

OFFICIAL FLAVOR CRITICISMS OF DAIRY PRODUCTS JUDGED IN THE NATIONAL CONTEST

G. M. TROUT, CH., WILLIAM WHITE, P. A. DOWNS,
M. J. MACK, AND E. L. FOUTS

Committee on Judging Dairy Products, A.D.S.A.

This analysis of the official flavor judgments of the samples of butter, cheese, milk and ice cream scored in the Students' National Contest in the Judging of Dairy Products is made: 1, that coaches may appreciate more fully the flavors recurring most frequently in the various dairy products; 2, that they may realize the association of or combination of flavors encountered; 3, that they may have an understanding of the relationship between the flavor quality of the product and the number of criticisms made, and 4, that the student may gain encouragement from the fact that although many specific off flavors are possible in dairy products, relatively few are actually encountered in the judging of normal salable dairy products. The period of the study extends from 1927, when ice cream was first introduced into the National Contest, to 1938, inclusive. During these twelve years, seven samples each of butter, cheese, milk and ice cream were judged per year.

Prior to 1930, two or more official judges were selected to place scores and criticisms on each product. Their services were not continued from year to year, although one judge may have served more than one year. Beginning in 1930, with few exceptions, the official criticisms have been placed on the samples by a selected judge for each product, and, beginning in 1932, two "coach" judges have assisted. If the three failed to agree in their judgment of the sample, that sample was not used in the contest. As noted in "History and Development of the Students' National Contest in the Judging of Dairy Products" (1) the official judges have been retained in the same capacity each year, but the same "coach" judges have not been used continuously from year to year. Consequently the flavor criticisms placed on the samples should represent as reliable a composite judgment as it is possible to obtain. However, it must be borne in mind that in many cases specific flavor samples were selected for use in the contest and therefore the percentage distributions reported herein may not apply to commercial products as a whole.

BUTTER

A study of the official flavor criticisms of butter from 1927 to 1938, inclusive, shows that an average of 1.87 criticisms were made per sample criticized. Sixty-seven, or 79.76 per cent, of the 84 tubs of butter scored were criticized on flavor.

The distribution of the off flavors in butter are presented graphically in

Received for publication September 25, 1939.

figure 1. The data show that 22.4 per cent of the flavor criticisms were "old cream"; 15.2 per cent "unclean"; 13.6 per cent "coarse"; 11.2 per cent

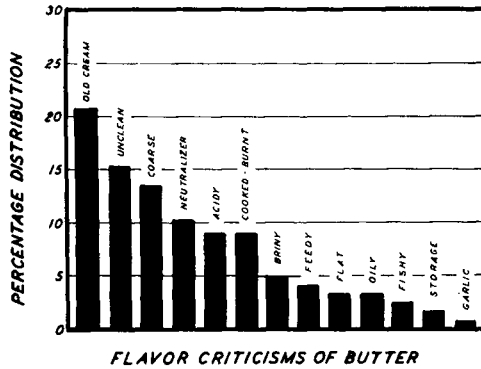


FIG. 1. Distribution of official flavor criticisms of samples of butter judged in The Students' National Contest in the Judging of Dairy Products, 1927 to 1938, inclusive.

"neutralizer"; 8.8 per cent "acidic," and 8.8 per cent "burnt," "cooked" or "heated." These six flavors accounted for 80.0 per cent of all the flavor criticisms. The remaining 20 per cent was divided among "briny," "feedy," "flat," "oily," "fishy," "storage," and "garlic" criticisms, with 4.8, 4.0, 3.2, 3.2, 2.4, 1.6 and 0.8 per cent, respectively.

In the above classification some associated flavor criticisms were grouped. For example, "stale" and "cheesy" were grouped with "old cream," "bitter" with "neutralizer," "burnt" with "cooked," and so on.

Inasmuch as an average of 1.87 criticisms per sample criticized was noted, several combinations of flavor criticisms were made. Obviously, if but one criticism was used in the better grade of butter, then at least three criticisms must have been used in the poorer grades in order to maintain such an average. Combinations frequently noted were "coarse," "acidic"; "old cream," "unclean"; "neutralizer," "old cream"; and "neutralizer," "old cream," and "unclean."

The butter was scored by L. S. Edwards and G. A. Gilbert in 1927 and 1928; by L. S. Edwards and H. D. Reynolds in 1929; by H. D. Reynolds and O. A. Storvick in 1930; by H. D. Reynolds and L. D. Reekie in 1931; by C. E. Eckles assisted by coaches E. S. Guthrie and R. E. Roberts in 1932; by C. L. Pier assisted by coaches L. C. Thomsen and F. H. Herzer in 1933; and the remaining five years 1934 to 1938 inclusive by L. S. Edwards assisted each year by two of the following coaches: M. Mortensen, R. E. Roberts, S. L. Tuckey, E. S. Guthrie, L. C. Thomsen, C. M. Mecham, N. E. Fabricius, E. O. Herreid and S. T. Coulter. Thus the official judging was done during the period of this study by six official judges and 11 coach judges (1).

