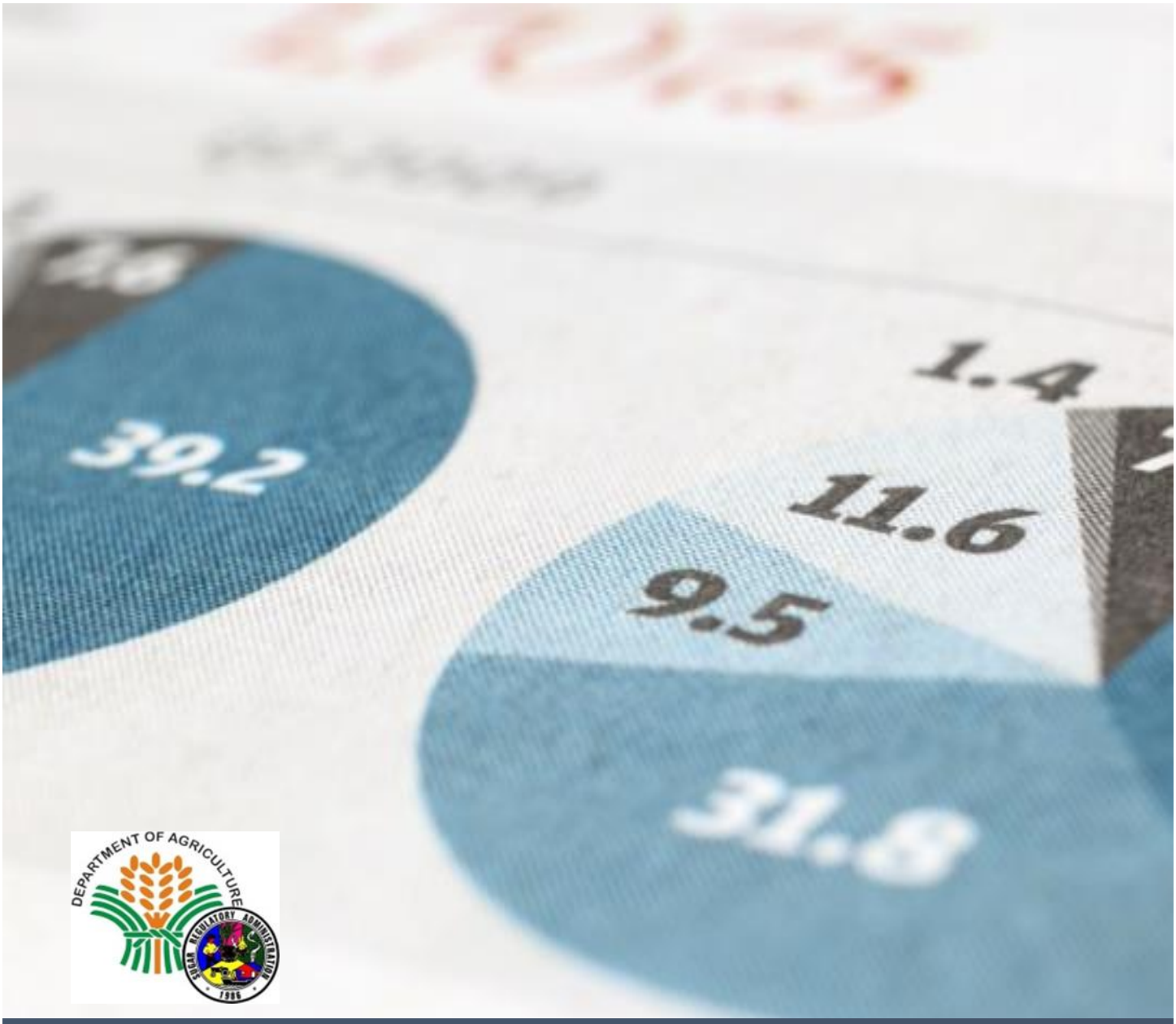

2018 ANNUAL REPORT of ACCOMPLISHMENTS

SUGAR REGULATORY ADMINISTRATION

Sugar Center Building, North Avenue, Diliman, Quezon City, Philippines
www.sra.gov.ph

"The Sugarcane Industry… a constrantly changing landscape."
Administrator H.R. Serafica

CORPORATE OBJECTIVES

The Sugar Regulatory Administration (SRA) was created by virtue of Executive Order No. 18 s. 1986 which declares that: *"it shall be the policy of the State to promote the growth and development of the sugar industry through greater and significant participation of the private sector and improve the working conditions of laborers"*.

RA 10659 or the Sugarcane Industry Development Act of 2015 further declares the policy of the State to promote the competitiveness of the sugarcane industry and maximize the utilization of sugarcane resources, and improve the incomes of farmers and farm workers, through improved productivity, product diversification, job generation, and increased efficiency of sugar mills.

In order to carry out the foregoing policies of the State, the SRA shall operate with the following objectives"

1. *To institute an orderly system in sugarcane production for the stable, sufficient and balanced production of sugar, for local consumption, exportation and strategic reserves;*

2. *To establish and maintain such balanced relation between production and requirement of sugar and such marketing conditions as will ensure stabilized prices at a level reasonable profitable to the producers and fair to consumers;*

3. *To promote the effective merchandising of sugar and its by-products in the domestic and foreign markets so that those engaged in the sugar industry will be placed on a basis of economic viability;*

4. *To undertake such relevant studies as maybe needed in the formulation of policies and in the planning and implementation of action programs required in attaining the purposes and objectives set forth under E.O. 18 s. 1986.*

5. *To implement productivity improvement programs such as block farming, farm support initiatives like farm management, technical assistance and socialized credit, farm mechanization, research and development, and extension services to promote the competitiveness of the sugarcane industry and maximize the utilization of sugarcane resources and improve incomes of sugarcane farmers and workers.*

6. *To establish a supply chain monitoring system from sugarcane to sugar at the retail level to ensure sufficiency and safety of sugar.*

MANDATE

The legal mandate of SRA is embodied in Executive Order No. 18 dated May 28, 1986 creating the Sugar Regulatory Administration. It states that the policy of the State is to promote the growth & development of the sugar industry through greater participation of the private sector and to improve the working conditions of the laborers.

Further, Republic Act 9367 s. 2006 (Biofuels Act of 2006) mandated SRA, as member of the National Biofuel Board (NBB), to develop and implement policies supporting the Philippine Biofuels Program and ensure security of domestic sugar supply.

Furthermore, Republic Act 10659 otherwise known as the "Sugarcane Industry Development Act of 2015" mandates SRA and other government entities to promote the competitiveness of the sugarcane industry and maximize the utilization of sugarcane resources, and improve the incomes of farmers and workers, through improved productivity, product diversification, job generation and increased efficiency of sugar mills.

VISION

"By 2040, the Philippines shall have globally competitive sugarcane industry that supports food, power, and other related industries through an institutionally competent SRA and committed stakeholders, for a secured future for Filipinos."

MISSION

"SRA is a Government Owned and Controlled Corporation which formulates responsive developmental and regulatory policies, and provides RD&E services to ensure sufficient supply of sugarcane for a diversifies, sustainable and competitive industry that improves productivity and profitability of sugarcane farmers and processing industries, and provides decent income for workers towards enhancing the quality of life of Filipinos."

CORE VALUES

Integrity	***We employ the highest ethical standards, demonstrating honesty and fairness in every action that we take.***
Innovativeness	***We deliver public service to the stakeholders of the sugarcane industry in a creative way, anticipate change and capitalize on emerging opportunities.***
Competence	***We will strive to deliver public service effectively by improving our knowledge base socially, environmentally and technically.***
Professionalism	***We treat others with the highest degree of dignity, equality and trust and respect their beliefs and rights as fellow public servants and stakeholders of the sugarcane industry.***
Accountability	***We take responsibility for our performance as public servants and compliance to legal requirements pursuant to government rules, regulations and existing laws.***

STRATEGIC GOALS

(2017-2022)

SOCIO-ECONOMIC IMPACT

Empowered Sector significantly contributing to food security and poverty reduction.

Maintain balanced sugar supply and demand requirements.

STAKEHOLDERS

Improve income, profitability and global competitiveness of the sugarcane industry.

INTERNAL PROCESS

Provide responsive technical assistance and extension services to sugarcane industry stakeholders.

Enforce and implement pro-active and effective policies, rules and regulations.

LEARNING & GROWTH

Sustain the development of expertise and human resources in the field of sugarcane industry, development and related areas.

FINANCE

Maintain sound financial management.

CORPORATE GOVERNANCE STATEMENT

Section 6. Corporate Governance Statement – Guiding principles to the governing boards, executive officers and employees, SRA adopts a Corporate Governance Statement which will inspire their actions and decisions in the operations and affairs of SRA:

"The SRA shall be a transparent, accountable, dynamic, trustworthy, responsive, competitive and professional Government-Owned and/or Controlled Corporation (GOCC) primarily responsible for the growth and development of the Philippine sugarcane industry. It shall be governed by an ethical and competent Board and Management who shall promote good governance and maintain high quality standards of public service to protect and safeguard the interests and rights of its stakeholders, sugarcane industry partners and other clienteles."

DIRECTORY OF SRA KEY OFFICERS

SRA OFFICIAL/ DESIGNATION	DEPARTMENT	CONTACT NUMBER/s	EMAIL ADDRESS
HERMENEGILDO R. SERAFICA	Administrator	srahead@sra.gov.ph	(632) 455-3376 / (632) 455-2135 / (632) 929-3633
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JOSEPHINO M. AGOSTO	Manager III, Administrative & Finance, Luz/Min	dep_adm@sra.gov.ph / afd_mgr@sra.gov.ph	(632)924-4034 / (632)455-1589 / (632)926-6471/ (632)455-7656
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MARIETTA DINA PADILLA-FERNANDEZ	Chief, RD Extension & Technical Services Division (Luzon & Mindanao)	extn_off@sra.gov.ph	(632)929-6135
MA. NATALIA R. TASIS	OIC, Sugar Regulation & Enforcement Division (Luzon & Mindanao)	sred@sra.gov.ph	(632)455-0793
MA. ROSARIO R. SOLA *(extension of service from January to June 2018)*	OIC, Sugar Regulation & Enforcement Division (Visayas)	sred_vis@sra.gov.ph	(6334)434-1470

BIOGRAPHICAL DETAILS OF THE SRA BOARD

NAME & DESIGNATION	QUALIFICATIONS	DATE OF FIRST APPOINTMENT	RELEVANT EXPERIENCE
HERMENEGILDO R. SERAFICA *Administrator and Co-Chair Sugar Board*	- Bachelor of Science in Mechanical Engineering, University of San Carlos (1978)	09/29/2017	• CHAIRMAN Philippine Sugar Corporation • PRESIDENT HFT&E Serafica Realty Inc. • PRESIDENT H Serafica & Sons Corporation • PRESIDENT F.S. Serafica Enterprises, Inc. • CORPORATE SECRETARY Pepite Serafica Development Corporation • PRESIDENT HR Serafica Plantation Corp. Brgy. Valencia, Ormoc City, Leyte from July 2015 to September 30, 2017 • CHAIRMAN Ormoc-Kananga Mill District Development Council Foundation, Inc (MDDC) • MEMBER – PRIVATE SECTOR REPRESENTATIVE LOGISTICS SECTOR Regional Development Council – • PRESIDENT Leyte Cane Planters Association, Inc. • MEMBER – BOARD OF DIRECTOR United Sugar Producers Federation of the Phils. Inc. (UNIFED) • MEMBER BOARD OF TRUSTEES Philippine Sugar Research Institute (PHILSURIN • GUEST DIRECTOR PHILSURIN Finance Committee • BOARD MEMBER Ormoc Sugarcane Planters Association (OSPA)
ROLAND B. BELTRAN *Board Member* Miller's Sector	Bachelor of Laws – San Beda College (1989) Bachelor of Arts Major in Economics – San Sebastian College (1985)	12/12/2016	• COMMISSIONER on Bar Discipline – Integrated Bar of the Philippines • LAWYER-PARTNER – Beltran & Reyes Law Offices • ASSOCIATE LAWYER – Ledesma Saludo & Associates • LEGAL ASSISTANT – SM Investment
EMILIO BERNARDINO L. YULO *Board Member* Planter's Sector		11/21/2017	• COMMISSIONER on Bar Discipline – Integrated Bar of the Philippines • LAWYER-PARTNER – Beltran & Reyes Law Offices • ASSOCIATE LAWYER – Ledesma Saludo & Associates

			• LEGAL ASSISTANT – SM Investment • PARTNER, Yulo Villarin & Barcelona Law Office (2004-Present) • CHAIRMAN- Committee on Laws& Good Governance-Province Negros (2010-2013) • MEMBER - Sanguniang Panlalawigan of 5th District Province of Negros Occidental (2010-2013) • VICE GOVERNOR, Province of Negros Occidental (2008-2010) • PROFESSOR, College of Law University of La Salle- Bacolod (1997-2011) • CHAIRMAN, Committee on Environment-Province of Negros Occidental (2018-2010) • Co-CHAIRMAN/MEMBER, Provincial School Board-Province of Negros Occidental (2004-2010) • REGIONAL CHAIRMAN - Region VI Provincial Board Members League of the Philippines (2007-2008) • CHAIRMAN- Committee on Education-Province of Negros Occidental (2004-2008) • MEMBER - Sanguniang Panlalawigan of 5th District Province of Negros Occidental (2004-2008) • CITY LEGAL OFFICER, City of Himamaylan (2001-2003) • PARTNER, Sarmiento Yulo Law Offices • PROFESSOR, College of Business & Accountability University of La Salle-Bacolod (1997-2000)

TRAININGS ATTENDED BY THE ADMINISTRATOR & THE SUGAR BOARD

NAME & DESIGNATION	Title & Date of Training
HERMENEGILDO R. SERAFICA *Administrator and* *Co-Chair Sugar Board*	• Development of Sustainable Sugarcane Cultivation System in the Philippines, February 3-11, 2018 • How to Avail the Social Credit and Financial Literacy Training Program, February 27, 2018 • Finance for Directors, March 27, 2018 • Best Practices in Business and Government Protocol, May 18, 2018 • Professionals Directors Program, June 6; June 20-21; June 27-28, 2018 • Best Practices on How to conduct Strategic Planning and Prepare Strategic Actions Plans, July 20, 2018 • Corporate Governance Board Effectiveness Best Pratices, November 9, 2018
ROLAND B. BELTRAN *Board Member* Miller's Sector	• Development of Sustainable Sugarcane Cultivation System in the Philippines, February 3-11, 2018 • How to Avail the Social Credit and Financial Literacy Training Program, February 27, 2018 • Best Practices in Business and Government Protocol, May 18, 2018 • Professionals Directors Program, June 6; June 20-21; June 27-28, 2018 • Corporate Governance Board Effectiveness Best Pratices, November 9, 2018
EMILIO BERNARDINO L. YULO *Board Member* Planter's Sector	• How to avail the Social Credit and Financial Literacy Training Program, February 27, 2018 • Corporate Governance Orientation Program for GOCC's, April 18, 2018

Introduction

The legal mandate of SRA is embodied in Executive Order No. 18 dated May 28, 1986 creating the Sugar Regulatory Administration. It states that the policy of the State is to promote the growth & development of the sugar industry through greater participation of the private sector and to improve the working conditions of the laborers.

Further, Republic Act 9367 s. 2006 (Biofuels Act of 2006) mandated SRA, as member of the National Biofuels Board (NBB), to develop and implement policies supporting the Philippine Biofuels Program and ensure security of domestic sugar supply.

For the year in review, the key departments, of the Sugar Regulatory Administration present their accomplishments.

REGULATION DEPARTMENT

Luzon/Mindanao

Seeing the need to prioritize domestic sugar supply due to a drop in the estimated production for the current Crop Year which in effect pulled up domestic sugar prices, the SRA has issued Sugar Order (SO) No. 9 S of 2017-2018 on conversion or reclassification of "D" to "B" sugar. From this SO, the Regulation Department initiated this conversion rights that belong to planters and millers who have produced "D" sugar during Crop Year 2017-2018 and 2016-2017.

Following this policy was the initial importation under SO No. 10 Series of 2017-2018 during the first half of the year in the total volume of 200,000 Metric Tons (MT). This was participated by eligible international sugar traders for Crop year 2017-2018. In this SO, a Certificate of Reclassification Rights from planters and millers to acquire for volume of allocation was part of the requirements.

However, since there was still shortage in production and sugar prices are high under normal conditions, SO # 2 Series of 2018-2019 was issued for the second batch of importation in the total volume of 150,000 MT.

With the issuance of the Administrative Order # 13 by Malacañang on ***Removing Non-Tariff Barriers and Streamling Administrative Procedures on the Importation of Agricultural Products,*** the Certificate of Reclassification Rights was no longer part of the requirements in the second batch of importation.

Although there were a number of traders who exceeded in the required volume of the second imports, these imports are no longer part of the import program of SRA since the whole volume of 150,000 MT has been allocated to traders who first came with complete requirements. In excess of the same volume shall be classified as "C" or Reserved Sugar as per SO No. 2 Series of 2018-2019 which cannot be withdrawn from designated warehouses until such time sugar production and prices have normalized.

As of December 31, 2018, a total of 149,950 MT have been imported. 134,750 MT of the imported sugar were already in the trader's warehouse. 7,875 MT were withdrawn, 7,225 MT were at the BOC while remaining 100 MT still in transit. 13,650 were delivered and utilized by various industries like Coke, Uniliver, Nestle, Rebisco, Columbia, ARC, Pepsi, Zesto , BCFG and Yakult.

Aside from the implementation of the importation program, the other accomplishments of the Department covering this Calendar Year are the following:

- **"A" US SUGAR QUOTA** As of August 2018 Sugar shipment to US Market with quedans of Crop Years 2016-2018 was 116,211 MT. 37 US Export Clearances were issued with a gross income for the agency in the amount of P5,810,587 lower than last year's collection amounting to P8,135,356. With an initial allocation of "A" sugar beginning Crop Year 2018-2019, the United States of America has allocated a regular quota for the Philippines in the quantity of 136,201 Metric Tons Commercial Weight (MTCW).

- **WORLD MARKET "D" sugar**, Seventy seven (77) Clearances were issued in the total quantity of 18,375.93 MT with a total collection of P918,796.50. However, at the beginning of the new Crop Season 2018-2019, no "D" sugar was allocated.

- **IMPORTED SUGAR ALLOCATION** Total imported sugar allocation to Food Processors/exporters/CBWs used as raw materials for their products was 62,520 MT which is lower by 3.57% from last year's 64,840 MT. Withdrawals recorded for this year was at 54,953.96 MT which is 26% higher than last year's 51,343.65 MT. Monitoring fee collected was at P27,616,627.50. While the total clearance fee for both raw and refined sugar was P294,440,391.70.

  A number of Food Processors also availed of the "D" to "E" sugar and liquidated the volume of sugar used in their products intended for export for them to be able to claim their surrendered Bond Payment.

- **SUGAR PRODUCTION MONITORING** For Crop Year 2017-2018, "B" sugar was allocated 80% to Domestic Market, 10% to "A" US Market and 10% for "D" World Market sugar. However, it was amended to 93% "B" sugar, 6% "A" and 1% "D" during the early part of January 2018. This was done for the purpose of prioritizing the domestic market while maintaining a comfortable buffer stock or carry –over volume of "B" sugar during the end of the milling season and the start of the Crop Year for stable supply and prices. By the end of Crop Year (CY) 2017-2018, sugar production posted at 2,083,641 MT, a 16.67% decrease from the same period of last CY's 2,500,509 MT.

  "B" raw sugar withdrawals during Crop year 2017-2018 was slow at 2,098,353MT compared to last Crop Year's 2,116,151MT.

On the other hand, raw sugar production for Crop Year 2018-2019 as of December 30, 2018 posted at 688,364 MT higher than the same period of last year's 620,553 MT. While refined sugar production was 4,865,837 LKg bags; a 14% lower from last year's 4,251,823 LKg bags. On the other hand, raw sugar withdrawal was at 461,766 MT; 32% lower compared to the same period at 683,746 MT while refined sugar withdrawal was at 4,593,443 LKg bags or 27% lower than last year's 6,302,888 LKg bags.

Raw Sugar Balance by the end of the year 2018 was at 386,751 MT covering Crop Year 2018-2019; lower than last year's 434,577. Refined Sugar Stock Balance of the same period was at 3,061,202 LKg bags; lower than last year's 4,024,059 LKg bags.

- **"D" to "E" WITHDRAWAL for the year** was at 2,691.48 MT that gave the agency P1,345,989.75 as monitoring fee.

- **HIGH FRUCTOSE CORN SYRUP/CRYSTALLINE (IMPORT)** There were 7,150.84 MT of HFCS imported and 210 clearances issued with a total income of P219,729.13. Compared to last year's 244,894.06 MT, this year's volume of HFCS imports was down by -98%. Beverage companies have started using local sugar instead of HFCS imports to avoid paying higher tax on alternative sweeteners following the imposition of a tax of P6 a liter on drinks using sugar and other sweeteners against a tax of P12 on HFCS.

There was also re-export of the HFCS in the total volume of 19,298.68 MT by Pepsi Cola Products, Inc and Coke Cola Femsa Philippines Inc. due to the huge excise tax implemented on the usage of the said commodity.

- **SUGAR STOCK INVENTORY** Levelling up of inventory and monitoring was started this year paving the way for the Monitoring Team to go to Malaysia, Hongkong and Singapore for the purpose of random verification of export shipment of "D" sugar of some food processors and traders, documents and the existence of consignees. From the said monitoring, shipments of "D" sugar were confirmed as well as the legality of existence of consignees of the shipped sugar. However, there were also issues on shipments of "D" sugar that were allegedly not shipped out and the non-existence of consignee.

During the start of the year, sugar stock inventories were conducted at food processors' warehouses in different parts of the country to check the stocks of imported sugar by doing the physical count against the warehouse ledger. As a result, actual physical sugar at warehouse reflect the same with the SRA count. However, some were advised to reflect in their warehouse ledger the imported clearance number of their sugar withdrawals to avoid confusion on the part of the Monitoring Team as well as the food processors.

- **PREMIX SAMPLING** Coordinated, witnessed the collection of twenty seven (27) premix sampling covering mostly whey products, food supplements and other products for laboratory analysis to check sucrose content. A number of these samples were not detected with sucrose content but there were some products detected with above 65% sucrose content. The rest of the samples have lower percentage content of sucrose.

There were 3,890 Premix Commodity Clearances processed composed of baking products, beverage concentrate, flavorings, assorted chocolates, sweeteners, creams, candies, various syrups, whipping cream, food supplements, whey products and etc. There were products issued with clearances in the absence of laboratory analysis since these were already issued a Certificate of Product Analysis from SRA laboratory. The agency earned P10,369,387.77 from these issued clearances.

- **BOC AUCTION** – Opening and inspection of seven container vans of seized undocumented imported refined sugar by the Bureau of Customs (BOC) in Cagayan De Oro was witnessed by the LMD Monitoring Team. Following this was the auction and disposal of the said containers. Another public auction of 428 sacks of refined sugar in 10x20 containers from Thailand was also witnessed held at the Ground Floor, MICP Building, North Harbor, Tondo, Manila. In this auction, four (4) registered sugar traders participated in the said bidding.

- **PHYSICAL SUGAR STOCK INVENTORY**. The SRED also conducted and verified physical sugar stock inventory in the mills and refineries using 3D laser Scanner for testing in Central Azucarera De Tarlac and Crystal Sugar in Bukidnon as well as reconciling the sugar stocks with quedans that are still outstanding. 10 mills and 6 refineries in the Luzon/Mindanao area were inventoried for physical sugar and molasses stock. Prior to the start of the milling season and as part of requirements of SRA, mill scales in mill districts covering those in Porac, Pampanga, Tarlac, Balayan, Batangas, Maramag and Quezon, Bukidnon were calibrated with the presence of mill, planter and SRA representatives. Calibration is done as an assurance of integrity and accuracy of the mill scales.

For this year, 70 weighing scales in Mill Districts were calibrated with the presence of representati ves from SRA and mill in which all representatives attested their signatures on the SRA Seal which were affixed on each of the weighing scales for security purposes.

- **SUGAR PRICES MONITORING** Millsite prices of "B" sugar in January initially averaged at P1,390.00 compared to the same period of last year's price at P1,367.00. By the end of December, millsite price of "B" was 23% higher at P1,621.33 compared to P1,319.16 millsite price last year.

The prevailing wholesale price of refined sugar was monitored at P2,000.00 beginning January lower than the same period of last year at P2,300.00. Prevailing price went up in June at P2,900.00 and eventually nailed at P2,200.00 by the end of the year. On the other hand, the prevailing retail price of refined sugar was at P53/kilo up to the month of May. By June towards the end of the year, the retail price of sugar was high at P62/kilo.

As per monitoring in different groceries and supermarkets, refined sugar prices of a number of various brands were significantly high at P73.00/kilo despite the arrival of imported sugar in the local market. The attention of concerned outlets was called to justify their prices while continuous monitoring of sugar prices was constantly done in the hope that prices are in acceptable price level that is reasonable and fair for both traders and consumers.

Meanwhile, the Philippine average millsite price of Molasses during the first month of the year was P4,651.46 per MT which was much lower than the same period of the previous year's P5,040.91 per MT. By the end of the year, molasses prices were up at P8,236.82 per MT compared to the same period of last year's P4,629.32. While the average molasses price for the whole year was at P6,631.07.

- **TRADER APPLICANTS** Monitoring and inspection activities of new traders were strictly implemented to operate as traders upon completion of valid requirements. For the whole year of 2018, **29** office/warehouse inspections were conducted. **28** were approved to operate as a trader while **1** trader applicant did not pursue application. **91** Domestic Sugar, **55** International, **26** HFCS, **49** Domestic Molasses, **20** International, and **9** Muscovado registered as traders. Collections for this year was at **P4,174,000.00**

Following CY 2018-2019, as of December 31 2018, **19** new trader applicants were inspected and approved. While **77** Domestic Sugar, **49** International, **21** HFCS, **42** Domestic Molasses, **17** International and **7** Muscovado were given License to operate as Trader. Total collection was P3,3567,000.00.

OTHER REGULATORY SERVICES

Also processed and issued the following applications during the year with corresponding collections are the following:

27 mills and**12** refineries have registered for Crop Year 2018-2019 December 31, 2018 (Earnings **P108,350.00**)

41Certificates of Quota Eligibility (CQE) to Traders

40 Certificates of Origin (**P1,163,367**)

857 Issued Imported Sugar Clearance to Food Processors (CBW/Imported Sugar Monitoring Fee **P27,616,627.50**)

210 High Fructose Corn Syrup (Crystalline Fructose and HFCS (**P219,729.13**)

516 Certificate of Exchange Authority (Regular Swapping) issued in the total volume of **181,465.21**MT (**P5,567,766.12**)

17 Reclassification of "D" to "E" issued in the total quantity of**52,137** Lkg (**P156,411**)

7,044 Replenishment of "A" to "B" Quedan verified and processed (**2,301,799.65**)

103 Certificates of Sugar Requirements of Food Processors (**P255,000.00**)

52 Imported Molasses Clearance issued with a volume of **266,271** MT (**P125,667,722.35**)

137 Export Clearance Muscovado issued in the total quantity of **2,300.66**MT **P65,760**)

175 shipping permit issued (**P1,436,255**)

1,363 Sugar Released Order

P135,433,833.62 (Fees collected by SRED for regulatory, stabilization, special milling, milling permit, monitoring, bioethanol liens and monitoring fees.)

REGULATION DEPARTMENT

V I S A Y A S

Executive Summary

The Regulation Department covered 17 raw sugar mills, 7 refineries, 6 bio-ethanol plants, 5 Cebu-based CBWs, 2 bulk terminal loading ports for international shipments, all ports where sugar are loaded for inter-island shipping, all international/domestic sugar and molasses traders operating and transacting in the Visayas.

It is originally composed of 2 divisions: Sugar Regulation & Enforcement Division and the Licensing and Monitoring Division. However, it also performs Sugar Transaction functions as an extension of the Division.

Memorandum Order No. 8, series of 2018, dated October 31, 2018, instructed the transfer of the supervision of the Laboratory Services to the Regulation Department, hence, the inclusion of the Laboratory Services Division to the department's composition.

The following are the accomplishments per division:

SUGAR REGULATION & ENFORCEMENT DIVISION

Table I.

	2018	2017	
		Production	%Inc(Dec)
Raw sugar (MT)	1,411,375.000	1,756,744.500	(19.66)
Refined Sugar (LKg)	11,637,461.00	12,327,794.36	(5.60)
Molasses (MT)	747,805.440	910,259.500	(17.85)
		Withdrawals	
Raw sugar (MT)	1,506,329.000	1,794,711.450	(16.07)
Refined Sugar (LKg)	10,700,809.00	12,643,285.04	(15.36)
Molasses (MT)	1,327,002.000	891,383.110	48.87
		Stock Balance	
Raw sugar (MT)	245,417.000	434,049.180	(43.46)
Refined Sugar (LKg)	1,483,295.00	2,482,569.11	(40.25)
Molasses (MT)	100,990.360	243,087.030	(58.46)

Raw sugar, Refined sugar and Molasses production for the year 2018 decreased at a certain rate. Raw sugar production declined by 19. 66%, refined sugar was also down by 5.6% and the molasses production declined by 17.85%. Raw sugar and Refined sugar withdrawals also decreased by 16.07% and 15.36%, respectively while Molasses production increased by 48.87%.

The following table presents the other activities and accomplishments of SRED:

Table II

	2018	2017	%Inc(Dec)
Raw Sugar Quedans	350,333	441,669	(20.68)
Refined Sugar Quedans	1,123	1,557	(27.87)
Molasses Certificates	283,072	375,389	(24.59)
Raw SRO	5,017	4,345	15.47
Refined SRO	1,608	937	71.61
Scales Calibrated	167	115	45.22
SMS Reports	7,941	8,536	(6.97)

Samples Collected:			
Sugar	719	674	6.68
Molasses	37	25	48.00
Warehouses:			
Inventoried	106	167	(36.53)
Inspection Conducted	1,288	1,421	(9.36)
Molasses Tanks:			
Inventoried	95	116	(18.10)
Inspection Conducted	1,073	1,421	(24.49)

Raw sugar quedans decreased by 20.68%. This was due to several factors; the decrease in sugar production and the implementation of Sugar Order No. 1 series of 2018-2019 that eliminates "D" Sugar in the classification. It has stated therein the allocation of the following sugar classes; "A" – 5%; "B" – 95%. Refined sugar quedan and Molasses Certificates decreased by 28% and 25% respectively. This was attributed to the decrease in production.

There is a decrease in the total number of warehouse inventoried by 18% during end of milling inventory for the crop year 2017 -2018. This is for the reason that some warehouses were emptied earlier due to the decrease in production. Molasses tanks inventoried and inspections done also decreased at a certain rate.

Income Generated

The income generated for this Fiscal Year increased to 1.26% as compared to the previous year. This is due to the 26% increase in the collection of monitoring fee, Raw to Refined which was attributed to the refining of some imported sugar and the increase of 14.02% in the collection of BRDE Liens. This was achieved because of the department's efficiency in its collection activity.

The following details summarize the collection report of the Department for the Fiscal year 2018:

Table III

Accounts Title	2018	2017
Stabilization Fee	26,109,048.80	27,321,754.88
Special Milling Fee	2,593,268.48	2,732,577.63
Milling Permit Fee	13,211,122.74	13,824,812.98
Mon. Fee, Raw to Refine	30,124,887.80	23,909,566.73
Mon. Fee, Raw	66,031,301.94	69,030,336.43
Mon. Fee, Bioethanol	3,531,441.70	3,809,812.00
Advance Refining D Sugar	4,532.75	0
Extension fee (Disposition of sugar from Warehouses)	3,908.00	0
Monitoring Fee, Bioethanol Trust Fund	7,062,883.40	6,194,192.40
Total	**148,672,395.61**	**146,823,053.05**

***SRED-VISAYAS MILESTONES/HIGHLIGHTS**

1. Verified and collected a total of Php 138,069,629.76 as payment for sugar liens, and raw and refined sugar monitoring fees.

2. Full collection of BRDE Liens from SCBI, Kooll Company, ROXOL Bioenergy Corporation, URC-Ursumco and Leyte Agri, in the amount of Php 7,062,883.40. It increased by 14.02% from last year's 6,194,192.40.

3. Conduct of training re: Laser Scanner Training which was conducted by SITECH Philippines Inc. the distributor of the Laser Scanner Technology. This was held in the SRED Office on March 8 -12, 2018. This training was attended by the Regulation officers in Visayas, Luzon and Mindanao Area. In this training, a thorough discussion of the technology and its usage was done and there was a hands – on training on how to use the said technology. Laser Scanner is set to be used for the sugar inventory in the future.

4. For 3 months the Inventory Team of the Regulation Department Visayas completed the tasks committed in Special Order No. 165 which aimed to familiarize and put into practice the laser-scan technology. Nine experimental inventories were conducted in the mills of Negros (Lopez, VMC, CACI & SONEDCO) and Panay (Capiz, Passi & Casa). The team succeeded to address and solved most problems arising from every laser-scanning activity and to calculate the bulk sugar volume by the use of the software. At the end of the first phase of the project, the Team mastered a step by step procedure on the use of proper method of inventory and as well as mastered software instructions to perform volume calculations.

5. Attendance of 47 personnel to the Regional Conference of the Regulation Department of Visayas area with the theme: "Strategic Review of Regulatory Work Procedures" at La Vista Highland Mountain Resort Paradise Highway, San Carlos City. This conference provided fundamental knowledge about regulation matters, its functions and work procedures to the newly hired personnel of the department and refreshed the ideas to personnel that were in the department for a couple of years. This activity also created a positive impact to the professional growth of all the Regulation Personnel of Visayas and strengthened their teamwork in the pursuit of responsive and efficient services to its clienteles.

LICENSING & MONITORING DIVISION

Licensing and Monitoring Division-Visayas (LMD-Vis) collected Php 39,232,981.76 as shipping permit fees from the 25,275,285.50 Lkg.-bags covering 19,670 shipping permits issued.

The inter-island shipments had 29 destinations and were issued permits by the Bacolod City Office and satellite offices in Cebu, Iloilo, Dumaguete and Ormoc Cities. Table IV tells us that the most number of shipping permits were issued by the SRA-Bacolod office.

Table IV. Shipping Permit Issuance in the Visayas

SHIPPING PERMIT ISSUANCE		2018	2017	% Inc (Dec)
a.	Negros Occidental	15,467	14,894	3.8
b.	Cebu	633	781	(18.95)
c.	Panay	1,496	1,859	(19.53)
d.	Dumaguete	1,967	1,686	16.66
e.	Leyte	107	35	205.71
	Total	**19,670**	**19,255**	**2.15**

There was a 2.15% increase in the number of shipping permit issuances from the Visayas. This was despite a decrease of 18.95% in the shipping permit issuance of the Cebu Office, and decrease of 19.53% in the issuance of SRA-Panay. A large increase of 205.71% in the issuance of the Leyte Area is observed. The sugar shipments were in the following forms:

Table V. Kinds of Sugar Shipped in the Visayas

Kinds of Sugar Shipped (Lkg bags)	2018	2017	% Inc (Dec)
Raw	13,216,007.43	13,893,139.81	(4.87)
Refined	11,924,718.20	11,253,077.98	5.97
Others	134,559.87	113,088.05	18.99
Total	**25,275,285.50**	**25,261,322.84**	**0.055**

The 19,670 shipping permits processed for the year covered a total of 25,275,285.50 Lkg-bags, 0.055% higher than the volume issued with permits last 2017.

