

Appendix F.

Piat Campus RDE Banner Programs and Projects 2018-2022

Banner Program: Dairy Cattle and Goat

Goal:

- Increase profitability and productivity of dairy business
- Accelerate dairy herd build-up and milk production by 10% annually
- Increase local milk consumption by 10% annually
- Ensure safe and quality milk and milk products following the Dairy Food Regulations
- Capacity development of dairy stakeholders

Objectives:

a. General

To create a Regional Dairy Center for Research, Development and Training at CSU Piat that will help attain milk sufficiency in Cagayan Valley in partnership with the government and private sectors.

b. Specific

- 1) Produce sufficient and sustainable quality milk and milk products both in the institution and community of Cagayan Valley.
- 2) Serve as venue for research along forage production, herd and feeding management, animal health, milk production, quality milk products, and genetic improvement of stocks;
- 3) Process various quality milk products such as fresh milk, choco milk, yoghurt, pastillas de leche, and cheese in the institution as an additional source of income;
- 4) Provide venue for hands-on training of students and professors, entrepreneurs, dairy farmers, and other stakeholders.
- 5) Disseminate research outputs to dairy farmers for increased income and improved nutritional status.

Challenges:

Dairy production had always been the area in the animal industry that has the biggest potential for development in the Philippines. Based on the NDA annual report in 2013, the country is importing 99% of its milk and milk product requirements thus only one percent is being supplied by our local dairy growers. In the liquid milk market, on the average, one out of three glasses of milk is being produced locally, and this means that a Filipino family can now spend more than Php 4,000.00 for dairy products which is 3% higher than 4 years ago. With these figures, dairy farmers have large business opportunities that they can engage into, like milk production, milk processing and marketing. These opportunities would target dairy milk producers, processed milk industry and those that are engaged in trading.

Cagayan Valley Region has vast tracts of land suited for livestock production and some municipalities in the region has an established exotic forage pastures that ensure all year round availability of quality forages to feed the animals like dairy cattle and goat. This led the Region to consider dairy industry as one of its priority investment areas (DTI, 2017). The Department of Agriculture Regional Office 02 (DA-RFO 2) has also partnered with CSU Piat for the improvement of the livestock industry, particularly the forage genebank component.

The buffalo/carabao milk produced by the Philippine Carabao Center (PCC) and their partner farmers' cooperatives cannot sustain the demand of local consumers due to their limited milk production. Hence, the Cagayan State University administration, through technical support and collaborative efforts of the National Dairy Authority, DA, DA-BAR and other government and non-government agencies, wish to venture on cattle and goat dairy production Center as source of quality fresh milk and for processing purposes. Milk produced from the Center will surely bridge the gap on milk supply in the local and domestic market.

The Cagayan State University (CSU) in Piat, Cagayan had already established a small-scale dairy center, a component of its Agri-Eco-Tourism Center named as CSU Dairy Research and Training Center. At present, the dairy center has existing breeds of Holstein Fresian-Sahiwal (dairy cattle) and Saanen-Anglo-Nubian (dairy goat), which were imported from New Zealand through the National Dairy Authority (NDA) and secured from the DA Experimental Station in Nueva Vizcaya, respectively. The center also has its small-scale dairy processing plant that caters mostly only to the people in the university and in the neighboring communities.

Program/Project Implementation Strategies

The roadmap of development of the Center is shown in Appendix A. A Five Year Developmental Plan (Appendix B) was prepared by the pool of researchers and extension workers in support for the developmental activities in the center for the next five years. The activities listed below are the highlights of the activities and strategies along research, development and extension.

1. Upgrading and repair of dairy farm structures/facilities and research and processing laboratory

One of the priorities of the Center is the establishment of farm structures and dairy processing facilities such as dairy barn, milking parlor and processing laboratory which should be put in place to facilitate milking operation and processing of milk in the institution. This will likewise serve as venue for skills development in dairying for farmers, students and employees and other interested dairy entrepreneurs in the region.

