

Soil Cover by Crop Residue

Research Results



Soil Cover by Crop Residue

- ❖ **Soil coverage by crop residues is a very important factor in the soil health of soil-crop-animal production system. Residue coverage protect soil from wind and water erosion, conserves soil water, and insulates surface soil from rapid temperature changes.**
- ❖ **We have measured soil coverage just after seeding in the spring in our Crop Sequence Experiment. This is the point in the crop growth-and-death cycle at which soil coverage by residue is lowest.**

Alternate Crop after Winter Wheat

Soil Cover by Crop Residue

Spring 1999 after alternative crop in 1998 and winter wheat in 1997

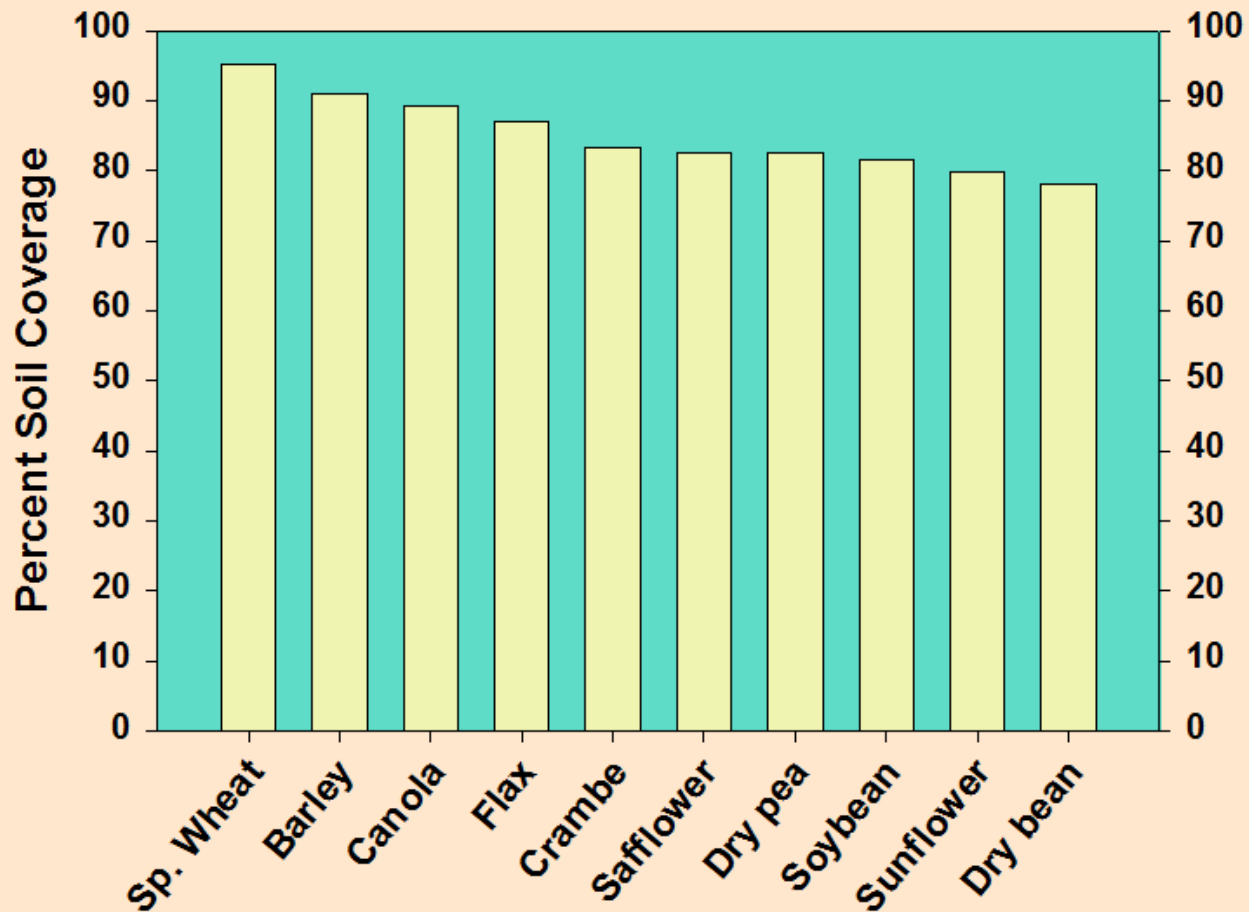


Fig. A. Percentage of soil cover by crop residues measured in May, 1999 by transect method in residues of the indicated alternative crops. Measurements were done after seeding spring wheat under no-till management.