The destinations, vis-à-vis the volumes were as follows:

Figure 1. Raw Sugar Shipment per Destination

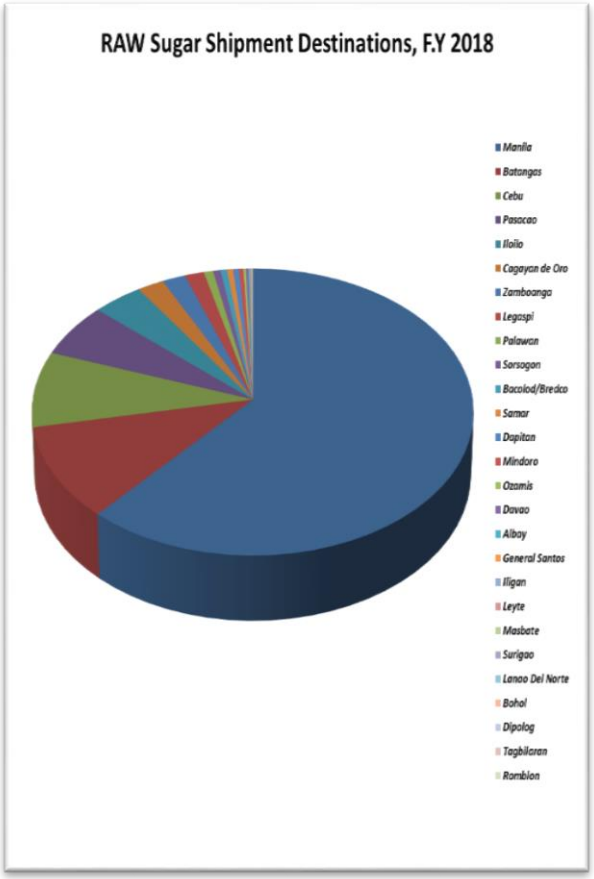


Table VI. RAW SUGAR

SUMMARY OF SUGAR SHIPPED PER DESTINATION FISCAL YEAR 2018

Destination	Volume (LKg-Bags)	Percentage
Manila	8,119,713.22	61.44%
Batangas	1,384,589.51	10.48%
Cebu	1,130,404.61	8.55%
Pasacao	808,975.00	6.12%
Iloilo	529,547.09	4.01%
Cagayan de Oro	278,130.00	2.10%
Zamboanga	245,220.00	1.86%
Legaspi	204,000.00	1.54%
Palawan	97,410.00	0.74%
Sorsogon	78,400.00	0.59%
Bacolod/Bredco	69,376.00	0.52%
Samar	61,900.00	0.47%
Dapitan	61,300.00	0.46%
Mindoro	47,769.00	0.36%
Ozamis	26,600.00	0.20%
Davao	23,510.00	0.18%
Albay	21,953.00	0.17%
General Santos	10,000.00	0.08%
Iligan	4,400.00	0.03%
Leyte	3,400.00	0.03%
Masbate	2,200.00	0.02%
Surigao	2,000.00	0.02%
Lanao Del Norte	1,600.00	0.01%
Bohol	1,500.00	0.01%
Dipolog	1,110.00	0.01%
Tagbilaran	800.00	0.01%
Romblon	200.00	0.00%
TOTAL	**13,216,007.43**	**100.00%**

Figure 2. Refined Sugar Shipment per Destination

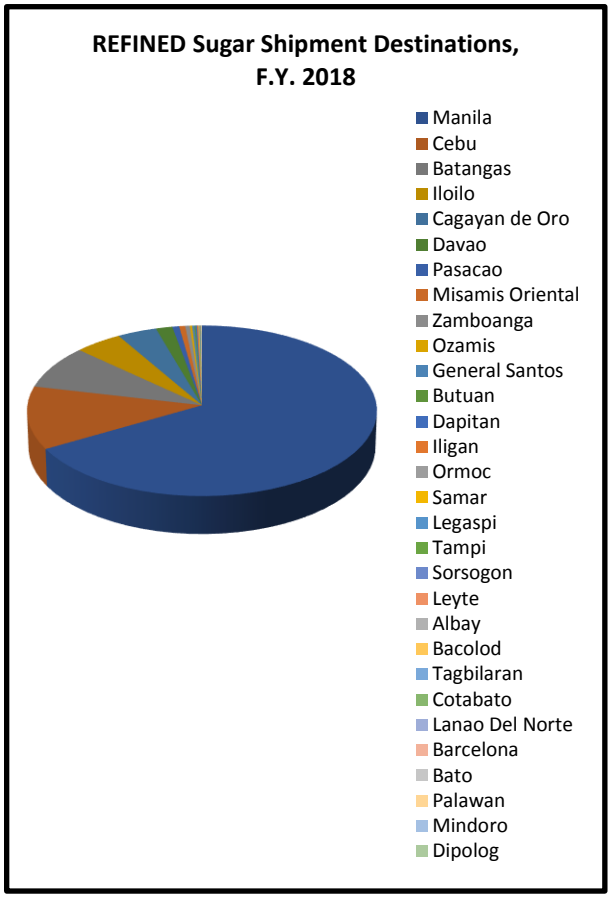


Table VII. REFINED SUGAR
SUMMARY OF SUGAR SHIPPED PER DESTINATION
FISCAL YEAR 2018

Destination	Volume (LKg-Bags)	Percentage
Manila	7,952,725.20	66.69%
Cebu	1,419,839.00	11.91%
Batangas	986,716.00	8.27%
Iloilo	560,979.00	4.70%
Cagayan de Oro	464,278.00	3.89%
Davao	193,900.00	1.63%
Pasacao	80,121.00	0.67%
Misamis Oriental	69,640.00	0.58%
Zamboanga	54,450.00	0.46%
Ozamis	27,320.00	0.23%
General Santos	25,200.00	0.21%
Butuan	16,000.00	0.13%
Dapitan	14,950.00	0.13%
Iligan	14,000.00	0.12%
Ormoc	8,000.00	0.07%
Samar	7,850.00	0.07%
Legaspi	5,500.00	0.05%
Tampi	4,500.00	0.04%
Sorsogon	3,000.00	0.03%
Leyte	2,900.00	0.02%
Albay	2,700.00	0.02%
Bacolod	2,400.00	0.02%
Tagbilaran	2,300.00	0.02%
Cotabato	1,600.00	0.01%
Lanao Del Norte	1,600.00	0.01%
Barcelona	1,000.00	0.01%
Bato	500.00	0.00%
Palawan	350.00	0.00%
Mindoro	250.00	0.00%
Dipolog	150.00	0.00%
TOTAL	**11,924,718.20**	**100.00%**

Figure 3. Muscovado Sugar Shipment per Destination

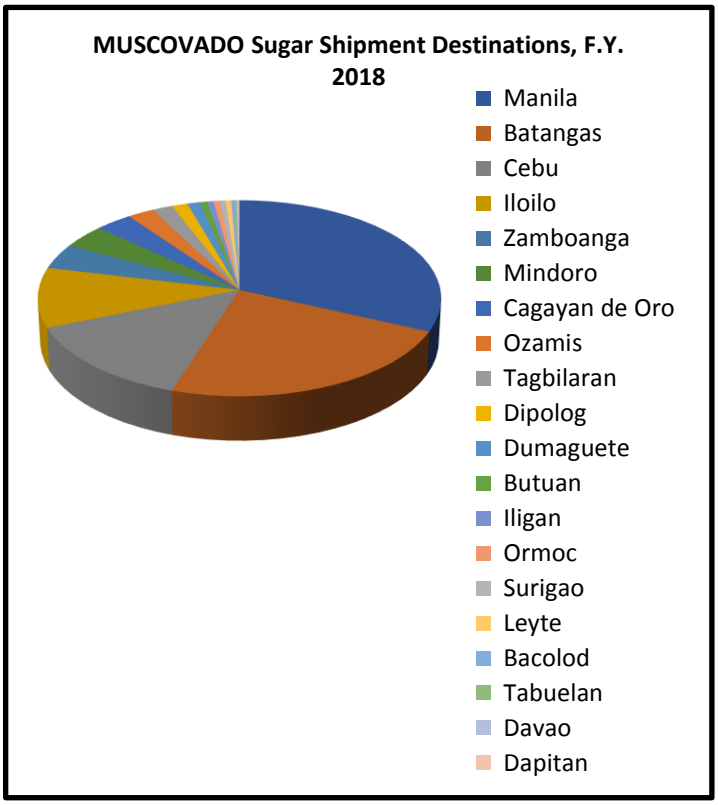


Table VIII. MUSCOVADO SUGAR SUMMARY OF SUGAR SHIPPED PER DESTINATION FISCAL YEAR 2018

Destination	Volume, (LKG-Bags)	Percentage
Manila	42,777.85	31.79%
Batangas	31,236.50	23.21%
Cebu	18,601.10	13.82%
Iloilo	13,290.90	9.88%
Zamboanga	5,523.00	4.10%
Mindoro	5,260.60	3.91%
Cagayan de Oro	4,406.22	3.27%
Ozamis	3,111.00	2.31%
Tagbilaran	2,400.00	1.78%
Dipolog	1,840.00	1.37%
Dumaguete	1,478.00	1.10%
Butuan	872.00	0.65%
Iligan	739.00	0.55%
Ormoc	725.00	0.54%
Surigao	690.00	0.51%
Leyte	660.00	0.49%
Bacolod	388.70	0.29%
Tabuelan	220.00	0.16%
Davao	220.00	0.16%
Dapitan	120.00	0.09%
TOTAL	**134,559.87**	**100.00%**

For 2018, LMD-Visayas generated Php 39,232,981.76, in revenues, the bulk of which were from the issuance of shipping permits:

Table IX.

Accounts	2018	2017	% Inc (Dec)
Milling License Fee	36,900.00	43,300.00	(17.34)
Registration Fee-Traders	2,005,000.00	2,287,500.00	(12.35)
Shipping Permit Fees	39,232,981.76	38,389,406.80	2.20
Clearance Fee-Export of Sugar	25,197.79	19,506.58	29.18
Registration Fee-Muscovado Converter	102,000.00	120,000.00	(15.00)
Registration Fee-Bioethanol Manufacturer/Producer	4,000.00	2,000.00	100.00
Registration Fee-Warehouse	10,000.00	4,000.00	150.00
Total	**41,416,079.55**	**40,863,713.38**	**1.35**

Table X. OTHER LMD ACTIVIES

Other LMD Activities	2018	2017	%Inc(Dec)
Shipping Permits Issued	19,670	18,936	3.88
Volume Covered, Lkg	25,275,285.50	25,211,875.24	0.25
Traders Registered	164	176	(6.82)
CBWs	5	5	0
Imported Sugar Inspected/Released,Lkg	171,000	78,000	119.23

Of the 164 traders registered, 89 were purely for domestic sugar trading and 109 were domestic and international, 38 were molasses traders and 17 were for muscovado trading. For registration of traders, LMD-Visayas collected a total of Php 2,107,000.00 as fees.

Highlights of LMD- Visayas' Activities for FISCAL YEAR 2018:

1. Processed / Facilitated issuance of 164 licenses to various traders (sugar, molasses and muscovado) amounting to Php 2,107,000.00.
   Issued 19,670 shipping permits to various shippers/traders amounting to Php 39,232,981.76.
2. Monitored sugar exports at different loading ports:

   "A" Sugar *93,923.7605 MT*
   "D" Sugar *6,615.474 MT*

3. Sealed and Monitored 206,703.17 Lkg. Bags "D" Sugar Shipments
   Sealed and Monitored 28,375.00 Lkg. Bags "E" Sugar Shipments
4. Verified export documents of CBWs with documents issued by Bureau of Customs.
5. Monitored 73,116.914 MT Molasses import shipments and 6,474.392 MT local molasses at bulk terminals
6. Monitored sugar and molasses bided-prices in Visayas area.
7. Monitored weekly retail and wholesale prices of sugar and muscovado among wet markets and supermarkets
8. Inspected 7 Offices/Warehouses of Trader Applicants.
9. Facilitated processing of milling permits of 5 sugar mills and refining permits of 3 refineries.
10. Conferred with CBW Processing Plants representatives regarding submission of utilization reports, warehouse stock inventory ledgers and other documents pertaining to their product for export.
11. Monitored/inspected imported sugar arrivals and releases for CBWs.

A. SUGAR TRANSACTIONS

The income generated performing Sugar Transactions totaled 6, Php4,73734.27, a big part of which were made from applications for Reclassification of "D to B" per Sugar Order No. 9, series of 2017-2018 and the Reinstatement of Homeless Quedans. The details are shown in Table XI.

Table XI. Income from Sugar Transactions

Account Title	2018	2017
Reinstatement-Homeless Quedan	1,783,698.65	150.00
CEA Amendments	4,179.48	67,500.00
Regular Swapping	79,588.08	619,130.12
Advance Swapping/Replenishment	364,944.45	0
Reclassification	2,495,673.61	0
Revalidation fee on sugar	8,650.00	1,050.00
Fines & Penalties-Stop Lift Order	0	10,791.24
Extension Fee for new Deadline of Shipment /Commitment	109,109.85	0
Subtotal	**4,736,734.27**	**698,621.36**

For 2018, a total of 128 applications for various transactions were accommodated and completed by the Sugar Transaction Division. The 15 Regular Swapping transactions translated to the 15 Certificates of Exchange Authorities issued to various traders and stakeholders. The significant increase in the fees collected may be attributed to the increased applications for Reinstatement of Homeless Quedans, especially of "D" sugar quedans, to qualify the same for the Reclassification program which covered verified "D" sugar quedans produced in Crop Year 2017-2018 and Crop Year 2016-2017.

Table X

	2018		2017	
	No. of Transactions	Lkg Bags Covered	No. of Transactions	Lkg Bags Covered
Reinstatement of Homeless Quedans	11	114,997.56	1	10
Revalidation of Quedans	14	148,811.69	20	37,613.71
Regular Swapping	15	47,527.68	47	413,158.06
Certificate of Exchange Authorities Issued	15		49	
Verification of "A" Quedans	0	0	9	2,891.58
Verification of "D" Quedans	51	279,054.03	63	312,053.67
Cancellation of Verification of "D" Quedans	0	0	20	49,522.13
Change of Ownership	1	906.55	1	15,000
Reclassification "D to B"	36	259,567.36		

A total of 4,555 pcs. of "D" Quedans were submitted for verification when Sugar Order 4 and 4-A, s. 2017-2018 was released. Likewise, 59 Reclassification Certificates were issued by July 6, 2018, the scheduled deadline of the Reclassification Program as authorized by Sugar Order No. 9, series of 2017-2018.

B. LABORATORY SERVICES DIVISION

The primary function of the Laboratory Services Unit is the maintenance and operations of the Laboratory for the quality of weekly raw sugar composite samples and quarterly molasses composite samples from mills in the Visayas.

The samples of raw sugar, muscovado, molasses and cane juice for export and domestic market received and analyzed from millers, planters, traders, surveyors, distillers and other walk-in clients for 2018 are as follows:

Program/Activities	1st quarter	2nd quarter	3rd quarter	4th quarter	Total
Samples received and analyzed					
RAW SUGAR					
a. Mills	259	181	26	97	563
b. Traders/walk-in clients	38	38	256	4	336
MOLASSES					
a. Mills	11	9	5	3	28
b. Traders/walk-in clients	49	25	13	23	110
MUSCOVADO	2	2	2	6	12
CANE JUICE	21	0	0	20	41
Total Samples	**380**	**255**	**302**	**153**	**1,090**
REVENUE GENERATED					
a. Mills	854,550.00	588,600.00	92,150.00	314,700.00	1,850,000.00
b. Traders/walk-in clients	220,900.00	170,200.00	195,875.00	49,250.00	636,225.00
Total Revenue	**1,075,450.00**	**758,800.00**	**288,025.00**	**363,950.00**	**2,486,225.00**
No. of Regulatory Documents Issued	380	255	302	153	1,090

Highlights of Laboratory Services Unit's Activities for FISCAL YEAR 2018:

- **Rendered assistance to students on their "On the Job Training" program on sugar and sugar by-products analyses:**
  1. Technological University of the Philippines (Chemical Technician)
  2. University of the Philippines-Visayas (B.S. Chemistry) 2 students
  3. University of St. La Salle (B.S. Chemical Engineering) 4 students

- **Responded to the request for Parallel Testing in Molasses Analysis:**
  1. Asian Alcohol Corp.
  2. Roxol Bioenergy Corp.

- **Responded to the request for assistance to perform laboratory analysis on the research:**
  1. TUP Visayas students
  2. UNO-R students
- **Responded to the request to visit the laboratory as Field Trip**
  1. University of the Philippines, Miag-ao, Iloilo

- **Responded to the visit/audit of Engineer Daniel Lossavaro from Maloney Commodity, Inc. USA**

Regulation Officers' Regional Conference

Regulation Department conducted the Regional Conference at the La Vista Highland Resort in San Carlos City, Negros Occidental from November 29 to December 1, 2018. All operations and processes conducted

by all Divisions were discussed and reviewed in the 3-day seminar. It was an opportune for the both regular employees and Job Order personnel to exchange ideas for improvement and advancement.

Board Member Roland B. Beltran graced his presence and joined the Regulation Officers at the said conference.

1st Stakeholder's Consultative Meeting

The 1st Stakeholder's Meeting was held at the Sugarland Hotel last November 28, 2018, attended by 57 participants from both millers and traders. Regulation Department discussed the services and programs available for its clientele. The event's primary purpose is to help improve the level of awareness of the stakeholders of the sugar industry, specifically on important policies on sugar regulatory processes and practices which affect their day to day operations or transactions. This activity helped orient those who are new to the industry, refresh those who were with the industry for quite a time and give them the opportunity to review those which needs refining or to keep up with the changing trends in the sugarcane industry. This also provided a venue for them to be equally heard.

Laser Scanning Technology

In May 24, 2018, Special Order No. 165, series of 2018 constituted the creation of the Laser Scanner Inventory Team-Visayas which facilitated the Work Plan for the Alternative Method of Inventory Project and allocated practice/study hours in the efficient use of the Laser Scanners and the corresponding generation of inventory results.

The team has completed Phase 1 of the project which included activities like the familiarization of the equipment, the conduct of data gatherings experiments at the mills and bulk terminals, data processing, and warehouse profiling. Further, the team has been continually consulting with SITECH Philippines, the equipment supplier, as to resolution of technical difficulties encountered during project trials. The team has also managed to work around problems like erroneous scans and how to manually correct these errors.

Having achieved dexterity in the use of the equipment and the necessary software, the team is ready to proceed to the next phase, which is to determine the correction factor to the calculated volume. Activities will be continued into the succeeding year.

A second project study has also been proposed with the title "Experimental Estimation of Pressure Variant Raw Sugar Bulk Density" which will progress in the succeeding year. This study aims to derive an accurate approximation of the density of the bulk and establish a method of determination anchored on theories that affect the propertied of the bulk.

Attendance in Various Seminars

Seminars conducted by the SRA-GAD are well attended by Regulation Department employees. These are (1) Child Labor in Sugarcane Plantation (2) Sugarcane Production and its By-Products and Urban Gardening (3) Update/Orientation of Magna Carta of Women and Other Related Laws and Policies on Gender Development; (4) Civil Service Rules on Code of Conduct and Ethical Standards; Orientation Seminar for New Entrants to Government Service and Information Seminar of the Social Security System (6) Leadership and Management Capability Building.

Regulation Department employees also joined the whole SRA-Visayas in the HR Sponsored seminar on Employee Discipline conducted at the Sugarland Hotel.

Development Academy of Philippines Scholars Graduated

After fulfilling the 18 months comprehensive academic requirements, 3 DAP Scholars from the Regulation Department, namely Chrisgel L. Auñgon Marichu J. Claver, and Locelle T. Roquillas graduated and conferred with the degree of Masters in Public Management major in Rural Development. The program enable them to acquire the relevant enterprise, political, managerial and technical skills to push an inclusive and sustainable rural development agenda for agrarian reform beneficiaries, rural workers, and upland farmers, indigenous and fishing communities in the context of

the National Convergence Initiative (NCI) composed of Department of Agriculture, Department of Agrarian Reform and Department of Environment and Natural Resources.

The programs is a double-badge degree offered by the Education Consortium on rural development (ECRD) which is led by the Development Academy of the Philippines (DAP) In partnership with leading public and private schools in the country, namely, University of the Philippines, Ateneo de Manila University and Xavier University. It utilized a blended-learning approach or a combination of face-to-face learning (classroom) and on-line learning (via the internet) in the conduct of classes so as not to hamper with the scholar's respective agency deliverables.

RESEARCH, DEVELOPMENT & EXTENSION DEPARTMENT

Luzon/Mindanao

PREFACE

The year 2018 marks the full swing implementation of the programs/projects under the Sugarcane Industry Development Act of 2015 or the SIDA Law- An Act to promote and support the competitiveness of the Sugarcane Industry and maximize the utilization of sugarcane resources, and improve the incomes of farmers and farm workers through improve productivity, product diversification, job generation and increased efficiency of sugar mills.

Although the SIDA Law was passed on March 27, 2015 under R.A. No. 10659, the first SARO fund was only released on June 23, 2016. Subsequently, RD & E activities particularly the Extension Services Division, the main bearer and frontliner of most of its programs, were gradually realigned to prioritize the SIDA activities.
Major Programs under the SIDA Law were created for the following purposes: Productivity improvement, Infrastructure Support, Enhancement of Research & Development, Human Resource Development & Extension Services, Provision of Financial Assistance to small farmers.

RD & E barely managed to deliver /accomplish the demands of the stakeholders pertaining SIDA Projects. The flawed organizational set-up, the availment of early retirement of some key personnel and the unimplemented Organizational Strengthening Plan became major challenges to the management due to lack of manpower to carry out the projects/activities. Since SRA's operational efficiency will suffer, multi-tasking of some personnel and hiring of Contract of Service Personnel (COS) –mostly researcher and agriculturist were made as options to augment the lack of personnel.

As mentioned, the SIDA activities dominated the activities of the Extension personnel of RD & E. Mill District Officers (MDO) represented as the voice and face of SIDA since they deal directly with stakeholders particularly sugarcane farmers, associations etc. Block Farming, Farm to Mill Road Improvement, Scholarships, Socialized Credits and High- Yielding Variety (HYV) Propagation are just some of the SIDA programs/projects that are coursed through the MDOs.

Business-as-usual, the other Division and Sections of RD & E are preoccupied with their respective services: The Luzon Agricultural Research aside from undertaking researches on crop management, and Extension Center (LAREC) also serves as the major test site for the HYVs from the breeding facilities of SRA-La Granja La Carlota, Neg. Occ. It maintains not only cane areas dedicated to research, experiment and varietal propagation but also has an area for commercial cane production.

The Sugar Laboratory on analytical services for samples from the sugar mills and refineries, as well as with other entities involved in sugar—traders, anti-smuggling groups, industrial users, etc., especially during the course of the milling season.

The Environmental Laboratory as the main support to the SRA's SAGE (Special Action Group for the Environment) for its regular tests/monitoring of the mills' air emissions and water water/effluents. Both laboratories also conduct research on various subjects particular to their respective field of operation.

The Technical Services unit focused on services (Environmental, Capacity, Efficiency and Energy Audit) and researches needs of the mills and the refineries with some undertakings on the cane transport/hauling sector. The section do the annual publication of the synopsis (for raw sugar mills) and the Compendium (for refineries).

The table below summarizes the projects undertaken by the R, D & E (Luzon Mindanao)

Division	Development			Total
	On-going	New	Completed	
Technical Services	5 Continuing Programs/Projects			5
Laboratory Services	13 Continuing Programs/Projects			13
LAREC	10	18	11	39
Extension Services	6 Continuing Programs & implementation/ assistance to SIDA Projects			6

LUZON AGRICULTURAL RESEARCH & EXTENSION CENTER (LAREC)

Highlights of Accomplishment

- In the Preliminary Yield Test of 2012 series, out of 30 test clones, 10 are recommended to undergo further testing in the National Cooperative Test. These are Phil 2013-1667, Phil 2013-1627, Phil 201-1495, Phil 2013-0287, Phi 2013-0771, Phil 2013-1599, Phil 2013-0279, Phil 2013-1585, Phil 2013-1619 and Phil 2013-1319.

- On Smut Resistance trials, 27 test clones from Phil 2012 series were rated very highly resistant to intermediate resistant.

- On the Yield responses of Phil 2007-0221 and Phil 2007-0243 at different seasons of planting, season of planting did not influence cane and sugar yield of the varieties. Phil 07-243 produced higher sucrose content but comparable with Phil 07-221 in other parameters. Mean diameter was significantly higher in the early season, millable stalks in mid and sucrose content and sugar yield in late season.

- On the Yield responses of Phil 2007-0221 and Phil 2007-0243 at different ages of harvest, different ages at harvest did not significantly influence cane and sugar yield of the varieties. Phil 07-243 produced significantly higher sucrose content and sugar yield, and comparatively higher cane tonnage, if harvested at 12 and 13 months after planting.

- On the Growth and yield performance of Phil 2007-0243 and Phil 2007-0221 under different densities of planting, cane tonnage (TC/Ha), sucrose content (LKg/TC) and sugar yield (LKg/Ha) of Phil 2007-0221 and Phil 2007-0243 did not vary significantly under different densities of planting. Economic analysis showed that Phil 2007-0221 and Phil 2007-0243 gave the highest ROI at planting density of 4.5 lacsas per hectare.

- On the Root length density, distribution and yield relationships of high yielding sugarcane varieties under sandy soil condition, treatment
- comparison indicated that Phil 8013, Phil 75-44, Phil 97-3933, Phil 99-1793, Phil 04-0081, Phil 00-2569 and Phil 03-1727 produced significantly highest sugar yield (LKG/HA). On the average root length density and distribution of the varieties tested at different soil depths from 0-100cm with interval of 10cm ranged from 318.3-10.68 grams/m3 and 46.47%- 1.87%, respectively

- On the Yield responses of Phil 2008-0909 at different seasons of planting, more millable stalks and higher tonnage were obtained in early season planted canes while late season gave the highest sucrose content of the juice. Higher sugar yield was obtained in mid-season. Phil 08-0909 can be planted in any season in Angeles sandy loam soil at SRA-LAREC.

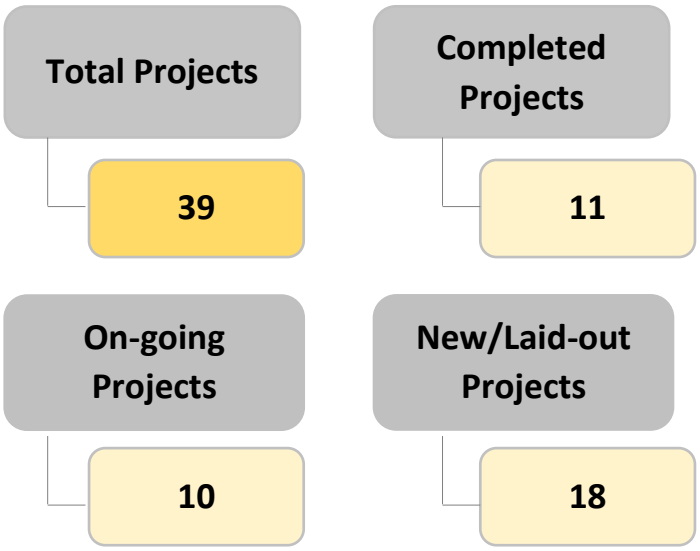
- On the Yield responses of Phil 2008-0909 at different ages of harvest, canes harvested at 11 months after planting gave more millable stalks and higher cane yield while canes harvested at 12 and 13 months after planting had the highest sugar rendement and sugar yield.

- In the Ratoon performance of recommended Phil 2008 series, among the test varieties Phil 08-1253 gave an average percent increase of 1.3, followed by Phil 08-0553, and Phil 08-0909 with 0.49. Phil 7544 gave an average decrease of 3.49 from plant cane up to the third ratoon cane. Economic analysis showed that Phil 08-1253, Phil 08-0909 and Phil08-0553 are still profitable to maintain up to third ratoon. Phil 08-1253 gave the highest ROI of 1.35.

- On Effect of Different Patterns and Densities of Planting on Canepoint Production of Sugarcane, canepoint production of Phil 99-1793 in the plant cane and ratoon crop, any planting pattern used had no interaction with any of the planting densities. However, in the plant cane, the highest number of canepoints were produced in the planting pattern of single row with 1 meter furrow distance at planting density of 4 lacsa per hectare. In the ratoon cane, the canepoints produced were highest at planting density of 4.5 lacsa per hectare planted in a single row with 1 meter furrow distance. The highest return on investment (ROI) was recorded in the planting pattern of single row with 1 meter furrow spacing at planting density of 4.5 lacsa per hectare, both in the plant cane and ratoon crop. The average Return on Investment (ROI) of 1.51 was attained.

Copy of the terminal reports of the following two studies in collaboration with JIRCAS were not provided.

- Investigation of effects of plant residue removal on sugarcane production and soil fertility
- Investigation of effects of fermentation residue application on sugarcane production and soil fertility



TECHNICAL PAPERS PRESENTED

A. 2018 SRA National In House Review, Microtel, Quezon City, October 8-12, 2018

1. Yield responses of Phil 2007-0221 and Phil 2007-0243 at different season of planting
2. Yield responses of Phil 2007-0221 and Phil 2007-0243 at different ages of harvest
3. Growth and yield performance of Phil 2007-0243 and Phil 2007-0221 under different densities of planting
4. Root length density, distribution and yield relationships of High Yielding Sugarcane Varieties under sandy soil condition
5. Ratoon Performance of Phil 2007-0221 and Phil 2007-0243
6. Effect of Different Patterns and Densities of Planting on Canepoint Production of Sugarcane

B. 65th PHILSUTECH Annual Convention, Cebu City,
August 14-17, 2018

Paper title: ***Effect of method of cutting canepoints and delay in planting on germination and yield of three HYV's***

C. 2018 International Society of Sugarcane Technologists (ISSCT) Joint Breeding and Germplasm and Molecular Biology Workshop, Okinawa, Japan, October 22-26, 2018

Paper title: ***Performance of selected Phil 2009 series of sugarcane varieties in four districts in Luzon***

AWARDS RECEIVED

1. First Prize winner

Paper title: ***Root length density, distribution and yield relationships of high yielding sugarcane varieties under sandy soil condition***

Event: 2018 SRA National In House Review
Microtel, Quezon City, October 8-12, 2018

2. AFMA R&D PAPER AWARD

Paper title: ***Root length density, distribution and yield relationships of high yielding sugarcane varieties under sandy soil condition***

Event: DA-BAR 30th National Research Symposium

OTHER RELATED R&D ACTIVITIES

- Soils Laboratory analyzed 576 soil samples, received from 12 sugarcane planters, 187 Block farm planters, 18 government & private entities and 13 researchers; analyzed 801 cane juice samples, received from 17 government & private entities and 7 from SRA researchers.
- Maintained 78 released Phil, VMC and PSR varieties and 323 preserved insect pests and natural enemies
- PTCM staff attended 32 scientific fora/ trainings/seminars/workshops, 28 inter agency meetings, evaluations and consultations, 13 agency meetings; rendered technical assistance/services five(5) times to college students, 2 collaborative projects/studies with JIRCAS, and in the processing of 318 Land Use Reclassification (LUR) applications.
- Three staffs of FBSS are actively participating as Technical Working Group (TWG) members to various technical committees to include Farm Mechanization and FMR under SIDA, TWG members on Farm Machinery and Equipment relative to Agricultural Projects and Civil Works of the Bids and Awards Committee (BAC). Same staffs were involved in the inspection and monitoring (I/M) of Farm to Mill Roads (FMR's), irrigation projects and farm machinery. Two personnel are also participating as speakers in the seminars conducted by the Extension personnel. The personnel are assisting college students in the conduct of theses related to sugarcane.

I. RESEARCH AND DEVELOPMENT PROJECTS

Status	Number of Projects	Status	Number of Projects	Status	Number of Projects	Total
Completed	11	On-going	10	New/Laid-out	18	39
VIPM	*2*	*VIPM*	*3*	*VIPM*	*3*	
PTCM	*9*	*PTCM*	*7*	*PTCM*	*15*	

Completed Projects/Studies (12)

A. Variety Improvement and Pest Management (2)

1. Preliminary yield test of Phil 2013 Series
N. Guiyab, V. Serrano, A. Casupanan, B. Manlapaz, R. Sarol, J. Agsaoay, J. Mora

Thirty test clones from Phil 2013 row test series from LAGAREC were entered in the preliminary yield test at LAREC using RCBD to compare their agronomic and yield potential with two check varieties, Phil 8013 and Phil 7544, under natural field condition at LAREC.

Based on tonnage and sugar yield, ten clones were found to be either significantly higher, comparable or significantly lower with the check variety Phil 8013 and Phil 7544. The clones also passed the selection criteria for disease resistance to smut and downy mildew.

The clones which are recommended to undergo National Cooperative Testing are Phil 2013-1667, Phil 2013-1627, Phil 201-1495, Phil 2013-0287, Phi 2013-0771, Phil 2013-1599, Phil 2013-0279, Phil 2013-1585, Phil 2013-1619 and Phil 2013-1319.

2. Screening of Phil 2012 series for resistance to smut
A. Casupanan, N. Guiyab, V. Serrano, B. Manlapaz, R. Sarol, J. Agsaoay, J. Mora

Thirty clones of the 2012 and 2 checks varieties from LGAREC were plant and ratooned and tested for their reaction to sugarcane smut.

Among the thirty clones of 2012 series, Phil 12-0957 was rated very highly resistant; Phil 12-0129, Phil 12-0607 and Phil 12-0089 were highly resistant; Phil 12-0475 was resistant. Sixteen clones were rated Intermediate resistant, these are Phil 12-0955, Phil 12-0307, Phil 12-0747, Phil 12-0609, Phil12-0549, Phil 12-05-27, Phil 12-0055, Phil 12-0011, Phil 12-0623, Phil 12-0045, Phil 12-1019, Phil 12-1263, Phil 12-1373, Phil 12-1153, Phil 12-1203 and Phil 12-1273.Three clones were rated intermediate average ,namely, Phil 12-0645, Phil 12-0537 and Phil 12-0465. The two check varieties, Phil 75 44 was rated very highly resistant while Phil 8013 was rated intermediate average.

All clones of 2012 series tested in plant and ratoon cane were rated very highly resistant to very highly susceptible.

B. Production Technology and Crop Management(9)

1. Yield responses of Phil 2007-0221 and Phil 2007-0243 at different seasons of planting
   B. Manlapaz, V. Serrano , N. Guiyab R. A. Casupanan, R Sarol, J. Agsaoay, J. Mora

The experiment was laid out in factorial in RCBD to determine yield responses of Phil 07-0221 and Phil 07-0243 at different seasons of planting.

Significant mean difference was observed in sucrose content (L-Kg/TC), with Phil 07-243 producing higher sucrose content. The test varieties were statistically comparable in number, length and diameter of millable stalks, cane tonnage and sugar yield.

Mean diameter was significantly higher in the early season, millable stalks in mid and sucrose content and sugar yield (L-Kg/Ha) in late season. Number of millable stalks and cane yield per hectare (TC/Ha) were comparable in all seasons of planting.

Season of planting did not influence cane and sugar yield parameters of Phil 07-221 and Phil 07-243.
Phil 07-221 and Phil 07-243 can be planted in any season in Angeles sandy loam at SRA-LAREC. However, to attain higher cane tonnage planting should be done in early season. While for higher sucrose content and sugar yield planting should be done in late.

2. Yield responses of Phil 2007-0221 and Phil 2007-0243 at different ages of harvest
   B. Manlapaz, V. Serrano , N. Guiyab R. A. Casupanan, R Sarol, J. Agsaoay, J. Mora

The experiment was laid out in factorial in RCBD to determine yield responses of Phil 07-0221 and Phil 07-0243 at different ages of harvest.

Varieties significantly varied in sucrose content and sugar yield. Phil 07-243 produced significantly higher sucrose content and sugar yield.

Millable stalks, sucrose content and sugar yield were significantly higher at 12 and 13 months after planting. Number of millable stalks and cane yield per hectare were comparable.

Different ages at harvest did not significantly influence cane and sugar yield parameters of the varieties. Results showed that Phil 07-243 produced significantly higher sucrose content and sugar yield, and comparatively higher cane tonnage, if harvested at 12 and 13 months after planting.

3. Growth and yield performance of Phil 2007-0243 and Phil 2007-0221 under different densities of planting
   N. Guiyab, V. Serrano, A. Casupanan, B. Manlapaz, R. Sarol, J. Agsaoay, J. Mora

Phil 2007-0221 and Phil 2007-0243 were laid out in strip plot design to test their growth and yield performance using 3.5, 4.0, 4.5 and 5.0 lacsas per hectare.

Percent germination of Phil 2007-0221 and Phil 2007-0243 did not vary under different densities of planting. Significantly highest germination was obtained using 3.5 and 4.0 lacsa.

Average tiller and millable stalk of Phil 2007-0221 and Phil 2007-0243 did not vary under different densities of planting. Significantly highest average tiller and millable stalk were obtained at 3.5, 4.0 and 4.5 lacsas. Other parameters such as height, length and diameter showed comparable performance.

Cane tonnage (TC/Ha), sucrose content (LKg/TC) and sugar yield (LKg/Ha) of Phil 2007-0221 and Phil 2007-0243 did not vary significantly under different densities of planting.

Economic analysis showed that Phil 2007-0221 and Phil 2007-0243 gave the highest ROI at planting density of 4.5 lacsas per hectare.

4. Root length density, distribution and yield relationships of high yielding sugarcane varieties under sandy soil condition

V. Serrano, N. Guiyab, P. Macamos A. Casupanan, R. Sarol, B. Manlapaz, J. Agsaoay, J. Mora

Selection of appropriate variety to be planted in an area with a particular agro-climatic condition is necessary when exploring yield potential. This study was conducted to determine the yield performance, root characteristics and yield relationships of HYVs under sandy soil condition.

An experiment using ten HYVs was lay-out in RCBD with 4 replications in Pampanga from January 2017-2018. ANOVA indicated significant differences in all 18 parameters except in apparent purity and root length density (RLD) at 80-90cm soil depth. Results showed that Phil 8013, Phil 7544, Phil 97-3933, Phil 99-1793, Phil 04-0081, Phil 00-2569 and Phil 03-1727 produced significantly highest sugar yield (LKg/Ha) under sandy soil condition which ranged from 223.05-257.93. RLD (grams/m3) and distribution at different soil depths from 0-100cm with interval of 10cm were 318.3 (46.47%), 132.36 (21.59%), 81.02 (14.05%), 26.24 (4.57%), 14.77 (2.61%), 14.58 (2.53%), 13.23 (2.32%), 11.53 (2.05%), 10.80 (1.93%) and 10.68 (1.87%).

Stalk characteristics such as diameter, length and number of millable stalks and RLD at 0-10cm, 11-20cm, 21-30cm, 51-60cm, 61-70cm, 71-80cm and 90-100cm were positively and significantly correlated with cane yield (TC/Ha) while percent brix and purity were positively and significantly correlated with sucrose content (LKg/TC). TC/Ha and LKg/TC are components of sugar yield.

5. Yield responses of Phil 2008-0909 at different seasons of planting

B. Manlapaz, V. Serrano , N. Guiyab R. A. Casupanan, R Sarol, J. Agsaoay, J. Mora

Field experiment on the yield response of Phil 08-0909 in season of planting was laid-out in Angeles sandy loam at SRA-LAREC.

The study determined the cane and sugar yield response of Phil 08-0909 planted in early season (Nov), middle (Jan) and late (Mar)

Yield parameters like number of millable stalks, TC/Ha and L-Kg/TC of Phil 08-0909 were significantly influenced by seasons of planting. More millable stalks and higher tonnage were obtained in early season planted canes while late season gave the highest sucrose content of the juice. However, higher sugar yield was obtained in mid season.

Phil 08-0909 can be planted in any season in Angeles sandy loam soil at SRA-LAREC. To attain higher cane tonnage, planting should be done either in early or mid season. For higher sucrose content, it should be harvested in late, while for higher sugar yield, planting in mid season was ideal.

6. Yield responses of Phil 2008-0909 at different ages of harvest

B. Manlapaz, V. Serrano , N. Guiyab R. A. Casupanan, R Sarol, J. Agsaoay, J. Mora

Field experiment on the Yield response of Phil 08-0909 at different ages at harvest were laid-out in Angeles sandy loam at SRA-LAREC in November 2016.

The study determined the cane and sugar yield response of Phil 08-0909 harvested at 11,12 and 13 months after planting.

The number millable stalks, cane tonnage, sucrose content and sugar yield per hectare of Phil 08-0909 significantly differ at different ages of harvest. Canes harvested at 11 months after planting gave more millable stalks and higher cane yield. Furthermore, canes harvested at 12 and 13 months after planting had the highest sugar rendement and sugar yield.

Phil 08-0909 planted in November in angeles loamy sand produced signicantly higher tonnage, if harvested at 11 months after planting. On the other hand, significantly higher sucrose content and sugar yield were obtained, if harvested at 12 and 13 MAP.

7. Ratoon performance of recommended Phil 2008 series
A.M. Casupanan, N.C. Guiyab, V.A. Serrano, B. Manlapaz, R. Sarol, J. Agsaoay, J. Mora

The study was conducted at SRA-LAREC, Floridablanca, Pampanga from November 2014 to June 2018, to determine the ratooning capacity of Phil 2008-1253, Phil 08-0909 and Phil 2008-0553 in three ratoon crops. The data was taken from the ratoon of ecological test of Phil 2008. The ratoon performance of Phil 7544, a commercial variety with good ratooning capacity was also observed.

In cane yield (TC/Ha) and sugar yield (Lkg/Ha.) Phil 08-1253, Phil 08-0909, Phil 08-0553 and Phil 7544 decreased in yield from first ratoon up to the third ratoon.

In sucrose content (Lkg/TC) Phil 08-0909 increase in the first and third ratoon while Phil 08-1253 decreased in first ratoon but increased in the second and third ratoon. Phil 08-0553 decreased in the first ratoon and produce the same yield as with the plant cane in the second ratoon but increased in the third ratoon.

Among the test varieties Phil 08-1253 gave an average percent increase of 1.3, followed by Phil 08-0553, Phil 08-0909 with 0.49. Phil 7544 gave an average decrease of 3.49. Economic analysis showed that Phil 08-1253, Phil 08-0909 and Phil08-0553 are still profitable to maintain up to third ratoon. Phil 08-12534 gave the highest ROI of 1.35

8. Investigation of effects of plant residue removal on sugarcane production and soil fertility
- collaborative project with JIRCAS, no terminal report provided.

9. Investigation of effects of fermentation residue application on sugarcane production and soil fertility
- collaborative project with JIRCAS, no terminal report provided.

