THE INFLUENCE OF MATURITY AND TIME OF HARVESTING SPANISH PEANUTS ON PEANUT BUTTER QUALITY

BY

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CHAPTER I

INTRODUCTION

Peanut butter is the primary product and food made from peanuts in the United States. In 1950, about half of all edible peanuts were used in butter, and by 1964 the proportion had risen to 63 per cent.

Several characteristics apparently influence the quality of peanut butter. Odor, flavor, and taste determine its palatability while texture, and dryness determine peanut butter smoothness and the ease of spreading.

In order to interpret the organoleptic results adequately a method of statistical analysis is important. The methods of Friedman two-way analysis of variance by ranks, and Wilcoxon matched-pairs signed-rank test appeared to be appropriate methods for the scores and ranks analyses.

The objectives of the investigation were to determine the influence of maturity and the harvest date on peanut butter quality.

CHAPTER II

REVIEW OF LITERATURE

Woodroff (23) reported that the timing of harvest was a very critical factor affecting the yield and quality of the peanut. Very little research has been conducted to determine what affect maturity and harvest date have on the quality of peanuts processed into peanut butter. Field temperature determines the time of flowering and resulting maturity of the peanut crop. A knowledge of the blooming cycle of Arachis hypogaea L. is necessary to understand fully the nature of the maturity problem. The peanut is indeterminate in growth habit (20). Its flowering cycle extends from approximately five weeks after planting until the first frost (12). Bolhuis and DeGroat (5) reported that commencement of flowering depended greatly on temperature. Differences in flowering and fruit development were found only in relation to the optimum temperature and the number of flowers formed each day. The effect of temperature on flowering was chiefly reflected in flower development. Shear (17) reported that high temperatures promoted early flowering and hence early maturity.

Flavor was considered by Beasley (3) to be one of the most important aspects of peanut butter quality. Although objective measurements of quality characteristics may strongly indicate the quality of a product, in the final analysis flavor determines its acceptability (14). Two important factors generally contributing to the flavor include the

variety of peanuts and the degree of roast. The peanuts must be grown from seed of a variety known to have good flavor quality (18). Roasting develops typical flavor and aroma of peanuts (13). Therefore, roasting is essential in processing peanuts into peanut butter in order to produce a palatable product (14). Pickett (15) and Freeman (9) pointed out that the underroasting or overroasting not only would be detrimental to the flavor, but to the appearance and palatability of the peanut butter. Peanuts given a mild but complete roast are more palatable and retained a more desirable flavor than those that are either underroasted or overroasted.

High roasting temperature is undesirable because it scorches the surface of the peanut, chars the broken pieces of loose skin causing a burnt taste, and also greatly affects the composition of the peanut oils. Peanut oil reportedly contains 76 to 82 per cent unsaturated fatty acids with 40 to 50 per cent as unsaturated oleic acid (8). However, the proportion of the various fatty acids in peanut oils vary with the type of peanuts, environment, and agronomic practices (10). Spanish type peanuts contain higher percentages of polyunsaturated fatty acids, but they are also higher in total saturated fatty acids than other types; thus variation in the kind of fatty acid does occur. Runner and Virginia types of peanuts possess higher amounts of mono-unsaturated fatty acids, chiefly oleic (8). The presence of extremely minute quantities (1.8gm/ton) of higher hydrocarbons (C_{15} H_{30} and C_{19} H_{38}) give the peanut oil its characteristic odor and flavor (16). In the manufacturing of peanut butter it is important that the oils be stable to prevent them from separating. The stability of oils in peanut butter toward oxidative ran - cidity is quite high at the time of manufacture (21); and remain high

even after storage at 80°F. in the absence of light for two years (2). Stability is reduced by oxygen in the headspace, especially after the container is opened (21).

Besides the variety of peanuts and the process of roasting, there are other factors concerned with the flavor and palatability of the peanut butter. Sexton (18) mentioned that the maturity of the peanuts, storage conditions, selectively purchased stock, freedom of any damage and pesticide residues were factors that may impair flavor or marketability. Another important factor reported as causing off-flavor in peanut butter is the curing conditions (18). Although the complete cause-and-effect relationship of off-flavor production is not understood at present, Beasley and Dickens (3) proposed a theory to explain its formation. At an elevated temperature increased respiration rates coupled with limited oxygen permeability into the peanuts results in a certain amount of anaerobic respiration. This in turn leads to the production of undesirable flavor precursors. The evidence shows that anaerobic respiration occurs under the conditions which produce off-flavor. The problem in practice can be circumvented by strictly limiting the curing air temperature to less than 95°F. While the limitation causes some sacrifice in drying efficiency, it is preferable to the alternative of off-flavor peanuts.

The bitter flavor in peanuts is reportedly due to at least four sapoponin which are about 20 times as concentrated in the hearts of peanut as in the cotyledons, (7, 6). This bitterness may also cause the off-flavor of the peanut butter.

Some of the recommendations made by the committee on sensory evaluation of the Institute of Food Technologists (1) were of interest

in the peanut study. To judge the acceptability of different peanut butter, a rank-order test was applied by a five member panel. This test was used to determine how several samples differ on the basis of a single characteristic. A control need not be identified. Panelists were presented the samples simultaneously (including a standard or control) identified by codes. Panelists were asked to rank all the samples in order according to the intensity of the specified characteristic.

The selection of individuals for training as members of an expert panel was important to good panel performance. The Committee (1) also suggested that the methods frequently used to select panelists in the laboratory included difference tests to determine ability to detect specific characteristic variations of a product and descriptive and scalar tests to determine ability to reproduce qualitative judgment.

In order to obtain the conclusion from these tests, the data from the panelists should be analyzed statistically. The methods of Friedman two-way analysis of variance by ranks and Wilcoxon matched-pairs singled-ranks test were used (19).

CHAPTER III

MATERIAL AND METHODS

Preparation of Samples

Collection of Raw Peanut Samples

The peanuts for this study were obtained from plots near Perkins, and Stratford, Oklahoma. Plots from Perkins contained Argentine peanuts and those from Stratford Dixie Spanish. The test near Perkins was planted on May 24, 1965 and harvested at weekly intervals beginning August 28 or 96 days after planting, and proceeding until October 23 or 152 days after planting. Harvesting was done on nine different dates. The test near Stratford, was planted on May 22, 1965 and harvested at weekly intervals beginning September 10 or 111 days after planting, and continued until October 15 or 146 days after planting.

On each respective harvest date, four plants were pulled at random from the two border rows of each plot to obtain a total of twenty plants for each harvest date. Two of the four plants from each replication were used to determine green and oven-dry weights of the individual plant and fruit for a separate study. The other two plants from each replication were used to obtain detailed maturity data and the seed of various maturity groups were used for the organoleptic tests in the present study.

The 10 plants used for determining maturity on each harvest date

were placed in a curing box for 24 hours at a temperature of 90°F. The fruit was classified as mature, intermediate or immature according to the interior color of the pericarp. The fruits one week of age or older were removed from the plants, and each fruit was hand shelled and classified. The fruits with a dark pigmentation of the interior pericarp were considered mature, those with white interior pericarp as immature, and those between the two extremes as intermediate. The kernels from each class were separated into two groups by using a 15/64 x 3.4 inch sieve. One group contained the kernels which remained on the sieve, and the other group contained the kernels that passed through the sieve.

After the fruits from the ten plants of each treatment (harvest date) were classified and sized the kernels were bulked for each harvest date according to maturity and size. The samples from Perkins had an insufficient number of small mature and intermediate kernels to make a peanut butter sample. Thus the four maturity and size samples included the mature, intermediate, and immature peanuts held on 15/64 x 3/4 inch sieve (large), and immature, passing through the sieve (small). For the plots near Stratford only mature, intermediate, and immature (large samples) were obtained in sufficient quantity to prepare peanut butter samples.

Preparation of Peanut Butter

The steps used in the preparation of the peanut butter follow:

1. Raw peanut samples weighing from 80 to 100 grams, but in no case less than 30 grams, were weighed on a laboratory balance. The weights were recorded to obtain the percentage of peanut

butter turn-out.[1] One hundred seed were weighed and recorded for each sample to obtain the grams per 100 seed.

2. A sample was placed in the basket of a modified rotisserie oven and roasted until the peanut cotyledons reached a golden brown color. When the cotyledons were golden brown the temperature in the oven approached 400°F., however, the temperature varied with the size of the kernels and the size of the sample.

3. After the cotyledons reached a golden brown color, the sample was promptly removed and cooled using an electric fan.

4. The cooled sample was placed in a peanut splitter to remove the testa (seed coat), to separate the cotyledons, and to remove most of the germs (hearts) from the peanut kernels.

5. The germs remaining attached to the cotyledons, and the damaged cotyledons were picked out and discarded to obtain a uniform sample.

6. The roasted, separated, blanched and hand picked peanut sample was weighed again, and the weight was used to calculate the percentage of peanut butter turn-out, and to determine the amount of salt required for 0.5 per cent of the sample.

7. The roasted cotyledons and salt were ground by using an

---

1 = $\frac{\text{Weight of Roasted Cotyledons of the Sample Before Grinding}}{\text{Weight of Raw Peanut Sample}} \times 100$

adjustable electrical mill (Quaker City Mill).

8. Each peanut butter sample was thoroughly mixed and placed into a clean four ounce glass jar with a screw type lid, lined with a piece of aluminum foil.

Organoleptic Evaluation

The organoleptic evaluation performed by a five member panel was used to determine the odor and flavor in relation to a known and coded standard (Argentine grown at Perkins in 1965) as well as rating other characteristics.

These organoleptic tests were conducted in the Peanut Quality Laboratory on the Agronomy Research Station at Oklahoma State University. Five panel members, peanut butter samples, evaluation sheets (Appendix, Figure 41), drinking water, napkins, paper plates, and spoons were required for each test.

The panel members were chosen from the coeds on the campus. Those who were very sensitive in differentiating peanut butter taste were selected, and were given more detailed training before the critical tests began.

Peanut butter samples from one harvest date were used as one test group for each organoleptic test.

The evaluation sheet (Appendix, Figure 41) contained the different characteristics of peanut butter quality and space was provided to evaluate each characteristic by the use of a numerical score. The panel members used drinking water to rinse their mouths after testing each peanut butter sample. The napkin was used to clean the spoon before

the panel member changed from one sample to another.

Each panel member evaluated four peanut butter samples of the maturity and size groups plus a coded and a known standard at each visit. However, two coded standards were used for the samples from Stratford. This was done to obtain five coded peanut butter samples in each experiment. The samples were presented in a circular arrangement on a paper plate with the known standard centrally located for organoleptic evaluation by each panel member. The score for each characteristic of peanut butter was determined and recorded on the evaluation sheets by the tasters according to their own judgment. After each characteristic had been evaluated, the tasters gave their over-all preference ranks from one through five for each of the five coded peanut butter samples.

The other part of the organoleptic test was to compare the odor and flavor of each sample to the standard sample in order to determine whether odor and flavor were superior to, equal to, or inferior to the standard sample. The odor was determined by opening the jar and sniffing the peanut butter. Samples bearing numbers corresponding to the number assigned to the treatment.

The Friedman two-way analysis of variance by ranks, and the Wilcoxon matched-pairs signed-ranks test were used for the statistical analysis of the data obtained from the organoleptic tests.

CHAPTER IV

RESULTS AND DISCUSSION

Environmental Conditions

At the Agronomy Research Station, near Perkins, the rainfall from May through October, 1965 was 23.30 inches. The monthly rainfall totals for May, June, July, August, September, and October were 4.64, 4.22, 1.92, 3.38, 8.45, and 0.69 inches, respectively. The average daily temperature ranged from a low of 51.5°F. on October 22 to a high of 90.0°F. on July 24. The average monthly temperatures for the May, June, July, August, September, and October were 70.2, 76.5, 82.6, 80.2, 73.6, and 60.8°F., respectively.

At the Stratford Agronomy Research Station, the rainfall from May through October, 1965 was 15.47 inches. The monthly rainfall totals for May, June, July, August, September, and October were 5.32, 1.37, 3.64, 1.23, 2.80, and 1.11 inches, respectively. The average daily temperature ranged from a low of 54.0°F. on October 13 to a high of 90.0°F. on July 24. The average monthly temperatures for the period of May 1 through October 31 were 70.5, 76.5, 84.5, 80.9, 75.1, and 64.0°F., respectively.

Roast and Rank Scores

The degree of roast plays an important role in the appearance and palatability of peanut butter. Thus, a uniform golden brown roast was

desired.

The mean roast scores and ranks for tests near Perkins and Stratford are shown in Tables I and II, Figures 1 and 2, and Appendix Tables XXXI and XXXII. The judgment of the taste panel indicated that there were some variations in the degree of roast obtained. However, statistically the mean rankings were not significant for the samples from Perkins and Stratford.

The roast for the peanut butter samples in the organoleptic tests apparently was not a factor in determining flavor.

TABLE I

THE MEAN ROAST SCORES AND SUM OF THE RANKS FOR MATURITY CLASSES AVERAGE FOR NINE HARVEST DATES, ARGENTINE PEANUTS, PERKINS, 1965.

	Mature	Intermediate	Immature[1/]	Immature[2/]	Standard
Mean Score for Nine Harvest Dates	2.02	2.51	2.60	3.14	2.27
ΣR_j (Sum of the Ranks for Nine Harvest Dates)	44.0	57.0	55.0	67.0	47.0

1/ Held on 15/64 - inch sieve.

2/ Through a 15/64 - inch sieve.

Roast Scores: 1:Under 2:Good 3:Excellent 4:Over

Result of Analysis:

$X_r^2 = 7.2888$ X^2 tab = 9.488

TABLE II

THE MEAN ROAST SCORES AND SUM OF THE RANKS FOR MATURITY CLASSES AVERAGE FOR SIX HARVEST DATES, DIXIE SPANISH PEANUTS STRATFORD, 1965.

	Mature	Intermediate	Immature	Standard
Mean Score for Six Harvest Dates	2.15	2.13	1.86	2.38
ΣR_j (Sum of the Ranks for Six Harvest Dates)	27.5	29.0	25.0	38.5

Roast Scores: 1:Under 2:Good 3:Excellent 4:Over

Roast of Analysis:

$X_r^2 = 5.225$ X^2 tab = 7.815

The statistical analysis of organoleptic data for the peanut butter samples were based on numerical scores ranging from one through four where one indicated the best rating and a higher numerical score indicated a less desirable rating.

"The Friedman two-way analysis of variance by ranks" and "The Wilcoxon matched-pairs signed-ranks test" were employed for the statistical analysis. The former test was used for testing the equality of the data. If a significant X^2 value was found, the latter test was used to find the treatment(s) causing significance. The five per cent level was chosen as the significant level for all comparisons.

The order to make a comparison with the maturity groups of the

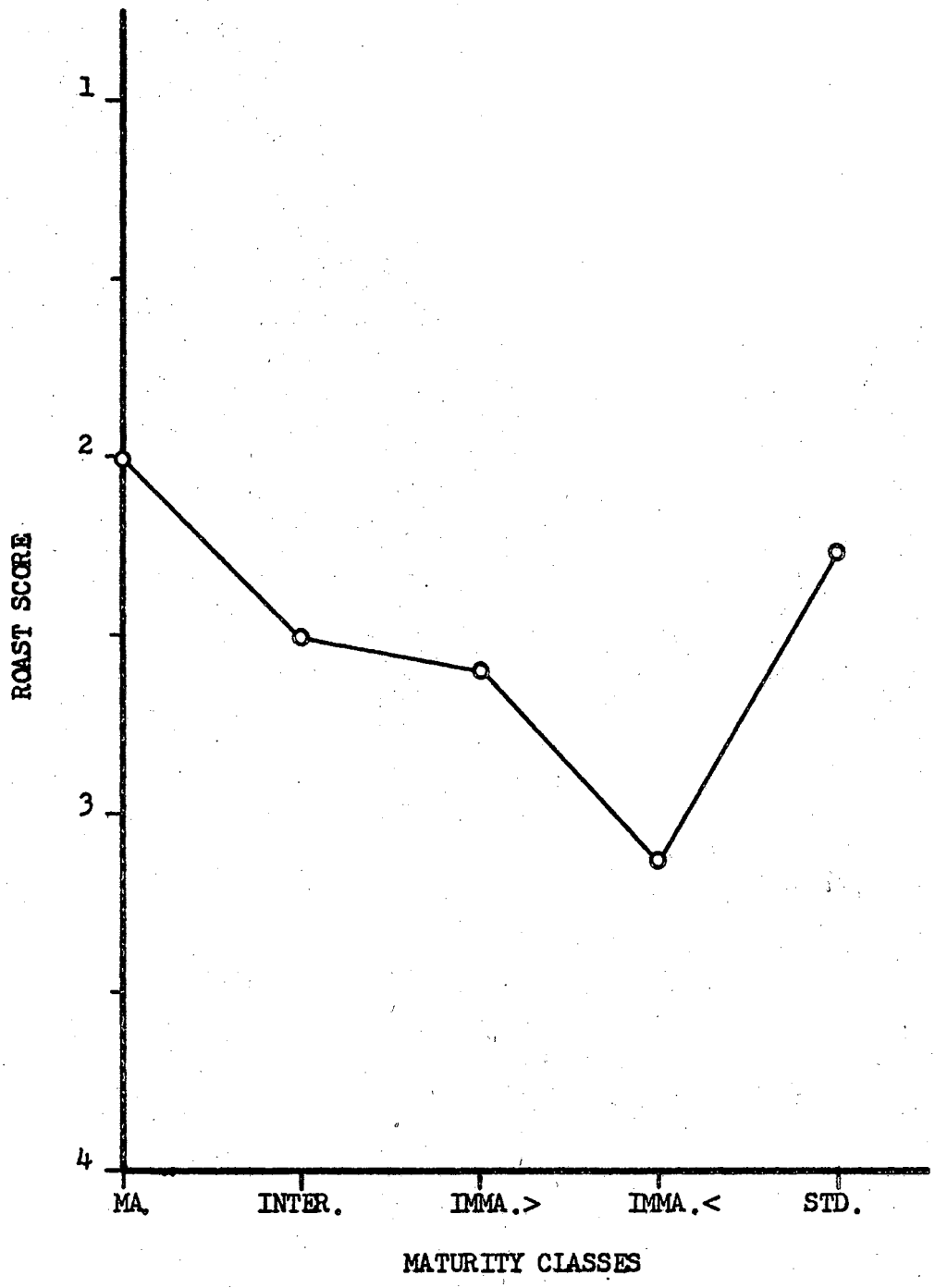

Figure 1. The Mean Roast Scores of Peanut Butter Made From Various Classes and the Standard Averaged for Nine Harvest Dates for Argentine Peanuts, Perkins, 1965.

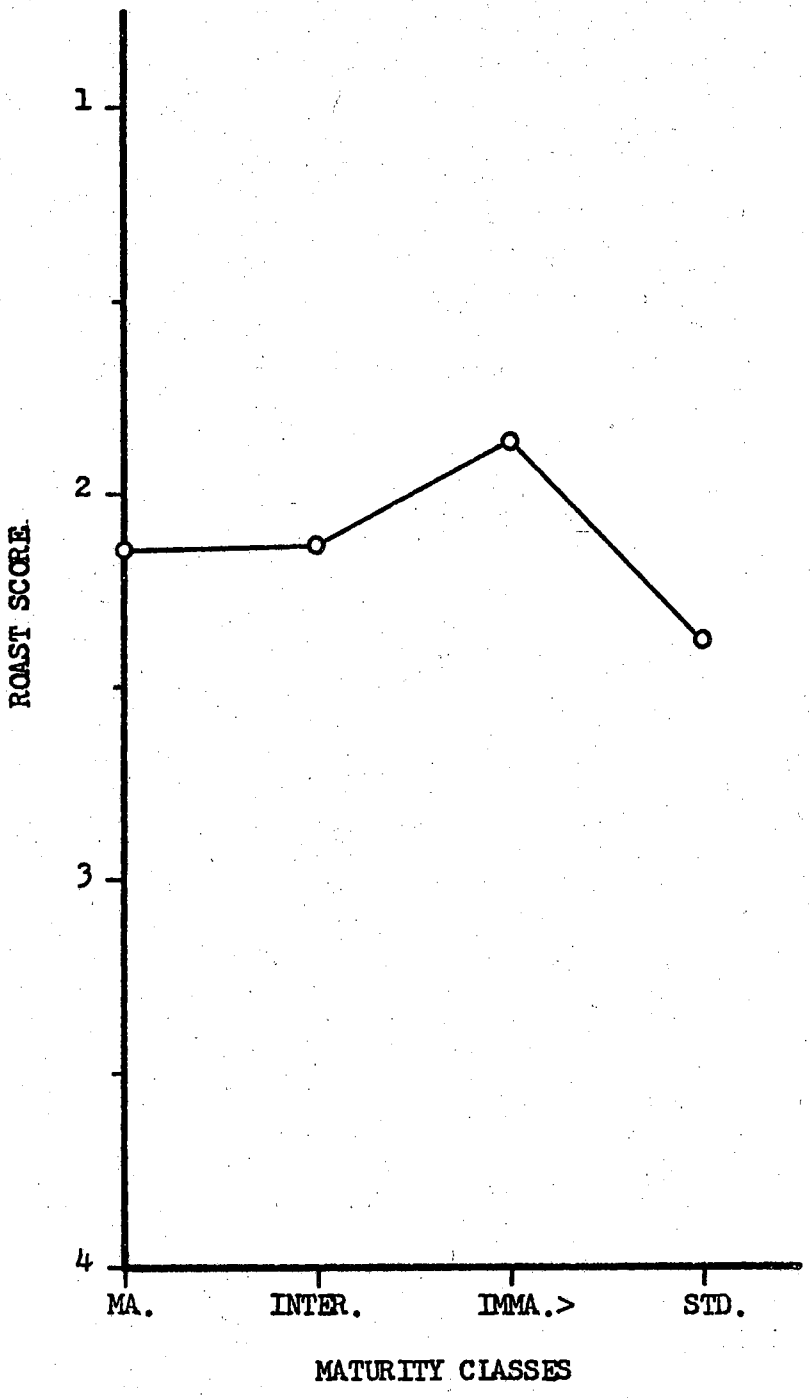

Figure 2. The Mean Roast Scores of Peanut Butter Made From Various Maturity Classes and the Standard Averaged for Six Harvest Dates for Dixie Spanish Peanuts, Stratford, 1965.

samples, the standard peanut butter samples were included in the analysis, but they were excluded, when comparing harvest dates.

Maturity

Perkins

The mean scores and ranks for the five characteristics combined for the peanut butter samples in each maturity class from the nine harvest dates are summarized in Table III, Figure 3 and Appendix Table XXXIII.

The Chi-square value of 48.6888 was larger than the tabulated value of 9.488 at the five per cent level and four degrees of freedom. There were significant differences among the four maturity classes and the standard samples. The smallest difference in this group was between standard and mature samples, and the difference of the sum of the ranks (ΣR_j) was 11.0. The calculated T value of 27.5 between the pair was less than the tabulated T value of 40 (Appendix Table LXIII), which indicated that there was a significant difference between these two sets of samples or that the standard was superior to the mature samples. Therefore, there were significantly differences between each maturity class and the standard samples with respect to the five combined characteristics of the peanut butter. The order of superiority included the standard, mature, intermediate, immature large, and immature small.

The calculated Chi-square of 48.0333 for odor in the test near Perkins exceeded the tabulated value of 9.488 (Table IV, Figure 4 and Appendix Table XXXIV). There were significant differences among maturity classes and the standard samples with respect to odor. However, no

TABLE III

THE MEAN SCORES OF THE FIVE CHARACTERISTICS COMBINED AND SUM OF THE RANKS FOR MATURITY CLASSES AVERAGED FOR NINE HARVEST DATES, ARGENTINE PEANUTS, PERKINS, 1965.

	Mature	Intermediate	Immature[1/]	Immature[2/]	Standard
Mean Scores for Nine Harvest Dates	1.91	2.29	2.49	3.24	1.55
ΣR_j (Sum of the Ranks for Nine Harvest Dates)	36.5	56.5	68.0	83.5	25.5

1/ Held on 15/64 - inch sieve.

2/ Through a 15/64 - inch sieve.

Result of Analysis:

$X_r^2 = 48.6888^*$ X^2 tab = 9.488

T (between standard and mature) = 27.5^*
T tab (N = 18) = 40

T (between standard and intermediate) = 8^*
T tab (N = 18) = 40

* Indicate significant at five per cent level.

significant difference was found between the intermediate-and immature-large. The order of rank superiority included the standard, mature, intermediate and immature large, and immature small.

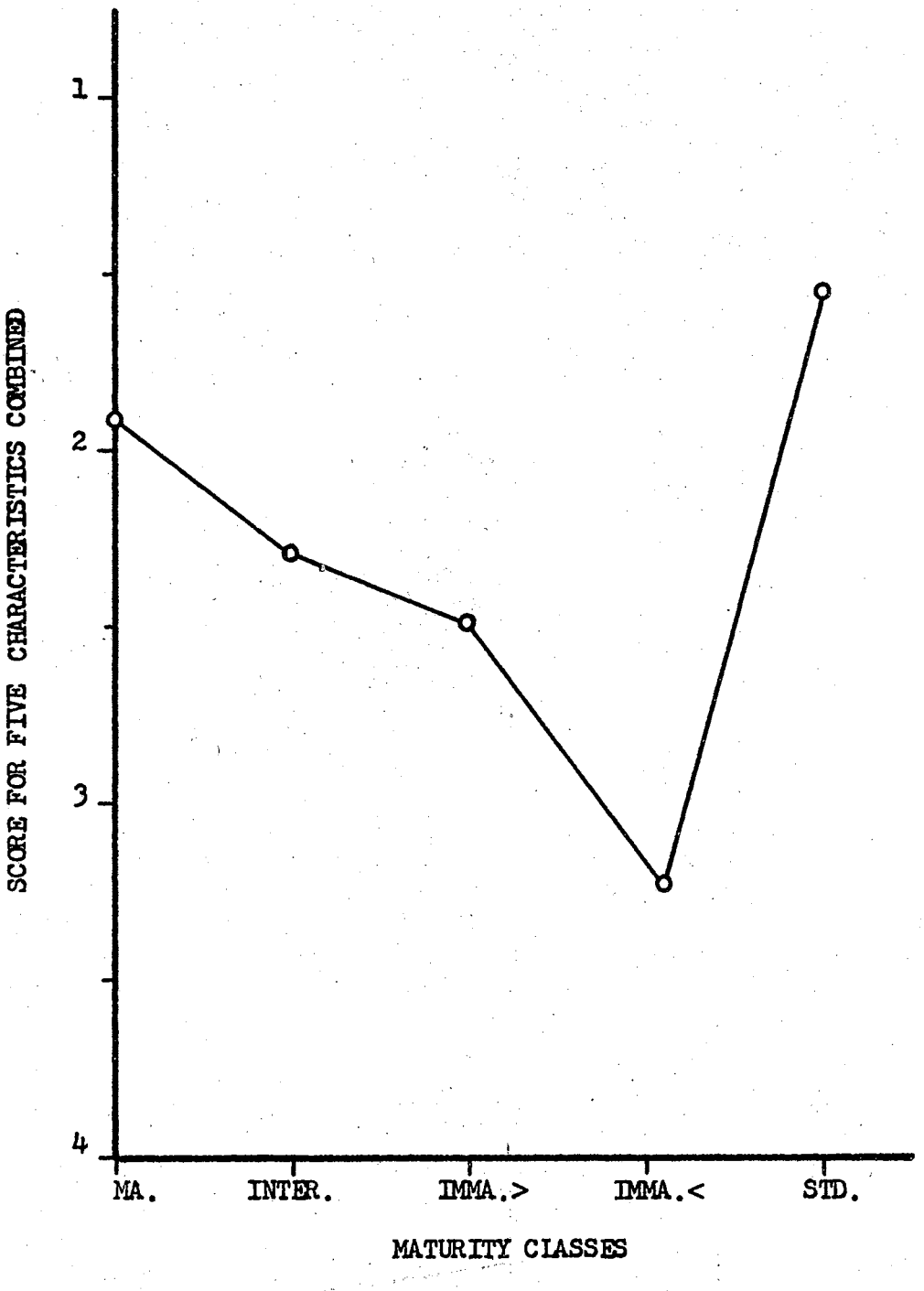

Figure 3. The Mean Scores of Peanut Butter for Five Characteristics Combined for the Various Maturity Classes and the Standard Averaged for Nine Harvest Dates for Argentine Peanuts, Perkins, 1965.

TABLE IV

THE MEAN ODOR SCORES AND SUM OF THE RANKS FOR MATURITY CLASSES AVERAGED FOR NINE HARVEST DATES, ARGENTINE PEANUTS PERKINS, 1965.

	Mature	Intermediate	Immature [1]	Immature [2]	Standard
Mean Score for Nine Harvest Dates	1.88	2.49	2.41	3.58	1.29
ΣR_j (Sum of the Ranks for Nine Harvest Dates)	41.0	61.5	57.5	86.0	24.0

[1] Held on 15/64 - inch sieve.

[2] Through a 15/64 - inch sieve.

Odor Score: 1:Moderate 2:Weak 3:None 4:Strong

Results of Analysis:

$X_r^2 = 48.0333^*$ X^2 tab = 9.488

T (between standard and mature) = 2.0*
T tab (N = 15) = 25.0

T (between mature-and immature-large) = 23.5*
T tab (N = 17) = 35.0

T (between intermediate-and immature-large) = 43.0
T tab (N = 14) = 21.0

The calculated Chi-square value for the flavor was 56.2 for the test near Perkins which was greater than the tabulated value of 9.488. The greater calculated value indicated that there were significant differences among the maturity classes and with the standard samples. (Table V, Figure 5, and Appendix Table XXXV).

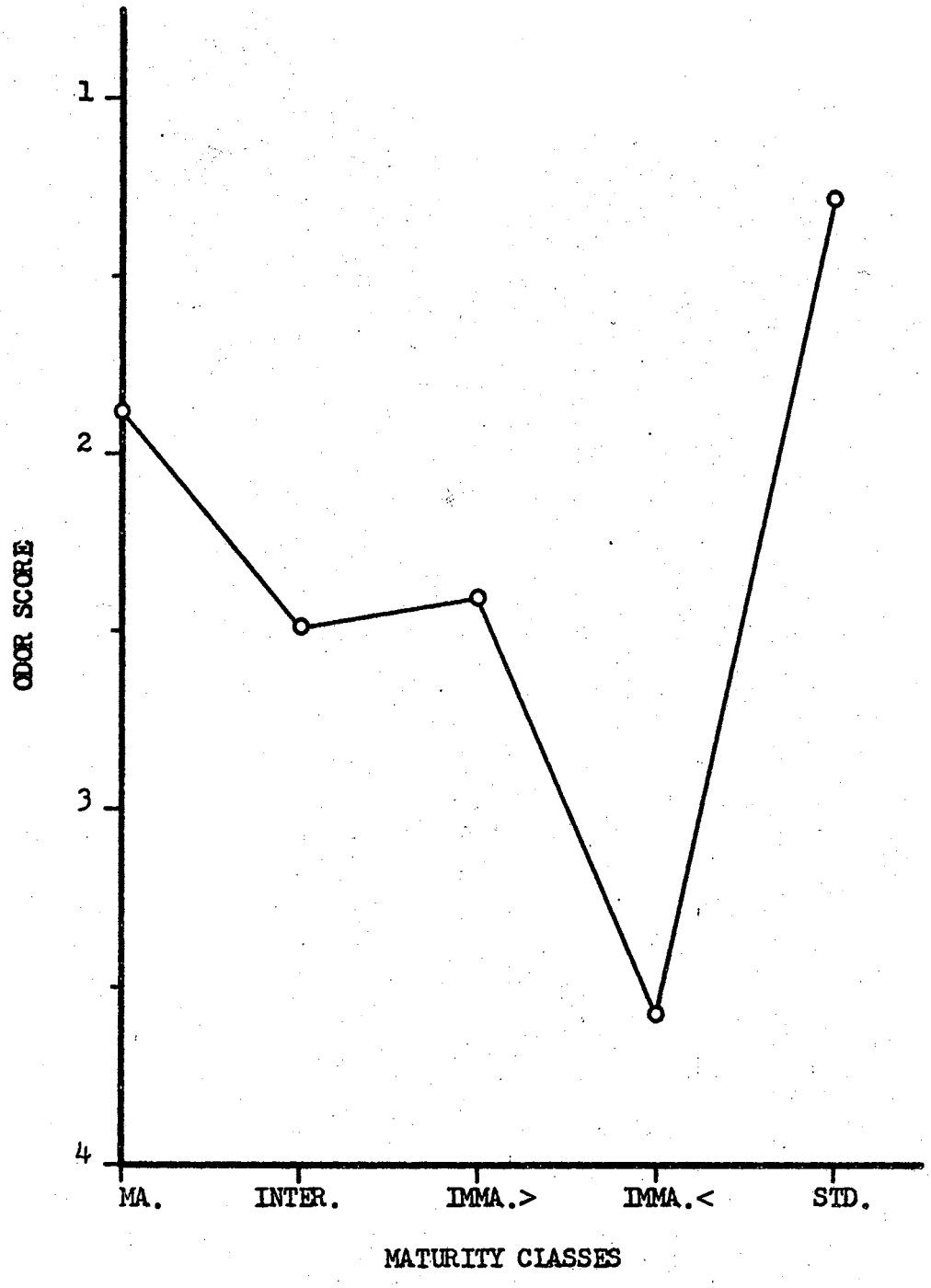

Figure 4. The Mean Odor Scores of Peanut Butter Made From Various Maturity Classes and the Standard Averaged for Nine Harvest Dates for Argentine Peanuts, Perkins, 1965.

