types of paddy



Visitors at display table

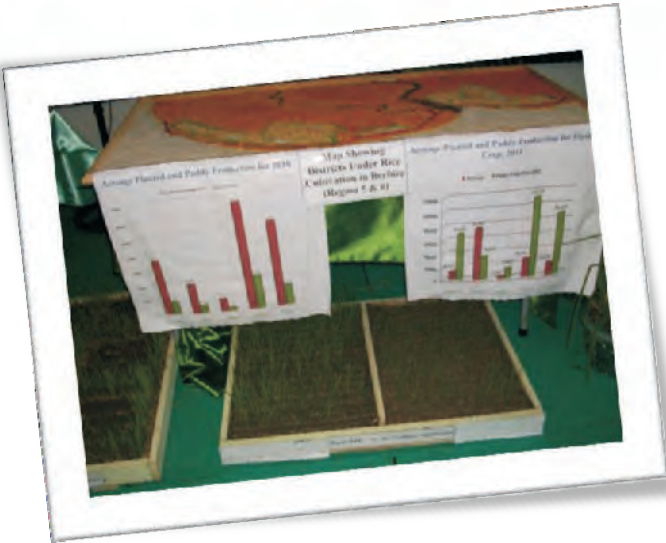


President Bharrat Jadgeo, Minister Priya Manikchand and Presidential Candidate Donald Ramotar viewing the paddy display

Rice Map, created with rice and paddy showing the rice-growing areas in Guyana



GRDB Staff sharing out rice dishes



Display at Berbice Expo

GRDB booth at GSA Open Day



Display of light trap at Exhibition



GNBS presenting certificate to Minister of Agriculture Robert Persaud



Certification of Central Laboratory by GNBS



GNBS Official addressing Laboratory staff and special invitees



Presenting Director of the Board Ramsahai Ramnarian with token for achieving the Medal of Service award

Presenting Director of the Board Shirley Edwards, MP, with token for achieving the Medal of Service award



Several GRDB Directors 2011 (from left to right) Mr. Jagnarine Singh-General Manager, Mr. Dharamkumar Seeraj, MP-Vice Chairman, Mr. Madanlall Ramraj - Deputy General Manager, Mr. Nigel Dharamlall - Chairman, Dr. Peter deGroot - Director, Mr. Ramsahai Ramnarain - Director, Ms. Shirley Edwards, MP - Director, and Mr. Leekha Rambrich - Director



Presenting farmer with voucher

*Distribution of vouchers at
Leguan, Essequibo Islands,
Region 3*



*Distribution of vouchers at West Coast
Berbice*



HEADS OF DEPARTMENT



Mr. Madanlall Ramraj
Deputy General Manager



Dr. Mahendra Persaud
Plant Breeder



Mr. Kuldip Ragnauth
Extension Manager



Mr. Bindraband Bisnauth
Farm Manager



Ms. Allison Peters
Quality Control Manager



Mr. Peter Ramcharran
Accountant



Mr. Ghansham Payman
Agronomist



Mr. Rajendra Persaud
Pathologist



Mr. Noel Sookhai
Internal Auditor



Mrs. Gloria Cheste
Marketing Assistant



Ms. Narita Singh
Research Assistant Acting H.O.D
Entomology Department





Staff

Head Office

Head Office
General Manager

Jagnarine Singh
M. Sc. Marketing (U.A.R.K.)
B. Sc. Agriculture (UG)
Dip. Agriculture (GSA)

Administrative Department
Deputy General Manager

Madanlall Ramraj
Master of Business Administration (British Columbia)
Bachelors of Business Administration & Management (BA
Honors) (Toronto)

Administrative Coordinator

Julia Chunoo
Deg. Biology (UG)
Cert. Human Resource (UG)

Occupational Health & Safety Officer

Ella P. Issacs
Dip. Occupational Health & Safety (UG)

Finance Division
Accountant

Peter Ramcharran
ACCA Level 1 & 2
CAT

Assistant Accountant

Abigail Constantine
ACCA Level 2
CAT

Errol Chester
Dip. Accounts (UG)

Internal Auditor

Noel Sookhai
ACCA
CAT

Quality Control Department
Quality Control Manager

Allison Peters
B. Sc. Agriculture (UG)
Dip. Agriculture (GSA)

Region 2
Regional Superintendent

Devwattie Dass
B. Sc Agronomy (Cuba)

Grading Officer

Ronsard Boodhram
Dip. Agriculture (GSA)

Kevin Joseph
Cert. Agriculture (GSA)

Kishan Indrawattie
Cert. Agriculture (GSA)



Region 3
Regional Superintendent

Colin Watson
B. Sc. Agri. Engineering (Cuba)
Dip. Computer science (UG)
Donett Adams
Dip. Secretarial Science (GTI)

Grading Officer

Leeawatie Manohar
Dip. Agriculture (GSA)

Uancy Chichester
Dip. Agriculture (GSA)

