

Changes made in existing methods were the following: (1) the method for grinding cottonseed cake for determination of color was modified, (2) some inconsistencies with regard to designation of standard solutions were corrected in the method for free fatty acids, (3) some changes in temperature designations and color limits were made in the refining methods, (4) the language

describing the FAC color standards was changed to conform with the new composition of the standards, (5) several minor changes were made in the soap methods, particularly in the rosin determination, (6) the method for volatile hydrocarbons in soap was deleted as inadequate and was replaced by a method proposed by the Procter & Gamble laboratories, and (7) some methods

for screen test of powdered soap products were added.

The attention of the committee was directed to an inconsistency in the description of the pellet size for the fat pellet in the Wiley Melting point determination. This will be corrected in the forthcoming revisions.

W. H. Irwin, Chairman.

REPORT OF COMMITTEE ON REVIEW OF SCIENTIFIC LITERATURE ON OILS AND FATS

The report on the third Annual Review of Scientific Literature on Fats and Oils has already appeared in two sections in the March and April numbers of OIL AND SOAP. We believe this report speaks for itself and is entirely too lengthy to be read at one of the regular meet-

ings of the Oil Chemists' Society.

The Committee wishes to acknowledge the work of Mr. M. M. Piskur, Chemical Librarian for Swift & Company. The value of this report, we believe, lies primarily in the thoroughness in which it covers the literature. It is this feature

that the Committee particularly wants to credit to Mr. Piskur.

G. R. Greenbank

G. S. Jamieson

H. A. Mattill

R. C. Newton, Chairman.

SEED ANALYSIS COMMITTEE REPORT

THE work of the Seed Analysis Committee this season was a continuation of that done last year and has been confined entirely to a study of the fuming and preparation of the cotton seed sample. The question of the lint determination, on which a very brief preliminary report was made last year, is being studied by the Crude Mills Committee and is subject to their report.

Before taking up the details of the investigation, it was thought some interest might be felt in a comparison showing the number of tests outside of tolerance on the 1936-37 Check Seed Series with that of 1935-36:

Season	No. of Coll.	Oil	Amm.	F.F.A.	Mois.	Total
1936-37.....	39	106	83	61	56	306
1935-36.....	40	114	94	74	35	317

This comparison shows clearly that there has been no general improvement in the efficiency of the group, and also that the oil determination (apparently one of the simplest tests) has a very considerably higher percentage of error than any other. The number of tests out

of tolerance this season varied from 22 on Sample No. 6 to 41 on Sample No. 7, with no evidence that any unusual quality of the sample, such as high or low percentage of moisture or other component or off-quality, had any influence in either decreasing or increasing the number of errors.

It will be remembered that the report of this Committee last year recommended a further study of the fuming procedure as a possible cause of variation in oil results. In order to check this possibility the present fuming temperature was checked against both higher and lower ones, holding other variables the same. The results of these tests showed

that a very slight increase in temperature (5°-10° C.) gave definitely "off" results and a high degree of charring of the lint. The present temperature, with careful handling and the avoidance of lint discoloration, was satisfactory. Temperatures considerably lower than now

used gave completely satisfactory results, entirely eliminated lint charring, but carried the penalty of an increased "fluffiness" or "lintiness" of the sample. The conclusion was reached that while with careful handling under favorable conditions, the present temperature is satisfactory, it is too close to the upper limit of the fuming range to be safe and could be the source of error, especially in routine work where oven loads and sample types are so varied.

In order to check the agreement between results obtained by the present method and one using a lower temperature, Check Sample No. 3 was sent to all collaborators. The results as reported showed identical values for both oil and ammonia with about a 36% reduction in the number of errors for the Special Method. The members of the Committee also determined the remainder of the Check Series by both methods and found the average oil and ammonia values to be identical by either. No particular reduction in the number of errors was noted on this series; however, the degree of error was less using a lower temperature.

Charring or lint discoloration (the most important objection to the pres-

ent method) is an indication that the effect of heat and acid has been severe to the point that there is the possibility that some of the non-fatty materials present may be broken down and rendered ether soluble. This condition is caused primarily either by too high fuming temperature or by a high initial temperature so that the acid is vaporized too quickly and achieves the same result. A simple reduction in temperature, therefore, unless carried too far for practical purposes, is not the entire solution. There should also be, in any alteration of the present method, provision for a gradual increase in the temperature of the fuming oven. This would most easily be achieved by ventilating the oven before charging it.

