

## Residual Tankmix Options in Peanut

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Residual herbicides applied preemergence (PRE) are a key component of a successful peanut weed management program. Controlling weeds within the first 4-6 weeks after planting (WAP) to is critical to minimize yield loss due to weed competition. The objectives of this two-year study were to evaluate the efficacy of various residual herbicide, alone and in combination, to determine the best management options for weed control in peanut. Treatments included PRE combinations of Valor (flumioxazin) at 2 oz acre<sup>-1</sup>, Outlook (dimethenamid) at (12.8 fl oz acre<sup>-1</sup>), and Pursuit (imazethapyr). Pursuit was either applied PRE at 4 fl oz acre<sup>-1</sup> or as a split application PRE (2 fl oz acre<sup>-1</sup>) followed by At-Crack (AC) (2 fl oz acre<sup>-1</sup>). All treatments included Prowl H2O (32 fl oz acre<sup>-1</sup>) PRE, Gramoxone (16 fl oz acre<sup>-1</sup>) + Zidua (1.75 fl oz acre<sup>-1</sup>) + Agri-Dex (1% v/v) AC , Cobra (12.5 fl oz acre<sup>-1</sup>) + 2,4-DB (21 fl oz acre<sup>-1</sup>) + Agri-Dex (1% v/v) mid-postemergence (POST1), and Select Max (16 fl oz acre<sup>-1</sup>) + Agri-Dex (1% v/v) late postemergence (POST2). All treatments resulted in less than 10% peanut injury, except Pursuit applied PRE (4oz acre<sup>-1</sup>) in 2020. This treatment resulted in over 15% injury; however, peanut had recovered by mid-season. Season long Palmer amaranth control (>95%) was achieved in both years when Valor was applied in combination with Pursuit and/or Outlook. In 2020, early season control of Texas panicum was >95% with all treatments except Valor PRE. Late season control was at least 95% with all treatments, excluding Valor and Outlook alone PRE. Treatments that included Pursuit applied PRE and/or AC control Texas panicum at least 90% with the exception of Pursuit + Valor PRE or Pursuit + Valor + Outlook PRE. Yellow nutsedge control was at least 98% with all treatments season long, except Valor PRE, in 2020. While in 2021, Pursuit PRE, Pursuit PRE + AC alone or in combination with Outlook PRE, were the only treatments that resulted in at least 80% yellow nutsedge control late season. Season long control (at least 95%) of ivyleaf morningglory was achieved with all treatments except Outlook PRE, in 2020. However, the only treatments providing at least 90% control season long, in 2021, were Pursuit alone or plus Valor PRE and the combination of Valor + Outlook + Pursuit PRE + AC. The lack of differences in 2020 with both yellow nutsedge and ivyleaf morningglory may be due to lower populations of both species. A yield increase was observed with all treatments both years compared to the untreated check. This research solidifies the need for residual programs that include multiple modes of action. This is to both to improve multi-species weed control and reduce potential for herbicide resistance.