C. FBSS completed project (1)

Effect of Different Patterns and Densities of Planting on Canepoint Production of Sugarcane
P. R. Macamos, Jr., L. C. Olalia and Ador C. Bacani

The experiment was conducted under irrigated condition at the Luzon Agricultural Research and Extension Center (LAREC) in Pampanga from February 2016 to July 2017. On canepoint production of Phil 99-1793 in the plant cane, any planting pattern used had no interaction with any of the planting densities. However, in the plant cane, the highest quantity of canepoints was produced in the planting pattern of single row at 1 meter furrow distance using the planting density of 4 lacsa per hectare. In the ratoon cane, the canepoints produced were highest in the planting density of 4.5 lacsa per hectare planted in a single row at 1 meter furrow distance. For canepoint production, a single row at 1 meter furrow distance using 4.5 laksa per hectare is recommended.

On -going projects/Continuing (12)

A. Variety Improvement and Pest Management (3)

1. Screening of Phil 2013 series for resistance to smut
A. Casupanan, N. Guiyab, V. Serrano, B. Manlapaz, R. Sarol, J. Agsaoay, J. Mora, A. Alviar, R. Locaba

Thirty clones from Phil 2013 series and two check varieties Phil 7544 and Phil 8013 were planted in April 2017 using RCBD with three replications. Data on plant cane were consolidated while data collection on ratoon cane is still on-going. The experiment will terminate in 2019.

2. Screening of Phil 2012 series for resistance to downy mildew
A. Casupanan, N. Guiyab, V. Serrano, B. Manlapaz, R. Sarol, J. Agsaoay, J. Mora, A. Alviar, R. Locaba

Ten test clones from Phil 2012 series and one check variety Phil 7544 were planted in May 2017 to test their resistance to downy mildew. Data on plant cane were consolidated while data collection on ratoon cane is still on-going. The experiment will terminate in 2019.

3. National Cooperative Tests (LAREC Cluster)
MV. Serrano, N. Guiyab, B. Manlapaz, A. Casupanan, R. Sarol, J. Agsaoay, A. Alviar, R. Locaba

Ten test varieties and two check varieties were laid out in the mill districts of Carsumco, Davao and Sonedco in June, November and December 2018, respectively, to determine their adaptability in the different districts.

Care and maintenance and data gathering are on-going. Four more locations will be planted in 2019.

B. Production Technology and Crop Management (7)

1. Ratoon performance of selected Phil 2009 series
J. Agsaoay, V. Serrano, N. Guiyab, A. Casupanan, B. Manlapaz, R. Sarol, J. Mora, A. Alviar, R. Locaba

The third ratoon of Phil 2009 series ecological test is being maintained to observe the performance of the recommended varieties, Phil 2009-1867 and Phil 2009-1969 as part of its package of technology upon its release. Agronomic data were gathered and consolidated. Care and maintenance activities were undertaken. Harvesting will be done in February 2018.

2. Ratoon performance of selected Phil 2010 series
J. Agsaoay, V. Serrano, N. Guiyab, A. Casupanan, B. Manlapaz, R. Sarol, J. Mora, A. Alviar, R. Locaba

The second ratoon of Phil 2009 series ecological test is being maintained to observe its performance as part of the package of technology upon its release. Agronomic data were gathered and consolidated. Care and maintenance activities were undertaken. Harvesting will be done in February 2018.

3. Yield performance of Phil 2007 recommended varieties at different levels of nitrogen fertilization
R. Sarol, J. Agsaoay, V. Serrano, B. Manlapaz, N. Guiyab, A. Casupanan, J. Mora, A. Alviar, R. Locaba

Two recommended varieties Phil 2007-0221 and Phil 2007-0243 were planted to determine cane and sugar yield when fertilized at different levels of nitrogen. Levels of fertilization used were the recommended rate based on soil analysis, 50% below the recommended rate, 50% above and zero N fertilization. The experiment is in the first ratoon. Agronomic data were gathered and consolidated. Care and maintenance activities were undertaken. Harvesting will be done in January 2019.

4. Yield performance of Phil 2008 recommended variety at different levels of nitrogen fertilization
R. Sarol, J. Agsaoy, N. Guiyab, V. Serrano, B. Manlapaz, A. Casupanan, J. Mora, A. Alviar, R. Locaba

Phil 2008-0909, a recommended variety from the ecological test was planted to determine its cane and sugar yield when fertilized at different levels of nitrogen. Levels of fertilization used were the recommended rate based on soil analysis, 50% below the recommended rate, 50% above and zero N fertilization. The experiment is in the first ratoon. Agronomic data were gathered and consolidated. Care and maintenance activities were undertaken. Harvesting will be done in January 2019.

5. Yield performance of Phil 2007 recommended varieties at different levels of potassium fertilization
J. Agsaoay, R. Sarol, V. Serrano, B. Manlapaz, N. Guiyab, A. Casupanan, J. Mora, A. Alviar, R. Locaba

Two recommended varieties Phil 2007-0221 and Phil 2007-0243 were planted to determine their cane and sugar yield when fertilized at different levels of potassium. Levels of fertilization used were the recommended rate based on soil analysis, 50% below the recommended rate, 50% above and zero K

fertilization. The experiment is in the first ratoon. Agronomic data were gathered and consolidated. Care and maintenance activities were undertaken. Harvesting will be done in January 2019.

6. Yield performance of Phil 2008 recommended variety at different levels of potassium fertilization
   J. Agsaoy, R. Sarol, N. Guiyab, V. Serrano, B. Manlapaz, A. Casupanan, J. Mora, A. Alviar, R. Locaba

   Phil 2008-0909, a recommended variety from the ecological test was planted to determine cane and sugar yield when fertilized at levels of potassium. Levels of fertilization used were the recommended rate based on soil analysis, 50% below the recommended rate, 50% above and zero K fertilization. The experiment is in the first ratoon. Agronomic data were gathered and consolidated. Care and maintenance activities were undertaken. Harvesting will be done in January 2019.

7. Comparative performance of selected HYVs in the ratoon crop
   J. Agsaoay, V. Serrano, N. Guiyab, B. Manlapaz, A. Casupanan, R. Sarol, J. Mora, A. Alviar, R. Locaba

   Ten selected high yielding varieties were laid out in RCBD at LAREC to compare their yield performance up to the third ratoon crop. The experiment is in the third and final ratoon. Agronomic data were gathered and consolidated. Care and maintenance were undertaken. The experiment will be harvested in February 2019.

C. FBSS on-going projects (2)

1. Canepoint production of selected HYV's as affected by frequency of cultivation
   P. Macamos, Jr, L. C. Olalaia and Ador S. Bacani

   Two selected HYV's were laid-out under irrigated condition of LAREC using split-plot design. The varieties include Phil 99-1793 and Phil 2000-2569. The different plots are cultivated following different frequencies of cultivation including zero cultivation, 3 times, 5 times and 7 times. The experiment is being maintained up to first ratoon.

2. Effect of surface drip irrigation on growth and yield of sugarcane
   L. C. Olalia

One variety, Phil 99-1793, was laid-out using Randomized Complete Block Design (RCBD). The varieties are subjected to different intervals of surface drip irrigation. Moisture meters are used to determine the quantity and interval of irrigation applied. The experiment is maintained in the first ratoon.

A. Variety Improvement and Pest Management (3)

1. Preliminary yield test of 2014 Series.
   R. Sarol, V. Serrano, N. Guiyab, A. Casupanan, B. Manlapaz, J. Agsaoay, J. Mora, A. Alviar, R. Locaba

   Thirty promising clones from the Phil 2014 Row Test series selected by LGAREC and two check varieties were planted in May 2018 to compare their yield performance with the control varieties Phil 75-44 and Phil 80-13. Agronomic data are being collected and consolidated. Care and maintenance are undertaken. The experiment will be harvested in May 2019.

2. Screening of Phil 2014 series for resistance to smut.
   A. Casupanan, V. Serrano, N. Guiyab, B. Manlapaz, R. Sarol, J. Agsaoay, J. Mora, A. Alviar, R. Locaba

   Thirty clones from Phil 2014 series from LAGAREC were planted in May 2018 to test their resistance to smut disease. Bi-weekly infections were gathered and recorded. Care and maintenance activities were undertaken. Harvesting will be done in March 2017.

3. Screening of Phil 2013 series for resistance to downy mildew.
A. Casupanan, N. Guiyab, V. Serrano, B. Manlapaz, R. Sarol, J. Agsaoay, J. Mora, A. Alviar, R. Locaba

Ten test clones from Phil 2013 series and one check variety Phil 7544 were planted in Sept 2018 to test their resistance to downy mildew. The plants were given proper care and maintenance. Continuous observation and data recording of disease occurrence are on-going.

B. Production Technology and Crop Management (15)

1. Yield performance of Phil 2008-0909 at different densities of planting
N. Guiyab, V. Serrano, B. Manlapaz, A. Casupanan, R. Sarol, J. Agsaoay, J. Mora, A. Alviar, R. Locaba

Phil 2008-0909 was planted in February 2018 at LAREC to determine the appropriate planting density to obtain potential yields. Treatments used were 35, 40, 45 and 50 laksas per hectare. Agronomic data were gathered and consolidated. Care and maintenance activities were undertaken.

2. Yield performance of Phil 2009-1867 and Phil 2009-1969 at different densities of Planting
N. Guiyab, V. Serrano, A. Alviar, R. Locaba, R. Sarol, J. Agsaoay, B. Manlapaz, A. Casupanan

Two recommended varieties Phil 2009-1969 and Phil 2009-1867 were planted using factorial design at LAREC in November 2018 to determine the appropriate planting density to obtain maximum yields. Treatments used were 35, 40, 45 and 50 laksas per hectare. Germination count was gathered. Care and maintenance activities are being undertaken.

3. Yield performance of Phil 2010-0107 at different densities of planting
N. Guiyab, V. Serrano, A. Alviar, R. Locaba, R. Sarol, J. Agsaoay, B. Manlapaz, A. Casupanan

Phil 2010-0107 was planted in November 2018 at LAREC to determine the appropriate planting density to obtain potential yields. Treatments used were 35, 40, 45 and 50 laksas per hectare. Germination count was gathered. Care and maintenance activities are being undertaken.

4. Yield performance of Phil 2009 recommended variety at different levels of nitrogen fertilization
R. Locaba, V. Serrano, A. Alviar, R. Sarol, J. Agsaoy, N. Guiyab, , B. Manlapaz, A. Casupanan, J. Mora

Initial activities were undertaken in preparation for the experiment. An area of at least 0.60 ha was prepared. Soil sample was taken for laboratory analysis. Four levels of N fertilization will be used. The experiment will be laid out in factorial design in RCBD at LAREC.

5. Yield performance of Phil 2010 recommended varieties at different levels of nitrogen fertilization
R. Locaba, V. Serrano, A. Alviar, R. Sarol, J. Agsaoy, N. Guiyab, , B. Manlapaz, A. Casupanan, J. Mora

Initial activities were undertaken in preparation for the experiment. An area of at least 0.30 ha was prepared for the experiment. Soil sample was taken for laboratory analysis. Four levels of N fertilization will be used. The experiment will be laid out at LAREC using RCBD replicated four times.

6. Yield performance of Phil 2009 recommended varieties at different levels of potassium fertilization
R. Locaba, V. Serrano, A. Alviar, R. Sarol, J. Agsaoy, N. Guiyab, , B. Manlapaz, A. Casupanan

Initial activities were undertaken in preparation for the experiment. An area of at least 0.60 ha was prepared for the experiment. Soil sample was taken for laboratory analysis. Four levels of K fertilization will be used. The experiment will be laid out in factorial in RCBD at LAREC.

7. Yield performance of Phil 2010 recommended variety at different levels of potassium fertilization
R. Locaba, V. Serrano, A. Alviar, R. Sarol, J. Agsaoy, N. Guiyab, , B. Manlapaz, A. Casupanan

Initial activities were undertaken in preparation for the experiment. An area of at least 0.30 ha was prepared for the experiment. Soil sample was taken for laboratory analysis. Four levels of K fertilization will be used. The experiment will be laid out at LAREC using RCBD replicated four times.

8. Yield performance of Phil 2009-1867 and Phil 2009-1969 at different seasons of planting
A. Alviar, B. Manlapaz, V. Serrano, R. Locaba, J. Agsaoay, R. Sarol, N. Guiyab, A. Casupanan

Two recommended varieties Phil 2009-1969 and Phil 2009-1867 were planted using split plot design to determine the appropriate season of planting to obtain maximum yields. Seasons of planting are early, mid and late planting. Germination count was gathered. Care and maintenance activities are being undertaken.

9. Yield performance of Phil 2010-0107 at different seasons of planting
A. Alviar, B. Manlapaz, V. Serrano, R. Locaba, J. Agsaoay, R. Sarol, N. Guiyab, A. Casupanan

Phil 2010-0107 was planted using RCB design to determine the appropriate season of planting to obtain maximum yields. Seasons of planting are early, mid and late planting. Germination count was gathered. Care and maintenance activities are being undertaken.

10. Yield performance of Phil 2009-1867 and Phil 2009-1969 at different ages of harvest
A. Alviar, B. Manlapaz, V. Serrano, D. Locaba, J. Agsaoay, R. Sarol, N. Guiyab, A. Casupanan

An area of at least 0.60 ha was prepared for the experiment. Soil sample was taken for analysis. The varieties will be harvested at ages 10, 11, 12 and 13 MAP to determine effect of age to yield. The experiment will be laid out at LAREC using RCBD replicated four times. Planting will be done in January 2019.

11. Yield performance of Phil 2010-0107 at different ages of harvest
A. Alviar, B. Manlapaz, V. Serrano, D. Locaba, J. Agsaoay, R. Sarol, N. Guiyab, A. Casupanan

An area of at least 0.30 ha was prepared for the experiment . Soil sample was taken for analysis. The Phil 2010-0107 will be harvested at ages 10, 11, 12 and 13 MAP to determine the appropriate age to harvest . The experiment will be laid out at LAREC using RCBD replicated four time.

12. Effects of depth of land preparation on sugarcane yield
B. Manlapaz, V. Serrano, A. Alviar, D. Locaba, J. Agsaoay, R. Sarol, N. Guiyab, A. Casupanan

Three varieties Phil 2000-2569, Phil 2006-1899 and Phil 2006-2289 were laid out in strip plot to evaluate yield performance when land is prepared at depths of 12, 16, 24 and 30 inches. The experiment was conducted at LAREC and was planted in November 2018. Germination count was gathered. Care and maintenance is on-going.

13. Effects of delayed milling after topping on yield of sugarcane
B. Manlapaz, V. Serrano, A. Alviar, D. Locaba, J. Agsaoay, R. Sarol, N. Guiyab, A. Casupanan

An area of at least 0.60 ha was prepared for the experiment. Soil sample was taken for analysis. The experiment will be laid out at LAREC using factorial in RCBD. Two varieties Phil 2006-1899 and Phil 2006-2289 will be used. Milling will be delayed for 2, 4, 6 and 8 days after topping to determine effect on yield. Planting will be done in January 2019.

14. Influence of season of planting on incidence of sugarcane smut
A. Casupanan, N. Guiyab, V. Serrano, B. Manlapaz, R. Sarol, J. Agsaoay, A. Alviar, D. Locaba

Two varieties Phil 2004-0081 and Phil 2000-0881, both with intermediate average resistance to smut were laid out in factorial in RCBD to determine the incidence of smut infection when planted in the early, mid and late season planting. The experiment was laid out at LAREC in September 2018. Data gathering and care and maintenance activities are on-going.

15. Evaluation of sugarcane varieties for ethanol production
V. Serrano, A. Alviar, D. Locaba, J. Agsaoay, R. Sarol, N. Guiyab, B. Manlapaz, A. Casupanan

Phil 2006-1899, Phil 99-1793 and Phil 8013 were in laid out in December 2018 using split plot design to evaluate their potential for ethanol production when harvested at 8, 9, 10, 11 and 12 months after planting. The experiment was conducted in Isabela. Care and maintenance is on-going.

C. FBSS New/Laid-out project

Performance of Sugarcane Variety and Nutrient Recommendation on Major Soil Sereis of Central Luzon
Maria Kenneth Lane R. Suplito, L. C. Olalia and P. Macamos, Jr.

Three HYV's, Phil 99-1793, Phil 2006-1899 and Phil 2006-2289, were laid out in LAREC on December 20, 2018 using split-plot design. Four different nutrient requirements will be applied which include control, ½ recommended rate, fulii recommended rate and farmer's practice. Cultivation, weeding and irrigation are undertaken as scheduled.

PRODUCTION SUPPORT SERVICES

1. Laboratory Services

Five hundred fifty-seven(576) soil samples received from 12 sugarcane planters, 187 Block farm planters, 18 from government and private entities and 13 from SRA researchers were analyzed for N (based on organic matter content of the soil), P, K, Ca, Mg and pH including 81 special analyses(% moisture) in the Soils Laboratory as basis for the fertilization and recommendation. Eight hundred one (801) juice samples received from 17 private and government clientele and 7 from SRA researchers were also analyzed. *(See Annex 1 RDE Luzon/Mindanao 2018 Annual Report)*

2. Variety Garden

A total of 78 released Phil, VMC and PSR varieties are being maintained in the variety garden.

Variety Garden/Germplasm Bank

Seventy-eight (78) released varieties of SRA and VMC/PSR are planted and maintained at the LAREC Variety Garden.

3. Collection and preservation of insect pest and natural enemies

323 preserved insect pests and natural enemies are preserved in the Crop Protection Laboratory.

4. Propagation of Clones and Varieties

Maintained two sets of Preliminary Yield Tests as source of planting materials of recommended varieties for planting in the National Cooperative Tests. Propagated 53 various clones, HYVs and check varieties as source of planting materials for various field experiments of the PTCM section.

List of varieties/clones propagated

Phil 13-0573	Phil 12-0623	Phil 2006-2289	Phil 12-0455	Phill 2009-1261
Phil 13-1495	Phil 12-0045	Phil 2000-2155	Phil 12-0393	Phil 2008-0909
Phil 13-0515	Phil 12-1019	Phil 2011-0899	Phil 12-0549	Phil 2007-0243
Phil 13-1319	Phil 12-1045	Phil 2011-1121	Phil 12-0537	Phil 71-39
Phil 13-0153	Phil 12-1263	Phil 66-07	Phil 11-237	Phil 75-44
Phil 13-1287	Phil 12-1203	Phil 13-1599	Phil 11-0813	Phil 8013
Phil 13-1585	Phil 12-1273	Phil 13-1753	UPLB 2011-J47	Phil 99-1793
Phil 13-0279	Phil 11-0227	Phil 13-0771	UPLB 2010-G6	Phil 2011-1683
Phil 13-1619	Phil 11-1077	Phil 13-1165	Phil 2010-0107	VMC 84-524
Phil 13-1787	Phil 2007-0221	Phil 13-1627	Phil 2009-1867	
Phil 12-0465	Phil 2006-1899	Phil 13-6667	Phil 2009-1969	

OTHER RELATED R&D ACTIVITIES

I. Technical assistance/service to industry clientele/other institutions (inquiries on sugarcane production, soil analysis/ sampling, new HYVs, diseases etc; farm survey, variety identification)

Technical services/assistance rendered to:

a. Collaborative projects

JIRCAS – collaborative project on sustainable agriculture (2 studies)

1. Effects of plant residue removal on sugarcane production and soil fertility

2. Effects of fermentation residue on sugarcane production and soil fertility

b. Land Use Reclassification (LUR) applicants (318)- see Annex 2 RDE 2018 ANNUAL REPORT

c. Educational Institutions

1. Techno information regarding pest and diseases on sugarcane with TIP, LAREC, July 11, 2018- A. Casupanan

2. Assisted TIP students regarding maturity indices in sugarcane, September 27, 2018- M.V. Serrano, R. Sarol

3. Assisted TIP students in collecting sample of different diseases of sugarcane in LAREC, November 8, 2018- A. Casupanan

4. Assisted MAPUA students in identifying yellow spot in the experimental field for using as data base for their projects, December 6, 2018- A. Casupanan

5. Assisted UP student in identifying yield losses in sugarcane due to Smut and Downy mildew, December 11, 2018- A. Casupanan

d. Inter-agency linkages

1. Crop Monitoring Project with UPLB staff, SRA Quezon City, February 01, 2018- M.V. Serrano, B. Manlapaz and J. Mora

2. National Technical Evaluation Committee meeting on land use matter, BSWM, Quezon City, January 10, 2018 – B. Manlapaz

3. National Technical Evaluation Committee meeting on land use matter, BSWM, Quezon City, March 07, 2018 – B. Manlapaz

4. GawadSaka Presentation- ATI QC, March 14, 2018 – B. Manlapaz

5. Options for real time satellite image acquisition with DR. Blanco, UP Diliman, Quezon City, March 14, 2018- M.V. Serrano

6. Meeting with bases conversion development Authority on affected sugarcane areas, PIAC/BCDA meeting, Clark, Pampanga, March 23, 2017- B. Manlapaz

7. Strengthening the capacities of BSWM and Soils laboratory meeting , BSWM, Quezon City, April 5, 2018- V. Serrano

8. Regional RDEN Meeting, DA, San Fernando, Pampanga, April 18, 2018-V. Serrano, N. Guiyab

9. Strengthening the capacities of BSWM and Soils laboratory meeting, BSWM, Quezon City, April 25, 2018-V. Serrano

10. Meeting and Site inspection on BCDA projects, Bamban, Tarlac, May 4, 2018- B. Manlapaz

11. BPI re-importation protocol meeting, Malate, Manila, April 18, 2018-A. Casupanan

12. Initial Assessment and Field Interview, Batangas, May 29-30, 2018-A. Casupanan

13. INTECLUM Meeting, BSWM, Quezon City, May 30, 2018-B. Manlapaz

14. RTECLUM Meeting, DA, La Union, June 5, 2018- B. Manlapaz, J. Mora

15. Strengthening the capacity of BSWM and RSL meeting, BSWM, Quezon City, June 7, 2018-A. Serrano

16. GawadSaka Meeting, SRA, Quezon City, June 14, 2018- B. Manlapaz, J. Mora

17. INTECLUM Meeting, BSWM, Quezon City, June 18, 2018-B. Manlapaz

18. NTECLUM Meeting , BSWM, Quezon City, July 25, 2018- B. Manlapaz

19. *Smarter Approaches to Reinvigorate Agriculture as an Industry in the Philippines, PCARRD, UPLB,July 30, 2018– M. V. Serrano, B. Manlapaz*
20. *Field Validation for GAWAD SAKA National Nominee in Cagayan, Cagayan Valley, August 7-10, 2018- B. Manlapaz, J. Mora*
21. *Consolidation of the result of interview and yield validation of the GAWAD SAKA Nominees, SRA-QC, August 29, 201- B. Manlapaz, J. Mora*
22. *14th Agriculture and Fisheries Technology Forum and Product Exhibition, SM Megamall, Mandaluyong City, August 30, 2018- M. V. Serrano, B. Manlapaz*
23. *Orientation on the Social Security System (SSS) Coverage and payment of corresponding contributions and entitlement of workers to the benefits and protection that SSS provides, SRA-QC, August 30, 2018 - R. Sarol, J. Agsaoay Jr.*
24. *Field Validation for GAWAD SAKA National Nominee in Batangas,Batangas, August 1-3, 2018 -B. Manlapaz, J. Mora*
25. *Inaugural Program of the Philippines Genome Center, Diliman, Quezon City, September 11, 2018-M. V. Serrano, A. Alviar*
26. *GAWAD SAKA 2018, Presentation of the Top 3 to the National Executive Committee, DA-ATI, Quezon City, September 17, 2018-B. Manlapaz, J. Mora*
27. *Public consultation/hearing for a review of promulgated assessment fees for 6 qualifications, Tiara oriental hoetel , Makati City, December 7, 2018- B. Manlapaz*
28. *20th meeting of the national evaluation committee on land use matters (NTECLUM), December 14, 2018, BSWM, Quezon City- B. Manlapaz*

II. Workshops/seminars/training/conferences /Conventions attended

1. *Training on Statistical design and analysis in Agricultural Research, UPLB, January 10-14, 2018- V. Serrano, G. Manlapaz, N. Guiyab, A. Casupanan, R. Sarol, J. Mora, J. Agsaoay Jr.*
2. *Briefing CUM workshop on the guidelines on issuance of certification for Land Use Reclassification, Lahug, Cebu City, January 16-18, 2018- B. Manlapaz*
3. *Training on Screening, Detection, Diagnosis and Treatment of Important pest of introduce varieties of sugarcane- UPLB, February 04-17, 2018- A. Casupanan*
4. *Chemistry convention, Chemistry week, Century Hotel, Manila, February 19, 2018-L. Yarte*
5. *Presentation of results of the study on new Plant Breeding Technique, Department of Agriculture, Quezon City, February 27, 2018- M.V Serrano*
6. *Presentation of results of the study on new Plant Breeding Technique, Department of Agriculture, Quezon City, March 27, 2018- R. Sarol, J. Mora*
7. *INTECLUM training of Republic Act 9184 and Its revised implementing rules and regulations, SRA Quezon City, April 16-17, 2018- V. Serrano, B. Manlapaz*
8. *DOST 3rd National R&D conference, PICC, Malate, Manila, April 20, 2018-V. Serrano*
9. *Presentation of results of the study on New Plant breeding techniques (NBT) Intermediate findings, DA, Quezon city, April 26, 2018- V. Serrano, R. Sarol, J. Mora*
10. *PMCP 50th Anniversary and Annual meeting, Iloilo, May 8-11, 2018-V. Serrano, B. Manlapaz, A. Casupana, J. Mora*
11. *Training workshop on mixed method research design, Mabuhay Manor Hotel, Pasay City, May 25-28, 2018- N. guiyab, A. Casupanan, R. Sarol, J. Agsaoay Jr.*
12. *33rd Philippines Chemistry Congress, PICC, Metro Manila, May 20-June 1, 2018, -L. Yarte*
13. *GAD Seminar , SRA, Quezon City, June 11, 2018- V. Serrano, B. Manlapaz, N. Guiyab, A. Casupanan*
14. *Presentation of the final policy recommendations of the NBT Study Group, DA, Quezon City, June 19, 2018- J. Mora*
15. *Seminar on the retolling of the strategic performance management System, SRA, Quezon City-June 19, 2018-B. Manlapaz*
16. *National Symposium on Agriuclture, Aquatic and Natural Resources Research and Development CY 2018, Los Banos, Laguna- B. Manlapaz*
17. *DOST-PCAARRD "Excellence in Ari-Aqua and Natural Resources (AANR) Innovation", Los Banos, Laguna, June 22, 2018- B. Manlapaz, A. Casupanan*
18. *GAD Seminar, SRA, Quezon City, June 25, 2018-A. Casupanan, N. Guiyab, L. Yarte*
19. *NAST 40th Annual Scientific Meeting, Manila Hotel, Manila, July 11-12, 2018- M. V. Serrano, R. Sarol, J. Agsaoay Jr.*
20. *Seminar on the Omnibus Rules on appointment and on the Human resource Actions, Microtel Hotel, Quezon City, August 9-10- M. V. Serrano*
21. *PHILSUTECH, Cebu City, August 14-17, 2018- A. Casupanan, N. Guiyab, B. Manlapaz*
22. *Seminar on Monitoring and Coaching for leader. Sequoia Hotel, Quezon City, September 25, 2018- M.V. Serrano, B. Manlapaz*
23. *Food safety program workshop, Davao City, September 3-7, 2018- M. V. Serrano*
24. *SRA-RDE 2018 National In-house Review, Microtel, Quezon City, October 8-12, 2018 – M.V. Serrano, B. Manlapaz, N. Guiyab, A. Casupanan, R. Sarol, J, Agsaoay Jr., A.J. Alviar, R.D. Locaba, J. Mora*
25. *Training Workshop for Peer Reviewers and Editors, Selah Hotel and garden, Pasay City, October 15-16, 2018- N. Guiyab, A. Casupanan*
26. *2018 ISSCT Joint Breeding and Germplasm and Molecular Biology workshop, Okinawa, Japan, October 22-26, 2018- M.V. Serrano*
27. *Training Workshop on writing a scientific paper: Guide for Beginners, Castel Peak Hotel, CebuCity, October 27-30, 2018- N. Guiyab, A. Casupanan*

28. Consultation workshop for the project, strengthening and mainstreaming and evaluation mechanism on land use reclassification (SEMLUR) with Region 1 & III, Savannah Resort Hotel, Don Juico Ave. Clark View, Angeles City, Pampanga, October 29-31, 2018-B. Manlapaz

29. 30th National Research Symposium - Bureau of Agricultural Research, Philippine International Convention Center (PICC), Pasay, ovember 7, 2018- R. Sarol, M.V. Serrano, B. Manlapaz

30. 14th National Biotech Week, World Trade Center, November 13 & 17, 2018-M.V. Serrano, R. Sarol, A. Alviar, J. Mora

31. Consultation workshop for the project, strengthening and mainstreaming and evaluation mechanism on land use reclassification (SEMLUR) with Region III & CAR, Savannah Resort Hotel, Don Juico Ave. Clark View, Angeles City, Pampanga, November 26-28, 2018- B. Manlapaz

32. Training on Research Design and Statistical and Financial Analysis for the Agricultural Resources management Sector, WD Conference Room, PCAARRD, Los Banos, Laguna, December 4-7, 2018- R. Sarol

III. Meetings Attended

1. Management Committee Meeting
   - SRA Quezon City, January 04, 2018- M. V. Serrano
   - SRA Quezon City, February 15, 2018- M. V. Serrano, B. Manlapaz
   - SRA Quezon City, March 07- M. V. Serrano, B. Manlapaz
   - SRA, Bacolod City, March 26, 2018- M. V. Serrano, B. Manlapaz
   - SRA Quezon City, May 15, 2018- M. V. Serrano
   - SRA Quezon City, June 25, 2018- M. V. Serrano, B. Manlapaz
   - SRA Quezon City, July 8, 2018- M. V. Serrano
   - SRA Quezon City, July 25, 2018- M. V. Serrano
   - SRA Quezon City, September 12, 2018- M. V. Serrano, B. Manlapaz
   - SRA Quezon City, September 25, 2018- M. V. Serrano, B. Manlapaz
2. 2017 yearend review/Plans and Programs, Extension Meeting, L&M, Feb. 02, 2018-B. Manlapaz
3. 2017 yearend review/Plans and Programs, Extension Meeting, L&M, Feb. 02, 2018-B. Manlapaz
4. Inception Meeting of the Project "Strengthening and mainstreaming the evaluation Mechanism and Land Use reclassification (SEMLUR), Batangas, April 3-4, 2018, - B. Manlapaz
5. GawadSaka Meeting, SRA Quezon City, April 6, 2018- B. Manlapaz, J. Mora
6. Sugarreap Meeting, SRA, Quezon City, April 13, 2018-A. Casupana, B. Manlapaz
7. RDE Meeting, SRA, Quezon City, May 17, 2018- V. Serrano, B. Manlapaz
8. NCT/SIDA Matters, SRA, QC, July 6, 2018 –M.V. Serrano, N. Guiyab
9. Pre-Inhouse , SRA QC, July 27, 2018 – M.V. Serrano, A. Casupanan, B. Manlapaz
10. RDE meeting, SRA QC, August 22, 2018-M. V. Serrano, B. Manlapaz
11. RDE Manager Meeting Re: GAWAD SAKA, August 22, 2018- B.Manlapaz, J. Mora
12. Presentation of Nominees for Search of GAWAD SAKA 2018 to the OIC, Office of the Deputy Administration-RDE, SRA-QC, September 5, 2018- B. Manlapaz
13. Magna Carta, SRA Quezon City, November 15, 2018- M.V. Serrano
14. Focus Group Discussion regarding block farm with UPLB personnel, SRA, Quezon City, October 3, 2018, P. R. Macamos, Jr.
15. In-house review 2018, Microtel, Quezon City, October 8-12, 2018, LAREC Technical Personnel
16. Bidding for Diesel Engine and Centrifugal Pump, SRA, Quezon City, October 8, 2018, P. R. Macamos, Jr.
17. National Water Forum, BSWM, Quezon City, October 23-24, 2018, P. R. Macamos, Jr.
18. ACABE National Forum, Clark, Pampanga, November 6-8, 2018, L.C. Olalia and P. R. Macamos, Jr.
19. MFADDIEE National Consultative meeting, Quezon City, November 14-16, 2018, P. R. Macamos, Jr.
20. SRA BAC meeting, SRA, Quezon City, October 15, 2018, P. R. Macamos, Jr.
21. SRA BAC meeting, SRA, Quezon City, October 18, 2018, P. R. Macamos, Jr.
22. SRA BAC Meeting, SRA, Quezon City, November 9, 2018, P. R. Macamos, Jr,

III. HYV PROPAGATION-CANE PRODUCTION

Gross canes milled at Sweet Crystals Incorporated Sugar Milling Company was 1,228.21 tonnes cane (TC) which produced net LKG sugar share for SRA of 1,353.46 bags and net kilos of 26,215.21 molasses.

HYV propagation and canepoint propagation

A total of 244.3 lacsa of HYV canepoints were distributed to sugarcane farmers in Pampanga and Tarlac.

EXTENSION SERVICES DIVISION

HEAD OFFICE OF THE EXTENSION SERVICES

The major accomplishment for 2018 is the addition on the number of mill district offices. From the existing eight, two were added in the roster: Isabela and Cotabato. For PPA's monitoring and evaluation, two major Area Conferences and five quarterly meetings were undertaken. Meanwhile, there were a total of 21 trainings, conferences and workshops attended by various ESD personnel for the whole year.

Mill District Offices National Area Conference headed by Rosemarie S. Gumera, OIC – RDE Deputy Administrator on October 22-26, 2018 at Verjadel

TECHNOLOGY TRANSFER & TRAINING SERVICES

The number of participants who attended the various trainings conducted by the ESD greatly increased. Apart from the Outreach Program of the Sugarcane Industry (OPSI), there were also the Financial Literacy and Disaster Risk and Reduction Management (DRRM) seminars that successfully took off. IEC materials were also reproduced and distributed to the different mill districts like the "My T Cane Tubo Checks" and the "Wastong Pamamaraan ng Pagtutubuhan" handbooks and the "Financial Literacy" brochure. Ditto with the quarterly publication "Mill District Balita" whose copies were not only distributed but each edition was uploaded in the official SRA website.

Disaster Risk Reduction Management Program (DRRMP) Seminar of Guiteb Ramos Planters Association Block Farm in Guiteb, Tarlac

OPERATIONALIZATION OF BLOCK FARMS

It's worth mentioning that there were 30 new Block farms organized and validated in 2018. The same holds true for the number of SRA-DAR Block Farms assisted. Meanwhile, the SRA-DAR and SIDA-funded Block farms are still being maintained

Block Farm organizational meeting at Sto. Niño, Pili, CamSuron March 9, 2018

PRODUCTION SUPPORT SERVICES

The 5 nurseries that were established and supervised have an area of 32 has wherein an estimate of 8 M cane point will be produced (for the production of 25 lacsas per hectare) Under the SIDA-HYV nursery farms, for the production of 25 lacsas per hectare, an estimate of 8 M cane point will be produced. Soil sampling and analysis were taken mostly from the small Block Farm members.

Soil Sampling Activity in Isabela Mill District

Rapid Nursery Project granted to TUFAC-Block Farm in PENSUMIL District

FIELD MONITORING & EVALUATION *(FOR POLICY FORMULATION)*

SRA Field Surveyors with BUSCO Crop Inspector validated the additional areas of Sugarcane located at Brgy. Basak, Kawayan, Tangkulan, Talakag, Bukidnon.

The previous year witnessed the staging of 38 crop estimates (Pre-preliminary, Preliminary, Pre-Final & Final). Twelve field surveyors were also hired and 182 weekly production reports were submitted. Other important collected data include: 37 quarterly reports, 8 Final Production, 9 Variety Performance, 9 Variety Picture, 9 COP, 14 PD and 9 AGP. Meanwhile, the GPS is continuous.

SPECIAL ASSIGNMENTS

RTECLUM joint survey in Makilala, North Cotabato

There were a total of 457 applications for land-use validations received, 200 ocular inspections conducted and 446 certifications issued. These numbers translate to the 6642 hectares involved. Interestingly, a total of 33 RTECLUM/NTECLUM OCI's were participated in. As for the annual GAWAD Saka search, 20 nominees were evaluated in 2018.

TECHNICAL SERVICES SECTION

A. THE YEAR'S HIGHLIGHTS

Technical Services Section (TSS) under the Research, Development and Extension Department (RD&E) continues to bolster its extensive activities specifically evaluation of performance of sugar factories through technical audits to include capacity assessments, process performance, energy efficiency levels and environmental compliance to industry standards. Impact assessments are conducted later determining the outcome as well as effects or relevance of the adoption of recommendations of the audit to the clientele.

Technical personnel were deployed to perform industrial investigations, observations, monitoring, quantifications and audits. Technical services conducted were mostly technical inquiries, planter's milling concerns, and data/information dissemination rendered to millers, planters, industrial sector, the academe and other research personnel. The section is also equipped with publications that embodied relevant data on production and performance statistics of all sugar mills and refineries in the country. Among its completed publications include the Annual Synopsis of Philippine Raw Sugar Factories' Production and Performance Data C.Y. 2016-2017 and the Annual Compendium of Philippine Sugar Refineries F.Y. 2017.

To further strengthen the section's capability in mill audits and leadership, several seminars and workshops were attended. A total of seven seminars/workshops and six administrative reviews were participated by the staff as part of honing the personnel capabilities. The section participated as well several meetings which are mostly project-related. Technical and administrative reports were also submitted as required.

The projects and functions of the section are discussed in detailed following this summary.

B. PERSONNEL COMPLEMENT

Technical Services Section
1. *Rosaline R. Agosto - Engineer III*
2. *Carolina L. Pedalizo - Engineer II*
3. *Ma. Theresa J. Villamor - Engineer II*
4. *Rosalina B. Tan - Engineer II*
5. *Dyna R. Tienda - Science Research Specialist II*

Detailed to the RDE, Office of the Department Manager
6. *Emilia R. Chu - Engineer III*

Detailed to the RDE, Environmental Laboratory
7. *Ma. Belina N. Plaza - Senior Science Research Specialist*
8. *Ruel A. Del Rosario - Science Research Specialist II*

Detailed to the RDE, Extension Section
9. *Evelyn Estanislao - Senior Science Research Specialist*

Detailed to RDE, TSS-Bacolod
10. *Rogelio T. Genzola- Engineer III*

Detailed to the Regulation Dept., Bacolod
11. *Leonida D. Banjao - Science Research Specialist II*

Detailed to the AFD, Records Section
12. *Catherine Mercado- Science Research Specialist II*

Contract of Service/Job Order
1. *Don Van Karl DC. Israel - Science Research Specialist II*
2. *Kevin Martin C. Faltado - Science Research Specialist II*

C. DEVELOPMENTAL/RESEARCH PROJECTS

C.1. Completed Projects (Publications)
- *a. Annual Synopsis of Philippine Raw Sugar Factories' Production and Performance Data C.Y. 2016-2017*
- *b. Annual Compendium of Philippine Sugar Refineries F.Y. 2017*

C.2. Continuing/On-Going Studies/Projects

1. Capacity and Efficiency Appraisal of Sugar Mills - a technical audit that gives a clear scenario of the plant's equipment and efficiency profile. This enables authorities to draw conclusions as to where improvements and/or rectifications should be applied. The program is now on its sixth year with 19 assessed sugar mills at the end of the year. For this year, six sugar mills were audited as follows:

a. URC-Tolong - January 28-Feb. 6	c. URC SURE – Balayan - March 18-27	e. CADP - April 23-May 1
b. URC-URSUMCO - March 4-13	d. HISUMCO - April 8-17	f. Option-MPC - December 2-11

URC SURE-Balayan, HISUMCO and CADPI were audited upon request of respective planters association. Planters of Ormoc-Kananga and Batangas Mill Districts raised concern over mills' intermittent operation.