With the use of reduced temperatures, the condition of the lint on the seed becomes an important factor. If due to maximum load or other reason, the oven heat is not great enough to cause the action of the acid to be complete, the lint fibres will still retain some strength and the resultant sample will be "linty" or "fluffy." Such a sample

cannot be successfully mixed by present methods; this objection, in fact, was the principal one against the experimental method as originally presented. If, however, a mixing procedure was at hand that would eliminate this objection and allow the use of the safer, lower fuming temperature, it would be of value. The Committee has therefore worked on an alternate mixing procedure to be used at the discretion of the operator but which the majority of the Committee feels to be superior at all times. This suggestion embodies the unoriginal idea of using a small 4-inch straight-sided iron mortar and pestle. The pestle is inverted and used with a minimum of pressure and a rotary motion so that the sample is forced up the sides of the container; thus primarily a mixing rather than a crushing action is achieved, but one which still completely finishes breaking down the lint and also, to a great extent, any fine meat particles. With but little practice it is believed a much improved sample will be produced with a considerable saving in time and energy for the operator.

The Seed Analysis Committee, therefore, makes the following recommendations:

1. That the description of the fuming procedure be changed as follows:

"Place the dried seed in the pot, cover and place in the fuming oven previously opened and ventilated for at least five to ten minutes, and fume for one hour. The oven temperature should gradually rise to but not exceed 115° C."

2. That the following mixing method be added as an alternate:

"Place the sample in an ordinary small straight-sided iron mortar of about 4 inch inside depth. Using the pestle in an inverted position to avoid a crushing action, mix the sample lightly but thoroughly, using a stirring or rotary movement. Brush out the mortar after each sample."

3. That a satisfactory type of fuming pot, properly described, be substituted for the present stipulated flower pot.

Chairman,
Seed Analysis Committee.

REPORT OF THE SMALLEY FOUNDATION COMMITTEE OF THE AMERICAN OIL CHEMISTS' SOCIETY 1936-1937

WE are presenting herewith the 19th report of the Smalley Foundation Committee of the American Oil Chemists' Society. During these past nineteen years considerable progress has been made in the accuracy of the determination of oil and ammonia on cottonseed meal. According to our rules, the cup, which represents the best results in both oil and ammonia determinations, must be won by a collaborator three times before it becomes his permanent possession. This has occurred on two occasions heretofore, the first cup having been won by Dr. H. B. Battle. This cup was presented by the Industrial Chemical Sales Corporation. The second cup, which was presented by Dr. Battle, was won by Dr. W. F. Hand, and he immediately replaced the cup by a third, which now stands as the trophy for the third and last year.

We are pleased to report that the Southwestern Laboratories of Dal-

las, Texas, of which Mr. N. C. Hamner is President, have the highest score in oil and ammonia for this season. They have had this honor on two previous occasions and thus are entitled to the permanent possession of the cup.

As usual, thirty samples of cottonseed meal were distributed to the collaborators. Although the results are on the same high plane as of preceding years, they are somewhat lower than they were a year ago. However, the differences in percentage of perfection are so small as to be almost negligible.

There are attached to this report four tables, indicating the standing in percentage of the members taking part. Table No. I gives the standing of 49 collaborators who reported oil determinations on all samples. Table No. II gives the standing of 58 collaborators who reported ammonia results on all samples. Table No. III gives the standing of 49 collaborators who reported oil

and ammonia on all samples. In these tables we have taken into consideration the results of those reports which were received within the time specified in our original announcement of the Smalley Foundation work. In table No. IV we have given the standing of those collaborators who reported on all samples, but some of whose reports were received too late to be included under the rules.

The winning collaborators are as follows:

The "Mississippi State Chemical Laboratory Cup" for the highest efficiency in the determination of both oil and ammonia on all samples is awarded to Analyst No. 18, Mr. N. C. Hamner, Southwestern Laboratories, Dallas, Texas, with an average of 99.944 per cent. The average efficiency is lower than that of last year, which was 99.953 per cent. There was a virtual tie for second place. The certificate goes to analysts No. 25 and 29, the Armour