CHEMICAL SEED TREATMENTS FOR SORGHUMS

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The sorghums, because of their superior drought resistance, are of growing importance in the southern part of the Great Plains area where corn often is unreliable. The irregular stand caused by poor germination, however, is often a limiting factor in obtaining optimum yields of sorghum.

Several factors are responsible for poor germination, some environmental, others inherent in the seed itself. Low temperatures and a cold wet seedbed are almost certain to reduce the germination of most varieties, and may cause almost complete failure of some. A seedbed which is hard, dry, or otherwise in poor tilth also creates a risk of irregular germination and uneven crop growth, although a fair stand may result if rains follow planting.

Sorghum varieties differ in their ability to withstand the effects of a period unfavorable for germination under field conditions. This difference may be due in part to the seed coat structure. If the seed coats of feterita, hegari, and kaoliang are examined under the microscope, there is revealed a thick starchy layer, the mesocarp, measuring from 70 to 80 microns in thickness. In the seeds of kafir and milo the thickness of this layer is from 35 to 45 microns, while in Red Amber sorgo and broomcorn it is only about 10 microns. The degree of thickness of the starchy mesoderm seems to have some relationship to the rate at which sorghum seeds can absorb water, as feterita absorbs about 45% more water in a two-hour period than does either Red Amber sorgo or Blackhull kafir. The hypodermal and epidermal layers of the pericarp, lying directly above the mesoderm, differ in thickness, texture, and luster in different sorghums. Those of feterita are thin and chalky and about 15 microns in thickness, while those of kafir, milo, and many of the sorgos are hard and glossy, and approximately 45 microns in thickness.

It has been noted repeatedly under field conditions that sorghums like feteritas, hegari, and kaoliangs often germinate with difficulty when cold wet weather immediately follows seeding, that somewhat less difficulty is experienced with the kafirs and milos, whereas Red

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