Region 4
Regional Co-ordinator

Charles hope
B. Sc. Economics (UG)
Dip. Marketing (UG)

Research Assistant

Marsha Hohenkirk
B. Sc. Agriculture (UG)

Grading Officer

Trevonne Wright
Cert. Agriculture (GSA)

Paul A. Harry
Cert. Agriculture (GSA)

Kumar Ranga
Dip. Agriculture (GSA)

Michelle Blair
Cert. Industrial & Social Studies (Critchlow Labour college)
Cert. Communication & Effective Speaking (Critchlow Labour College)
Cert. Internal Audit of a Laboratory Management (GNBS)

Technical Assistant

Ezekiel Jacobs
Cert. Paddy Varietal Identification (GRDB)

Jamal Harris
Cert. Rice & Paddy Grading & Quality Management (GRDB)
Cert. Paddy Varietal Identification (GRDB)

Seon Johnson
Cert. Rice & Paddy Grading & Quality Management (GRDB)
Cert. Paddy Varietal Identification (GRDB)

Region 5
Regional Co-ordinator

Errol Joseph
Cert. Agriculture (GSA)

Grading Officer

Eon Bacchus
Dip. Agriculture (GSA)



Technical Assistant	Beverley Joseph Yonette Hawker
Region 6 Regional Supervisor	Visan Budraj B. Sc. Agriculture (UG) Dip. Agriculture (GSA)
Grading Officer	Lubert Walcott Cert. Agriculture (GSA) Arleen Munroe Cert. Agriculture (GSA) Steve Lyte Cert. National Seed Improvement (NPRGC) Cert. Post Harvest & Quality Management (NPRGC)
Technical Assistant	Roderick Somrah
Extension Division Extension Manager	Kuldip Ragnauth Certified Master Trainer (CMT, UMI) B. Sc. Agriculture (UG) Dip. Agriculture (GSA)
Region 2 Regional Rice Extension Officer	Davendra S. Singh Dip. Agriculture (GSA)
District Rice Extension Officer	TameshRamnauth Cert. Agriculture (GSA) Subodh Kishore Cert. Agriculture (GSA)
Region 3 District Rice Extension Officer	Deodram Garbarran Dip. Agriculture (GSA)
Region 4 & 5 Regional Superintendent	Satyanand Narain B. Sc. Agriculture (UG) Dip. Agriculture (GSA) Cert. Rice Research Techniques (Japan)
District Rice Extension Officer	Satish Sookram Dip. Agriculture (GSA) Quacie Wilson Dip. Agriculture (GSA) Rishal Ramsarran Dip. Agriculture (GSA)



	Delon McKenzie Cert. Agriculture (GSA)
Region 6 District Rice Extension Officer	Phillip Jainarine Cert. Agriculture (GSA)
Field Officer	P. Ramcharitar Cert, Introduction to Social Work (UG) Jairam Harridat
Region 9 Hinterland co-ordinator	Persaram Ramdat B. Sc. Entomology (Cuba)
Extension Officer	Dindial Jadgeo
Mechanic	Olivia Simon Cert. Agri. Mechanic (GTI)
Rice Research Station, Burma Resident Manager (September 2011)	Jai Prakash Narine B. Technology-Industrial Engineering (RPI)
Chief Clerk	Marcelle McRae Dip. Accounts (UG)
Plant Breeding Plant Breeder/Chief Scientist	Dr. Mahendra Persaud PhD & M.Sc. (AG) Plant Breeding & Genetics (India) B. Sc. Agriculture (UG) Dip. Agriculture (GSA)
Research Assistant	Shanna Crawford B. Sc Agriculture (UG) Dip. Agriculture (GSA) Tyrone English B. Sc. Agriculture (UG) Dip. Agriculture (GSA) Elijah B. Adams Cert. Agriculture (GSA) Jairam Persaud Cert. Agriculture (GSA)
Pathology Pathologist/HoD	Rajendra Persaud M. Sc Plant Pathology (India) B. Sc Agriculture (UG) Dip. Agriculture (GSA)



Research Assistant	Bissessar Persaud B. SC Agriculture (Cuba) Dip. Agriculture (GSA)
Entomology Research Assistant	Narita Singh B. Sc. Biology (UG)
Research Technician	Luarel Alfred Cert. Agriculture (GSA)
	Alwyn Pierre Cert. Agriculture (GSA)
Agronomy Agronomist/HoD	Ghansham Payman M. Sc. Agronomy (India) B. Sc. Agriculture (GSA)
Research Assistant	Miranda Henry B. Sc. Agriculture (UG) Dip. Agriculture (GSA)
Research Technician	Jomine Sharpe Dip. Agriculture (GSA)
Farm Operation Seed Production Co-ordinator	Jaddonauth Persaud Dip. Agriculture (GSA)
Farm Manager	Bindrabhan Bishnauth Proficiency Cert. of Examination College of Preceptors Cert. General Certificate of Examination
Study Leave Dhirendranath Singh	Second Year Student (University of Yamagata, Japan)
Violet Henry	Fourth Year Student (University of Guyana)
Shemeka Reece	Second Year Student (University of Guyana)
Jasmine Thompson	Second Year Student (Guyana School of Agriculture)
Viviane Baharally	Second Year Student (Sam Higginbottom Institute of Agriculture, Technology & Science, Allanabad, India)