Alternate Crop after Barley

Soil Cover by Crop Residue

Spring 2000 after alternative crop in 1999 and barley in 1998

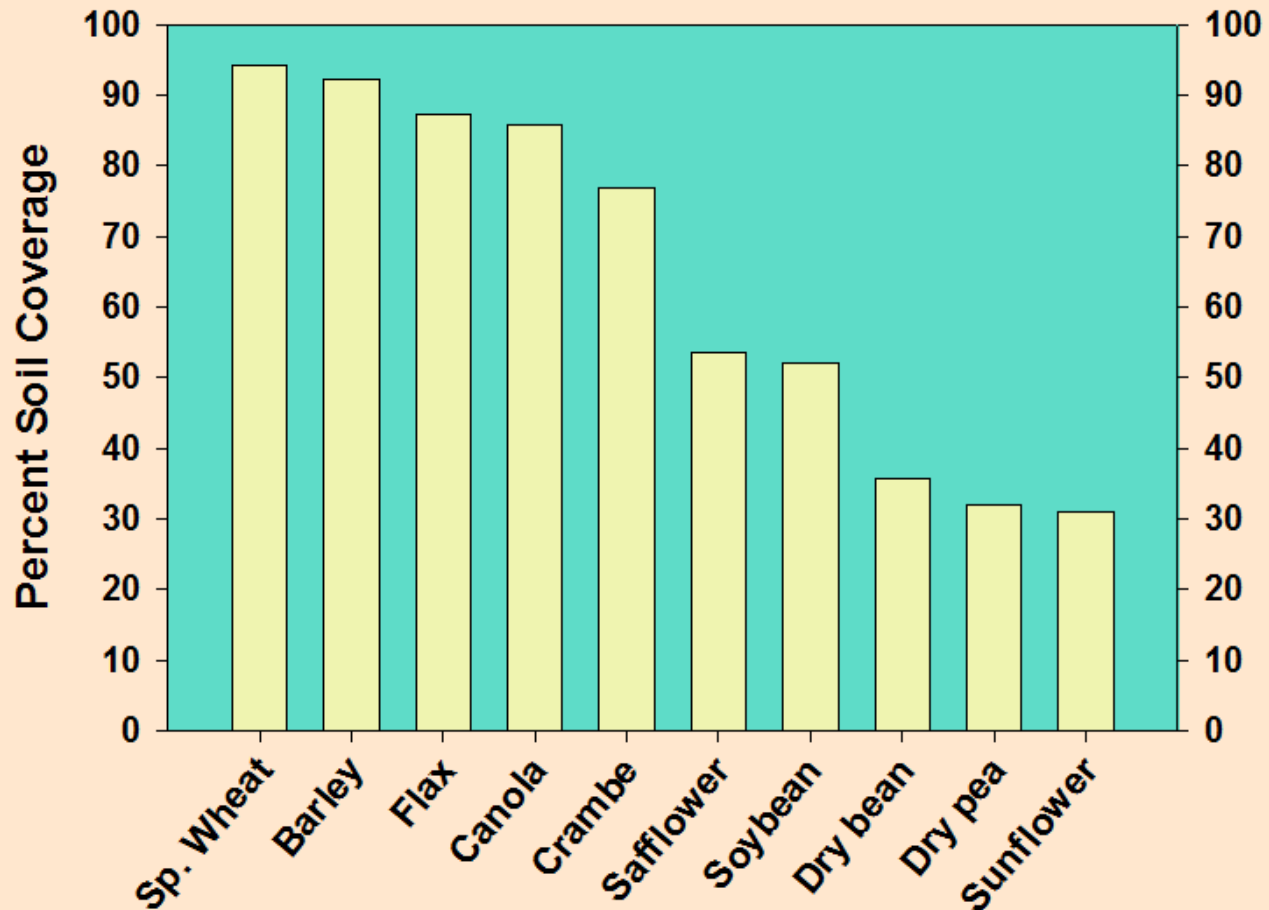


Fig. B. Percentage of soil cover by crop residues measured in May, 2000 by transect method in residues of the indicated alternative crops. Measurements were done after seeding spring wheat under no-till management.

