

Grain Sorghum Irrigation

Termination

As the crop approaches physiological maturity, a decision on when to stop irrigating has to be made. **The goal is to maintain adequate soil moisture until the grain sorghum reaches physiological maturity.** This ensures that the kernels can obtain their maximum weight so the crop's full yield potential will be achieved. The decision is best made toward the end of the season by a field determination of the maturity of the crop and the soil moisture status. An initial consideration is how many days it has been since planting. If it has been 90 days since planting, then it may be within 3 weeks of maturity and a field check should be made.

The soil moisture situation at hard dough development can be used to help determine when irrigation can be ended. **The general recommendation is to maintain good soil moisture up to the point that the milo heads are at 50 percent hard dough.** This can be determined by the heads being 50 percent colored, which indicates the hard dough formation. If there is 50 percent color (hard dough) and good soil moisture exists from a recent surface irrigation or rain, then irrigation can be terminated. However, if the soil is becoming dry at this point, then additional irrigation is needed to assure maximum seed weight and yield. A final irrigation at this stage should be as quick a flush as possible with flood (levee), border or furrow irrigation. **If the grain sorghum is irrigated with a center pivot, then it is recommended that the color (hard dough) development be at 75 percent with good soil moisture before stopping irrigation.**

Table 3-1. Potential Yield Reduction From Moisture Stress at Different Growth Stages of Grain Sorghum	
Growth Stage	% Yield Reduction
Emergence to 8 leaf stage	10-15
Boot to bloom	30-50
Soft dough to maturity	10-20

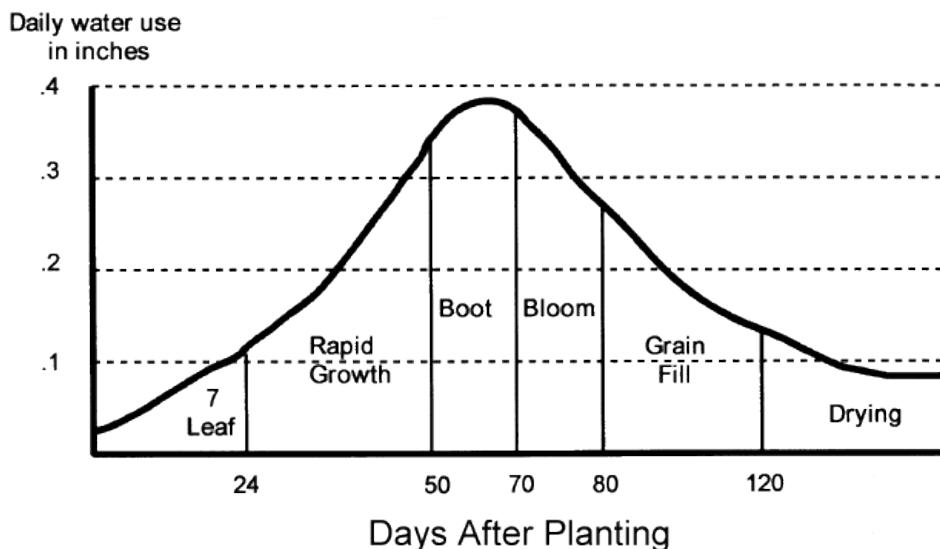
Table 3-2. Estimated Grain Sorghum Water Use in Arkansas	
Days after planting	Inches per day
0-30 (early plant growth)	0.05-0.10
30-60 (rapid plant growth)	0.10-0.25
60-80 (boot and bloom)	0.25-0.30
80-120 (grain fill to maturity)	0.25-0.10

Table 3-3. Allowable Deficits – Grain Sorghum

Predominant Soil	Flood, Furrow or Border Irrigation (Inches)	Pivot Irrigation (Inches)
Clay	2.5	2
Silt Loam w/pan	2	1.5
Silt Loam wo/pan	3	2.5
Sandy Loam	2.5	2
Sandy	2	1.5

w/pan – restrictive layer at 10 inches or less below soil surface

wo/pan – without shallow restrictive layer



University of Arkansas Grain Sorghum Handbook

<http://www.uaex.edu/publications/pdf/mp297/MP297.pdf>