Appendices

1. Licensed Rice Mills 2011
2. Rice Statistics 1970-2011
3. Comparison of Yearly Product 2002-2011
4. Export According to Products 2011
5. Export as per Destination 2011
6. Average Export Prices 2003-2011
7. Spring Crop Harvesting 2011
8. Autumn Crop Harvesting 2011
9. Harvesting Production 2011
10. Paddy Price 2000-2011

Appendix 1: Licensed Mills 2011**Region 2**

NAME OF MILLER	ADDRESS	MILL NO.
Imam Bacchus and Sons	Affiance Essequibo Coast	120
La Resource Rice Industry	La Resource Essequibo Coast	257
Indar Singh	Airy Hall Essequibo Coast	11/003/06
Golden Fleece Rice Inv.	Golden Fleece Essequibo Coast	114
Caricom Rice Mills Ltd.	Anna Regina Essequibo Coast	203
Mohamed Ramzanalli Khan	Fairfield Essequibo Coast	251
Corentyne Rice Inc (Mahaicony Rice Ltd.)	Vilvoorden Essequibo Coast	11/006/2763
Corentyne Rice Inc (Mahaicony Rice Ltd.)	Paradise Essequibo Coast	Buying Centre
Francis Garaban & Son	47 Walton Hall Essequibo	248
Vincent Persaud	Bounty Hall Essequibo	11/003/07
Deonarine	Evergreen Essequibo Coast	11/003/05
Old Mac (Guyana) Ltd.	Hampton Court Essequibo Coast	110
Land of Plenty Inv.	Land of Plenty Essequibo Coast	122
Ramlakhan & Sons	Ex Mouth Essequibo	240
Wazir Hussein	Dry Shore Essequibo	11/005/11
Naraindra Biragie	Paradise Essequibo Coast	249

Region 3

NAME OF MILLER	ADDRESS	MILL NO.
Goed Fortuin Rice Mill (Jeetlall Ramraj)	Goed Fortuin W.C.D.	11/003/01
Two Brothers Corp.	Vergenoegen East Bank Demerara	11/003/02
Fiuze Khan	Leguan Essequibo Island	11/003/03
Abdool Hakh & Sons	Harlem West Coast Demerara	100
Mohamed Shafi	Zeelandia Wakenaam	187
Rumzeight Rice Processors Inc.	Rumzeight West Coast Demerara	223
Friendship Rice Mill (Lillashuar Seeram)	Friendship Wakenaam	11/003/08
Bhagwandeem Tularam & Son	Lot 1 La Bagatelle Leguan, Essequibo	253
Ramjohn Katun & Son	Goed Success Wakenaam	188
Ramrattie & Yovindra Ojha (Leguan Rice Milling Inc.)	Blenheim Leguan Essequibo Island	192A
Chand's Rice Milling Enterprise (ID Chand)	La Bagatelle Leguan Essequibo	172
Lachmie Persaud Doobay	Doorn Haag Leguan	191
Vergenoegen Co-op Society	Vergenoegen East Bank Essequibo	169
Mohan & Hansraj Persaud	Greenwich Park, E.B.E	11/004/09
Elizabeth Nandlall	29 Hague Front, W.C.D.	152
Madho Bros	Rumzeight, W.C.D.	144
Ojha Rice Milling Complex	1&2 Blenheim Leguan	192

Regions 4 & 5

NAME OF MILLER	ADDRESS	MILL NO.
A.C Hakh and Sons	Cane Grove Mahaica E.C.D	58
Fairfield Rice Inv.	Fairfield Mahaicony E.C.D	74
Rayaadul Hakh Rice Industry	Strangroen Mahaicony E.C.D	39
Saj Rice Group Inc.	Burma Mahaicony E.C.D	68
Deonarine Sukhlall	De Hoop Mahaica E.C.D	244
Kissoon Dyal & Son	Chelsea Park Mahaica E.C.D	213
Technomills Guyana Inc.	76 Block DD Eccles Industrial Estate E.B.D.	10/009/01
Guyana Stockfeed Inc.	Farm, East Bank Demerara	256
Guya .P. Ramotar	De Kendren Mahaicony E.C.D.	75
Balram & Kheman Ractoo	De Kendren Mahaicony E.C.D.	92
Sham Persaud	Felicity Mahaicony, E.C.D.	72
Blairmont Rice Investment (Mahaicony Rice Ltd.)	Blairmont, W.C.D.	40
Demerara Millers and Traders (Mahaicony Rice Ltd.)	Perth Mahaicony, E.C.D.	63
Endeavour Rice Mill	De Hoop Mahaica, E.C.D.	78
Boodram & Dhanlall Sooklall	Planters Hall Mahaicony, E.C.D.	11/012/12