From shortage of cane cutters to frequent mechanical failures and ongoing rehabilitation, the mills asked for the planters' understanding and continued support while the management is doing their best to address these challenges for the current milling season.

In terms of capacity, most of these sugar centrals have their clarifiers close to the level of its rated capacity. Corrective actions should be done as this might brought some operational difficulties during instances of low purity canes or material handled.

General recommendations for all these audited mills include (1) implementation or strengthening of cane campaign specifically aiming for better cane quality and adapting new HYV sugarcane; (2) further improvement of the evaporator and rotary vacuum filter operations by adopting standard operating parameters; and (3) upholding good housekeeping practice for the entire factory.

Impact assessments to previously audited mills were also conducted to determine the extent on how the Capacity and Efficiency Appraisal had benefited the sugar mills. The following mills are surveyed in this regard for two quarters:

a. SCISMC - July 5-6
b. Capiz - Sept. 19-21
c. Sagay - Sept. 25-27
d. URC-Passi - Oct. 3-5
e. FFHC - Oct. 17-19
f. URC-SONEDCO - Nov. 7-9
g. URC-CARSUMCO - Dec. 19-21

2. Environmental Monitoring of Sugar Mills by the Special Action Group for Environment (SAGE) - The SAGE-QC team conducted a series of environmental monitoring to the following eight sugar mills:

a. Central Azucarera de Tarlac
   - *Jan. 3-6*
   - *Jan.23-26*
   - *Feb. 1-2*
   - *Mar. 16 - Apr. 20*

b. SCISMC - *Jan. 10-12*

c. URC-Passi - *Jan. 16-19*

d. Central Azucarera Don Pedro, Inc.-
   - *Feb 5-10*
   - *Feb. 26-Mar. 3*
   - *May 21-25*
   -*Sept 3-5*

e. FFHC - *April 2-6*

f. GFII - *April 23-27*

g. Peñafrancia Sugar Mill, Inc.
   - *May 9-11*
   - *May 28-Jun 1*

h. Central Azucarera de la Carlota - *July 13-14*

i. Roxol Bioenergy Corporation
   - *July 9-12*

j. VMC - *Oct. 8-13*

All collected samples, either air or wastewater, were analyzed in SRA's DENR-recognized Environmental Laboratory.

3. Energy Efficiency and Conservation Project – a technical assessment which identifies where and how much a facility uses energy. It involves promotion of energy efficiency and the advancement of commercial cogeneration in the sugar mills. It specifically optimizes the use of sugarcane biomass i.e. bagasse and sugarcane field trash for commercial cogeneration through sale/export of power produced by the mills. The project is now on its Phase 3 where the actual assessment is done catering the following sugar mills for this year.

   a. DASUCECO - April 30-May 8
   b. BISCOM - Dec. 10-18

   General recommendations for these assessed mills include (a) maintain bagasse moisture to at most 51%; (b) avoid steam leakages through proper insulation; and (c) closely monitor combustion fuel with at most 7% O2 content and 50% excess air.
4. Technical Publications - provides valuable reference for the sugar planters and millers. The publications contain production and performance statistics as well as equipment specifications of all sugar factories and refineries.

PUBLICATION	No. of Copies Released	PUBLICATION	No. of Copies Released
Annual Synopsis of Philippine Raw Sugar Factories' Production & Performance Data		Annual Compendium of Philippine Sugar Refineries	
C.Y. 2016 - 2017	59	2017	50
C.Y. 2015 - 2016	3	2016	2
C.Y. 2014 - 2015	1	Philippine Sugar Milling Hardware:	
C.Y. 2013 - 2014	1	2016 Survey	1
C.Y. 2011 – 2016	5	Philippine Sugar Refining Hardware:	
		2017 Survey	1

5. Capability Building and Enhancement of Skills - The workforce of the section participated on several trainings and seminars to enhance their competency. Listed below are the seminars and trainings attended.

Seminars/Trainings/Conference/Meetings attended by the personnel.

TRAINING / SEMINAR	DATE	TRAINING / SEMINAR	DATE
79th Philippine Institute of Chemical Engineers (PICHE) National Convention	Feb. 21-28	QMS Seminar –Process/Risks Orientation	Mar. 22-23
Safety Program Implementation & Evaluation System (SPIES)	June 26-29	Conducting QMS Audit using ISO 9001:2015 Std. based on ISO 9011:2011	
Basic Occupational, Safety and Health (BOSH) Training	June 26-29	Corrective Action (CA) after the PCA guided by Rosehall Consultant	
CSI's 24th International Technical Sugar Conference 2018	July 31- Aug 1	Strategic Performance Management System (SPMS)	
1st PICHE Visayas Regional Conference	Sept. 13-14	Halal Food Industry Development Program 2nd Technical Group Working Meeting	
TSS (QC & Bacolod) In-House Training/Workshop	Nov. 19-23	DAR-OPSI Training on Sugarcane Production	Sept. 28

D. TECHNICAL SERVICES RENDERED

Apart from projects/studies and ministerial functions, the TSS's other main function is to render technical services. This year, the TSS rendered 186 services to 33 individual sectors. These are broken down into:

D.I. Services	**131**
Operational Process	1
Technical Survey/Evaluation	1
Technical Inquiry	6
Technical Data Dissemination	123
D.2. Sectors Served 33	**33**
Mills/Refineries/Distilleries	28
SRA Offices	3
Industrial Users/Suppliers	1
Academe	1

E. PUBLICATIONS/MEETINGS/CONFERENCES/SEMINARS/TRAININGS ATTENDED AND TRAVELS CONDUCTED

E..1. Publications

Two publications were published by the section which was annually released.

1. *Annual Synopsis of Philippine Raw Sugar Factories' Production and Performance Data C.Y. 2016-2017*
2. *Annual Compendium of Philippine Sugar Refineries F.Y. 2017*

E..2. Travels

The TSS personnel undertook a total of 33 project-related travels and 13 travels under seminars/trainings.

E..3. Meetings

There were 16 project-related meetings, two administrative and staff meetings, and one collaborative meeting with other clients totaling to 20 meetings.

E..4. Seminars/Trainings/Conferences

The TSS officers and staff participated in 13 seminar/workshops: six administrative and seven technical in nature.

E..5. Reports/Communications

Before conducting assessment/audit to sugar mills (equipment, efficiency, energy audits and environmental monitoring), letters of communication were sent to mill concerned. Technical reports were also submitted after the conduct of activities. Activity reports were submitted as well after attending seminars and training programs.

F. CROP YEAR 2016-2017 HIGHLIGHTS

Crop Year 2016-2017 has been a remarkable year for the entire sugarcane industry where the total milled canes rose up to 28 million tons, the highest ever recorded in the last decade. This is about 20% increase compared to the previous crop year equivalent to five million tons. La Carlota had the biggest contribution in this increase in tonnage followed by Crystal and BUSCO. Significant farm expansion was noted in URC-Tolong doubling its operation as complemented by the continuous improvements in the factory.

F.1. PRODUCTION

The total sugar manufactured for this crop year summed up to 2,500,430 tonnes. Along with the increase in cane tonnage, this crop year figure is 11% higher than the previous crop year. Almost all of the 27 mills resulted to a positive variance in respective sugar production. La Carlota marked the highest increase in manufactured sugar reaching up to almost 1.3M Lkg-bags. However, sugar mills at Eastern Visayas had declined sugar production where the severity of lack of cane cutters was heavily experienced.

F.2. PERFORMANCE

CASA, being the sole mill to incorporate mill diffuser, remained undefeated at 96.47% extraction. HPCo served as its runner up at 95.59% with its properly set milling tandems.

Other factory performance indicators are given in Table 4. Overall recovery and boiling house recovery for top performing mills obtained values at around 90%. Crystal toppled all mills in terms of capacity utilization at 82.05% followed by Lopez at 76.12% and VMC at 75.22%.

Table 4. Top performing mills for crop year 2016-2017.

Rank	Pol Extraction	Boiling House Recovery	Overall Recovery	Capacity Utilization
1st	CASA	Sagay	Sagay	CSCI
2nd	HPCo	Capiz	BUSCO	Lopez
3rd	BUSCO	SONEDCO	Capiz	URC-Passi
4th	CADPI	FFHC	BISCOM	VMC
5th	HISUMCO	BISCOM	SONEDCO	FFHC

F.3. TIME ACCOUNT

The milling season for this crop year commenced on the first day of September as FFHC and Sagay accepted their first batch of cane supply. Three other mills in Negros, namely Lopez, VMC and HPCo, joined the opening of the season later that month. Almost all of the mills except URC-CARSUMCO, PENSUMIL, and DASUCECO started their operation before 2016 concluded.

RESUME		
Crop Year 2015-2016 and 2016-2017		
	2015-2016	**2016-2017**
Cane Milled		
Gross Tonnes	23,237,870.68	28,005,463.85
% Pol	11.53	10.74
%Fiber	13.83	13.83
% Trash	2.46	2.44
% Burnt	18.8	17.54
% Purity, First Express Juice	80.87	80.12
Raw Sugar		
Due Cane		
Tonnes	2,249,122.07	2,511,196.90
Equivalent 50-kg Bags	44,982,441.36	50,223,937.90
Manufactured		
Tonnes	2,238,872.71	2,500,430.12
Equivalent 50-kg Bags	44,777,454.14	50,008,602.45
% Pol	98.11	98.16
% Moisture	0.43	0.4
By-Products		
Bagasse, Tonnes	6,915,348.24	8,265,424.91
Filter Cake, Tonnes	829,344.52	1,039,191.57
Final Molasses, Tonnes Due Cane	959,817.19	1,145,231.70
Yield Ratios		
Lkg/TC (50-Kg Bags per Tonne Cane)	1.93	1.79
TC/TS (Tonnes Cane per Tonne Sugar)	10.08	10.88
Liters Molasses per Tonne Cane	28.48	28.13
Liters Molasses per Tonne Sugar	294.21	313.76
Factory Data		
No. of Operating Mills	27	27
Total Capacity, Tonnes Cane per Day	200,200	202,200
Milling Plant		
% Pol Extraction	94.37	94.41
% Reduced Extraction	94.91	94.94
% Milling Loss	4.69	4.35
% Capacity Utilization	59.49	60.27
Boiling House		
% Actual Boiling House Recovery	87.29	86.73
% Reduced Boiling House Recovery, ESG	90.87	90.99
Overall Recovery		
% Actual Overall Recovery	82.38	81.88
% Reduced Overall Recovery, ESG	86.24	86.39
Pol Loss in Pol in % Cane		
Bagasse	5.63	5.59
Filter Cake	0.64	0.67
Final Molasses	10.48	11.02
Undetermined	0.87	0.83
Total	17.62	18.12
Time Account		
Total Hours Actual Grinding	78,774.66	93,053.53
Total Time Elapsed, Hours	120,928.36	139,257.96
% Overall Time Efficiency	65.14	66.82
Average Hours Grinding per Day	15.63	16.04

Tonnes Cane Milled per Hour Actual	294.99	300.96
Grinding		
% Mechanical Time Efficiency	92.3	92.57
Total Hours Delay	42,153.70	46,204.44
Agricultural Parameters		
Area Cropped, Hectares	413,435.21	421,373.00
TC/Ha (Tonnes Cane per Hectare)	56.21	66.46
Lkg/Ha (50-kg Bags of Sugar per Hectare	108.8	119.19

SUGAR LABORATORY SERVICES

Sugar Reference Service. A total of 258 raw sugar samples were received and analyzed; 206 of which were weekly composite from sugar mills which were analyzed for polarization, moisture, ash, whole raw color, affined raw color, grain size and sulfur dioxide. Of the 206 weekly composite samples, 13% of these samples have one or more parameters that failed to pass the Standard for Raw Sugar (PNS/ BAFPS 81:2010). Provision of analytical results on the mills' raw sugar polarization and color for Bureau of Internal Revenue was also done in compliance to BIR Revenue Resolution No. 8 of 2015.

Forty five (45) molasses and 12 other agro-industrial samples were received and analyzed. A total of 317 samples and 523 test certificates were issued for Sugar Reference Service which generated Php 738,300.00 SRA revenue.

Integrated Laboratory Services. A total of seventy five (75) white sugar samples were received and analyzed; 43 of which were biweekly composite from refineries. 100% of the biweekly white sugar composite samples submitted by the refineries, passed the quality requirements of the Philippine National Standard for White Sugar Standard Grade (PNS/BAFPS:2010) for the routinely analyzed parameters such as polarization, moisture content, ash, color and reducing sugars. Six (6) of these were samples analyzed in support for regulations.

Assistance was also extended to the Philippine Sugar Millers Association, Inc. for the analyses of 34 various beverage samples, which were analyzed for its sucrose content as component of a small study validating the sweetener contents of these beverages.

A total of 75 white sugar samples and 38 other agro-industrial samples were received and analyzed of which 126 test certificates were issued from Integrated Laboratory Services generating Php 460,400 SRA revenue.

Premixes and Other Food Concentrates. One hundred forty one (141) dry mixes, concentrates and other food products were sampled and analyzed. Of the 141 samples, 2.13% had over 65% sucrose content, 66.67% had below 65% sucrose content while the sucrose content of the rest were not detectable (31.21%). As continuing compliance to Sugar Order No. 6, Series of 2010-2011 and to ensure integrity of samples from shipments, sampling of these commodities were still done by the Laboratory. A total of 141 samples analyzed and 47 certificates issued from Premix Commodity Services generated Php 423,000 as SRA revenue for the year.

Revision of Philippine National Standard On Raw Cane and White Sugar. The need to update the standards, particularly on the methods for analysis, was seen a few years after its revision in 2010. A Technical Working Group for the revision of said standards was created through DA Special Order No. 239 Series of 2017 with representation from the Bureau of Agriculture and Fisheries Standards (BAFS), SRA and also the private sector as represented by PSMA and PASRI. A series of meetings were conducted to come up with draft standards and after several public consultations, the draft has been finalized and approved.

Determination of Stability of Raw Sugar in Storage. Generation of data for this project in cooperation with the Quality Assurance Committee, PSMA and four sugar mills has already been done. Final report will be prepared after the statistical evaluation of the results.

Refinery and Mill Laboratory Audit and Harmonization. Initial takeoff of this project includes alignment of procedures and methods of the two SRA Sugar Laboratories. To check on the uniformity of methods, meetings have already been conducted between the two laboratories to compare its methods, protocol

and its equipment. Conduct of analysis mainly on raw sugar which included polarization, color, moisture, ash, affination and grain size have been observed in Bacolod Sugar Laboratory and several differences have been noted. It is recommended that the Bacolod Sugar Lab staff will have their turn in observing their counterparts in Quezon City to further align the methods.

The visit to sugar mill and refinery laboratories in coordination with the PSMA have been temporarily shelved pending the review of some protocol.

Extension Support Services. Knowledge / Expertise Sharing

- Seminars, Trainings, Techno-fora conducted

- Training on Raw Sugar and Molasses Analysis for Laboratory personnel of two sugar mills:
  1. Crystal Sugar Company, Inc. (5 Personnel) on Sept 26-28, 2018 and
  2. Penafrancia Sugar Mill (2 personnel) on December 10-14, 2018
- Training on Molasses analysis of 3 laboratory personnel of Absolut Distillers Inc.

- Technology Dissemination as Resource Person (2)

- Laboratory Visit and Orientation of 32 Chemistry students from Technological University of the Phil (TUP) on January 10, 2018
- Regulation Department Regional Conference on December 17, 2018

- Technical Assistance through Referrals and Consultations (Special Assignments and Intervening Activities). Technical Assistance through Referrals and Consultations were done in 36 occasions and as a continuing member of twenty two (22) Technical Working Groups (TWG) and/or Committees:

- Quality Assurance Committee
- ICUMSA (International Commission on Uniform Methods of Sugar Analysis) National Committee
- Department of Agriculture Sanitary and Phytosanitary (SPS) Focal Group
- National CODEX Organization Technical Committee
- Department of Agriculture Codex Body
- CODEX National Subcommittee on Sugars
- TWG on the Revision of Philippine National Standard on Raw and White Sugar
- TWGs for the Adoption of Various Codex General Standards as Philippine National Standard:
  - *Principles for Traceability/Product Tracing as a Tool within Food Inspection and Certification System*
  - *Principles and Guidelines of National Food Control System*
  - *General Guidelines for Sampling*
  - *General Principles on Food Hygiene*
  - *Principles and Guidelines for Conduct of Microbiological Risk Assessment*
  - *Risk Analysis for Food Safety applications by Governments*
    - TWG on Development of Stakeholders Engagement Guidelines
    - TWG for the Validation and Impact Evaluation of Standards and Code of Practice Developed by BAFS
    - TWG on the National Quality Seal
    - DA Food Safety Subgroup
    - DA Pool of Experts Steering Committee
    - Philippine Rapid Alert System for Food and Feeds
    - DA Laboratory Services Focal Group
    - TWG on RDE Committee -SIDA
    - HFCS TWG

On these 36 occasions, technical assistance were requested by 3 government agency (Bureau of Agricultural Fisheries Product Standards, Department of Agriculture-SPS Focal Group, DA/ DOH-National Codex Organization), DA Office of the Assistant Secretary fo Regulations and 2 technical association of the sugar industry (PSMA and PASRI).

Topics covered were the following:

- *Quality Assurance Committee Projects*
- *SPS Focal Group(Sanitary and Phytosanitary Measures)*
- *Revision Of PNS for Raw and White Sugar*

- *General Principles on Food Hygiene*
- *General Guidelines for Sampling*
- *National Food Control System*
- *Traceability*
- *Micrbiological Risk Assessment*
- *Risk Analysis for Food Safety*
- *Codex Subcommittee on Sugar for the Elaboration of Codex Standard on Non centrifuged Dehydrated Sugar Cane Juice (Panela/Muscovado)*
- *Validation and Impact Evaluation of Standards and Code of Practice Developed by BAFS*
- *Creation of DA Pool of Experts*
- *Food Safety*
- *Rapid Alert System for Food and Feeds*
- *National Codex Manual of Procedures*
- *Laboratory Services*
- *Codex Standards*

Capability Building and Equipment Acquisition.

1. **Acquisition** of ten (10) laboratory and office equipment.

2. **Laboratory personnel** attended five (5) training courses and twenty two (22) seminars/symposium/conferences which include one (1) international conference/consultative session which are:
   - *Attendance of two (2) Chemists to the 31st Session of the International Commission for Uniform Methods of Sugar Analysis held at Protea Marriot Kruger Gate Hotel at Mpumalanga, South Africa. Thirty Six (36) Recommendations on methods of analysis including researches on these methods were carried out and approved.*
   - *Attendance of all Laboratory Chemists to the 33rd Philippine Chemistry Congress held last May 30-June 1, 2018 and to the National Conference of Chemical Laboratories (NCCL) last November 28-29, 2018. Both conferences were spearheaded by the Integrated Chemists of the Philippines (ICP) and held at Century Hotel, Manila.*
   - *Attendance of Laboratory Technician and Science Aides (2) to Basic Skills Seminar Workshop for Laboratory Staff on July 11, 2018 at the Institute of Chemistry, UP Diliman.*
   - *Attendance to other training, seminars and meetings on Laboratory protocol and requirements, equipment, Food Safety & etc.*

3. A **Certificate of Authority to Operate a Chemical Laboratory** has been awarded to the Laboratory by the Professional Regulations Commission (PRC) after the Laboratory has complied with various requirements in capacity building, documentation, safety measures and others as specified in the Republic Act 10657 or the Chemistry Law. The inspection of the Laboratory by the Board of Chemistry was conducted last April 27, 2018.

Inspection of the Laboratory by the Board of Chemistry

SRA Quezon City Laboratory receiving the Certificate of Authority to Operate a Chemical Laboratory from the Honorable Chair and Member of the PRC Board of Chemistry at the 2nd National Conference of Chemical

4. **Disposal of Lab Hazardous Waste and Old Chemicals.** In compliance to DENR requirements, the designation & accreditation of PCO were previously done and also the processing and securing of the CNC and Hazardous Waste Generator Registration Certificate. Disposal of old chemicals and hazardous waste were done through an authorized Hazardous Waste Disposal provider (All Waste Disposal) after compliance of DENR requirements for Permit to Transport (PTT), Generator Manifest (GM), and Transport Manifest(TM). A Certificate of Treatment was issued last April 23, 2018 by the Hazardous Waste Disposal Provider. The disposal has already been reported on Second Quarter Self-Monitoring Report submitted to DENR on July 12, 2018.

ENVIRONMENTAL LABORATORY SERVICES

The environmental laboratory has analyzed a total of 46 wastewater and 207 air emission samples amounting to Php 118,400 and Php 141,600, respectively. The laboratory also issued 24 certificates for wastewater sample and 16 for air emission samples.

Environmental Recognized Laboratory Sustainability and Maintenance

The DENR-EMB conducted its annual assessment for recognized laboratories on January 18 -19, 2018 and have found that the laboratory is compliant to its mandated rules and regulations.

On November 28 – 29, 2018, the Laboratory Services Section of SRA QC was awarded its Certificate of Authority to Operate Chemical Laboratories by the Professional Regulation Commission. The certificate was formally given during the 2nd National Conference of Chemical Laboratories held at Century Park Hotel Manila.

Continual Improvement

The staff attended a total of 17 various trainings and seminars to further their knowledge and competencies. Last November 19 - 23, 2018, the laboratory conducted and hosted training to fellow SRA Bacolod chemists entitled "Training on Wastewater and Air Analysis for Recommencement of the Environmental Laboratory Services", in assistance to the reopening of SRA Bacolod Environmental lab.

Waste Management Program

Pursuant to Republic Act 6969 or the Toxic Chemical and Hazardous and Nuclear Waste Control Act and as implemented by the DENR-EMB, the SRA QC Laboratory was issued its CCO Registration Certificate for having complied with the Chemical Control Order requirements as Industrial User of Mercuric Sulfate.

Waste Management Program

Pursuant to Republic Act 6969 or the Toxic Chemical and Hazardous and Nuclear Waste Control Act and as implemented by the DENR-EMB, the SRA QC Laboratory was issued its CCO Registration Certificate for having complied with the Chemical Control Order requirements as Industrial User of Mercuric Sulfate.

ENVIRONMENTAL LABORATORY SERVICES

The toxic waste generated by the laboratory services was properly disposed on April 13, 2018 through All Waste Services Inc., a DENR Recognized Waste Treater and Hauler.

Hauling of the generated toxic wastes by All Waste Services Inc.

RESEARCH, DEVELOPMENT & EXTENSION DEPARTMENT

V I S A Y A S

LA GRANJA RESEARCH & EXTENSION CENTER (LGAREC)

PRODUCTION TECHNOLOGY AND CROP MANAGEMENT (PTCM) SECTION

Significant findings of researches and activities of the Production Technology and Crop Management Section

- On the response of Phil 2006-1899 to varying levels of NPK fertilization in Guimbalaon sandy clay loam soil, highest tonnage (115.69 TC/Ha) and sugar yield (246.45 LKg/Ha) were observed on plots applied with 225 N Kg/Ha in plant crop. In ratoon crop, application of 225 N Kg/Ha gave highest cane and sugar yield (112.56 TC/Ha and 259.95 LKg/Ha). Significant influenced on yield was observed on the Potassium fertilization. Application of 120 Kg K2O/Ha gave the highest yields of 117.07 TC/Ha and 252.98 LKg/Ha in plant crop. The same trend was observed on the ratoon crop.

- On the response of Phil 2006-2289 to varying levels of NPK fertilization in Guimbalaon sandy clay loam soil, highest tonnage of the plant cane was 90.52 TC/Ha, obtained at 150 kg N/Ha. Highest sugar yield of 211.56 LKg/Ha was also observed at 150 kg N/Ha. On the ratoon crop, highest cane and sugar yields was obtained at 150 kg N/Ha (81.69 TC/Ha and 183.44 Lkg/Ha). Plant cane and ratoon crops

were not significantly influenced by varying rates of Phophorus. Likewise, Potassium did not gave significant results on yield components.

- On age at harvest, harvesting of canes at 11, 12 and 13 months after planting had no significant influence on yield parameters. Phil 2006-1899 gave significantly higher tonnage while Phil 2006-2289 had higher LKg/TC. Harvesting Phil 2006-1899 at 12 months after planting gave the highest gross income on sugar equivalent to Phil 216,460.

- Phil 2006-1899 and Phil 2006-2289 produced higher sugarcane yield (LKg/Ha) and cane tonnage (TC/Ha) in early (October) and middle (February) planting seasons. Different planting seasons did not influenced sugar rendement of Phil 2006 series test varieties. Among the two varieties tested, Phil 2006- 2289 gave significantly higher sugar rendement (2.36 LKg/TC) while Phil 2006-1899 had 2.00 LKg/TC.

- Comparable results were obtained on sugar yield and tonnage of Phil 2006-1899 and Phil 2006-2289 under natural water logged condition, however, lower compared with well drained soil.

- On natural drought condition, comparable but lower sugar yield (LKg/TC) and cane yield (TC/HA) were observed on canes grown under natural drought condition.

- On ratoon capacity of new sugarcane high yielding varieties, first ratoon of Phil 2000-0791 gave significantly higher cane yield (102.80 TC/Ha) but comparable with Phil 2007-0359 (98.00 TC/Ha). Statistically comparable sugar rendement were obtained from Phil 2006-2289(2.34 LKg/TC), Phil 2007-0359 (2.30 LKg/TC) and 2007-0563 (2.30 LKg/TC).

The PTCM staff acted as resource speaker/presenter in the following seminars/technical forum

- OPSI at LGAREC (Batches 143-145) - Topics: pH and liming of sugarcane soils, land preparation, preparation of planting materials, planting, replanting and cultivation, fertilizer management, harvesting and ratooning and methods of rapid HYV propagation.

- OPSI (Modular) Lopez Mill District – Topic: pH and liming

- PTCM staff acted as lecturers/ trainers of agriculture students from La Carlota City College (LCCC), La Carlota City, Central Philippine State University (CPSU), Kabankalan and Ilog Campuses, University of Negros Occidental Recoletos (UNO-R), Bacolod City and Central Philippine University (CPU), Iloilo City.

- PTCM staff presented technical papers on the following symposium and convention:
  - *SRA –LGAREC In-House Review and Planning Workshop at Quezon City- Teresita. B. Bañas, Ma. Theresa D. Alejandrino, Solena B. Tahum and Andy Alimpulos.*
  - *WESVARRDEC Regional Symposium at Capiz City – Teresita B. Bañas*

Micropropagated plantlet and BMO Production

- A total of 300,000 hardened micropropagated plantlets was released and distributed to different recipients/mill districts. From these released plantlets, 204,257 were sold and 37,755 were given to OPSI participants, MDDCs and cooperators for demo purposes. The remaining 57,988 are stocked in the nursery and are reserve for takers.

- Beneficial Microorganism (BMO) production – A total of 330 gallons were produced and disposed to Farm Services Unit, SIDA projects and Micro propagation nursery.

Completed Researches :

1. *Response of Phil 2006-1899 to varying levels of NPK fertilization in Guimbalaon sandy clay loam soil.*
2. *Response of Phil 2006-2289 to varying levels of NPK fertilization in Guimbalaon sandy clay loam soil*
3. *Yield of Phil 2006-1899 and Phil 2006-2289 at different season of planting.*
4. *Yield of Phil 2006-1899 and Phil 2006-2289 under waterlogged condition.*
5. *Yield of Phil 2006-1899 and Phil 2006-2289 under drought condition.*
6. *Yield of Phil 2006-1899 and Phil 2006-2289 at different age at harvest.*

SIDA Funded Projects:

1. Assessment of high yielding varieties (HYVs) for drought tolerance.

Two sets of experiment were set up at the Central Philippine State University- Kabankalan Campus. The first set was laid out in October 2017 and second set was in December, 2017. The study aimed to evaluate SRA's varieties tolerance to water stress. There were ten high yielding SRA varieties tested. These were as follows:

1. Phil 2006-2289
2. Phil 2006-1899
3. Phil 8013
4. Phil 2000-0791
5. Phil 2000-2569
6. Phil 2004-1011
7. Phil 2003-1389
8. Phil 2000-2155
9. Phil 2000-1419
10. Phil 2005-1763

The lay out followed the randomized complete block design. Plot size was 6 x 9 replicated three times. SRA's recommended cultural practices for sugarcane culture were followed. Drought imposition was done on the tillering and stalk elongation stages of the sugarcane varieties.

Plant cane was harvested last October, 2018 while the second set was in December, 2018. All the data gathered are being consolidated.

2. Upgrading of micro laboratory

The renovation of micropropagation laboratory which included the preparation and washing rooms among others are already completed.

Continuing Researches:

1. Variety x fertilizer (Phil 2008-0909) - Laid out last November, 2018
2. Furrow distance x planting density – The experiment was harvested last December , 2018 and data are being consolidated
3. Partitioned application of different combinations of NPK fertilizers- Harvested last December, 2018.
4. Ratooning capacity of new HYVs – The study is on its 2nd ratoon.
5. Variety x season of planting (2007 & 2008 series) – Early planting was done in November, 2018
6. Tolerance of varieties to natural drought condition (Phil 2007 & 2008 series) – The study was harvested last December, 2018 and data collected are being consolidated.
7. Variety x age at harvest (Phil 2007 & 2008 series) – Preparation of planting area was done last December, 2018.
8. Tolerance of varieties to waterlogged conditions (Phil 2007 & 2008 series) - Laid out last December, 2018

Support Services

- Micropropagation of Phil 99-1793, 2000-0791, 2006, 2007 and 2008 series
- Production of beneficial microorganisms

ABSTRACTS OF COMPLETED RESEARCHES

RESPONSE OF PHIL 2006-1899 TO VARYING LEVELS OF NPK FERTILIZATION IN GUIMBALAON SANDY CLAY LOAM SOIL

Solena B. Tahum

Abstracts/Summary:

The study was conducted at SRA-LGAREC, La Granja, La Carlota City from October 2015 to October 2017 to evaluate the response of Phil 2006-1899 plant and ratoon crops to varying levels of Nitrogen, Phosphorus, and Potassium fertilization in Guimbalaon sandy clay loam soil. Each set of experiment had four treatments replicated four times and arranged in a randomized complete block design. The treatments consisted of four levels of fertilization for each set: 0, 75, 150, and 225 kg N/Ha; 0, 75, 150, and 225 kg P2O5/Ha; 0, 60, 120, and 180 kg K2O/Ha.

Cane and sugar yields of Phil 2006-1899 plant and ratoon crops were significantly influenced by Nitrogen fertilization. The highest cane yield of the plant cane obtained at 225 kg N/Ha (115.69 TC/Ha) was comparable to 150 kg N/Ha but, significantly higher than 75 and 0 kg N/Ha. In like manner, the highest sugar yield of 246.45 LKg/Ha was observed at 225 kg N/Ha, and likewise, comparable to 150 kg/N/Ha, and significantly higher than 75 and 0 kg N/Ha.

Similarly, the highest cane and sugar yields of Phil 2006-1899 ratoon crop were obtained at 225 kg N/Ha (112.56 TC/Ha and 259.95 LKg/Ha). Cane yield was likewise, comparable to 150 kg N/Ha; while the highest sugar yield was comparable to 75 and 150 kg N/Ha. The unfertilized control gave significantly lower yield.

Phil 2006-1899 plant and ratoon crops were not significantly influenced by varying Phosphorus fertilization rates. Cane yield of the plant crop ranged from 105.88-113.08 TC/Ha; while, the sugar yield ranged from 222.43-244.18 LKg/Ha.
Phil 2006-1899 ratoon crop, likewise, gave comparable cane and sugar yields among varying phosphorus rates ranging from 104.00-105.61 TC/Ha and 233.30-242.53 LKg/Ha.

On the other hand, Phil 2006-1899 was significantly influenced by Potassium fertilization. Phil 2006-1899 plant crop gave the highest yields of 117.07 TC/Ha and 252.98 LKg/Ha at 120 kg K2O/Ha. Both yield data were comparable to 60 and 180 kg K2O/Ha and significantly higher than 0 kg K2O/Ha.

Phil 2006-1899 ratoon crop, likewise, gave the highest cane and sugar yields of 116.91 TC/Ha and 273.49 LKg/Ha at 120 kg K2O/Ha. Yield data were comparable to 180 kg K2O/Ha but, significantly higher than 60 and 0 kg K2O/Ha.

Sugar rendement (LKg/TC) of Phil 2006-1899 was not significantly influenced by N, P, and K fertilization rates. LKg/TC of the plant cane ranged from 2.06-2.20 while, in the ratoon crop, values ranged from 2.25-2.36 among N, P, and K rates. The highest net benefit with additional marginal rate of return (MRR) from Nitrogen fertilization of Phil 2006-1899 plant and ratoon crops grown in Guimbalaon sandy clay loam soil was obtained at 225 kg N/Ha.

Phil 2006-1899 plant crop obtained the highest net benefit and MRR from Phosphorus fertilization at 75 kg P2O5/Ha. The ratoon crop, on the other hand, gave the highest net benefit at 0 kg P2O5/Ha.

The highest net benefit and additional MRR from Potassium fertilization of Phil 2006-1899 plant and ratoon crops were derived at 120 kg K2O/Ha.

RESPONSE OF PHIL 2006-2289 TO VARYING LEVELS OF NPK FERTILIZATION IN GUIMBALAON SANDY CLAY LOAM SOIL

Solena B. Tahum

Abstracts/Summary

The study was conducted at SRA-LGAREC, La Granja, La Carlota City from October 2015 to October 2017 to evaluate the response of Phil 2006-2289 plant cane and ratoon crop to varying levels of Nitrogen, Phosphorus, and Potassium fertilization in Guimbalaon sandy clay loam soil. Each set of experiment had four treatments replicated four times and arranged in a randomized complete block design. The treatments consisted of four levels of fertilization for each set: 0, 75, 150, and 225 kg N/Ha; 0, 35, 70, and 105 kg P2O5/Ha; 0, 60, 120, and 180 kg K2O/Ha.

Cane and sugar yields of Phil 2006-2289 plant cane and ratoon crop were significantly influenced by Nitrogen fertilization. The highest cane yield of the plant cane was 90.52 TC/Ha, obtained at 150 kg N/Ha. This was comparable to 75 and 225 kg N/Ha, and significantly higher than 0 N. Similarly, the highest sugar yield of 211.56LKg/Ha was observed at 150 kg N/Ha, and likewise,comparable to 75 and 225 kg N/Ha, but, significantly higher than 0 N.

In the same manner, Phil 2006-2289 ratoon cropobtained its highest cane and sugar yields at 150 kg N/Ha (81.69 TC/Ha and 183.44 LKg/Ha) and likewise, comparable to 75 and 225 kg N/Ha. The unfertilized control gave significantly lower yield.

On the other hand, Phil 2006-2289 plant cane and ratoon crop were not significantly influenced by varying Phosphorus fertilization rates. Cane yield of the plant cane ranged from 95.94-101.78 TC/Ha; while, sugar yield ranged from 222.92-234.45 LKg/Ha.

Phil 2006-2289 ratoon crop, likewise, gave comparable yield results ranging from 84.81-92.27 TC/Ha and 194.65-206.01 LKg/Ha.

Similar to Phosphorus fertilization, Phil 2006-2289 was not significantly affected by Potassium fertilization. Cane and sugar yields were comparable regardless of potassium rates. Phil 2006-2289 plant cane yielded 90.44-92.93 TC/Ha and 211.87-218.26 LKg/Ha.

Phil 2006-2289 ratoon crop, likewise, gave comparable yield results among potassium rates ranging from 76.22-82.92 TC/Ha and 169.68-188.22 LKg/Ha.

Sugar rendement (LKg/TC) of Phil 2006-2289 was not significantly influenced by N, P, and K fertilization rates. LKg/TC of Phil 2006-2289 plant cane ranged from 2.30-2.36 and for Phil 2006-2289 ratoon crop values ranged from 2.23-2.31 among N, P, and K rates.

The highest net benefit and marginal rate of return (MRR) from Nitrogen fertilization of Phil 2006-2289 plant cane grown in Guimbalaon sandy clay loam soil was obtained at 150 kg N/Ha. Likewise, Phil 2006-2289 ratoon crop gave the highest net benefit with additional MRR at 150 kg N/Ha fertilization rate. On the other hand, Phil 2006-2289 plant cane and ratoon crop obtained the highest net benefits from Phosphorus and Potassium fertilizationat 0 kg P2O5/Ha and 0 kg K2O/Ha.

YIELD OF PHIL 2006-1899 AND PHIL 2006-2289 AT DIFFERENT AGE AT HARVEST

Teresita B. Bañas and Andy Alimpulos

ABSTRACT

The study evaluated the yield performance of the promising varieties from 2006 series at different age at harvest for its cultural packaging. Both are high in tonnage and sucrose content.

Results showed that yield parameters such as tonnage and LKG/TC were influenced by variety. Phil 2006-1899 gave significantly higher tonnage while Phil 2006-2289 had high LK/G/TC. Age at harvest had no significant influence on TC/Ha, LKG/TC and LKG/Ha. Although, sugar yield (LKG/Ha) was comparable among varieties at different age at harvest, 12 month old Phil 2006-1899 gave highest gross income on sugar equivalent to Php 216,460 while Phil 2006-2289 had Php 203,134.84.

TOLERANCE OF VARIETIES TO NATURAL DROUGHT CONDITION

Teresita B. Bañas and Andy Alimpulos

ABSTRACT

The study aimed to determine the yield performance and tolerance of the promising varieties from 2006 series under natural drought condition for its cultural packaging.

The study was conducted at the La Granja Agricultural Research and Extension Center, La Granja, La Carlota City from January 2017 to January 2018. Two sets of lay out were set up adjacent to each other. The first set was irrigated while the other set was un-irrigated. Drought imposition was implemented in the months of March, April and May. The lay-out followed a split plot design in a Randomized Complete Block (RCB). Plot size was set at 6 rows x 9 meters in length and replicated four times. Each treatment and replication was separated by gaps.

Results showed that tonnage (TC/Ha) of both varieties were significantly lower under drought condition than the control having 97.08 TC/Ha and 113.06 TC/Ha respectively. No significant differences were observed on the varietal means. Sugar rendement of Phil 2006-2289 gave significantly higher mean of 2.36 LKg/Tc while Phil 2006-1899 had 2.28 LKg/TC. On the other hand, sugar yield (LKg/Ha) of both varieties under drought and control treatments yielded insignificant result.

YIELD OF PHIL 2006-1899 AND PHIL 2006-2289 AT DIFFERENT SEASON OF PLANTING

Teresita B. Bañas and Andy Alimpulos

ABSTRACT

The study evaluated the yield performance of the promising varieties from 2006 series at different season of planting for its cultural packaging. Both are high in tonnage and sucrose content.

