



# Corn Condition and Response to the 1998 Drought in the Texas High Plains

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Regardless of rainfall and temperatures for the rest of the growing season, 1998 will long be remembered by corn farmers as one of the driest and hottest summers on record. All things considered, as of July 1, most of the corn crop appears to be in reasonably good condition due to several factors. First, farmers in recent years have realized the importance of matching the number of acres of corn they plant to their irrigation capacity. Generally this is around 5.5 gallons per minute per acre or 2 inches of water per acre each week. Second, adoption of the use of irrigation systems that are very efficient in delivering water to the crop. And finally, in most areas excellent deep soil moisture was present at planting.

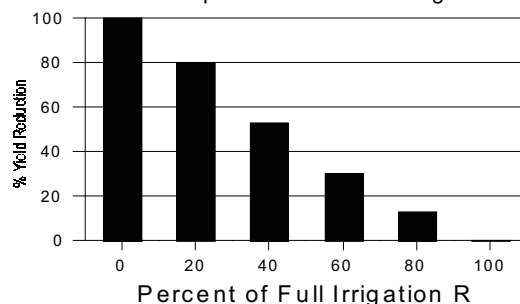
However we are now entering into the most critical growth period for the corn crop. This period is usually defined as two weeks prior to tasseling to the blister stage of the corn. Because of the high water demand of the crop during this time, we usually want to have the soil profile full of water by July 1. However, because of recent drought conditions and high temperatures experienced in May and June, a full profile of water has been very difficult to achieve for most corn farmers. The result is that the crop will likely suffer from water stress during the next three weeks even under the most optimistic weather conditions. Research has shown that yield reduction of 25% can occur if corn is stressed due to lack of adequate water during the tasseling stage and as much as 50% during silking, pollination, and early grain fill. The effect on yield will be minimized by whatever soil moisture is available from rainfall and irrigation, even if it is not sufficient to fully meet the needs of the crop.

Some producers are considering abandoning a portion of their corn acres in order to concentrate their water on less

acres. This option should only be considered for those producers who have less than 5 gallons of water per minute per acre available to their crop and who have depleted their deep soil moisture supply. Producers in the Dalhart area may get by on less water due to less ET demand on the crop in this area of the Panhandle. For most producers too much money has been spent on the crop at this point to abandon acres. Abandoned acres would likely not make any grain if not at least partially irrigated during the next 3 weeks. By at least partially meeting the water demand of the crop some grain will be produced on all of the acres. When looking at historical records, there is no correlation of rainfall amounts that occur in May and June to that which occurs in July and August. In other words — don't give up yet, we still may get some help from Mother Nature.

In 1994, rainfall was less than two-thirds of normal for the months of May and June. In addition, June was exceptionally hot. In that year, when irrigation amount was reduced to 80% compared to fully irrigated corn, yield was reduced 13%. When irrigation was reduced to 60% of the crops need, yield was reduced 30%. Unfortunately, if rainfall does not begin to occur soon much of the areas corn will not receive more than 70% the water needed to produce optimum yields. Considering that last year the area produced over 160 million bushels of corn, at \$2.60 a bushel the impact on the area could easily reach \$100 million.

1994 Corn Response to Deficit Irrigation



The final impact of this year's drought and high temperatures cannot be predicted at this time. Clearly yields have already been effected, but to what degree will largely be determined by weather conditions that occur during the next two to four weeks.

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