Alternate Crop after Spring Wheat (2000)

Soil Cover by Crop Residue

Spring 2000 after alternative crop in 1999 and spring wheat in 1998

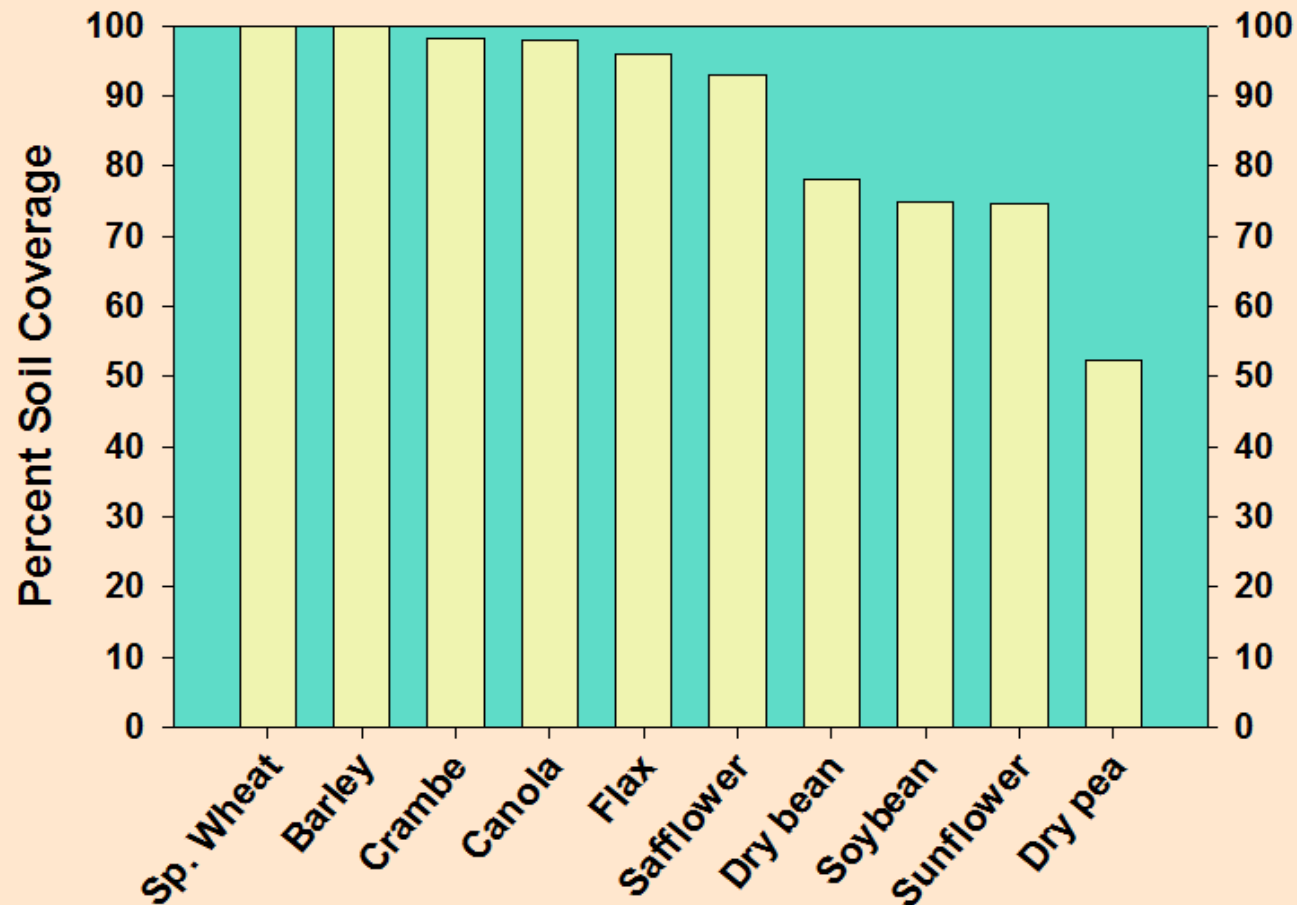


Fig. C. Percentage of soil cover by crop residues measured in May, 2000 by transect method in residues of the indicated alternative crops. Measurements were done after seeding spring wheat under no-till management.

