

Development of High-Throughput Phenotyping System for Pods in Peanut (*A. hypogaea*)

N. GARRITY*, J. DUNNE, R. ANDRES, R. AUSTIN, D. JORDAN, Crop Science Department, North Carolina State University, Raleigh, NC 27695 and C. YENCHO, Horticulture Department, North Carolina State University, Raleigh, NC 27695.

We want to increase the speed and accuracy of peanut pod characterization by bringing the current grading system into the modern age. We plan on doing this by implementing modern computer vision techniques in the python coding language along with developing an imaging platform to take consistent high quality images for analysis. In the early stages of proving this concept we have used the packages OpenCV and PlantCV to prove that we can pick individual peanuts out of an image as well as extract their length, width and Hunter L score. Going forward a neural net will be trained (package yet to be determined) to increase the robustness of our object detection.

The data generated from this project will then go on to be used in a GWAS study to examine a population of 265 individuals in hopes of discovering a useable marker for peanut pod size.