Region 6

NAME OF MILLER	ADDRESS	MILL NO.
Nand Persaud and Company Ltd.	No. 36 Village Corentyne Berbice	240
Ramkoomar Ramdeo	Bush lot Village Berbice	17
Outram Ramprashad & Sons Rice Milling Est.	Johanna BBP Berbice	220
Lalla Persaud Juggerdeo	No. 0 Village, Corentyne Berbice	15 A
T & R Karran	Don Robin Village Corentyne Berbice	33 A
Mahendra Singh	#68 Village Corentyne Berbice	10B
Navin Brijbassi	#62 Village Corentyne Berbice	218
Harnarine Lakhram	#69 Village Corentyne Berbice	10A
Mohamed Sultan Hakim	Letter Kenny Village Corentyne Berbice	23
Afzal Haniff	No. 63 Village Corentyne Berbice	62
Thakurdial Tulshi	No. 49 Village Corentyne Berbice	16C
Omnarine Persaud	No. 68 Village Corentyne Berbice	4
Bhogwattie Bhola	No. 47 Village Corentyne Berbice	15C
Tota Budhram	No. 64 Village Corentyne Berbice	12
Krishndat Persaud	No.57 Village Corentyne Berbice	15
Canje Rice Inc. (Mahaicony Rice Ltd.)	Johanna Black Bush Polder	11/004/10
Canje Rice Inc. (Mahaicony Rice Ltd.)	No. 70 Village Corentyne Berbice	Buying Centre
Rambrich Enterprise (Leekha Rambrich)	Bengal Farm Corentyne Berbice	Buying Centre
P. Dhanashwer	No. 59 Village Corentyne Berbice	14 B
Rayaadul Hakh Rice Industry	Lesbeholden Black Bush Polder	Buying Centre

Appendix 2 Rice Statistics 1970-2011

Year	Hectare	Paddy	Yield per Hectare	140 lbs	Rice Equiv	Quantity (MT)	Value
	Harvested	Poduction	Tonnes	(HA)	Tonnes	Exported	G\$ & US\$
1970	119,182	222,469	1.8	29.3	144,605	59,347	\$18,047.00
1971	94,551	187,535	1.9	31.1	121,989	67,515	\$21,334.00
1972	79,462	147,130	1.8	29.1	95,639	69,949	\$25,251.00
1973	92,821	152,360	1.6	25.9	99,034	47,814	\$25,005.00
1974	105,741	255,886	2.4	38.0	165,657	50,827	\$49,025.00
1975	108,486	297,099	2.7	43.2	172,259	82,035	\$84,937.00
1976	84,027	172,904	2.0	32.3	103,754	70,681	\$73,594.00
1977	130,528	358,290	2.7	43.2	214,972	65,855	\$66,812.00
1978	114,846	308,207	2.6	42.2	184,985	104,761	\$95,983.00
1979	90,227	240,556	2.6	41.9	144,328	84,080	\$80,814.00
1980	95,991	281,846	2.9	46.1	169,107	81,008	\$87,491.00
1981	89,053	276,006	3.0	48.9	165,604	78,010	\$110,009.00
1982	95,280	302,671	3.1	49.8	181,603	35,676	\$60,767.00
1983	75,807	246,064	3.2	51.1	147,639	41,715	\$64,933.00
1984	92,987	299,628	3.2	50.6	179,785	47,498	\$80,945.00
1985	77,777	260,207	3.3	52.6	156,124	29,339	\$56,594.00
1986	83,977	293,073	3.4	54.8	171,044	38,634	\$57,234.00
1987	75,146	243,398	3.2	50.8	145,879	68,987	\$157,128.00
1988	74,223	226,862	3.0	48.1	132,281	55,926	\$139,165.00
1989	68,544	237,183	3.4	54.5	142,310	40,575	\$367,427.00
1990	51,368	155,740	3.0	47.6	93,444	50,943	\$513,220.00
1991	76,209	251,321	3.3	51.8	150,783	54,047	US\$17,202,635.00
1992	77,327	286,000	3.7	58.2	171,000	115,102	US\$35,000,135.00
1993	98,061	336,207	3.4	61.5	201,702	124,089	US\$33,045,227.00
1994	97,660	378,432	3.8	61.0	233,111	182,585	US\$55,547,061.00
1995	132,344	525,500	3.9	62.4	315,301	200,336	US\$76,397,522.00
1996	135,436	543,437	4.0	63.2	332,542	262,265	US\$93,716,748.21
1997	142,782	568,186	3.9	62.7	340,911	285,051	US\$84,224,971.47
1998	129,469	522,907	4.0	63.4	339,890	249,755	US\$73,259,786.73
1999	147,071	562,260	3.8	59.7	365,469	251,519	US\$71,035,677.51
2000	115,872	448,740	3.8	61.0	291,967	207,638	US\$51,790,072.00
2001	124,565	495,862	3.9	62.7	322,310	209,042	US\$50,061,834.00
2002	107,902	443,654	4.1	64.7	288,375	193,416	US\$45,463,590.45
2003	127,662	546,183	4.3	67.4	355,019	200,432	US\$45,273,049.61
2004	115,742	500,911	4.3	68.1	325,592	243,093	US\$55,066,513.74
2005	106,645	420,365	3.9	62.1	273,237	182,175	US\$46,172,149.45
2006	102,934	472,363	4.6	72.2	307,036	204,577	US\$ 54,622,559.62
2007	105,865	458,653	4.3	68.2	298,125	269,436	US \$ 75,251,464.99
2008	119,792	507,036	4.2	66.6	329,574	196,233	US \$ 118,032,802.90
2009	124,820	553,522	4.4	69.8	359,789	260,815	US \$ 114,120,323.83
2010	131,417.2	556,195	4.2	66.6	361,527	336,313	US\$ 154,622,744.10
2011	140,674.50	619,198	4.4	69.3	402,479	305,382	US\$173,239,721.56