The study was conducted at the La Granja Agricultural Research and Extension Center, La Granja, La Carlota City from October 2017 to February 2018 to evaluate the yield performance of the promising varieties from 2006 series at different planting season for its cultural packaging. Three sets of lay out were set up adjacent to each other. The first set was planted in October (early season), the second set was in December (middle season) and lastly was in the month of February (late season). The lay-out followed 2x3 split plot design in a Randomized Complete Block (RCB). Season of Planting was designated as factor A and factor B were the test varieties.

Results showed tonnage (TC/Ha) was both influenced by variety and planting seasons. Phil 2006-1899 gave significantly higher tonnage of 96.71 TC/Ha compared to Phil 2006-2289 having 78.09 TC/Ha. On planting seasons, comparable higher tonnage was observed on canes planted during the early and middle planting season. However, tonnage significantly decreased when canes were planted during the late season.

Sugar yield was statistically comparable among varieties but were significantly influenced by its planting season. Comparable results were observed on early and middle planting having 225.11 and 223.78 LKg/Ha respectively. On the other hand, significantly lower yield was observed on late planted canes having an average of 118.19

Sugar rendement of Phil 2006 series significantly differed, sugar rendement of Phil 2006-2289 (2.36 LKG/TC) were much higher compared to Phil 2006-1899 with an average sugar rendement of 2.00 LKg/TC. No significant intervention on sugar rendement during early, middle and late planting season was observed.

The result revealed that Phil 2006 series was best suited in early and middle planting season for a higher tonnage (TC/HA) and sugar yield (LKG/HA).

TOLERANCE OF VARIETIES TO NATURAL WATERLOGGED CONDITION

Teresita B. Bañas and Andy Alimpulos

ABSTRACT

The study evaluated the yield performance and of the promising varieties from 2006 series under natural waterlogged condition for its cultural packaging. Both are high in tonnage and sucrose content.
The study was conducted at the La Granja Agricultural Research and Extension Center, La Granja, La Carlota City from February 2017 to February 2018. Two sets of experiment were conducted. The first set was laid in a well-drained area while the second set was laid out in the waterlogged area. The test varieties were exposed to water logging condition at 3 to 5 months after planting. The lay-out followed a split plot design in a Randomized Complete Block (RCB). Plot size was set at 6 rows x 9 meters in length and replicated four times. Each treatment and replications were separated by gaps.

Results showed that tonnage (TC/Ha) and sugar yield (LKg/Ha) were lower under waterlogged condition although not significant. Comparable results were observed on both test varieties.

Sugar yield (LKg/Ha) of both varieties showed insignificant However, sugar yield of controlled treatments yielded higher means of 163.88 LKg/Ha compared to waterlogged treatments with the mean of 132.14 LKg/Ha.

Higher sugar rendement were observed on controlled treatments with a mean average of 2.40 LKg/TC. Varieties planted in waterlogged area had significantly lowere sugar rendement having 2.26 LKg/TC.

VARIETY IMPROVEMENT AND PEST MANAGEMENT (VIPM) SECTION

For the year 2018, 32 projects were conducted by the Variety Improvement and Pest Management (VIPM) Section: 27 on the different stages of the Sugarcane Variety Improvement Program, 3 support/continuing and 2 SIDA projects. Of these, 18 were completed and 14 ongoing.

PROJECTS UNDERTAKEN/COMPLETED/ONGOING

A. COMPLETED PROJECTS

1. Pollination, Sowing and Seedling Care, Phil 2017 Series

During the 2017 breeding season, flowering of parental clones and varieties was late and of short duration with peak of full emergence observed on the last week of October to first week of November 2017.

Pollination work which started October 24 and ended November 27, 2017, utilized 61 female and 58 male selected parents. A total of 259 arrows from 180 biparental cross combinations were pollinated. From these, 259 arrows from 180 biparental crosses were harvested with three arrows destroyed.

The sowing of fuzz in 180 seedboxes from November 18 to December 16, 2017 resulted in the germination of seedlings in 175 biparental crosses consisting of 252 arrows. Medium to very good germination was observed in 66.86 percent of the crosses. Overcrowded seedlings in 75 biparental crosses were pricked in 303 seedboxes.

Seedlings in 478 seedboxes were given proper care and management like regular watering, fertilization, spraying of insecticides and fungicides, trimming of leaves, weeding and cultivation prior to transplanting in May to June 2018.

2. Single Seedling Plot Test, Phil 2016 Series

The 2016 hybridization work which produced a total of 38,541 seedlings from 209 bi-parental crosses were transplanted from July 1 to September 11, 2017. From these, 26,766 seedlings from 209 bi-parental crosses survived in the field or a survival rate of 69.45 percent which was mainly due to the effects of poor and much delayed land preparation.

Selection in June 10-24, 2018 using Phil 56-226 as control variety gave 696 promising clones from 118 bi-parental crosses. This result showed a selection percentage of 2.60 percent for seedlings and 56.46 percent for the crosses. All selected promising clones were recommended to the next stage, the Row Test, for further screening. The selection has long been delayed due to late harvest and delayed land preparation of Row Test areas where the SSPT selections

will be planted. This marks the second time that selection of the Single Seedling Plot Test was done on June from the usual March or April which can be considered another crucial delay since the creation of SRA. A consequence beyond the control of the project leader. With the replacement of the ineffective previous project leader of the Row Test project and with the constant VIPM team monitoring of the breeding projects, the breeder is hoping to put the SVIP program back on its original schedules.

3. Row Test, Phil 2015 Series

Six hundred eighty two promising clones from the crosses in the Phil 2014 Series Single Seedling Plot test were planted in the Row Test in April 2016. From these, 300 promising clones were selected and forwarded to the next stage, the Multiplication and Disease Screening Stage.

4. Multiplication and Disease Screening

a. Phil 2014 Series

Two hundred one Phil 2014 Series clones selected from Row Test were further multiplied. The top 30 clones were then selected as entries to the next stage, the Preliminary Yield Test, Phil 2014 Series based on their agronomic and morphological characteristics. One thousand canepoints for each clone were provided for LGAREC and LAREC Preliminary Yield Tests in preparation for the National Cooperative Test. Additionally, planting materials were provided for smut, leaf scorch and yellow spot disease screenings. Multiplication II started in August 2017 and ended in September 2018.

5. Preliminary Yield Test, Phil 2013 Series

Thirty Phil 2013 series clones selected from Multiplication II were planted in April 2017 to evaluate their agronomic and yield performances.

Fifteen clones stood out in tonnage. One clone showed the highest TC/Ha and statistically higher than the control VMC 86550 but comparable to Phil 8013. Nine clones were statistically low in tonnage than Phil 8013 but comparable to VMC 86550. The rest of the clones were statistically comparable to the control varieties, Phil 8013 and VMC 86550. In LKG/TC, 13 clones showed high sucrose content but statistically comparable to the control varieties. Seven clones were statistically lower than VMC 86550 but comparable to Phil 8013 while 10 clones were statistically lower than the control varieties. In sugar yield, none surpassed the yield of the two controls however; seven clones showed high LKG/Ha but were statistically comparable to the two controls. Six clones were statistically low in sugar yield than the two controls. The rest of the clones were statistically comparable to the two control varieties.

Ten promising clones were selected and recommended for further evaluation in the next stage of the Sugarcane Variety Improvement Program, the National Cooperative Test. The selected clones are: Phil 2013-44-0573, Phil 2013-75-0985, Phil 2013-115-1319, Phil 2013-160-1453, Phil 2013-25-0287, Phil 2013-22-0249, Phil 2013-24-0279, Phil 2013-211-1619, Phil 2013-86-1153 and Phil 2013-214-1627.

6. High Yielding Varieties (HYV) Propagation

a. Phil 2014 Series

Thirty promising Phil 2014 Series clones/varieties were propagated in SRA-LGAREC from April 2018 to December 2018. These were cutbacked and the canepoints produced were further propagated to increase number of planting materials needed for the National Cooperative Test in different locations nationwide. Ratoons of these clones/varieties were also maintained and cultured to facilitate additional supply of planting materials.

b. Phil 2013 Series

Thirty promising Phil 2013 Series clones/varieties were propagated in SRA-LGAREC from November 2017 to July 2018. These were cutbacked six months after planting. The canepoints produced were further propagated to increase number of planting materials needed for the National Cooperative Test in different locations nationwide. Ratoons of these clones/varieties were also maintained and cultured to facilitate additional supply of planting materials.

c. Phil 2012 Series

Thirty selected varieties of Phil 2012 Series were planted and propagated in SRA-LGAREC from November 2017 to July 2018 in preparation for Propagation III, the source of planting materials for the National Cooperative Test in different locations nationwide. From these varieties, eight were selected as entries for the NCT.

7. Ecologic Test, Phil 2010 Series (Plant Cane & Ratoon)

The study evaluated the plant and ratoon crop performance of ten selected Phil 2010 series sugarcane varieties planted in La Carlota, San Carlos, SONEDCO and Ormoc mill districts from January 2016 to February 2018.

Significant differences between test and control varieties were observed in tonnage, sucrose content and sugar yield. Variety-mean tonnage yield in the plant cane was highest in Phil 2010-0733 (154.15 TC/Ha) and lowest in Phil 2010-0149 (105.82 TC/Ha) while in the ratoon crop, highest tonnage yield was in Phil 2010-0107 (113.99 TC/Ha) and lowest in Phil 2010-0385 (79.54 TC/Ha). Location data revealed highest tonnage yield in San Carlos in both plant

and ratoon crops. Highest potential yield of 181.49 TC/Ha was attained by Phil 2010-0733 in the plant cane and 153.14 TC/Ha by Phil 2010-0645 in the ratoon crop.

Phil 2010-0149 obtained the highest variety-mean sucrose content of 2.28 LKg/TC in the plant cane and 2.20 LKg/TC in the ratoon crop similar with VMC 86-550. The lowest was Phil 2010-0733 with 1.51 LKg/TC and 1.52 LKg/TC in both plant and ratoon crops, respectively. Highest potential sucrose content was obtained by Phil 2010-0149 and VMC 86-550 in San Carlos (2.40 LKg/TC) in the plant cane and Phil 2010-0149 in La Carlota (2.38 LKg/TC) in the ratoon crop. Sweetest canes in the plant cane were produced in San Carlos while in the ratoon crop, in La Carlota.

Variety-mean sugar yield in the plant cane was highest in VMC 86-550 (271.87 LKg/Ha) and lowest in Phil 2010-0901 (208.73 LKg/Ha) while in the ratoon crop, highest sugar yield was in VMC 86-550 (238.77 LKg/Ha) and lowest in Phil 2010-0353 (147.71 LKg/Ha). Sugar yield in both plant and ratoon crops was highest in San Carlos with highest potential sugar yield of 371.75 LKg/Ha and 309.25 LKg/Ha, respectively attained by VMC 86-550.

Phil 2010-0733 had the longest and heaviest stalks in the plant cane; Phil 8013, the longest and VMC 86-550, the heaviest in the ratoon crop. Phil 2010-0353 and Phil 2010-0901 similarly produced the biggest stalks. Phil 2010-0645 produced more stalks per sqm but shorter and lighter than the other test varieties in both plant and ratoon crops.

Two test varieties in the plant cane and one in the ratoon crop did not flower. Remaining test varieties were observed to be sparse to very sparse flowering. More canes flowered in La Carlota than in other test locations. Pest and disease incidences were generally low.

In the Gain-Even-Loss Tally, Phil 2010-0149 is the only test variety which gained over Phil 8013 and got even score with VMC 86-550 in the plant cane; obtained even scores with the two controls without incurring losses in LKg/TC in both plant and ratoon crops. It gave even scores to VMC 86-550 in tonnage, sucrose content and sugar yield in all four locations in the plant cane and also in tonnage of the ratoon crop. On the other hand, Phil 2010-0107 is the only variety which gave even scores with both controls in TC/Ha in plant and ratoon crops and in LKg/Ha of the ratoon crop in all four locations. The two varieties are high in tonnage, medium to high in sucrose content and sparse to very sparse flowering. Phil 2010-0149 is resistant to smut, downy mildew and leaf scorch but moderate to yellow spot while Phil 2010-0107 is resistant to smut and downy mildew but moderate to leaf scorch and yellow spot.

These varieties are recommended for further evaluation by the Variety Committee.

8. Smut Resistance Tests

a. Phil 2013 Series (PYT Stage, Plant Cane & Ratoon)

Thirty selected clones of Phil 2013 Series at Preliminary Yield Test were tested to smut from February 2017 to February 2018. Clones were inoculated with smut spores by dipping method to determine their reaction to the disease. In the plant cane, 27 clones were very highly resistant and 3 highly resistant to the disease.

b. Phil 2015 Series at Row Test

Three hundred clones and two check varieties were inoculated with smut spores to test their resistance to the disease. These were incubated for two days and planted in plastic bags at 20 replicates for each clone.
Collection of data was done one month after planting and bi-monthly thereafter until six months.

Results showed that 253 clones were very highly resistant, 8 highly resistant, 10 resistant, 14 intermediate resistant, 1 intermediate average, 5 intermediate susceptible, 3 susceptible and 6 very highly susceptible to the disease. Only resistant clones will be further tested to downy disease.

9. Downy Mildew Resistance Test, Phil 2014 Series (Plant Cane & Ratoon)

Two hundred one Phil 2014 Series clones selected from the First Multiplication Stage of the Sugarcane Variety Improvement Program were evaluated for their resistance to downy mildew disease of sugarcane. The test was laid out in September 2017 to November 2018 following the natural method of infection under La Granja conditions. The method consisted of planting naturally infected canes or spreader rows. Seeds of sweet corn were drilled within the spreader rows to serve as additional source of infection. Result of the plant cane showed that 200 clones were very highly resistant and 1 resistant to the disease. In the ratoon crop, 138 clones were very highly resistant, 29 highly resistant, 15 resistant, 9 intermediate resistant, 5 intermediate average, 2 susceptible, 1 highly susceptible and 2 very highly susceptible to the disease. All clones in the plant cane were recommended for further testing in the next stage.

10. Yellow Spot Resistance Test, Phil 2013 Series

Thirty promising Phil 2013 Series clones were rated for resistance to yellow spot disease. The trial was conducted from February 2017 to February 2018. Natural method of infection was effected by planting diseased clones in between 2 rows of test clones. Two clones were found very highly resistant, 19 highly resistant, 2 resistant, 3 intermediate resistant, 3 intermediate average and 1 intermediate susceptible to the disease.

11. Leaf Scorch Resistance Test, Phil 2013 Series

The resistance test was conducted from February 2017 to February 2018 to determine the reaction of 30 promising Phil 2013 Series clones to leaf scorch disease of sugarcane. The method of infection employed was a combination of artificial and natural means. Disease reaction of the test clones was assessed 10 months after planting. Sixteen clones were found very highly resistant, 5 highly resistant, 2 resistant, 4 intermediate resistant and 3 intermediate average to the disease.

12. Germplasm Collection, Characterization and Maintenance

One thousand two hundred eighty four sugarcane accessions were maintained in the Germplasm Collection for the year 2018. Eight new varieties from the Ecologic Test, Phil 2010 Series were added; however, varietal and clonal verification of accessions revealed nine duplicates that were removed from the Germplasm Collection. Eight hundred eighteen clones/varieties were partially characterized agronomically. Bud shape, shape of the internode, and location of growth ring in relation to the bud were the data gathered on the characterization to primarily provide necessary information for selection of parent materials and for additional characterization.

13. Mass Production of *Trichogramma* Strips for the Control of Borers

The mass production of *Trichogramma* as a potential biological control agent against sugarcane stem borers of the Sugar Regulatory Administration, La Granja Agricultural Research and Extension Center gave a significant impact to the sugarcane planters as well as to rice and vegetable farmers in Negros Occidental for the past years.

The increasing present demand of sugarcane planters and farmers is an evidence of its significance as biological control agent. *Trichogramma* is an egg parasitoid that kills the pest before it can cause any damage to the plant.

From January 2018 to December 2018, the project produced 32,992 strips of *Trichogramma*. A total of 24,557, strips were distributed to clients as follows: sugarcane planters - 20,848 strips, rice farmers - 462 strips, vegetable growers - 127 strips and sugarcane researchers - 3,120 strips. The rest of the strips were used as starters.

14. Sugarcane Disease Garden as Source of Inocula for Resistance Trials

Seven varieties namely: Phil 6111, Phil 7464, Phil 7779, Phil 8839, Phil 8013, Phil 56226, VMC 86550 and mixed clones were propagated in an area of 5,000 sq.m. from January 2018 to December 2018. These were maintained as ratoon plants. These varieties served as resistant and susceptible checks for resistance trials to smut, downy mildew, yellow spot and leaf scorch.

15. Flower Induction Nursery

A 0.5 hectare area in Brgy. Masulog, Canla-on City was leased for the Flower Induction Nursery of SRA-LGAREC. Forty four potential varieties that do not flower under La Granja condition were planted last May 2018 and these were cutbacked in November 2018 to synchronize with the pollination activity. This is a continuing project of the VIPM Section.

B. ONGOING PROJECTS

1. Pollination, Sowing and Seedling Care, Phil 2018 Series

The crossing program for 2018 has the primary objective of producing high yielding and disease resistant varieties which could adapt to specific and wider ecologic zones of the country. As a secondary objective, the program aims to select parent materials with good combining ability, resistance to diseases and with good agronomic characteristics.

The 400 parent materials were planted/ratooned in a 2.8 hectares crossing block area from January to March 2018. A total of 1,100 stalks from 165 selected female parents were marcotted on September 1-5, 2018. Pollination work will start on the third week of October and will end on the first week of December 2018. Sowing and seedling care will continue up to transplanting of seedlings on May to July of 2019.

2. Single Seedling Plot Test, Phil 2017 Series

The 56,428 seedlings from 175 bi-parental crosses produced in the 2017 crossing program were transplanted in a 3.8232 hectare area from April 24 to June 30, 2018. Seedlings were transplanted singly along the furrows on holes previously made at a distance of one meter between furrows and 30 centimeters between seedlings. Three-eye cuttings of Phil 56226 were planted every 20 seedlings to serve as control variety during selection work. Survival count will be done one to two months after transplanting. Selection of promising clones will be made on March to April 2019.

3. Row Test, Phil 2016 Series

The field test was planted in June 2018 using 696 clones selected from the Single Seedling Plot test, Phil 2016 Series. Selection of promising clones shall be in March of next year.

4. Multiplication and Disease Screening, Phil 2015 Series

Multiplication I was planted in March 2018 using 300 clones selected from Row Test, Phil 2015 Series. At the same time, eighty three-eyed canepoints per clone were tested for reaction to smut. The promising clones which passed the Smut Test were planted in the next stage, Multiplication II.

Multiplication II was planted in September 2018. Two hundred clones were planted and plants are now 3 months old. Downy Mildew resistant clones shall be selected and passed as entries for the Preliminary Yield Test and First Propagation preparatory to the National Cooperative Test. Cutbacking shall be done in March of next year. Sufficient canepoints shall be provided for leaf scorch and yellow spot screening and smut verification.

5. Preliminary Yield Test, Phil 2014 Series

Thirty selected Phil 2014 Series clones from Multiplication II were planted as entries in the Preliminary Yield Test last May 2018. The canes are now nine months old. Clonal entries for the National Cooperative Test shall be selected in April of next year.

6. Propagation I, Phil 2014 Series

Thirty promising Phil 2014 Series clones from the Preliminary Yield Test propagated in SRA-LGAREC were ratooned last December 2018 in preparation for Propagation II. The canepoints produced were further propagated to increase number of planting materials needed for the National Cooperative Test in different locations nationwide.

7. Propagation II, Phil 2013 & Phil 2014 Series

Thirty promising clones from each series of Propagation I, Phil 2013 and Phil 2014 Series were further propagated to increase the number of planting materials needed for the National Cooperative Test in different locations nationwide.

8. Propagation III, Phil 2012 Series

The ten varieties selected and propagated in Propagation III are: Phil 2012-52-0455, Phil 2012-61-0609, Phil 2012-52-0483, Phil 2012-8-0089, Phil 2012-2-0011, Phil 2012-61-0623, Phil 2012-88-1019, Phil 2012-119-1373, Phil 2012-99-1153 and Phil 2012-105-1203. These varieties are entries for the National Cooperative Test. These were planted last May 2018.

9. Downy Mildew Resistance Test, Phil 2015 Series (Plant Cane)

The study composed of 200 Phil 2015 Series clones was laid out in September 2018 and maintained in the field. Monthly disease ratings are taken until March 2019.

10. Smut Resistance Test at PYT Stage, Phil 2014 Series

The field test was ratooned last October 2018. Disease ratings are taken every month for six months.

11. Yellow Spot Resistance Test, Phil 2014 Series

Thirty clones of Phil 2014 Series were planted in April 2018 for yellow spot screening.

12. Leaf Scorch Resistance Test, Phil 2014 Series

Thirty clones of Phil 2014 Series were planted in April 2018 for leaf scorch screening.

SIDA PROJECTS

1. National Cooperative Test

The first set of the National Cooperative Test was conducted in five mill districts in Visayas: Capiz, Tolong, La Carlota, Bais and Ormoc from January 2017 to March 2018. Eight Phil 2009 Series varieties from the Ecologic Test and two varieties from UPLB were planted however, UPLB varieties did not germinate well and these were replaced by two Phil 2006 series varieties. Phil 8013 and VMC 86550 were the national control and local control varieties, respectively.

The top five yield performing varieties in the different test sites were: Phil 2009-1963, Phil 2009-1969, Phil 2009-1867, Phil 2006-1899 and Phil 2006-2289.

For the second set, four entries each from LGAREC and LAREC, two from UPLB and two control varieties will be planted in different test sites starting November 2018. The test will be laid out in Sagay, Bais, La Carlota, Tolong, Ormoc, Bogo-Medellin, Capiz and Bukidnon mill districts. As of this writing, three sites had already been planted. These were in Tolong, Bukidnon and Ormoc mill districts.

2. Marker-Assisted Selection (MAS) in Sugarcane

The Marker-Assisted Selection (MAS) of Sugarcane Project is a new project funded by SIDA being undertaken by the Biotechnology Laboratory of the Variety Improvement and Pest Management (VIPM) Section. The project generally aims to develop new improved varieties of sugarcane through Marker-Assisted Selection. The specific objectives are to 1) identify improved promising sugarcane clones with high sucrose content through the use of MAS and 2) identify through MAS improved potential sugarcane varieties that are resistant to smut and downy mildew, both fungal diseases that are of economic importance.

Hiring of personnel was done from January to February of 2018 since the fund was only downloaded to Bacolod Office on January 2018. Dynah Fatima Discaya was hired for the Science Research Specialist I while Meliza Mana-ay was hired for the Laboratory Aide II. Requests for additional equipments and lab chemicals/supplies were already done and are now awaiting procurement processing and purchase.

From January to February of 2018, plant DNA isolation protocol through CTAB Method was being optimized. This was followed by sugarcane DNA isolation of thirty improved selections from the Preliminary Yield Test (PYT), Phil 2012 Series for molecular fingerprinting. By March 2018, the isolated DNA from PYT entries was checked for DNA quantity, purity and integrity. Preparations of PCR components and of the seven Fungal Disease Resistance (FDR) primers from UPLB through the Sugarcane Genome project were done on the first week of April. These were followed by PCR amplification of isolated DNA from entries in the PYT, Phil 2012 Series using the different primers as well as visualization of PCR products in the Polyacrylamide Gel Electrophoresis (PAGE) and were finished on the first week of May. Molecular scoring of each FDR primer as well as DNA fingerprinting analysis was done from the second week of May 2018 up to the present. Initial results of the analysis were already available on June 2018. However, initial results are still subject for verification. Making of papers for publication is ongoing.

GENOME LABORATORY

Variety Improvement and Pest Management Unit

First quarter of 2018 revolved around DNA isolation, with protocol optimization of the current CTAB method done in January. Plant DNA isolation of thirty (30) PYT 2012 accessions and twenty-two (22) check varieties for disease resistance followed. Subsequently, DNA quantity, purity and integrity of the thirty (30) 2012 PYT to be used for molecular fingerprinting were checked. The Training on Statistical Design and Analyses for Agricultural Researches was also attended in UPLB. Likewise, a meeting with UPLB and DOST-PCAARRD for Project SARAI was attended at SRA QC. The series of meetings on New Plant Breeding Techniques (NBT) with DA-Biotech also ran from February to June. For the whole year, assistance and guidance were given for the thesis project of a UPLB Graduate student on leaf scald disease.

The second quarter was mostly spent on Polymerase Chain Reaction (PCR), with preparation of PCR components of the 7 Fungal Disease Resistance (FDR1) primers (first set – 39*Aat*II, 32*Pst*I, 57*Pst*I, 75*Pst*I, 77*Pst*I, 125*Pst*I and 126*Pst*I), followed by the PCR amplification of 2012 PYT and check varieties using FDR1 primers, and visualization of these PCR products in polyacrylamide gel electrophoresis (PAGE). Molecular scoring of each FDR primer and DNA fingerprinting analysis were done afterwards, which produced the paper entitled "Association Analysis of Developed Simple Sequence Repeat (SSR) Markers to Fungal Disease Resistance." This paper was later presented during the 2018 RD&E National In-house Review in October and on the 28th Regional Symposium on Research and Development Highlights, WESVAARRDEC in December. The Visayas Regional Scientific Meeting of the National Academy of Science & Technology was also attended in April. The Basic Molecular Biology Techniques & Data Analysis Training at UPLB was also attended in June.

An additional of 6 Fungal Disease Resistance (FDR2) primers (second set – SNLR2 AS, SNLR2 AF, mSSCIR 10, mSSCIR 12, Sach 1, *Pst* 2.3-3) were prepared during the third quarter. PCR amplification and optimization of 2012 PYT and check varieties using FDR2 primers were done. September also saw the collaboration with PNRI, and had the parentals of the putative mutants identified, and their DNA isolated. The DNA quantity, purity and integrity of the seven (7) parentals and five (5) wildtype (not mutated) variants of the putative mutants were checked. The Regional Training Course on Methodologies and Mechanisms for Screening against Abiotic Stresses, and the International Workshop on Mutation Breeding, both in Indonesia, were also attended in July. Participation was also done during the 40th Annual Scientific Meeting of the National Academy of Science & Technology with a poster presentation. Two papers, entitled "Assessment of Genetic Diversity of First Priority Parentals of the SRA" and "Development of Microsatellite Markers from Sugarcane (*Saccharum* sp.) Phil 97-3933" were presented during the 65th Annual PHILSUTECH Convention in August.

The last quarter of the year started with the preparation of the Hawaiian solution. Chemicals and reagents were prepared and SO2 was generated. Likewise, plant DNA isolation of thirty (30) PYT 2014 accessions was also started. The International Society of Sugar Cane Technologists (ISSCT) joint Germplasm & Breeding and Molecular Biology Workshops in Okinawa, Japan was attended in October.

Collaboration with PNRI also gave way to the Forum on Applications of Biotechnology in Sugarcane Breeding during the 14th National Biotechnology Week. With this partnership, PCR amplification of twenty-one (21) putative mutants from PNRI using 75*Pst*I & 126*Pst*I and plant DNA isolation, checking of DNA quantity, purity and integrity of the thirty (30) check varieties for sucrose content (sent to PNRI) were done. October to November was dedicated to sugarcane pollination, with the selection of the male and female arrows prioritized, and the tapping of the male arrow done every morning, every day. The First Priority Parentals stock solutions were also checked for quantity, purity and integrity. The last activity for the year was the phenotypic characterization of the 837 varieties and accessions in the Germplasm Collection.

SOILS LABORATORY

SRA-LGAREC Soils Laboratory is mandated to deliver timely and accurate laboratory services thru soil analyses, sugarcane juice maturity testing and other agro based materials analyses referred by planters, farmers, fertilizer formulators, researchers and other walk in clients. Soils Laboratory primarily functions as a laboratory support arm of all the agricultural researches being conducted, tested and verified in the Research Center and undertakes technical studies relevant to the needs of the time.

I. CORE FUNCTION

A total of 2,935 samples were received and analyzed for Crop Year 2018, an increase of 19 % compared to last year. Of the total samples, 1,685 are soils both from the private planters and experimental units while 1,132 are sugarcane juice samples for maturity testing mostly from the different experiments in LGAREC ; 191 juice samples of which are from private planters; 118 sugarcane leaves & stems were likewise tested for moisture from the research project and private clients. 1,116 private planters/walk-ins submitted 1,539 soil samples representing 2,128 Has. (samples are from the Block Farms & socialized credit farmers of Bayawan, Kabankalan, Mabinay, San Carlos, & other neighboring Mill Districts) ; while the 144 soil samples are from our experimental stations and different ecological test sites.

2. SUPPORT FUNCTION

a. Research Activities

Field validation/verification from nine (9) test sites within Negros Island (a joint undertaking of Bacolod-LGAREC Soils Laboratories & PTCM) were laid out between August 2015- February 2016 and additional one site in Ormoc City was laid out February, 2017 for 2 project studies: **Proj.1** - **Revalidation of Existing SRA Fertilizer Recommendation** validated in 10 test sites; 3 areas were abandoned due to very poor yield and labor shortage,hence, cooperators opted to terminate the project. Observations for 6 field tests are already complete while the remaining one in Ormoc is yet to be harvested and data to be observed in the first ratoon cultivation & **Proj.2** - **Efficiency Of N at Different Period of Application on the Growth & Yield of Sugarcane** being validated in 4 areas and only one site left for first ratoon observation and due for harvest in February 2019. **Proj. 3 –** a collaborative field validation between SRA and JIRCAS on " **Development of Sustainable Sugarcane Cultivation System in the Philippines**" was laid out last July, 2016 in STARFA, Dulao Bago City and continuing 2nd ratoon observation which is due for harvest in July 2019 . A replicate study was laid out in LGAREC last Nov. 1-2, 2017 and was harvested on November 5, 2018. Yield data were gathered and statistical data interpreted. First ratoon cultivation is on-going and continuing growth survey, water sampling, sensor readings, ground parts sampling are religiously performed at a specified time. Results and findings of this research were presented during the Philsutech Convention in Cebu in August 2018 and in the symposium of WESVAARDEC in Roxas City December 2018 and other technical fora.

b. RD SIDA Project

The laboratory equipment and supplies of SIDA 2016 funded project on "**Upgrading the LGAREC Soils Lab & the 3 partners SUC's (CPSU, VSU & CSU**) and **MDDC Soils Lab of Lopez and First Farmers "** had been donated to their respective laboratories in the first quarter of 2018. The donation was handed over by Administrator Hermenegildo R. Serafica and BM Roland B. Beltran. The re-budgeted fund balance for the procurement of other laboratory items/supplies are due for delivery 1st quarter of 2019. Hands- on training on soil chemical analyses and familiarization and operation of laboratory equipment/devices had been extended to all the MDDC & SUC Soil Laboratory chemists/analysts to come up with a harmonized and uniform methods of soil analyses and system of reporting.

To ensure adherence to RA 10657, otherwise known as Chemistry Profession Act, the Soils laboratory of SRA LGAREC was issued a **Certificate of Authority to Operate** as a Chemical Laboratory effective June 2018 after inspection and having complied all the requirements for by the PRC Board of Chemistry.

3. CAPABILITY BUILDING

Soils Laboratory is manned and operated by six highly trained and committed technical personnel continuously undergoing developmental training to upgrade and acquire latest trends in laboratory skills

and methodologies. Our visit to Japan to the different sugarcane research centers together with Administrator Serafica , Board Member Atty. Roland Beltran and other key SRA officials was facilitated by JIRCAS , our research cooperator. Two of us from the Soils Laboratory LGAREC also attended the MPAES-OGEN techniques of Microwave Plasma Atomic Emission Spectroscopy course in Agilent, Singapore. We are likewise, actively involved in the transfer and dissemination of our specialized field of expertise through our Outreach Programs for the Sugar Industry to students , researchers, farmers and other entities in the sugar industry.

II. SUPPORT FUNCTION

Ten test sites for 2 research projects were laid out between August, 2015 to February, 2017, Three test sites were abandoned, Escalante, Manapla and San Carlos City due to poor yield and termination of the cooperators. Gathered data are being tallied, analyzed and subjected to statistical data interpretation for the completed studies. The only left to be harvested next year is the study in Ormoc which is a new plant. Field validation for the collaborative study with JIRCAS also started last July 2016 in STARFA, Dulao, Bago City and a replicate study was laid out in LGAREC November, 2017. Data gathering, monitoring, growth survey and water sampling are going on for both researches.

AGRO-BASED LABORATORY

PROJECTS:

1. Physical and chemical analyses of soils, fertilizers, plant tissues, soil conditioners and other agro-based materials.
2. Physical and chemical analyses of industrial wastewater and air quality monitoring of sugar mill emissions.
3. Preparation of cultures of beneficial microorganisms for sugarcane production.
4. Revalidation of SRA's fertilizer recommendation**.**

This is a joint project of Agro-Based Lab., Bacolod, Soils Lab. La Granja and Production Technology and Crop Management Units

5. Effect of different time of application of Nitrogen on growth and yield of sugarcane

This is a joint project of Agro-Based Lab., Soils Lab. La Granja and Production Technology and Crop Management Units

***** *Completed and Reported by Ms. Arlene C. Matti to 2018 RD&E National In-Review*

6. Determination of sufficiency levels of micronutrients for Sugarcane Soils

* Gathering of Samples from different area in Negros, waiting for the installation of new instrument and the deliveries of chemicals needed for the analysis.

7. Comparison of Soil phosphorus analytical methods for Sugarcane Soil

* Gathering of soil sample from different area of Negros, waiting for the installation of new instrument and deliveries of chemicals needed for the analysis.

Participants: Nelsie Grace Gela. Merabel Ledesma

i. Sugarcane Production and its By-Products and Urban Gardening by: GAD July 20, 2018
Participants: Nelsie grace Gela, Dida Gatanela

j. Update /Orientation of Magna Carta of Women other Related Laws & Policies on GAD
Participants: Nelsie grace Gela, Dida Gatanela

k. Presentation of draft Reports on Western Visayas Commodity Roadmap
Participant: Dida Gatanela

l. Social Health Insurance Education Series for Media & Govt. Information Officers Oct. 3, 2018
Participant: Dida Gatanela

m. Revised Implementing Rules & Regulation Oct, 4-5, 2918
Participants: Nelsie Grace Gela, Dida Gatanela

m. RD&E National In-House Review Oct. 8-12, 2018
Participants: Nelsie Grace Gela, Dida Gatanela

o. GAD 2018 National Planning & Conference Nov. 14-16, 2018
Participant: Dida Garanela

p. 2nd National Conference of Chemical Laboratories Nov. 28-29, 2018
Participants: Nelsie Grace Gela, Dida Gatanela

q. Participation of Women to Leadership & management Capability Building Activities Dec. 19, 2018

Participants: N.G. Gela, D. Gatanela, G. Buendia, M. Ledesma,I.N.S. Rama, J. Cajenta

r. CSC Rule in Code Of Conduct and Ethical Standards & Orientation to New Entrants to Govt. Service Oct. 9, 2018 Participants: Iriz Nova Sol Rama, July Cajenta

s. Training on Wastewater and Air analysis for Recommencement of the Environmental Laboratory Services Nov. 19-23. 2018 Participant: Iriz Nova Sol Rama

t. Updates on Instrumentation and CPD Requirements Seminar by: ICP Dec. 14, 2018 Participants: Nelsie Grace Gela, Dida Gatanela, Iriz Nova Sol Rama, July Cajenta; Glenda Buendia

SUGAR REFERENCE UNIT

The Sugar Reference Unit was in the supervision of Research Development and Extension Department and by the implementation of SRA's Organizational Strenthening was transferred to the supervision of Regulation Department as Laboratory Services on the fourth quarter of 2018.

Maintenance and operations of the Laboratory Services for the quality of weekly raw sugar composite samples and quarterly molasses composite samples from mills in the Visayas.

Personnel Compliment:

There are seven (7) personnel that man the laboratory:

1- JANET C. DILAG	Science Research Specialist II (Chemist), as OIC
2- JANET A. BELLEZA	Chemist II
3- FEBE L. GALENO	Laboratory Technician
4- JOSELITO D. CASIANO	Science Aide
5- LEZA ANDREA ESPERA	Job Order Chemist
6- STELLA MARIE NOGAL	Job Order Chemist
7- JANICA DIVINAGRACIA	Job Order Chemist

- Rendered assistance to students on their "Ön the Job Training" program on sugar and suga by-products analyses:
  1. *Technological University of the Philippinnes (Chemical Technician)*
  2. *University of the Philippines-Visayas (B.S. Chemistry) 2 students*
  3. *University of St. La Salle (B.S. Chemical Engineering) 4 students*

- Responded to the request for Parallel Testing in Molasses Analysis:
  1. Asian Alcohol Corp. *2. Roxol Bioenergy Corp.*

- Responded to the request for assistance to perform laboratory analysis on the research:
  1. TUP Visayas students *2. UNO-R students*

- Responded to the request to visit the laboratory as Field Trip
  1. University of the Philippines, Miag-ao

- Responded to the visit/audit of Engineer Daniel Lossavaro from Maloney Commodity, Inc. USA

Conferences, Seminars Trainings Attended:

All personnel of the laboratory attended the seminar given by GAD FOCAL POINT SYSTEM-Visayas as:

1. *Child Labor in Sugarcane Plantation- June 14, 2018*
2. *Sugarcane Production and its By-products and Urban Gardening- July 20, 2018*
3. *Update/Orientation of Magna Carta of Women and Other Related Laws and Policies on Gender and Development- August 29, 2018*
4. *"CSC Rules on Code of Conduct and Ethical Standards and Orientation to New Entrants to Governement Services"- October 9, 2018*

5. *Participation of Women to Leadership and Management Capability Building Activities- December 19, 2018.*
6. *Strategic Review of Regulatory Work Procedures: given by Regulation Department Regional Conference 2018- November 29 to December , 2018.*

- Janet C. Dilag participated in Strategic Decision Making by: HURIS-March 8-9, 2018

All Chemists of the laboratory attended the following seminars given by ICP-Bacolod:

1. *Preparing for ISO/IEC 17025: 2017 and Updates on the Professional Chemistry Act- March 22, 2018.*
2. *Liquid and Gas Chromatography Solutions and Updates on Continuing Professional Development- December 14, 2018.*

- Janet Dilag, Janet Belleza and Leza Andrea Espera attended the 1st RD&E –Visayas Project Assessment and Strategic Planning Workshop –July 2-5, 2018.
- Janet Dilag attended SRA-Regional Bids and Awards Committee Training on Republic Act No. 9184 and its 2016 Revised Implementing Rules and Regulations- October 4-5, 2018.
- Janet Dilag attended the 33rd Philippine Chemistry Congress of the Philippines-May 30- June 2, 2018
- Janet Dilag and Stella Marie Nogal attended the Training on Waste Water and Air Analysis for Recommencement of the Environmental Laboratory Services- November 19-23, 2018.
- Janet Dilag and Janet Belleza attended the 2nd National Conference of Chemical Laboratories on Good Laboratory Practices- November 28-29, 2018.

EXTENSION SERVICES DIVISION

INTRODUCTION

The sugarcane industry in the Philippines has developed into a multi-product industry with not only sugar, bioethanol and power as its major products but many more to offer.

