



NCRDEC Ongoing Projects



Project 1

Title of the Project	TECHNOLOGY PILOTING OF A TISSUE CULTURE GROWTH CHAMBER FOR MASS PROPAGATION OF COFFEE AND EMBRYO-CULTURED MAKAPUNO (ECM)
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Proposed Budget	PhP 888,980.00
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Duration	6 months
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Funding Scheme	DOST-CALABARZON
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Classification / Thematic Area	Applied Research / Engineering & ICT
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Implementing Unit	NCRDEC
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Project Team	Project Leader : GMCastillo Project Staff : AELTorres, JMHRogador, RKTFlores, AJLMagcamit
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OBJECTIVES

Pilot-test the tissue culture growth cabinet for enhanced mass propagation of embryos of coffee and makapuno.

- Design and develop the enhanced tissue culture growth cabinet using locally available materials;
- Evaluate the technical performance of the tissue culture growth cabinet;
- Test the developed tissue culture growth cabinet to stakeholders;
- Assess the economic benefits of the equipment on a commercial operation; and
- Develop information, education and communication (IEC) materials of the developed equipment.



Project 2

Title of the Project	MOLECULAR-BASED METHOD OF DETERMINING THE AUTHENTICITY OF COFFEE (COFFEA SPP.) SOLD IN THE PHILIPPINE MARKET
Approved Budget	PhP 5,172,777.20
Duration	2.5 years
Funding Scheme	DA- Biotech
Classification / Thematic Area	Basic Research
Implementing Unit	NCRDEC
Project Team	Project Leader : MDBaltazar Project Staff : ADCortes, JMAOFabella



OBJECTIVES

To be able to develop molecular-based method for determining the authenticity of green beans, roasted and ground coffee.

- Determine the best DNA extraction protocol from green beans, roasted and ground coffee;
- Optimize the PCR protocol using DNA from green beans, roasted and ground coffee;
- Evaluate the PCR success of universal primers for differentiating *Coffea* species from other plant contaminants;
- Demonstrate the utility of the method in determining the authenticity of green beans, roasted and ground coffee; and
- Determine the authenticity of green beans and roasted beans sold in the market.



Project 3

Title of the Project	ENHANCING THE AGRI-AQUA FOOD VALUE CHAIN THROUGH SMART TECHNOLOGIES AND PARTNERSHIPS TOWARDS FOOD RESILIENCY IN THE NEW NORMAL IN CALABARZON
Proposed Budget	PhP 2,962,672.00
Duration	1 year
Funding Scheme	DOST - PCAARRD
Classification / Thematic Area	Non R&D
Implementing Unit	NCRDEC, CvSU
Project Team	Project Leader : Gerry Castillo Project Staff : Mira Magcawas, Lorna Matel, Al Eugene Torres



OBJECTIVES

Enhance the food value chain for coffee in the CALABARZON towards improving agricultural productivity, competitiveness, efficiency and inclusive food sustainability.

- Enhance the food value chain for coffee in the CALABARZON by implementing key approaches to strengthen the network of stakeholders and processes involved in the production and value adding activities towards food resiliency in the new normal;
- Increase the volume of production of coffee by 30%;
- Improve the quality of produce of the farmers; and
- Ensure a sustainable food value chain for coffee in the region.



Project 4

Title of the Project	OPTIMIZATION MODELS FOR COFFEE-BASED PRODUCTION SYSTEM
Proposed Budget	PhP 200,000.00
Duration	1 year
Funding Scheme	CvSU Research Grant (CRG)
Classification / Thematic Area	Basic Research / Engineering & ICT
Implementing Unit	NCRDEC
Project Team	Project Leader : GMCastillo Project Staff : AELTorres & SDFenol



OBJECTIVES

Develop optimization models for a more profitable coffee-based production system.

- Determine the advantages and disadvantages of mono-cropping and intercropping systems of coffee production;
- Develop an optimized profitable coffee intercropping production model; and
- Create a model for a profitable and sustainable lowland arabica coffee production.



Project 5

Title of the Project	DEVELOPMENT OF ERGONOMICALLY-DESIGNED LABORATORY-SCALE COFFEE HULLER AND DRYER
Proposed Budget	PhP 200,000.00
Duration	2 years
Funding Scheme	CvSU Research Grant (CRG)
Classification / Thematic Area	Basic Research / Engineering and ICT
Implementing Unit	NCRDEC
Project Team	Project Leader : GMCastillo Project Staff : AELTorres & WCBuclatin



OBJECTIVES

Develop ergonomically-designed laboratory-scale coffee huller and dryer.

- Design and develop coffee processing equipment such as dryer and huller;
- Evaluate the performance of the developed equipment;
- Optimize the performance of the equipment using computational engineering; and
- Determine the economic viability and acceptability of using the machine.



