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# FROM THE GROUND UP

## *Agronomy News*

### Crop Production with Limited Water



**During years with low water availability, a number of management adjustments are needed to best utilize available water for crop production.**

Recent near record snowfall in some areas of Colorado has greatly improved mountain snow pack conditions with NRCS SNOTEL sites reporting from 72 to 108 percent of average snow water equivalents, while other parts of the state have recently received much needed rain. These conditions in late March are certainly an improvement over our winter precipitation last year. However the other side of the water story is the record low reservoir levels, below average surface and subsoil moisture in many locations, and moderate to severe drought still lingering throughout Colorado. Adding to this water dilemma will

be the curtailed pumping of many alluvial wells along the S. Platte River, sold or leased water rights to municipalities, and decreasing well capacities on the High Plains and San Luis Valley. So, Colorado producers are most likely going to face another year of growing crops with less water. The articles in this issue are intended to provide information on a variety of topics that affect crop production during a drought. Hopefully, more snow will continue to improve our snow pack this spring and our skies will bring timely rains this summer. If not, information on farming with less water should be useful, and remain so as drought is certain to hit our state again.

## Stubble Management Effects on Available Soil Water in Dryland Cropping Systems (Continued)

dry conditions during April, May, and June (10-13% of the time), wheat yields increase by 1.7 bu/a for every inch of water stored in the soil. The kind of predictive relationship shown in Fig. 4 for wheat does not exist for corn, as dryland corn yield is much more determined by precipitation falling in July and August than by stored soil water. However, within a given year, corn yield does increase with increasing amount of stored soil

water. The rate of increase in yield with available soil water changes from year to year depending on timing of precipitation.

No matter what the crop is, producers should be encouraged to efficiently store precipitation with good stubble management methods. The better the stubble management, the higher the precipitation storage efficiencies and crop yields will be.

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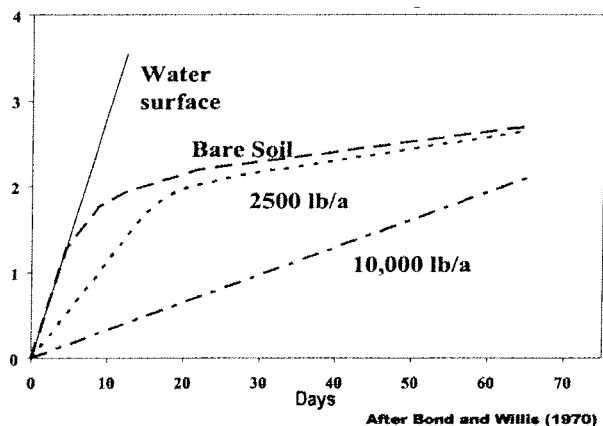


Figure 11. Wheat straw effect on evaporation

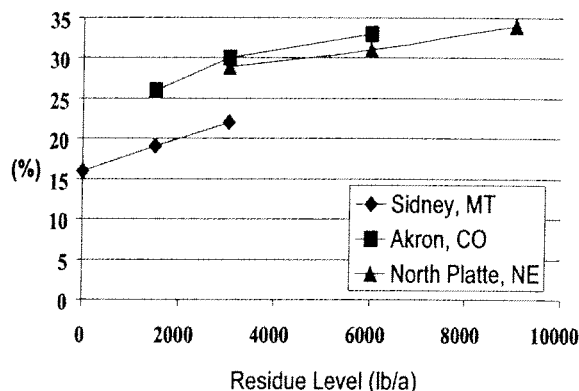


Figure 12. Precipitation storage efficiency

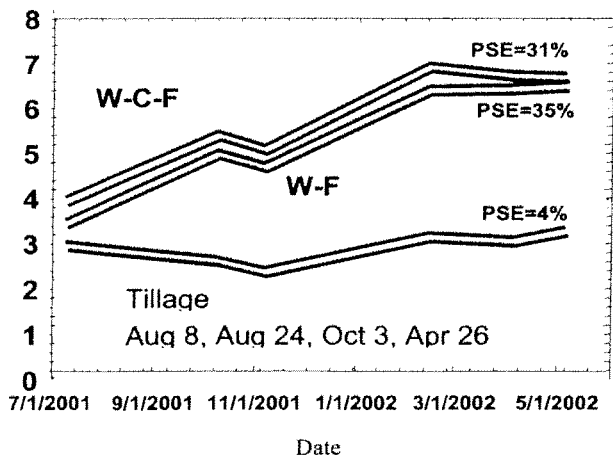


Figure 13. Precipitation storage following wheat harvest

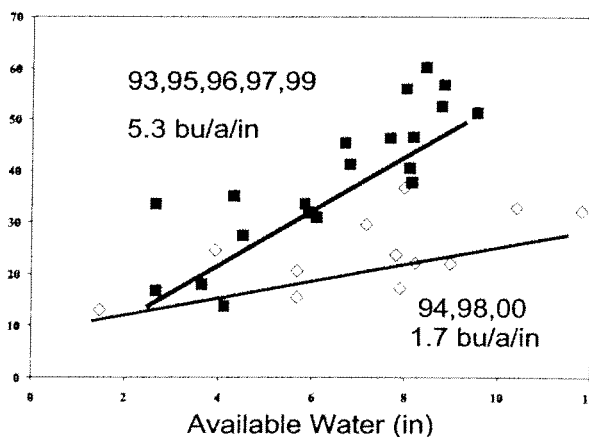


Figure 14. Wheat yield vs. starting soil water