

Nitrogen-fixing legume crops offer many rotational benefits in a cereal dominated crop rotation, and annual grain legumes have the potential to offer additional benefits related to their N-fixing capabilities. Production of grain legumes has increased in western Canada in recent years and there is a recent need to add faba bean in rotations around northwestern (NW) Saskatchewan. This is because optimizing crop rotations is always on the minds of producers when developing a seeding program and providing producers with additional cropping options only strengthens their rotation, and their economic bottom line.

With the introduction of Faba bean into the crop rotations in NW Saskatchewan in 2015 came along a wide recommendation of inoculant types, inoculant rates, and various combinations of each to optimize faba bean yield. However, the residual N benefits of faba bean stubble, and the various inoculant combinations, on succeeding wheat crop have not been established.

Therefore the intent of this study conducted at the AAFC Scott Research Farm in the 2016 growing season was to determine the effects of two faba bean varieties and different inoculant combinations and formulations on yield and yield components of succeeding wheat crop and to determine the most economical combination to producers.

Results showed that neither variety nor inoculants had significant effects on most of the measured parameters, more especially wheat yield (Figure 1a). The general trend in wheat yield on both stubbles was that, yields on stubble with granular inoculant components were consistently higher than those with no granular components. This may be due to the superiority of granular inoculants relative to competing formulations. Studies have found the proven effects of granular inoculant over seed-applied inoculant (Clayton et al., 2004; Kyei-Boahen et al., 2002).

However, there was a significant effect of variety on bushel weight, with FB9-4 recording significantly higher bushel weight than the snowdrop variety: 78.2 kg/hL vs. 77.9 kg/hL, respectively.

Despite the non-significant effects of the faba bean varieties and inoculants on wheat yield, faba bean can still offer rotational benefits, however slight, for the

subsequent cereal even if it is not used as a green manure but as a grain crop.

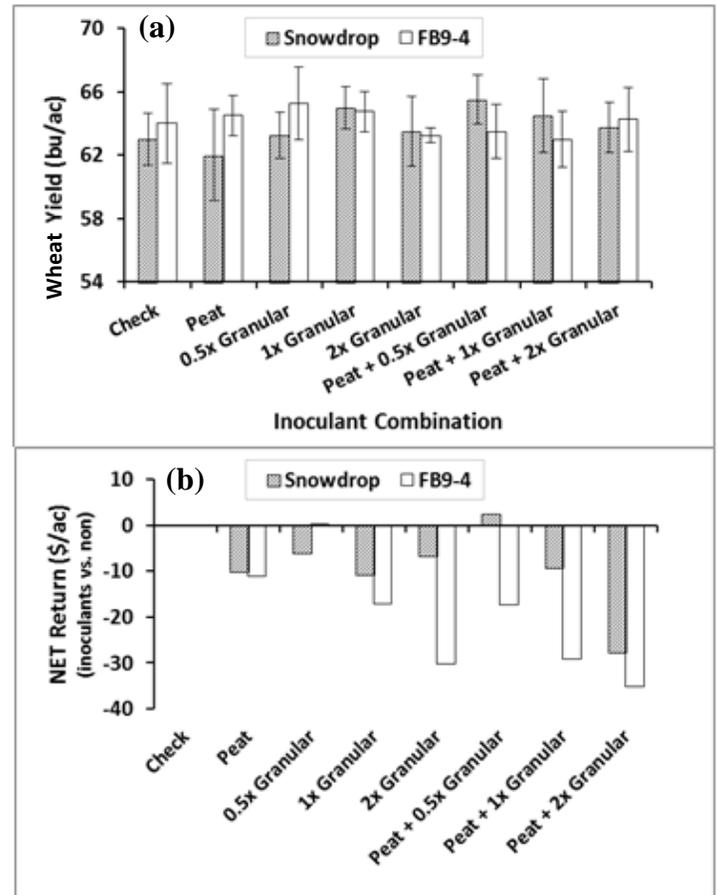


Figure 1: Effects of Faba bean varieties and inoculant combinations on wheat yield (a) and net economic return (b)

The net return of wheat was calculated as the difference between individual treatments and the check (no inoculants) (Figure 1b). The only net gain (\$ 2/acre) was in snowdrop with half rate of granular combined with recommended rate of peat inoculant (Figure 1b).

Economically, there was no advantage of using a different inoculant formulation (s) over the granular or even higher rates of granular inoculants. At best, farmers can stick to the recommended rate of granular inoculants at label rate for faba bean. Full report at: <http://www.westernappliedresearch.com/research/warc-annual-reports/2016/>. Project was supported by the Agricultural Demonstration of Practices and Technologies (ADOPT) initiative under the Canada-Saskatchewan Growing Forward 2 bi-lateral agreement.