CHEESE

During the twelve-year period from 1927 to 1938, inclusive, 59.5 per cent of the samples of cheese used in the scoring contests were criticized for flavor by the official judges. A study of the data shows that an average of 1.38 flavor criticisms were made per cheese criticized. The distribution of those flavor criticisms is presented in figure 2. Of the many possible flavor

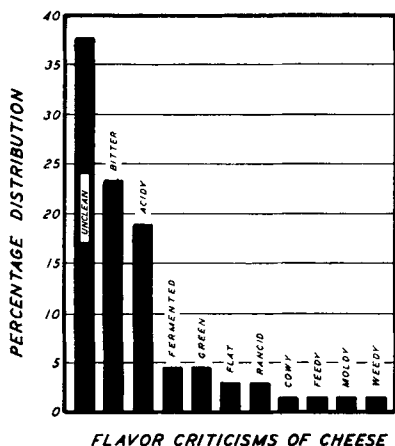


FIG. 2. Distribution of official flavor criticisms of samples of cheese judged in The Students' National Contest in the Judging of Dairy Products, 1927 to 1938, inclusive.

criticisms of cheese three seemed to command the major attention, namely, "unclean," "bitter" and "acidy," which were present 37.7, 23.2 and 18.8 per cent respectively, a total of 79.7 per cent. The remaining 20.3 per cent of the flavors was divided among eight other flavors, of which "fermented," "green," "rancid," and "flat" predominated. Such flavors as "moldy," "cowy," "feedy" and "weedy" were encountered but little in the official samples. When only one flavor criticism was made on the sample, the criticism was generally "acidy," "bitter," or "unclean." If two criticisms were made then "unclean" with either "acidy" or "bitter" were generally used.

The cheese was judged in 1927 by G. N. Tobey and G. A. Gilbert; in 1928 by G. N. Tobey, G. A. Gilbert, and L. H. Marlatt; in 1929 by H. L. Wilson and William White; in 1930 by H. L. Wilson and J. W. Moore; and in 1931 by H. L. Wilson and W. E. Ayres. Since 1931 the cheese has been judged by H. L. Wilson assisted each year by two of the following coaches: W. H. Martin, E. F. Goss, P. A. Downs, G. M. Trout, F. W. Bennett, C. A. Jacobson, R. E. Roberts, S. T. Coulter, H. G. Lindquist, W. H. Sprole, S. L. Tuckey, L. C. Thomsen, and K. R. Renner. A total of seven official judges and thirteen coach judges have placed judgments on the cheese scored from 1927 to 1938, inclusive (1).

MILK

During the twelve-year period from 1927 to 1938, inclusive, 88.1 per cent of the milk samples used in the national contests were criticized on flavor by the official judges. For each sample criticized on flavor an average of 1.27 criticisms was given. The percentage distribution of the off flavors noted in the samples is shown in figure 3. "Feed" and "cooked" flavors

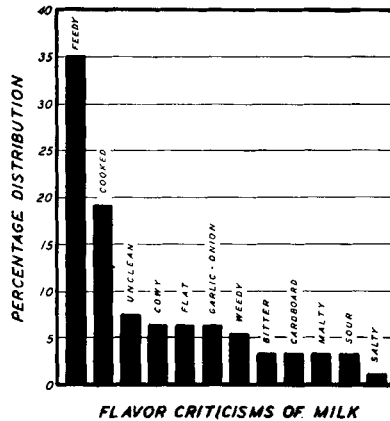


FIG. 3. Distribution of official flavor criticisms of samples of milk judged in The Students' National Contest in the Judging of Dairy Products, 1927 to 1938, inclusive.

dominated the criticisms with 35.11 and 19.14 per cent respectively, a total of 54.25 per cent. Following this group came the "unclean," "flat," "cowy," "onion" or "garlic" and "weedy" flavors, with 7.44, 6.38, 6.38, 6.38 and 5.32 per cent, respectively, a total of 31.90 per cent. The remaining 13.85 per cent was divided among "malty," "cardboard," "bitter," "sour" and "salty" flavors.

Combinations of flavors were not so readily noted in milk as in butter and cheese. When used, however, "feed" was usually one of the flavors given, the combinations being "feed," "salty"; "feed," "unclean"; "feed," "cowy"; and so on.

