



Management Strategies for Corn and Sorghum during Times of Drought

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Before planting corn or sorghum in areas that are experiencing drought, producers should assess how much soil moisture they have in their soil profile along with considering precipitation forecast for the upcoming growing season. If irrigation is an option, know your irrigation capacity and then only plant the number of acres that can be conservatively supplied with the needed water. For example, if corn is to be planted during a prolonged drought, plant only the number of acres that will allow you to deliver at least 5.5 GPM per acre or 2 inches per acre in a week. Corn reaches its maximum water use requirement during and just prior to tasseling through grain fill and can easily require 0.4 inches of water per day during that time.

| Seasonal Irrigation Capacity | | | | |
|-------------------------------------|-----------------|--------------------|-----------------|------------------------|
| | GPM/Acre | Inches/Week | Inch/Day | Inches/100 Days |
| Sorghum | 3.5 | 1.3 | 0.18 | 18.6 |
| Sorghum | 4.0 | 2.5 | 0.21 | 21.2 |
| Sorghum/Corn | 4.5 | 1.67 | 0.24 | 23.9 |
| Corn | 5.0 | 1.85 | 0.27 | 26.5 |
| Corn | 5.5 | 2.0 | 0.29 | 29.2 |
| Corn | 6.0 | 2.25 | 0.32 | 31.8 |

If soil conditions are dry, and precipitation forecast are dismal, producers should keep in mind that grain sorghum is more drought tolerant than corn. Also, it takes more water to produce grain than a forage crop. In order to minimize risk it may be wise to consider growing forage sorghum for hay or silage in place of a grain crop. Also, during periods of drought hay shortages are often present providing a good market for hay.

If the decision is made to produce a grain crop, management strategies should be altered to minimize risk. Variety selection, planting date, fertilizer rates, seeding rates, and weed control strategies may all need to be altered. Discuss with your seed dealer or Extension agent which varieties are most drought tolerant. Generally this will be shorter maturing varieties. With sorghum, not only should length of maturity and drought tolerance be considered, but also try to find a variety that produces fewer tillers. These strategies tend to shift more of the available water into producing grain rather than vegetation. Yield potential will not be as high, but the risk of producing little or no grain will be minimized.

Since potential yield will be reduced during a drought, fertilizer rates should be reduced. As a general rule of thumb fertilizer rates should be reduced 25% from what is normally applied. Also consider applying no more than one-third of the needed N fertilizer preplant. The rest of the N can be applied as a side-dress application 30 days after emergence. Only apply the side-dress application if the prospect for producing grain is good.

Planting date should be flexible. Do not plant corn or sorghum in dry soil unless you are confident that rainfall is eminent. Wait as long as possible for some precipitation to wet the soil where the seed will be placed. Be prepared to plant immediately following the precipitation event.

Weeds that are drought stressed will be more difficult to control. For this reason using a pre-emergence herbicide is usually the best option. However, pre-emergence herbicides will require rainfall to move them into the soil or must be mechanically incorporated. If no rainfall occurs within six days after applying the herbicide consider incorporating with a rolling cultivator or harrow. Try not to incorporate the herbicide more than 2 inches. If post emergence herbicides must be used, treat weeds when they are small (less than 3 inches) and are easier to control.

It is very important that seeding rate of corn and sorghum be reduced when experiencing drought conditions. Reduce seeding rate at least 25% from normal rates. Also consider using a skip row pattern of only planting every-other-row or a two-in one-out arrangement. This will tend to allow the crop to better utilize any available water that may be present in the soil.

Finally, keep in mind that some insects such as spider mites in corn and diseases such as mycotoxins are more prevalent under drought conditions. These problems are addressed in other publications. Also, following harvest, tillage operations should be kept to a minimum in order to maximize precipitation storage in the soil for next year's crop.