With Sugarcane Industry Development Act (SIDA) of 2015 now on its third year of implementation, major support programs were availed by our block farm members and sugarcane stakeholders. Block Farming Program is institutionalized and supported under the SIDA; socialized credit is mandated to support crop financing for non-block farmers, farm mechanization and other farm support services to address the problem in scarcity of manual labor, scholarship program to generate the necessary expertise for the improvement of farm productivity and efficiencies of production facilities is supported; R, D & E activities are strengthen and infrastructure development is also funded under the law. Other networks and link agencies of government are also mandated by the law to support the programs for the sugarcane industry.

The Extension office did not only extend its effort to its clientele but to its organization as well. Client focused services included the following:

- Establishment, operationalization and provision of interventions to SRA Initiated and SIDA Block Farms. To date, 97 block farms were identified for SIDA Block Farm GAA 2016, GAA 2017 and GAA 2018. Interventions for the block farm included profiling and orientation of potential block farms; assessment evaluation; facilitate documents for validation and approval for SRA accreditation; on-site sugarcane farm management seminar; GPS survey and mapping, soil sampling and analysis; assistance in the preparation of farm plan and budget; and provision of start-up capital and facilitate livelihood proposals and projects.
- Performed technology transfer of mature technologies from the research stations to sugarcane farms through trainings and seminars, farm visits, consultation and assistance to sugarcane planters in different Mill Districts.
- Facilitated the construction of farm to mill roads, irrigation systems and transport facilities for sugarcane and it's by- products.
- Establishment of HYV nursery and demo farms both in block farms and Mill District Development Councils (MDDCs).
- Assisted in the provision of new high yielding varieties (HYVs) to sugarcane planters.

- Soil health assessment and collection of soil samples for laboratory analysis.
- Strengthened the communication program through reproduction and distribution of informative and educational materials such as komiks, brochures, and sugarcane farm management manual.
- Capability building for farmers in farm, financial and human resource management.

Moreover, the organization- focused services included:

- *Crop estimation project*
- *Collaborative projects and services with the TESDA, DOLE, SUCs, MDDC and SIFI.*
- *Retooling and skills enhancement training for Junior Agriculturist, Mill District Officer and Technical staff.*
- *Special Assignments*
- *Development* of Databank and File Management System

With the effort, hard work and persistence of the personnel and staff in order to provide this services, the Extension Services Division of the Visayas presents the accomplishment for Crop Year 2017-2018.

I. FINAL PRODUCTION VISAYAS CROP YEAR 2017-2018

MILL DISTRICT	AREA (Has)		TOTAL PRODUCTION			AVERAGE PRODUCTION		
	PLANTED	HARVESTED	TC	LKG	SUGAR MT	TC/HA.	LKG/HA.	LKG/TC
La Carlota	18,519.29	18,519.29	1,307,045.90	2,400,491.71	120,024.59	70.58	129.62	1.84
Ma-ao	10,915.37	10,915.37	713,001.18	1,302,104.55	65,105.23	65.32	119.29	1.83
FFHC - Bac-Mur	21,100.00	21,100.00	1,399,890.70	2,517,493.14	125,874.66	66.35	119.31	1.8
HPCO	13,449.00	13,449.00	1,020,734.00	1,963,341.05	98,167.05	75.9	145.98	1.92
Victorias	30,754.96	30,754.96	2,085,293.18	3,904,194.78	195,209.74	67.8	126.95	1.87
Lopez	13,610.00	13,610.00	832,357.32	1,466,729.03	73,336.45	61.16	107.77	1.76
Sagay / Danao	16,673.00	16,673.00	956,919.52	1,542,489.39	77,124.47	57.39	92.51	1.61
San Carlos	12,164.44	12,164.44	762,206.92	1,328,166.60	66,408.33	62.66	109.18	1.74
BISCOM	30,278.43	30,278.43	2,013,598.00	3,771,054.80	188,552.74	66.5	124.55	1.87
Dacongcogon/SONEDCO	24,458.09	24,458.09	1,590,068.06	2,976,206.90	148,810.35	65.01	121.69	1.87
Tolong	11,387.00	11,387.00	614,906.00	1,054,877.00	52,743.85	54	92.64	1.72
Bais- Ursumco	26,836.17	26,836.17	1,631,423.62	2,827,163.62	141,358.18	60.79	105.35	1.73
TOTAL NEGROS	**230,145.75**	**230,145.75**	**14,927,444.40**	**27,054,312.57**	**1,352,715.63**	**64.86**	**117.55**	**1.81**
Iloilo	20,295.40	20,295.40	1,209,563.43	1,939,106.37	96,955.32	59.6	95.54	1.6
Monomer/Capiz	11,827.30	11,827.30	681,939.57	1,096,286.70	54,814.34	57.66	92.69	1.61
TOTAL PANAY	**32,122.70**	**32,122.70**	**1,891,503.00**	**3,035,393.07**	**151,769.65**	**58.88**	**94.49**	**1.6**
Bogo-Medellin/Durano	6,300.00	6,300.00	269,930.00	357,601.00	17,880.05	42.85	56.76	1.32
Ormoc-Hisumco	7,000.00	7,000.00	351,590.00	619,450.00	30,972.50	50.23	88.49	1.76
TOTAL EASTERN VISAYAS	**13,300.00**	**13,300.00**	**621,520.00**	**977,051.00**	**48,852.55**	**46.73**	**73.46**	**1.57**
TOTAL VISAYAS	**275,568.45**	**275,568.45**	**17,440,467.40**	**31,066,756.64**	**1,553,337.83**	**63.29**	**112.74**	**1.78**

II. AVERAGE COST OF PRODUCTION PER HECTARE -VISAYAS CROP YEAR 2017-2018

NO.	OPERATION	PLANT CANE	RATOON
1	Lime /Lime Application	1,700.00	1,700.00
2	Soil Sampling	100.00	100.00
3	Land Preparation	12,000.00	
4	Cost of Planting Material	10,000.00	
5	Planting (including hauling)	2,800.00	
6	Replanting		
	Cost of Planting Material (5L)	1,500.00	3,000.00
	labor (including hauling)	1,500.00	1,500.00
7	Basal Fertilization		
	18-46-00	6,000.00	6,000.00
8	Fertilizer Application	500.00	500.00
9	Cultivation		
	Off-barring	600.00	600.00
	On-barring	600.00	600.00
	Off-barring	600.00	600.00
	Hilling-up	900.00	900.00

10	Fertilization (2nd dose)		
	46-00-00	4,000.00	5,000.00
	0-0-60	3,600.00	3,600.00
11	Fertilizer Application	700.00	700.00
12	Weeding		
	1st Weeding	2,000.00	2,000.00
	2nd Weeding	2,000.00	2,000.00
	3rd Weeding	2,000.00	2,000.00
13	Irrigation/Drainage	3,000.00	3,000.00
14	Trashpiling		1,500.00
15	Stubble Shaving		800.00
	TOTAL DIRECT COST	**56,100.00**	**36,100.00**
	Milling Expenses		
16	Cutting and Loading	15,000.00	15,000.00
17	Hauling (Trucking)	18,000.00	18,000.00
18	Bull Cart	6,000.00	6,000.00
	TOTAL MILLING EXPENSES	**39,000.00**	**39,000.00**
	Total Cost	**95,100.00**	**75,100.00**

III. CAPABILITY BUILDING SEMINARS FOR SUGARCANE PLANTERS

Low productivity in sugarcane farming can be greatly attributed to the farmers' limited technical knowledge in managing their crop from land preparation to harvesting/milling and ratooning. Their lack of access to information can be traced mainly to unavailability of training opportunities due to budget constraints, distance from service providers. The conduct of various on-site Sugarcane Farm Management Seminars can greatly help in educating the planters on the proper technologies and management of sugarcane.

Under the Sugarcane Industry Development Act Capability Building Program for sugarcane planters, from January to December about **89** Batches of Sugarcane Farm Management Seminars were conducted with **3,074** participants.

A. SUGARCANE FARM MANAGEMENT SEMINAR

Quarter conducted	No. of Seminars Conducted	No. of Participants
January- March	10	468
April – June	35	1072
July – September	16	627
October - December	28	907
TOTAL	**89**	**3,074**

B. FINANCIAL LITERACY TRAINING FOR SOCIALIZED CREDIT APPLICANTS

Financial Literacy Training was conducted as one of the requirements to avail the Socialized Credit Program. The following are the conducted Financial Literacy Training in the Visayas:

Quarter conducted	No. of Seminars Conducted	No. of Participants
January- March	-	-
April – June	-	-
July – September	5	295
October - December	29	1310
TOTAL	**34**	**1605**

IV. SOIL SAMPLING AND ANALYSIS

Below is the Summary of Soil Analysis Report gathered from SRA Bacolod and La Granja Agricultural Research and Extension Center (LGAREC) Soil Laboratory:

Quarter	No. of Soil Sample	Recipients
First Quarter	213	Private planters
Second Quarter	222	Private planters/ Socialized Credit Applicants
Third Quarter	1051	Private planters/ Socialized Credit Applicants
Fourth Quarter	341	Private planters/ Socialized Credit Applicants
TOTAL	**1,827**	

V. CROP ESTIMATE

The Crop Estimation project aims to provide accurate data that shows the status of the productivity of Sugarcane in the Philippines. The SRA YESS or Yield Estimation System for Sugarcane project under the Crop Estimation has been created to support this aim. The YESS has been processing remotely-sensed maps, gathers field data or validation, and many other activities has been conducted that is beneficial to the sugarcane industry.

And the following table represents all activities the Crop Estimate team has accomplished in the year 2018.

1. NO. OF SAMPLE FARMS ESTABLISHED

SUMMARY OF SAMPLE FARMS 2018					
MILL DISTRICT		NO. OF SAMPLE FARMS	MILL DISTRICT		NO. OF SAMPLE FARMS
1	HPCO	61	9	SAN CARLOS	155
2	BACOLOD-MURCIA	53	10	SONEDCO	50
3	BISCOM	67	11	TOLONG	38
4	DACONGCOGON	26	12	VICTORIAS	70
5	LA CARLOTA	52	13	CAPIZ	116
6	LOPEZ	72	14	BAIS	32
7	SAGAY	87	15	BOGO	42
8	MAAO	50	16	ORMOC	129
	TOTAL		**1,100**		

The 13 Farm Surveyors has established 1,100 number of Sample Farms for Visayas to monitor the status of the sugarcane in the district.

2. AREA PROFILING

Farms surveyors have profiled 2,796 farms in 2018 and has surveyed 1,698.35 hectares of vacant areas and converted to other crops.

AREA PROFILING			
MILL DISTRICT	Vacant areas/converted to other crops	NO. OF FARMS PROFILED	SOCIALIZED CREDIT APPLICANTS ASSISTED
HPCO	241.30	68	120
BACOLOD-MURCIA	390.50	26	327
BISCOM	0.00	130	0
DACONGCOGON	41.50	712	55
LA CARLOTA	62.50	87	0
LOPEZ	340.50	11	46
SAGAY	34.00	10	59
MAAO	0.00	67	75
SAN CARLOS	125.00	155	118
SONEDCO	94.00	761	55
VICTORIAS	50.00	28	52
CAPIZ	15.80	53	25
BOGO MEDELLIN	225.00	15	64
ORMOC	34.20	22	4
TOLONG	40.05	53	142
BAIS	54.00	626	87
TOTAL	**1698.35**	**2796.00**	**1177.00**

3. FARM MECHANIZATION SURVEY

Farm Mechanization Survey				
No. of Farms Surveyed	No. of Farms Surveyed	No. of Tractors Surveyed	No. of Hauling Trucks Surveyed	No. of Implements Surveyed
HPCO	68	185	154	164
BACOLOD-MURCIA	26	104	61	168
BISCOM	67	97	254	559
DACONGCOGON	4	21	41	48
LA CARLOTA	60	92	24	137
LOPEZ	11	43	41	322
SAGAY	10	18	25	166
MAAO	50	45	21	152
SAN CARLOS	155	113	300	515
SONEDCO	68	31	202	78
VICTORIAS	50	92	39	30
CAPIZ	78	17	100	34
BOGO MEDELLIN	15	92	116	166
ORMOC	4	267	39	188
TOLONG	6	1	5	13
BAIS	32	62	149	103
TOTAL	**654**	**1188**	**1532**	**2813**

4. AUTOMATIC WEATHER STATION

26 units installed to 14 Mill Districts; but 2 AWS units from Sagay Danao and HPCO were under maintenance as of the moment. Each Mill District were given log in credentials to access the data from the weather station.

5. FARM SURVEYOR

Thirteen (13) Farm Surveyors as of January 2018 that were assigned at each district of Visayas. They perform all field activities under the Crop Estimation Project.

LIST OF FARM SURVEYORS 2018					
1	LOPEZ, RAFFY	BAC-MUR	8	MONTON, LEANDRE	DACONGCOGON
2	BUAYABAN, KEN A.	ORMOC	9	ESMILLE, DYNNA	BAIS

3	GARCILLAN, JOEMAR B.	LA CARLOTA	10	NULLA, IGNACIO	BOGO MEDELLIN
4	GAWAN, JEOFREY G.	TOLONG	11	NORBERTO L. SALGON, JR	HPCO
5	GEOLINGO, LEONARD G.	LOPEZ	12	CLINTON L. PANILAGA	VICTORIAS
6	SANOPAO, JOMEL M.	SAN CARLOS	13	SEMILLANO, ARNEL O.	MAAO
7	VILLAVICENCIO, EDDIE Q.	SONEDCO			

6. YIELD MAPS

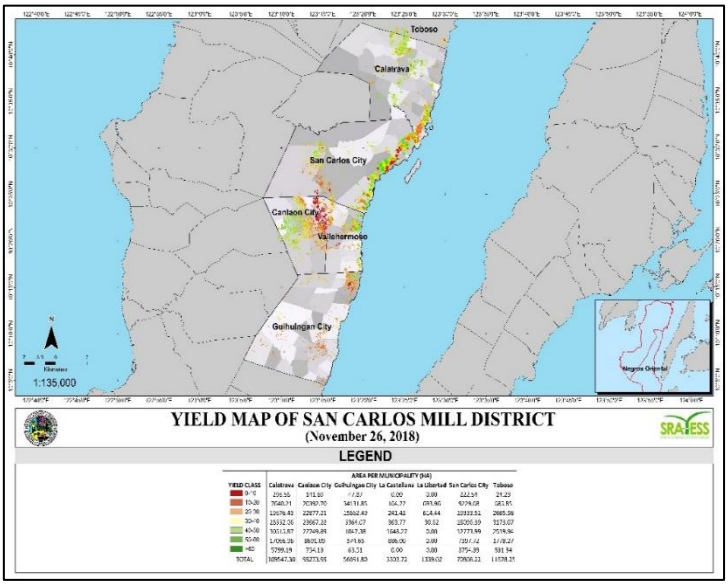
The Yield maps of each district were updated every month as soon as the satellite images are available. They were processed and lay-out with the use of various software such as SNAP Desktop, QGIS and ArcGis.

Aside from (1) Yeild map we also update the (2) NDVI data of each Mill District using Global Agricultural Monitoring (GLAM), (3) Mean TCHA retrieved from the processed Yield Map TCHA (4) make historical representation of AWS (Automated Weather Station) data vs NDVI and Production data of Visayas and (4) the Crop Estimate Layout

The following table and images shows the activities done in Crop Estimation Project throughout year 2018.

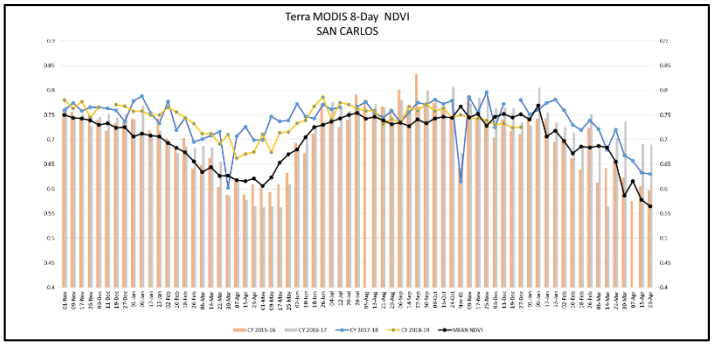
1. Yield Map inventory

YIELD MAPS	
MILL DISTRICT	**NO. OF IMAGES**
Bacmur FFHC	18
Bais-Ursumco	15
Biscom	18
Bogo-Medellin	16
Capiz Monomer	18
HPCO	17
La Carlota-Maao	17
Ormoc	14
Passi Santos-Lopez	18
Sagay Danao-Lopez	16
San Carlos	18
Sonedco-Dacongcogon	13
Tolong	16
Victorias	17



Yield map of San Carlos MD as of Nov 26, 2018

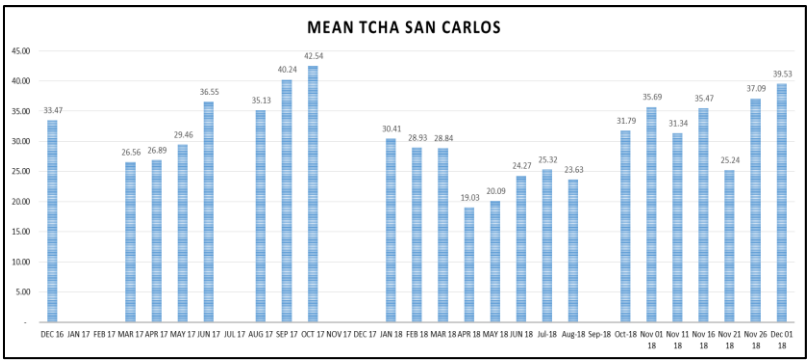
2. NDVI (Normalized Difference Vegetation Index)



Example of San CarlosNDVI as of November 2018

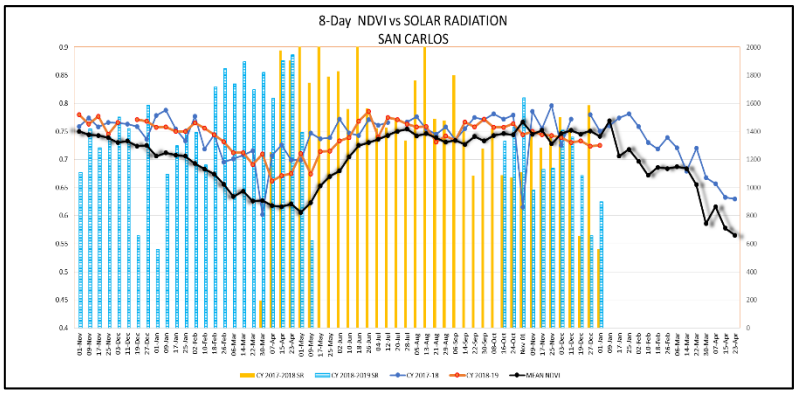
3. *MEAN TCHA*

San Carlos MD Mean TCHA as of December 2018

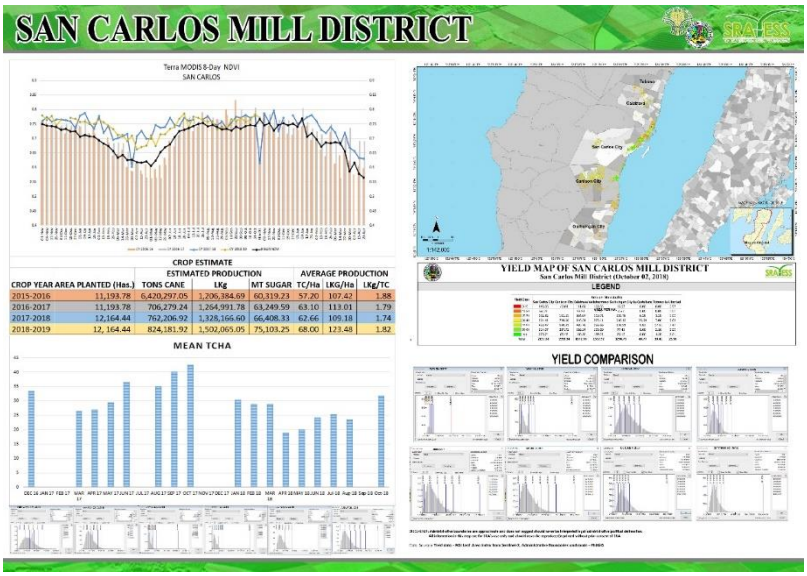


4. *SOLAR RADIATION VS. NDVI*

San Carlos Solar |Radiation vs NDVI
(Solar Radiation data is from AWS)



5. *CROP ESTIMATE LAYOUT*



VI. SIDA BLOCK FARMING PROJECT

To pursue a more efficient, appropriate and focused extension services and efforts for SIDA Block farms, the Extension and Technical Services Division – Visayas has developed strategic plans to actively respond to SIDA programs and projects of this administration. One of its major goals is to increase the productivity of the farm and the farmer himself. In order to achieve this goal, the SRA – Extension Visayas is facilitating access to farm capital, agricultural inputs, conducting various seminars, technology transfer programs, and technical assistance. The Division is also responsible in facilitating SRA-SIDA irrigation projects all over Visayas. This major assistance under the SIDA fund can benefit all SIDA block farms members.

A. SRA INTERVENTIONS TO BLOCK FARM

The interventions may include one or more of, but not limited to the following, depending on the farm needs assessment and the available budget of the SRA:

1. Provision of Start-Up Capital in cash, in kind, and for Labor.

- The start-up capital is a one-time grant for 30 hectares funded for production inputs of block farms which include but not limited to labor cost, planting materials, fertilizer, soil rehabilitation, soils analysis, herbicides, weedicides, tractor services, harvesting and hauling services and crop insurance. Provided, that start-up funding can be availed only once by a block farm.

2. Conduct of Sugarcane Farm Management Seminar for Farm Managers/Block Farm Members.

- An on-site seminar intended to awaken and broaden the participants view on farm management and to strengthen their knowledge and skills in sugarcane production, adopting the technologies, its concepts and techniques in their own working situations, and finally encourage entrepreneurial activities.

1. *Farm Plan and Budget Seminar*
   - For every Block Farm, its Technical personnel assigned thereat, together with the Farm Manager, shall prepare the Farm Plan and Budget per hectare, taking consideration the maximum amount of initial capital grant per Block Farm allotted, and indicating therein the schedule of each activity, and its corresponding proposed budget.

2. *Social Preparation and other Capability Building Seminar*
   - The project aims to empower the smallholder farmers engaged in sugarcane farming through social preparation intervention activities, focused on community and enterprise development of their farmers' organization, while promoting sustainable agricultural practices with the collaboration of GOs and NGOs. Improving the knowledge base and skills of sugarcane workers and farmers leads to professional farming and appreciation/application of best agricultural practices. Capability building training coupled with the introduction of new and best technology which were developed by SRA, and partner research institutions.

3. *Soil Rehabilitation Program*
   - The soil rehabilitation program is a one-time grant to be utilized in the form of payments/procurement for any or all of the following interventions: liming, provision for supplies and materials and such other expenses including training for the production of BOF, soil sampling and analysis.

4. *Liming Application*
   - Liming of soils is very necessary because lime neutralizes the acidity of the soil. Lime corrects soil pH, supplies Ca and Mg, improves activities of beneficial microorganisms, and encourages good root growth for efficient water and nutrient absorption.

5. *Establishment of Nurseries or Distribution of High Yielding Varieties (HYVs)*
   - To access and rapidly distribute planting materials and encourage the Block Farms to use sugarcane HYV in their farms and subsequently make the HYVs accessible to Block Farms and nearby farms.

6. *Farm Mechanization and Support Services*
   - The block farm shall be encouraged and trained to utilize appropriate agricultural machine and equipment necessary for the efficient plant growth from land preparation to harvesting. Farm Mechanization is very essential to block farms to improve their farm productivity and family income.

7. *Provision of Working Animals*
   - Carabao can be directly as draft animals in farm production. Having a comparative advantage compared to the use of farm equipment because the latter needs high

maintenance expenses. Carabao as working animals can be highly effective in sloppy sugarcane areas.

8. Livelihood Development Project

- Most sugarcane planters are dependent on sugarcane farming alone, to augment income of sugarcane planters there is a need to develop livelihood program for planters and sugarcane workers. The training may be coordinated with one or more of the following: DOLE, TESDA, DOST, DTI, SIFI, DSWD, POs, LGU and other government/non-government agencies.

9. Establishment of Demo Farm or Variety Test Area

- To introduce and test adaptable and sustainable technologies with the aim of increasing productivity and profitability in block farms by applying and practicing approved sugarcane production technologies using recommended HYV, introduce intercropping for additional farmer's income.

10. Technical Assistance/Coaching

- The technical personnel assigned to the Block Farm shall be responsible in the monitoring of the scheduled farm activities per field and the amount spent in every field activity and project. For this purpose, the technical personnel shall submit a bi-monthly report indicating the activities undertaken and the date undertaken. Constant monitoring and coaching of block farms for proper implementation of the project.

11. Establishment of Bio-Fertilizer Production

- Rapid production of Bio-organic Fertilizer improve the organic matter of the soil and reduce the cost of nitrogen fertilizer.

B. BLOCK FARM ORIENTATIONS

For this year, every mill district generated additional Block Farms through their efforts to produce scientific agricultural entrepreneurs that would compete for the Sugar Industry for the next crop years. This potential Block Farms undergone validation to be accredited and qualify for the project.

A total of 113 block farms orientation were conducted covering the following mill districts.

	Mill Districts	**No. of BF orientations conducted per district**
1	Bais-Ursumco	12
2	Biscom	14
3	Bogo-Medellin	6
4	Capiz	1
5	First Farmers/ Bacolod Murcia	8
6	Hpco	5
7	Iloilo	1
8	La Carlota	6
9	Lopez	5
10	Ma-Ao	8
11	Sagay-Danao	5
12	San Carlos	6
13	Sonedco-Dacongcogon	11
14	Tolong	18
15	Victorias	7
	Total	**113**

C. SIDA BLOCK FARM GAA 2016 COMPARATIVE PRODUCTIVITY

a. CROP YEAR 2016-2017 vs CROP YEAR 2017-2018

From an average production of **76.98 LKG/Ha**, SIDA Block Farm GAA 2016 productivity increased to **87.87** LKG/Ha for Crop Year 2017-2018.

SIDA GAA 2016 Block Farming Project is already on its third year of implementation while SIDA GAA 2017 on its first year of implementation had already brought an impact to the block farms though interventions given and technical assistance provided.

b. LIST OF BLOCK FARM FOR GAA 2016

MILL DISTRICT		*Name of Block Farm*	*Location*	*Area GPS (Ha)*	*No. of enrollees*
Central Negros					
1	BISCOM	United Fishermen Multi-purpose Cooperative **(UFIMCO)**	Pta. Talaban, Himamaylan City Neg. Occ	32.6430	13
2		Brgy. Buenavista- Agrarian Reform Beneficiaries Association **(BB-ARBA)**	Brgy. Buenavista, Himamaylan City, Neg. Occ.	32.3016	23
3	La Carlota	Dama Farm Workers Agrarian Reform Beneficiaries Ass'n **(DAFWARBA)**	Had Dama, Brgy. Cabacungan, La Castellana, Negros Occidental	41.0500	27
4	Ma-ao	Nakalang Padilla Farm Workers Association **(NAPFWA)**	Had. Nakalang, Brgy. Ilijan, Bago City, Neg. Occ.	35.9230	31
South Negros					
5	Bais-URSUMCO	Polo Plantation Agrarian Reform Beneficiaries Cooperative **(POPARBECO)**	Polo, Tanjay City, Negros Oriental	32.8914	14
6		Bahay Malaumon Farmers Association **(BMFA)**	Brgy. Luyang, Mabinay, Neg. Or.	30.6314	21
7		Danawan Agrarian Reform Beneficiaries Association **(DARBA)**	Sitio, Danawan, Brgy. Tara, Mabinay, Negros Oriental	42.6283	18
8		Campanun-an Agrarian Reform Beneficiaries Association **(CAMARBA)**	Campanun-an, Mabinay, Neg. Oriental	31.9973	23
9		Bulod Aktibong Bukidnon Livelihood Organization **(BABLO)**	Brgy. Pantao, Mabinay Negros Oriental	31.1662	18
10	Bais-URSUMCO	New Namangka Farmers Association **(NNFA)**	Brgy. New Namangka, Mabinay Negros Oriental	33.8486	15
11	Dacongcogon	Magballo Agrarian Reform Beneficiaries and Farmers Association **(MARBFA)**	Magballo, Kabankalan City, Neg. Occ.	32.6061	23
12		Tabugon Agrarian Reform Beneficiaries Farmers Association **(TARBEFA)**	Brgy. Tabugon, Kabankalan City Negros Occidental	32.1745	21
13	SONEDCO	Pinggot Farmers Association **(PIFA)**	Brgy. Pinggot, Ilog, Neg. Occ.	33.8555	15
14		Inayawan Small Sugarcane Farmers Association **(ISSFA)**	Brgy. Inayawan, Cauayan, Neg. Occ	39.8970	27
15		Casoy Lubi Apitong Agrarian Reform Beneficiaries Ass'n **(CLAARBA)**	Brgy. Tabugon, Kabankalan City Negros Occidental	33.5709	19
16		Bajay-Patol Agrarian Reform Cooperative **(BPARC)**	Brgy. Caliling, Cauayan Negros Occidental	36.3361	31
17	Dacongcogon	Bantayan Farmers Agrarian Reform Beneficiaries Ass'n **(BFARBA)**	Prk. 7, Brgy. Bantayan, Kabankalan City, Neg. Occ.	32.7529	26

18		Mataba Womens Association **(MATABAWA)**	Brgy. Magballo, Kabankalan City, Negros Oriental	32.5718	27
19	Tolong	Bolbog Small Farmers Beneficiaries Ass'n **(BOSFARBA)**	Bolbog, Narra, Bayawan City, Negros Oriental	32.8032	17
20		Mangulod Farmers Multi-purpose Cooperative **(MAFARMPUCO)**	Mangulod, Sta. Catalina, Negros Oriental	37.6850	13
21		Maninihon Omod-Catmon Posi-on Farmers Multi-Purpose Cooperative **(MOCPFAMCO)**	Sitio Catmon, Brgy. Maninihon, Bayawan City, Negros Oriental	34.0097	20
North Negros					
22	HPCo	Sitio Calaptan Sta. Ana and Ascalon Farmers Association **(SCSAFA)**	Sitio Calaptan, Brgy. San Isidro E.B Magalona, Neg.Occ	32.9515	28
23		Had. Angeles Agrarian Reform Beneficiaries Association **(HAARBA)**	Patag Duitay, Brgy. Guimbalaon, Silay City, Neg. Occ.	32.5264	41
24	FF/ Bac-Mur	Had. Esmeralda 2 Rice Farmers Association **(HES2RIFA)**	Brgy. San Fernando, Talisay City, Neg. Occ.	34.1968	49
25	Victorias	Had. Candelaria Farmers Association **(HCAFA)**	Had. Candelaria, Brgy. Purisima, Manapla, Neg. Occ.	37.6747	78
26	Sagay-Danao	Hagnaya Agrarian Reform Cooperative **(HARC)**	Had. Hagnaya, Brgy. Tabun-ac, Toboso, Neg. Occ.	32.1100	33
27		Minapasuk Upland Farmers Agri-ventures Marketing Cooperative **(MUFAMCO)**	Brgy. Minapasuk, Calatrava, Neg. Occ.	34.9490	17
28	Lopez	LGEI Farmers Association Incorporated **(LIFA)**	Brgy. Malobon, Sagay City, Neg. Occ	34.6640	84
29		Talusan Agrarian Reform Beneficiaries Association Inc. **(TARBA)**	Purok Kulo, Brgy. Bulanon, Sagay City	31.4970	30
30	San Carlos	Agpangi Bagacay Cabungahan Agrarian Reform Cooperative **(ABACA ARCo)**	Brgy. Agpangi, Calatrava, Negros Occidental	31.0624	24
31	San Carlos	Bagonbon Agrarian Reform Cooperative	Brgy. Bagonbon, San Carlos City Negros Occidental	37.9013	26
Panay					
32	Monomer	Parian Planters Marketing Cooperative **(PPMC)**	Brgy. Parian, Sigma, Capiz	34.5800	30
33	Passi	Aglalana Green Farmers Association **(AGFA)**	Brgy. Aglalana, Passi City, Iloilo City	40.4800	30
Eastern Visayas					
34	Bogo-Medellin	San Jose Agrarian Reform Beneficiaries Multi-purpose Coop. **(SJARBAMPC)**	Caputatan Sur, Medellin, Cebu	31.2300	15
35		Canhabagat Agrarian Reform Beneficiaries Multi-purpose Coop. **(CARBMPC)**	Brgy. Canhabagat, Medellin, Cebu	30.6000	18
36		Caputatan Norte Sugarcane Farmers Association	Brgy. Caputatan Norte, Medellin Cebu	34.5718	23
37	Ormoc	Catmon Small Farmers Association **(CSFA)**	Purok 2, Brgy. Catmon, Ormoc City	32.0000	16
			TOTAL	**1266.3384**	**984**

c. LIST OF BLOCK FARM FOR GAA 2017

MILL DISTRICT		*NAME OF BLOCK FARM*	*LOCATION*	*Area GPS (Ha)*	*No. of Enrollees*
1	BISCOM	Had. Bagacay Workers Carper Beneficiaries Association	Brgy. Aranda, Hinigaran, Negros Occidental	34.1960	55
2		Hda. Nalipay Agrarian Reform Beneficiaries Association	Brgy. 5, Isabela Negros Occidental	33.0205	18
3		Prosperidad Farmers Beneficiaries Association	Brgy. Payao, Binalbagan Negros Occidental	30.3188	27
4	La Carlota	Asosasyon sang Mamumugon sang Nolan	Brgy. Mansalanao, La Castellana, Negros Occidental	41.3656	17
5	Ma-ao	Binubuhan Progressive Farmers and Farm Workers Association	Brgy. Binubuhan, Bago City Negros Occidental	35.7202	30
6		Nakalang Farm Workers Association	Brgy. Ilijan, Bago City Negros Occidental	30.4436	30
7	FF/ Bac-Mur	Sta. Rosa Small Farmers Association	Purok Old Barrio, Brgy. Sta. Rosa, Murcia, Negros Occidental	36.1920	31
8		Malasaga Hiyang-hiyang Irrigators Association	Katilingban, Talisay Negros Occidental	34.6468	29
9		Brgy. Magsaysay Farmers Association	Brgy. Magsaysay, Cadiz City Negros Occidental	34.6468	26
10		Tres Andanas Small Farmers Association	Brgy. Magsaysay, Cadiz City Negros Occidental	36.0659	18
11	Victorias	Jerusalem Integrated Farmers Association	Brgy. Magsaysay, Cadiz City Negros Occidental	42.5349	28
12		Gracia Farmers Association	Brgy. Magsaysay, Cadiz City Negros Occidental	33.5605	22
13		PFPC Agrarian Reform Cooperative	Central Lopez, Brgy. Paraiso, Sagay City Negros Occidental	35.3320	88
14	Sagay-Danao	Pasto Agrarian Reform Cooperative	Brgy. Magticol, Toboso Negros Occidental	63.2820	59
15	San Carlos	Codcod Multi-purpose Cooperative	Brgy. Codcod, San Carlos City Negros Occidental	34.9028	15
16		Prosperidad Agrarian Reform Beneficiaries Association	Brgy. Prosperidad, San Carlos City Negros Occidental	43.8834	24
17		Malanog Rice Farmers Association	Brgy. Malanog, Calatrava Neg. Occ.	45.7791	11
18		Malanog Menchaca Dolis Farmers Association,	Brgy. Dolis, Calatrava Negros Occidental	32.7520	30
19	SONEDCO/ Dacongcogon	Brgy. Camindangan ARBs Association	Brgy. Camindangan, Sipalay Negros Occidental	42.7165	28
20		Ga-id Mambugsay ISF Project Minority Association	Sitio Gaid, Brgy. Mambugsay, Cauayan Negros Occidental	35.0621	33
21		Tagoc Agrarian Reform Cooperative	Brgy. Tagoc, Kabankalan City Negros Occidental	37.0920	25
22		Asia Small Farmers & Fishermen Association Inc.	Brgy. Asia, Hinoba-an, Negros Occidental	36.2426	30
23		Brgy. Tabu Agrarian Reform Beneficiaries Association	Brgy. Tabu, Ilog Negros Occidental	35.6095	22
24		Gatuslao Integrated Farmers Association	Brgy. Gatuslao, Candoni Negros Occidental	38.0243	32
25	Bais - URSUMCO	Naga Small Planters Association	Brgy. Sta. Aguida, Pamplona Negros Oriental	31.5300	13
26		Uswag Mag-uuma sa Samac	Brgy. Samac, Mabinay Negros Oriental	31.3764	30
27		Bagtic Mampalasan United Farmers Association	Brgy. Bagtic, Mabinay Negros Oriental	30.6203	28
28	Tolong	Candugay Datag Farmers Association	Brgy. Datag, Siaton, Negros Oriental	37.1439	24
29	Iloilo	Dalicanan Farmers Association	Brgy. Dalicanan Passi City Iloilo	38.1372	41
30	Iloilo/ Stos. Lopez	Dao Overseas Workers Association Inc.	Brgy. Poblacio Sur, Tobias Fornier, Antique	33.9087	29
31	Capiz	Agsirab Farmers Development Cooperative	Brgy. Agsirab, Dumarao Capiz	36.0398	31
32	Ormoc	Dolores Sugarcane Farmers Association	Brgy. Dolores Ormoc City	30.5256	23
33	Bogo Medellin	Sitio Sinto Onse Sugarcane Farmers Association	Sitio Sinto Onse, Brgy. Canhabagat, Medellin Cebu	34.8113	25

34		Sitio Looc Sugarcane Farmers Association	Sitio Looc, Brgy. Canhabagat, Medellin Cebu	31.2000	22
35		Nagkahiusang Mag-uuma ug Mamumuo Para sa Repormang Agraryo (NAMMPRA)	Sitio Acacia, Brgy. Canhabagat, Medellin Cebu	32.2197	24
			TOTAL	**1,270.9028**	**1018**

d. LIST OF BLOCK FARM FOR GAA 2018

MILL DISTRICT		***NAME OF BLOCK FARM***	***LOCATION***	***Area GPS (Ha)***	***No. of Enrollees***
1	BISCOM	Iling-iling Farmers Association	Had. Iling-iling, Brgy. Cabadiangan, Himamaylan City, Negros Occidental	55	32.1873
2		Bato Farmers Association	Sitio Bato, Brgy. Odiong, Moises Padilla, Negros Occidental	43	42.3237
3	Ma-ao	Najaba-Felicidad Farmers Association	Brgy. Bacong, Bago City, Negros Occidental	26	33.7500
4	Ma-ao	Sitio Mambahao Farmworkers Association	Sitio Mambajao, Brgy. Bacong, Bago City	35	33.2221
5		Amicus Agrarian Reform Association	Sitio Tabucol, Brgy. Bacong, Bago City, Negros Occidental	27	32.0411
6	BAIS-URSUMCO	Brgy. Inapoy Farm Family Association	Brgy. Inapoy, Mabinay, Neg. Or	15	32.3868
7		Brgy. Tara Farm Family Association	Brgy. Tara, Mabinay	26	30.4786
8		Sab-ahan Tribu Bukidnon Association	Brgy. Sab-ahan, Bais City, Negros Or.	22	38.4396
9		Cambagahan Community Farmers Association	Brgy. Cambagahan, Bais City, Negros Oriental	23	43.9554
10		Common Small Farmers Agrarian Reform Beneficiaries Association	Sitio Common, Basak, Bais City, Negros Oriental	21	36.0000
11	SONEDCO/Dacongcogon	Tan-Awan Farmers for Sustainable Agriculture Association	Brgy. Tan-awan, Kabankalan City, Negros Occidental	32	34.4375
12		Farmers Association of Tabionan	Brgy. Tabu, Ilog	33	39.9441
13		Brgy. Alim Farmers Poultry and Livestock Raisers	Brgy. Alim, Hinoba-an, Negros Occidental	24	33.3183
14	Sagay-Danao	First District Upper Ministerial Association for Spriritual and Economic Endeavor (FIDUMASEE)	Brgy. Marcelo, Calatrava, Negros Occidental	18	32.5050
15	San Carlos	Paghumayan Small Farmers Association	Brgy. Paghumayan, Calatrava, Neg. Occ	15	32.0936
16		Natural Park Farmers Association	Sitio Iliranan, Brgy. Codcod, San Carlos City, Neg. Occ.	34	32.2663
17	Victorias	Minuro Agrarian Reform Beneficiaries Cooperative	Brgy. 10, Victorias City, Negros Occidental	15	33.6008
18		Had. Ogie Sugar Farm Workers Multi-purpose Cooperative	Brgy. Cabahug, Cadiz City, Negros Occ.	84	38.5821
19	HPCo	Hda. Paho Farmers Association	Had. Paho, Brgy. Guimbalaon, Silay City, Negros Occ.	28	36.3380
20	First Farmers/ Bac-Mur	Balogo Farmers Association	Brgy. Concepcion, Talisay City, Neg. Occ.	28	32.2023
21		Hda. Sto. Niño Farmers Association	Brgy. Dos Hermanas, Talisay City, Neg. Occ.	28	34.0736
22	Ormoc	Quezon Jr. United Farmers Association	Brgy. Quezon Jr. , Ormoc City	22	32.0930
23		Sumangga Sugarcane Farmers Association	Brgy. Sumangga, Ormoc	21	32.1630
24	Capiz	Progressive Women and Agrarian Reform Cooperative (PWARC)	Brgy. Gibato, Dumarao, Capiz	30	32.4319
25	Iloilo	Agtabo Farmers Association	Brgy. Agtabo, Passi	23	38.9421
			TOTAL	**728**	**869.7762**

D. ACCELERATED TECHNOLOGY TRANSFER PROGRAM – PERSONAL PROTECTIVE EQUIPMENT SEMINAR

The PPE Training is one of the outreach programs conducted by the initiative of the Extension Services Division –Visayas . Its main desire and goal is to increase the productivity of the sugarcane farmers and workers by increasing their safety and capacity. To do this, the integration of Personal Protective Equipment (PPE) use is one of the indispensable ways to achieve this goal.

