All indications are that farmers will very likely have to cope with another hot and dry growing season in 2013.

This prospect is especially troubling to irrigators in the South Platte river basin where mountain snowpack is low, and likely to remain that way, and many reservoirs are still empty or near so. We all hope that the weathermen are wrong. In case they are right, here are cropping suggestions based on University research on limited irrigation corn production and farm experience.

Pay attention to weeds. Weeds compete for moisture, sunlight and soil nutrients with all crops including corn. Keeping weeds from robbing soil moisture is especially important at and prior to seeding. Fields having adequate soil moisture for germination, and early season growth can have much of it lost to early season weed growth.

Weeds growing the previous year in late summer and fall can also use up much of the late summer and fall rainfall moisture storage. As much as four inches of captured soil moisture can be lost to spring planted crops by not controlling weeds.

High crop residues have helped dryland producers increase their wheat and summer crop yields. Snow falling in wheat stubble and other standing crop residue can significantly enhance winter soil moisture capture and storage. Depending on the winter, many inches of moisture can be gained from snow falling in a field or capturing snow blowing from bare fields nearby. In addition, the old crop stubble cools soils and enhances soil capture of rainfall.

It’s too late this year to bring back crop residues that have been fall tilled, but planning for drought in future years may include high residue farming systems like strip tillage and ridge tillage.

These systems have the advantage over no-till in allowing some soil warming over the plant row. Some farmers can make these systems work on furrow irrigated fields, but their farming systems are more involved than can be covered here. These systems are very easy to use on sprinkler irrigated fields.

Corn farmers who face shortages of irrigation water supplies can optimize yields by withholding irrigations in the vegetative growth stage of corn development so that more can be applied at the critical corn reproductive growth stages.

In a seven-year limited irrigation continuous corn study, no irrigation was applied until corn had reached the fourth leaf growth stage even on the full irrigation treatment. A half inch was applied and an inch was applied at the eighth leaf stage on the driest treatment in a very dry year.

These irrigations were provided to get plants to the reproductive growth stage. Study yields, not reduced by hail or frost, averaged 191 bushels for the unlimited irrigation (15 inch) water treatment and varied from 183 to 212. Using only 10 inches of water, or five inches short the average, yield was 178 with a high of 205 and a low of 165 bushels per acre.

The five-inch irrigation treatment, 10 inches short, resulted in average 135, high 152 and low 115 bushels respectively. Finally, the study included a zero irrigation treatment, which resulted in an average of 76 bushels with a high of 90 and low of 60 bushels.

Managing corn with limited irrigation takes a change in one's whole cropping system. It also takes a change in one's ability or mindset that copes with managing risks. Traditionally, irrigators cope with crop water risks by overwatering so that crop water stress never or rarely occurs.

Dryland farmers in the western high plains learned early to cope with drought risks that are frequent and sometimes intense. They've developed cropping systems to cope with drought. If and when limited irrigation becomes common or the normal, many irrigators will develop their own systems to cope with these risks.

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