

**Optimization of Sweetpotato Clean Planting Materials (SP-CPM)
Production in Central Luzon**



DOST Form 15
PROJECT TERMINAL REPORT

ABSTRACT

In Central Luzon, Philippines, the sweetpotato virus disease (SPVD) complex remains to be the major biotic constraint of sweetpotato production. The limited availability of clean planting materials contributes to significantly lowering of SP productivity because farmers usually opt to use virus-infected vines from the previous cropping season as planting materials. To address these gaps, the project is directed towards improving the production and availability of SP-CPM through adoption and optimization use of polyphasic approaches for a more reliable detection of the SP viruses in both field samples and plants generated through tissue culture method; as well as in monitoring the plants in the nethouse and multiplier farms including a regulation of the distribution of planting materials. The project conducted disease surveys in 15 major SP growing municipalities in Central Luzon and documented and identified the occurrence of 9 virus-like symptoms in SP. From the 217 symptomatic and asymptomatic SP samples tested for the presence of SP viruses, SPCV recorded the highest incidence with a 32.28% occurrence, followed by SPFMV (26.73%), SPCFV (25.81%), and SPC6 (21.66%). In terms of location, Zambales recorded the highest incidence of SPVD with 24% occurrence of the disease, followed by Tarlac with 18.69% incidence. Sweetpotato storage roots from healthy-looking plants with good agronomical characteristics were collected for the production of SP-CPM. Through thermotherapy, meristem cultures, and optimized serological and molecular disease indexing, 11 SP varieties have been successfully cleaned-up of SP viruses and micropropagated by tissue culture. A 100% gradual increase in the production capacity of the Tissue Culture laboratory was also recorded due to interventions of the project resulting to more than 50,000 micropropagated plantlets. Through improved horticultural practices, 16,579 plantlets were acclimatized and propagated in nethouses to produce more than 2 million of SP-CPM distributed to farmers. To help address the increasing demand of SP-CPM in the market, the planting areas for SP-CPM multiplier farms in Mayantoc, Tarlac has also increased from approximately 2 hectares in 2020 to a total of 9 hectares in 2021. The successful accreditation of the TAU SP Nursery and the Mayantoc SP-CPM Producers Cooperative SP Nursery by DA-BPI, along with the training provided to 90 farmers and more than a hundred farmer-adoptors, will also help strengthen the capacities of SP farmers and local institutions on SP-CPM production and in regulating the distribution of certified SP-CPM in Central Luzon.

TITLE PAGE

Program Title: NICER: Sweetpotato R&D Center
Project Title: Optimization of Sweetpotato Clean Planting Materials (SP-CPM) Production in Central Luzon
Coordinator/Leader: Lilibeth B. Laranang, Ph.D.
Implementing Agency: Tarlac Agricultural University
Funding Agency: DOST-GIA
Terminal Completion: March 31, 2022

SUMMARY SHEET

Program Title: NICER: Sweetpotato R&D Center
Project Title: Optimization of Sweetpotato Clean Planting Materials (SP-CPM) Production in Central Luzon
Project Leader: Lilibeth B. Laranang, Ph.D.
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Implementing Agency: Tarlac Agricultural University
Cooperating Agency/ies: LGUs of Tarlac, Zambales, and Bataan
Mayantoc SP-CPM Producers Cooperative
Sapang Multi-Purpose Cooperative
Actual Duration: October 1, 2019 – March 31, 2022
Source of Fund: DOST-GIA
Total Budget: Php 5,614,566.52

The NICER Program was started by the Department of Science and Technology (DOST) in 2017 with the goal of producing equitable research and development capabilities in each country area and enhancing regional research in higher education institutions (HEIs). With the help of the aforementioned facilities, the provinces of Pampanga, Tarlac, and Benguet will be able to dominate research and development for commodities like potatoes, sweet potatoes, and tamarind.

The director of the Rootcrops Research and Training Center at Tarlac Agricultural University (TAU), Dr. Lilibeth B. Laranang, will serve as the overall leader of the establishment of the Sweetpotato R&D Center. A sweet potato integrated crop management program will be developed by Dr. Laranang and her team, who will also optimize the manufacture of clean planting materials and produce spatial knowledge about sweet potatoes in Central Luzon. Clean planting's limited supply would be addressed by the aforementioned R&D Center.