

**EARLY DETECTION AND YIELD ASSESSMENT OF ANTHRACNOSE-  
TWISTER DISEASE OF GARLIC (*Allium sativum*, L.) USING  
GIS AND REMOTE SENSING TECHNOLOGY IN  
PANTABANGAN, NUEVA ECIJA**

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An Undergraduate Thesis Submitted to the Faculty of the Department of Crop Protection,  
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Science City of Munoz, Nueva Ecija, Philippines  
in Partial Fulfillment of the Requirements  
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**BACHELOR OF SCIENCE IN AGRICULTURE  
(Crop Protection – Plant Pathology)**


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**ACCEPTANCE SHEET**


This undergraduate thesis entitled "EARLY DETECTION AND YIELD ASSESSMENT OF ANTHRACNOSE-TWISTER DISEASE OF GARLIC (*Allium sativum*, L.) USING GIS AND REMOTE SENSING TECHNOLOGY IN PANTABANGAN, NUEVA ECIJA" prepared and submitted by ROMMEL KARLO R. DELA CRUZ, in partial fulfillment of the requirements for the degree of BACHELOR OF SCIENCE IN AGRICULTURE (CROP PROTECTION – Plant Pathology), is hereby accepted:

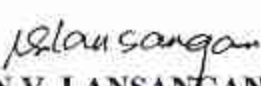
  
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## ABSTRACT

**DELA CRUZ, ROMMEL KARLO R.**, Department of Crop Protection, College of Agriculture, Central Luzon State University, Science City of Muñoz, Nueva Ecija, Philippines, **June 2019, EARLY DETECTION AND YIELD ASSESSMENT OF ANTHRACNOSE-TWISTER DISEASE OF GARLIC (*Allium sativum*, L.) USING GIS AND REMOTE SENSING TECHNOLOGY IN PANTABANGAN, NUEVA ECIA**<sup>1f</sup>

Adviser: RONALDO T. ALBERTO, Ph.D.

The study was conducted to detect and monitor Anthracnose-twister disease of garlic in the Province of Nueva Ecija with the use of Geographic Information System (GIS) and Remote Sensing Technology. Seven (7) Barangays of the Municipality of Pantabangan were identified as garlic growing sites. The surveillance started from January 2019 to April 2019. Garlic production areas were tracked using a handheld GPS while garlic twister infected sites were assessed for disease incidence and severity for the processing of geo-phytopathological maps.

The spectral measurement was proven to be effective in determining the twister infected garlic. Differences in the indices showed that highly infected leaves provide the highest reflectance while the healthy leaves produce the lowest reflectance due to the high presence of chlorophyll to absorb the radiance from the sunlight

Unmanned Aerial Vehicle (UAV) and Satellite images were also used in the study to produce geo-phytopathological maps. Image results showed that the quality of UAV acquired images are more applicable to use in small fields such as garlic areas observed in the study. The access to higher quality images are one of the advantages

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