

MEASURING COTTONSEED MOISTURE WITH THE KARL FISCHER TITRATOR

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Abstract

Procedures for determining moisture in cottonseed with the Karl Fischer titrator were delineated and used as a reference method against which oven procedures were compared. Acid delinted Stoneville 825 seed of approximately 8, 12, and 15% moisture were evaluated.

A minimal 36-hour soaking time of ground seed in methanol was needed for total extraction of moisture for titration with the Karl Fisher. Screen mesh size used to grind the seed did not influence moisture extraction.

The currently recommended drying procedure of 103°C and 17 ± 1 hours (1) for moisture determination with the oven was found to underestimate seed moisture significantly when compared to the Karl Fischer titrator. However, a drying time of 120 minutes at 130°C resulted in moisture levels equivalent to those of the Karl Fischer titrator with all but the 8% seed moisture samples. No significant difference was found in determining moisture from either intact or ground seed. It appears that different initial seed moisture may require different drying times. We do, however, recognize the impracticality of that approach and, therefore, recommend that when the oven is used to determine moisture in cottonseed, a temperature of 130°C be used in combination with a drying time of two hours with either intact or ground seed.

References

1. International Seed Testing Association. 1993. International Rules for Seed Testing. Seed Sci. Technol. 21:229-231.