Add a Little Alfalfa to the Crop Rotation

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With lower commodity prices and fertilizer prices trending higher, perennial legumes such as alfalfa may have an excellent place in cereal and oilseed crop rotations.

Alfalfa provides a key break in grain crop disease cycles through it's different growth habit. Annual crop diseases such as fusarium, aster yellows, scald, net blotch, blackleg and clubroot make growing annual crops a bit more of a challenge for cereal and oilseed growers. High grain and oilseed yield depend on healthy plants with low disease levels and, although high prices can make up for yield shortfalls, annual crop rotations are getting tight. A disease like blackleg can worsen in the second year, so instead of increasing the fight against crop diseases with pesticides, it makes sense to use forages for two-to-three years in an annual crop rotation.

Alfalfa's ability to capture nitrogen out of the air addresses the need for improving soil fertility. Inoculated legumes are able to capture nitrogen from the air through a symbiotic relationship with rhizobia bacteria. Nitrogen fixation amounts will vary with nodulation effectiveness, fertility, soil type, soil pH, moisture, length and warmth of growing season, etc. In as little as two to three years of perennial legume production, the maximum nitrogen capture can occur.

The nitrogen store produced by the legume is available to subsequent crops for a one- to three-year period. The timing and length of nitrogen release to the following annual crops is mainly based on the method of removal of the legume in the rotation, and the aggressiveness of land cultivations thereafter. Nitrogen is released more slowly and more effectively over a longer period if glyphosate is used to remove the legume and followed by a zero-till cropping system. The Manitoba Soil Fertility Guide (http://www.gov.mb.ca/agriculture/crops/soil-fertility/soil-fertility-guide/pubs/soil_fertility_guide.pdf) shows an N credit of up to 90 lbs in the first year after termination.

Work done by Dr. Martin Entz from the University of Manitoba has shown alfalfa creates soil benefits to annual crops following it in rotation for up to 10 years after an alfalfa removal. The reason for this is the ability for these crops to more easily explore soils in search of nutrients by using old alfalfa root channels. Other benefits are likely from improved soil organic matter and the root channels that improve soil moisture penetration.

With gross incomes being favorable in the grain industry for a prolonged period of time, it makes sense that there would be a movement to more of a grain monoculture in Canada and the US. Introducing a perennial legume in your cereal crop rotation may give favorable returns, allow for more profits in future grain crops and improve soil quality.

If forages don't fit into your marketing plan, trading or swapping fields with neighbours who have a need for alfalfa in their operation can be a good alternative.

Adapted from Add a Little Alfalfa to the Crop Rotation
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