Comparison to Yearly Product 2002-2011 Appendix 3:

MONTH	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
JANUARY	17,237	8,709	22,641	10,426	7,361	24,026	11,578	9,635	36,137	18,413
FEBRUARY	13,271	8,416	13,295	15,582	10,427	11,518	5,694	21,200	18,790	11,076
MARCH	13,401	11,444	16,911	11,487	9,254	32,189	5,274	14,333	15,204	9,416
APRIL	20,738	13,382	20,931	16,189	17,127	22,644	21,421	13,732	20,651	15,931
MAY	13,160	13,032	32,666	17,911	20,751	28,674	25,008	34,632	35,328	67,188
JUNE	18,172	25,426	28,314	18,261	14,746	26,868	21,361	30,746	31,125	45,922
JULY	15,593	20,674	20,229	13,086	20,706	16,204	19,334	22,757	35,299	17,039
AUGUST	15,378	20,277	13,102	10,149	16,708	18,573	9,091	20,742	19,691	5,988
SEPTEMBER	11,775	9,716	20,656	13,052	21,851	15,861	20,264	15,955	17,925	6,200
OCTOBER	24,541	26,160	17,973	22,566	18,509	25,386	20,551	24,476	33,127	24,018
NOVEMBER	18,736	21,748	21,752	20,629	26,265	25,168	24,527	30,955	40,796	56,560
DECEMBER	11,413	21,448	14,622	12,837	20,872	22,325	12,130	21,653	32,240	27,631
TOTAL	193,415	200,432	243,092	182,175	204,577	269,436	196,233	260,815	336,313	305,382



Appendix 4: Export According to Products 2011

PRODUCT	QUANTITY (MT)	% OF TOTAL EXPORTS
BRAN	2,844	0.93
C.P.B BKN	1	0.00
C.P.B PKG	8	0.01
C.P.B RICE	485	0.16
CARGO BKN	9,931	3.25
CARGO RICE	39,661	12.98
CHIPS	2	0.00
DAMAGE RICE	417	0.13
P.B PKG RICE	7,135	2.34
PADDY	120,779	39.55
PARB BKN	1,970	0.65
PARB RICE	16,841	5.52
PET RICE	487	0.16
PKG PET RICE	78	0.02
REJ. P.B. RICE	662	0.21
PKG WHT RICE	0	0.00
REJ WHT RICE	20	0.01
WHT BKN	19,471	6.37
DIS BKN RICE	25	0.01
DIS RICE	542	0.18
WHT PKG RICE	889	0.29
WHT RICE	83,134	27.23
TOTAL	305,382	100.00%



Appendix 5: Export as per Destination 2011

DESTINATION	QUANTITY (MT)	TOTAL EXPORT PERCENTAGE
<u>CARICOM:</u>		
ANTIGUA	956	
BARBADOS	2,074	
DOMINICA	1,013	
GRENADA	1,857	
JAMAICA	48,971	
ST. KITTS	176	
ST. LUCIA	581	
ST. VINCENT	1,013	
SURINAME	793	
TRINIDAD	22,210	
<u>SUB TOTAL</u>	79,644	26.08%
<u>EUROPEAN UNION:</u>		
BELGIUM	13,184	
FRENCH GUIANA	26	
GERMANY	34	
GUADELOUPE	1,662	
HOLLAND	10,360	
MARTINIQUE	1,714	
POLAND	501	
PORTUGAL	20,547	
UNITED KINGDOM	7,495	
<u>SUB TOTAL</u>	55,523	18.19%
<u>TO O.C.T.:</u>		
T & CAICOS ISL	14	
ARUBA	20	
<u>SUB TOTAL</u>	35	0.01%
<u>OTHERS:</u>		
VENEZUELA	170,180	
<u>SUB TOTAL</u>	170,180	55.72%
<u>TOTAL</u>	305,382	100%