2. Stock procurement

One of the major concerns of the Center is to establish a sustainable dairy enterprise in the institution and in the nearby communities to enhance the production of milk supply

locally. Along this line, 25 heads of high producing breed of milk of dairy cattle like Holstein Fresian and 25 heads of dairy goat (Saanen breed) will be procured as additional production stock and source of quality milk in the institution.

3. Palit-Baka Scheme of Distribution of Dairy Animals

The Palit-Baka Scheme of Distribution of Dairy Animals refers to the program whereby the Center distributes potential dairy animals to new but eligible and qualified participants who, within a certain period of time, would resort to a payment-in-kind by way of female dairy animals.

4. Dairy training, milk collection and processing

Dairy farmers and other entrepreneurs engage in dairying will be provided with technical skills training especially in dairy production management, milk processing and marketing aspect to enhance their skills and potentials to be more efficient in dairy management and in producing quality dairy products.

5. Dairy products

The Center shall produce the following dairy products:

1. Fresh milk
2. Flavored milk (choco, strawberry, mango, pandan)
3. Pastillas de leche
4. Kesong puti
5. Yoghurt
6. Milk candy
7. Milk-o-gel
8. Others

6. Marketing

a) Target market

The target markets of the products are the direct consumers, store owners, groceries, travelers, and processors.








Commodity/Banner Program: **Dairy**










Campus: **Piat Campus**








CSU Piat Dairy Road Map (January 2018 – December 2022)

Parameters	2018	2019	2020	2021	2022
Forage and pasture development (ha)	14	17	20	23	26
Herbage yield of forage per hectare (t/ha)	30	40	50	60	70
Milking cows (heads)	15	20	30	40	50
Grazing areas (ha)	30	40	50	60	70
Daily Milk Yield (kg/dairy cow)	6	9	12	15	18
Dairy products (processed/packaged)	3	5	7	8	10
Milk distribution coverage/buyers (various buyers)	5	8	15	15	15
Dispersed dairy cattle (heads)	-	-	5	10	15
Recipient dairy cattle (dairy farmers)	-	-	5	21	15
Dairy cooperatives (organized dairy farmers)	-	-	1	2	3
Federated dairy cooperatives (federated coop)	-	-	-	1	2
Enhanced food security (%)	5	10	15	20	25
Improved Poverty Alleviation and Social Equity (%)	5	10	15	20	25
Enhanced Income and Profitability (%)	5	10	15	20	25
Enhanced Sustainability	5	10	15	20	25





Priorities/ Research Area	Program/Project/Study	TIMEFRAME					EXPECTED OUTPUT				
		2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
Agriculture for Food Security and Poverty Alleviation -Livestock and Poultry	Program 1: Genetic Improvement of Dairy Animals (Cattle and Goat)						Breed improvement of cattle and goat				
	Project 1.1 Dairy Cattle Productivity Enhancement through Genetic Improvement of Native Stocks						Increased dairy milk production through genetic improvement of native stocks into dairy-type cattle into stocks				
	Study 1.1.1 Evaluation of the Reproductive Performance of Upgraded Native Cows										Determined reproductive performance of upgraded stocks
	Study 1.1.2 Identification of milk related genes through genotyping and gene mapping										Identified genes related to milk production increase
	Project 1.2 Enhancing Dairy Goat Productivity in Piat						Increased dairy milk production through genetic improvement of native stocks into dairy-type goat into stocks				
	Study 1.2.1 Effects of Different Feeding System on Saanen Breed Dairy Goat							Determined the best feeding system for dairy goat			
	Study 1.2.2 Milk Quality Testing of Saanen Breed Dairy Goat as Affected by Improved Feeding Strategies							Identified the best feeding strategies			

