

Peanut Variety and Quality Evaluation – 50 Years of Regional Testing

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The peanut breeding project at the North Carolina State University is responsible for the development of high yielding, high ELK and SELK, and disease resistant Virginia-type cultivars for the Virginia-Carolina (VC) region. The Peanut Variety and Quality Evaluation (PVQE) project is responsible for multi-state testing of the best breeding lines of the breeding project. Finally, the breeding project leader makes release decisions based on the PVQE data. The PVQE has provided multi-state variety testing for Virginia-type cultivar development for 50 years (1968 – 2018) (S-1059, S-1038, S-1003, S-140).

Among the priorities of the current S-1059 multi-state project, development of Virginia-type cultivars with the high oleic oil chemistry was determined as the most important for the VC region. Earlier research showed that high oleic peanuts have improved oxidative stability and longer shelf life than non-high oleic peanut. For example, roasted in shell peanuts with 50% oleic acid reached a Peroxide Value (PV) of 20 meq kg⁻¹ (as indication of oxidation) after only 2 wk of storage. However, the peanut with 80% oleic fatty acid did not reach 20 meq kg⁻¹ until after 40 wk of storage. In the VC region where edible peanut markets are predominant, replacement of normal-high oleic with high oleic cultivars was imperative.

As part of the S-1059 project, four high oleic and high yielding cultivars have been released, Sullivan, Wynne, Emery, and Bailey II, and certified seed is already available for commercial production for Sullivan and Wynne. The presentation will detail on some of the most important achievements of the NCSU breeding project and the PVQE.