

Physiological Components of Seed Quality in Peanut

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Using seeds with high quality is crucial for development of more vigorous seedlings with uniform growth and improved capacity to withstand adverse biotic and abiotic conditions as well as achieving desired plant density in peanut (*Arachis hypogaea* L.) production. Physiological seed quality consists of four components: germination, vigor, desiccation tolerance, and longevity. Maximum physiological quality is achieved when all four components reach their maximum potential during seed formation. This information has been reported for several crops; however, it is still lacking for peanut. The objective of this study was to develop the acquisition curve for the physiological components of seed quality in runner-type peanut. A two-year field study was conducted in 2020 and 2021 using the cultivar Georgia-06G. Plants were inverted when growing degree days reached 2500 for both fields, and maturity board profile was used to classify the peanut pods into the maturity classes. Water content, germination, vigor, desiccation tolerance, and longevity test were performed in the seeds. Germination and vigor reached maximum values between 'brown 1' and 'brown 2'. Maximum desiccation tolerance was observed in 'brown 2', and maximum longevity was achieved in 'black 2'. Examining all physiological components, peanut seeds achieved the maximum physiological quality during 'brown' class.