

Sorghum Testing

GERMINATION TESTING

Sorghum is a warm season crop which prefers media moisture to be on the “dry side” for germination testing. At 3–4 days (Figure 1.), a high percentage of normal seedlings may exist, often 80% or higher. Final counts usually end up in the 85–93% germination range. Abnormal seedlings often exist, 3–4% due to lack of root or shoot growth (Figure 2.). Dead seed percentages are commonly 2–3% with an occasional seed colonized by *Alternaria* species (Figure 3). *Alternaria* is a fungus which colonizes seed coats under high humidity environments or field weathering conditions discoloring the seed and if severe enough, can invade and cause death of embryos. Sorghum is commonly tested at 20–30°C so growth can be rapid with seedling shoot length reaching 4–5 inches within 7 days (Figure 4).

SEED DORMANCY

Freshly harvested sorghum and some millets may possess a short-term primary dormancy which requires after-ripening treatments or storage time. Storage or moving air through the seed will help moisture equilibration between the embryo and endosperm and/or lower embryo moisture resulting in germination of primary dormant seeds. Certain millet species respond to prechilling or use of Gibberellic acid (500ppm) or 0.2% KNO₃ solutions as media moistening agents. Prechilling sorghum seed acts like a cold vigor test and often reduces normal germination percentages, hence is not a recommended practice.

VIGOR TESTING

Sorghum vigor is best evaluated using the tray cold test similar to the corn cold test with imbibition of 10°C water and testing for 7 days at 10°C followed by 4 days at 25°C (Figure 5).



FIGURE 1. Sorghum growth at 3–4 days on paper at 20–30°C

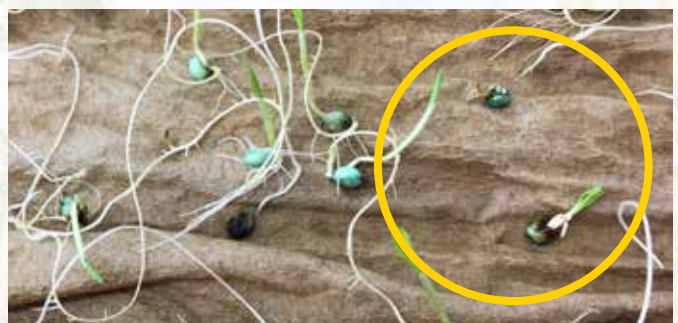


FIGURE 2. Stunted shoot and insufficient root growth in sorghum seed



FIGURE 3. Sorghum seed colonized with gray fungus, likely *Alternaria* mycelium (*Alternaria* spp.)



FIGURE 4. Sorghum growth after 7 days at 20–30°C



FIGURE 5. Sorghum seedlings emergence at 11 days in a Tray Cold Test