Phosphorus Fertility Management for Canola

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Research have found that phosphorus (P) deficiency in canola can result in poor root development, thin stems, narrow leaves, fewer and smaller branches, leaf drop earlier. P application in low P soils can increase yield and promote earlier maturity, but knowledge on how P sufficiency affect seed oil content is unclear. In addition, there is limited literature on P fertilizer recommendations based on soil test or crop removal. The objectives of this research were to (1) study winter and spring canola yield, quality, and economic response to P fertilizer in eastern Washington; (2) calibrate soil test P and establish critical soil test P level for eastern WA; (3) investigate the appropriate soil sampling depth and soil test method for the soil test calibration.

The two-year study was established in fall 2019 and 2020 for winter canola and spring 2020 and 2021 for spring canola on Washington State University Wilke Research and Extension Farm in Davenport, WA. The P management factors studied including rate (0, 20, 40, 60, 80 lbs/acre), timing (fall, split), and interaction with zinc (P fertilizer with/without zinc fertilizer). We will establish two on-farm small plot research with similar design in Pullman, WA in 2021. Soil samples were taken before and after P fertilization at 12 inch deep and each soil core was separated into 0-6 and 6-12 inch segments. Samples were tested for P using Olsen method. Plant samples were taken at major growth stages for measuring total P uptake. We will start analyzing data after harvest in fall 2021. The results will be presented to farmers via presentations at workshops and extension publications in 2022 and 2023.

Phosphorus fertility study trial for winter canola. Photo taken by Keith M. Curran on May 10, 2021

Companion Crops as a Method for Improving Winter Canola Stand Establishment and Winter Survival

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Companion cropping is the practice of cropping two different plant species near each other to benefit each other in some way. In production agriculture, companion cropping typically consists of a cash crop and one or more "companion" crops. The goal is that the companion crops will benefit the cash crop in some way. A cropping system of interest is using spring oats as a nurse crop for winter canola to provide better establishment and winter survival potential for the canola crop. This cropping system is especially of interest to growers with livestock as the oats can improve the feed value of the forage in a grazing situation. We established an experiment comparing monocrop canola to a canola-oat