

High Residue No-Till for Soil Moisture Conservation and Canola Establishment

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Current research at the Ralston Project (11 inch rainfall zone) is evaluating the use of tall cereal varieties for maximum biomass production, and harvest with a stripper header to create tall standing stubble, which is maintained during chemical fallow. When compared to cereal crops harvested with a conventional header, the high-residue fallow resulting from stripper header harvest influenced the microclimate at the soil surface by reducing soil temperatures and wind speeds, which resulted in increased seed-zone moisture retention. Maintenance of adequate seed-zone moisture with high surface residues may enable growers to plant winter canola at a convenient late summer planting date, rather than having to rely on early fall rains and/or cool postplant temperatures. More uniform soil moisture in chemical fallow appears to improve canola stand establishment compared to tilled fallow.

We established a uniform stand of no-till winter canola on 28 July 2013 in stripper header wheat and triticale stubble compared to conventionally planted winter canola into traditional summer fallow. Plants were in the large rosette stage (complete canopy cover, 16" row spacing) in the fall. Plants survived cold temperatures in December 2013; however, in February 2014 ambient air temperature reached -7 F, and with no snow cover to protect the plants, the winter canola planted in this trial did not survive. The plots have been replanted with spring barley, and will be harvested with the stripper header. This will provide another year of microclimate monitoring in stripper header stubble, and show if there is a difference in effect between high residue winter crops and lower residue spring crops.

New Long-Term Winter Triticale, Winter Canola, and Winter Pea Cropping Systems Study Initiated Near Ritzville

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A new long-term no-till cropping systems study was initiated in March 2014 at the Ron Jirava farm near Ritzville. The experiment includes four winter crops: winter triticale (WT), winter canola (WC), winter pea (WP), and winter wheat (WW). There are two 4-year crop rotations involving no-till summer fallow (NTF) that will be compared to the "check" treatment of the traditional 2-year WW-tilled summer fallow (TF) system.

Crop rotation treatments are:

WC-NTF-WT-NTF

WP-NTF-WT-NTF

WW-TF

The experimental design is a randomized complete block with four replicates. Individual plot size is 100 x 32 feet. Each phase of all rotation sequences is present each year for a total of 40 individual plots covering a total of 2.94 acres.

Winter canola will be planted with a Cross-slot drill sometime between late June to mid-July, depending on surface soil moisture conditions in the NTF and predicted air temperatures for the ensuing week (i.e., the cooler the predicted air temperatures, the better). The ongoing WC planting date experiment at this site will help to further define the optimum planting date (see related article on page 51). Fertilizer will be "stream jetted" on the surface in mid-October or later to help reduce excessive WC vegetative growth in the summer.

Winter pea will be planted deep into moisture with a deep-furrow drill into NTF during the first week of September (see related WP article on page 59). Winter pea has a large seed and is capable of emerging from deep planting depths under marginal seed-zone moisture conditions.