The milk was officially judged in 1927 by R. J. Posson; in 1928 by C. J. Babcock and R. W. Bell; in 1929 by C. J. Babcock and C. S. Leete; in 1930 by C. J. Babcock and Ernest Kelly; and in 1931 by C. J. Babcock and F. M. Grant. Since 1931 C. J. Babcock has been the official milk judge assisted each year by two of the following coaches: G. M. Trout, L. M. Thurston, L. H. Burgwald, H. G. Lindquist, E. O. Anderson, S. T. Coulter, W. H. Martin, E. L. Fouts, P. H. Tracy, F. J. Doan, T. B. Harrison and I. A. Gould. A total of 18 different judges have placed official judgments on the milk from 1927 to 1938, inclusive (1).

ICE CREAM

During the twelve-year period from 1927 to 1938, inclusive, 80.95 per.

cent of the official ice cream samples in the contests were criticized on flavor. For each sample criticized on flavor an average of 2.04 criticisms were given. The percentage distribution of the flavor criticisms of ice cream during this period are shown in figure 4.

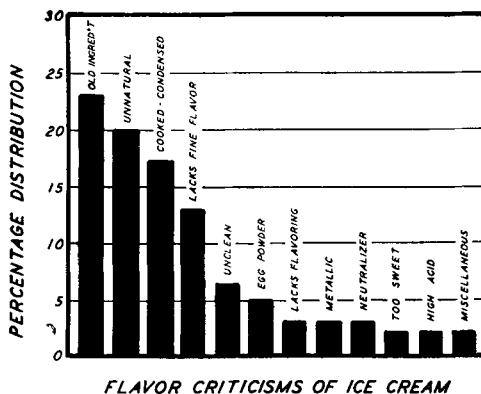


FIG. 4. Distribution of official flavor criticisms of samples of ice cream judged in The Students' National Contest in the Judging of Dairy Products, 1927 to 1938, inclusive.

Four flavors, "old ingredient," "unnatural," "condensed or cooked," and "lacks fine flavor" were noted in 23.02, 20.14, 17.26, and 12.95 per cent of the samples, respectively, a total of 73.37 per cent. "Unclean" and "egg powder" ranked next in percentage incidence with 6.47 and 5.03 per cent, respectively. The remaining 15.13 per cent was about equally divided among "lacks flavoring," "metallic," "neutralizer," "too sweet," "high acid" and "miscellaneous," being 2.87, 2.87, 2.87, 2.15, 2.15 and 2.15 per cent, respectively.

Combinations of flavor criticisms were very frequent, as shown by the fact that when a criticizable flavor was noted an average of two criticisms was given to describe it. Combinations which seemed to recur most frequently were "old ingredient" and "unnatural" or "lacks fine flavor" and "unnatural." Occasionally, another flavor criticism, "unclean," or "cooked," "condensed" or "dry milk," was used also with the combinations of the two previously mentioned.

During the period of the study the ice cream samples were officially judged one year by H. F. Judkins; two years by W. H. E. Reid; one year by P. H. Tracy; two years by A. C. Dahlberg and A. D. Burke; and the remaining seven years by A. C. Dahlberg assisted by two of the following coaches: P. H. Tracy, R. W. Smith, C. A. Iverson, E. L. Fouts, W. H. Martin, J. H. Erb, F. H. Herzer, P. S. Lucas, L. R. Dowd, P. A. Downs, G. M. Trout, and N. E. Fabricius, a total of 17 different judges (1).

SUMMARY

A study of the official flavor criticisms of butter, cheese, milk, and ice

cream samples used in the Students' National Contest in the Judging of Dairy Products during the period 1927 to 1938, inclusive, shows that relatively few flavor criticisms are used by the official judges, despite the relatively high percentage of samples criticized in that respect.

Predominating flavor criticisms of *butter* were "old cream," "neutralizer," "unclean," "coarse," "burnt" and "acidy"; of *cheese*, "unclean," "bitter" and "acidy"; of *milk*, "feed," "cooked" and "unclean"; and of *ice cream*, "old ingredient," "unnatural" and "lacks fine flavor." With the possible exception of milk, two or more criticisms were used to describe the flavor of the lower scoring samples.

The result of this study and analysis of trends in official flavor judgments is in no way intended as a guide to future scoring, but merely to classify and make available the flavor criticisms for those who may not have access to the official scoring records. Inasmuch as the samples used were selected in many cases for a specific flavor, the percentages distribution reported herein may not necessarily apply to commercial products as a whole. However, the flavor criticisms encountered in these studies appear to be representative of those encountered in the commercial products throughout the country.

REFERENCE

- (1) WHITE, WILLIAM, DOWNS, P. A., MACK, M. J., FOUTS, E. L., AND TROUT, G. M., *Ch.*, Committee on the Judging of Dairy Products, A.D.S.A. History and development of the students' national contest in the judging of dairy products. *J. DAIRY SC.*, 22: 375. 1939.