Furthermore, the said seminar was funded by the Accelerated Technology Transfer Program (ATTP) Fund under GAA 2017 approved budget. The funded project aims to aIntroduce to sugarcane farmers and workers what is the Personal Protective Equipment, Disseminate to sugarcane workers/farmers the importance of using PPE while doing certain farm operations, and Raise awareness among cane workers/farmers the preventive measures on different health hazards that affects human body on sugarcane farming.

Moreover, this training supports the 1989 Occupational Safety and Health Hazards (OSHS) Rule 1080, which mandates the use of Personal Protective Equipment and devices.

SRA – Extension Services Division – Visayas not only focused on farm productivity through farm management seminar but also on the productivity of the farmers himself through PPE Seminar. Small farmers especially in the ARB's will benefit the said training not only that they will learn various lessons but also they will receive different PPE for a specific field operation after the training. For this training the block farm members can be equipped with necessary knowledge and skills inorder for them to be globally competitive sugarcane farmer.

I. Acquisition of Personal Protective Equipments (PPE)

Table 1: PPE kits for every field operation

Total kit for Fertilizer Operation	Total kit for Chemical Spraying	Total kit for Manual Harvesting	Total Number of PPE kit Purchased
200 kits	200 kits	200 kits	600 kits

These six hundred (600) sets of PPE kit will distributed upon the conduct of the PPE training. One kit is composed of the following:

A) For Fertilizer Application

Item Description	Quantity
PPE Bag	1 piece
Rubber Gloves	1-pair
PPE Long sleeve	1 piece
Rubber Boots	1-pair
Bonnet	1 piece
Clear eye glass	1-pair
Hat	1 piece

B) For Chemical Application of Pesticides

Item Description	Quantity
PPE Bag	1 piece
Rubber Gloves	1-pair
PPE Long sleeve	1 piece
Rubber Boots	1-pair
Bonnet	1 piece
Clear goggles	1-pair
Hat	1 piece
Respirator	1 piece

C) For Manual Harvesting

Item Description	Quantity
PPE Bag	1 piece
Rubber Gloves	1-pair
PPE Long sleeve	1 piece
Rubber Boots	1-pair
Bonnet	1 piece
Clear eye glass	1-pair
Hat	1 piece

II. Visayas – Wide Training on Personal Protective Equipments (PPE) Use among Sugarcane Workers

The Extension Services Division of the SRA also spearheaded the training on PPE Use among cane workers and there were twenty (20) batches with thirty (30) participants each batch from different mill districts all over Visayas region. A total of six-hundred (600) PPE Kits were distributed to the training participants directly involved in the farm operations.

E. GAA 2016 SIDA BLOCK FARMS IRRIGATION RECOMMENDATION

Under GAA 2016 and GAA 2017 SIDA block farms, SRA-Extension Visayas was able to complete the on-site assessment and validation of the proposed irrigation projects. There were thirty-seven (37) block farms under GAA 2016 and thirty five (35) block farms under GAA 2017. The approved budget for irrigation under GAA 2016 is 3,300,000 pesos and 3,240,000 pesos under GAA 2017. However, under GAA 2017, only thirty-one (31) block farms were feasible to irrigation. The other four (4) block farms were not feasible due high elevation difference and distance from water source. These includes the following**:(a)** Tres Andanas Small Farmers Association **(b)** Asosasyon sang Mamumugon sa Nolan **(c)** Dolores Sugarcane Farmers Association and **(d)** Candugay Datag Farmers Association. However, these four block farms were recommended for ram pump and deep well type of irrigation.

III. Status of the Project

Approved Budget	No. of lock Farms	Recommendation	Status
GAA 2016 – Php 3,300,000.00	37	Pump and engine –open source	It was already bided last January 4, 2019. The items will be delivered not later than first week of February.
GAA 2017 – Php 3,240,000.00	35 (4-block farms are not feasible for irrigation)	a) Pump and engine –open source b) Irrigational Canal Rehabilitation c) Provision of conveyance materials	

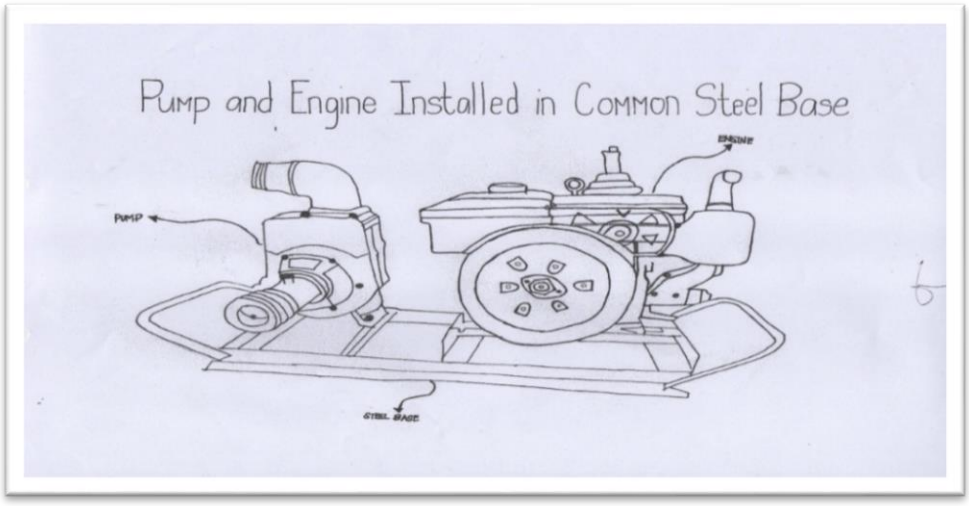


Fig. 1-1. "Drawing Details of Pump and Engine Set to be Distributed to the SIDA Block Farms GAA 2016-2017"

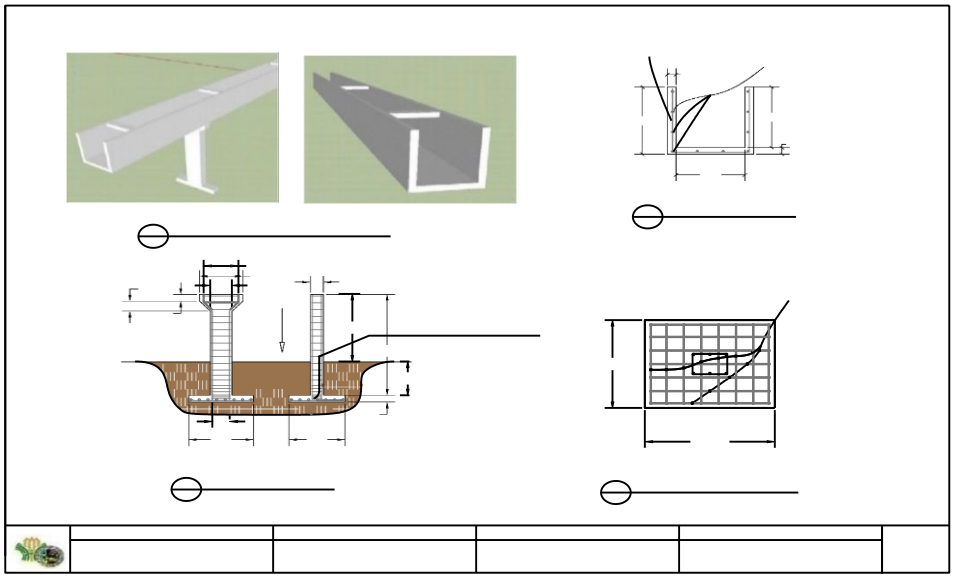


Fig. 2-2 "Drawing Details Forthe Rehabilitation Of Irrigation Canal At Sta. Rosa Block Farm, Murcia, Negros Occidental"

Rehabilitation Of Irrigation Canal At Sta. Rosa Block Farm, Murcia Negros Occidental"

This year 2019, the irrigation project under GAA 2018 SIDA Funded Block farm will be submitted to RBAC for the bidding.

These irrigation projects can benefit the small farmers included in the SIDA Block farm all over Visayas area. This is what the men and women in the SRA - Extension Visayas are doing in service for the Filipino people in Sugar Industry.

F. RAPID PROPAGATION HYV

APPROVED 2018 ALLOCATION		BUDGET UTILIZATION AS OF DECEMBER 31, 2018		% Utilized (GAA 2016)	% Utilized (GAA 2017)
GAA 2016	GAA 2017	GAA 2016	GAA 2017	GAA 2016	GAA 2017
35,595,000.00	5,136,000.00	3,981,913.65		11.19	0.00

IMPLEMENTOR/ IMPLEMENTING AGENCY	AREA (HECTARES)	ACCOMPLISHMENTS/STATUS OF PROJECTS	REMARKS
Sagay Danao Mill District Development Councl Foundation, Inc.	15.0000	Pertinent documents for fund release still on process	
Lopez Mill District Development Councl Foundation, Inc.	16.0000	About 12 hectares planted with Phil 99-1793 with tentative schedule of cutback for 4 hectares on february 2018.	Total amount of Php859,703.97 released for different field operations to include planting materials, land prepararion, fertilizers, etc.
Southern Negros Mill District Development Copuncil Foundation Inc. (SNMDDCFI)	13.0000	It was indicated in the letter that the area was not fully planted because of prolonged heavy rains during the planting schedule. Moreover, due to the above reason, the sugarcane plants were submerged to the water for a longer period of time causing high mortality rate. The MDDC will cultivate the remaining area last november 2018 and started to plant the purchased canepoints on the succeeding months.	The surviving plants were still cultivated by the MDDC and almost 2 hectares were planted with Phil 2004-1011 and on going planting operation on the remaining area.
Planters Association of Southern Negros (PASON)	21.7428	Project Proposal returned to PASON for revision and finalization.	
Central Philippine State University (CPSU) - Moises Padilla	2.0000	Memorandum of Aggreement (MOA) for signature of Adminstrator Serafica.	
Independent Planters of Biscom Inc. (IPOBI)	5.0000	Complete documents for implementation of proponent.	
Bato Farmers Association (BAFA)	2.0000	MOA for notarization, Job Request for signature of BAFA Chairman	
Maao Mill District Development Council Foundation, Inc.	13.0000	Pending proposal (for revision). Maao MDDC SEC Registration still on process.	
La Carlota Mill District Development Council Foundation, Inc.	12.0000	Pending proposal (for revision). La Carlota MDDCFI still looking for project location.	
University of the Philippines at Los Banos, La Granja (UPLB)	10.0000	Pending proposal (for revision). Memorandum of Aggreement for signature of the UPLB President.	
Central Philippine State University (CPSU) - Main Campus, Kabankalan City	30.0000	MOA is already approved and notarized but CPSU has a pending unliquidated fund as per Certification issued by the office.	

Bacolod Murcia/First Farmers Mill District Development Council Foundation, Inc.	25.5800	On-going field operations with 24 hectares planted of high yielding varieties	Total of Php1,194,444.15 released for different field operations to include planting materials, land prepararion, fertilizers, etc.
Victorias Mill District Development Foundation, Inc.	37.0000	Total of 37.00 hectares are area planted with HYV nursery with on-going farm operations. For the month of december the cutback operation in field no .4 with an estimated area of 1.2 has produced 33 laksas.	Total of Php1,927,765.53 released for different field operations to include planting materials, land prepararion, fertilizers, irrigation etc.
Bogo Medellin/Durano Mill District Development Foundation, Inc.	6.0000	No MOA and proposal submitted and still looking for nursery location.	
Ormoc-Kananga Mill District Development Council Foundation, Inc.	6.0000	Memorandum of Agreement endorsed to the Office of the Administrator for signature.	

G. QUICK RESPONSE TO SUGARCANE PESTS AND DISEASES INFESTATIONS

APPROVED 2018 ALLOCATION		BUDGET UTILIZATION AS OF DECEMBER 31, 2018		% Utilized (GAA 2016)	% Utilized (GAA 2017)
GAA 2016	GAA 2017	GAA 2016	GAA 2017	GAA 2016	GAA 2017
1,500,000.00				0.00	0.00

ACCOMPLISHMENTS/STATUS OF PROJECTS	REMARKS
Procurement of various pesticides amounting to 1,500,000.00 already on process and post qaulification of the winning bidder conducted last November 23, 2018 at Iloilo City.	For preparation of Notice to Proceed after the audit of Purchase Order.

H. SOIL SAMPLING AND ANALYSIS

Soil Fertility Profile of SIDA block farms were facilitated by the technical personnel assigned. Soil Analysis Result is a very useful tool as it will be the basis for fertilizer and lime application. A total of **1316** samples were analyzed from January to December 2018 from SIDA Block Farms GAA 2016 and GAA 2017 which benefited **64** Block Farms and covered an area of **1449.8382** hectares.

Below is the Summary of Soil Analysis Report gathered from SRA Bacolod and La Granja Agricultural Research and Extension Center (LGAREC) Soil Laboratory:

	Name of Block Farm	No. of Samples	Area Covered
1	United Fishermen Multi-purpose Cooperative (UFIMCO)	24	25.2329
2	Brgy. Buenavista Agrarian Reform Beneficiaries Association (BBARBA)	25	12.9145
3	Dama Farm Workers Agrarian Reform Beneficiaries Association (DAFWARBA)	18	39.3600
4	Nakalang Padilla Farm Workers Association (NAPFWA)	23	21.1500
5	Polo Plantation Agrarian Reform Beneficiaries Cooperative (POPARBECO)	10	36.4438
6	Bahay Malaumon Farmers Association (BMFA)	21	20.0816
7	Danawan Agrarian Reform Beneficiaries Association (DARBA)	10	12.7506
8	Campanun-an Agrarian Reform Beneficiaries Association (CAMARBA)	11	11.6353
9	Bulod Aktibong Bukidnon Livelihood Organization (BABLO)	20	30.0872
10	NEW NAMANGKA FARMERS ASSOCIATION (NeNaFa)	26	30.4029
11	Magballo Agrarian Reform Beneficiaries and Farmers Association (MARBFA)	29	25.9951
12	TABUGON AGRARIAN REFORM BENEFICIARIES ASSOCIATION (TARBEFA)	27	21.7568
13	PINGGOT FARMERS ASSOCIATION (PIFA)	16	32.8555
14	Inayawan Small Sugarcane Farmers Association (ISSFA)	26	26.6426
15	Casoy, Lubi, Apitong Agrarian Refrom Beneficiaries Association (CLAARBA)	18	13.9000
16	Bajay-Patol Agrarian Reform Cooperative (BPARC)	25	19.4189

17	BANTAYAN FARMERS AGRARIAN REFROM BENEFICIARIES ASSOCIATION (BFARBA)	34	23.2531
18	Mataba Womens Association (MATABAWA)	14	13.9181
19	Bolbog Small Farmers Beneficiaries Association (BOSFARBA)	29	28.3334
20	Mangulod Farmers Multi-purpose Cooperative (MAFARMPUCO)	20	36.4330
21	Maninihon Omod-Catmon Posi-on Farmers Multi-Purpose Cooperative	34	36.9968
22	Sitio Calaptan Sta. Ana & Ascalon Farmers Association (SCSAFA)	14	7.8870
23	Had. Angeles Agrarian Reform Beneficiaries Association (HAARBA)	16	12.3847
24	Had. Esmeralda 2 Rice Farmers Association (HES2RIFA)	32	28.8306
25	Had. Candelaria Farmers Association (HCAFA)	12	23.3190
26	HAGNAYA AGRARIAN REFORM COOPERATIVE	18	25.8988
27	Minapasuk Upland Farmers Agri-Ventures Marketing Cooperative (MUFAMCO)	17	32.1203
28	Leonor Gonzaga Estate INC Farmers Association (LGEIFA)	14	24.2010
29	Talusan Agrarian Reform Beneficiaries Association, Inc.	39	24.4305
30	AGPANGI, BAGACAY CABULIHAN AGRARIAN REFORM BENEFICIARIES (ABACA ARCo)	10	10.6284
31	BAGONBON AGRARIAN REFORM COOPERATIVE (BARC)	8	10.6104
32	Parian Planters Marketing Cooperative (PPMC)	49	39.1780
33	Aglalana Green Farmers Association (AGFA)	39	42.4960
34	San Jose Agrarian Reform Beneficiaries Cooperative (SJARBMPC)	12	23.3847
35	Canhabagat Agrarian Reform Beneficiaries Multi-Purpose Cooperative (CARBMPC)	18	31.1709
36	Caputatan Norte Sugarcane Farmers Association (CNSFA)	24	30.7301
37	Catmon Small Farmers Association (CSFA)	27	25.1520
	TOTAL	**809**	**911.9845**

SIDA BLOCK FARM GAA 2017

	Name of Block Farm	No. of Samples	Area Covered
1	Asosasyon Sang Mangunguma Sang Nolan (AMANO)	11	12.0980
2	Had. Nalipay Agrarian Reform Beneficiaries Association	17	29.8492
3	Prosperidad Farmers Beneficiaries Association (PROFABA)	34	24.9568
4	Had. Bagacay Workers Carpers Beneficiaries Association	7	16.3400
5	Binubuhan Progressive Farmers And Farm Workers Association	63	34.5009
6	Malasaga Hiyang-Hiyang Sugarcane Farmers Association	4	4.8783
7	Brgy. Magsaysay Farmers Association	25	12.8166
8	Jerusalem Integrated Farmers Association	3	3.2900
9	Tres Andanas Integrated Farmers Association	21	30.4980
10	Gracia Farmers Association	10	10.7200
11	Pfpc Agrarian Reform Cooperative	13	42.7000
12	Pasto Agrarian Reform Cooperative	9	12.6760
13	Codcod Multi-Purpose Cooperative	25	29.4263
14	Prosperidad Agrarian Reform Beneficiaries Association	15	19.5990
15	Malanog Menchaca Dolis Farmers Association	6	7.3159
16	Brgy. Camindangan Arbs Association	22	31.1725
17	Ga-Id Mambugsay Isf Project Minority Association	30	30.1930
18	Tagoc Agrarian Reform Cooperative	26	22.7627
19	Asia Small Farmers Association	23	23.9340
20	Brgy. Tabu Agrarian Reform Beneficiaries Association	33	29.1413
21	Gatuslao Integrated Farmers Association	17	37.7062
22	Naga Small Planters Association	9	7.9859
23	Uswag Mag-Uuma Sa Samac-Ip	6	8.8194
24	Bagtic Mampalasan United Farmers Association	11	11.0027
25	Candungay Datag Farmers Association	8	6.4141

26	Dao Overseas Workers Association	41	20.2302
27	Dolores Sugarcane Farmers Association	18	16.8267
	TOTAL	**507**	**537.8537**

The Extension and Technical Services Division is widely campaigning the practice of Soil Analysis to educate every planter in the mill district to know the fertility status of the soil in their farm.

As a result of soil analysis intervention, some block farms reported an increase in their production.

I. FERTILIZER AND AGRICULTURAL LIME UTILIZATION

Agricultural lime and Fertilizer inputs (Start-up capital) were 100 % delivered. A total of 17,760 bags agricultural lime delivered with 8, 813.52 bags partially applied to 385.65 hectares block farm fields.

FERTILIZER AND AGRICULTURAL LIME ALLOCATION

GAA	No. of Bags of Fertilizer Delivered			Agricultural Lime	Rock Phosphate
	46-00-00	18-46-00	00-00-60		
GAA 2016 37 Block Farms	*180 bags/ block farm*	*150 bags/ block farm*	*150 bags/ block farm*	*480 bags/ block farm*	*154 bags/ block farm*
TOTAL	**6,660.00**	**5,550.00**	**5,550.00**	**17,760.00**	**5,698.00**

GAA	No. of Bags of Fertilizer Delivered			Agricultural Lime
	46-00-00	18-46-00	00-00-60	
GAA 2017 35 Block Farms	***180 bags/ block farm***	***150 bags/ block farm***	***150 bags/ block farm***	***480 bags/ block farm***
TOTAL	**6,300.00**	**5,250.00**	**5,250.00**	**16,800.00**
GAA 2018 25 Block Farms	***150 bags/ block farm***	***150 bags/ block farm***	***150 bags/ block farm***	***480 bags/ block farm***
TOTAL	**3,750**	**3,750**	**3,750**	**12,000.00**

J. GPS SURVEY AND MAPPING

To gather accurate data on areas to be enrolled to block farming, the extension division conducted area calculation and mapping to the individual farms of each members of the block farms. The digitized maps of SIDA Block Farm for GAA 2016, GAA 2017 and GAA 2018 were already finished, the priority now is to fast track GPS mapping of block farms proposed for SIDA GAA 2019.

To date, 49 block farms were mapped of which 22 were identified under SIDA Block Farms for GAA 2018. The total area of **1,535.7747** hectares were GPS surveyed from January to December 2018.

K. REPARATION OF BLOCK FARM DOCUMENTARY REQUIREMENTS FOR START-UP CAPITAL

Part of the intervention to SIDA block farms was support for farm operations, labor and agricultural inputs (canepoints, etc). The start-up capital can only be received by the block farm provided that they have complied the needed attachments/documents. Checks for labor/ farm operations disbursed to 37 block farms upon completion of documents and attachments. To date, a total of Php39, 328,110.670was released to block farms for fertilizer and start-up capital for labor and farm operations.

Attachments and supporting documents for start-up capital included Job Request, Job Order, Purchase Request, Request for Quotation, Purchase Order, Voucher, Award Notice Abstract, Certificate of Job Accomplishment and Disbursement Voucher.

L. ESTABLISHMENT OF HYV NURSERY

The provision of HYV planting materials will gradually replace the old varieties and improve the production of sugarcane small planters specifically block farms. SRA High Yielding Varieties were allocated to various block farm to establish nurseries that will facilitate the cane point dispersal and expansion to other members and their neighbouring planters in the district.

To date, thirty three (33) block farms of SIDA Block Farm GAA 2016 particularly planted by Phil 99-1793 and Phil 2004-1011. A total of 498.71 lacsas of canepoints produced and planted to expansion area of 108.19 hectares.

M. TECHNO DEMO FARM/ ADAPTABILITY TRIAL

Techno demo farms will be established per block farm and there will be four treatments, Treatment 1 will be the farmer's practice in fertilizers rate, Treatment 2 is the application of fertilizer based on soil analysis, Treatment 3 application of 75% fertilizer rate based on soil analysis + Organic Fertilizer + BMO and Treatment 4 is fertilizer rate based on soil analysis + intercropping of legume. This will show the members of the block farm as to which practice will yield more and adapt the said practice.

These techno demos will also test and introduce new high yielding varieties with the main aim of increasing productivity and profitability of the block farms.

N. CAPABILITY BUILDING SEMINARS FOR BLOCK FARM MEMBERS

The implementation of the Block Farming Project includes capacitating the management team of every Block Farms in handling/managing the operations thus there is also the conduct of the Sugarcane Farm Management Seminar for new block farms. In the seminar includes the review of the proper cultural practices on sugarcanes from land preparation to harvesting and ratoon management, Organic Farming, the use of BMO, Variety Programming and the establishment of demo-farm.

SUGARCANE FARM MANAGEMENT SEMINAR CONDUCTED TO SIDA BLOCK FARM GAA 2018

MILL DISTRICT	Date	No. of Participants	Location
BAIS URSUMCO	December 26, 2018	41	Common Small Farmers Agrarian Reform Beneficiaries Association
	December 26, 2018	31	Brgy. Tara Farm Family Association
	December 27, 2018	28	Cambagahan Community Farmers Association
	December 27, 2018	37	Sab-ahan Tribu Bukidnon Association
	December 28, 2018	20	Brgy. Inapoy Farm Family Association
SAN CARLOS	December 20, 2018	39	Natural Park Farmers Association
	December 28, 2018	30	Paghumayan Farmers Association
BACMUR	December 19,2018	28	Hda. Sto. Niño Farmers Association
	December 20, 2018	28	Balogo Farmers Association
VICTORIAS	December 20, 2018	20	Minuro Agrarian Reform Beneficiaries
	December 19, 2018	45	Had. Ogie Sugar Workers MPC
SAGAY	December 18, 2018	25	First District Upper Ministerial Association for Spriritual and Economic Endeavor (FIDUMASEE)
HPCO	December 20, 2018	33	Had. Paho Small Farmers Association
SONEDCO/ DACONGCOGON	December 26, 2018	24	Brgy. Alim Farmers Poultry and Livestock Raisers
	December 27, 2018	34	Farmers Association of Tabionan
	December 28, 2018	33	Tan-Awan Farmers for Sustainable Agriculture Association
BISCOM	December 27, 2018	44	Iling-iling Farmers Association
	December 28, 2018	53	Bato Farmers Association
MAAO	December 18, 2018	34	Sitio Mambahao Farmers Association
	December 27, 2018	30	Najaba-Felicidad Farmers Association
	December 28, 2018	26	Amicus Agrarian Reform Association

CAPIZ	December 17, 2018	25	Progressive Women and Agrarian Reform Cooperative (PWARC)
ILOILO	December 19, 2018	38	Agtabo Farmers Association
ORMOC	December 18, 2018	27	Brgy. Quezon Jr., Ormoc City, Leyte
	December 19, 2018	26	Brgy. Sumangga, Ormoc City, Leyte
	TOTAL	**907**	

O. ASSESSMENT/ ACTION PLANNING WORKSHOP AND SEMINAR FOR TECHNICAL PERSONNEL AND ASSISTANTS

On the implementation of the Sugarcane industry Development Act of 2015, it is a must to assess the performance and output of every Technical Personnel and Technical Assistant in their respective block farm assignment. This activity aims to validate the activities done by the technical Personnel in their area of assignment and determine their role and contribution in the success of the project.

For this year, a 4-day Orientation on Implementation of SIDA Block Farm Project for GAA 2017 and Assessment of Accomplishment was conducted last March 19-22, 2018, Trainers Training on Organizational Development and Facilitation Skills on May 29-30, 2018, Basic Accounting System Seminar Workshop on July 30 – August 1, 2018 , Assessment of Accomplishments for Technical Personnel, Farm Surveyors and Junior Agriculturists on November 26-29, 2018 and Orientation and Action Planning Workshop for SIDA Block Farm GAA 2018 last December 4-5, 2018.

P. CONDUCTED AND FACILITATED "SECOND LEVEL SEMINAR AND LIVELIHOOD TRAINING/ FOR BLOCK FARM CHAIRMEN AND MANAGERS.

The implementation of the Block Farming Project under the Sugarcane Industry Development Act also included capacitating the management team of every Block Farms in handling/managing the operations. Orientation on Implementation of SIDA Block Farm Project GAA 2017 on March 19-20, 2018 purposely oriented each block farms about the implementation of the block farm, how it is done, the Implementing Rules and Regulation and all the policies governing the project. Also, Livelihood Seminar and orientation of Carabao Program and DOLE DILEEP Project Proposal Writeshop was conducted last April 17-19, 2018 which taught each block farm on how to do project proposals that will benefit not only their block farms but also the community.

Other link agencies such as the Sugar Industry Foundation Incorporated (SIFI) facilitated an Organizational Development and Values Formation Seminar Workshop on June 26-28, 2018 and Basic Accounting System Seminar Workshop on July 30-31 and August 1, 2018 at Talisay City.

Moreover, SIDA Block Farms for GAA 2016 were already given grants for their livelihood proposals. Bagonbon Agrarian Reform Cooperative was granted an amount of 1 Million, Sitio Calaptan Ascalon Ascalon Farmers Association with 500,000.00, Brgy. Buenavista Agrarian Reform Beneficiaries Association with 500,000.00 and New Namangka Farmers Association with 1 Million Pesos, respectively. DILEEP Writeshop in Ormoc was conducted last August 27-28, 2018. A total of 3 million pesos grant was given to selected block farms for GAA 2016. One million pesos worth of DOLE DILEEP Project was also granted to Uswag Mag-uuma sa Samac (UMASA) for their proposed commercial electric rice mill Project. UMASA is a block farm under SIDA Block Farm GAA 2017.

Other block farms who are set to avail the same grants were already furnishing their proposal to be submitted to the Regional Project Management Team. The result of the proposal will be forwarded to the Regional Office.

Q. DEVELOPMENT OF DATABANK AND FILE MANAGEMENT SYSTEM

The Databank & File Management system incorporates all the data of the block farm from documents and the entire profile of the members and its area being enrolled. Every block farm has its own specific page wherein all the data being submitted to the office are manually encoded and uploaded to the program for future use.

To date, the soil analysis report is updated for the purpose of monitoring the status and fertility of the soil if the soil rehabilitation program of the SIDA Block Farming Project contributed on making

the yield of the sugarcane increase. The program is running on local network and still updating for other functions that may be applicable to the program in the future.

R. SRA SIDA BLOCK FARM LIVELIHOOD UPDATE – VISAYAS

The SRA Block Farm in partnership with Department of Labor and Employment – Region 7, conducted a two day DILEEP Project.

A total of forty one 41 participants from seven (7) selected Block Farms of Bogo-Medellin Mill District have attended the Project Proposal Writeshop that conducted by DOLE Livelihood core group.

COURTESY CALLS

(L-R) Head of DOLE Northern Leyte Ms. Marites Z. Viñas, GPS Team Raffy Poblacion, Livelihood Coordinator Louie Peter V. Gamboa, Regional Director Region 8 Cyril Ticao, OIC Chief Agriculturist Helen Lobaton and Engr. Micheal Hamaybay.

SRA Livelihood Team Visayas pays a courtesy call to Mayor Benjun Mondigo (middle) , Municipal Mayor of Medellen during the DOLE Livelihood Workshop.

LIVELIHOOD PROJECTS FROM DOLE

The Department of Labor and Employment Regional Office No.VII released the amount of Php 1,000,000.00 to the New Namangka Farmers Association Block Farm, Mabinay, Negros Oriental.

Leading the turn-over ceremony was DOLE RO VII Livelihood Focal Person Engr. Rubie Cempron, SRA OIC Chief Agriculturist Helen B. Lobaton, MDO Fernando Sauro Jr. and Livelihood Coordinator Louie Peter V. Gamboa. On the other hand, the recipient block farm was led by its Vice Chairman John Villanueva together with the beneficiaries.

The turnover of checks was headed by DOLE Inspector Engr. Jasmine Cortes and DOLE Livelihood Focal Person Engr. Rubie Cempron. Also present during the turnover were SRA OIC Manager III – Atty. Ignacio S. Santillana, MDO Fernando Sauro Jr., and Livelihood Coordinator Louie Peter V. Gamboa.

TURNOVER OF MINI TRACTOR

New Namangka Farmers' Associations Block Farm, Mabinay, Negros Oriental under the DILEEP program. DOLE RO VII Engr. Rubie Cempron and Engr. Jasmine Cortes led the turn-over.

Commercial Electric Rice Mill (2) and Rice Mill House with a total amount of Php 1,000,000.00 for Polo Plantation Agrarian Reform Beneficiaries Cooperative Block Farm, Tanjay City, Negros Oriental.

Hog and Cattle Fattening Project worth Php 977,310.00 for Uswag Mag-Uuma Sa Samac Block Farm, Mabinay, Negros Oriental.

Working Carabao and Plow worth Php 489,000.00 for Brgy. Buenavista Agrarian Reform Cooperative, Himamaylan City, Negros Occidental.

Working Carabao and Plow worth Php 1,000,000.00 for Bagonbon Agrarian Reform Cooperative, San Carlos City, Negros Occidental.

Another Working Carabao and Plow worth Php 500,000.00 for So. Sta. Ana and Ascalon Farmers Association, E.B Magalona, Negros Occidental.

BLOCK FARM VEGETABLE

Sustainable Vegetable Garden for Hda. Candelaria Agrarian Reform Cooperative, Manapla, Negros Occidental by

Deep Well Hand Pump for Hda. Candelaria Agrarian Reform Cooperative, Manapla, Negros Occidental by the Municipality of Manapla.

The turnover of check to Bagonbon Agrarian Reform Cooperative, one of the beneficiary of SIDA GAA 2016 for their livelihood project.

TECHNICAL DEVELOPMENT & TRAINING UNIT

The Technical Development and Training Unit is directly under the Extension Services. The unit is task to plan, implement and coordinate all trainings and packaging of matured technologies of RDE. TDTU also coordinated the sugarcane related trainings of SRA, LGAREC. It also caters the On the Job Trainings and Summer Farm Practice of the students coming from various Agricultural schools in the region. It also accommodates visitors and field trippers from Academe, GOs, NGOs and private individuals and institution. In addition the following are the TDTU accomplishment for this year.

- Assisted/ Facilitated the conduct of four (3) batches of 3-day live-in OPSI Sugarcane Farm Management Training with 109 participants.

- Assisted in the preparation of Training materials for the conduct of OPSI on Wheels in:
  - MDDC, BISCOM Mill District with 120 participants
  - Davao Mill District with – 100 participants

- Facilitated the conduct of One (1) batch of On-the-Job Training for 34 Sugar Technology students from Central Philippines State University (CPSU-Kabankalan City) and four (4) batches of Summer Farm Practice for Agriculture students from; La Carlota City College; University of Negros Occidental Recoletos; Central Philippine University (Iloilo); Capiz State University (CAPSU-Dumarao); Northern Iloilo Polythecnic State College (NIPSC) with 113 students.

- Facilitated the reproduction of various Informative materials: (8,000 copies)
  - *OSI Sugarcane Production Manual (English)*
  - *Various Brochures/Phamplets and flyers*
  - *OPSI Komiks : – Ilonggo and Cebuano*
  - *Various government forms- 20,000 copies*

- Facilitated 20 occasions held at SRA Balay OPSI and OPSI Dormitory with 3,500 and 400 guests, respectively.

- Facilitated the set-up/putting up of SRA Booth and exhibit materials as per invitation from various Agricultural Fair in the nearby locality. And entertained visitors about the queries related to sugarcane farming in order to increase sugarcane production.

- Distributed 8,907 copies various Informative materials and sugarcane planting materials (Micro plantlets and canepoints if available).

NETWORKS AND OTHER LINKAGES

SUGAR STAKEHOLDER CONSULTATION MEETING (COCA-COLA FOUNDATION INC.)
at SEDA Hotel, Bacolod City on June 28, 2018

Objectives of the partnership with Coca-Cola Foundation Incorporated were as follows:

1. Infrastructure support by building schools in rural areas and Re-building schools that are destroyed by calamities.
2. Infrastructure support for the Senior High schools.
3. Community Water Systems such as Hydraulic and Gravity-fed Systems.
4. Water for schools for drinking, hygiene and Sanitation.
5. Water for Productive use such as Hydraulic Pump System to improve the productivity for Small Farmers.

Basic Accounting System Seminar Workshop at SIFI, Talisay City last August 01, 2018. The workshop was participated by selected block farm treasurer and bookkeeper from South and North Negros. It aims to teach the block farms how to do proper recording and bookkeeping.

Trainers Training for SRA Field Staff on Block Farm organizational Strengthening last November 15-16, 2018 participated by Junior Agriculturists, Technical Personnel and Technical Assistants.

2-day **"Trainers Training for SRA Block Farm Technical Staff and Officers on Organizational Development and Facilitation Skills"** last May 30-31, 2018 at SIFI Training Center, Trafagar Square, Active, Talisay City, Negros Occidental.

It was participated by 7 Mill District Officers, 15 Junior Agriculturist and 2 Technical Personnel covering 12 Mill Districts in Visayas. The training emphasized how crucial and significant the role of a community development officer and extension worker to a community and to the people.

Personal Protective Equipment (PPE) Seminar at Sta. Rosa Small Farmers Association at Brgy. Sta. Rosa, Murcia, Neg. Occ. Thirty (30) block farm members participated in the training.

STATUS REPORTS – SIDA PROGRAMS

I. Block Farming Program

A total of 62 block farms were accredited in 2016, 56 block farms in 2017 and 45 block farms in 2018 with a total area of 2,722 hectares in 2016, 2,205 hectares in 2017 and 1,766 hectares in 2018

	GAA 2016			GAA 2017			GAA 2018		
	Visayas	Luzon/ Mindanao	**TOTAL**	Visayas	Luzon/ Mindanao	**TOTAL**	Visayas	Luzon/ Mindanao	**TOTAL**
No. of Block Farms Accredited	37	25	**62**	35	21	**56**	25	20	**45**
No. of Block Farms Validated	37	25	**62**	35	21	**56**	25	20	**45**
No. of Beneficiaries	984	780	**1,805**	1,209	520	**1,729**	728	451	**1,180**
Area Involved (has)	1,266.34	1,346.84	**2,722.24**	1,260.87	944.61	**2,205.48**	805.49	960.61	**1,766.10**

II. Infrastructure Program

Based on the roadmap for infrastructure, 100% was accomplished in 2016, however, due to decreased funding for infrastructure, the 2017 and 2018 targets are way below the targets in the roadmap.