Appendix 6: Average Export Prices 2003-2011

REGION	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
EUROPEAN UNION										
CARGO PB BKN	-	-	100	110	110	110	-	-	-	-
PARB. BKN	100	100	100	110	110	110	295	207	207	200
REJ. PB RICE	110	-	-	-	-	158	-	-	-	-
CARGO RICE	215	206	218	240	260	262	600	409	434	510
CARGO BKN	130	100	118	-	142	148	265	250	265	306
WHITE RICE	-	-	-	-	-	320	530	447	486	485
WHITE BKN	155	143	143	160	160	168	425	241	246	342
C.P.B RICE	235	240	240	244	306	261	480	440	446	-
PARB. RICE	-	-	-	-	-	400	-	550	650	764
CARICOM										
CARGO RICE	-	-	217	364	260	283	623	443	407	536
CARGO BKN	120	100	-	105	110	-	295	210	267	395
WHITE RICE	270	260	275	275	295	347	688	532	513	693
WHITE PKG. RICE	-	-	-	352	390	594	763	512	611	713
WHITE BKN	-	140	140	180	175	178	426	316	369	392
C.P.B RICE	234	240	240	290	310	285	945	608	655	710
C.P.B. BKN	100	100	100	104	120	110	190	295	267	255
PARB RICE	392	370	390	399	400	425	824	716	624	785
PARB PKG. RICE	-	-	-	468	475	638	851	756	689	807
PARB BKN	138	100	130	162	165	164	354	253	267	352
REJ. PB RICE	110	110	153	170	178	195	-	294	326	316
BRAN	50	45	40	62	63	45	118	96	120	105
PET RICE	-	-	-	-	-	190	-	250	339	384
OCT										
CARGO RICE	207	206	218	242	260	260	557	375	375	-
CARGO BKN	116	100	118	121	110	145	355	187	185	-
WHITE RICE	331	-	245	245	300	-	-	-	524	605
WHITE BKN	145	140	143	150	160	161	-	-	-	-
C.P.B RICE	240	-	-	-	-	-	-	185	-	-
C.P.B BKN	-	-	100	104	-	-	-	-	-	-
OTHERS										
CARGO BKN	-	-	127	-	110	-	-	-	-	-
WHITE RICE	-	260	245	273	295	308	703	510	700	750
WHITE BKN	-	155	150	174	160	166	435	276	246	-
PARB. RICE	-	-	-	-	-	373	-	590	590	-
PADDY	-	-	131	-	-	-	-	348	420	470
PET RICE	-	-	40	-	-	194	600	-	-	-
CHIPS	-	-	-	-	-	190	-	-	-	-
CARGO RICE	-	-	226	233	265	280	510	400	-	-
PARB PKG RICE	-	-	-	-	-	462	-	681	670	-
PARB RICE FLOUR	-	-	-	-	-	353	-	-	-	-
DIS. WHT RICE	-	-	-	-	-	230	-	-	-	-
WHT RICE FLOUR	-	-	-	-	-	353	-	-	-	-
C.P.B. RICE	-	-	220	-	-	-	480	-	-	-
WHT PGK RICE	-	-	-	-	-	-	-	502	-	-
STOCKFEED	-	-	-	-	-	-	-	320	-	-
BRAN	-	-	-	-	-	-	-	100	65	-



Appendix 7: Spring Crop Harvesting 2011

REGION / ZONE	HECTARE		Prepared	Sown	Harvested	Paddy Production Bags	M/T	Rice Equiv. M/T	Yield (Bags/Ha)	Yield (Tons/Ha)	%
	Target	Actual									
REGION 2											
Essequibo	14,170	13,170.90	13,170.90	13,170.90	13,085.00	1,088,538	69,145	44,944	83.2	5.3	99.3
Sub-Total	14,170	13,170.90	13,170.90	13,170.90	13,085.00	1,088,538	69,145	44,944	83.2	5.3	99.3
REGION 3											
Wakenaam	1,012	685.40	685.40	685.40	685.40	50,790	3,226	2,097	74.1	4.7	100.0
Leguan	1,619	1,619.40	1,619.40	1,619.40	1,617.40	119,850	7,613	4,948	74.1	4.7	99.9
Hogg Island	101	0.00	0.00	0.00	0.00	0	0	0	0	0	0
West Demerara	5,668	5,255.60	5,255.60	5,255.60	5,251.00	357,870	22,732	14,776	68.2	4.3	99.9
Sub-Total	8,400	7,560.40	7,560.40	7,560.40	7,553.80	528,510	33,571	21,821	70.0	4.4	99.9
REGION 4											
Baiboo/Cane Grove	2,225	2,024.30	2,024.30	2,024.30	1,972.90	165,195	10,493	6,821	83.7	5.3	97.5
Golden Grove/Mahaica	951	931.20	931.20	923.10	921.90	81,061	5,149	3,347	87.9	5.6	99.9
Sub-Total	3,176	2,955.50	2,955.50	2,947.40	2,894.80	246,256	15,642	10,168	85.1	5.4	98.2
REGION 5											
Mahaica/Mahaicony	8,097	8,299.60	8,299.60	8,178.10	7,874.50	583,500	37,064	24,092	74.1	4.7	96.3
Mahaicony/Abary	8,097	6,882.60	6,882.60	6,801.60	6,424.00	393,551	24,999	16,249	61.3	3.9	94.4
West Berbice	16,194	12,732.80	12,732.80	12,631.60	12,512.10	788,078	50,059	32,539	63.0	4.0	99.1
Sub Total	32,388	27,915.00	27,915.00	27,611.30	26,810.60	1,765,129	112,123	72,880	65.8	4.2	97.1
REGION 6											
Frontlands	12,950	12,016.20	12,016.20	12,016.20	11,840.10	871,501	55,359	35,983	73.6	4.7	98.5
Black Bush Polder	7,325	7,141.70	7,141.70	7,141.70	7,157.90	528,632	33,579	21,826	73.9	4.7	100.2
Sub-Total	20,275	19,157.90	19,157.90	19,157.90	18,998.00	1,400,133	88,938	57,809	73.7	4.7	99.2
REGION 9											
Lethem	49.00	28.30	28.30	28.30	28.30	391	25	16	13.8	0.9	100.0
Sub Total	49.00	28.30	28.30	28.30	28.30	391	25	16	13.8	0.9	100.0
Total	78,458	70,788.00	70,788.00	70,476.20	69,370.50	5,028,956	319,444	207,638	72.5	4.6	98.4