No significant difference was found between intermediate and immature large but the other pairs were significantly different. The order of rank superiority included the standard-mature-intermediate-and immature-large, and immature small.

TABLE V

THE MEAN FLAVOR SCORES AND SUM OF THE RANKS FOR MATURITY CLASSES AVERAGED FOR NINE HARVEST DATES, ARGENTINE PEANUTS PERKINS, 1965.

	Mature	Intermediate	Immature [1]	Immature [2]	Standard
Mean Scores for Nine Harvest Dates	2.09	2.79	3.14	3.86	1.39
ΣR_j (Sum of the Ranks for Nine Harvest Dates)	34.5	58.0	68.5	85.5	32.5

[1] Held on 15/64 - inch sieve.

[2] Through a 15/64 - inch sieve.

Flavor Scores: 1:Excellent 2:Good 3:Low 4:Off

Results of Analysis:

$X_r^2 = 56.2^*$ X^2 tab = 9.488

T (between standard and mature) = 10*
T tab (N = 15) = 25

T (between intermediate and immature large) = 34
T tab (N = 16) = 30

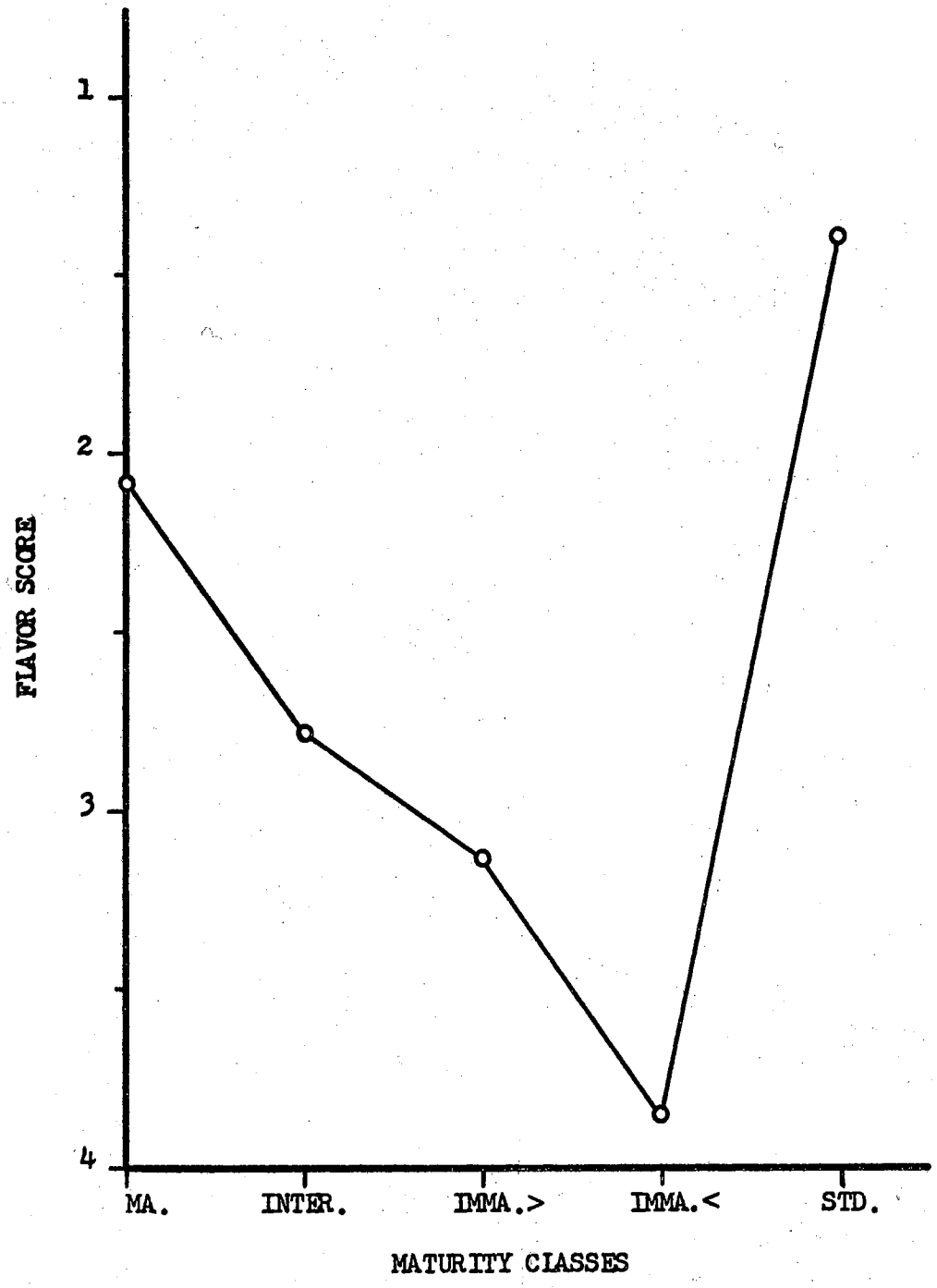

Figure 5. The Mean Flavor Scores of Peanut Butter Made From Various Maturity Classes and the Standard Averaged for Nine Harvest Dates for Argentine Peanuts, Perkins, 1965.

The mean taste scores and ranks for peanut butter samples from the test near Perkins are shown in Table VI, Figure 6, and Appendix Table XXXVI. The Chi-square value of 48.1 was larger than the tabulated value of 9.488.

TABLE VI

THE MEAN TASTE SCORES AND SUM OF THE RANKS FOR MATURITY CLASSES AVERAGED FOR NINE HARVEST DATES, ARGENTINE PEANUTS PERKINS, 1965.

	Mature	Intermediate	Immature 1/	Immature 2/	Standard
Mean Scores for Nine Harvest Dates	2.03	2.60	2.83	3.44	1.70
ΣR_j (Sum of the Ranks for Nine Harvest Dates)	36.0	56.0	62.0	87.5	28.5

1/ Held on 15/64 - inch sieve.

2/ Through a 15/64 - inch sieve.

Taste Scores: 1:Sweet 2:Fair 3:Bitter 4:Sour

Results of Analysis:

$X_r^2 = 48.1^*$ X^2 tab = 9.488

T (between mature and intermediate) = 11.5*
T tab (N = 16) = 30.0

T (between intermediate and immature large) = 35.5
T tab (N = 16) = 30.0

T (between standard and mature) = 34.0
T tab (N = 16) = 30.0

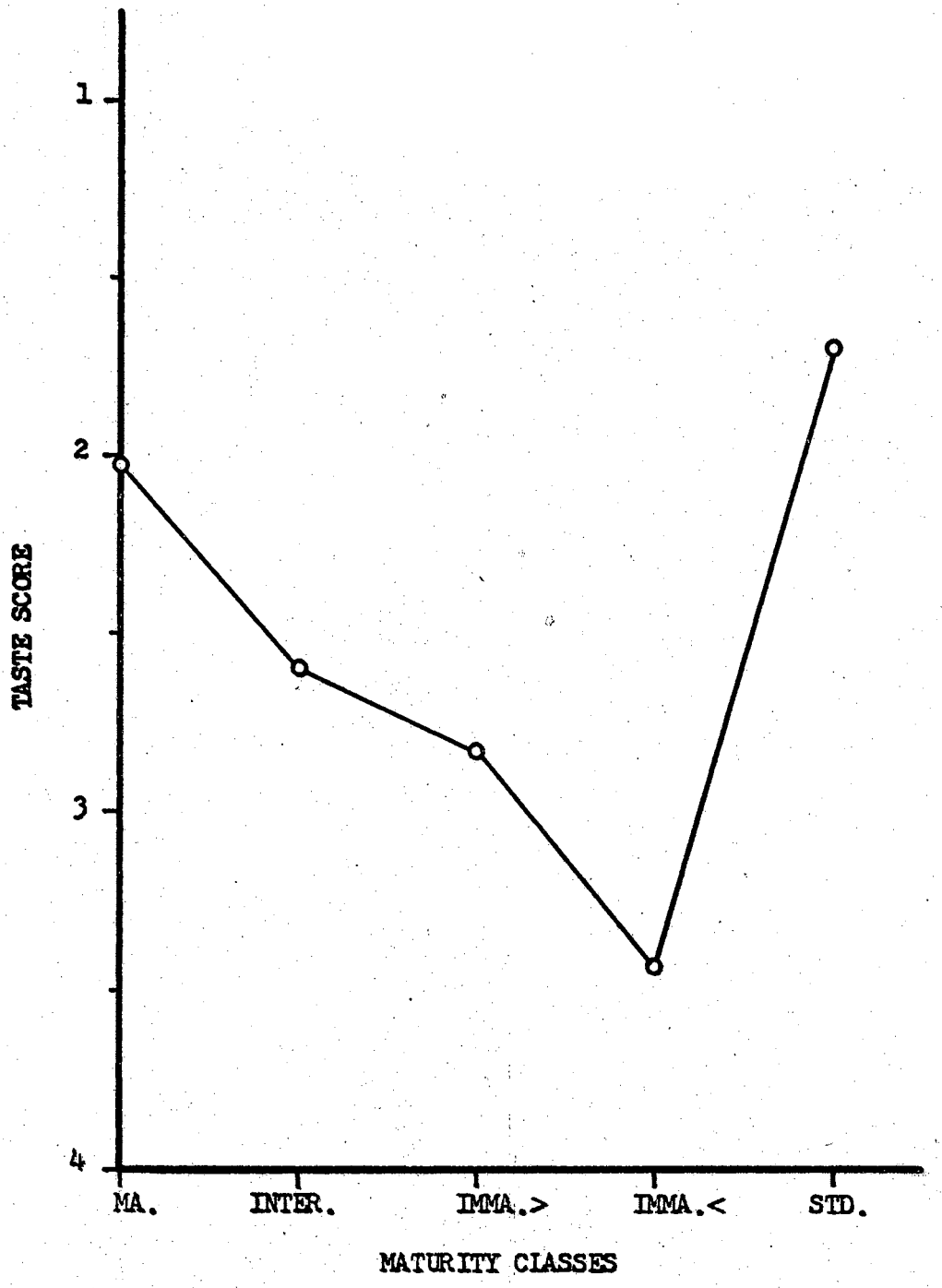

Figure 6. The Mean Taste Scores of Peanut Butter Made From Various Maturity Classes and the Standard Averaged for Nine Harvest Dates for Argentine Peanuts, Perkins, 1965.

No significant difference was found between the standard and mature or between the intermediate and immature large. However, there were significant differences between the other pairs. The order of rank superiority included the standard, mature, intermediate, immature large, and immature small.

A calculated Chi-square value of 21.3444 was larger than 9.4888 for texture of samples from Perkins. (Table VII, Figure 7, and Appendix Table XXXVII). There were significant differences among maturity classes.

TABLE VII

THE MEAN TEXTURE SCORES AND SUM OF THE RANKS FOR MATURITY CLASSES AVERAGED FOR NINE HARVEST DATES, ARGENTINE PEANUTS PERKINS, 1965.

	Mature	Intermediate	Immature 1/	Immature 2/	Standard
Mean Scores for Nine Harvest Dates	1.47	1.60	1.73	2.39	1.59
ΣR_j (Sum of the Ranks for Nine Harvest Dates)	39.0	49.0	56.0	79.5	46.5

1/ Held on 15/64 - inch sieve.

2/ Through a 15/64 - inch sieve.

Texture Scores: 1:Smooth 2:Mealy 3:Mushy 4:Chunky

Results of Analysis:

$X_r^2 = 21.3444^*$ X^2 tab = 9.4888

T (between mature and immature large) = 7^*
T tab (N = 13) = 17

T (between mature and intermediate) = 29.0
T tab (N = 14) = 21

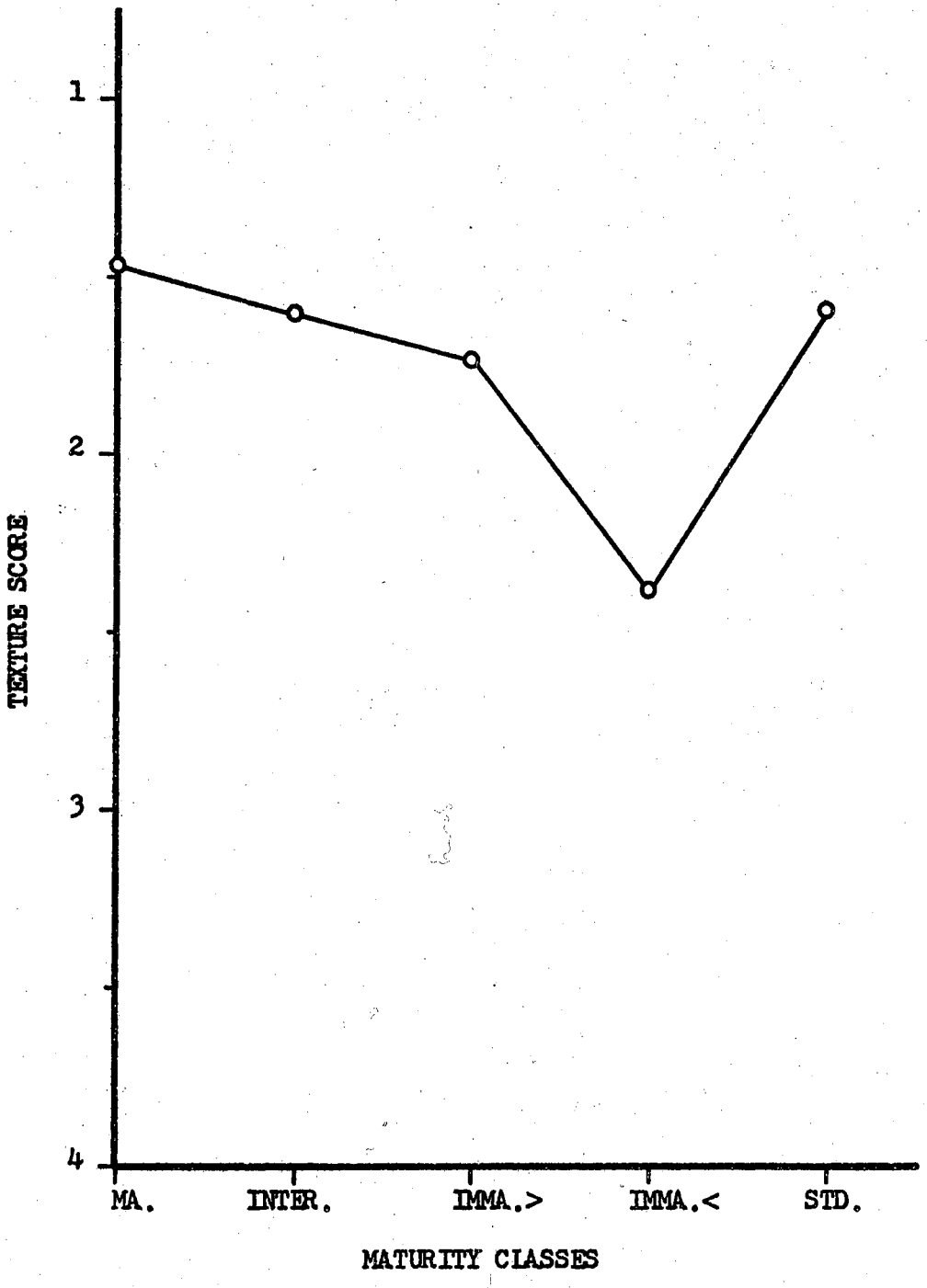

Figure 7. The Mean Texture Scores of Peanut Butter Made From Various Maturity Classes and the Standard Averaged for Nine Harvest Dates for Argentine Peanuts, Perkins, 1965.

For pairs of means no significant difference was indicated between the standard and mature samples, the mature and intermediate, and the intermediate and immature large. The analysis revealed that the standard was superior in texture to each of the maturity classes except mature. Mature was superior to the immature large and small samples, and the intermediate was superior to the immature small samples.

The calculated Chi-square value of 27.6333 for the dryness score exceeded the tabulated value for the peanut butter samples for Perkins. (Table VIII, Figure 8, and Appendix Table XXXVIII). The analysis indicated that there were significant differences among maturity classes and the standard samples with respect to dryness.

In the paired comparisons significant differences were found between the intermediate and immature large and between the immature large and small. The order of rank superiority included standard, mature, intermediate, immature large, and immature small.

The mean preference ranks for peanut butter samples from Perkins are shown in Table IX, Figure 9, and Appendix Table XXXIX. The calculated Chi-square value of 58.4777 exceeded the tabulated value which indicated that there were significant differences among the maturity classes.

The statistical analysis showed the maturity classes significantly different from each other with respect to mean preference ranks. The order of the rank of superiority included standard, mature, intermediate, immature large, and immature small.

Stratford

The mean scores for five characteristics combined for the different

TABLE VIII

THE MEAN DRYNESS SCORES AND SUM OF THE RANKS FOR MATURITY CLASSES AVERAGED FOR NINE HARVEST DATES, ARGENTINE PEANUTS, PERKINS, 1965.

	Mature	Intermediate	Immature [1]	Immature [2]	Standard
Mean Scores for Nine Harvest Dates	1.74	1.97	2.33	2.98	1.76
ΣR_j (Sum of the Ranks for Nine Harvest Dates)	42.0	48.0	62.5	80.5	37.0

[1] Held on 15/64 - inch sieve.

[2] Through a 15/64 - inch sieve.

Dryness Scores: 1:Moist 2:Moderate 3:Oily 4:Very Dry

Results of Analysis:

$X_r^2 = 27.6333^*$ X^2 tab = 9.488

T (between intermediate and immature) = 29.0^*
T tab (N = 16) = 30

T (between standard and mature) = 74.5
T tab (N = 17) = 35.0

T (between mature and intermediate) = 38.0
T tab (N = 15) = 25.0

T (between standard and intermediate) = 34.5
T tab (N = 15) = 25.0

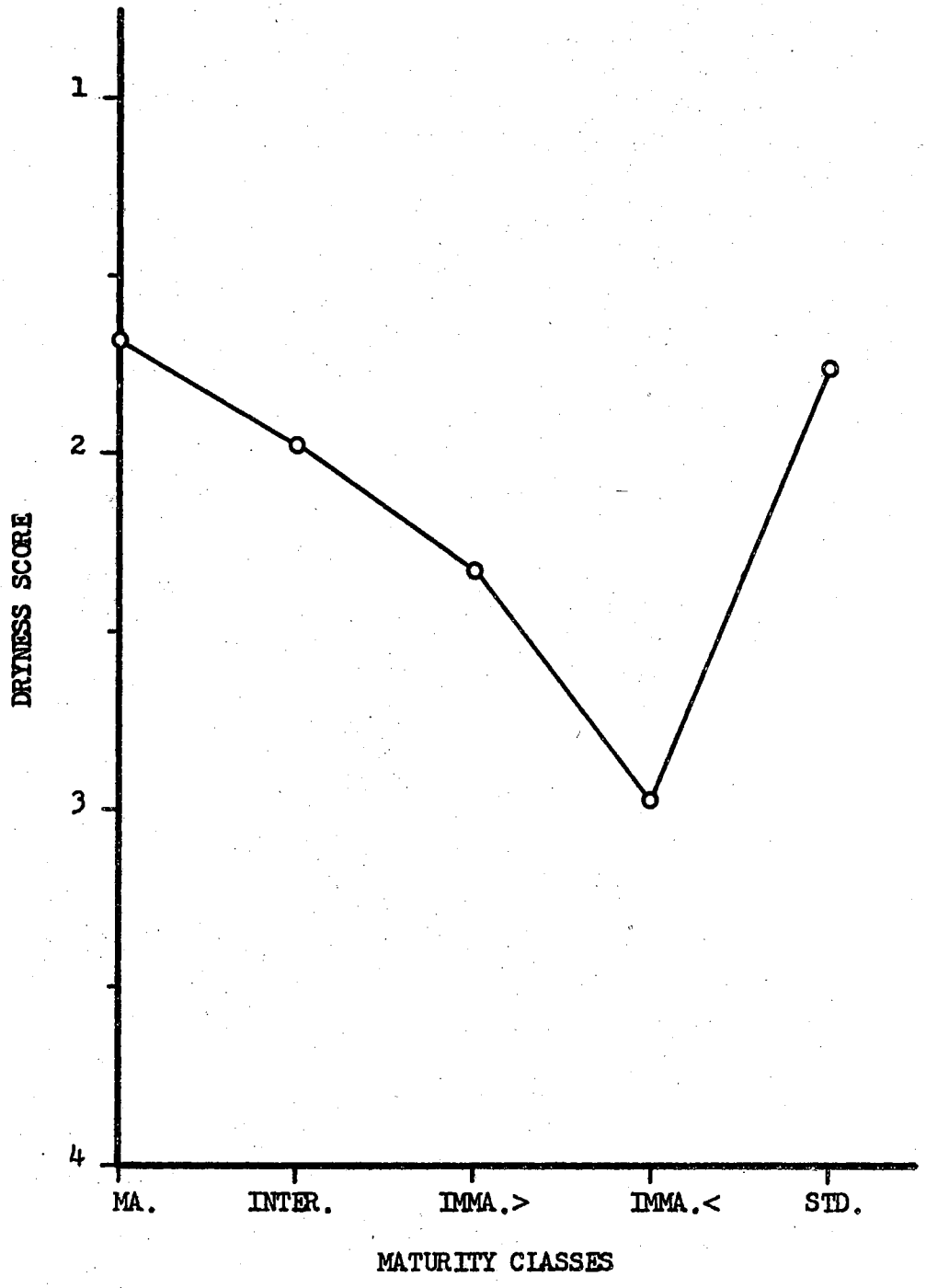

Figure 8. The Mean Dryness Scores of Peanut Butter Made From Various Maturity Classes and the Standard Averaged for Nine Harvest Dates for Argentine Peanuts, Perkins, 1965.

maturity classes and standard peanut butter samples are summarized in Table X, Figure 10, and Appendix Table XL.

TABLE IX

THE MEAN PREFERENCE RANKS AND SUM OF THE RE-RANKS FOR MATURITY CLASSES AVERAGED FOR NINE HARVEST DATES, ARGENTINE PEANUTS, PERKINS, 1965.

	Mature	Intermediate	Immature [1]	Immature [2]	Standard
Mean Preference Ranks for Nine Harvest Dates	2.26	3.06	3.61	4.62	1.44
ΣR_j (Sum of the Re-ranks for Nine Harvest Dates)	38.5	53.0	68.5	88.0	22.0

[1] Held on 15/64 - inch sieve.

[2] Through a 15/64 - inch sieve.

Results of Analysis:

$X^2_r = 58.4777^*$ $\qquad$ X^2 tab = 9.488

T (between mature and intermediate) = 13.5^*
T tab (N = 17) = 35.0

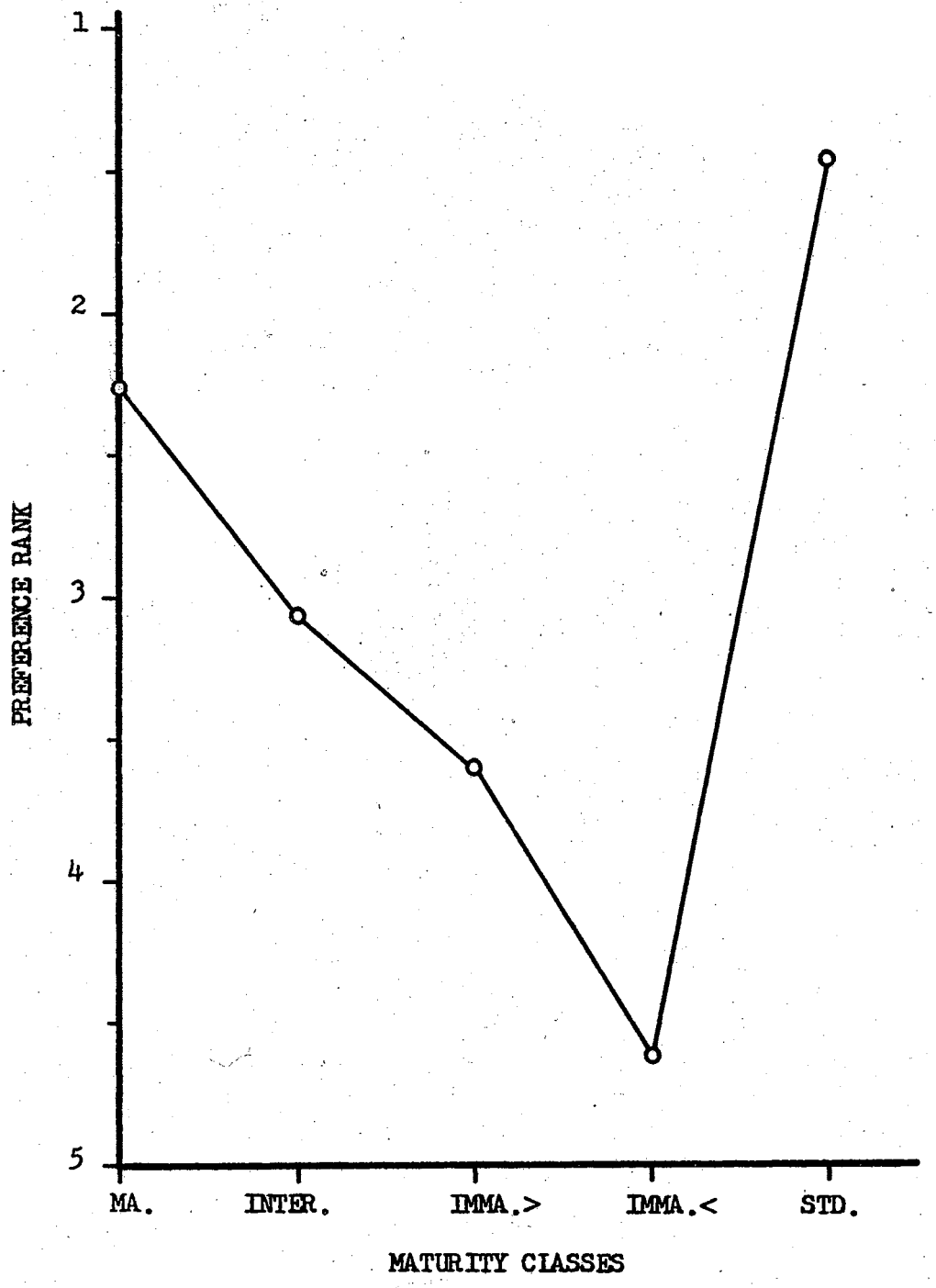

Figure 9. The Mean Preference Ranks of Peanut Butter Made From Various Maturity Classes and the Standard Averaged for Nine Harvest Dates for Argentine Peanuts, Perkins, 1965.

TABLE X

THE MEAN SCORES OF THE FIVE CHARACTERISTICS COMBINED AND SUM OF THE RANKS FOR MATURITY CLASSES AVERAGED FOR SIX HARVEST DATES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

	Mature	Intermediate	Immature	Standard
Mean Scores of Combined Characteristics for Six Harvest Dates	2.19	2.34	2.85	1.49
ΣR_j (Sum of Ranks for Six Harvest Dates	31.0	33.0	44.0	12.0

Results of Analysis:

$X^2_r = 26.5^*$ $\qquad$ X^2 tab = 7.815

T (between standard and mature) = 0^*
T tab (N = 12) = 14

T (between mature and immature) = 6^*
T tab (N = 12) = 14

T (between intermediate and immature) = 9^*
T tab (N = 12) = 14

The calculated Chi-square value of 26.5 was greater than the tabulated Chi-square value of 7.815. The greater value indicated significant differences among maturity classes and standard samples.

The analysis revealed that the standard samples were superior to each of the maturity classes. There was no significant difference between the mature and intermediate samples. However, the mature and

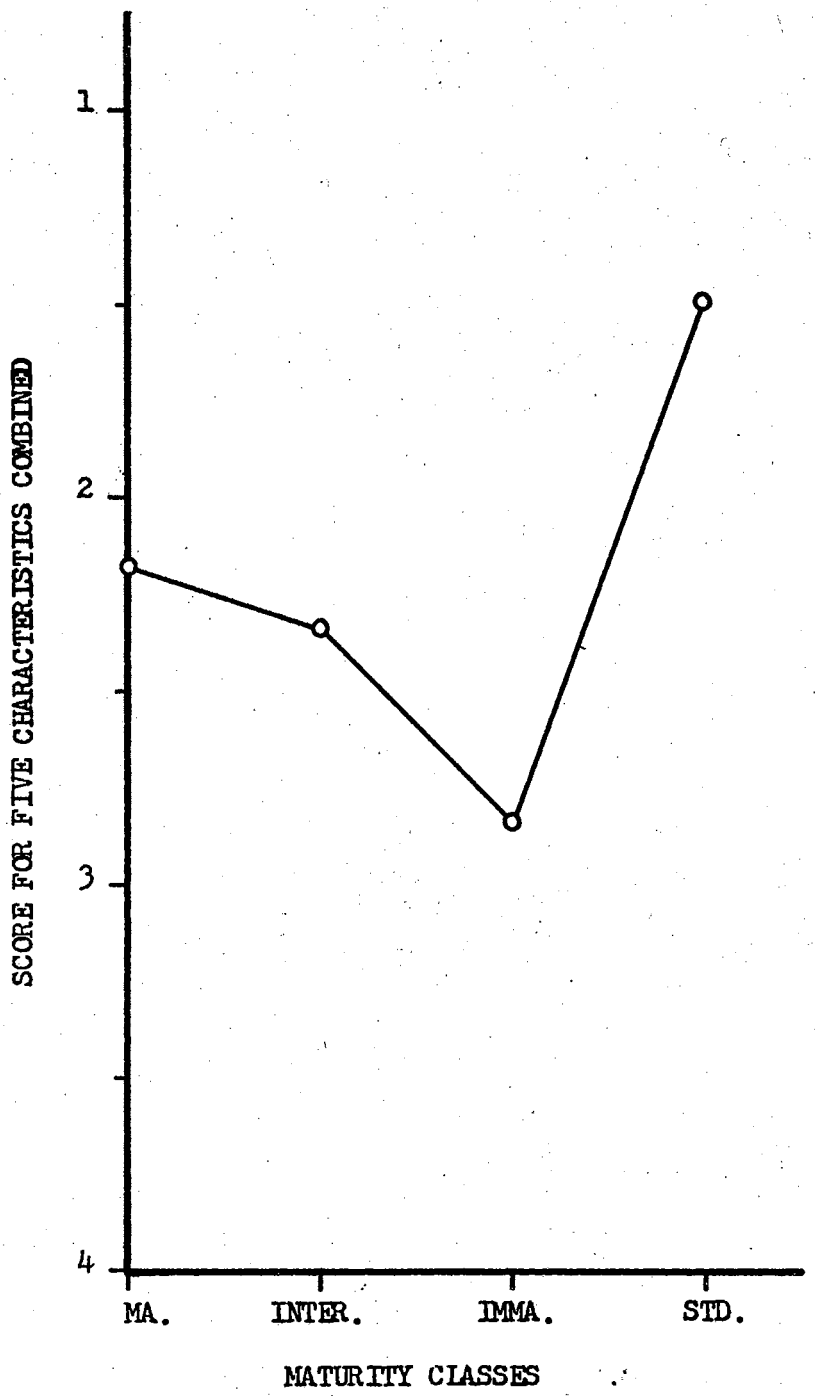

Figure 10. The Mean Scores of Peanut Butter of Five Characteristics Combined for the Various Maturity Classes and the Standard Averaged for Six Harvest Dates for Dixie Spanish Peanuts, Stratford, 1965.

intermediate samples were significantly superior to the immature samples.

The calculated Chi-square value of 26.175 for odor in the test near Stratford exceeded the tabulated value of 7.815. (Table XI, Figure 11, and Appendix Table XLI). There were significant differences among maturity classes and the standard samples with respect to odor.

The standard was superior in odor to each of the maturity classes. Within the maturity classes, the mature was significantly superior to the intermediate and immature.

