



Wheatland Conservation Area Inc.

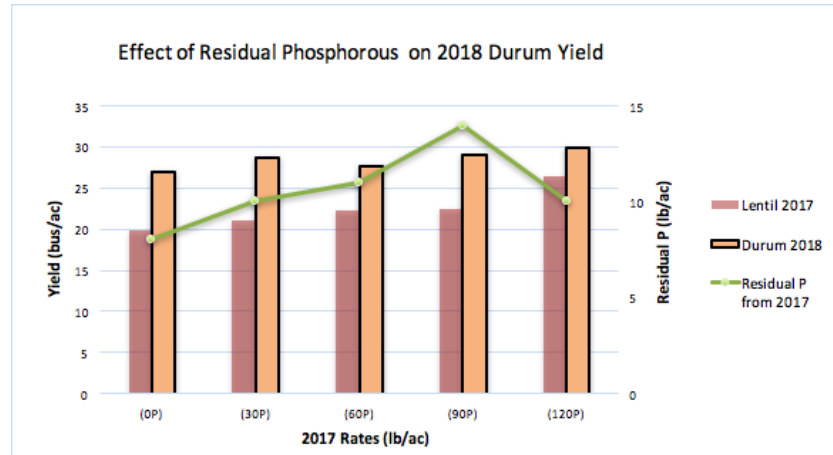
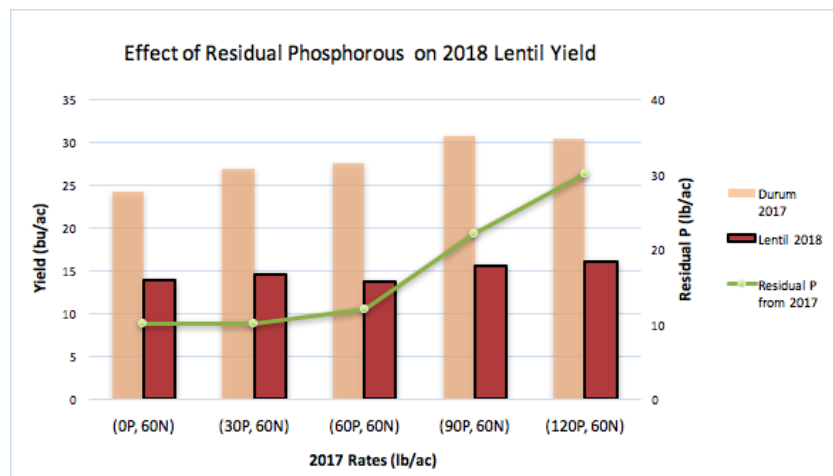
P.O. Box 2015, Swift Current, Saskatchewan. S9H 4M7
Ph. # (306) 773-4775

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Improving Phosphorus Management Techniques in Lentils

In 2017, a two-year trial was established in Swift Current to demonstrate how lentils respond to various rates of phosphorus applied at seeding versus similar rates of phosphorus applied in the preceding cereal year to observe if lentils can better utilize "old" phosphorus compared to seed applied. Producers may also benefit from applying phosphorus in the preceding cereal year since cereals are not as sensitive to seed placed phosphorus as lentils may be and can remain in the soil as residual P to be utilized the next year. Optimizing the use of a phosphorus management program over multiple years that considers the overall nutrients removed in the harvested crops can be useful to determine what is happening to the soil phosphorus reserves over the longer term in a rotation and prevent draw-down below a critical level. Both years of this trial experienced similar drought conditions over the growing season. However, in 2018 there was no excess carryover of soil moisture as observed in the spring of 2017.

The dry conditions in 2018 had a considerable effect resulting in lower recorded yields than seen in 2017. Overall, lentil emergence was delayed both years in many areas and remained behind normal development throughout the growing season. However, even with the very dry conditions lentils did show a significant response to increasing residual phosphorus. 2017 durum stubble that had applied 90P and 120P, yielded lentils at 15.55 bus/ac and 16.05 bus/ac respectively, significantly higher compared to the other three phosphorus rates. This demonstrates that we did observe additional, and potentially more readily available phosphorus in 2018 from the 2017 residual, as 2018 treatments translated to increased yields with a constant fertility applied. 2018 durum



yields increased with 2017 rates of 90P and 120P resulting in yields of up to 29 bus/ac, in line with the 2018 southwest provincial average. The significantly lowest durum yield, 26.9 bus/ac resulted from the 2017 0P check. This demonstrates that we did observe additional, and potentially more readily available phosphorus in 2018 from the 2017 residual, as yield did increase with 2017 phosphorus application.

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