Alternate Crop after Spring Wheat (2001)

Soil Cover by Crop Residue

Spring 2001 after alternative crop in 2000 and spring wheat in 1999

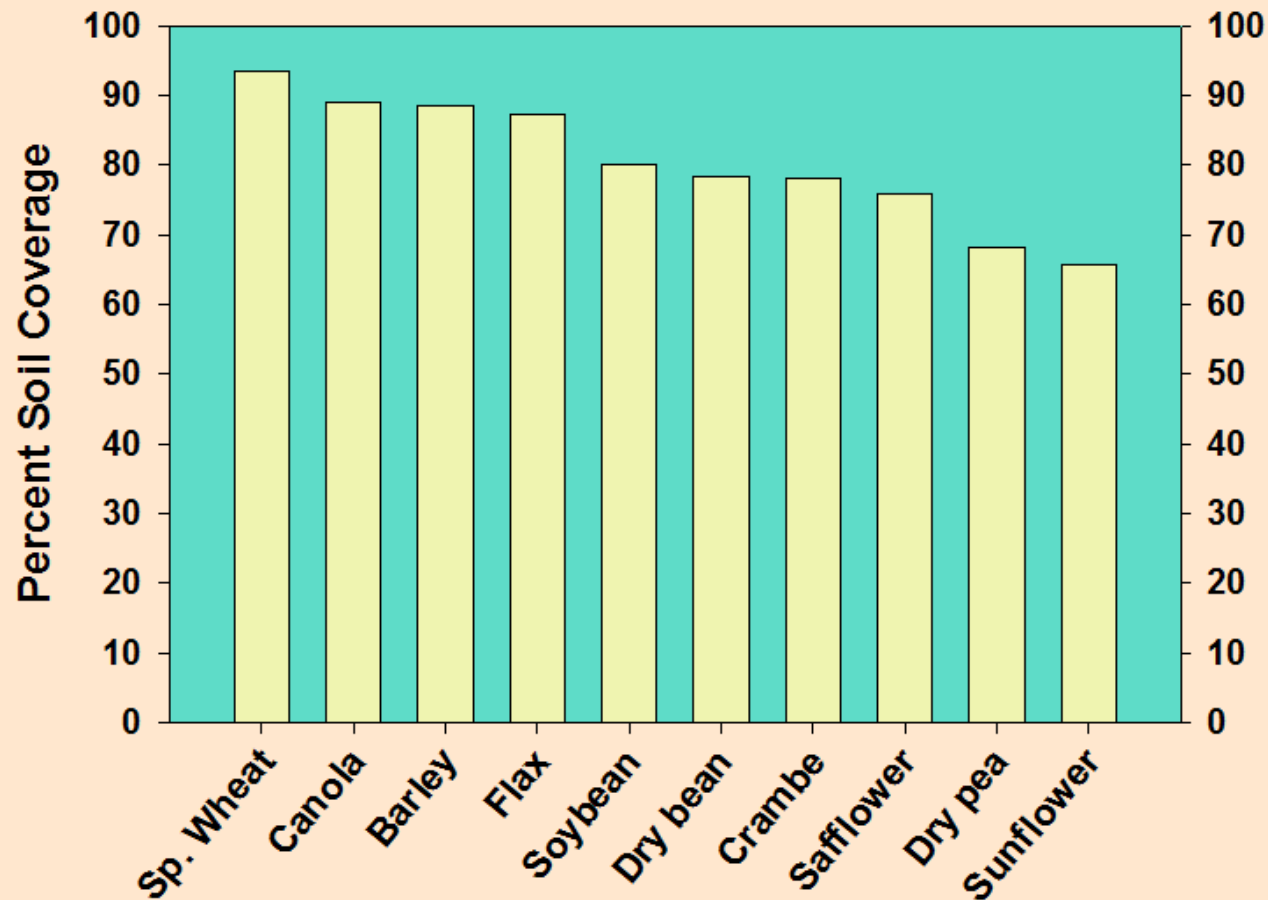


Fig. D. Percentage of soil cover by crop residues measured in May, 2001 by transect method in residues of the indicated alternative crops. Measurements were done after seeding spring wheat under no-till management.

Comparison

**Soil cover by crop residue measured in spring 2001:
crops on left were spring wheat - alternative crop in 1999 - 2000,
crops on right were alternative crop - alternative crop in 1999 - 2000.**

Crops that generate more fragile and less covering residues can result in relatively low levels of soil cover if such crops are grown back-to-back. Drought can and will make this worse.