TABLE XI

THE MEAN ODOR SCORES AND SUM OF THE RANKS FOR MATURITY CLASSES AVERAGED FOR SIX HARVEST DATES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

	Mature	Intermediate	Immature	Standard
Mean Scores for Six Harvest Dates	2.27	2.80	3.70	1.33
ΣR_j (Sum of Ranks for Six Harvest Dates)	28.0	34.5	44.5	13.0

Odor Scores: 1:Moderate 2:Weak 3:None 4:Strong

Results of Analysis:

$X_r^2 = 26.175^*$ X^2 tab = 7.815

T (between standard and mature) = 1.5^*

T tab (N = 12) = 14.0

T (between mature and intermediate) = 14^*

T tab (N = 12) = 14

T (between intermediate and immature) = 4^*

T tab (N = 11) = 11

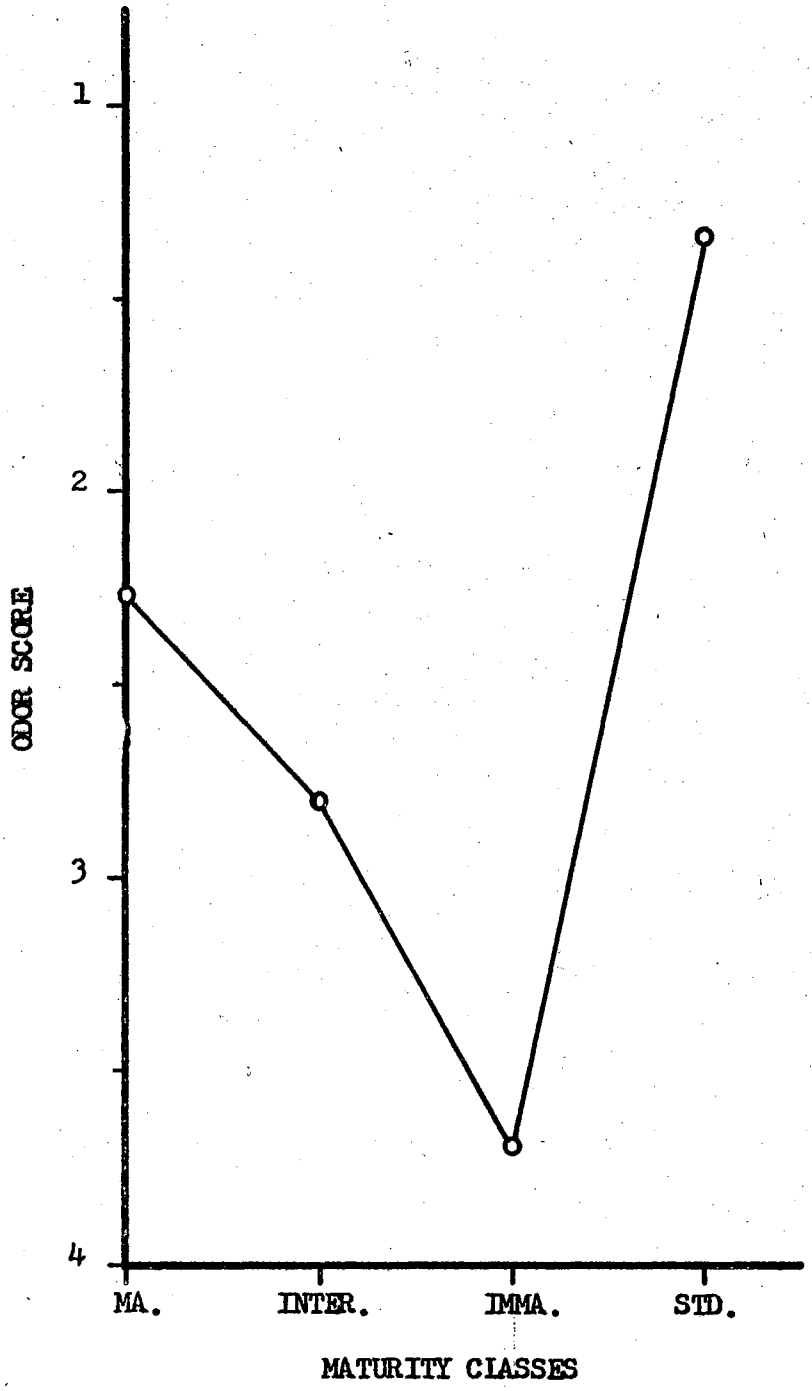

Figure 11. The Mean Odor Scores of Peanut Butter Made From Various Maturity Classes and the Standard Averaged for Six Harvest Dates for Dixie Spanish Peanuts, Stratford, 1965.

The calculated Chi-square value for the flavor was 22.375 for the test near Stratford exceeded the tabulated value of 7.815. (Table XII, Figure 12, and Appendix Table XLII). There were significant differences among maturity classes and the standard samples with respect to flavor.

Statistical analysis showed that the standard sample was superior to each of the maturity class.

Within the three maturity classes, no significant difference was found between mature and intermediate samples, however, both were superior to immature samples.

TABLE XII

THE MEAN FLAVOR SCORES AND SUM OF THE RANKS FOR MATURITY CLASSES AVERAGED FOR SIX HARVEST DATES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

	Mature	Intermediate	Immature	Standard
Mean Scores for Six Harvest Dates	2.73	2.65	3.55	1.29
ΣR_j (Sum of Ranks for Six Harvest Dates)	33.5	31.5	42.0	13.0

Flavor Scores: 1:Excellent 2:Good 3:Low 4:Off

Results of Analysis:

$X_r^2 = 22.375^*$ X^2 tab = 7.815

T (between standard and intermediate) = 2^*
T tab (N = 12) = 14

T (between mature and immature) = 7.5^*
T tab (N = 12) = 14.0

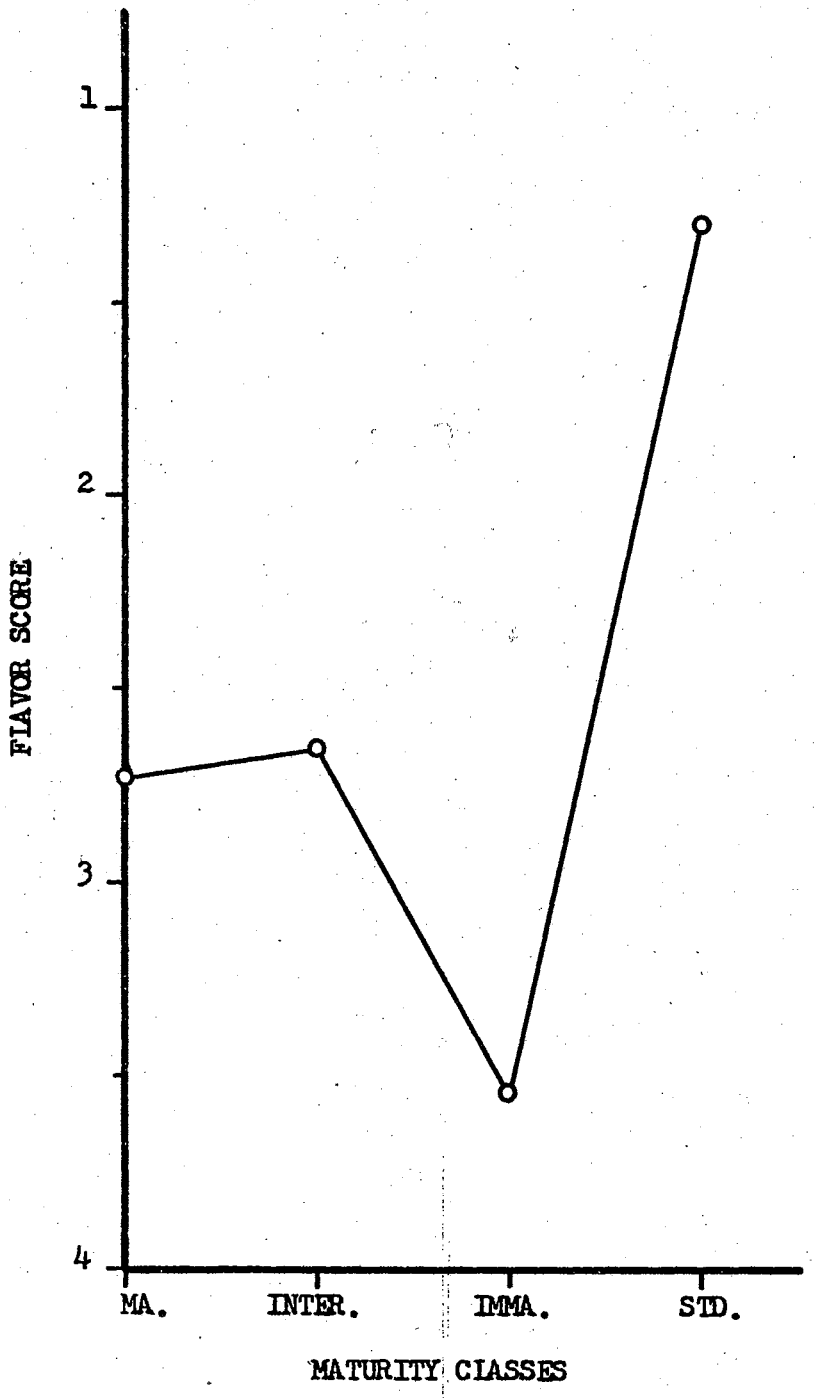

Figure 12. The Mean Flavor Scores of Peanut Butter Made From Various Maturity Classes and the Standard Averaged for Six Harvest Dates for Dixie Spanish Peanuts, Stratford, 1965.

The calculated Chi-square value of 21.25 for the taste was greater than the tabulated value of 7.815. There were significant differences among the maturity classes and the standard samples (Table XIII, Figure 13, and Appendix Table XLIII).

Statistical analysis revealed that the standard were significantly superior to each of the three maturity classes. No significant difference was found between mature and intermediate but both were superior to the immature samples.

TABLE XIII

THE MEAN TASTE SCORES AND SUM OF THE RANKS FOR MATURITY CLASSES AVERAGED FOR SIX HARVEST DATES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

	Mature	Intermediate	Immature	Standard
Mean Scores for Six Harvest Dates	2.22	2.36	3.04	1.68
ΣR_j (Sum of Ranks for Six Harvest Dates)	30.5	31.5	43.5	14.5

Taste Scores: 1:Sweet 2:Fair 3:Bitter 4:Sour

Results of Analysis:

$X^2_r = 21.25^*$ X^2 tab = 7.815

T (between standard and mature) = 3 *
T tab (N = 12) = 14

T (between mature and intermediate) = 37
T tab (N = 12) = 14

T (between intermediate and immature) = 1.5 *
T tab (N = 10) = 8.0

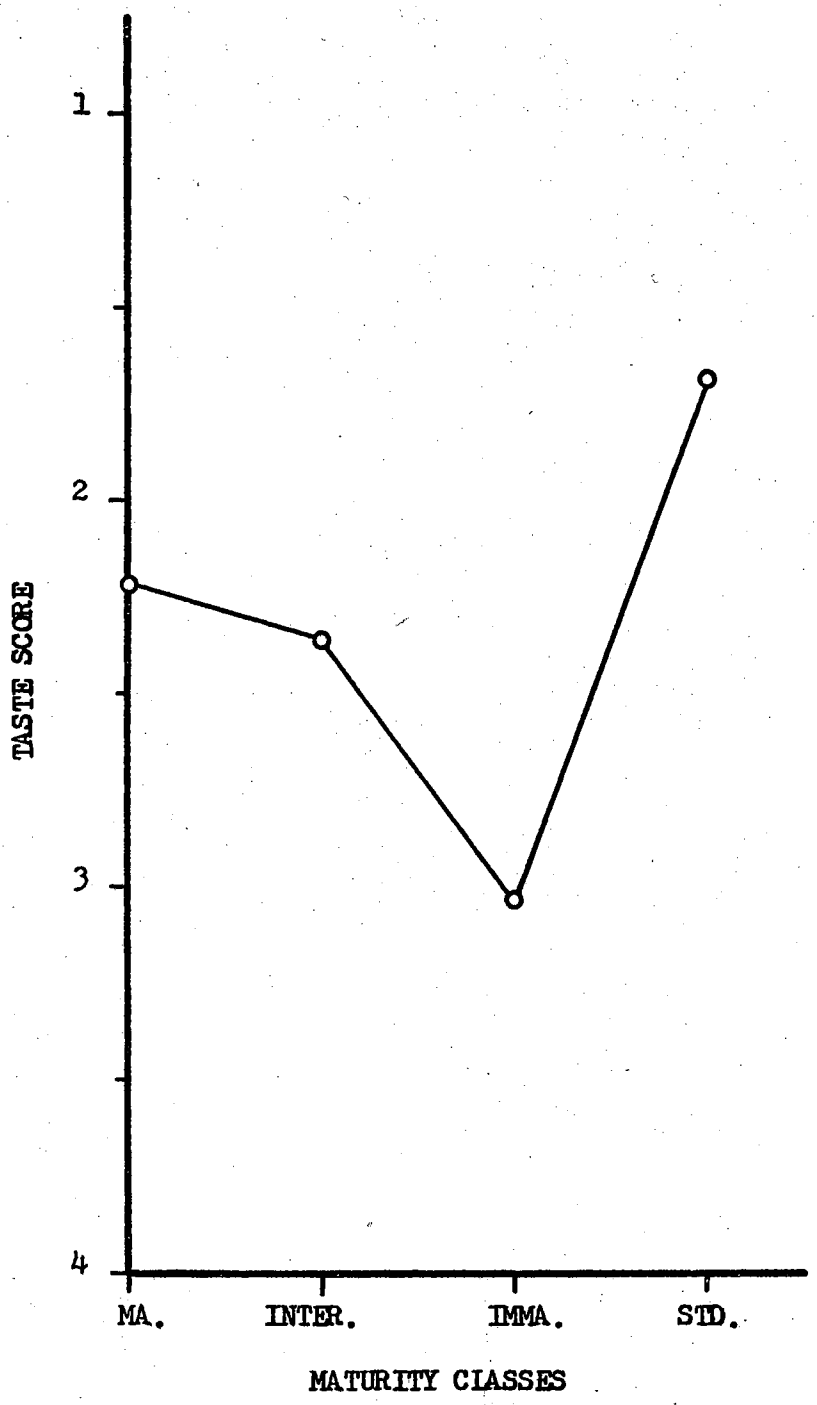

Figure 13. The Mean Taste Scores of Peanut Butter Made From Various Maturity Classes and the Standard Averaged for Six Harvest Dates for Dixie Spanish Peanuts, Stratford, 1965.

The calculated Chi-square value of 8.175 for the texture was greater than the tabulated value of 7.815. This indicated significant differences among the maturity classes and the standard samples. (Table XIV, Figure 14, and Appendix Table XLIV).

Significant differences were found between the mature and intermediate, and the mature and immature samples. No significant difference was noted for the other pairs. The standard and mature samples were superior to both intermediate and immature samples.

TABLE XIV

THE MEAN TEXTURE SCORES AND SUM OF THE RANKS FOR MATURITY CLASSES AVERAGED FOR SIX HARVEST DATES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

	Mature	Intermediate	Immature	Standard
Mean Scores for Six Harvest Dates	1.48	1.83	1.75	1.51
ΣR_j (Sum of Ranks for Six Harvest Dates)	22.0	35.5	37.0	25.5

Texture Scores: 1:Smooth 2:Mealy 3:Mushy 4:Chunky

Results of Analysis:

$X_r^2 = 8.175^*$ X^2 tab = 7.815

T (between mature and intermediate) = 2.0^*
T tab (N = 7) = 2.0

T (between standard and mature) = 22.5
T tab (N = 10) = 8.0

T (between standard and immature) = 0.0^*
T tab (N = 10) = 8

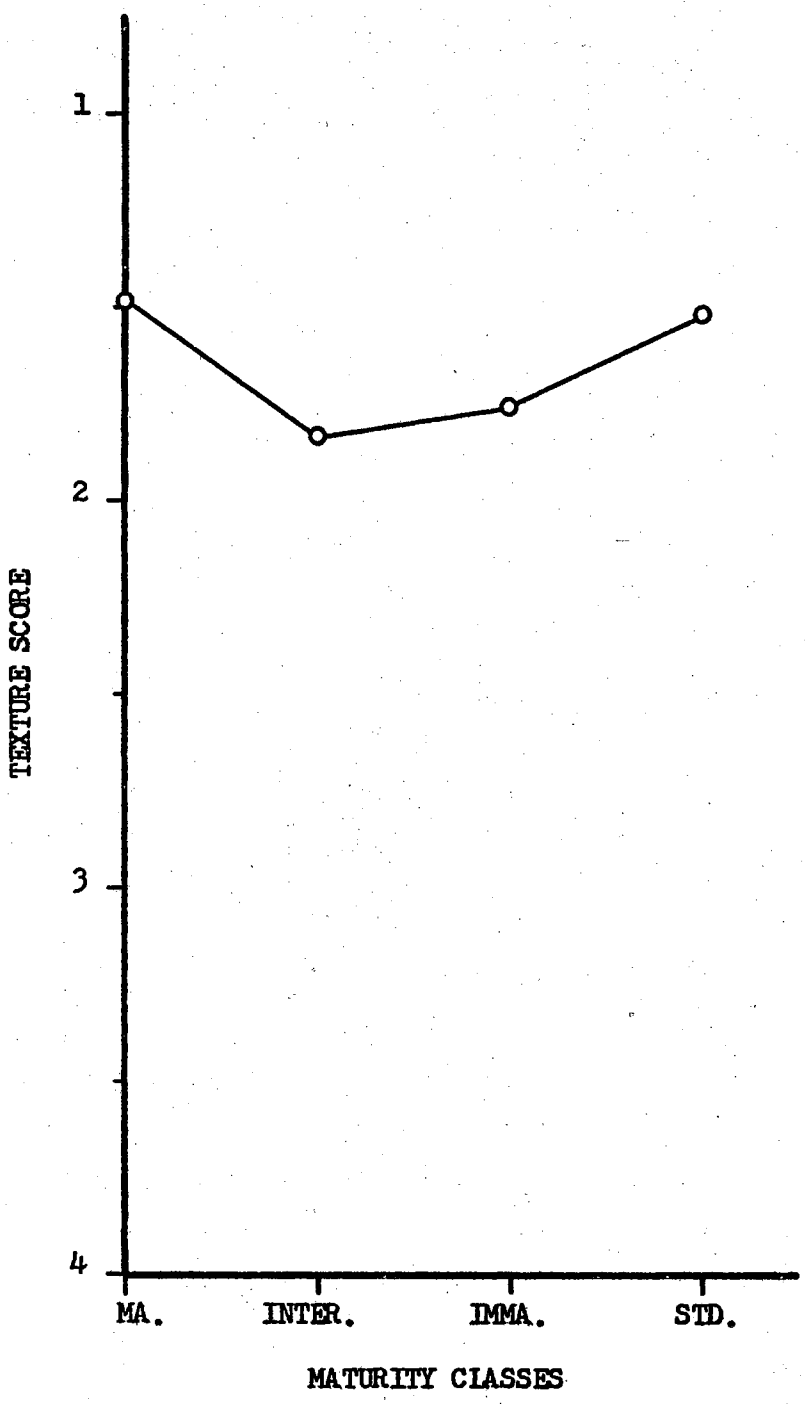

Figure 14. The Mean Texture Scores of Peanut Butter Made From Various Maturity Classes and the Standard Averaged for Six Harvest Dates for Dixie Spanish Peanuts, Stratford, 1965.

The calculated Chi-square value of 12.775 for the dryness was greater than the tabulated value of 7.815 indicating a significant difference among maturity classes and the standard samples. (Table XV, Figure 15, and Appendix Table XLV).

The standard was significantly superior to both mature and immature, but not to the intermediate samples. The paired comparisons for the three maturity classes did not differ significantly.

TABLE XV

THE MEAN DRYNESS SCORES AND SUM OF RANKS FOR MATURITY CLASSES AVERAGED FOR SIX HARVEST DATES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

	Mature	Intermediate	Immature	Standard
Mean Scores for Six Harvest Dates	2.17	2.05	2.27	1.63
ΣR_j (Sum of Ranks for Six Harvest Dates)	34.5	32.0	37.0	16.5

Dryness Scores: 1:Moist 2:Moderate 3:Oily 4:Very Dry

Results of Analysis:

$X^2_r = 12.775^*$ X^2 tab = 7.815

T (between standard and mature) = 3*
T tab (N = 11) = 11

T (between standard and intermediate) = 15
T tab (N = 12) = 14

T (between intermediate and immature) = 8
T tab (N = 8) = 4

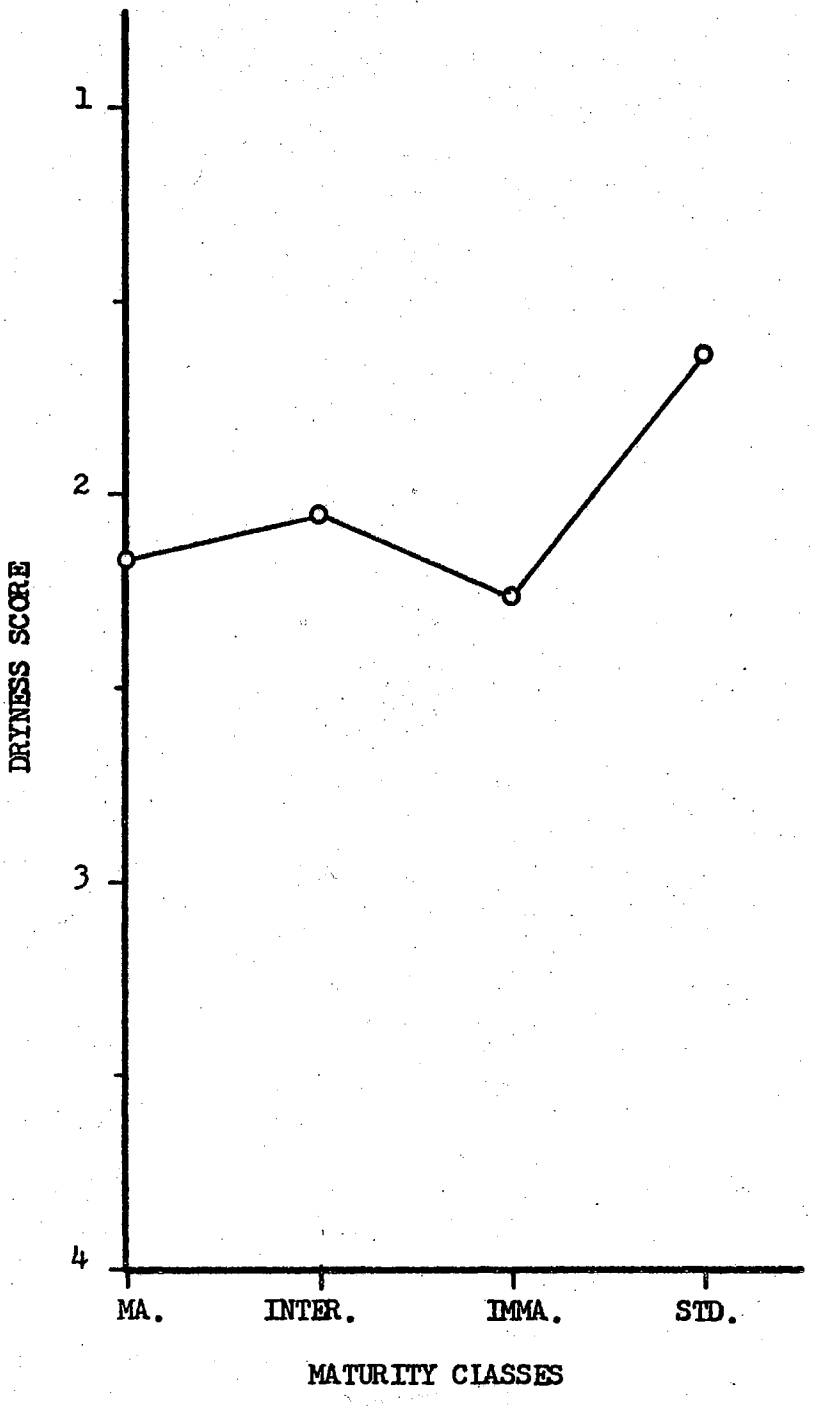

Figure 15. The Mean Dryness Scores of Peanut Butter Made From Various Maturity Classes and the Standard Averaged for Six Harvest Dates for Dixie Spanish Peanuts, Stratford, 1965.

The calculated Chi-square value of 26.4 for the mean preference ranks was greater than the tabulated value of 7.815 indicating significant differences among maturity classes and the standard samples (Table XVI, Figure 16, and Appendix Table XLVI.

The standard sample was significantly superior to each of the three maturity classes. No statistical difference was noted between the mature and intermediate samples but both were superior to the immature samples.

TABLE XVI

THE MEAN PREFERENCE RANKS AND SUM OF RE-RANKS FOR MATURITY CLASSES AVERAGED FOR SIX HARVEST DATES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

Mean Preference Ranks for Six Harvest Dates	3.37	3.55	4.58	1.75
ΣR_j (Sum of Re-Ranks for Six Harvest Dates)	32.0	32.0	44.0	12.0

Results of Analysis:

$X_r^2 = 26.4$ * $\qquad X^2$ tab = 7.815

T (between standard and mature) = 0*
T tab (N = 12) = 14

T (between intermediate and immature) = 13*
T tab (N = 12) = 14

T (between mature and intermediate) = 32
T tab (N = 12) = 14

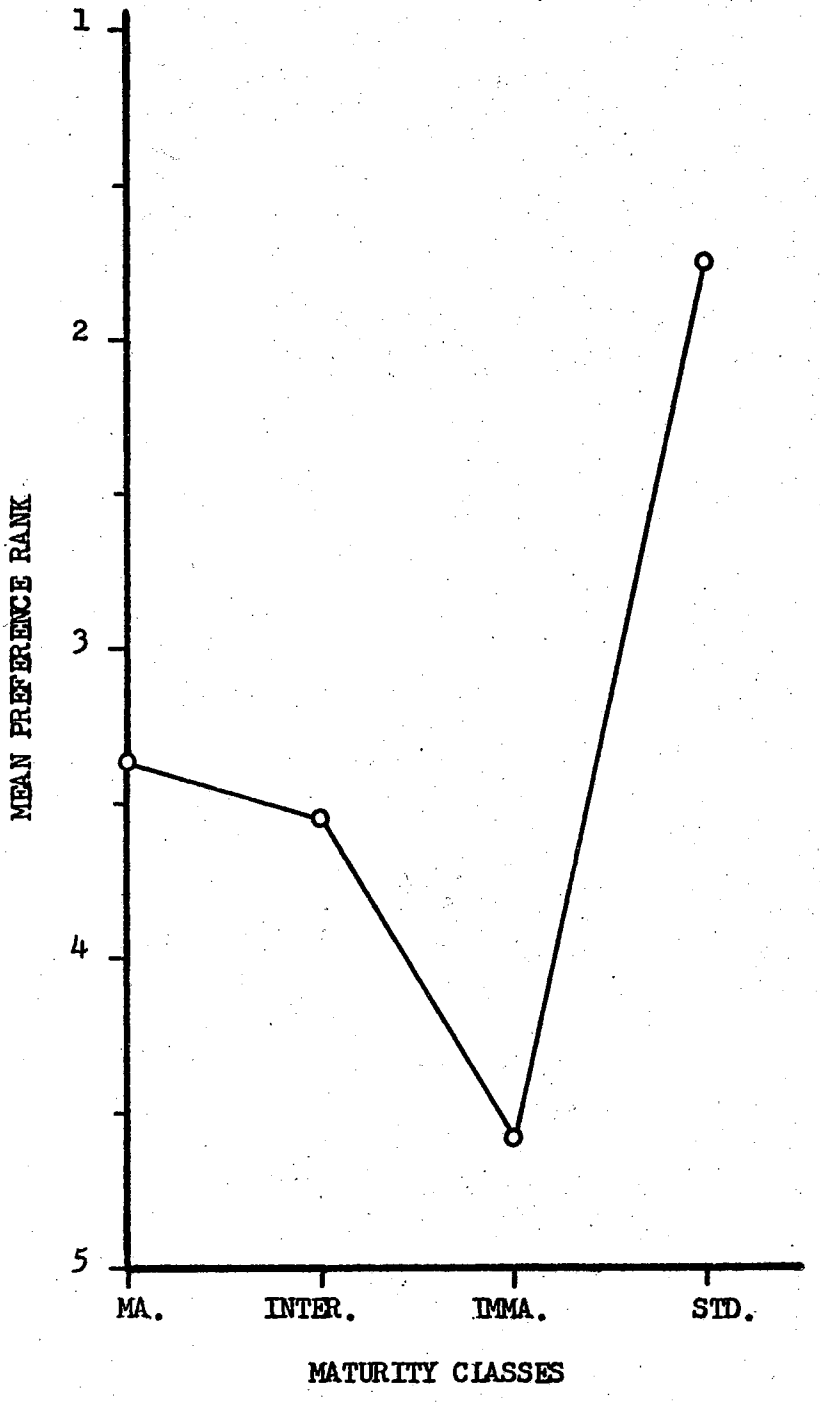

Figure 16. The Mean Preference Ranks of Peanut Butter Made From Various Maturity Classes and the Standard Averaged for Six Harvest Dates for Dixie Spanish Peanuts, Stratford, 1965.

Date of Harvest

Perkins

The mean scores and ranks of the five characteristics combined for the peanut butter samples from nine different dates harvested at weekly intervals are summarized in Table XVII, Figure 17 and 18, and Appendix Table XLVII.

The Chi-square value of 21.7666 was greater than the tabulated value of 15.507 indicating significant differences among harvest dates.

There was no significant difference among samples harvested 152, 145, 138, 131 and 124 days and among 117, 110, 103 and 96 days after planting. However, the former group was significantly superior to the latter. The 117 and 110 dates were not significantly different from either group.

This analysis revealed that the peanut butter samples with the higher quality were made from the peanuts harvested between 124 to 152 days after planting. The data showed that the best time for harvesting was about 145 days after planting.

The analysis of the five characteristics for the peanut butter samples made from the peanuts of nine different harvest dates showed that there were no significant differences for the characteristics of odor, texture, and dryness. However, flavor and taste scores differed significantly among harvest dates.

The calculated Chi-square of 24.825 for the flavor of the nine harvest dates from Perkins exceeded the tabulated value of 15.507 (Table XVIII, Figures 19, 20, and Appendix Table XLVIII. The greater value

indicated there were significant differences among the nine harvest dates with respect to flavor.

TABLE XVII

THE MEAN SCORES OF FIVE CHARACTERISTICS COMBINED AND SUM OF THE RANKS FOR NINE HARVEST DATES AVERAGED FOR VARIOUS MATURITY CLASSES, ARGENTINE PEANUTS, PERKINS, 1965.

	Days After Planting								
	96	103	110	117	124	131	138	145	152
Mean Scores for Four Maturity Classes	2.84	2.83	2.51	2.51	2.46	2.47	2.14	2.05	2.88
ΣR_j (Sum of the Ranks for Four Maturing Classes)	56.0	61.5	42.0	46.5	33.0	39.0	27.5	25.0	29.5

Results of Analysis:

$X_r^2 = 21.7666^*$ $\qquad$ X^2 tab = 15.507

T (between 145 and 117 days) = 2*
T tab (N = 7) = 2

T (between 145 and 131 days) = 2
T tab (N = 6) = 0

T (between 145 and 152 days) = 9
T tab (N = 8) = 4

T (between 110 and 96 days) = 4.5
T tab (N = 8) = 4

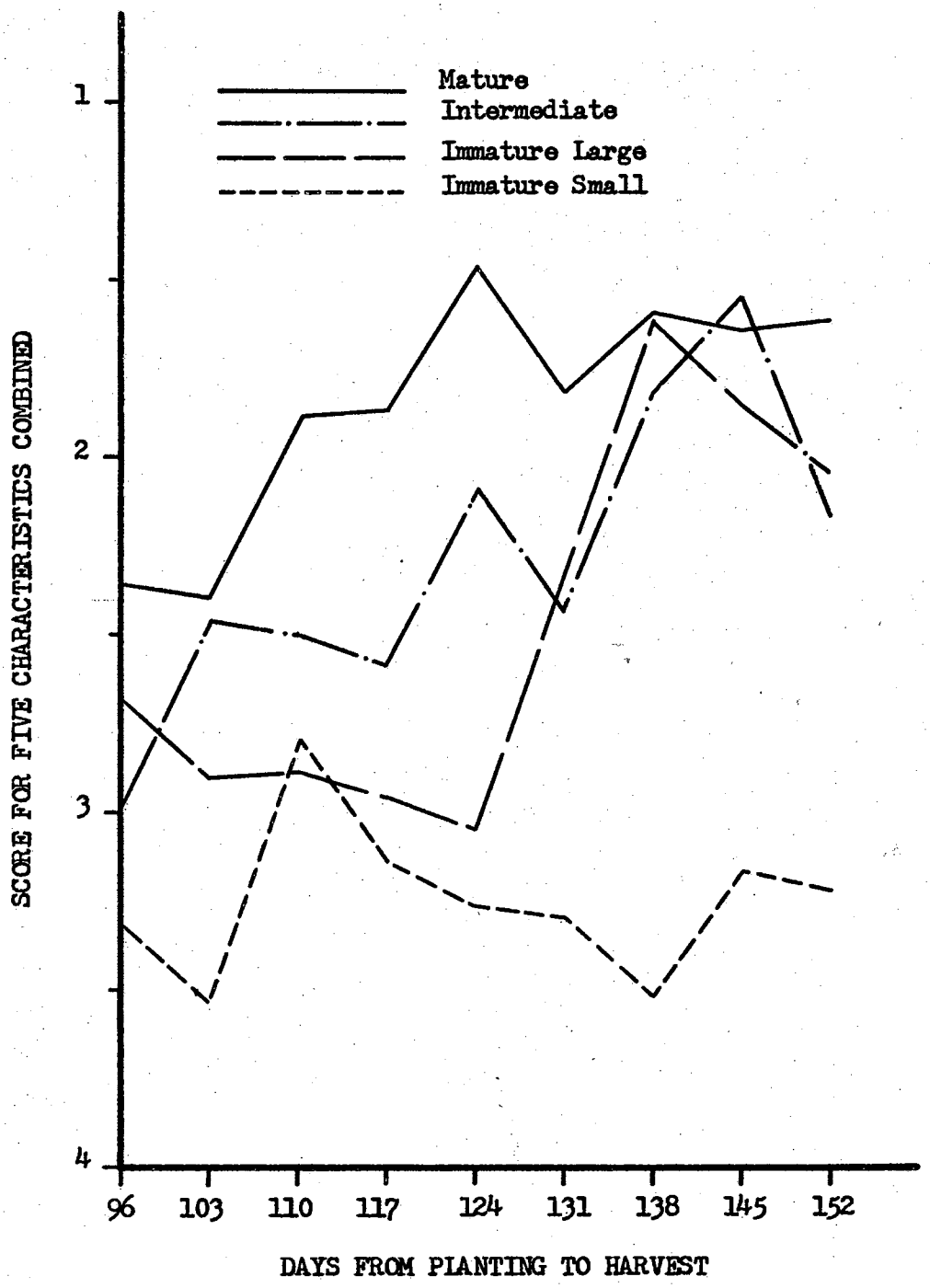

Figure 17. The Mean Scores of Peanut Butter for Five Characteristics Combined for Nine Harvest Dates and Averaged Over Each Maturity Class and the Standard for Argentine Peanuts, Perkins, 1965.