Appendix 8: Autumn Crop Harvesting 2011

REGION / ZONE	HECTARE		Prepared	Sown	Harvested	Paddy Production Bags	Rice Equiv.		Yield (Tons/Ha)	% Harvested	
	Target	Actual					M/T	M/T			
REGION 2											
Essequibo	14,170		14,539.30	14,536.80	14,273.70	1,025,950	65,169	42,360	71.9	4.6	98.2
Sub-Total	14,170		14,539.30	14,536.80	14,273.70	1,025,950	65,169	42,360	71.9	4.6	98.2
REGION 3											
Wakernaam	1,012		1,218.60	1,218.60	1,210.10	95,648	6,076	3,949	79.0	5.0	99.3
Leguan	1,619		1,660.00	1,660.00	1,658.70	122,910	7,807	5,075	74.1	4.7	99.9
Hamburg	69		68.80	68.80	68.80	6,460	410	267	93.9	6.0	100.0
Hogg Island	101		34.40	34.40	34.40	2,890	184	119	84.0	5.3	100.0
West Demerara	5,668		5,536.40	5,536.40	5,487.80	425,390	27,021	17,564	77.5	4.9	99.1
Sub-Total	8,469		8,518.20	8,518.20	8,459.80	653,298	41,498	26,974	77.2	4.9	99.3
REGION 4											
Baiboo/Cane Grove	2,225		2,024.30	2,024.30	2,022.30	164,835	10,470	6,806	81.5	5.2	99.9
Golden Grove/Mahaica	951		935.22	935.22	935.20	76,230	4,842	3,147	81.5	5.2	100.0
Sub-Total	3,176		2,959.52	2,959.52	2,957.50	241,065	15,313	9,953	81.5	5.2	99.9
REGION 5											
Mahaica/Mahaicony	8,097		8,421.05	8,348.20	8,342.10	576,940	36,648	23,821	69.2	4.4	99.9
Mahaicony/Abary	8,097		6,558.70	6,211.00	6,211.00	352,820	22,411	14,567	56.8	3.6	100.0
West Berbice	16,194		12,595.10	12,240.90	12,147.00	783,905	49,794	32,366	64.5	4.1	99.2
Sub-Total	32,388		27,574.85	26,800.10	26,700.10	1,713,665	108,853	70,755	64.2	4.1	99.6
REGION 6											
Frontlands	12,950		11,767.20	11,767.20	11,767.20	697,560	44,310	28,801	59.3	3.8	100.0
Black Bush Polder	7,325		7,125.50	7,125.50	7,125.50	387,200	24,595	15,987	54.3	3.5	100.0
Sub-Total	20,275		18,892.70	18,892.70	18,892.70	1,084,760	68,905	44,788	57.4	3.6	100.0
REGION 9											
Lethem	49,00		20.20	20.20	20.20	250	16	10	12.4	0.8	100.0
Sub-Total	49,00		20.20	20.20	20.20	250	16	10	12.4	0.8	100.0
Total	78,527		72,504.77	71,727.52	71,304.00	4,718,988	299,754	194,840	66.2	4.2	99.4