Project 6

Title of the Project	NCRDEC INFORMATION SYSTEM
Proposed Budget	PhP 200, 000.00
Duration	2 years
Funding Scheme	CvSU Research Grant
Classification / Thematic Area	Basic Research / Engineering and ICT
Implementing Unit	NCRDEC, CvSU
Project Team	Project Leader : , Al Eugene Torres Project Staff : Gerry Castillo, Ric Karl T. Flores, Antonette Jean L. Magcamit, Maowel A. Villanueva



OBJECTIVES

The general objective of the project is to develop an integrated information systems for R&E operations of the NCRDEC.

- Design and develop information systems for visitor's database and training activities assessment;
- Design and develop a GIS-based map of coffee demonstration and experimental areas; and
- Test and evaluate the usability and performance of the developed information systems.



Project 7

Title of the Project	SOIL PHYSICO-CHEMICAL ASSESSMENT AND DISTRIBUTION MAPPING OF COFFEE FARM AREAS IN CAVITE
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Proposed Budget	PhP 200,000.00
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Duration	2 years
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Funding Scheme	CvSU Research Grant
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Classification / Thematic Area	Biodiversity and Environmental Conservation
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Implementing Unit	NCRDEC, CvSU
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Project Team	Project Leader : Al Eugene L. Torres Project Staff : Kris Rowell S. Garcia, Gerry M. Castillo, Antonette Jean L. Magcamit, Ric Karl T. Flores, Maowel A. Villanueva, Mark Jayvee M. Mojica, Gee Jay C. Bartolome
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OBJECTIVES

Design and develop a laboratory-scale grading machine and storage equipment for green coffee beans.

- fabricate a prototype grading and storage equipment for green coffee beans using locally-available materials;
- fabricate and install microcontroller device to the developed equipment;
- test and evaluate the performance of the developed equipment;
- perform a cost analysis of the developed equipment.



Project 8

Title of the Project	DESIGN AND DEVELOPMENT OF AUTOMATED LABORATORY-SCALE GREEN COFFEE BEANS GRADER AND STORAGE EQUIPMENT
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Proposed Budget	PhP 200,000.00
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Duration	2 years
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Funding Scheme	CvSU Research Grant
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Classification / Thematic Area	Engineering and ICT
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Implementing Unit	NCRDEC, CvSU
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Project Team	Project Leader : Gerry Castillo Project Staff : Al Eugene Torres & Ric Karl Flores
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OBJECTIVES

Design and develop a laboratory-scale grading machine and storage equipment for green coffee beans.

- fabricate a prototype grading and storage equipment for green coffee beans using locally-available materials;
- fabricate and install microcontroller device to the developed equipment;
- test and evaluate the performance of the developed equipment;
- perform a cost analysis of the developed equipment.

NCRDEC Newly- Approved Projects





Project 1

Title of the Project	INVESTIGATING THE ROLE OF SEEDLING CONTAINERS IN THE PLANT VIGOUR OF COFFEE SEEDLINGS GROWN IN THE NURSERY
Proposed Budget	PhP 260,000.00
Duration	2 years
Funding Scheme	ACDI/VOCA PhilCAFE Project
Classification / Thematic Area	Basic Research/ Agri-Fisheries and Food Security
Implementing Unit	NCRDEC, CvSU
Project Team	Project Leader : Antonette Jean L. Magcamit Project Staff : Maowel A. Villanueva & Danilo H. Mojica



OBJECTIVES

Investigate the performance of seedlings of various coffee genotypes grown in different containers under nursery conditions.

- determine the growth performance of the various coffee genotypes as affected by the type of seedling containers under nursery conditions.
- determine the quality index of the various coffee genotypes using different seedling containers under nursery conditions
- conduct cost and return analysis of using various seedling containers



Project 2

Title of the Project	DEVELOPMENT OF LOW-COST SMALL-SCALE COFFEE PROCESSING EQUIPMENT FOR VILLAGE LEVEL OPERATION
Proposed Budget	PhP 1,764,374.40
Duration	2 years
Funding Scheme	Applied Research/ Smart Engineering, ICT and Industrial Competitiveness
Classification / Thematic Area	PhilCAFE Key Areas
Implementing Unit	NCRDEC, CvSU
Project Team	Project Leader : Gerry M. Castillo Project Staff : Al Eugene L. Torres, Gee Jay C. Bartolome, Sheryl Dinglasan Fenol, Ric Karl T. Flores



OBJECTIVES

Develop a small-scale coffee processing equipment for the NCRDEC.

- design and develop coffee processing equipment such as sorting machine, automated depulper, blending machine, and packager for small-scale operation;
- test and evaluate the performance of the developed equipment;
- pilot-test the coffee dryer and huller to coffee processors;
- optimize the performance of the equipment using computational engineering;
- determine the economic viability of using the machine; and
- develop IEC materials and secure applications for patents of the developed machines.