								based on milk quality			
	Study 1.2.3 Effects of Napier Concentrate Ratio on Milk Yield of Saanen Breed of Dairy Goat							Developed Napier-based feeds for Saanen-bred goat			
	Program 2: Feeding and Forage Production Research and Development										
	Project 2.1 Water Harvesting Technologies							Established a sustainable and efficient water system for the dairy Center (forage production and pasture area)			
	Project 2.2 Grassland and Feed Resource Conservation Management and Utilization in Cagayan							Established forage genebank and technologies for forage and pasture management in Cagayan			
	Project 2.3 Total Mixed Ration (TMR): Enhancing Dairy Cattle Productivity in CSU-Piat							Identified the best Total Mixed Ration (TMR) to enhance dairy cattle productivity			
	Project 2.4 Enhancing Dairy Goat Productivity Through Improved Feeding Strategies							Developed feeding strategies for sustainable and improved dairy goat productivity			
	Study 2.4.1 Analysis of the Nutritive Quality of EM-Treated Silage							Determined quality of EM-treated silage			

	Study 2.4.2 Effect of EM-based Silage as Feeds for Saanen Breeds						Identified efficiency of EM-treated silage					
	Study 2.4.3 Feeds Development derived from Leguminous Forages to Increase Dairy Goat Production							Developed leguminous forage-based feeds for increased dairy goat production				
	Study 2.4.4 Online Dairy Goat Record Management System							Developed online system for dairy goat inventory				
	Study 2.4.5 IEC Material Development								IEC materials developed			
	Study 2.4.6 Capability Building/ Information Dissemination								Technology and information disseminated and extended to target clientele			
	Study 2.4.7 Techno Demo Establishment							Technology and information disseminated and extended to target clientele				
	Program 3: Dairy Climate Change Adaptation & Mitigation Research											
	Project 3.1 Greening the Dairy Industry											
	Project 3.2 Solar Energy Integration in Dairy Production								Established solar-powered irrigation and other technologies for the dairy center			

	Project 3.3 Agri-based Biogas Generation and By-Products Utilization Improvement						Established agri-based biogas generation technology and utilized this for agricultural purposes		
	Program 4. Product Processing and Development						Generated income for the university		
	Project 4.1 Processing of High-Value Agricultural Commodities (3Ms – Mango, Meat and Milk) into High Quality Products						Developed products from agricultural commodities (mango, meat and milk) into high quality products		
	Project 4.2 Economics of Milk Processing of the CSU Dairy Center						Determined the feasibility and the possible income that will be generated by the project		
	Project 4.3 Physico-chemical, Functional and Sensory Properties of Lubeg-Flavored Yoghurt						Identified the needed information for the development of lubeg-flavored yoghurt		
	Project 4.4 Development of Lubeg-flavored 'pastillas de leche' with Probiotics (Lactobacillus paracasei)						Developed of Lubeg-flavored 'pastillas de leche' with Probiotics		
	Project 4.5						Developed coconut milk		

	Utilization and processing of coconut milk into white soft cheese.							into white soft cheese			
	Project 4.6 Feedmill Establishment							Established feedmill for dairy animals for decreased production cost and increased income			
	Program 5. Dairy Marketing, Promotion and Extension							Commercialized products for increased income of farmers and the institution			
	Project 5.1 Development commercialization of CSU Piat Lubeg-Flavored Yoghurt							Developed and Commercialized lubeg-flavored yoghurt			
	Project 5.2 Developing an Agri-Eco-Tourism Farm to Promote Awareness on Dairy Production and Processing.							Promoted agri-eco-tourism in the region			
	Project 5.3 Mobilization of New Farming Techniques through the Development of Agricultural Knowledge Products in Region II							Developed agricultural knowledge products to mobilize new farming techniques in dairy production and processing			
	Program 6. Dairy GADliness Research							Promote GAD in research, development and extension and other related undertakings of the dairy center			

	Project 6.1 Training Needs of Women Dairy Farmers of Selected Areas of Cagayan							Assessed training needs of dairy growers in Cagayan			
	Project 6.2 Socio-economic Upliftment of participating women in dairy farming							Uplifted economic status dairy growers			
	Project 6.3 Training of Women Dairy Farmers in Selected Areas of Cagayan							Capacitated dairy growers			
	Project 6.4 Fresh Milk Handling Practices of Dairy Women							Assessed fresh milk handling of women and men			