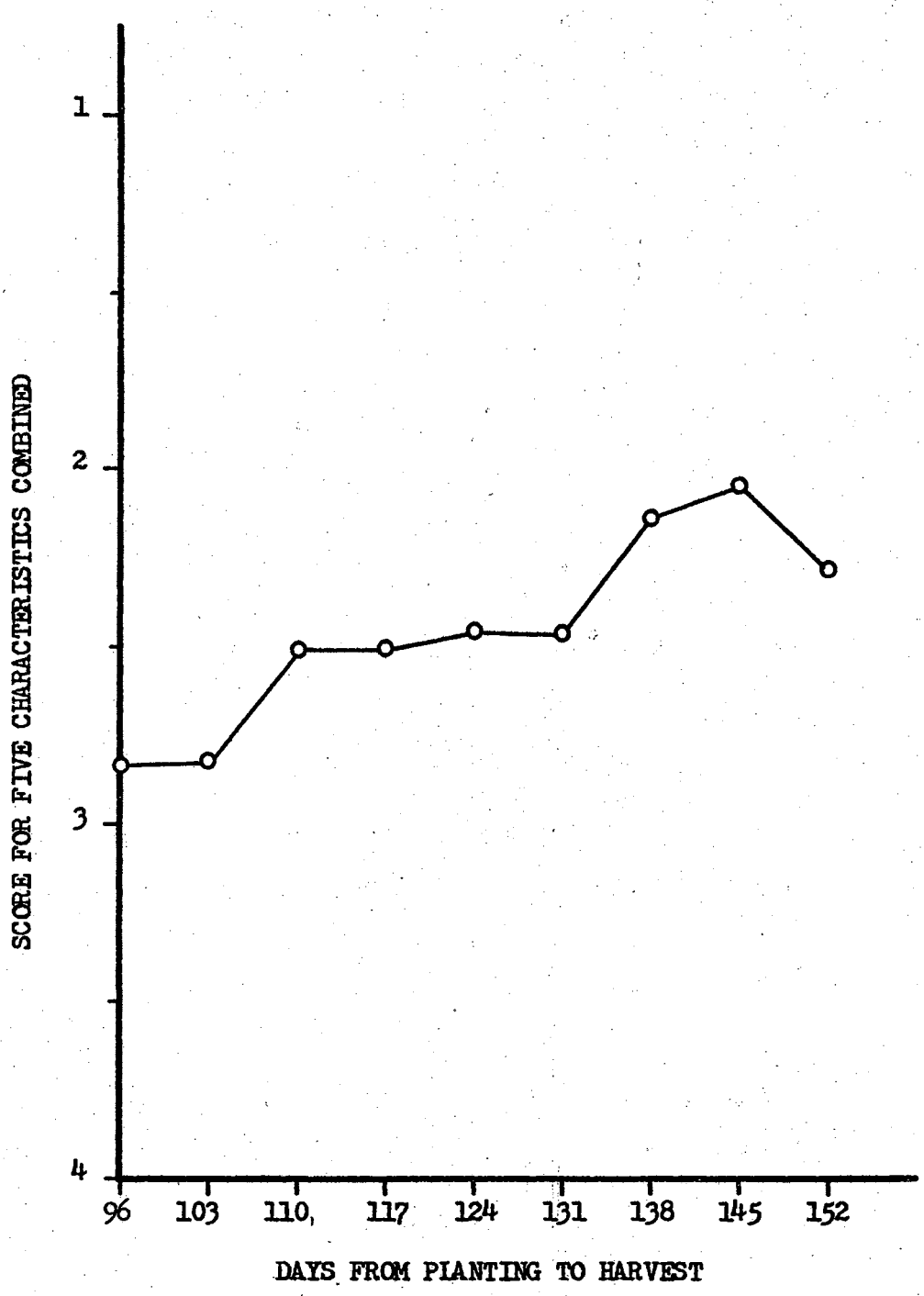

Figure 18. The Mean Scores of Peanut Butter for Five Characteristics Combined for Nine Harvest Dates and Averaged Over the Maturity Classes for Argentine Peanuts, Perkins, 1965.

TABLE XVIII

THE MEAN FLAVOR SCORES AND SUM OF THE RANKS FOR NINE HARVEST DATES AVERAGED FOR VARIOUS MATURITY CLASSES, ARGENTINE PEANUTS, PERKINS, 1965.

	Days After Planting								
	96	103	110	117	124	131	138	145	152
Mean Score for Four Maturity Classes	3.6	3.6	3.1	3.3	2.9	3.1	2.4	2.2	2.6
ΣR_j (Sum of the Ranks for Four Maturity Classes)	56.0	56.0	39.0	54.5	40.0	42.0	24.0	22.0	26.5

Flavor Scores: 1:Excellent 2:Good 3:Low 4:Off

Results of Analysis:

$X_r^2 = 24.825^*$ $X^2_{tab} = 15.507$

T (between 145 and 117 days) = 0^*
T tab (N = 7) = 2

T (between 145 and 131 days) = 1^*
T tab (N = 7) = 2

T (between 152 and 96 days) = 0^*
T tab (N = 7) = 2

T (between 145 and 152 days) = 7
T tab (N = 7) = 2

T (between 152 and 124) = 4.5
T tab (N = 6) = 0

T (between 138 and 124 days) = 3
T tab (N = 6) = 0

T (between 124 and 145 days) = 4.5
T tab (N = 8) = 4

T (between 145 and 110 days) = 3
T tab (N = 7) = 2

T (between 124 and 96 days) = 3
T tab (N = 5) = 0

T (between 152 and 131 days) = 6
T tab (N = 8) = 4

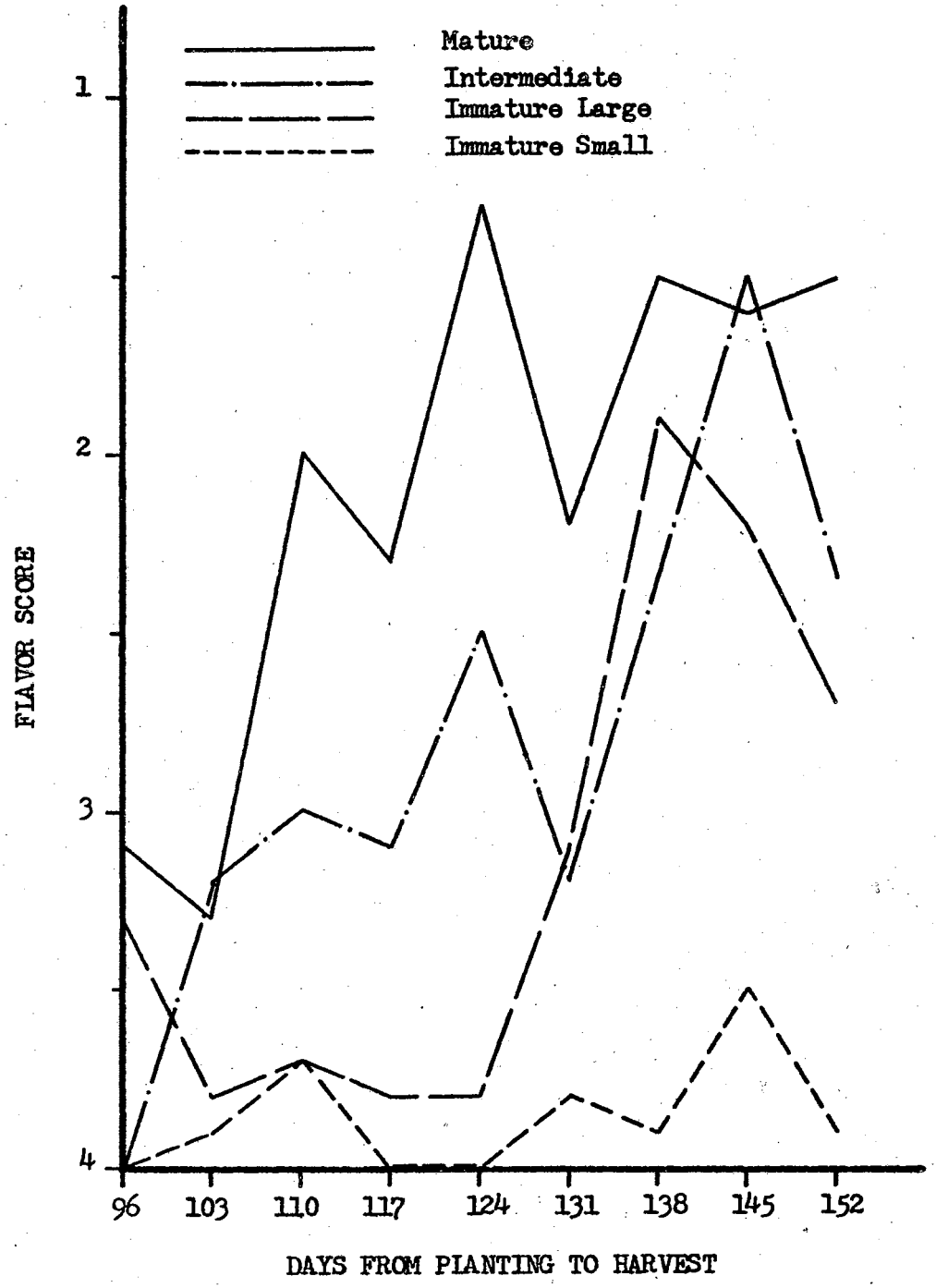

Figure 19. The Mean Flavor Scores of Peanut Butter for Nine Harvest Dates Averaged Over Each Maturity Class for Argentine Peanuts, Perkins, 1965.

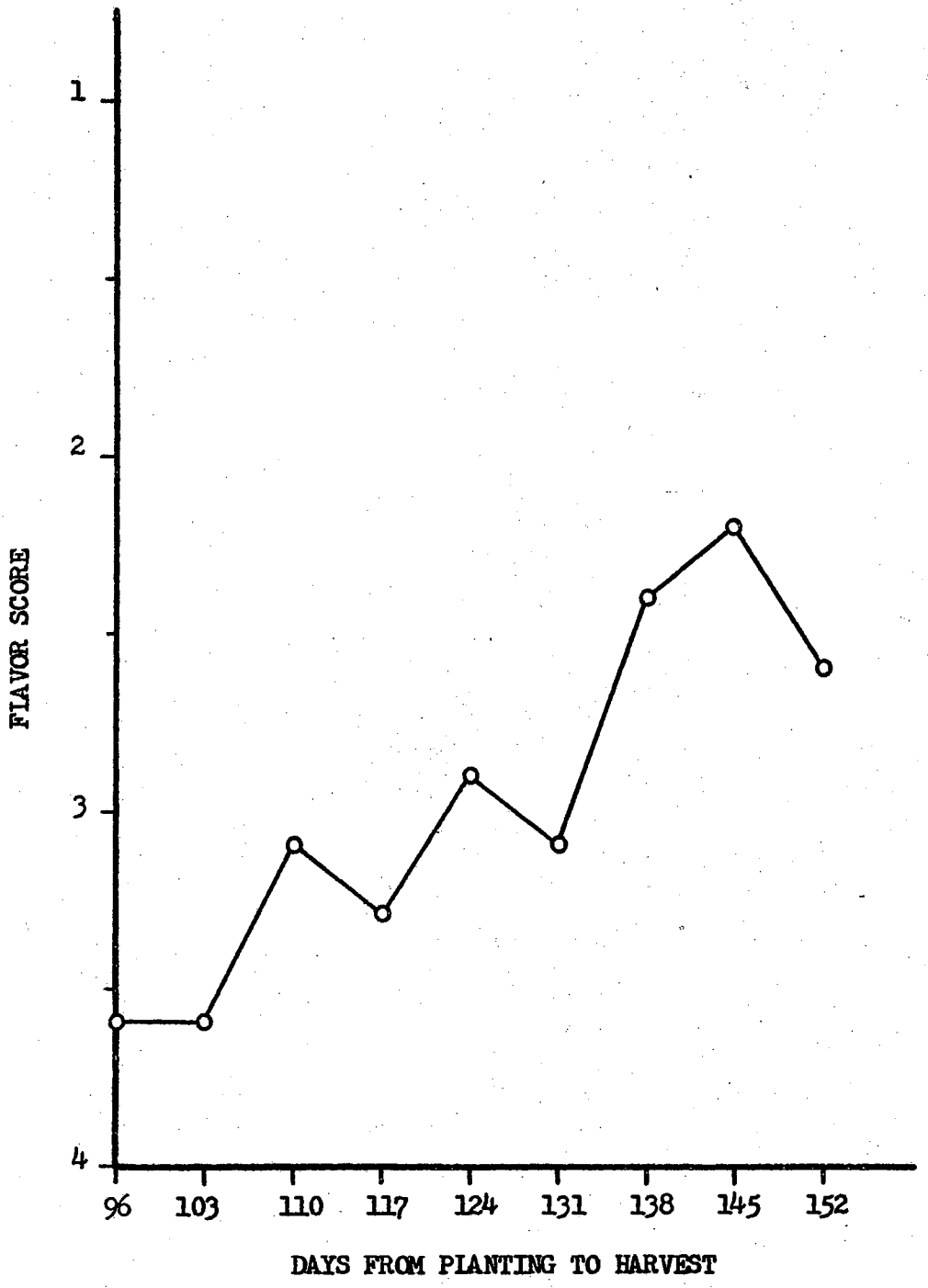

Figure 20. The Mean Flavor Scores of Peanut Butter for Nine Harvest Dates Averaged Over the Maturity Classes for Argentine Peanuts, Perkins, 1965.

The peanut butter from the peanuts harvested 131 days after planting was significantly superior to the peanuts harvest prior to 131 days. However, the peanut butter samples made from the peanuts which were harvested 124 days after planting was not significantly different from those harvested either 138 or 152 days after planting. The peanuts harvested at 145 days after planting received the most favorable flavor scores in this study.

The calculated Chi-square value of 37.0083 for taste was greater than the tabulated value of 15.507 (Table XIX, Figures 21, 22, and Appendix Table XLIX). There were significant differences among taste scores for the different harvest dates.

The harvest dates were divided into three sub-groups, for statistical interpretation. The three sub-groups were significantly different from each other. There was no significant difference within harvest dates in the following sub-groups: 96 days; 103, 110, 117, 124, 131 days; and 138, 145, 152 days after planting. The latter harvest dates were superior in taste to the peanut butter from the early dates.

The tabulated Chi-square value of 15.507 was greater than the calculated values of 11.4083, 9.9916, 9.2083 for odor, texture, and dryness scores, respectively, among the nine different harvest dates. The smaller values indicated that there were no significant differences among the nine different harvest dates statistically with respect to odor, texture, and dryness. The data (Table XX, XXI, and XXII, Appendix Tables L, LI, and LII) and graphes (Figures 23, 24; 25, 26; 27, and 28) indicate the differences observed, though they were not statistically significant.

TABLE XIX

THE MEAN TASTE SCORES AND SUM OF THE RANKS FOR NINE HARVEST DATES AVERAGED FOR VARIOUS MATURITY CLASSES, ARGENTINE PEANUTS, PERKINS, 1965.

	Days After Planting								
	96	103	110	117	124	131	138	145	152
Mean Scores for Four Maturity Classes	3.4	3.0	3.0	2.8	2.8	3.0	2.3	2.2	2.0
ΣR_j (Sum of the Ranks for Four Maturity Classes)	64.0	50.5	50.0	44.5	40.5	51.5	24.5	19.0	15.5

Scores of Taste: 1:Sweet 2:Fair 3:Bitter 4:Sour

Results of Analysis:

$X_r^2 = 37.0083^*$ X^2 tab = 15.507

T (between 152 and 131 days) = 0^*
T tab (N = 8) = 4

T (between 138 and 131 days) = 3^*
T tab (N = 8) = 4

T (between 138 and 124 days) = 3.5^*
T tab (N = 8) = 4

T (between 131 and 96 days) = 2^*
T tab (N = 7) = 2

T (between 152 and 138 days) = 9.5
T tab (N = 8) = 4

T (between 131 and 124 days) = 5
T tab (N = 7) = 2

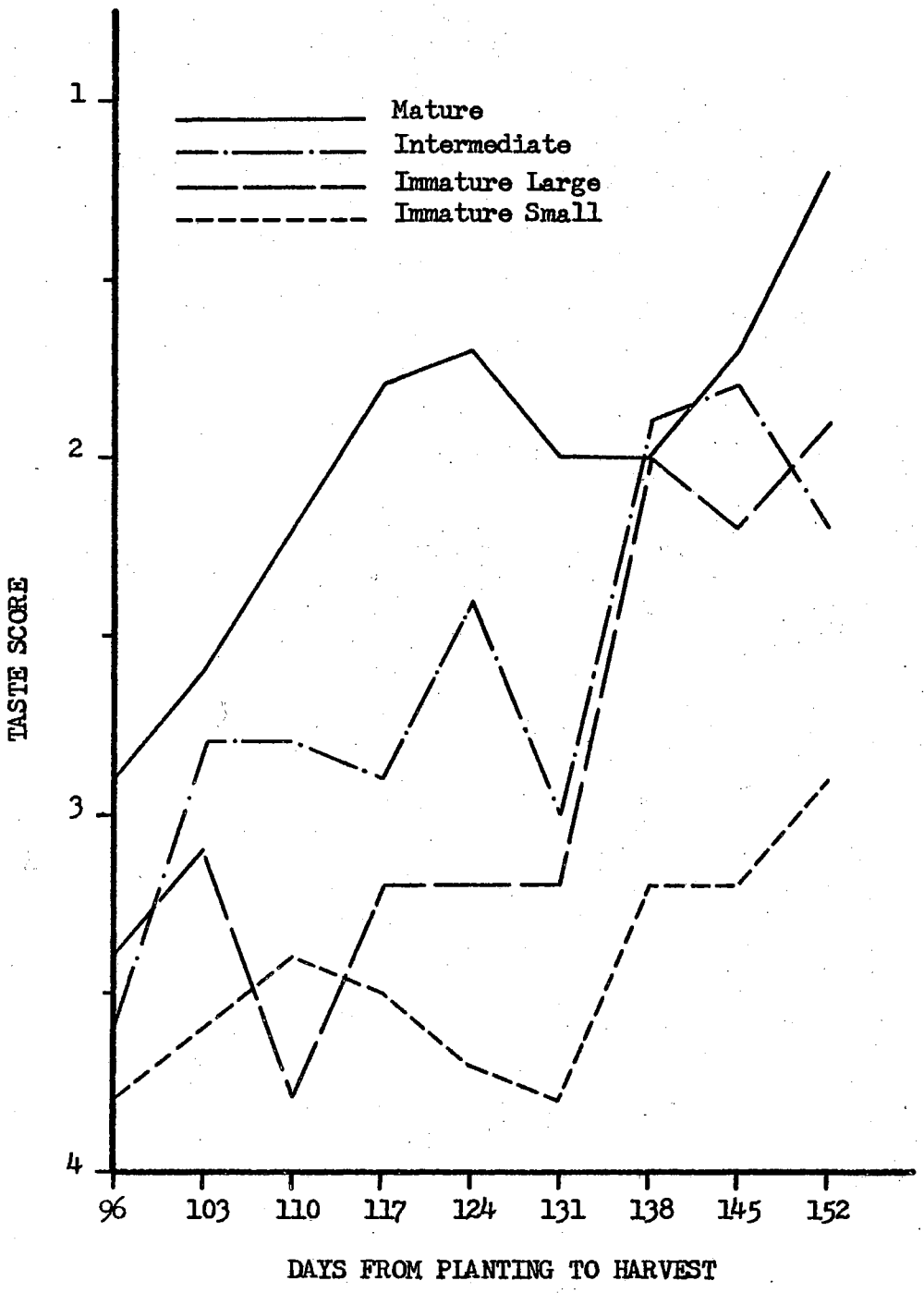

Figure 21. The Mean Taste Scores of Peanut Butter for Nine Harvest Dates Averaged Over Each Maturity Class for Argentine Peanuts, Perkins, 1965.

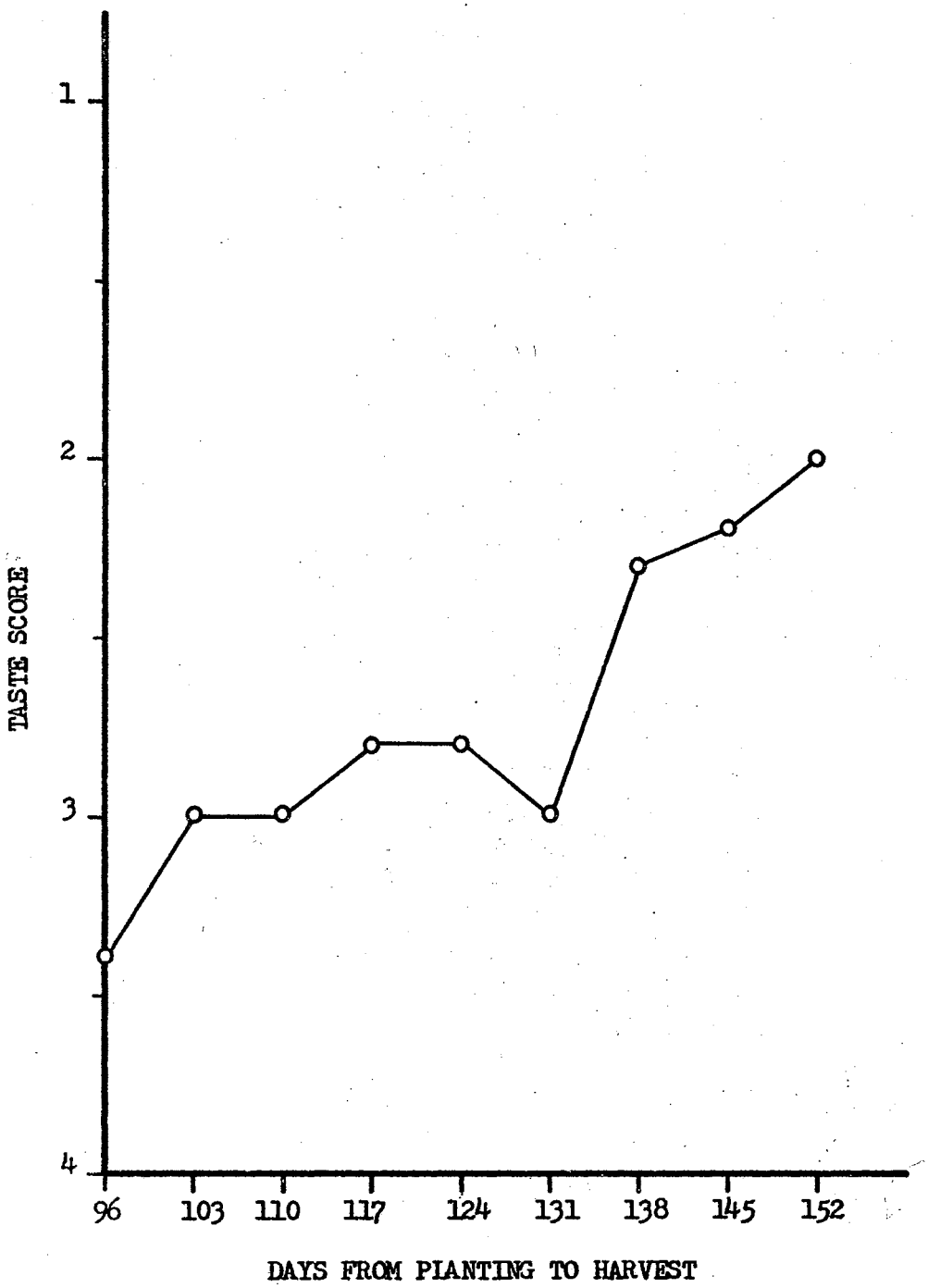

Figure 22. The Mean Taste Scores of Peanut Butter for Nine Harvest Dates Averaged Over the Maturity Classes for Argentine Peanuts, Perkins, 1965.

TABLE XX

THE MEAN ODOR SCORES AND SUM OF THE RANKS FOR NINE HARVEST DATES AVERAGED FOR VARIOUS MATURITY CLASSES, ARGENTINE PEANUTS, PERKINS, 1965.

	Days After Planting								
	96	103	110	117	124	131	138	154	152
Mean Scores for Four Maturity Classes	2.63	3.10	2.90	2.65	2.55	2.30	2.30	2.43	2.60
ΣR_j (Sum of the Ranks for Four Maturity Classes)	41.0	54.0	53.0	40.5	39.0	31.0	25.5	35.0	41.0

Odor Scores: 1:Moderate 2:Weak 3:None 4:Strong

Result of Analysis:

$X_r^2 = 11.4083$ X^2 tab = 15. 507

TABLE XXI

THE MEAN TEXTURE SCORES AND SUM OF THE RANKS FOR NINE HARVEST DATES AVERAGED FOR VARIOUS MATURITY CLASSES, ARGENTINE PEANUTS, PERKINS, 1965.

	Days After Planting								
	96	103	110	117	124	131	138	154	152
Mean Scores for Four Maturity Classes	2.00	2.00	1.57	1.98	1.93	1.73	1.55	1.60	1.83
ΣR_j (Sum of the Ranks for Four Maturity Classes)	46.5	52.5	33.0	46.5	47.0	34.0	28.5	30.5	41.5

Texture Scores: 1:Smooth 2:Mealy 3:Mushy 4:Chunky

Result of Analysis

$X_r^2 = 9.9916$ X^2 tab = 15.507

The more desirable ratings for odor were obtained in the period from 124 to 152 days after planting. There was no indication which harvest gave the most desirable texture and dryness scores.

TABLE XXII

THE MEAN DRYNESS SCORES AND SUM OF RANKS FOR NINE HARVEST DATES AVERAGED FOR VARIOUS MATURITY CLASSES, ARGENTINE PEANUTS, PERKINS, 1965.

	Days After Planting								
	96	103	110	117	124	131	138	145	152
Mean Scores for Four Maturity Classes	2.58	2.60	1.98	2.40	2.18	2.25	2.23	1.95	2.33
ΣR_j (Sum of the Ranks for Four Maturity Classes)	48.5	55.0	31.0	40.5	33.0	38.5	40.5	29.5	43.5

Dryness Scores: 1:Moist 2:Moderate 3:Oily 4:Very Dry

Result of Analysis:

$X_r^2 = 9.2083$ $X^2_{tab} = 15.507$

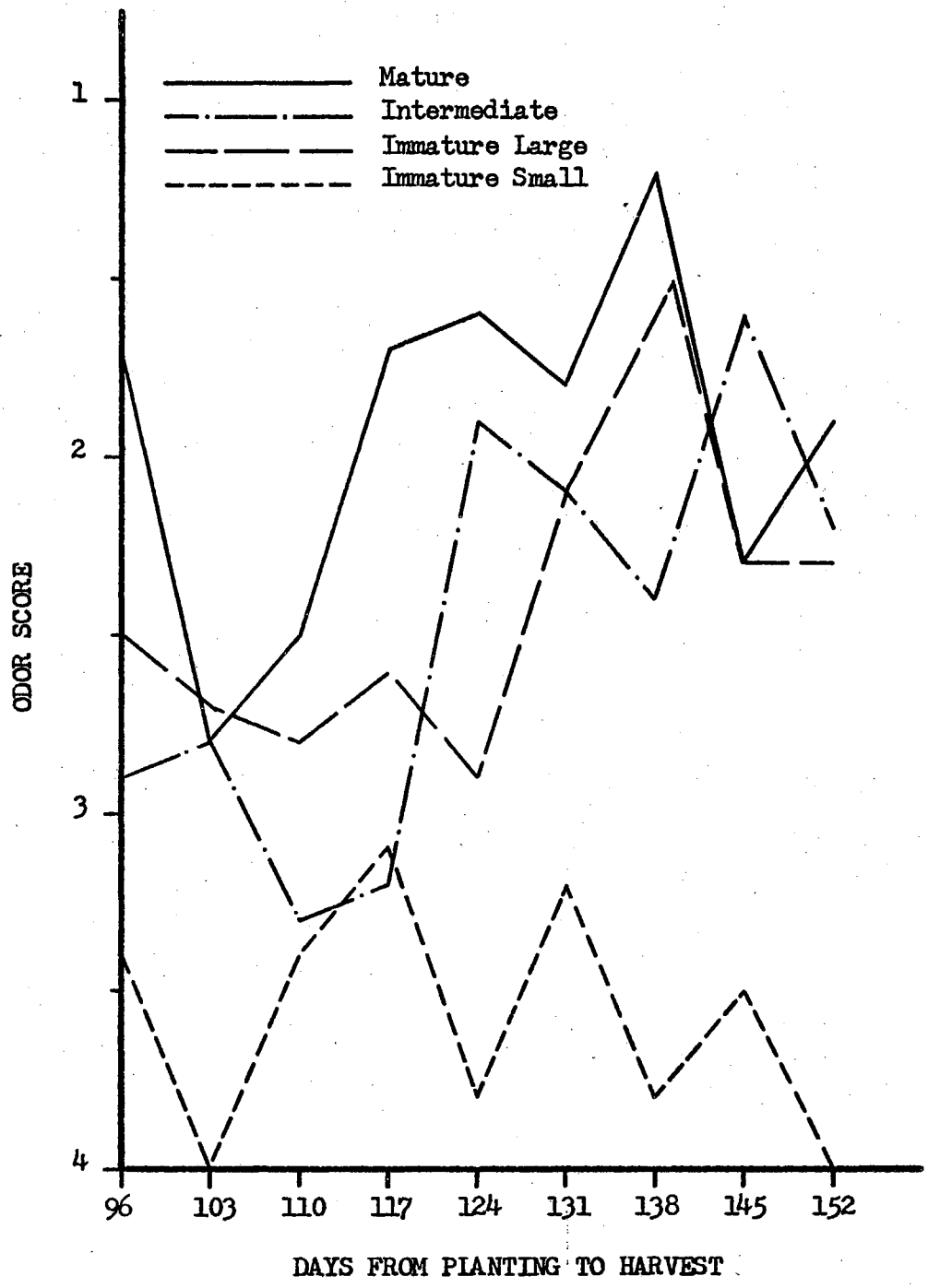

Figure 23. The Mean Odor Scores of Peanut Butter for Nine Harvest Dates Averaged Over Each Maturity Class for Argentine Peanuts, Perkins, 1965.

