

CROPPING SYSTEMS STUDY

This study evaluates alternate methods of crop production in southwestern North Dakota.

The cropping systems compared include: (1) conventional fallow-crop, (2) chemical fallow-crop, (3) flexible cropping and (4) no-till cropping. The systems consist of:

1. Alternate fallow-crop where regular tillage operations are used during the fallow season.
2. Chemical fallow-crop where herbicides are used to control weed growth during the fallow season. Tillage will be used if necessary.
3. Flexible cropping where a crop will be grown each year based on moisture supply. If recharge of moisture is low, fallow will be introduced into the operation. If the soil contains 2 inches of available moisture at seeding time, a crop will be sown.
4. No-till cropping where a crop will be grown each year and be seeded directly into stubble using a no-till planter. Conventional tillage and/or fallow may be introduced if necessary.

The individual cropping systems will have fertility variable included each year based on soil test values and expected yield potentials based on stored soil water and expected growing season precipitation. These cropping systems will be compared and evaluated for a minimum of 5 years.

In 1980 the flexible series was fallowed because of inadequate soil water supply. Conventional fallow, eco-fallow no-till and continuous cropping were seeded to Coteau hard red spring wheat on May 1. Fargo-treflan tank mix was applied on May 2. Fertilizer application was as shown on the accompanying field plan. No-till and continuous cropping failed completely because of drought.

The higher yields recorded in 1981 reflect more favorable growing conditions than those of 1980, with severe frost on May 9 and high temperatures the first ten days in July being the principal factors limiting yield. Results for 1980 and 1981 are summarized in Table 35.

