# Report of the Smalley Committee, 1953-1954

FOLLOWING the custom established several years ago, the reports of the five subcommittees will represent the complete report of the Smalley Committee. More than 3,200 samples were distributed and the results tabulated during the year. Each year your chairman has been able to report a greater scope and growth of this important phase of the Society's activities. This year a series of glycerine check samples were distributed. We hope that interest in this phase will continue.

While all members of the committee and subcommittees have been most cooperative and effective and the chairman expresses his thanks for their support and guidance, there are certain individuals and organizations who deserve special note. The American Oil Chemists' Society and the fat and oil industry are especially indebted to the following:

G. Conner Henry, T. C. Law, and Law and Company for the preparation and distribution of the Meal and Seed samples.

J. P. Hewlett, L. J. Roman, S. J. Rini, and the HumKo Company for the preparation and distribution of the Vegetable Oil samples.

K. H. Fink and the Lookout Oil Refining Company, a Division of Armour and Company, for the preparation and distribution of the Tallow and Grease samples.

W. D. Pohle of Swift and Company for inaugurating and handling the Glycerine program.

B. N. Rockwood of Swift and Company for tabulating the Tallow and Grease reports and calculating the grades.

F. R. Earle for tabulating and mailing the Soybean Oil results.

A. S. Richardson for tabulating and mailing the Cottonseed Oil results.

R. T. Doughtie for tabulating, grading, and mailing the Oil Seed results and for his kind aid and counsel to all concerned with the Smalley program.

R. A. Decker of Armour and Company for calculating the grades on the Vegetable Oils.

Your chairman has had excellent committee support. A detailed report has been mailed to all of the collaborators.

SMALLEY COMMITTEE
R. W. BATES, chairman

---

### Subcommittee on Oil Seed Meal

We present herewith the 36th report of the subcommittee on Oil Seed Meal. This year 15 samples were sent to 113 collaborators. The samples were distributed to 27 states, 5 Canadian provinces, and 2 South American countries. Over 70% of the collaborators reported all results on all samples.

A graph has been prepared, showing the number of collaborators (based upon the percentage of the total) who were within the recognized tolerance of the median. The general average of all samples was also calculated, and the values for the past six seasons were given for the comparison. The results this year were comparable to those of the past, slightly over 50% being within the tolerance in each of the three categories.

Sample No. 10 was an extracted soybean meal, and the moisture results were very poor. Sample No. 7 was a split sample. One half of the collaborators received a reserve portion of No. 2 and one half a reserve portion of No. 4. The two portions were strategically distributed, both from a geographical, organizational, and personal view-point. We are happy to report that the circumstantial evidence of collusion was less than 1%.

In selecting those deserving awards, the usual rules were followed:

1. When ties occurred for first place, no second place awards were given. Second place was given honorable mention.
2. Honorable mention was normally given those in third place.
3. When ties occurred on moisture, the grades were recalculated and those not receiving certificates were given honorable mention.

The collaborators with the highest grades this season were:

1. *On Oil and Nitrogen.* The American Oil Chemists' Cup for the highest proficiency in the determination of oil and nitrogen was awarded to M. A. Clark (#39) of the Hartsville Oil Mill, Hartsville, S. C., with a grade of 99.984%. Mr. Clark also won the cup in 1947-48. The new cup this year has been purchased and donated to the Society by P. D. Cretien (last year's winner) of Dallas, Tex.

A tie existed for second place, *viz.*: E. R. Hahn (#1), Hahn Laboratory, Columbia, S. C., and R. L. Pope (#19), Pope Testing Laboratory, Dallas, Tex., with a grade of 99.978%. Honorable mention was given to D. B. McIsaac of the Kershaw Oil Mill, Kershaw, S C., with a grade of 99.975%.

2. *On Oil.* Highest in the determination of oil was D. B. McIsaac (#29) with a perfect grade of 100%. Second highest was M. A. Clark (#39) with a grade of 99.988%.