SpWt = spring wheat
DrPe = dry pea
DrBn = dry bean
Saffl = safflower
Sunfl = sunflower

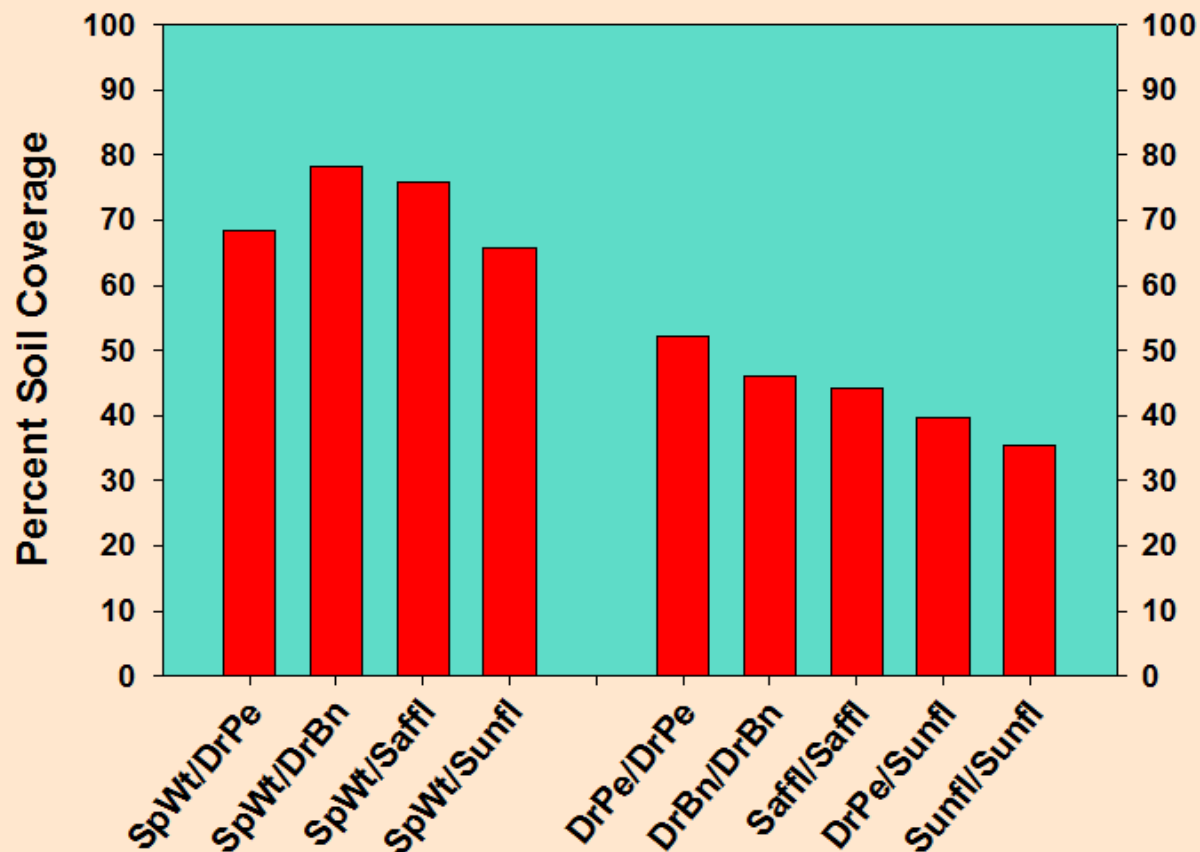


Fig. E. Percentage of soil cover by crop residues measured in May, 2001 by transect method in residues of the indicated alternative crops. Measurements were done after seeding spring wheat under no-till management.

About Our Soil Coverage Information

- ❖ *Crops that generate more fragile residues, in lesser amounts, can result in unacceptably low levels of soil cover if grown back-to-back, especially under conditions of drought.*
- ❖ **Much of our data has come from crop sequences of wheat or barley preceding alternative crops. This tends to cause higher soil cover levels than in cases of sequences in which the first crop generates lower amounts of covering-type residue, such as pulse crops or sunflower.**
- ❖ **For many crops, residue coverage levels under no-till management are relatively high every year. Our data shows that spring wheat, barley and flax are typically higher covering-residue crops.**
- ❖ **For certain crops, and sequences of crops, however, residue coverage can approach unsatisfactorily low levels. As our data indicates, the pulse crops, soybean, dry pea, and dry bean, and the oilseed, sunflower, fall in this category.**