Appendix 9: Harvesting Production 2011

REGION / ZONE	HECTARE		Prepared	Sown	Harvested	Paddy Production Bags	M/T	Rice Equiv. M/T	Yield (Bags/Ha)	Yield (Tons/Ha)	%
	Target	Actual									
REGION 2											
Essequibo	28,340	27,710.20	27,710.20	27,707.70	27,358.70	2,114,488	134,314	87,304	77.3	4.9	98.7
Sub-Total	28,340	27,710.20	27,710.20	27,707.70	27,358.70	2,114,488	134,314	87,304	77.3	4.9	98.7
REGION 3											
Wakenaam	2,024	1,904.00	1,904.00	1,904.00	1,895.50	146,438	9,302	6,046	77.3	4.9	99.6
Leguan	3,238	3,279.40	3,279.40	3,279.40	3,276.10	242,760	15,420	10,023	74.1	4.7	99.9
Hamburg	69	68.80	68.80	68.80	68.80	6,460	410	267	93.9	6.0	100.0
Hogg Island	202	34.40	34.40	34.40	34.40	2,890	184	119	84.0	5.3	100.0
West Demerara	11,336	10,792.00	10,792.00	10,792.00	10,738.80	783,260	49,753	32,340	72.9	4.6	99.5
Sub-Total	16,869	16,078.60	16,078.60	16,078.60	16,013.60	1,181,808	75,069	48,795	73.8	4.7	99.6
REGION 4											
Baiboo/Cane Grove	4,450	4,048.60	4,048.60	4,048.60	3,995.20	330,030	20,964	13,626	82.6	5.2	98.7
Golden Grove/Mahaica	1902	1,866.40	1,866.40	1,858.30	1,857.10	157,291	9,991	6,494	84.7	5.4	99.9
Sub-Total	6,352	5,915.00	5,915.00	5,906.90	5,852.30	487,321	30,955	20,121	83.3	5.3	99.1
REGION 5											
Mahaica/Mahaicony	16,194	16,720.65	16,720.65	16,526.30	16,216.60	1,160,440	73,712	47,913	71.6	4.5	98.1
Mahaicony/Abary	16,194	13,441.30	13,441.30	13,012.60	12,635.00	746,371	47,410	30,817	59.1	3.8	97.1
West Berbice	32,388	25,327.90	25,327.90	24,872.50	24,659.10	1,571,983	99,854	64,905	63.7	4.0	99.1
Sub Total	64,776	55,489.85	55,489.85	54,411.40	53,510.70	3,478,794	220,976	143,634	65.0	4.1	98.3
REGION 6											
Frontlands	25,900	23,783.40	23,783.40	23,783.40	23,607.30	1,569,061	99,668	64,784	66.5	4.2	99.3
Black Bush Polder	14,650	14,267.20	14,267.20	14,267.20	14,283.40	915,832	58,174	37,813	64.1	4.1	100.1
Sub-Total	40,550	38,050.60	38,050.60	38,050.60	37,890.70	2,484,893	157,843	102,598	65.6	4.2	99.6
REGION 9											
Lethem	98.00	48.50	48.50	48.50	48.50	641	41	26	13.2	0.8	100.0
Sub Total	98.00	48.50	48.50	48.50	48.50	641	41	26	13.2	0.8	100.0
Total	156,985	143,292.75	143,292.75	142,203.70	140,674.50	9,747,945	619,198	402,479	69.3	4.4	98.9



Appendix 10: Paddy Price 2000-2011

Year	First Crop						Second Crop					
	Extra A	A	B	C	Substandard	Extra A	A	B	C	Substandard		
2000	1,300	1,250	1,200	1,150	900/100 0	1,300	1,250	1,200	1,150	900/100		
2001	1,300	1,200	1,100	1,000	600/900	1,300	1,200	1,100	1,000	900		
2002	1,400	1,300	1,300	1,200	1,000	1,400	1,300	1,300	1,300	1,000		
2003	1,350	1,300	1,200	1,100	900	1,400	1,350	1,350	1,350	600/100		
2004	1,400	1,350	1,350	1,350	600/1000	1,500	1,500	1,500	1,500	600/1000		
2005	-	1,500	1,500	1,500	1,000	-	1,700	1,700	1,700	1,000		
2006	2,000	1,800	1,750	1,600	1,000/1,400	1,800	1,700	1,600	1,500	1,000/1,400		
2007	1,900	1,800	1,750	1,700	1,000/1,500	2,300	2,100	2,100	2,100	1,500/ 1,700		
2008	5,500	5,000	4,000	4,000	3,000/4,000	4,500	4,000	4,000	4,000	3,000/4,000		
2009	3,000 -5,000	3,000 -5,000	3,000 -5,000	3,000 -5,000	2,000	2,200 -2,500	2,200 -2,500	2,200 -2,500	2,200 -2,500	1,200		
2010	3,100 -3,500	3,000 -3,500	3,200 -3,600	3,100 -3,600	2,70 0-3,500	2,500 -3,500	2,400 -3,500	2,300 -3,500	2,200 -3,300	2,000 -2,900		
2011	3,900 -4,400	3,800 -4,300	3,600 -4,200	3,500 -4,000	3,400 -3,800	4,100 -4,700	4,100 -4,400	3,800 -4,486	3,600 -4,421	3,500 -4,000		



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