Honorable mention was given to the following, all with a grade of 99.975%:

E. R. Hahn (#1), Hahn Laboratory, Columbia, S. C.

R. L. Pope (#19), Pope Testing Laboratory, Dallas, Tex.

G. W. Agee (#23), Barrow-Agee Laboratory, Memphis, Tenn.

G. R. Thompson (#34), Southern Cotton Oil Company, Savannah, Ga.

J. R. Simpson (#41), Woodson-Tenent Laboratory, Cairo, Ill.

H. L. Hutton (#42), Woodson-Tenent Laboratory, Clarksdale, Miss.

A. C. Summers (#45), state chemist, Columbia, S. C.

3. *On Nitrogen.* Three were tied for first place in the determination of nitrogen, with a grade of 99.980%: E. R. Hahn (#1); M. A. Clark (#39); and R. L. Pope (#19).

Honorable mention was given to H. L. Hutton (#42), Woodson-Tenent Laboratory, Clarksdale, Miss.

4. *On Moisture.* The highest award on moisture went to P. D. Cretien (#2), Texas Testing Laboratory, Dallas, Tex., with a grade of 99.917%.

A tie existed for second place between Biffle Owen (#30), Planters Manufacturing Company, Clarksdale, Miss., and G. R. Thompson (#34), Southern Cotton Oil Company, Savannah, Ga., with a grade of 99.833%.

Honorable mention was given to these, all with a grade of 99.833%:

H. M. Bulbrook (#33), Industrial Laboratories, Fort Worth, Tex.

D. C. Picard (#15), Picard Testing Laboratory, Birmingham, Ala.

J. Ridlehuber (#35), Western Cotton Oil Company, Abilene, Tex.

A. C. Summers (#45), state chemist, Columbia, S. C.

5. *Special Award.* A special award was given to A. G. Thompson Jr., Southern Cotton Oil Company, Columbia, S. C. Mr. Thompson's record (on 12 samples) was equal to the winners in all categories, but because of a serious illness he could not complete the series. The award read for proficiency in the determination of oil, nitrogen, and moisture.

R. W. BARTLETT
BIFFLE OWEN
R. T. DOUGHTIE JR.
O. E. WILKENS
T. L. RETTGER
T. C. LAW
P. D. CRETIEN
R. W. BATES, chairman

## Subcommittee on Oilseeds

The Subcommittee on Oilseeds conducted three series of check samples during the 1953-54 season, covering cottonseed, soybeans, and peanuts. There were 50 collaborators on the cottonseed series of 10 samples, 26 collaborators on the soybean series of 10 samples, and 15 collaborators on the peanut series of 7 samples. Certificates for proficiency were awarded to the following chemists for making the highest grades on the different series of check samples:

*Cottonseed:*

First place (tie), W. N. Kesler, Woodson-Tenent Laboratory, Little Rock, Ark., and T. L. Rettger, Buckeye Cotton Oil Company, Memphis, Tenn., with grades of 99.88%.

Second place, T. C. Law, Law and Company, Atlanta, Ga., with a grade of 99.64%.

Honorable mention, Duane Tilson, Texas Testing Laboratory, Lubbock, Tex., and Biffle Owen, Planters Manufacturing Co., Clarksdale, Miss., with grades of 99.04%.

*Soybeans:*

First place, Biffle Owen, Planters Manufacturing Company, Clarksdale, Miss., with a grade of 100.0%.

Second place, E. H. Tenent, Woodson-Tenent Laboratory, Memphis, Tenn., with a grade of 99.70%.

Honorable mention, T. C. Law and W. N. Kesler with grades of 98.8%.