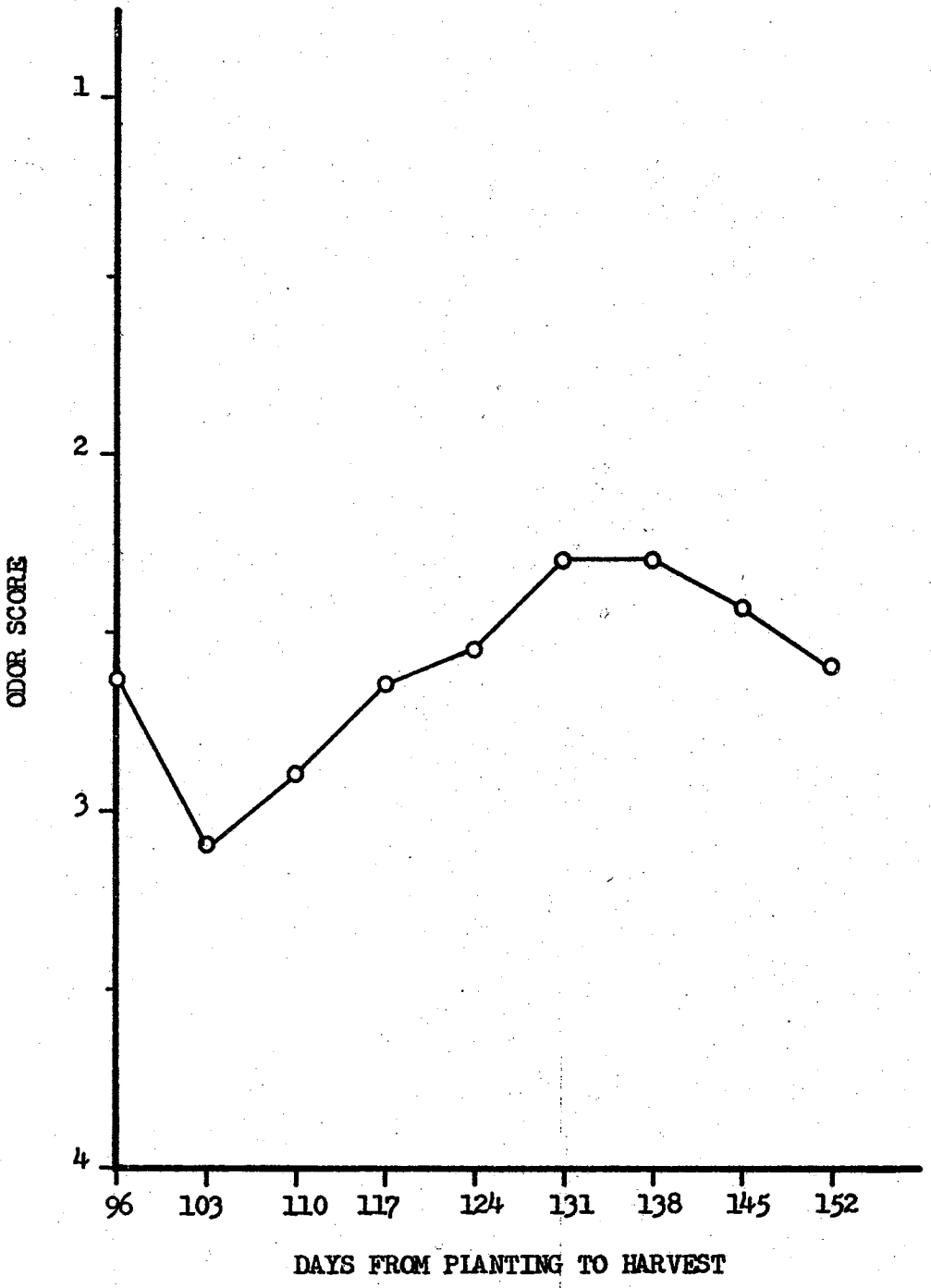

Figure 24. The Mean Odor Scores of Peanut Butter for Nine Harvest Dates Averaged Over the Maturity Classes for Argentine Peanuts, Perkins, 1965.

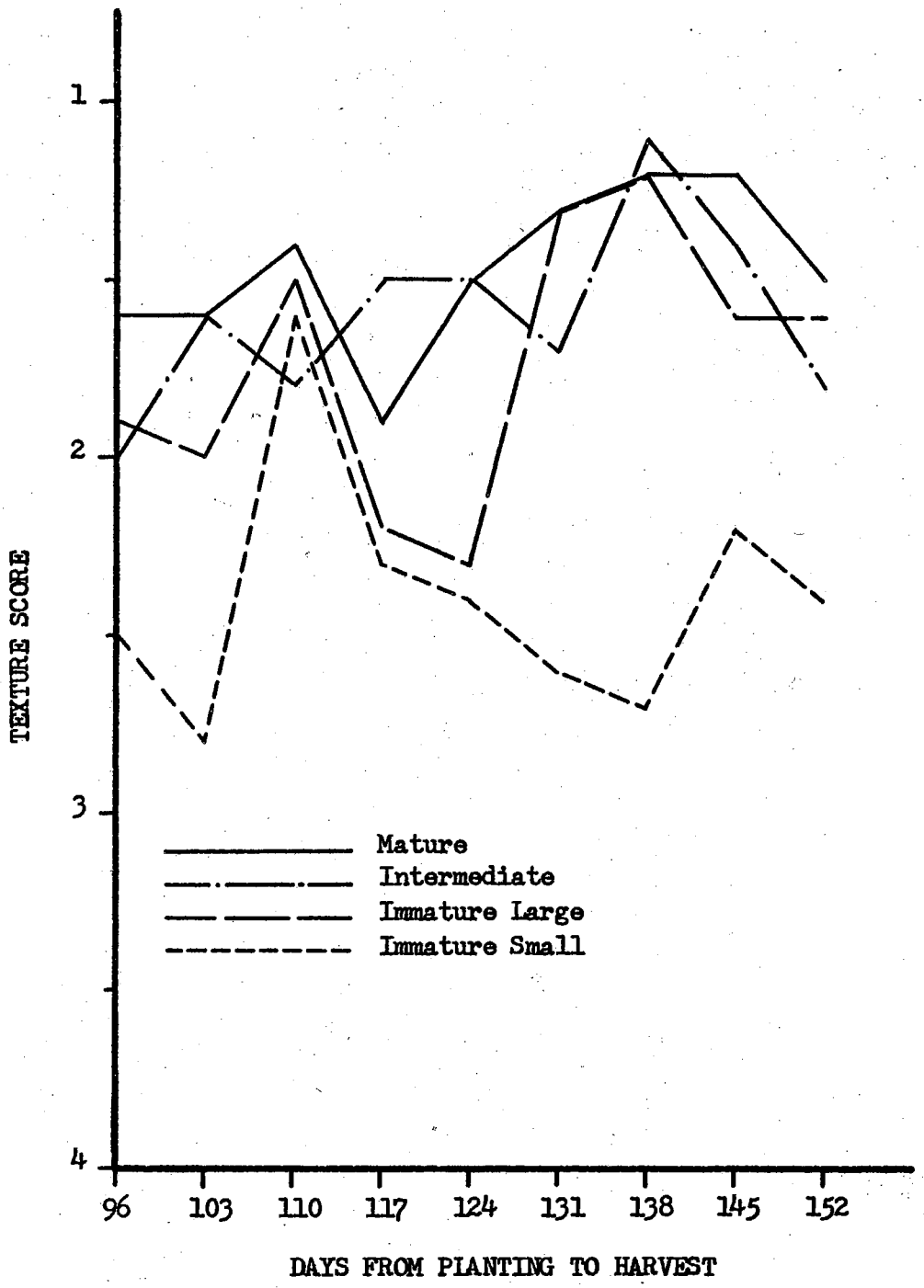

Figure 25. The Mean Texture Scores of Peanut Butter for Nine Harvest Dates Averaged Over Each Maturity Class for Argentine Peanuts, Perkins, 1965

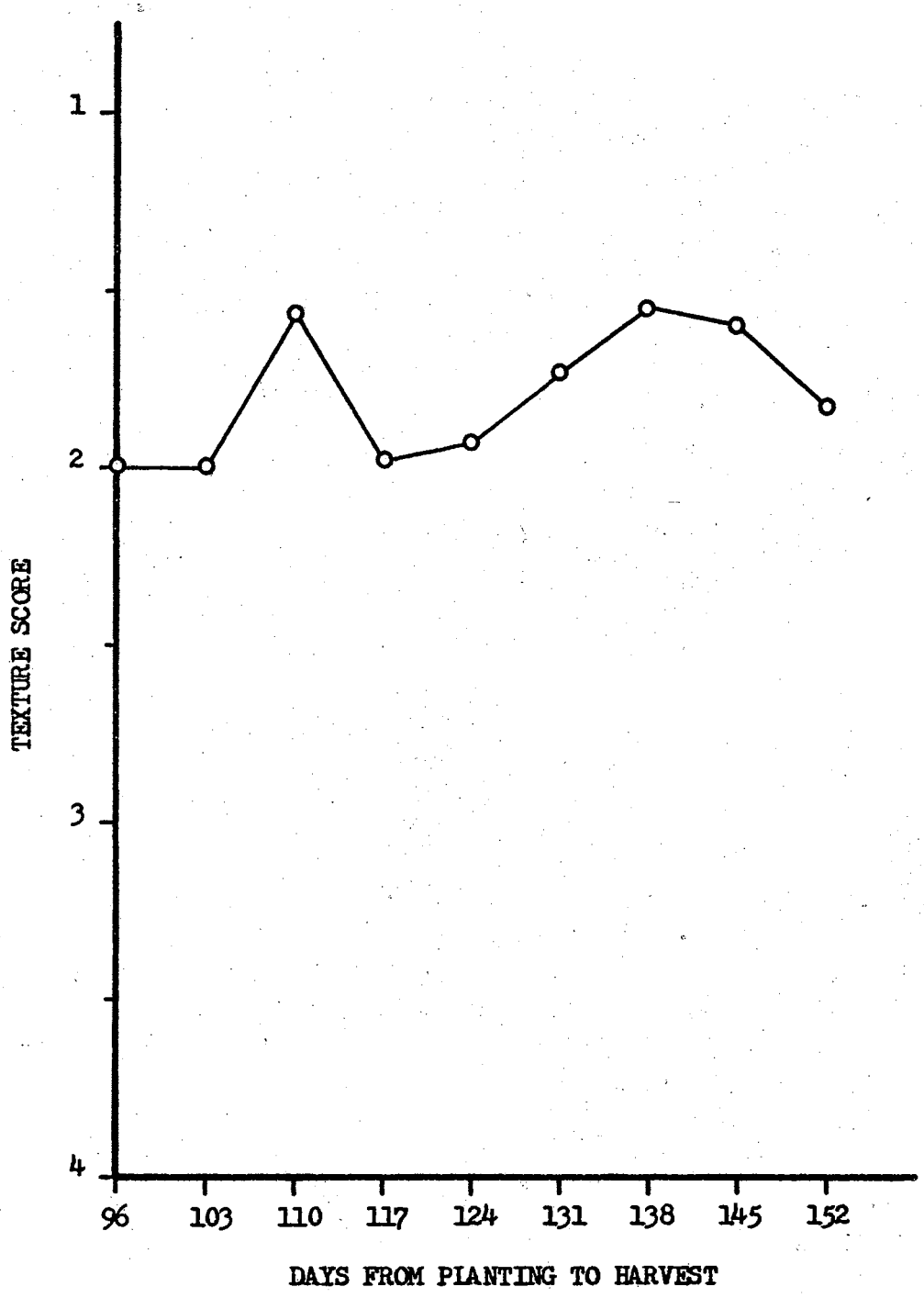

Figure 26. The Mean Texture Scores of Peanut Butter for Nine Harvest Dates Averaged Over the Maturity Classes for Argentine Peanuts, Perkins, 1965.

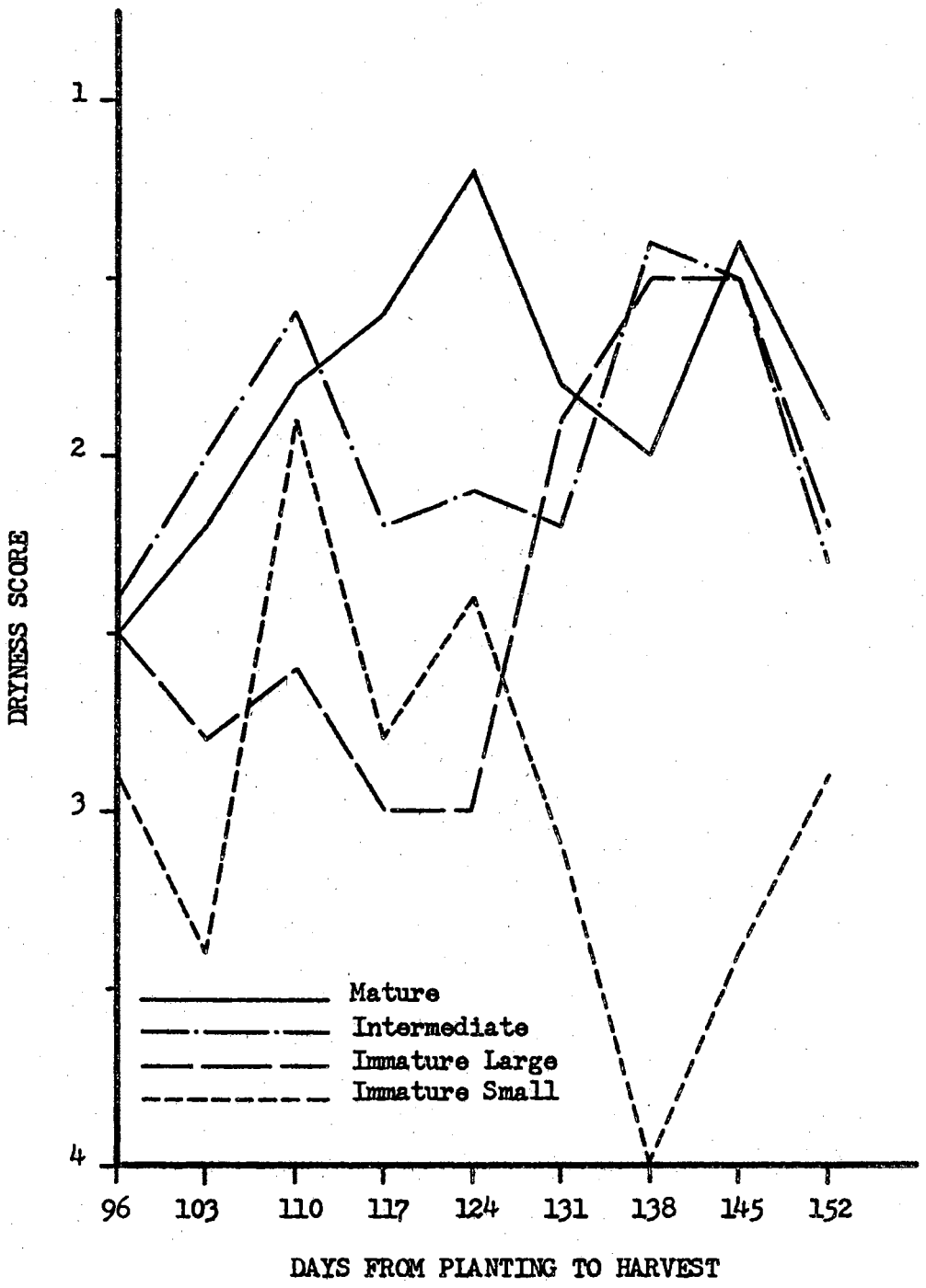

Figure 27. The Mean Dryness Scores of Peanut Butter for Nine Harvest Dates Averaged Over Each Maturity Class for Argentine Peanuts, Perkins, 1965.

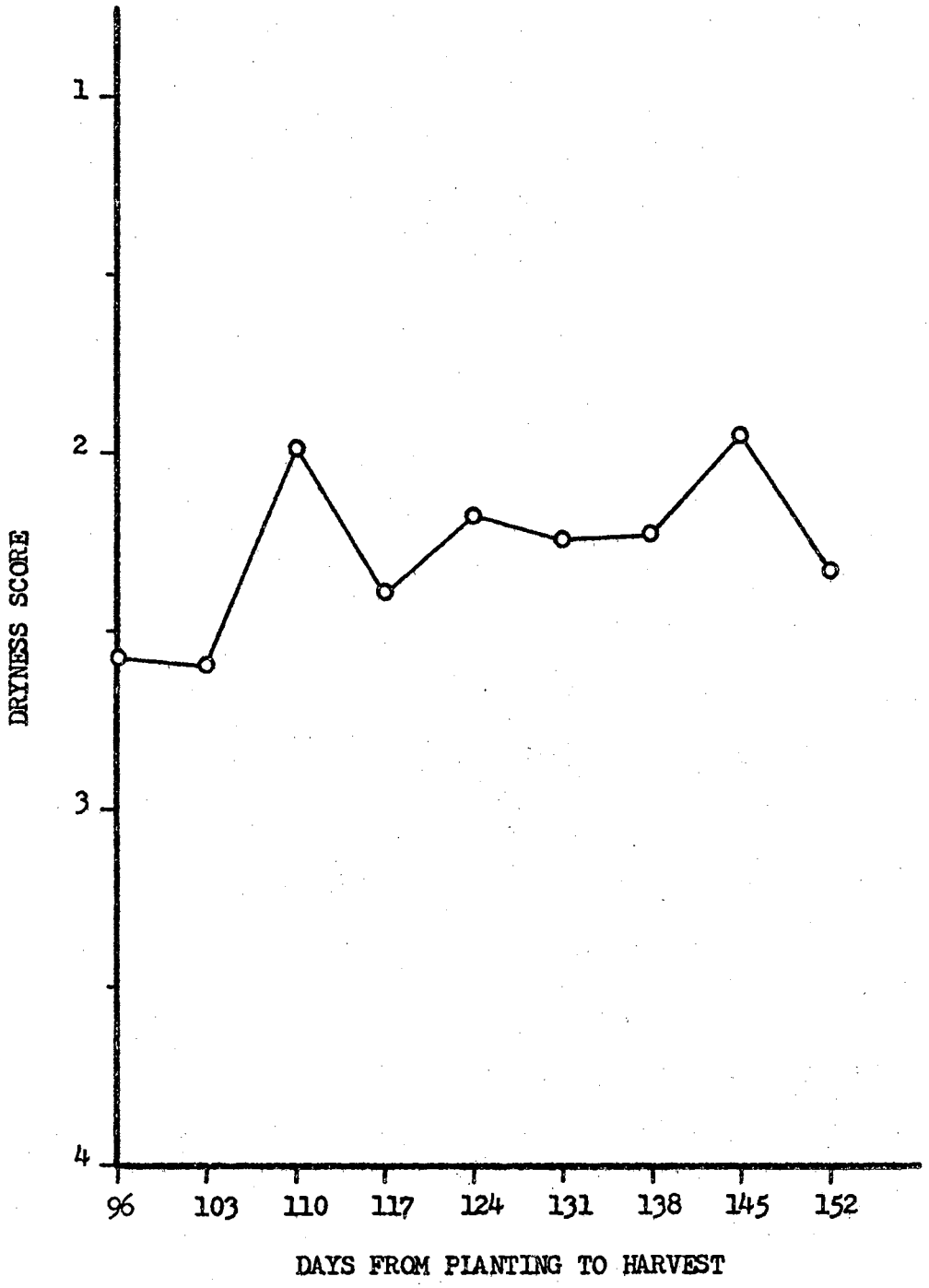

Figure 28. The Mean Dryness Scores of Peanut Butter for Nine Harvest Dates Averaged Over the Maturity Classes for Argentine Peanuts, Perkins, 1965.

Stratford

The organoleptic results for peanut samples made from peanuts collected from six different harvest dates at weekly intervals are summarized in Tables XXIII, through XXVIII.

The tabulated Chi-square value of 11.070 was greater than the calculated values of 3.2142, 3.4047, 4.0952, 3.2619, 2.3571, 6.8095 for five combined characteristics, for odor, flavor, taste, texture, and dryness scores, respectively. (Tables XXIII, XXIV, XXV, XXVI, XXVII, and XXVIII, Figures 29, 30; 31, 32; 33, 34; 35, 36; 37, 38; 39, and 40; and Appendix Tables LIII, LIV, LV, LVI, LVII, and LVIII). The small calculated Chi-square values indicated that there were no significant differences among the six different harvest dates for the various characteristics of peanut butter samples.

TABLE XXIII

THE MEAN SCORES OF FIVE CHARACTERISTICS COMBINED AND SUM OF THE RANKS FOR SIX HARVEST DATES AVERAGED FOR VARIOUS MATURITY CLASSES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

	Days After Planting					
	111	118	125	132	139	146
Mean Scores For Three Maturity Classes	2.47	2.52	2.56	2.44	2.31	2.44
ΣR_j (Sum of Ranks for Three Mat. Classes)	23.0	22.0	26.5	17.0	17.0	20.5

Result of Analysis:

$X_r^2 = 3.2142$ X^2 tab = 11.070

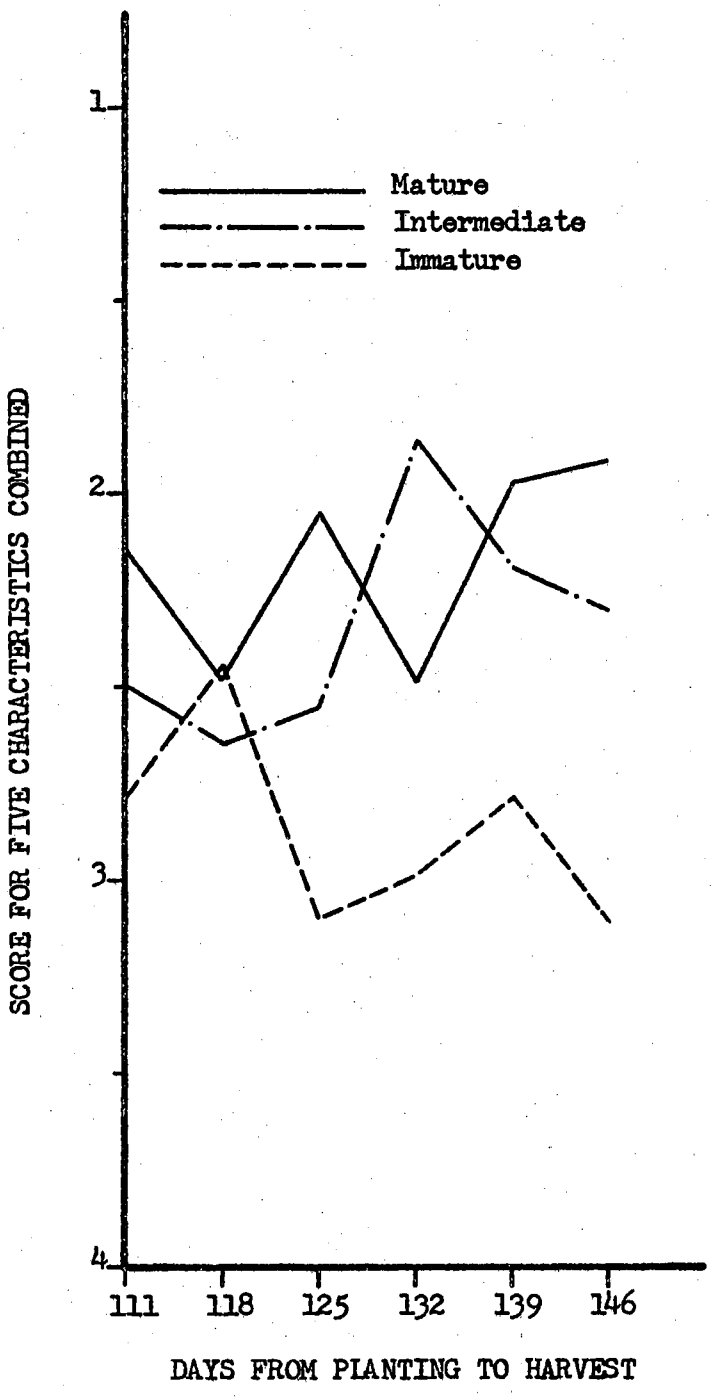

Figure 29. The Mean Scores of Peanut Butter for Five Characteristics Combined for Six Harvest Dates Averaged Over Each Maturity Class for Dixie Spanish Peanuts, Stratford, 1965.

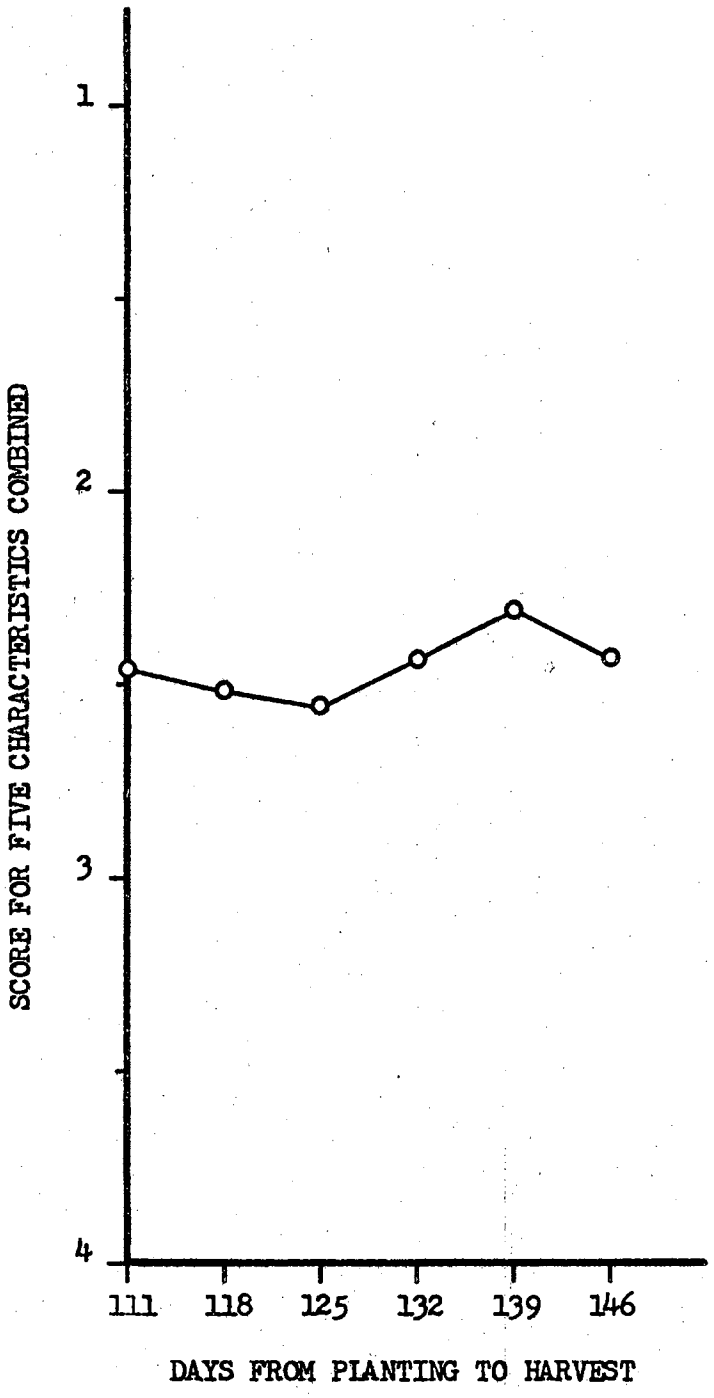

Figure 30. The Mean Scores of Peanut Butter for Five Characteristics Combined for Six Harvest Dates Averaged Over the Maturity Classes for Dixie Spanish Peanuts, Stratford, 1965.

TABLE XXIV

THE MEAN ODOR SCORES AND SUM OF RANKS FOR SIX HARVEST DATES AVERAGED FOR VARIOUS MATURITY CLASSES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

	Days After Planting					
	111	118	125	132	139	146
Mean Scores for Three Maturity Classes	3.30	3.10	3.00	2.70	2.60	2.75
ΣR_j (Sum of Ranks for Three Mat. Classes)	26.0	23.0	22.5	19.0	15.0	20.5

Odor Scores: 1:Moderate 2:Weak 3:None 4:Strong

Result of Analysis:

$X_r^2 = 3.4047$ X^2 tab = 11.070

TABLE XXV

THE MEAN FLAVOR SCORES AND SUM OF RANK FOR SIX HARVEST DATES AVERAGED FOR VARIOUS MATURITY CLASSES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

	Days After Planting					
	111	118	125	132	139	146
Mean Scores for Three Maturity Classes	2.90	3.10	3.30	3.00	2.80	2.65
ΣR_j (Sum of Ranks for Three Mat. Classes)	20.5	24.5	27.0	20.5	17.5	16.0

Flavor Scores: 1:Excellent 2:Good 3:Low 4:Off

Result of Analysis:

$X_r^2 = 4.0952$ X^2 tab = 11.070

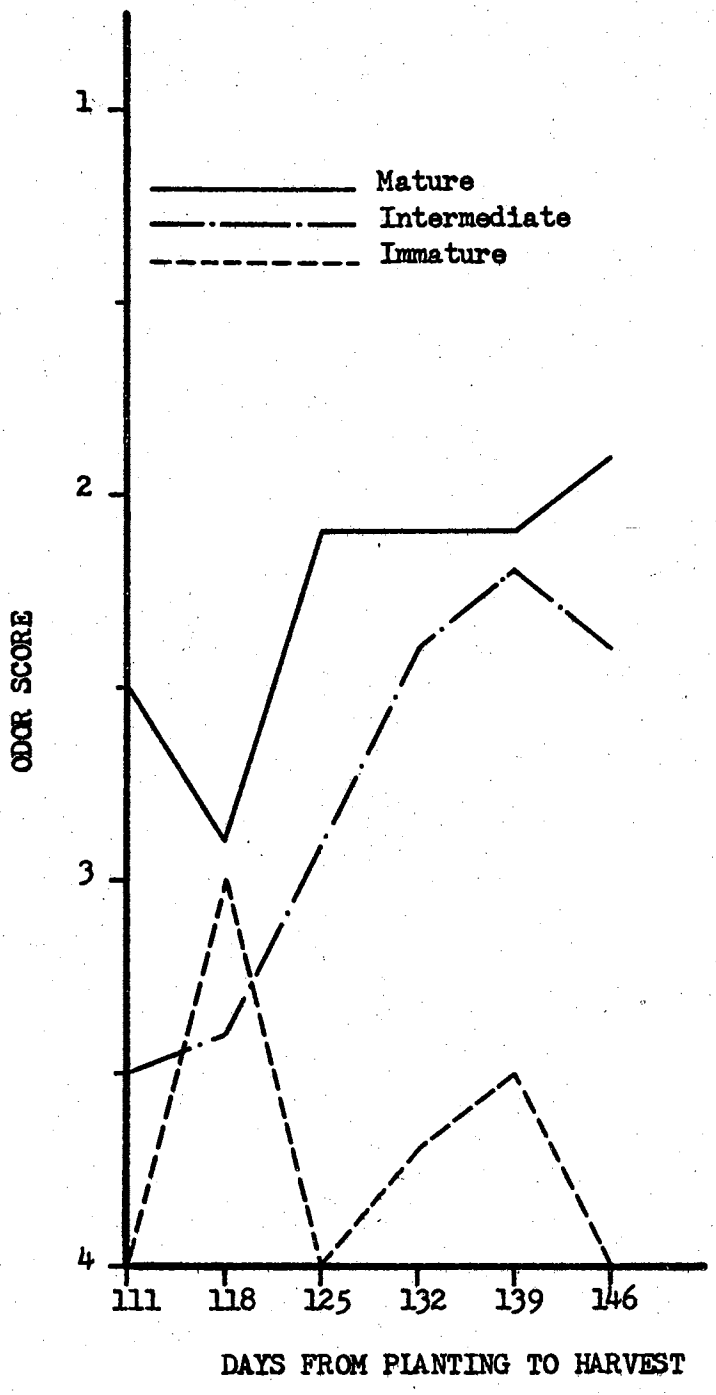

Figure 31. The Mean Odor Scores of Peanut Butter for Six Harvest Dates Averaged Over Each Maturity Class for Dixie Spanish Peanuts, Stratford, 1965.

