



VSU RESEARCH QUARTERLY REPORT OF ACCOMPLISHMENT FORM

Detection, Inheritance and Expression of Pandan-aroma Gene(s) and Development of Aromatic Coconut Varieties (NCRC14-1420-16)

October 1, 2021 - December 31, 2021

1. Production of selfed (S1) AROD, VMAC1 x AROD and CÑO x AROD hybrid nuts
 - Conducted hybridization activities including: inflorescence emasculation, bagging pollen extraction, processing, monitoring, and data gathering
 - Pollen from sampled PDN palms with 100% pandan-aroma was used to pollinate VMAC1 to produce VMAC1 x AROD hybrids
 - Produced 6 matured VMAC1 x AROD nuts and 2 fertilized button set were
2. Determination of flowering behavior of F1 and AROD palms
 - Palm no. F1-6 started to flower 35 months (Nov. 2018-October 2021) after field-planting. Initial data on the flowering behavior of AROD and F1 (VMAC1 x AROD) palms including spathe emergence and opening, start and end of pollen dehiscence, start and end of stigmatic receptivity were recorded to determine the intraspadix overlapping of S1 and F1 genotypes.
3. Nut sampling of F2 (VMAC1 x AROD) nuts for the presence of pandan-aroma trait
 - Harvested 28 matured nuts for phenotypic evaluation
 - Determined 4 distinct phenotypic expression: NOR/NA (normal nut, non-aromatic), MAC/NA (makapuno, non-aromatic), NOR/A (normal nut, aromatic) and MAC/A (makapuno, aromatic)
 - Evaluated F1 nuts have phenotypic ratio of 19:5:2:2
 - Recorded 2 (7.14%) out of 74 nuts with observable expressions of both pandan-aroma and makapuno character. The F2 embryos were then inoculated, germinated, and maintained *in vitro*.
4. Embryo culture of F2 MAC/A (makapuno nut, aromatic) embryos
 - Inoculated 2 additional MAC/A F2 embryos
 - Aromatic normal nuts and non-aromatic makapuno were also inoculated
 - Maintained a total of 13 MAC/A F2 embryos *in vitro* to produce pure aromatic makapuno coconuts
5. Field planting and evaluation
 - Maintained the first produced embryo-cultured F2 (VMAC1 x AROD) seedling in the screenhouse for hardening prior to field-planting