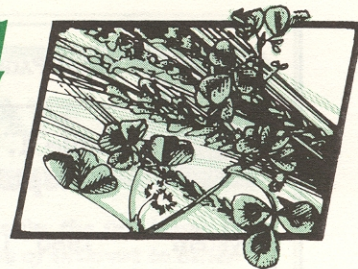


SUSTAINABLE FARMING

Quarterly



Vol. 4 No. 2 JULY 1992

CONSERVATION OPTIONS PAY DIVIDENDS TO UTAH GROWERS

By DAVID GRANATSTEIN, COORDINATOR OF THE SIX-STATE DRYLAND CEREAL/LEGUME PROJECT.

Utah State University researchers Phil Rasmussen and Bob Newhall have several projects under way to help dryland cereal farmers meet conservation compliance while maintaining or improving profits.

They are examining a range of practices, including no-till, continuous cropping, chemical fallow, and subsoiling, for comparison with a conventional wheat-fallow system.

In a study at Nephi, Utah, five different systems have been compared since 1985:

- ① No-till continuous spring wheat;
- ② No-till continuous winter wheat;
- ③ Spring chemical fallow and no-till winter wheat;
- ④ Fall ripping, chemical fallow, and no-till winter wheat, and
- ⑤ Conventional winter wheat-fallow.

The plots were fertilized, and the weeds were controlled using low-

rate technology. A chisel plow and disk were used for conventional tillage.

In the first two cycles, continuous cropping performed as well as the other systems (Table 1, page 2). But with several successive dry years, yields fell dramatically in 1989 and 1990. Yields with conventional wheat-fallow were generally lower than in the chemical fallow no-till systems. Fallow is an important stabilizing factor for yields in dry and variable climates. No-till

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Lentil Rotations Prove Themselves in Canadian Wheat Fields: More Protein, Organic Matter

REPRINTED FROM THE MAY ISSUE OF GRAINEWS, WINNIPEG, MANITOBA, CANADA. BY C.A. CAMPBELL, ROBERT P. ZENNER, FERNANDO SELLES, AND V.O. "BIX" BIEDERBECK OF THE SWIFT CURRENT, SASK., RESEARCH STATION.

Lentil, when grown in rotation with wheat, will not only increase grain protein of the wheat, but it can lead to improved soil organic matter quality. It also provides an effective alternative to the frequent summer fallowing practiced in the semi-arid prairie regions.

In a 12-year study, carried out in the Brown soil zone at Swift Current, Sask., wheat grown in a two-year rotation with lentil averaged one percentage point in protein greater than wheat

grown annually, while grain yields were the same. Both systems were fertilized based on soil tests each year.

The results showed that after about four or five years, the amount of available nitrogen (nitrates) in the rooting depth of wheat in rotation with lentils, increased compared to that under continuous wheat. As a result, after four or five years, the wheat-lentil rotation required and received less and less fertilizer nitrogen than the monoculture wheat system.

The larger amount of nitrates present in the root zone under the wheat-lentil rotation suggested that this system might

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