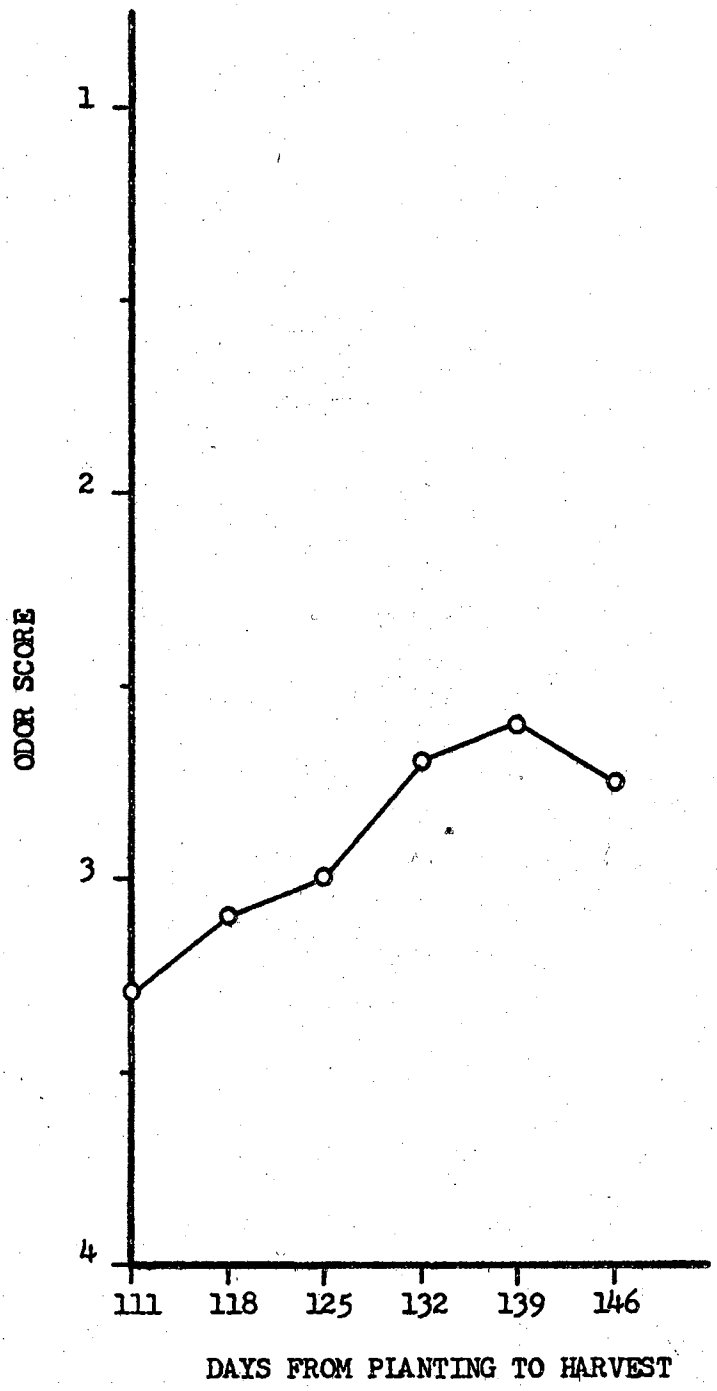

Figure 32. The Mean Odor Scores of Peanut Butter for Six Harvest Dates Averaged Over the Maturity Classes for Dixie Spanish Peanuts, Stratford, 1965.

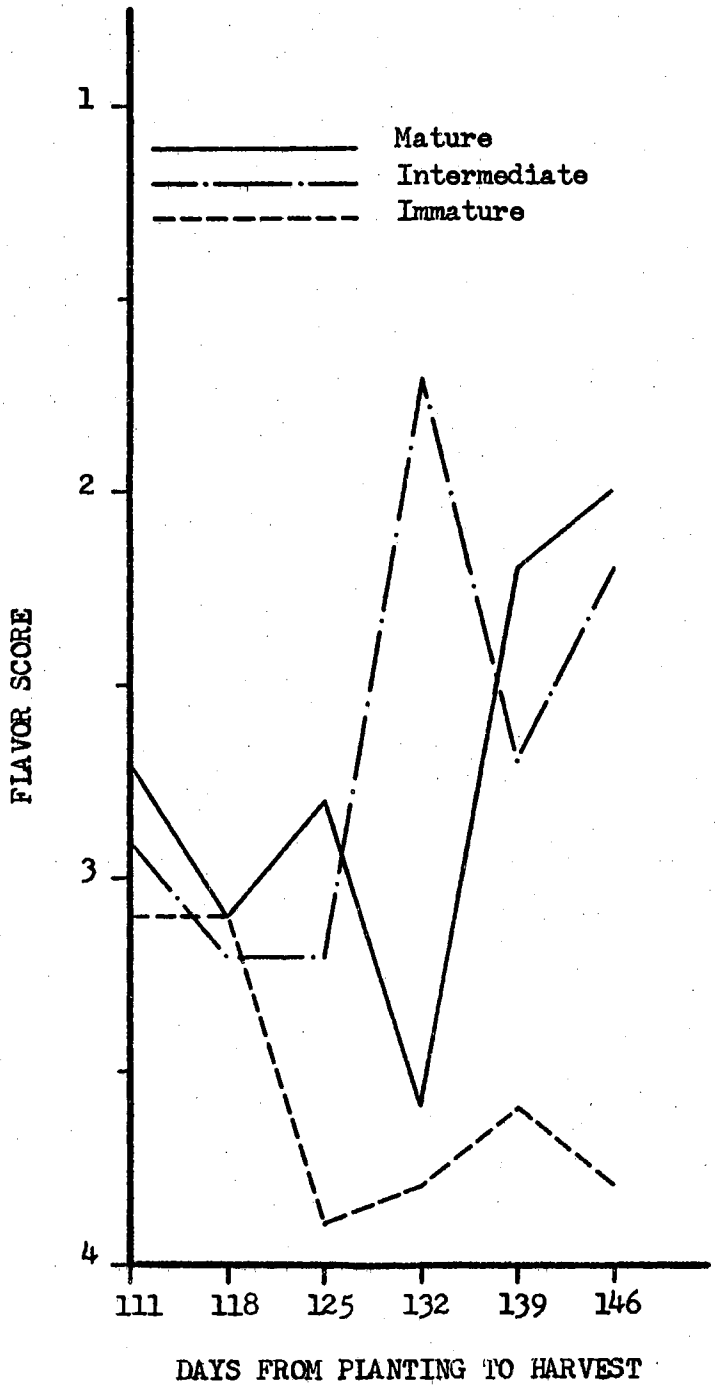

Figure 33. The Mean Flavor Scores of Peanut Butter for Six Harvest Dates Averaged Over Each Maturity Class for Dixie Spanish Peanuts, Stratford, 1965.

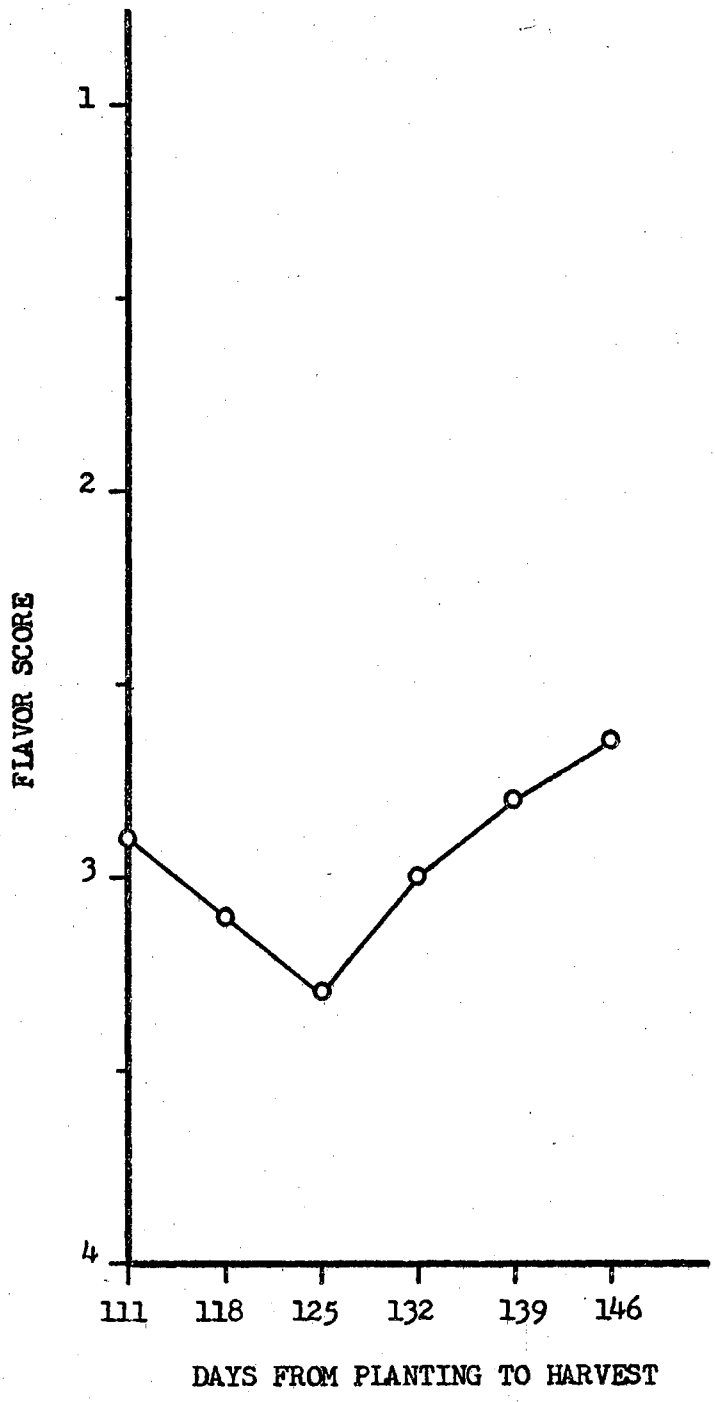

Figure 34. The Mean Flavor Scores of Peanut Butter for Six Harvest Dates Averaged Over the Maturity Classes for Dixie Spanish Peanuts, Stratford, 1965.

TABLE XXVI

THE MEAN TASTE SCORES AND SUM OF RANKS FOR SIX HARVEST DATES AVERAGED FOR VARIOUS MATURITY CLASSES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

	Days After Planting					
	111	118	125	132	139	146
Mean Scores for Three Maturity Classes	2.26	2.53	2.80	2.53	2.50	2.63
ΣR_j (Sum of Ranks for Three Mat. Classes)	16.0	19.0	27.0	22.5	21.5	20.0

Taste Scores: 1:Sweet 2:Fair 3:Bitter 4:Sour

Result of Analysis:

$X_r^2 = 3.2619$ X^2 tab = 11.070

TABLE XXVII

THE MEAN TEXTURE SCORES AND SUM OF RANKS FOR SIX HARVEST DATES AVERAGED FOR VARIOUS MATURITY CLASSES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

	Days After Planting					
	111	118	125	132	139	146
Mean Scores for Three Maturity Classes	1.53	1.63	1.77	1.87	1.67	1.70
ΣR_j (Sum of Ranks for Three Mat. Classes)	16.5	20.0	26.0	22.5	20.0	21.0

Texture Scores: 1:Smooth 2:Mealy 3:Mushy 4:Chunky

Result of Analysis:

$X_r^2 = 2.3571$ X^2 tab = 11.070

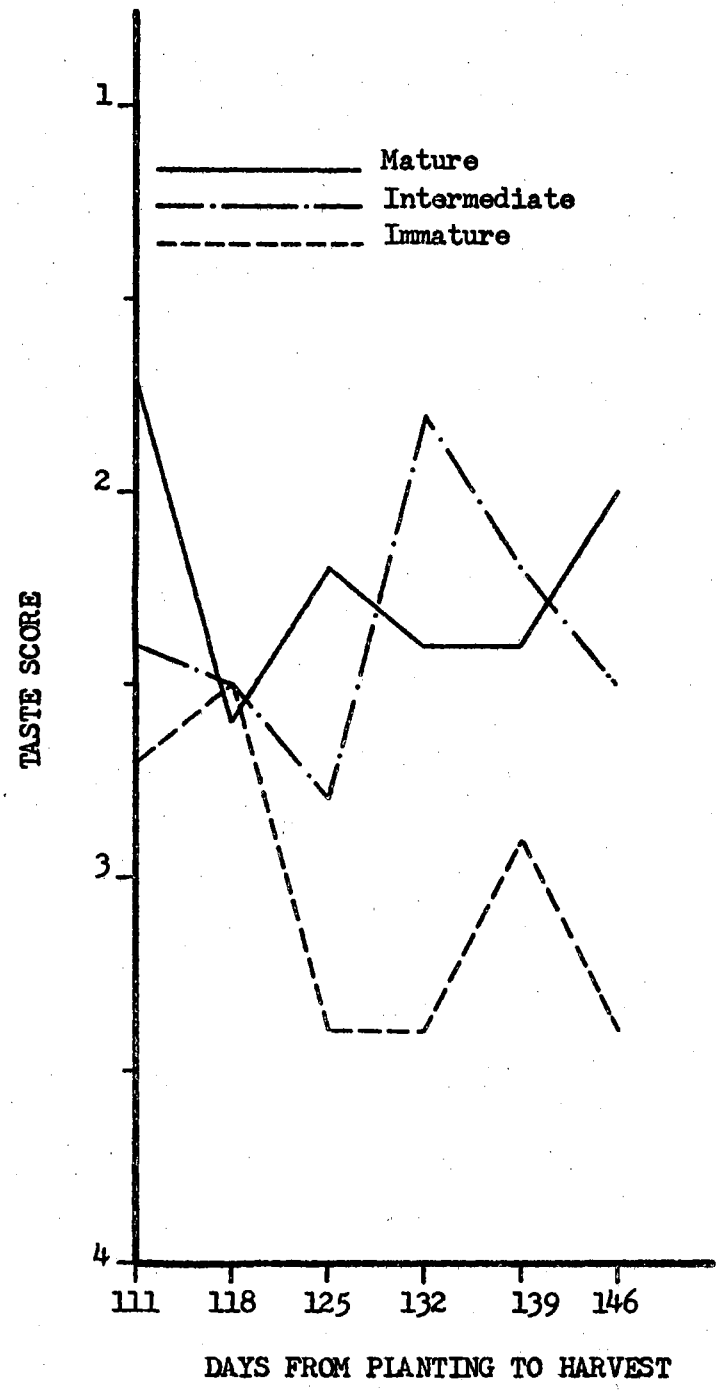

Figure 35. The Mean Taste Scores of Peanut Butter for Six Harvest Dates Averaged Over Each Maturity Class for Dixie Spanish Peanuts, Stratford, 1965.

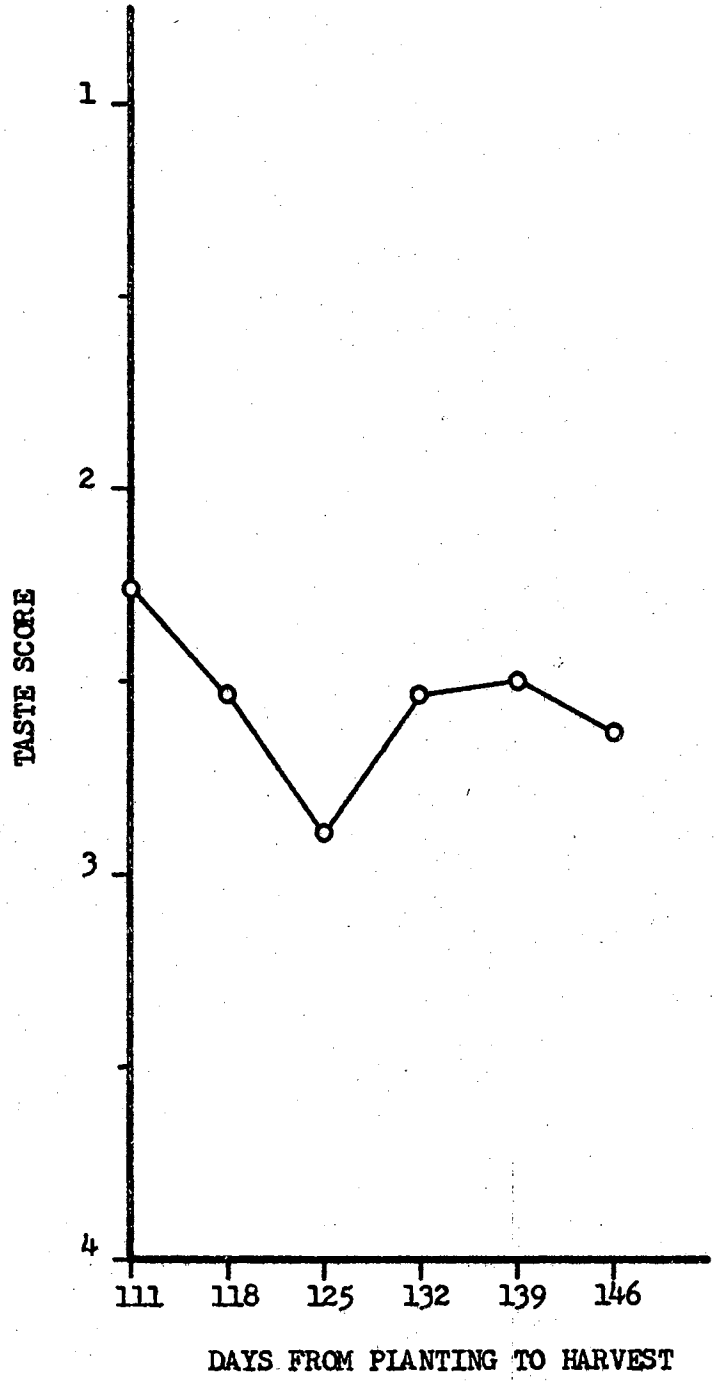

Figure 36. The Mean Taste Scores of Peanut Butter for Six Harvest Dates Averaged Over the Maturity Classes for Dixie Spanish Peanuts, Stratford, 1965.

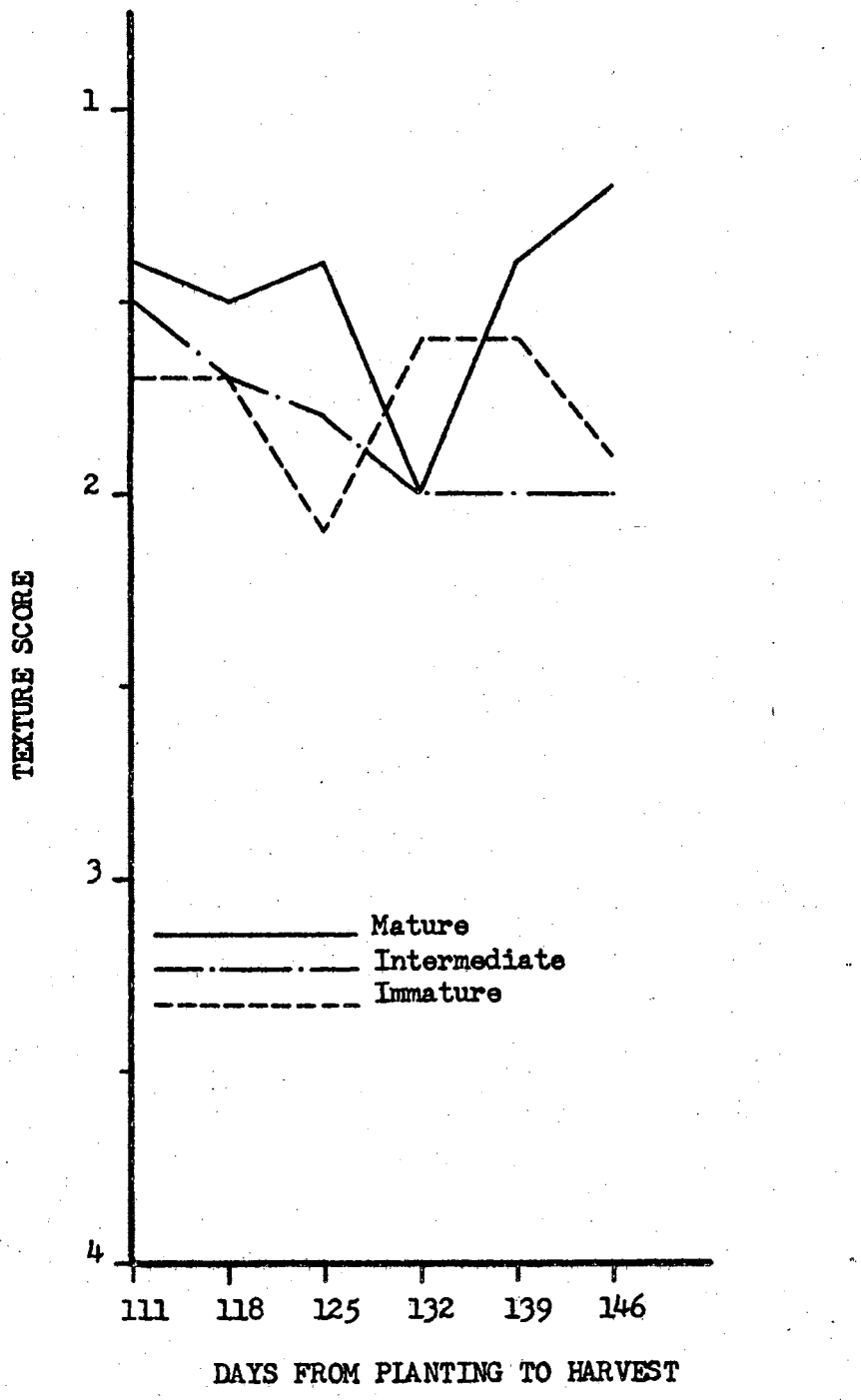

Figure 37. The Mean Texture Scores of Peanut Butter for Six Harvest Dates Averaged Over Each Maturity Class for Dixie Spanish Peanuts, Stratford, 1965.

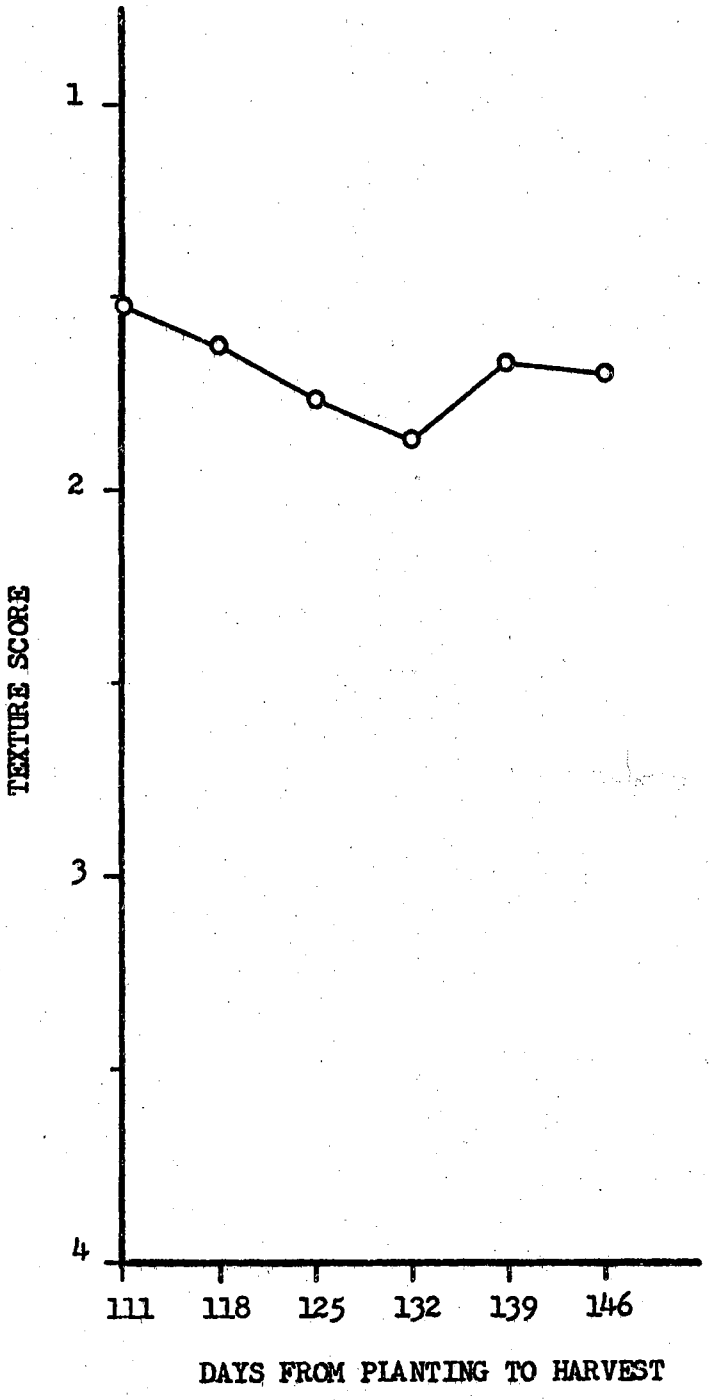

Figure 38. The Mean Texture Scores of Peanut Butter for Six Harvest Dates Averaged Over the Maturity Classes for Dixie Spanish Peanuts, Stratford, 1965.

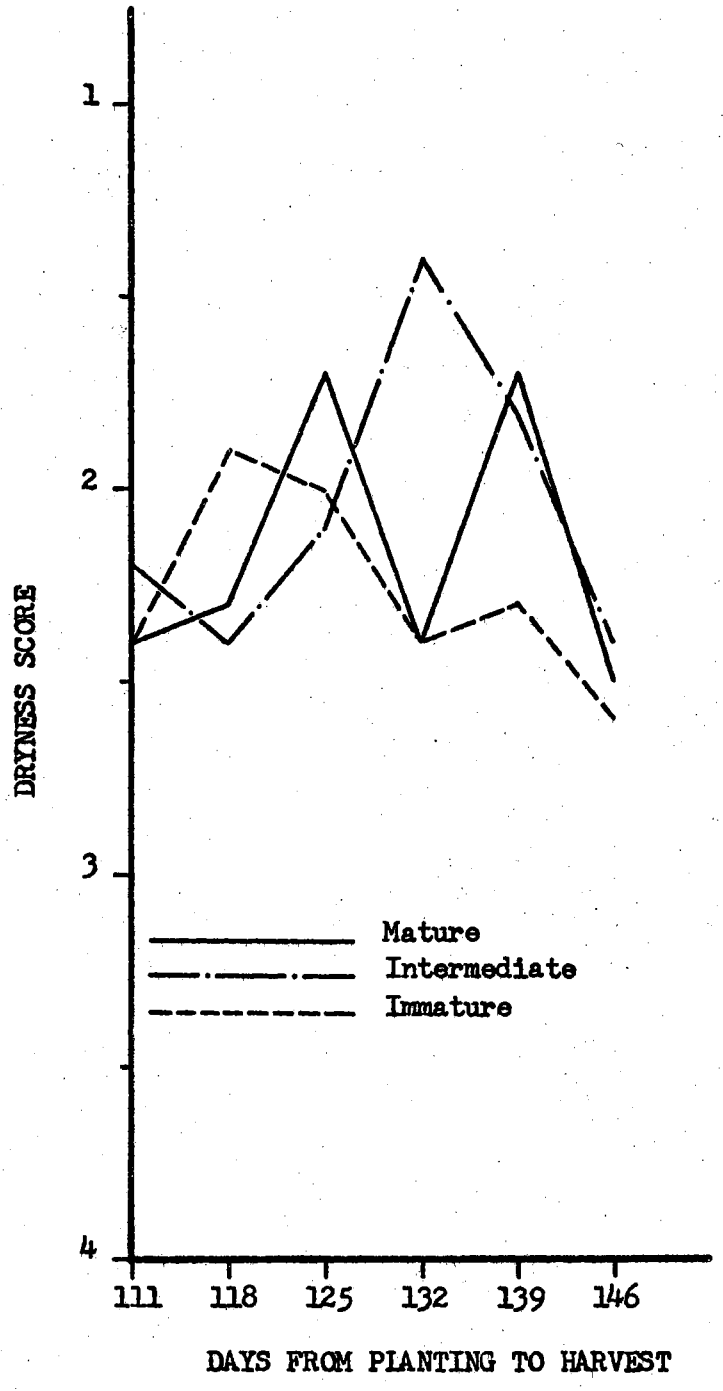

Figure 39. The Mean Dryness Scores of Peanut Butter for Six Harvest Dates Averaged Over Each Maturity Class for Dixie Spanish Peanuts, Stratford, 1965.

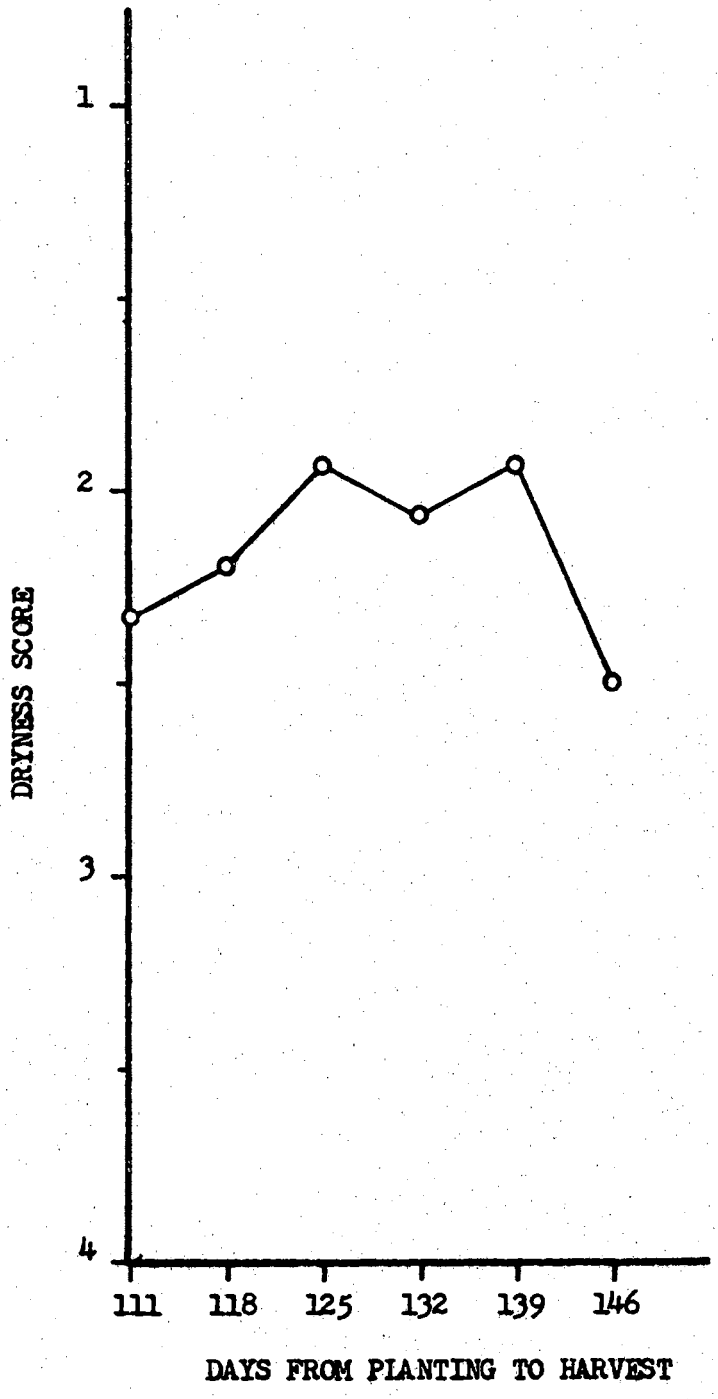

Figure 40. The Mean Dryness Scores of Peanut Butter for Six Harvest Dates Averaged Over the Maturity Classes for Dixie Spanish Peanuts, Stratford, 1965.

TABLE XXVIII

THE MEAN DRYNESS SCORES AND SUM OF RANKS FOR SIX HARVEST DATES AVERAGED FOR VARIOUS MATURITY CLASSES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

	Days After Planting					
	111	118	125	132	139	146
Mean Scores for Three Maturity Classes	2.33	2.20	1.93	2.07	1.93	2.50
ΣR_j (Sum of Ranks for Three Mat. Classes)	26.5	19.0	17.5	17.5	16.5	29.0

Dryness Scores: 1:Moist 2:Moderate 3:Oily 4:Very Dry

Result of Analysis:

$X_r^2 = 6.8095$ X^2 tab = 11.070

Though the six harvest dates were not significantly different for the peanut butter characteristics studied, some differences noted. Generally speaking, harvest dates from 132 to 146 days produced more desirable scores than those for peanuts harvested earlier. Two exceptions included taste and texture. The best scores were obtained from the peanut samples harvested 139 days after planting.

Comparisons of Peanut Butter Results Between the Standard and Various Treatments

The mean percentage of panel members rating peanut butter samples, superior to, equal to or inferior to the standard for both odor and

flavor are shown in Tables XXIX and XXX. The various maturity classes and dates of harvest compared with the same standard samples produced an index for determining the quality of the various treatments. The mean percentages for the maturity classes compaired with the standard for Perkins were 71.1 and 68.9 inferior to standard for mature, 86.7 and 87.8 for intermediate, 92.2 and 93.3 for immature large, and 100.0 and 100.0 for immature small with the respect to odor and flavor. The mean percentages for peanut butter samples from Stratford were 88.3 and 78.3 inferior to the standard in odor and flavor for the mature, 80.0 and 75.0 for intermediate, and 96.7 and 93.3 for immature.

Among the nine different harvest dates of the peanut butter samples from Perkins the most desirable ratings for the mature, intermediate, and immature large were for peanuts harvested 145, 145 and 138 after planting, respectively. For six different harvest dates from Stratford the most desirable ratings for the mature and intermediate were for peanuts harvest 139 and 146 days after planting while that for the immature were those harvested from 132 to 146 days after planting.

