

## Forage peas could be a promising alternative to summer fallow

*March 06, 2008*

Pea forage could be an economic alternative to summer fallow in no-till systems, say Montana State University researchers.

Recent research conducted by Dave Wichman of the Montana Agricultural Experiment Station's Central Agricultural Research Center, and Perry Miller and Rick Engel, Department of Land Resources and Environmental Sciences (LRES), indicated that pea forage management practices can affect both yield and quality of the forage and subsequent wheat crop.

In this study, wheat yields following pea were superior to wheat yields following hay barley at Amsterdam.

"This cropping sequence response has commonly been observed in Montana where wheat yields on pea stubble were intermediate between wheat yields following fallow and cereal stubble," said Miller.

At Amsterdam, wheat yields were not only affected by the previous crop, but also by forage harvest timing and nitrogen fertilizer rate, said Clain Jones, Extension soil fertility specialist in LRES. When forage was fertilized with a relatively low nitrogen fertilizer rate of 45 pounds of nitrogen per acre and harvested and terminated at first flower, wheat yields were 15 bushels per acre greater following winter pea than when wheat was similarly fertilized, harvested and terminated following hay barley.

On average, pea forage yield at first flower was 58 percent of the yield at the plump pod stage. In addition, harvesting early at first flower used 2.5 inches of soil water compared with 3.1 inches when forage harvest was delayed until the plump pod stage. Compared to spring pea, winter pea utilized about 0.8 inches less water.

In this study, wheat following winter pea forage consistently produced higher wheat grain protein, whereas wheat following barley forage consistently produced the lowest protein.

"Protein is higher following peas, because pea residue contributes more available nitrogen to the soil than barley residue," said Jones.

At the Central Ag Research Center at Moccasin, wheat yields were not affected by the previous forage treatment, and were the same as following the chemical fallow control.

"The differences between sites are likely due to Amsterdam's considerably deeper soil compared to the variably shallow soil at Moccasin," Miller said. The results confirmed that often there is not much of an advantage to following shallow soils, because shallow soils cannot store much water.

This study was funded by Montana's Fertilizer Check-off. Summaries of pea and barley forage studies may be found at <http://landresources.montana.edu/fertilizerfacts> (#51). Contact your local MSU Extension agent (<http://extn.msu.montana.edu/localoffices.asp>) or crop adviser for help with specific fertilizer decisions.