## Yield Loss and Grade Effects of Peanut Combine Speed Settings

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A research project was conducted to understand and quantify yield losses and grade associated with peanut combine harvesting. Research into this subject had not been previously reported to the extent of what was necessary for relevant results for current peanut producers. A primary objective was to quantify where peanut yield losses were most prevalent on a peanut harvester, header losses or tailings losses, by changing three key operational variables: ground speed, PTO speed, and header speed.

The study was conducted on commonly grown varieties for South Carolina producers, Virginia variety in 2018 and Runner variety in 2019. Tests were conducted on 4-row wide (3.86 m, 12.67 ft) plots that were 19.20 m (63 feet) in length, or 14.16 $m_2$ (798.2 $ft_2$) in area; yield data and grade samples were collected for each plot.

In 2018 we found that tailings losses increased by 156 kg/ha (140 lb/ac) per each 10 percent increase in PTO speed and in 2019 tailings losses increased by 64 kg/ha (58 lbs/ac). An optimal vine/material throughput of 20,082 lbs/hr was found in 2018 to produce the lowest tailings losses, though in 2019 there was no relation between tailings losses and material throughput. Header losses were determined to be insignificant for both research years in comparison to tailings losses. Knowledge of yield and grade effects of combine settings will assist growers in making economic decisions for peanut combine operation.