The mean for the three maturity classes combined (the immature small from Perkins was excluded) showed that the peanuts harvested 145 and 146 days after planting were superior to the other harvest dates with respect to odor and flavor.

Peanut Butter Turn-Out

Differences for the percentages of peanut butter obtained were small except the immature small samples were consistently lower. (Appendix Tables LIX and LX). Apparently, the kernel size and waste

were the factors contributing to the low peanut butter turn-out for the immature small plants. (Appendix Tables LXI and LXII).

The range in the mean percentages of peanut butter obtained for the large kernels in various maturity classes of different harvest dates from Perkins and Stratford which was from 87.89 to 86.12. The mean percentage for the immature small from Perkins was only 75.90.

TABLE XXIX

THE MEAN PERCENTAGES OF COMPARISONS FOR PEANUT BUTTER SAMPLES BETWEEN STANDARD AND EACH MATURITY CLASS OR HARVEST DATES SCORED BY THE FIVE MEMBER PANEL, ARGENTINE PEANUTS, PERKINS, 1965.

Sampling Date	Days After Planting	Maturity	Superior to Std.		Equal to Std.		Inferior to Std.	
			Odor	Flavor	Odor	Flavor	Odor	Flavor
8-28-65	96	Mature	0	0	0	0	100	100
9- 4-65	103	Mature	0	0	20	0	80	100
9-11-65	110	Mature	0	0	20	0	80	100
9-18-65	117	Mature	20	10	0	30	80	60
9-25-65	124	Mature	30	40	20	20	50	40
10- 2-65	131	Mature	10	20	10	0	80	80
10- 9-65	138	Mature	20	20	40	40	40	40
10-16-65	145	Mature	10	10	50	60	40	30
10-23-65	152	Mature	0	0	20	30	80	70
Mean			10.0	11.1	20.0	20.0	71.1	68.9
8-28-65	96	Intermediate	0	0	0	0	100	100
9- 4-65	103	Inter.	0	0	10	0	90	100
9-11-65	110	Inter.	0	0	0	0	100	100
9-18-65	117	Inter.	0	0	10	0	90	100
9-25-65	124	Inter.	0	10	20	0	80	90
10- 2-65	131	Inter.	0	0	0	10	100	90
10- 9-65	138	Inter.	0	0	20	20	80	80
10-16-65	145	Inter.	0	20	50	30	50	50
10-23-65	152	Inter.	0	0	10	20	90	80
Mean			0.0	3.3	14.4	8.9	86.7	87.8

TABLE XXIX (Continued)

Sampling Date	Days After Planting	Maturity	Superior to Std.		Equal to Std.		Inferior to Std.	
			Odor	Flavor	Odor	Flavor	Odor	Flavor
8-28-65	96	Immature>	0	0	0	0	100	100
9- 4-65	103	Immature>	0	0	0	0	100	100
9-11-65	110	Immature>	0	0	0	0	100	100
9-18-65	107	Immature>	0	0	0	0	100	100
9-25-65	124	Immature>	0	0	0	0	100	100
10- 2-65	131	Immature>	0	0	0	0	100	100
10- 9-65	138	Immature>	0	0	30	30	70	70
10-16-65	145	Immature>	0	0	20	30	80	70
10-23-65	152	Immature>	0	0	20	0	80	100
Mean			0	0	7.8	6.7	92.2	93.3
8-28-65	96	Immature<	0	0	0	0	100	100
9- 4-65	103	Immature<	0	0	0	0	100	100
9-11-65	110	Immature<	0	0	0	0	100	100
9-18-65	117	Immature<	0	0	0	0	100	100
9-25-65	124	Immature<	0	0	0	0	100	100
10- 2-65	131	Immature<	0	0	0	0	100	100
10- 9-65	138	Immature<	0	0	0	0	100	100
10-16-65	145	Immature<	0	0	0	0	100	100
10-23-65	152	Immature<	0	0	0	0	100	100
Mean			0.0	0.0	0.0	0.0	100.0	100.0
8-28-65	96	Three Classes*	0	0	0	0	100	100
9- 4-65	103	Three Cl.	0	0	10	0	90	100
9-11-65	110	Three Cl.	0	0	7	0	93	100
9-18-65	117	Three Cl.	7	3	3	10	90	87
9-25-65	124	Three Cl.	10	17	13	7	77	76
10- 2-65	131	Three Cl.	3	7	3	3	93	90
10- 9-65	138	Three Cl.	7	7	30	30	63	63
10-16-65	145	Three Cl.	3	10	40	40	57	50
10-23-65	152	Three Cl.	0	0	17	17	83	83
Mean			3.3	4.9	13.7	11.9	82.9	83.2

* Immature small did not include.

TABLE XXX

THE MEAN PERCENTAGES OF COMPARISONS FOR PEANUT BUTTER SAMPLES BETWEEN STANDARD AND EACH MATURITY CLASS OR HARVEST DATES SCORED BY THE FIVE MEMBER PANEL, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

Sampling Date	Days After Planting	Maturity	Superior to Std.		Equal to Std.		Inferior to Std.	
			Odor	Flavor	Odor	Flavor	Odor	Flavor
9-10-65	111	Mature	0	10	0	10	100	80
9-17-65	118	Mature	0	0	0	10	100	90
9-24-65	125	Mature	0	10	10	10	90	80
10- 1-65	132	Mature	0	0	10	10	90	90
10- 8-65	139	Mature	0	10	20	30	80	60
10-15-65	146	Mature	0	0	30	30	70	70
Mean			0.0	5.0	11.7	16.7	88.3	78.3
9-10-65	111	Intermediate	0	10	0	0	100	90
9-17-65	118	Inter.	0	0	0	10	100	90
9-24-65	125	Inter.	0	0	10	20	90	80
10- 1-65	132	Inter.	0	10	40	40	60	50
10- 8-65	139	Inter.	0	0	20	20	80	80
10-15-65	146	Inter.	0	10	50	30	50	60
Mean			0.0	5.0	20.0	20.0	80.0	75.0
9-10-65	111	Immature	0	0	0	10	100	90
9-17-65	118	Immature	0	0	0	20	100	80
9-24-65	125	Immature	0	0	0	0	100	100
10- 1-65	132	Immature	0	0	10	0	90	100
10- 8-65	139	Immature	0	0	10	0	90	100
10-15-65	146	Immature	0	0	0	10	100	90
Mean			0.0	0.0	3.3	6.7	96.7	93.3
9-10-65	111	Three Classes	0	6.7	0	6.7	100	86.7
9-17-65	118	Three Cl.	0	0	0	13.3	100	86.7
9-24-65	125	Three Cl.	0	3.3	6.7	10.0	93.3	86.7
10- 1-65	132	Three Cl.	0	3.3	20.0	16.7	80.0	80.0
10- 8-65	139	Three Cl.	0	3.3	16.7	16.7	83.3	80.0
10-15-65	146	Three Cl.	0	3.3	26.7	23.3	73.3	73.3
Mean			0.0	3.3	11.7	14.5	88.3	82.2

Rating for Peanut Butter Date _____ Taster _____ Description _____

CODE NO.	ODOR			FLAVOR			COMMENT						
	Superior to Standard	Equal to Standard	Inferior to Standard	Better than Standard	Equal to Standard	Poorer than Standard	ODOR	FLAVOR	TASTE	ROAST	TEXTURE	DRYNESS	Pref. Rank No. Best
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													

ODOR	FLAVOR	TASTE	ROAST	TEXTURE	DRYNESS
1. Weak	1. Excellent	1. Sweet	1. Under	1. Smooth	1. Moist
2. None	2. Good	2. Fair	2. Good	2. Mealy	2. Moderate
3. Moderate	3. Low	3. Bitter	3. Excellent	3. Mushy	3. Oily
4. Strong	4. Off	4. Sour	4. Over	4. Chunky	4. Very Dry

Figure 41. Organoleptic Evaluation Sheet.

CHAPTER V

SUMMARY AND CONCLUSION

The most important factors of peanut butter quality, that determine flavor are poorly understood. The components which may or may not be present, the quantity or the balancing of these components that determine peanut butter flavor are still unknown. Investigations to determine the characteristics of peanut butter quality need further research in order to correlate high quality of end products with agronomic practices.

Besides the period from planting to harvest of the crop environmental conditions, such as rainfall and temperature could affect the quality of the peanuts used to make peanut butter.

The relationship of maturity to peanut butter quality determined from organoleptic tests showed that the mature Argentine peanut samples from Perkins were significantly superior to the peanut butter made from intermediate, immature large, immature small kernels. The Dixie Spanish samples from Stratford showed little difference between the peanut butter samples for mature and intermediate peanuts. However, the mature was slightly more desirable than the intermediate kernels. The immature samples were definitely inferior to peanut butter from the mature and intermediate kernels.

The influence of harvest dates on the peanut butter quality, showed

that the Argentine samples of the peanuts harvested from 138 to 152 days after planting received more desirable ratings than those harvested earlier. The Dixie Spanish peanut samples from Stratford showed no significant differences among the six different harvest dates. However, the peanuts harvested from 132 to 146 days after planting received a more desirable rating than those harvested earlier.

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APPENDIX

TABLE XXXI

THE MEAN ROAST SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES MADE FROM ARGENTINE PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, PERKINS, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature S.	Mature R.	Int. S.	Int. R.	Immature* S.	Immature* R.	Immature** S.	Immature** R.	Standard S.	Standard R.
8-28	96	I	1.0	1.0	4.0	4.0	4.0	4.0	4.0	4.0	2.4	2.0
		II	1.2	1.0	4.0	4.0	4.0	4.0	4.0	4.0	2.2	2.0
9- 4	103	I	4.0	5.0	3.2	3.0	2.4	1.5	3.6	4.0	2.4	1.5
		II	4.0	4.5	1.8	1.5	4.0	4.5	2.8	3.0	1.8	1.5
9-11	110	I	2.8	3.0	3.8	4.0	4.0	5.0	2.6	2.0	2.0	1.0
		II	1.4	1.0	2.6	4.0	3.0	5.0	1.8	2.0	2.2	3.0
9-18	117	I	1.0	1.0	2.4	3.5	4.0	5.0	2.0	2.0	2.4	3.5
		II	1.2	1.5	1.6	3.0	3.4	5.0	2.4	4.0	1.2	1.5
9-25	124	I	2.0	3.0	1.2	2.0	2.8	5.0	1.0	1.0	2.6	4.0
		II	2.4	5.0	1.4	2.5	1.4	2.5	1.0	1.0	2.0	4.0
10- 2	131	I	1.0	1.5	3.4	4.0	1.0	1.5	4.0	5.0	3.0	3.0
		II	1.0	1.5	2.0	3.0	1.0	1.5	3.4	5.0	2.2	4.0
10- 9	138	I	2.2	3.0	2.0	1.5	2.0	1.5	4.0	5.0	2.6	4.0
		II	3.0	4.0	2.4	3.0	2.0	1.0	4.0	5.0	2.2	2.0
10-16	145	I	2.0	1.0	2.6	4.0	2.4	3.0	4.0	5.0	2.2	2.2
		II	2.6	3.0	2.8	4.0	1.8	1.0	4.0	5.0	2.4	2.0
10-23	152	I	2.2	2.0	2.6	4.0	2.2	2.0	4.0	5.0	2.2	2.0
		II	1.4	2.0	1.4	2.0	1.4	2.0	4.0	5.0	2.8	4.0
Mean of Scores			2.02		2.51		2.60		3.14		2.27	
ΣR_j (Sum of Ranks)			44.0		57.0		55.0		67.0		47.0	

* Held on 15/64 - inch sieve (large)

** Through a 15/64 - inch sieve (small)

TABLE XXXII

THE MEAN ROAST SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES MADE FROM DIXIE SPANISH PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, STRATFORD, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature S.	Mature R.	Intermediate S.	Intermediate R.	Immature S.	Immature R.	Standard S.	Standard R.
9-10	111	I	2.8	3.0	3.0	4.0	2.3	2.0	2.2	1.0
		II	1.4	1.0	2.8	3.0	3.2	4.0	2.0	2.0
9-17	118	I	3.6	4.0	2.0	1.0	2.4	2.0	2.5	3.0
		II	4.0	4.0	2.0	1.0	2.4	3.0	2.1	2.0
9-24	125	I	1.8	2.0	1.4	1.0	2.2	3.0	2.4	4.0
		II	3.2	4.0	1.8	2.0	1.2	1.0	2.0	3.0
10- 1	132	I	1.0	1.0	1.8	3.0	1.2	2.0	2.3	4.0
		II	1.2	1.0	2.4	3.0	1.4	2.0	3.1	4.0
10- 8	139	I	1.6	2.0	2.2	3.5	1.0	1.0	2.2	3.5
		II	2.0	3.0	1.8	2.0	1.0	1.0	2.8	4.0
10-15	146	I	1.4	1.0	2.2	2.5	2.2	2.5	2.3	4.0
		II	1.8	1.5	2.2	3.0	1.8	1.5	2.6	4.0
Mean of Scores			2.15		2.13		1.86		2.38	
ΣR_j (Sum of Ranks)			27.5		29.0		25.0		38.5	

TABLE XXXIII

THE MEAN SCORES (S) AND RANKS (R) OF FIVE COMBINED CHARACTERISTICS FOR PEANUT BUTTER SAMPLES MADE FROM ARGENTINE PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, PERKINS, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature S.	Mature R.	Int. S.	Int. R.	Immature* S.	Immature* R.	Immature** S.	Immature** R.	Standard S.	Standard R.
8-28	96	I	2.12	2.0	2.68	4.0	2.48	3.0	2.96	5.0	1.36	1.0
		II	2.60	2.0	3.30	5.0	2.96	4.0	3.68	3.0	1.58	1.0
9- 4	103	I	2.50	4.0	2.10	2.0	2.48	3.0	3.52	5.0	1.40	1.0
		II	2.50	2.0	2.84	3.0	3.28	4.0	3.56	5.0	1.58	1.0
9-11	110	I	2.00	2.0	2.08	3.0	2.68	5.0	2.66	4.0	1.44	1.0
		II	1.76	2.0	2.92	3.5	3.08	5.0	2.92	3.5	1.32	1.0
9-18	117	I	1.72	2.0	2.56	3.0	2.92	5.0	2.84	4.0	1.48	1.0
		II	2.02	1.0	2.60	3.0	2.96	4.0	3.24	5.0	2.14	2.0
9-25	124	I	1.56	2.0	1.76	3.0	2.88	4.0	3.40	5.0	1.52	1.0
		II	1.36	1.0	2.42	3.0	3.22	5.0	3.16	4.0	1.68	2.0
10- 2	131	I	1.72	1.0	1.96	3.0	2.24	4.0	3.10	5.0	1.76	2.0
		II	1.92	2.0	2.92	4.0	2.40	3.0	3.48	5.0	1.48	1.0
10- 9	138	I	1.68	3.0	1.56	2.0	1.86	4.0	3.48	5.0	1.50	1.0
		II	1.50	2.0	2.08	4.0	1.36	1.0	3.56	5.0	1.64	3.0
10-16	145	I	1.72	2.0	1.96	4.0	1.58	3.0	3.40	5.0	1.50	1.0
		II	1.56	2.0	1.14	1.0	2.12	4.0	2.92	5.0	1.64	3.0
10-23	152	I	1.74	3.0	1.72	2.0	1.84	4.0	3.24	5.0	1.36	1.0
		II	1.46	1.5	2.60	4.0	2.44	3.0	3.20	5.0	1.46	1.5
Mean of Scores			1.91		2.29		2.49		3.24		1.55	
ΣR_j (Sum of Ranks)			36.5		56.5		68.0		83.5		25.5	

* Held on 15/64 - inch sieve (large)

** Through a 15/64 - inch sieve (small)

TABLE XXXIV

THE MEAN ODOR SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES MADE FROM ARGENTINE PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, PERKINS, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature S.	Mature R.	Int. S.	Int. R.	Immature* S.	Immature* R.	Immature** S.	Immature** R.	Standard S.	Standard R.
8-28	96	I	1.6	2.0	2.4	4.0	2.2	3.0	2.8	5.0	1.0	1.0
		II	1.8	2.0	3.4	4.0	2.8	3.0	4.0	5.0	1.0	1.0
9- 4	103	I	2.6	4.0	1.6	3.0	1.4	1.5	4.0	5.0	1.4	1.5
		II	3.0	2.0	4.0	4.0	4.0	4.0	4.0	4.0	1.2	1.0
9-11	110	I	2.0	2.0	2.6	4.0	2.2	3.0	2.8	5.0	1.4	1.0
		II	2.0	2.0	4.0	4.5	3.4	3.0	4.0	4.5	1.8	1.0
9-18	117	I	1.8	2.0	3.6	5.0	2.4	4.0	2.2	3.0	1.0	1.0
		II	1.6	1.0	2.8	3.5	2.8	3.5	4.0	5.0	1.8	2.0
9-25	124	I	1.6	2.0	1.8	3.0	2.4	4.0	3.6	5.0	1.0	1.0
		II	1.6	1.5	2.0	3.0	3.4	4.0	4.0	5.0	1.6	1.5
10- 2	131	I	2.0	4.0	1.8	2.5	1.8	2.5	2.4	5.0	1.6	1.0
		II	1.6	2.0	2.4	3.5	2.4	3.5	4.0	5.0	1.0	1.0
10- 9	138	I	1.2	2.0	1.6	3.0	1.8	4.0	3.6	5.0	1.0	1.0
		II	1.2	2.0	3.2	4.0	1.2	2.0	4.0	5.0	1.2	2.0
10-16	145	I	1.8	2.5	2.2	4.0	1.2	1.0	3.6	5.0	1.8	2.5
		II	2.8	3.0	1.0	1.0	3.4	4.5	3.4	4.5	1.2	2.0
10-23	152	I	1.8	3.0	1.0	1.5	2.0	4.0	4.0	5.0	1.0	1.5
		II	2.0	2.0	3.4	4.0	2.6	3.0	4.0	5.0	1.2	1.0
Mean of Scores			1.88		2.49		2.41		3.58		1.29	
ΣR_j (Sum of Ranks)				41.0		61.5		57.5		86.0		24.0

* Held on 15/64 - inch sieve (large)

** Through a 15/64 - inch sieve (small)

TABLE XXXV

THE MEAN FLAVOR SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES MADE FROM ARGENTINE PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, PERKINS, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature S.	Mature R.	Int. S.	Int. R.	Immature* S.	Immature* R.	Immature** S.	Immature** R.	Standard S.	Standard R.
8-28	96	I	3.0	2.0	4.0	4.5	3.2	3.0	4.0	4.5	1.8	1.0
		II	3.2	2.0	4.0	4.5	3.4	3.0	4.0	4.5	1.4	1.0
9- 4	103	I	3.4	3.0	2.6	2.0	3.6	4.0	3.8	5.0	1.2	1.0
		II	3.2	2.0	3.8	3.0	4.0	4.5	4.0	4.5	1.2	1.0
9-11	110	I	1.6	2.0	2.0	3.0	3.4	4.5	3.4	4.5	1.0	1.0
		II	2.4	2.0	4.0	4.0	4.0	4.0	4.0	4.0	1.2	1.0
9-18	117	I	1.8	2.0	3.0	3.0	3.6	4.0	4.0	5.0	1.0	1.0
		II	2.8	2.0	3.2	3.0	4.0	4.5	4.0	4.5	2.0	1.0
9-25	124	I	1.4	2.0	2.2	3.0	3.6	4.0	4.0	5.0	1.0	1.0
		II	1.2	1.0	2.8	3.0	4.0	4.5	4.0	4.5	1.6	2.0
10- 2	131	I	1.8	2.0	2.4	3.0	3.4	4.0	3.6	5.0	1.2	1.0
		II	2.6	2.0	4.0	4.5	2.8	3.0	4.0	4.5	1.4	1.0
10- 9	138	I	1.8	1.5	2.0	3.5	2.0	3.5	3.8	5.0	1.8	1.5
		II	1.2	1.0	2.6	4.0	1.8	2.0	4.0	5.0	2.0	3.0
10-16	145	I	1.8	1.5	2.0	3.0	2.2	4.0	3.8	5.0	1.8	1.5
		II	1.4	2.5	1.0	1.0	2.2	4.0	3.2	5.0	1.4	2.5
10-23	152	I	1.4	2.0	1.6	3.0	2.2	4.0	4.0	5.0	1.0	1.0
		II	1.6	2.0	3.0	3.0	3.2	4.0	3.8	5.0	1.0	1.0
Mean of Scores			2.09		2.79		3.14		3.86		1.39	
ΣR_j (Sum of Ranks)			34.5		58.0		68.5		85.5		23.5	

* Held on 15/64 - inch sieve (large)

** Through a 15/64 - inch sieve (small)

TABLE XXXVI

THE MEAN TASTE SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES MADE FROM ARGENTINE PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, PERKINS, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature S.	Mature R.	Int. S.	Int. R.	Immature* S.	Immature* R.	Immature** S.	Immature** R.	Standard S.	Standard R.
8-28	96	I	3.2	2.0	3.6	3.5	3.6	3.5	3.8	5.0	1.0	1.0
		II	2.6	2.0	3.7	4.0	3.2	3.0	3.8	5.0	1.7	1.0
9- 4	103	I	2.5	2.0	2.9	3.0	3.0	4.0	4.0	5.0	1.4	1.0
		II	2.7	3.0	2.6	2.0	3.2	4.5	3.2	4.5	2.1	1.0
9-11	110	I	2.4	2.5	2.4	2.5	3.8	5.0	3.1	4.0	1.4	1.0
		II	2.0	2.0	3.2	3.0	3.8	5.0	3.6	4.0	1.6	1.0
9-18	117	I	1.6	2.0	3.0	3.5	3.0	3.5	3.2	5.0	1.4	1.0
		II	2.1	1.5	2.8	3.0	3.4	4.0	3.8	5.0	2.1	1.5
9-25	124	I	1.8	2.0	2.0	3.0	3.4	4.0	3.8	5.0	1.6	1.0
		II	1.6	1.0	2.9	3.0	3.1	4.0	3.6	5.0	1.8	2.0
10- 2	131	I	1.8	1.0	2.4	3.0	3.2	4.0	3.5	5.0	2.2	2.0
		II	2.2	2.0	3.6	4.0	3.2	3.0	4.0	5.0	1.6	1.0
10- 9	138	I	2.2	4.0	1.4	1.0	2.1	3.0	3.2	5.0	1.6	2.0
		II	1.9	2.0	2.4	4.0	1.8	1.0	3.2	5.0	2.0	3.0
10-16	145	I	1.8	3.5	1.8	3.5	1.5	1.5	3.4	5.0	1.5	1.5
		II	1.6	1.5	1.7	3.0	1.8	4.0	3.0	5.0	1.6	1.5
10-23	152	I	1.3	1.0	1.8	3.0	1.6	2.0	2.8	5.0	2.2	4.0
		II	1.2	1.0	2.6	4.0	2.2	3.0	3.0	5.0	1.9	2.0
Mean of Scores			2.03		2.60		2.83		3.44		1.70	
ΣR_j (Sum of Ranks)			36.0		56.0		62.0		87.5		28.5	

* Held on 15/64 - inch sieve (large).

** Through a 15/64 - inch sieve (small).

TABLE XXXVII

THE MEAN TEXTURE SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES MADE FROM ARGENTINE PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, PERKINS, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature S.	Mature R.	Int. S.	Int. R.	Immature* S.	Immature* R.	Immature** S.	Immature** R.	Standard S.	Standard R.
8-28	96	I	1.0	1.0	1.4	2.5	1.4	2.5	2.0	5.0	1.6	4.0
		II	2.2	1.5	2.6	4.0	2.4	3.0	3.0	5.0	2.2	1.5
9- 4	103	I	1.6	3.0	1.4	2.0	1.8	4.0	2.6	5.0	1.0	1.0
		II	1.6	2.0	1.8	3.0	2.2	4.0	3.0	5.0	1.4	1.0
9-11	110	I	1.8	2.5	2.0	5.0	1.8	2.5	1.8	2.5	1.8	2.5
		II	1.0	1.5	1.6	5.0	1.2	3.0	1.4	4.0	1.0	1.5
9-18	117	I	1.6	3.5	1.2	1.0	2.2	5.0	2.4	2.0	1.6	3.5
		II	2.2	3.5	1.8	1.0	2.2	3.5	2.2	3.5	2.2	3.5
9-25	124	I	1.6	2.5	1.2	1.0	1.8	4.0	2.8	5.0	1.6	2.5
		II	1.4	1.0	1.8	2.5	2.8	5.0	2.0	4.0	1.8	2.5
10- 2	131	I	1.2	2.0	1.2	2.0	1.2	2.0	2.4	5.0	1.8	4.0
		II	1.4	1.5	2.2	4.0	1.4	1.5	2.8	5.0	1.8	3.0
10- 9	138	I	1.0	1.5	1.0	1.5	1.4	3.5	2.8	5.0	1.4	3.5
		II	1.4	3.5	1.2	2.0	1.0	1.0	2.6	5.0	1.4	3.5
10-16	145	I	1.4	2.5	1.8	4.0	1.4	2.5	2.6	5.0	1.0	1.0
		II	1.0	1.5	1.0	1.5	1.8	3.5	1.8	3.5	2.6	5.0
10-23	152	I	1.8	3.5	1.8	3.5	1.4	2.0	2.4	5.0	1.0	1.0
		II	1.2	1.0	1.8	3.5	1.8	3.5	2.4	5.0	1.4	2.0
Mean of Scores			1.47		1.60		1.73		2.39		1.59	
ΣR_j (Sum of Ranks)			39.0		49.0		56.0		79.5		46.5	

* Held on 15/64 - inch sieve (large).

** Through a 15/64 - inch sieve (small).

TABLE XXXVIII

THE MEAN DRYNESS SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES MADE FROM ARGENTINE PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, PERKINS, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature S.	Mature R.	Int. S.	Int. R.	Immature* S.	Immature* R.	Immature** S.	Immature** R.	Standard S.	Standard R.
8-28	96	I	1.8	2.0	2.0	3.5	2.0	3.5	2.2	5.0	1.4	1.0
		II	3.2	4.0	2.8	2.0	3.0	3.0	3.6	5.0	1.6	1.0
9- 4	103	I	2.4	3.0	2.0	1.5	2.6	4.0	3.2	5.0	2.0	1.5
		II	2.0	2.0	2.0	2.0	3.0	4.0	3.6	5.0	2.0	2.0
9-11	110	I	2.2	4.0	1.4	1.0	2.2	4.0	2.2	4.0	1.6	2.0
		II	1.4	2.0	1.8	4.0	3.0	5.0	1.6	3.0	1.0	1.0
9-18	117	I	1.8	1.0	2.0	2.0	3.4	4.5	3.4	4.5	2.4	3.0
		II	1.4	1.0	2.4	3.0	2.6	4.5	2.2	2.0	2.6	4.5
9-25	124	I	1.4	1.0	1.6	2.0	3.2	5.0	2.6	4.0	2.4	3.0
		II	1.0	1.0	2.6	4.0	2.8	5.0	2.2	3.0	1.6	2.0
10- 2	131	I	1.8	2.0	2.0	3.5	1.6	1.0	3.6	5.0	2.0	3.5
		II	1.8	2.0	2.4	4.0	2.2	3.0	2.6	5.0	1.6	1.0
10- 9	138	I	2.2	4.0	1.8	2.0	2.0	3.0	4.0	5.0	1.7	1.0
		II	1.8	4.0	1.0	1.5	1.0	1.5	4.0	5.0	1.6	3.0
10-16	145	I	1.8	3.0	2.0	4.0	1.6	2.0	3.6	5.0	1.4	1.0
		II	1.0	1.5	1.0	1.5	1.4	3.5	3.2	5.0	1.4	3.5
10-23	152	I	2.4	3.5	2.4	3.5	2.0	2.0	3.0	5.0	1.6	1.0
		II	1.4	1.0	2.2	3.0	2.4	4.0	2.8	5.0	1.8	2.0
Mean of Scores			1.74		1.97		2.33		2.98		1.76	
ΣR_j (Sum of Ranks)			42.0		48.0		62.5		80.5		37.0	

* Held on 15/64 - inch sieve (large).

** Through a 15/64 - inch sieve (small).

TABLE XXXIX

THE MEAN PREFERENCE RANKS (R) AND THEIR RE-RANKS (R') FOR PEANUT BUTTER SAMPLES MADE FROM ARGENTINE PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, PERKINS, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature R	Mature R'	Int. R	Int. R'	Immature* R	Immature* R'	Immature** R	Immature** R'	Standard R	Standard R'
8-28	96	I	2.8	2.5	2.8	2.5	3.4	4.0	5.0	5.0	1.0	1.0
		II	2.8	3.0	4.0	4.0	2.4	2.0	4.8	5.0	1.0	1.0
9- 4	103	I	3.6	3.5	2.4	2.0	3.6	3.5	4.4	5.0	1.0	1.0
		II	2.0	2.0	3.0	3.0	4.0	4.0	5.0	5.0	1.0	1.0
9-11	110	I	1.8	2.0	3.2	3.0	4.2	4.0	4.4	5.0	1.4	1.0
		II	2.0	2.0	4.4	4.0	3.0	3.0	4.6	5.0	1.0	1.0
9-18	117	I	2.2	2.0	3.6	3.0	4.0	5.0	3.8	4.0	1.4	1.0
		II	2.2	2.0	2.4	3.0	4.2	4.0	4.6	5.0	1.6	1.0
9-25	124	I	2.0	2.0	2.6	3.0	4.2	4.0	4.8	5.0	1.4	1.0
		II	1.4	1.0	3.0	3.0	4.0	4.0	5.0	5.0	1.6	2.0
10- 2	131	I	2.2	2.0	3.0	3.0	4.4	5.0	3.6	4.0	1.8	1.0
		II	2.0	2.0	3.4	3.5	3.4	3.5	5.0	5.0	1.0	1.0
10- 9	138	I	3.2	3.5	2.4	2.0	3.2	3.5	4.8	5.0	1.4	1.0
		II	1.6	1.0	3.0	3.0	3.2	4.0	5.0	5.0	2.2	2.0
10-16	145	I	2.2	2.0	3.6	4.0	2.8	3.0	4.6	5.0	1.8	1.0
		II	2.0	2.0	1.6	1.0	4.0	4.0	5.0	5.0	2.4	3.0
10-23	152	I	2.4	2.0	3.0	3.0	3.2	4.0	4.4	5.0	2.0	1.0
		II	2.2	2.0	3.6	3.0	3.8	4.0	4.4	5.0	1.0	1.0
Mean of Scores			2.26		3.06		3.61		4.62		1.44	
ΣR_j (Sum of Ranks)			38.5		53.0		68.5		88.0		22.0	

* Held on 15/64 - inch sieve (large).