Out of the 43 road projects in 2016, 32 projects were completed, 1 project was not implemented due to right of way problem and the rest are on-going; in 2017, out of 39 projects, 26 projects were completed, a bridge and 1 road section were not implemented due to late MOA preparation for the bridge and right-of-way problem for the road section; in 2018, out of 46 projects, only 1 project was completed, 4 projects are in the pre-implementation stage, 1 project with right-of-way problem and the rest were awarded / on-going construction.

The TRAIN Inter-Agency Committee reported to Congress that under the TRAIN law, P35.5 billion was collected as revenue for the sugar-sweetened beverage excise tax where SIDA programs especially infrastructure projects should have a share pursuant to the provision of the TRAIN law.

STATUS as of December 2018	General Appropriations					
	2016		2017		2018*	
Appropriation (In PhP)	914.4 M		557.211 M		750 M	
	No. of Sites	In Kms.	No. of Sites	In Kms.	No. of Sites	In Kms.
Pre-implementation stage					4	4.68
Awarded but construction not yet started					9	11.78
Awarded but with site modification						
Construction completed	32	48.59	26	14.805	1	0.615
Completed but undergoing repairs	4	9.56				
Construction still on-going / Not yet completed	5	10.3	12	15.135	31	30.32
Not concreted - gravel road in Maguindanao	1	1.61				
Cannot be implemented due to ROW issue					1	0.252
Not implemented by DPWH (funds returned to DBM)	1	2.12	1	0.70		
Total	**43**	**72.18**	**39**	**30.64**	**46**	**47.65**
* Fund for the 2018 FMR projects was transferred to DPWH dated Oct. 10, 2018, in the amount of	P 112.5 Million representing the mobilization fee (15% of the 750M); balance for release to SRA thru NCA from DBM					

III. Socialized Credit Program

It was reported that the LBP approved a total of P32.105 million loan to 213 farmer-applicants out of P140.56 million worth of applied loan by 864 farmers for a total plantation to be funded of 1,436.75 hectares.

Status of 2018 Crop Loan Applications

	Loan Applications Endorsed to LBP / For LBP Approval & Release			LBP Approved Loans		LBP Loan Releases			Loan Applications Not Yet Endorsed to LBP / For SRA Evaluation & Completion of Requirements		
	No. of Farmers	In Has.	Loan Amount	No. of Farmers	Approved Loan Amount	No. of Farmers	In Has.	Amount	No. of Farmers	In Has.	Loan Amount
LUZON	96	276.63	21,160,403.13	96	19,995,580.13	15	34.16	833,900.00	189	382.15	27,071,204.67
VISAYAS	708	1,018.15	102,031,194.81	117	12,109,236.00	3	3.00	127,512.00	573	1,032.20	93,885,689.32
MINDANAO	60	141.97	17,369,640.43	-	-	12	24.48	1,642,556.18	109	194.30	9,623,182.40
TOTAL	**864**	**1,436.75**	**140,561,238.37**	**213**	**32,104,816.13**	**30**	**61.64**	**2,603,968.18**	**871**	**1,608.65**	**130,580,076.39**

Status of 2018 Loan Applications of Service Providers

	PROVINCE	MILL DISTRICT	APPLICANT	TYPE OF LOAN	AMOUNT	CONTACT PERSON	CONTACT NUMBER	SRA REGISTERED SERVICE PROVIDER
1	Negros Oriental	Bais-Ursumco	NOSMAC	Procurement of 3 Cane Loaders	2,700,000.00	Atty. Alejandro Florian O. Alcantara	9173142757	not yet
2	Bukidnon	Bukidnon	KALCAFA	Muscovado Mill Facilities	14,550,000.00	Roger P. Palma	9157928632	not yet
3	Negros Occidental	Biscom	BSDDFI	5 units John Deere tractors & 5 units of KMT sugarcane loaders	11,900,000.00	Mr. Alfonso Ongsungco		not yet
4	Tarlac	Tarlac	Binhi	5 hauling trucks and 1 mechanical harvester	39,500,000.00	Jemmy S. Lindo	9995925598	Endorsed to LBP Tarlac Lending Center
5	Pampanga	Pampanga	PAAC	1 mechanical harvester 2- 140 Hp tractor 1- 175 Hp tractor 3- Ripper Implement 3- Heavy Harrow 2- Mechanical Planter	38,223,924.11	James G. Tolentino		Endorsed to Sugar Board
6	Pampanga	Pampanga	PSPAC	1 mechanical harvester 2- 125 Hp tractor 5- 125 Hp tractor (open operator) 7- Ripper Implement 7- Heavy Harrow 3- Mechanical Planter	50,728,279.02	Alfredo B. Gonzales	045-963-1608	not yet
7	Iloilo	Iloilo	Jalasig	3-4 units of SMKY 200 Basket Type Harvesting Combines	50,000,000.00	William Bacal	9175486689	Endorsed to LBP Iloilo Lending Center
8	Cotabato	Cotabato	CFWA	Sugarcane Production Hauling Truck Tractors and implements	6,150,000.00	Conrado Felipe	9460181001	not yet
					213,752,203.13			

IV. Scholarship Program

From 2016-2018, there are 716 undergraduate and post graduate scholars funded by CHED and SRA thru SIDA while 2,116 scholars were trained by TESDA

Distribution of CHED and SRA Scholars in the Mill Districts

MILL DISTRICT	REGION	SRA	CHED	TOTAL
San Carlos, Occidental	VI		20	20
Victorias, Negros Occidental	VI	1	18	19
Tolong + Mabinay + Bayawan, Negros Oriental	VII		14	14
Daconcogon-Sonedco, Negros Occidenal	VI	3	68	71
Sagay-Danao, Negros Occidental	VI		29	29
Ma-ao, Negros Occidental	VI		14	14
Lopez, Negros Occidental	VI	3	8	11
La Carlota,Negros Occidental	VI	1	22	23
Isabela, Negros Occidental	VI		1	1
HPCO, Negros Occidental	VI	1	10	11
Bogo-Medellin + Cebu	VII		19	19
Biscom, Negros Occidental	VI	3	26	29
Bais-Ursumco, Negros Oriental	VI	1	3	4
Bac-Murcia, Negros Occidental	VI	3	7	10
Batangas- Don Pedro + Cavite + QC	IV A & B/NCR	7	33	40
Bukidnon, Mindanao	X	2	94	96
Capiz, Iloilo, Panay	VI		21	21
Carsumco + Isabela (1), Cagayan	II	2	53	55
Cotabato	XII	3	35	38
Davao	X	1	41	42
Iloilo, Panay	VII	3	36	39
Ormoc- Hideco	VIII	1	21	22
Pampanga	III	13	23	36
Pensumil, Bicol	V	4	23	27
Tarlac	III	5	20	25
TOTAL		**57**	**659**	**716**

Distribution of TESDA Scholars in the Mill Districts

MILL DISTRICT	REGION	NUMBER OF BENEFECIARIES
CARSUMCO+ISABELA +CAGAYAN	II	100
PAMPANGA	III	80
TARLAC	III	149
BATANGAS +DON PEDRO+CAVITE+QC	IV-A &B/NCR	144
PENSUMIL+BICOL	V	67
LA CARLOTA,NEGROS OCCIDENTAL	VI	115
MAAO,NEGROS OCCIDENTAL	VI	99
LOPEZ,NEGROS OCCIDENTAL	VI	24
SAGAY DANAO,NEGROS OCCIDENTAL	VI	26

SONEDCO,NEGROS OCCIDENTAL	VI	20
DACONGCOGON,NEGROS OCCIDENTAL	VI	25
BISCOM,NEGROS OCCIDENTAL	VI	165
VICTORIAS,NEGROS OCCIDENTAL	VI	49
BAC-MUR,NEGROS OCCIDENTAL	VI	70
SAN CARLOS,NEGROS OCCIDENTAL	VI	31
TOLONG,NEGROS OCCIDENTAL	VI	60
CAPIZ	VI	154
NEGROS ORIENTAL	VII	68
BOGO MEDELLIN +CEBU	VII	15
ORMOC-HIDECO	VIII	85
BUKIDNON, MINDANAO	X	245
DAVAO	XI	325
TOTAL		2,116

V. R, D & E Program

Under the SIDA-funded R, D & E program, there are 37 R, D & E projects that were funded. The SIDA-funded R, D & E projects are categorized into variety improvement, propagation of HYVs, soil fertility improvement, irrigation, capacity building, farm mechanization, supply value chain analysis, technology transfer, harmonization of laboratories and study on HFCS.

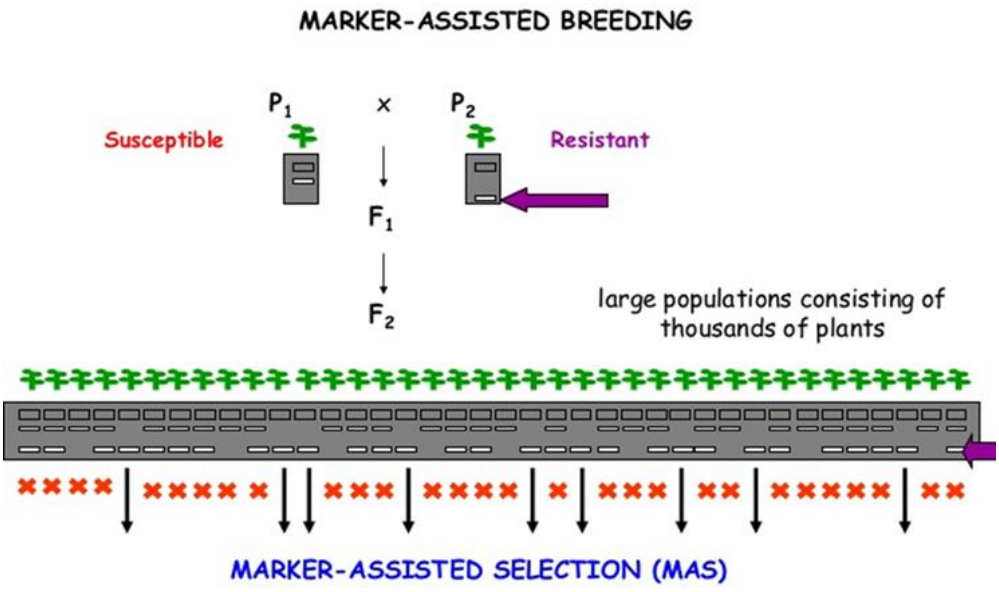
The study of PNRI on improving sugarcane varieties through biotechnology and nuclear technology showed promising results after irradiating the varieties.

PH-8013 PH-99-1793 PH-2000-0791 PH-2004-1011 PH-2003-1389 PH-6607 PH-7544

Table 1. Computed LD_{50} of different recommended sugarcane varieties tested

Sugarcane Variety	Computed LD_{50}* (Gy)	Remarks/Initial trait observed in selected putative mutants
PH-8013	32.61	Increased cane diameter than the control (25 Gy)
PH-99-1793	26.71	Increased cane diameter and tiller counts (25Gy); shorter internodes, chimeric (10Gy)
PH-2000-0791	33.27	Selection on-going
PH-7544	35.03	Selection on-going
PH-6607	30.74	Increased cane diameter than the control (25Gy)
Mean LD_{50}	31.67	
SD	±2.84	

LGAREC is also a recipient of SIDA funding for the marker-assisted breeding project.



Method whereby phenotypic selection is based on DNA markers

LGAREC and LAREC in partnership with UPLB, received SIDA funding for the assessment of drought resistant and water-logging tolerant sugarcane varieties.

Another project with significance to the industry in identifying emerging and re-emerging diseases of sugarcane is also implemented by UPLB thru SIDA funding.

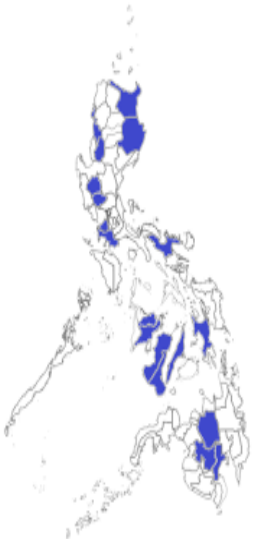
P/D-1: Emerging & Re-emerging Diseases of Sugarcane

Project Leader: Fe M. Dela Cueva

60%

Implementation Date : Jan - December 2019

- Geographic Distribution, Etiology, Yield Loss Assessment, Resistance Evaluation and Genetic Diversity of the Causal Organisms



Ilocos Sur, Tarlac, Isabela, Cagayan, Pampanga, Batangas, Cavite, Camarines Sur, Iloilo, Capiz, Negros Occidental, Negros Oriental, Cebu, Leyte, Bukidnon, Davao and North Cotabato

15 Mill Districts

194 collection areas

Figure 2. Images showing symptoms of (A) red rot, (B & E) leaf spots (C) pokkah boeng, (D) Smut, (F) rust, (G) leaf scald, (H) red streak, (I) sugarcane mosaic, and (J) sugaracane yellow leaf .

Table 1. List of diseases collected from specific age groups.

Age	Fungal Diseases	Bacterial Diseases	Viral Diseases
1-2 months	Red rot, ring spot, leaf scorch, brown spot, red spot, downey mildew, smut, pokkah boeng		
3-4 months	Red rot, ring spot, leaf scorch, brown spot, red spot, downey mildew, smut, pokkah boeng	Leaf scald	Mosaic, Yellow Leaf
5-8 months	Red rot, ring spot, leaf scorch, brown spot, red spot, downey mildew, smut, pokkah boeng, rust	Leaf Scald	Mosaic, Yellow Leaf, Chlorotic Streak
9-12 months	Red rot, ring spot, leaf scorch, brown spot, red spot, downey mildew, smut,pokkah boeng, rust	Leaf Scald	Mosaic
>13 months	Red rot, ring spot, leaf scorch, pokkah boeng		

Table 2. List of diseases collected from specific varieties.

Variety	Diseases
VMC 86-550	Red Rot, Rust, Smut, Red Spot, Ring Spot, Pokkah Boeng, Ring Spot, Leaf Scorch, Leaf Scald
VMC 84-524	Red Rot, Rust, Smut, Red Spot, Rings Spot, Pokkah Boeng, Ring Spot, Leaf Scorch, Brown Spot, Leaf Scald, Red Streak
PS 893	Red Rot, Rust, Pokkah Boeng
PS 8658	Red Rot, Ring Spot, Brown Spot, Leaf Scald

Table 3. Summary of diseases with its corresponding symptom and causal pathogen(s) detected with morphological and molecular characterization.

Disease	Symptoms	# of processed isolates	Causal Organism
Red Rot	Red lesion(s) on the midrib; red discoloration and hollowing of the stalks	50	*Colletotrichum falcatum, Fusarium sacchari, Fusarum proliferatum*
Leaf Spots	Circular to irregularly-shaped spots on the leaf blade	70	*Leptosphirulina* sp., *Nigrospora* sp., *Curvularia* sp.
Pokkah Boeng	Chlorosis, curling and distortion of the leaves, top rot, knife cut	56	*Fusarium* spp.
Leaf Scald	Chlorotic pencil line streaks on the leaves	80	*Xanthomonas albilineans*
Yellow Leaf Syndrome	Severe stunting, yellowing of the midrib	3	*Sugarcane yellow leaf virus*

Upgrading of the laboratories of Lopez MDDC and First Farmers MDDC also received SIDA funding including State Universities of the Visayas.

SFI-2: UPGRADING THE SOILS LABORATORY

Ms. Blesilda Gregorio- Luzon-Mindanao
Ms. Arlene Matti- Visayas

		UPDATES
LUZON-MINDANAO		
Davao MDDC		Equipment - for delivery
Isabela State University -Cabagan	To improve the operations of Lab thru the use of new eqpt & standards on soil quality analysis to serve the needs of about 1,230 sugarcane farmers in Isabela & Cagayan.	MOA was signed and notarized last Nov. 13, 2018. Purchase request for the equipment is on-process. ISU with counterpart to rehab the laboratory Php2.438 million
Bukidnon MDDC		Purchase request for equipments and supplies is on-going
VISAYAS		
LGAREC & SUCs (VSU, CPSU, CapSU)	For the farmers to have an immediate access to a well equipped soils laboratory to guide them on the right kind and amount of fertilizer they need to apply.	Deed of donation for the equipment procured is done
First Farmers MDDC		Deed of Donation for equipment procured is done; 100% Accomplished
Lopez MDDC		Deed of Donation for equipment procured is done; 100% Accomplished
Jalasig Coop.		Bidding for equipment is done

The funds for the rapid propagation projects of Mindanao MDDCs and Pensumil mill district were released in cash because they are already accredited with SRA while others which are not accredited with SRA, the project components were transferred in kind.

GENERAL ADMINISTRATION

ADMINISTRATIVE & FINANCE DEPARTMENT

Financial Performance Indicators

SUGAR REGULATORY ADMINISTRATION

ACTUAL EBITDA AND BUDGET/FUND UTILIZATION RATE (B/FUR)

For the Year Ending December 31, 2018 **Date Prepared: 3/11/2019**

	PARTICULARS	12/31/2018 EBITDA ACTUAL	12/31/2018 B/FUR ACTUAL
BEGINNING CASH BALANCE - 12/31/2017			**1,806,619,000**
GROSS CORPORATE REVENUES		**903,494,000**	**903,494,000**
TOTAL CASH AVAILABLE FOR OPERATIONS BEFORE 2018 SIDA		**903,494,000**	**2,710,113,000**
ADD: SIDA FUND 2018 RELEASE			**112,500,000**
TOTAL CASH AVAILABLE FOR OPERATIONS AFTER 2018 SIDA			**2,822,613,000**
PERFORMANCE BOND SUGAR IMPORTERS/EXPORTERS/TRADERS			**1,598,103,930**
TOTAL CASH BALANCE			**4,420,716,930**
LESS - CURRENT OPERATING EXPENDITURES			
	Personal Services	183,634,000	183,634,000
	Maintenance & Other Operating Expenses	160,619,000	160,619,000
	Capital/Equipment/Structure Outlays Obligated		56,978,000
	Prior Years Accounts Payable		16,589,000
	Depreciation	27,307,000	
	Trust Fund Utilization/disbursements/SIDA		797,716,000
	2017 Income Tax / 2016 Cash Dividends to NG		116,687,000
TOTAL CURRENT OPERATING EXPENDITURES/ FUND UTILIZATION		**371,560,000**	**1,332,223,000**
Net Income before Income Tax and SIDA FUND		**531,934,000**	
Less: Income Tax		125,724,000	
Net Income after Corporate Income Tax		**406,210,000**	
Add: SIDA FUND (NON-TAXABLE)		**112,500,000**	
NET INCOME AFTER TAX AND PROGRAM SUBSIDY		**518,710,000**	
TOTAL GROSS RECEIPTS INCLUSIVE OF PROGRAM SUBSIDY (RA 10659)		**1,015,994,000**	
LESS: PERFORMANCE BOND REFUND -SUGAR IMPORTERS/EXPORTERS			**1,172,478,930**
CASH BALANCE END- DECEMBER 31, 2018			**1,916,015,000**
Add Back: Taxes and Depreciation			
	Taxes	125,724,000	
	Depreciation	27,307,000	
EBITDA AMOUNT/ TOTAL FUND UTILIZATION/OBLIGATED/DISBURSED		**559,241,000**	**1,332,223,000**
EBITDA MARGIN RATE / BUDGET/FUND UTILIZATION RATE		**62%**	**47%**

CASH BREAKDOWN:	
CF	784,094,000
TF/AP	536,183,000
SIDA	584,941,000
ACEF	8,456,000
AFSIS FUND	2,341,000
TOTAL	**1,916,015,000**

Prepared and Submitted By:

JOSEPHINO M. AGOSTO

Manager III, Administrative and Finance Department

SUPPORT SERVICES

LEGAL DEPARTMENT

Atty. Ignacio S. Santillana, Attorney VI, is the head of the Legal Department, and also OIC-Manager III. The Legal Department is composed Atty. Johana S. Jadoc, Attorney V, Atty. Guillermo C. Tejida, III, Attorney IV, Marco D. Soriano, Legal Researcher III, and Ma. Gloria G. Ferrer, Secretary II and one (3) Job Oder (JO) assigned at Legal Bacolod Office.

The Legal Department serves as the consulting body of the Sugar Regulatory Administration (**SRA**) and its employees, on legal matters and issues, either official and/or personal.

The Legal Department is routinarily tasked to draft and review contracts, such as Deed of Absolute Sales, Deed of Donations, Memorandum of Agreement and the likes, executed between SRA, as represented by its Administrator or any authorized signatory, and a representative of the Lessees and other contracting parties. It is also in charge with the notarization of the said documents after signing.

It is the task of the Legal Department to conduct Administrative Investigation on all matters arising from complaints in violation of its issuances, such as sugar orders, memorandum circulars and to conduct investigations to its erring employee.

LIST OF PENDING CASES AND/OR HANDLED BY THE LEGAL DEPARTMENT

Cases handled	STATUS
1. *Ramon Monfort vs. Roberto Benedicto, et al.*	*Pending before Branch 23 of the Manila Regional Trial Court*
2. *CONFED vs. Rodolfo Gamboa Case No. 95-1315*	*Pending before RTC Branch 226 of Quezon City*
3. *SRA vs. Mabitasan, Sr. et al., Case No. Q-09-64985*	*Pending before RTC Branch 81 of Quezon City*
4. *People of the Philippines vs. Emanuel Subia, Crim. Case No. 08-260578*	*Pending before RTC of Manila, Branch 21.*
5. *Central Azucarera de Bais vs. Sugar Regulatory Administration, SPCV R-MKT-17-00923-SC*	*Pending before RTC of Makati, Branch 146.*
6. All other cases are now being endorsed and handled by OGCC, and SRA has a limited participation over the prosecution of the said cases.	

INTERNAL AUDIT DEPARTMENT

The Internal Audit Department highlights its accomplishments for 2018, to wit:

1. Support Function/Technical Assistance to the Sugar Board

1.1 Undertook policy review on the enforcement of regulatory rules

1.1.1. Regulation on the export of "D" fructose

1.1.2. Inputs on the Impact of Train Law Package 1 & 2 on the Sugar Industry

1.1.3. Drafted position papers on industry issues

1.2 Compliance to the Requirements of Interested Parties

1.2.1 Compliance of IAD to 2017/2018 PBB verification chechlist from GCG/IATF/GQMC/DBM

1.2.2 Formulated/drafted various communications in response to Stakeholders' concerns.

2. Audit Engagements

2.1. Acts as clearing house for procurements referred for IAD's review

2.2 Audit review of the systems and procedures of SRA

2.2. Audit of Leave Credits

2.3 Audit of Liens and Collections of Regulation Officers

3. Monitoring Activities

3.1. Yearly physical inventory of Sra's Property, Plant and Equipment (PPE)

3.2. Monitoring of CBW/Food Processor operations

4. SRA Quality Management System

4.1. Spearheaded the transitioning of SRA QMS from ISO 9001:2008 to ISO 9001:2015 version

4.2. Facitlitated the certification of SRA to ISO 9001:2015

4.3. Maintained and updated SRA established QMS Manuals and other required documented information

4.4. Ensured SRA's implementation and compliance to QMS requirements

4.5. Managed and coordinated all ativities of SRA QMS

5. Capability Building and Personality Development

5.1 Attendance to various audit/QMS related trainings and capability building activities

6. Client Satisfaction Survey

6.1. Spearheaded the project implementation of the conduct of SRA Client Satisfaction Survey for 2017 and 2018

2018 Accomplishments by Major Final Outputs

MFO 1. AGRICULTURE AND FISHERY POLICY SERVICES

CIRCULARS, ADMINISTRATIVE ORDERS, POLICIES ON SUGAR ISSUED

Sugar policies are promulgated and published in the SRA website to serve as guide for industry stakeholders and researchers on industry regulations and programs. **77** major guidelines were issued.

No. of Sugar Policies issued	
Sugar Orders	*16*
Circular Letters	*37*
Memo Circulars	*13*
Memo Orders	*9*
Adminstrative Orders	*2*
Total	***77***

Information System/Database Maintained

One (1) information system, is maintained along with six (6) databases under this system.

Systems developed and maintained	
Name	**Data Base**
1. Human Resource System	*MASTER*
2. Property Inventory System	*PROP*
3. Payroll System	*PAYDBF*
4. Remittance System	*REMIT*
5. Policy Loan Certification System (PLR)	*PLR*
6. Billing System	*BILLING*
7. Licensing and Registration System	*LICENSE*
8. Duecane System	*CANEMILL*
9. Sugar Swapping System	*SWAPPING*
10. Sugar Loading System	*LOAD*
11. Sugar Verfication System	*VERI*
12. OPSI Masterlist System	*OPSI*

Information and Communication Technology Facilities

In 2018 there were **142** ICT facilities (desktops) maintained by the Management Information Systems (MIS) Section of the Planning, Policy & Special Projects Department (PPSPD).

Website Hits

Website visits recorded as of December 2018 was **67,061.** SRA's website content is frequently updated to give its clients, researchers and stakeholders the latest news about the sugarcane industry and up-to-date industry data and other relevant information.

Webpages Uploaded/Updated

The webpages uploaded and updated are in compliance to the Governance Commission on GOCCs (GCG) requirements. The pertinent data and reports uploaded and updated are found in the Transparency Seal of the SRA website which is manned by the Management Information Systems Section of the Planning, Policy and Special Projects Department. For the year webpages uploaded numbered **1,004** and total updated is **187** .

MFO 2. TECHNICAL SUPPORT SERVICES

VARIETY SOURCING, DEVELOPMENT, PROPAGATION AND DISTRIBUTION

PRODUCTION SUPPORT SERVICES

Canepoints Distribution

The total number of canepoints pieces distributed for 2018 was **9,665,780**. These planting materials were sourced from SRA's two research stations LAREC in Pampanga and LGAREC in Negros Occidental. Other sources of planting materials of high yielding varieties (HYVs) are likewise being propagated, distributed and made available at the mill district's nurseries funded by the SRA.

The high yielding varieties distributed underwent a series of field trials at the research stations before being commercially released to sugarcane farmers.

Source of planting materials	No. distributed (pcs.)
LAREC *canepoints*	*2,475,580*
LGAREC *canepoints*	*2,268,200*
Total research stations	**4,743,780**
Luzon/Mindanao HYV nurseries	*3,629,000*
Visayas HYV nurseries	*1,293,000*
Total SRA funded nurseries	**4,922,000**

Plantlets Distribution

The plantlets are propagated only in La Granja Research Center. Total plantlets distributed for the year was **227,212** pieces.

Planting Materials Beneficiaries

Total number of farmers/planters who procured said planting materials were **166**, from the research stations and SRA-Funded HYV nurseries combined. List of those who purchased said planting materials is posted in the SRA website.

Source of planting materials	Number of beneficiaries
LAREC *canepoints*	22
LGAREC *canepoints*	38
Plantlets	44
SRA Funded HYV nurseries *canepoints*	
Luzon/Mindanao	56
Visayas	3
TOTAL	**163**

INTEGRATED PEST MANAGEMENT

Biological Agents Distribution

For biological agents for the control of borer, the *Trichogramma* laboratory in LGAREC produced ***22,197*** strips and were purchased by ***53*** clients not limited to sugarcane farmers. Even farmers of other crops use this biological agent. This goes to prove that the T. strips is a very effective biological agent as well as safe for the environment. The production of *T. strips* depends on the number of requests by clients. Only LGAREC produce the *Trichogramma* strips.

SOIL IMPROVEMENT THROUGH PROPER FERTILIZATION

Soil Analysis

As the Soils Laboratories of SRA continuously cater to the analytical needs of sugarcane farmers, analysed **4,399** soil samples assisting **3,022** farmers/planters. Soil samples analysed exceeded the target this year still due to the Block Farm Project. It is important to conduct soil analysis in order to recognize the specific needs of the soil and to properly recommend how much fertilizer to apply before planting.

Establishment & Maintenance of SRA-Funded High Yielding Varieties

The objective of establishing these HYV nurseries is to give the planters/farmers easy access to laboratory and field tested, high yielding varieties for adoption to help the farmers increase their farm's productivity and income. For this year, there were **29** nurseries established in the mill district. Total number of maintained nurseries are **18.**

LOCATION OF HYV NURSERIES	
LUZON/MINDANAO	**VISAYAS**
PENSUMIL	LOPEZ
DON PEDRO	FIRST FARMERS/ BACOLOD MURCIA
DAVAO	ORMOC
COTABATO	BOGO-MEDELLIN

EXTENSION SUPPORT SERVICES

CAPABILITY BUILDING SEMINARS FOR SUGARCANE FARMERS

Training is a valuable tool in enhancing the knowledge and skills of sugarcane farmers. Improvement in farm productivity can be credited through acquiring technical knowledge in managing their crop from land preparation to harvesting/milling and ratooning. The SRA, through its Extension and Services unit of the RDE oversees the conduct of trainings for the sugarcane planters.

Over all a total of **161** trainings were conducted for Luzon/Mindanao and Visayas regions participated in by **5,022** farmers and extension workers. Trainings/seminars focused on Sugarcane Management, Farm Planning and Budgeting, and Soil Sample Collection.

Scholarship Programs

- **SRA-Funded Scholars**

  SRA's Scholarship Program commenced in SY 2014-2015. With the objective of providing the industry with highly qualified technical and extension men and women through Undergraduate and Post-Graduate studies as well as specialized courses in the fields of Chemical Engineering-Sugar Technology, Agriculture, Agricultural Engineering, Chemistry and Agricultural Extension. For SY 2018-2019, SRA is supporting and

sponsoring three (3) scholars. **Two (2)** in University of the Philippines Los Baños and **one (1)** in Central Philippines State University, Negros Occidental.

UPLB
Raya Faye Bahian
Steffanie Lapitan
CPSU
Miravallez, Cris Austin

- **SIDA-Funded Scholars**
  The SIDA Act of 2015 provides that "all stakeholders in the sugarcane industry shall contribute to the development of human resource industry. Hence, the Scholarship Program under the SIDA shall include the underprivileged but deserving college and post-graduate students taking up courses in relevant fields of discipline in State Universities. It will also include scholarships for vocational courses and skills development for farmers and farm technicians and skilled workers in sugar refineries and biomass power plants."

As of December 31, 2018, there are a total of **2,573** SIDA Scholars. **646** approved scholars from CHED, **1,870** from TESDA and **57** from SRA. Under the SIDA-SRA Scholarship there are **28** scholars taking up undergraduate studies, **27** taking up Masteral and two (2) taking up Doctorate Degrees. SRA has produced **six (6)** graduates.

SRA Initiated Block Farms (Accredited)

Block Farming is the consolidation of small farms into one large farm with an aggregate area of not less than 30 hectares with fields situated within two (2) kilometers radius in order to take advantage of the economies of scale. The activities are aligned and implemented to ensure efficient use of farm inputs (farm machineries and fertilizer). The main goal of this project is to increase farm productivity at lesser production cost.

For CY 2018 there were **49** block farms Accredited in Visayas with a total area of **1624.915** hectares and **1,405** enrollees. For Luzon and Mindanao there was one (1) block farm accredited with an area of **59** hectares and with **20** enrollees. From the second quarter to the last quarter, there were no block farms accredited since they are still on the process of compliance with reference to documentary requirements.

Accredited block farms and its enrollees under the program will have a better opportunity to access interventions provided by SRA under the SIDA with the primary aim of improving productivity and efficiency of small farms that will further translate to increased cane yield and increased income.

RESEARCH AND DEVELOPMENT

PRODUCTION RELATED R&D ACTIVITIES conducted

The Research and Laboratory Divisions of the Research, Development and Extension Departments from Luzon/Mindanao and Visayas undertakes research and development on sugarcane farming. The RDE generates, verifies and recommends effective technologies that will increase the yield and profitability of sugarcane farmers.

As of the year, LAREC and LGAREC completed a total of ***33*** research projects, ***43*** on-going researches and ***18*** new laid-out projects. Completed researches are as follows:

LUZON AGRICULTURAL RESEARCH CENTER COMPLETED RESEARCHES (11)	
1	*Screening of Phil 2012 series for resistance to smut*
2	*2013 Preliminary Yield Test*
3	*Variety X Season of Planting 2007 Series*
4	*Variety X Age of Harvest 2007 series*
5	*Density of planting 2007 series*
6	*Performance of HYVs under sandy soil condition*
7	*Investigation of Effects of plant residue removal of sugarcane production and soil fertility (collaborative project with JIRCAS)*
8	*Investigation of effects of fermentation residue application on sugarcane production and soil fertility (collaborative project with JIRCAS)*

9	*Yield Response of Phil 2008-909 at different season of planting*
10	*Yield Responses of Phil 2008-0909 at different*
11	*Ratoon performance of recommended Phil 2008 series*

LA GRANJA AGRICULTURAL RESEARCH CENTER COMPLETED RESEARCHES (22)	
1	*Leaf Scorch Resistance Test, Phil 2013 Series*
2	*Smut Resistance Test, Phil 2013 Series (PYT-Plant Cane & Ratoon)*
3	*Yellow Spot Resistance Test, Phil 2013 Series*
4	*Row Test Phil 2015 Series*
5	*Pollination, Sowing and Seedling Care, Phil 2017 Series*
6	*Seedling Plot Test, Phil 2016 Series*
7	*Propagation I, Phil 2013 Series*
8	*Propagation II, Phil 2012 Series*
9	*Ecologic Test, Phil 2010 Series (Plant Cane & Ratoon)*
10	*Marker-Assisted Selection (MAS) of Sugarcane*
11	*Tolerance of Varieties to Natural Drought condition*
12	*Tolerance for Varieties to Natural Waterlogged Condition*
13	*Yield of Phil 2006-1899 and Phil 2006-2289 at Different Season of Planting*
14	*Response of Phil 2006-1899 to Varying Levels of NPK Fertilization in Guimbalaon Sandy Loam Soil*
15	*Multiplication II, Phil 2014 Series*
16	*Propagation I, Phil 2014 Series*
17	*Downy Mildew Resistance Test, Phil 2014 Series (Plant Cane and Ratoon)*
18	*Smut Resistance Trial, Phil 2015 Series (Row Test)*
19	*SVIP Germplasm Collection, Characterization and Maintenance*
20	*Mass Production of Trichogramma Strips for the Control of Borer*
21	*Sugar Disease Garden as Source of Inocula for Resistance Trials*
22	*Flower Induction Nursery*

MFO 5. AGRICULTURAL & FISHERY MACHINERY, EQUIPMENT AND FACILITIES SUPPORT SERVICES

Clonal Garden – SRA has one clonal garden which is continuously maintained located in LGAREC in Visayas.

Laboratories – SRA continuous to maintain a total of 11 laboratories located in QC, Bacolod, LAREC and LGAREC.

MFO 6. AGRICULTURAL & FISHERY REGULATION SERVICES

REGULATORY DOCUMENTS ISSUED IN ACCORDANCE WITH SRA SUGAR POLICIES

Certificates issued
(Sugar & sugarcane products, air & waste water analysis, CEA, CQE, weighing scale calibration, registration, certificates of sugar requirements, molasses, muscovado traders)

Total certificates issued, signed and released for the year is **5,259.** Increase of cetificates issued was due to increase of volume of transhipped sugar.

Clearances issued
(Export clearance for sugar/molasses/muscovado, Import Clearance of sugar-based exporters, Attestations of Quedans/ Molasses Storage Certificate/Sugar Release Orders)

Total clearances checked, verified and released for the year numbered **5,243**. An increase in import clearances was due to pre-mix clearances issued.

Licenses issued to Mills and Refineries
38 licenses were issued and released for all mills and refineries.

Registration of Bioethanol Producers
The sugarcane industry is also an important player in the production of bioethanol. From January 1 to December 31, 2018 the following were registered bioethanol producers. Average reference price for CY2018-2019 is Php 54.64

Operating Bioethanol Distilleries and Power Plants in CY 2018

1.	*San Carlos Bioenergy, Inc*
2.	*Leyte Agri. Corporation*
3.	*Roxol Bioenergy, Inc.*
4.	*Green Future Innovations Inc.*
5.	*Balayan Distillery, Inc.*
6.	*Far East Alcohol, Corp.*
7.	*Kooll Company, Inc.*
8.	*Universal Robina Corporation*
9.	*Absolut Distillers, Inc.*
10.	*Progreen Agricorp, Inc.-Nasugbu*
11.	*Progreen Agricorp, Inc.-Balayan*
12.	*Victorias Milling Company*

Bioethanol Production

In 2018 bioethanol produced was **27,087,616 liters.**

Quarterly Production Report	In liters
January - March	*66,390,083*
April - June	*72,357,086*
July - September	*10,576,100*
October - December	*77,764,347*
Total	***227,087,616***

Green Future Innovations, Inc. (GFII) Bioethanol and cogeneration plant in San Mariano, Isabela Ecofuel Agro-Industrial Ecozone.

Bio-ethanol Reference Price Index for CY 2018

Monthly Average	(Php/liter)
January	*45.77*
February	*48.26*
March	*51.76*
April	*53.64*
May	*55.48*
June	*57.74*
July	*58.11*
August	*58.15*
September	*55.07*
October	*54.51*
November	*53.93*
December	*55.07*
**On the general agreement between the bioethanol producers and petroleum companies that when there's no bidding at the millsites, the price of the preceding period will be adopted.*	

Shipping Permits issued

For the coastwise movement of sugar, a total of **19,527**_ shipping permits checked, verified were issued. Breakdown of it were **19,392** permits were issued by RD Visayas and **175** permits were issued by RD Luzon/Mindanao. Increase of shipping permits was noted due to increase in volume of trans-shipped sugar.

Attestations/Verification of Sugar Quedans

Quedan permits for raw and refined sugar, molasses storage certificates, reinstatement of homeless quedans, and Sugar Release Orders attested numbered **926,266**. Increase was due to increased volume of trans-shipped sugar.

ENVIRONMENTAL MONITORING OF SUGAR MILLS

Sugar mills monitored

23 mills were monitored for environmental compliance by the SRA's SAGE Teams in Luzon/Mindanao and Visayas.

Air samples analyzed

Air samples were collected by the SAGE Teams of Luzon/Mindanao and Visayas. Total number of air samples analysed by the SRA Environmental laboratories were 3**17**.

Wastewater samples analyzed

A total of **35** wastewater samples from sugar mills in the Luzon/Mindanao and Visayas area were collected and analysed.

All monitored sugar mills are furnished with the Environmental Monitoring Report that contains the results of the air and wastewater samplings. While certificates are issued for air and water samples analysed.

SUGAR QUALITY ASSURANCE

Product Standards implemented

There are **two (2) product standards** enforced, the Philippine National Standard for Raw Sugar ((BAFPS PNS 81:2010) and the Philippine National Standard for Refined Sugar (BAFPS PNS 82:2010).

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The Various Units of SRA

and

Consolidated by:
PLANNING, POLICY & SPECIAL PROJECTS DEPARTMENT
CY 2018