Report of Committee to Develop a Method for Color Comparison of Cottonseed Meal

By R. K. BRODIE, *Chairman*

AFTER numerous attempts to compare cottonseed meal with the color card, the method described as "Method II," below, was decided upon as most satisfactory for comparison, *in situ.*

Due to particles of hull present in the meal, it was the general opinion that a method of rotating the meal and color standard should prove more satisfactory. With this in mind, a rotation disc was prepared with a central depression for meal, the color disc and meal both being covered with a thin sheet of glass.

The disc was found unsatisfactory for three reasons:

a. Difficulty in obtaining a balanced outfit for speeds of 2000 R.P.M.

b. Changing meal samples was slow and unsatisfactory.

c. Too much reflection from the glass cover.

The cup method described as Method I is not as satisfactory as the disc from the standpoint of having only a small surface for observation; but it is easily constructed, balanced, and can be readily cleaned. We believe the rotating cup method will be necessary for relatively few samples, and may even be dispensed with entirely if the color standard can be made to resemble meal more closely.

The Committee realizes that color comparison with the standard is not always readily carried out, due to failure to match in chrome, etc., and that this comparison can be made easier by fine grinding of the meal. On the other hand, very fine grinding in the laboratory for grading purposes would seem to favor poor grinding by the producer. For this reason, the Committee has specified the minimum fineness for cake samples which will give reasonably concordant results.

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Color Standards: As described in Interstate Cottonseed Crushers' Association Rule No. 102.

Method of Comparison:

All comparisons should be made upon a neutral gray background. Gray photographic mounting board is convenient for this purpose.

Method I.

a. Meal

This involvs the use of a rotat-

ing comparator of the following description:

"The instrument consists of a two-inch section of two-inch heavy walled clear glass tubing (Pyrex recommended, but oil cup glass will do), mounted on a vertical motor driven shaft which can be rotated at 2000 to 3000 R.P.M. The whole instrument is painted a neutral gray, and is mounted in front of a gray background in good daylight, free from shadows."

The glass cylinder should be half filled with the meal to be graded, and leveled off in order that good balance will be obtained when the cylinder is rotated. A strip of the color standard, seven inches by one inch, should be fitted inside the cylinder above the meal, color side out. It should lie in close contact with the glass; the inner surface of the cylinder being completely covered by the meal and the standard. The cylinder should now be rotated and observed from a position about five feet distant, and not more than one foot above or below the level of the cylinder, a position chosen which will give as much freedom from high-lights and shadows as possible.

b. *Cake*

A representative portion of the cake to be graded should be ground so that 85 per cent will pass a 20-mesh screen, and 75 per cent thru 30-mesh. Portions of sample used for screen test should not be used for color comparison. The ground sample should be graded as for meal.

Note: Any samples of meal containing coarse particles should be ground to the standard for cake, and this fact should be stated in the report.

Method II.

a. *Meal*

The meal to be graded should be placed in the center of a gray sheet or board at least eight inches squared; it should be flattened out to make a level circle about three or four inches across, and a clean, one-inch square of the color standard laid on the center of the meal. The meal and standard, lying in a horizontal plane, should then be observed, in good daylight, from a position directly above them and at least 36 inches distant. For making close decisions, it is best to lay the board on the floor and observe it from a standing position directly above. To be graded "prime," the meal must be as light or a lighter shade than the standard. If darker, it must be graded "off" in color.

b. *Cake*

Grind cake as for Method I, and grade as for meal, above.

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