*Peanuts:*

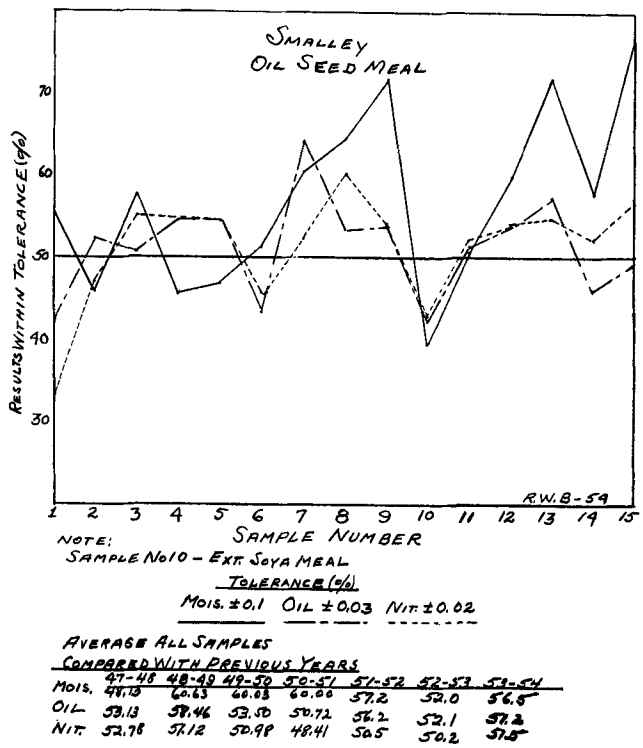
First place, T. C. Law with a final grade of 99.92%.

Second place, C. L. Manning, Fort Worth Laboratories, with a grade of 99.44%.

Honorable mention, Stephen Prevost, Law and Company, Wilmington, N. C., with a grade of 99.12%.

In addition to the above, a certificate on cottonseed was awarded to A. G. Thompson Jr., Southern Cotton Oil Company, Columbia, S. C. On samples Nos. 1 through 9 Mr. Thompson had a perfect score with a final grade of 100.0%. He was unable to complete the series due to having to undergo a serious operation on his right eye. As a result, his laboratory was closed and he was confined to the hospital. We are glad to report that at this time Mr. Thompson is showing steady improvement and hopes to be able to resume his laboratory work in the near future. Under the circumstances the committee felt that recognition should be given Mr. Thompson for his excellent showing on the 9 samples reported.

A total of 39 collaborators subscribed to an additional set of the cottonseed check samples for the determination of residual linters on cottonseed. The results of these determinations were not included in the calculation of the final grades on the regular




check cottonseed series. However it is anticipated that linters results will be included in final grades on future series of cottonseed. Results reported by these collaborators showed considerable improvement as the series progressed. These results also indicated definite need for improvement of the present method of analysis for determination of residual linters. Recommendations for an improved and more specific method of analysis is to be made by the Seed and Meal Analysis Committee in the near future.

G. CONNER HENRY
W. T. COLEMAN
E. R. HAHN
R. T. DOUGHTIE JR., chairman

## Subcommittee on Crude Vegetable Oils

Six samples of crude vegetable oil were distributed to 95 collaborators. Three were cottonseed, and three were soybean oil. Over 75% of the collaborators reported on all samples. This figure compares with 58% last year, which indicates a commendable increase in interest in the work.

The grades on the cottonseed oil were based upon free fatty acid, refining loss, and refined color. The bleached color was also reported, but the collaborators were not graded on this test. In the case of settlement color, where both the Lovibond and spectrophotometric results were used, an average deduction was made.

The grades on the soybean oils were based upon the free fatty acid, refining loss, and bleached color. This year, for the first time, each collaborator was asked to list his settlement result.

The average grades of those reporting all tests on all samples were: cottonseed 93.1%; soybean 94.0%; both oils 93.5%. Average grade on both oils last year was 87.5%. Four collaborators had perfect scores, and each received a certificate of proficiency.

W. F. Beedle (#8), Geo. W. Gooch Laboratories, Los Angeles, Cal.

James J. Ganucheau (#25), Southern Cotton Oil Company, New Orleans, La.

J. S. Sandifer (#69), Swift and Company, Fort Worth, Tex.

W. Stewart (#73), Swift and Company, Atlanta, Ga.

Honorable mention was awarded to the collaborator having the second highest grade this year, H. L. Arrington (#4), Procter and Gamble Manufacturing Co., Portsmouth, Va.

R. A. DECKER
F. R. EARLE
J. R. MAYS
A. S. RICHARDSON
S. J. RINI
J. P. HEWLETT, chairman

### Subcommittee on Glycerine

Two glycerine samples were distributed during the year. One was a C. P. product, and the other was a crude. The C. P. product was analyzed for specific gravity, glycerol (Method Ea 6-51), and moisture (Ea 8-50). The crude product was analyzed for ash, alkalinity, salt, total residue at 160°C., organic residue at 160°C., glycerol (Method Ea 4-38), and glycerol (Method Ea 6-51).