Project 3

Title of the Project	ENHANCING COFFEE QUALITY USING ENDOGENOUS MICROORGANISMS IN ARABICA COFFEE FERMENTATION
Proposed Budget	PhP 353,515.45
Duration	2 years
Funding Scheme	ACDI/VOCA PhilCAFE Project
Classification / Thematic Area	Basic Research/ Agri-Fisheries and Food Security
Implementing Unit	NCRDEC, CvSU
Project Team	Project Leader : Angelbert D. Cortez Project Staff : Miriam D. Baltazar



OBJECTIVES

Assess the effects of the endogenous microorganisms during wet-fermentation of Arabica coffee varieties on the cup quality and profiles.

- assess the number of culturable microbial groups using a corresponding selective medium
- characterize the selected lactic acid bacteria (LAB) and yeast isolates as a potential starter culture candidates;
- identify the candidate best starter cultures by analysis of 16S rRNA gene and ITS region sequences; and
- determine the effect of starter cultures in wet-fermentation process on the cup quality and profiles of Arabica coffee.



Project 4

Title of the Project	PRODUCER-ORGANIZATIONS' ADVANCEMENT THROUGH KNOWLEDGE ATTAINMENT FOR INCREASED PRODUCTIVITY AND ECONOMIC GROWTH (PAKAPE IN REGION IV & VI)
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Proposed Budget	PhP 5,337,979.00
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Duration	2 years
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Funding Scheme	ACDI/VOCA PhilCAFE Project
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Classification / Thematic Area	Non R&D/ Extension
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Implementing Unit	NCRDEC, CvSU
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Project Team	Project Leader : Miriam D. Baltazar & Antonette Jean L. Magcamit Project Staff : Gerry Castillo, Al Eugene Torres, Danilo H. Mojica
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OBJECTIVES

Provide technical assistance to various POs in Regions 4 and 6:

- perform an assessment of various POs in Regions 4 and 6;
- develop techno guides, modules, and IEC materials for production, post-harvest handling and processing, and marketing of coffee;
- conduct capacity building activities based on the needs of the POs;
- assist/facilitate accreditation of farms as Learning site for Agriculture/Farm business school/ Farm School and Farm tourism sites; and
- provide assistance on site assessment for suitability of coffee farm production



Project 5

Title of the Project	UPGRADING THE KNOWLEDGE MANAGEMENT SERVICES OF NCRDEC THRU SCIENTIFIC PUBLICATION OF THE PHILIPPINE COFFEE JOURNAL
Proposed Budget	PhP 852,816.00
Duration	2 years
Funding Scheme	ACDI/VOCA PhilCAFE Project
Classification / Thematic Area	Non-R&D/ Institution Development
Implementing Unit	NCRDEC, CvSU
Project Team	Project Leader : Al Eugene Torres Project Staff : Gerry Castillo & Miriam D. Baltazar



OBJECTIVES

Upgrade the knowledge management services of the NCRDEC thru scientific publication of the Philippine Coffee Journal

- perform an assessment of various POs in Regions 4 and 6;
- develop a website for the online submission of manuscript and online version of the journal;
- acquire an e-ISSN of the journal; and
- produce two printed and online publication issues.



Project 6

Title of the Project	UPGRADING OF THE NCRDEC COFFEE NURSERY
Proposed Budget	PhP 1,300,000.00
Duration	1 year
Funding Scheme	ACDI/VOCA PhilCAFE Project
Classification / Thematic Area	Non-R&D/ Institution Development
Implementing Unit	NCRDEC, CvSU
Project Team	Project Leader : Maowel A. Villanueva Project Staff : Danilo H. Mojica & Ric Karl Flores



OBJECTIVES

Upgrade the existing NCRDEC nursery facilities.

- evaluate the existing coffee nursery of the Center;
- design and improve the features of the existing coffee nursery;
- construct a state-of-the-art nursery; and
- prepare an operational plan of the coffee nursery



Project 7

Title of the Project	UPGRADING OF THE COFFEE PRODUCT DEVELOPMENT FACILITY AT THE NATIONAL COFFEE RESEARCH, DEVELOPMENT AND EXTENSION CENTER- CAVITE STATE UNIVERSITY (NCRDEC-CvSU)
Proposed Budget	PhP 5,000,000.00
Duration	1 year
Funding Scheme	DA- ACEF
Classification / Thematic Area	Non-R&D/ Institution Development
Implementing Unit	NCRDEC, CvSU
Project Team	Project Leader : GMCastillo Co-Project Leader : AELTorres



OBJECTIVES

To upgrade the existing coffee product facility of the NCRDEC

- convert the existing warehouse into an industry-compliant coffee product development facility;
- procure equipment/ tools needed for the operation of the facility;
- develop operational plan and sustainability plan of the facility;
- develop different coffee-based products and products out of coffee wastes in the established facility; and
- develop IEC materials for developed products and established facility.