This was the first year for the glycerine series, and 24 collaborators signed up for the work. Nineteen reported their results. The calculated standard deviations on the test were:

*C. P. Glycerine*

| | |
|---|---|
| Glycerol (Ea 6-51) | 0.47 |
| Sp. Gr. (Ea 7-51) | 0.0003 |
| Moisture (Ea 8-51) | 0.26 |

*Soap Lye Crude*

| | |
|---|---|
| Ash | 0.29 |
| Total alkalinity | 0.08 |
| Salt | 0.21 |
| Total residue | 0.76 |
| Organic residue | 0.67 |
| Glycerol (Ea 4-38) | 0.47 |
| Glycerol (Ea 6-51) | 0.57 |

The detailed report mailed by your chairman also showed the following:

1. Free alkalinity, combined alkalinity, and carbonate as reported by five laboratories on the crude sample.
2. Glycerol by the dichromate method (Ea 5-38) on both samples as reported by 10 laboratories.
3. A questionnaire to the collaborators as to their interest in a similar program next season and to get their ideas on the number and type of samples desired. This will aid in future planning.
4. The standard deviations on samples distributed in 1952 and 1953 for comparison with those this year (1952-53, Report of the Glycerine Analysis Committee).

The collaborators' results were not graded, and no certificates were issued this year.

B. A. SCHROEDER
C. P. LONG
W. D. POHLE, chairman

### Subcommittee on Tallow and Grease

Five samples of tallow and grease were distributed to 55 collaborators. The tests requested were free fatty acid, color, titer, moisture, insoluble impurities, unsaponifiable, and refined and bleached color. The collaborators were not graded on color in any category. The F.A.C. color system has proven so inadequate and non-reproducible that determining the true color of a fat, even by a median of the results, was not even feasible.

The subcommittee voted early in the season to ask the collaborators to continue to report the color but to exclude this test in calculating a collaborator's proficiency. The accuracy and interest in the work has again progressed this year.

Smalley certificates of proficiency were awarded to:

H. C. Bennett (#30), Los Angeles Soap Co., Los Angeles, Cal., with a grade of 99.84% in first place.

J. S. Boulden (#2), Lever Bros. Company, Baltimore, Md., second with a grade of 99.52%.

Honorable mention was given to L. I. Clack (#34), Procter and Gamble Company, Hamilton, Ontario, with a grade of 99.32%.

A complete and detailed report was sent to all the collaborators.

DAN L. HENRY
N. W. ZIELS
B. N. ROCKWOOD
K. H. FINK
C. P. LONG, chairman

[Received April 12, 1954]

# Report of the Color Committee, 1953-1954

At the Fall Meeting of the Color Committee (Chicago Convention, Fall 1953) the decision was reached to continue the color work along three lines:

1. investigate methods of standardizing the instrument used (Coleman Jr. Spectrophotometer);
2. work on a general method of measuring oil colors independent of any relationship to Lovibond red values; and,
3. develop a method for the determination of the chlorophyll content of edible oils.

The necessity of working on a color method which does not incorporate the shortcomings of the Lovibond system is now generally accepted. Accepted also is the idea that the photometric color equation already established is about as good an equation as can be developed for relating photometric measurements to Lovibond red values. More work along this line would be not only wasted but delay the work along a more desirable direction. Since a paper will be delivered at the Spring Meeting in San Antonio on the determination of chlorophyll, work on that part of the program will be delayed until the paper is available.

### Work Done

Five samples were submitted to the committee members for cooperative work. The samples were:

- a refined soybean oil;
- a refined and bleached soybean oil;
- a dichromate solution of approximately the same color as the refined oil;
- a dichromate solution of approximately the same color as the bleached oil;
- a cobaltous ammonium sulfate solution of approximately the same red color (but no yellow component) as the refined oil.

These samples were submitted to the committee with appropriate instructions for adjusting the instru-