** Through a 15/64 - inch sieve (small).

TABLE XL

THE MEAN SCORES (S) AND RANKS (R) OF FIVE CHARACTERISTICS COMBINED FOR PEANUT BUTTER SAMPLES MADE FROM DIXIE SPANISH PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, STRATFORD, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature S.	Mature R.	Intermediate S.	Intermediate R.	Immature S.	Immature R.	Standard S.	Standard R.
9-10	114	I	2.16	2.0	2.40	4.0	2.36	3.0	1.47	1.0
		II	2.12	2.0	2.60	3.0	3.12	4.0	1.77	1.0
9-17	118	I	2.52	4.0	2.12	3.0	2.08	2.0	1.50	1.0
		II	2.44	2.0	3.16	4.0	2.80	3.0	1.65	1.0
9-24	125	I	2.60	3.0	2.26	2.0	3.00	4.0	1.61	1.0
		II	1.50	2.0	2.84	3.0	3.16	4.0	1.45	1.0
10- 1	132	I	2.08	3.0	1.84	2.0	3.00	4.0	1.44	1.0
		II	2.90	3.0	1.88	2.0	2.94	4.0	1.31	1.0
10- 8	139	I	2.22	3.0	1.96	2.0	2.52	4.0	1.55	1.0
		II	1.72	2.0	2.42	3.0	3.04	4.0	1.22	1.0
10-15	146	I	1.92	3.0	1.74	2.0	3.02	4.0	1.48	1.0
		II	2.12	2.0	2.84	3.0	3.20	4.0	1.41	1.0
Mean of Scores			2.19		2.34		2.85		1.49	
ΣR_j (Sum of Ranks)				31.0		33.0		44.0		12.0

TABLE XLI

THE MEAN ODOR SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES MADE FROM DIXIE SPANISH PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, STRATFORD, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature S.	Mature R.	Intermediate S.	Intermediate R.	Immature S.	Immature R.	Standard S.	Standard R.
9-11	111	I	2.4	2.0	4.0	3.5	4.0	3.5	1.4	1.0
		II	2.6	2.0	3.0	3.0	4.0	4.0	1.2	1.0
9-17	118	I	3.2	3.0	3.4	4.0	3.0	2.0	1.4	1.0
		II	2.6	2.0	3.4	4.0	3.0	3.0	1.9	1.0
9-24	125	I	3.0	3.0	2.8	2.0	4.0	4.0	1.6	1.0
		II	1.2	1.0	3.0	3.0	4.0	4.0	1.5	2.0
10- 1	132	I	1.4	2.0	2.4	3.0	3.4	4.0	1.0	1.0
		II	2.8	3.0	2.4	2.0	4.0	4.0	1.2	1.0
10- 8	139	I	2.8	3.0	2.4	2.0	3.0	4.0	1.4	1.0
		II	1.4	2.0	2.0	3.0	4.0	4.0	1.1	1.0
10-15	146	I	1.4	3.0	1.2	2.0	4.0	4.0	1.0	1.0
		II	2.4	2.0	3.6	3.0	4.0	4.0	1.3	1.0
Mean of Scores			2.27		2.80		3.70		1.33	
ΣR_j (Sum of Ranks)			28.0		34.5		44.5		13.0	

TABLE XLII

THE MEAN FLAVOR SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES MADE FROM DIXIE SPANISH PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, STRATFORD, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature S.	Mature R.	Intermediate S.	Intermediate R.	Immature S.	Immature R.	Standard S.	Standard R.
9-10	111	I	2.6	3.5	2.6	3.5	2.2	2.0	1.2	1.0
		II	2.8	2.0	3.2	3.0	4.0	4.0	2.0	1.0
9-17	118	I	3.4	4.0	2.4	3.0	2.2	2.0	1.3	1.0
		II	2.8	2.0	4.0	3.5	4.0	3.5	1.1	1.0
9-24	125	I	3.6	3.0	2.4	2.0	3.8	4.0	1.1	1.0
		II	2.0	2.0	4.0	3.5	4.0	3.5	1.5	1.0
10- 1	132	I	3.4	3.0	1.6	2.0	4.0	4.0	1.5	1.0
		II	3.8	4.0	1.8	2.0	3.6	3.0	1.0	1.0
10- 8	139	I	2.6	3.0	1.8	2.0	3.2	4.0	1.2	1.0
		II	1.8	2.0	3.6	3.0	4.0	4.0	1.1	1.0
10-15	146	I	1.8	3.0	1.0	1.0	3.6	4.0	1.2	2.0
		II	2.2	2.0	3.4	3.0	4.0	4.0	1.3	1.0
Mean of Scores			2.73		2.65		3.55		1.29	
ΣR_j (Sum of Ranks)			33.5		31.5		42.0		13.0	

TABLE XLIII

THE MEAN TASTE SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES MADE FROM DIXIE SPANISH PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, STRATFORD, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature S.	Mature R.	Intermediate S.	Intermediate R.	Immature S.	Immature R.	Standard S.	Standard R.
9-10	111	I	1.8	2.5	2.0	4.0	1.8	2.5	1.6	1.0
		II	1.6	1.0	2.8	3.0	3.6	4.0	1.8	2.0
9-17	118	I	2.4	4.0	1.8	2.5	1.8	2,5	1.5	1.0
		II	2.8	2.0	3.2	3.5	3.2	3.5	1.6	1.0
9-24	125	I	2.4	3.0	2.3	2.0	3.4	4.0	1.8	1.0
		II	2.1	2.0	3.2	3.0	3.4	4.0	1.6	1.0
10- 1	132	I	1.8	2.0	2.0	3.0	3.2	4.0	1.7	1.0
		II	2.9	3.0	1.6	1.5	3.6	4.0	1.6	1.5
10- 8	139	I	2.5	4.0	2.0	2.0	2.4	3.0	1.8	1.0
		II	2.4	2.0	2,5	3.0	3.4	4.0	1.7	1.0
10-15	146	I	2.0	3.0	1.7	1.0	3.1	4.0	1.8	2.0
		II	2.0	2.0	3.2	3.0	3.6	4.0	1.6	1.0
Mean of Scores			2.22		2.36		3.04		1.68	
ΣR_j (Sum of Ranks)			30.5		31.5		43.5		14.5	

TABLE XLIV

THE MEAN TEXTURE SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES MADE FROM DIXIE SPANISH PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, STRATFORD, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature S.	Mature R.	Intermediate S.	Intermediate R.	Immature S.	Immature R.	Standard S.	Standard R.
9-10	111	I	1.4	1.5	1.4	1.5	1.8	4.0	1.6	3.0
		II	1.4	1.0	1.6	3.5	1.6	3.5	1.5	2.0
9-17	118	I	1.6	2.5	1.2	1.0	1.6	2.5	1.9	4.0
		II	1.4	2.0	2.2	4.0	1.8	3.0	1.2	1.0
9-24	125	I	1.8	2.5	1.8	2.5	2.0	4.0	1.7	1.0
		II	1.0	1.0	1.8	3.0	2.2	4.0	1.4	2.0
10- 1	132	I	1.4	2.5	1.4	2.5	1.4	2.5	1.4	2.5
		II	2.6	2.5	2.6	4.0	1.8	2.5	1.5	1.0
10- 8	139	I	1.4	2.5	1.4	2.5	1.4	2.5	1.4	2.5
		II	1.4	2.0	2.6	4.0	1.8	3.0	1.0	1.0
10-15	146	I	1.0	1.0	1.8	3.5	1.4	2.0	1.8	3.5
		II	1.4	1.0	2.2	3.5	2.2	3.5	1.7	2.0
Mean of Scores			1.48		1.83		1.75		1.51	
ΣR_j (Sum of Ranks)			22.0		35.5		37.0		25.5	

TABLE XLV

THE MEAN DRYNESS SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES MADE FROM DIXIE SPANISH PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, STRATFORD, 1965.

Harvest Date	Days After Planting	Rep.	Maturity Classification: Mature S.	Mature R.	Intermediate S.	Intermediate R.	Immature S.	Immature R.	Standard S.	Standard R.
9-10	111	I	2.6	4.0	2.0	2.5	2.0	2.5	1.6	1.0
		II	2.2	1.0	2.4	3.0	2.8	4.0	2.3	2.0
9-17	118	I	2.0	4.0	1.8	2.5	1.8	2.5	1.4	1.0
		II	2.6	3.0	3.0	4.0	2.0	2.0	2.4	1.0
9-24	125	I	2.2	4.0	2.0	3.0	1.8	1.0	1.9	2.0
		II	1.2	1.5	2.2	3.5	2.2	3.5	1.2	1.5
10- 1	132	I	2.4	3.0	1.8	2.0	3.0	4.0	1.6	1.0
		II	2.4	4.0	1.0	1.0	1.8	3.0	1.3	2.0
10- 8	139	I	1.8	1.0	2.2	3.0	2.6	4.0	1.9	2.0
		II	1.6	3.0	1.4	2.0	2.0	4.0	1.2	1.0
10-15	146	I	2.4	2.0	3.0	3.5	3.0	3.5	1.6	1.0
		II	2.6	4.0	1.8	2.0	2.2	3.0	1.2	1.0
Mean of Scores			2.17		2.05		2.27		1.63	
ΣR_j (Sum of Ranks)			34.5		32.0		37.0		16.0	

TABLE XLVI

THE MEAN PREFERENCE RANKS (R) AND THEIR RE-RANKS (R') FOR PEANUT BUTTER SAMPLES MADE FROM DIXIE SPANISH PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, STRATFORD, 1965.

Harvest Date	Days After Planting	Rep	Maturity Classification: Mature R.	Mature R'.	Intermediate R.	Intermediate R'.	Immature R.	Immature R'.	Standard R.	Standard R'.
9-10	111	I	3.6	3.0	3.4	2.0	4.4	4.0	1.8	1.0
		II	2.6	2.0	4.0	3.0	4.6	4.0	1.9	1.0
9-17	118	I	4.6	4.0	3.8	3.0	2.8	2.0	1.9	1.0
		II	3.2	2.0	4.6	4.0	4.2	3.0	1.5	1.0
9-24	125	I	3.6	3.0	3.4	2.0	5.0	4.0	1.5	1.0
		II	2.4	2.0	4.0	3.0	5.0	4.0	1.8	1.0
10- 1	132	I	4.0	3.0	2.6	2.0	4.8	4.0	1.8	1.0
		II	4.6	4.0	2.8	2.0	4.4	3.0	1.6	1.0
10- 8	139	I	2.8	2.0	3.4	3.0	5.0	4.0	1.9	1.0
		II	2.8	2.0	4.0	3.0	5.0	4.0	1.6	1.0
10-15	146	I	3.4	3.0	2.6	2.0	5.0	4.0	2.0	1.0
		II	2.8	2.0	4.0	3.0	4.8	4.0	1.7	1.0
Mean of Scores			3.37		3.55		4.58		1.75	
ΣR_j (Sum of Ranks)				32.0		32.0		44.0		12.0

TABLE XLVII

THE MEAN SCORES (S) AND RANKS (R) OF THE FIVE CHARACTERISTICS COMBINED FOR PEANUT BUTTER SAMPLES NINE HARVEST DATES FOR VARIOUS MATURITY CIASSES, ARGENTINE PEANUTS, PERKINS, 1965

Date of Harvest		8-28		9-4		9-11		9-18		9-25		10-2		10-9		10-16		10-23	
Days From Planting to Harvest		96		103		110		117		124		131		138		145		152	
Maturity Class.	Rep.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.
Mature	I	2.12	8.0	2.30	9.0	2.00	7.0	1.72	4.0	1.56	1.0	1.72	4.0	1.68	2.0	1.72	4.0	1.74	6.0
	II	2.60	9.0	2.50	8.0	1.76	5.0	2.02	7.0	1.36	1.0	1.92	6.0	1.50	3.0	1.56	4.0	1.48	2.0
Intermediate	I	2.68	9.0	2.10	7.0	2.08	6.0	2.56	8.0	1.76	3.0	1.96	4.5	1.56	1.0	1.96	4.5	1.72	2.0
	II	3.30	9.0	2.84	6.0	2.92	7.5	2.60	4.5	2.42	3.0	2.92	7.5	2.08	2.0	1.14	1.0	2.60	4.5
Immature*	I	2.40	5.0	2.52	6.0	2.68	7.0	2.92	9.0	2.88	8.0	2.24	4.0	1.86	3.0	1.58	1.0	1.84	2.0
	II	2.96	5.0	3.28	9.0	3.08	7.0	3.00	6.0	3.22	8.0	2.40	3.0	1.36	1.0	2.12	2.0	2.44	4.0
Immature**	I	2.96	2.0	3.52	9.0	2.66	1.0	3.04	3.0	3.36	3.0	3.10	4.0	3.48	8.0	3.40	7.0	3.24	5.0
	II	3.68	9.0	3.56	7.5	2.92	1.5	3.24	5.0	3.16	3.0	3.48	6.0	3.56	7.5	2.92	1.5	3.20	4.0
Mean of Scores		2.84		2.83		2.51		2.51		2.46		2.47		2.14		2.05		2.28	
ΣR_j (Sum of Ranks)		56.0		61.5		42.0		46.5		33.0		39.0		27.5		25.0		29.5	

* Held on 15/64 - inch sieve (large).

** Through a 15/64 - inch sieve (small).

TABLE XLVIII

THE MEAN FLAVOR SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES FOR NINE HARVEST DATES FOR VARIOUS MATURITY CLASSES, ARGENTINE PEANUTS, PERKINS, 1965.

Date of Harvest		8-28		9-4		9-11		9-18		9-25		10-2		10-9		10-16		10-23	
Days From Planting to Harvest		96		103		110		117		124		131		138		145		152	
Maturity Class.	Rep.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.
Mature	I	3.0	8.0	3.4	9.0	1.6	3.0	1.8	5.5	1.4	1.5	1.8	5.5	1.8	5.5	1.8	5.5	1.4	1.5
	II	3.2	8.5	3.2	8.5	2.4	5.0	2.8	7.0	1.2	1.5	2.6	6.0	1.2	1.5	1.4	3.0	1.6	4.0
Intermediate	I	4.0	9.0	2.6	7.0	2.0	3.0	3.0	8.0	2.2	5.0	2.4	6.0	2.0	3.0	2.0	3.0	1.6	1.0
	II	4.0	8.0	3.8	6.0	4.0	8.0	3.2	5.0	2.8	3.0	4.0	8.0	2.6	2.0	1.0	1.0	3.0	4.0
Immature*	I	3.2	4.0	3.6	8.0	3.4	5.5	3.6	8.0	3.6	8.0	3.4	5.5	2.0	1.0	2.2	2.5	2.2	2.5
	II	3.4	5.0	4.0	7.5	4.0	7.5	4.0	7.5	4.0	7.5	2.8	3.0	1.8	1.0	2.2	2.0	3.2	4.0
Immature**	I	4.0	7.5	3.8	4.0	3.4	1.0	4.0	7.5	4.0	7.5	3.6	2.0	3.8	4.0	3.8	4.0	4.0	7.5
	II	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0	4.0	6.0	3.2	1.0	3.8	2.0
Mean of Scores		3.6		3.6		3.1		3.3		2.9		3.1		2.4		2.2		2.6	
ΣR_j (Sum of Ranks)		56.0		56.0		39.0		54.5		40.0		42.0		24.0		22.0		26.5	

* Held on 15/64 - inch sieve (large).

** Through a 15/64 - inch sieve (small).

TABLE XLIX

THE MEAN TASTE SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES FOR NINE HARVEST DATES FOR VARIOUS MATURITY CLASSES, ARGENTINE PEANUTS, PERKINS, 1965.

Date of Harvest		8-28		9-4		9-11		9-18		9-25		10-2		10-9		10-16		10-23	
Days From Planting to Harvest		96		103		110		117		124		131		138		145		152	
Maturity Class.	Rep.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.
Mature	I	3.2	9.0	2.5	8.0	2.4	7.0	1.6	2.0	1.8	4.0	1.8	4.0	2.2	6.0	1.8	4.0	1.3	1.0
	II	2.7	8.0	2.7	9.0	2.0	5.0	2.1	6.0	1.6	2.5	2.2	7.0	1.9	4.0	1.6	2.5	1.2	1.0
Intermediate	I	3.6	9.0	2.9	7.0	2.4	5.5	3.0	8.0	2.0	4.0	2.4	5.5	1.4	1.0	1.8	2.5	1.8	2.5
	II	3.7	9.0	2.6	3.5	3.2	7.0	2.8	5.0	2.9	6.0	3.6	8.0	2.4	2.0	1.7	1.0	2.6	3.5
Immature*	I	3.6	8.0	3.0	4.5	3.8	9.0	3.0	4.5	3.4	7.0	3.2	6.0	2.1	3.0	1.5	1.0	1.6	2.0
	II	3.2	6.0	3.2	6.0	3.8	9.0	3.4	8.0	3.1	4.0	3.2	6.0	1.8	1.5	1.8	1.5	2.2	3.0
Immature**	I	3.8	7.5	4.0	9.0	3.1	2.0	3.2	3.5	3.8	7.5	3.5	6.0	3.2	3.5	3.4	5.0	2.8	1.0
	II	3.8	7.5	3.2	3.5	3.6	5.5	3.8	7.5	3.6	5.5	4.0	9.0	3.2	3.5	3.0	1.5	3.0	1.5
Mean of Scores		3.4		3.0		3.0		2.8		2.8		3.0		2.3		2.2		2.0	
ΣR_j (Sum of Ranks)			64.0		50.5		50.0		44.5		40.5		51.5		24.5		19.0		15.5

* Held on 15/64 - inch sieve (large).

** Through a 15/64 - inch sieve (small).

TABLE L

THE MEAN ODOR SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES FOR NINE HARVEST DATES FOR VARIOUS MATURITY CLASSES, ARGENTINE PEANUTS, PERKINS, 1965.

Date of Harvest		8-28		9-4		9-11		9-18		9-25		10-2		10-9		10-16		10-23	
Days From Planting to Harvest		96		103		110		117		124		131		138		145		152	
Maturity Class.	Rep.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.
Mature	I	1.6	2.5	2.6	9.0	2.0	7.5	1.8	5.0	1.6	2.5	2.0	7.5	1.2	1.0	1.8	5.0	1.8	5.0
	II	1.8	5.0	3.0	9.0	2.0	6.5	1.6	3.0	1.6	3.0	1.6	3.0	1.2	1.0	2.8	8.0	2.0	6.5
Intermediate	I	2.4	7.0	1.6	2.5	2.6	8.0	3.6	9.0	1.8	4.5	1.8	4.5	1.6	2.5	2.2	6.0	1.0	1.0
	II	3.4	6.5	4.0	8.5	4.0	8.5	2.8	4.0	2.0	2.0	2.4	3.0	3.2	5.0	1.0	1.0	3.4	6.5
Immature*	I	2.2	6.5	1.4	2.0	2.2	6.5	2.4	8.5	2.4	8.5	1.8	3.5	1.8	3.5	1.2	1.0	2.0	5.0
	II	2.8	4.5	4.0	9.0	3.4	7.0	2.8	4.5	3.4	7.0	2.4	2.0	1.2	1.0	3.4	7.0	2.6	3.0
Immature**	I	2.8	3.5	4.0	8.5	2.8	3.5	2.2	1.0	3.6	6.0	2.4	2.0	3.6	6.0	3.6	6.0	4.0	8.5
	II	4.0	5.5	4.0	5.5	4.0	5.5	4.0	5.5	4.0	5.5	4.0	5.5	4.0	5.5	3.4	1.0	4.0	5.5
Mean of Scores		2.63		3.10		2.90		2.65		2.55		2.30		2.30		2.43		2.60	
ΣR_j (Sum of Ranks)		41.0		54.0		53.0		40.5		39.0		31.0		25.5		35.0		41.0	

* Held on 15/64 - inch sieve (large).

** Through a 15/64 - inch sieve (small).

TABLE LI

THE MEAN TEXTURE SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES FOR NINE HARVEST DATES FOR VARIOUS MATURITY CLASSES, ARGENTINE PEANUTS, PERKINS, 1965.

Date of Harvest		8-28		9-4		9-11		9-18		9-25		10-2		10-9		10-16		10-23	
Days From Planting to Harvest		96		103		110		117		124		131		138		145		152	
Maturity Class.	Rep.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.
Mature	I	1.0	1.5	1.6	6.0	1.8	8.5	1.6	6.0	1.6	6.0	1.2	3.0	1.0	1.5	1.4	4.0	1.8	8.5
	II	2.2	8.5	1.6	7.0	1.0	1.5	2.2	8.5	1.4	5.0	1.4	5.0	1.4	5.0	1.0	1.5	1.2	3.0
Intermediate	I	1.4	5.5	1.4	5.5	2.0	9.0	1.2	3.0	1.2	3.0	1.2	3.0	1.0	1.0	1.8	7.5	1.8	7.5
	II	2.6	9.0	1.8	5.5	1.6	3.0	1.8	5.5	1.8	5.5	2.2	8.0	1.2	2.0	1.0	1.0	1.8	5.5
Immature* >	I	1.4	3.5	1.8	7.0	1.8	7.0	2.2	9.0	1.8	7.0	1.2	1.0	1.4	3.5	1.4	3.5	1.4	3.5
	II	2.4	8.0	2.2	6.5	1.2	2.0	2.2	6.5	2.8	9.0	1.4	3.0	1.0	1.0	1.8	4.5	1.8	4.5
Immature** <	I	2.0	2.0	2.6	6.5	1.8	1.0	2.4	4.0	2.8	8.5	2.4	4.0	2.8	8.5	2.6	6.5	2.4	4.0
	II	3.0	8.5	3.0	8.5	1.4	1.0	2.2	4.0	2.0	3.0	2.8	7.0	2.6	6.0	1.8	2.0	2.4	5.0
Mean of Scores		2.00		2.00		1.57		1.98		1.93		1.73		1.55		1.60		1.83	
ΣR_j (Sum of Ranks)		46.5		52.5		33.0		46.5		47.0		34.0		28.5		30.5		41.5	

* Held on 15/64 - inch sieve (large).

** Through a 15/64 - inch sieve (small).

TABLE LII

THE MEAN DRYNESS SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES FOR NINE HARVEST DATES FOR VARIOUS MATURITY CLASSES, ARGENTINE PEANUTS, PERKINS, 1965.

Date of Harvest		8-28		9-4		9-11		9-18		9-25		10-2		10-9		10-16		10-23	
Days From Planting to Harvest		96		103		110		117		124		131		138		145		152	
Maturity Class.	Rep.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.
Mature	I	1.8	3.5	2.4	8.5	2.2	6.5	1.8	3.5	1.4	1.0	1.8	3.5	2.2	6.5	1.8	3.5	2.4	8.5
	II	3.2	9.0	2.0	8.0	1.4	4.0	1.4	4.0	1.0	1.5	1.8	6.5	1.8	6.5	1.0	1.5	1.4	4.0
Intermediate	I	2.0	6.0	2.0	6.0	1.4	1.0	2.0	6.0	1.6	2.0	2.0	6.0	1.8	3.0	2.0	6.0	2.4	9.0
	II	2.8	9.0	2.0	4.0	1.8	3.0	2.4	6.5	2.6	8.0	2.4	6.5	1.0	1.5	1.0	1.5	2.2	5.0
Immature*	I	2.0	4.0	2.6	8.0	2.2	6.0	3.4	7.0	3.2	9.0	1.6	1.5	2.0	4.0	1.6	1.5	2.0	4.0
	II	3.0	8.0	3.0	8.0	3.0	8.0	2.6	5.0	2.8	6.0	2.2	3.0	1.0	1.0	1.4	2.0	2.4	4.0
Immature**	I	2.2	1.5	3.2	5.0	2.2	1.5	3.4	6.0	2.6	3.0	3.6	7.5	4.0	9.0	3.6	7.5	3.0	4.0
	II	3.6	7.5	3.6	7.5	1.6	1.0	2.2	2.5	2.2	2.5	2.6	4.0	4.0	9.0	3.2	6.0	2.8	5.0
Mean of Scores		2.58		2.60		1.98		2.40		2.18		2.25		2.23		1.95		2.33	
ΣR_j (Sum of Ranks)		48.5		55.0		31.0		40.5		33.0		38.5		40.5		29.5		43.5	

* Held on 15/64 - inch sieve (large).

** Through a 15/64 - inch sieve (small).

TABLE LIII

THE MEAN SCORES (S) AND RANKS (R) OF THE FIVE CHARACTERISTICS COMBINED FOR PEANUT BUTTER SAMPLES FOR SIX HARVEST DATES FOR THREE MATURITY CLASSES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

Date of Harvest		9-10		9-17		9-24		10-1		10-8		10-15	
Days From Planting to Harvest		111		118		125		132		139		146	
Maturity Class.	Rep.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.
Mature	I	2.16	3.0	2.52	5.0	2.60	6.0	2.08	2.0	2.22	4.0	1.72	1.0
	II	2.12	3.5	2.44	5.0	1.50	1.0	2.90	6.0	1.72	2.0	2.12	3.5
Intermediate	I	2.40	6.0	2.12	4.0	2.26	5.0	1.84	2.0	1.96	3.0	1.74	1.0
	II	2.60	3.0	3.16	6.0	2.84	4.5	1.88	1.0	2.42	2.0	2.84	4.5
Immature	I	2.36	2.0	2.08	1.0	3.04	6.0	3.00	4.0	2.52	3.0	3.02	5.0
	II	3.20	5.5	2.80	1.0	3.16	4.0	2.96	2.0	3.04	3.0	3.20	5.5
Mean of Scores		2.47		2.52		2.56		2.44		2.31		2.44	
ΣR_j (Sum of Ranks)			23.0		22.0		26.5		17.0		17.0		20.5

TABLE LIV

THE MEAN ODOR SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES FOR SIX HARVEST DATES FOR VARIOUS MATURITY CLASSES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

Date of Harvest		9-10		9-17		9-24		10-1		10-8		10-15	
Days From Planting to Harvest		111		118		125		132		139		146	
Maturity Class.	Rep.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.
Mature	I	2.4	3.0	3.2	6.0	3.0	5.0	1.4	1.5	2.8	4.0	1.4	1.5
	II	2.6	4.5	2.6	4.5	1.2	1.0	2.8	6.0	1.4	2.0	2.4	3.0
Intermediate	I	4.0	6.0	3.4	5.0	2.8	4.0	2.4	2.5	2.4	2.5	1.2	1.0
	II	3.0	3.5	3.4	5.0	3.0	3.5	2.4	2.0	2.0	1.0	3.6	6.0
Immature	I	4.0	5.0	3.0	1.5	4.0	5.0	3.4	3.0	3.0	1.5	4.0	5.0
	II	4.0	4.0	3.0	1.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Mean of Scores		3.30		3.10		3.00		2.70		2.60		2.75	
ΣR_j (Sum of Ranks)		26.0		23.0		22.5		19.0		15.0		20.5	

TABLE LV

THE MEAN FIAVOR SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES FOR SIX HARVEST DATES FOR VARIOUS MATURITY CLASSES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

Date of Harvest		9-10		9-17		9-24		10-1		10-8		10-15	
Days From Planting to Harvest		111		118		125		132		139		146	
Maturity Class.	Rep.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.
Mature	I	2.6	2.5	3.4	4.5	3.6	6.0	3.4	4.5	2.6	2.5	1.8	1.0
	II	2.8	4.5	2.8	4.5	2.0	2.0	3.8	6.0	1.8	1.0	2.2	3.0
Intermediate	I	2.6	6.0	2.4	4.5	2.4	4.5	1.6	2.0	1.8	3.0	1.0	1.0
	II	3.2	2.0	4.0	5.5	4.0	5.5	1.8	1.0	3.6	4.0	3.4	3.0
Immature	I	2.2	1.5	2.2	1.5	3.8	5.0	4.0	6.0	3.2	3.0	3.6	4.0
	II	4.0	4.0	4.0	4.0	4.0	4.0	3.6	1.0	4.0	4.0	4.0	4.0
Mean of Scores		2.90		3.10		3.30		3.00		2.80		2.65	
ΣR_j (Sum of Ranks)		20.5		24.5		27.0		20.5		17.5		16.0	

TABLE LVI

THE MEAN TASTE SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES FOR SIX HARVEST DATES FOR VARIOUS MATURITY CLASSES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

Date of Harvest		9-10		9-17		9-24		10-1		10-8		10-15	
Days From Planting to Harvest		111		118		125		132		139		146	
Maturity Class.	Rep.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.
Mature	I	1.8	1.5	2.4	4.5	2.4	4.5	1.8	1.5	2.5	6.0	2.0	3.0
	II	1.6	1.0	2.8	5.0	2.1	3.0	2.9	6.0	2.4	4.0	2.0	2.0
Intermediate	I	2.0	4.0	1.8	2.0	2.3	6.0	2.0	4.0	2.0	4.0	1.7	1.0
	II	2.8	3.0	3.2	5.0	3.2	5.0	1.6	1.0	2.5	2.0	3.2	5.0
Immature	I	1.8	1.5	1.8	1.5	3.4	6.0	3.2	5.0	2.4	3.0	3.1	4.0
	II	3.6	5.0	3.2	1.0	3.4	2.5	3.6	5.0	3.4	2.5	3.6	5.0
Mean of Scores		2.26		2.53		2.80		2.53		2.50		2.63	
ΣR_j (Sum of Ranks)		16.0		19.0		27.0		22.5		21.5		20.0	

TABLE LVII

THE MEAN TEXTURE SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES FOR SIX HARVEST DATES FOR VARIOUS MATURITY CLASSES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

Date of Harvest		9-10		9-17		9-24		10-1		10-8		10-15	
Days From Planting to Harvest		111		118		125		132		139		146	
Maturity Class.	Rep.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.
Mature	I	1.4	3.0	1.6	5.0	1.8	6.0	1.4	3.0	1.4	3.0	1.0	1.0
	II	1.4	3.5	1.4	3.5	1.0	1.0	2.6	6.0	1.4	3.5	1.4	3.5
Intermediate	I	1.4	3.0	1.2	1.0	1.8	5.5	1.4	3.0	1.4	3.0	1.8	5.5
	II	1.6	1.0	2.2	3.5	1.8	2.0	2.6	5.5	2.6	5.5	2.2	3.5
Immature	I	1.8	5.0	1.6	4.0	2.0	6.0	1.4	2.0	1.4	2.0	1.4	2.0
	II	1.6	1.0	1.8	3.0	2.2	5.5	1.8	3.0	1.8	3.0	2.2	5.5
Mean of Scores		1.53		1.63		1.77		1.87		1.67		1.70	
ΣR_j (Sum of Ranks)		16.5		20.0		26.0		22.5		20.0		21.0	

TABLE LVIII

THE MEAN DRYNESS SCORES (S) AND RANKS (R) FOR PEANUT BUTTER SAMPLES FOR SIX HARVEST DATES FOR VARIOUS MATURITY CLASSES, DIXIE SPANISH PEANUTS, STRATFORD, 1965.

Date of Harvest		9-10		9-17		9-24		10-1		10-8		10-15	
Days From Planting to Harvest		111		118		125		132		139		146	
Maturity Class.	Rep.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.
Mature	I	2.6	6.0	2.0	2.0	2.2	3.0	2.4	4.5	1.8	1.0	2.4	4.5
	II	2.2	3.0	2.6	5.5	1.2	1.0	2.4	4.0	1.6	2.0	2.6	5.5
Intermediate	I	2.0	3.5	1.8	1.5	2.0	3.5	1.8	1.5	2.2	5.0	3.0	6.0
	II	2.4	5.0	3.0	6.0	2.2	4.0	1.0	1.0	1.4	2.0	1.8	3.0
Immature	I	2.0	3.0	1.8	1.5	1.8	1.5	3.0	5.5	2.6	4.0	3.0	5.5
	II	2.8	6.0	2.0	2.5	2.2	4.5	1.8	1.0	2.0	2.5	2.2	4.5
Mean of Scores		2.33		2.20		1.93		2.07		1.93		2.50	
ΣR_j (Sum of Ranks)			26.5		19.0		17.5		17.5		16.5		29.0

TABLE LIX

PEANUT BUTTER TURN-OUT PERCENTAGES FOR ARGENTINE PEANUTS HARVESTED AT WEEKLY INTERVALS AND CIASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, PERKINS, 1965.

Sampling Date	Days After Planting	Maturity Classification				Standard
		Mature	Int.	Immature >15/64 x 3/4"	Immature <15/64 x 3/4"	
8-28-65	96	90.04	86.53	88.35	85.40	86.73
9- 4-65	103	83.18	88.95	86.91	79.10	88.33
9-11-65	110	84.61	85.79	88.00	81.55	88.35
9-18-65	117	86.62	85.91	85.59	83.12	86.69
9-25-65	124	85.67	84.40	82.91	75.17	86.86
10- 2-65	131	86.78	84.33	85.70	75.89	86.57
10- 9-65	138	88.53	81.50	85.00	51.59	86.07
10-16-65	145	85.20	80.51	87.06	75.17	87.30
10-23-65	152	86.84	88.46	86.96	76.18	87.37
Mean		86.38	86.12	86.28	75.90	87.14

% of Peanut Butter Obtained

$$= \frac{\text{Weight of Roasted Cotyledons of the Sample Before Grinding}}{\text{Weight of Raw Peanut Sample}}$$

x 100

TABLE LX

PEANUT BUTTER TURN-OUT PERCENTAGES FOR DIXIE SPANISH PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, STRATFORD, 1965.

Sampling Date	Days After Planting	Maturity Classification			Standard
		Mature	Intermediate	Immature	
9-10-65	111	90.30	87.83	87.10	88.25
9-17-65	118	84.30	87.31	87.18	85.60
9-24-65	125	90.08	88.21	84.19	86.50
10- 1-65	132	88.10	87.60	86.29	80.07
10- 8-65	139	86.92	89.16	87.10	84.83
10-15-65	146	86.60	87.24	85.25	86.57
Mean		87.83	87.89	86.19	85.30

% of Peanut Butter Obtained:

$$= \frac{\text{Weight of Roasted Cotyledons of the Sample Before Grinding}}{\text{Weight of Raw Peanut Sample}}$$

x 100

TABLE LXI

WEIGHTS OF 100 SEEDS FOR ARGENTINE PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, PERKINS, 1965.

Sampling Date	Days After Planting	Maturity Classification				Std.
		Mature	Int.	Immature >15/64 x 3/4"	Immature < 15/64 x 3/4"	
8-28-65	96	31.23	25.59	24.52	13.75	37.05
9- 4-65	103	34.31	32.00	26.15	13.52	37.54
9-11-65	110	36.20	32.71	25.41	13.82	39.98
9-18-65	117	35.39	32.47	23.99	13.52	38.64
9-25-65	124	36.50	31.47	24.00	15.59	36.76
10- 2-65	131	40.72	34.37	30.37	14.83	36.79
10- 9-65	138	38.76	33.37	29.92	10.08	38.69
10-16-65	145	37.76	35.89	29.61	13.62	37.94
10-25-65	152	39.70	35.48	27.99	12.43	38.26
Mean		36.76	32.59	26.88	13.46	38.18

TABLE LXII

WEIGHTS OF 100 SEEDS FOR DIXIE SPANISH PEANUTS HARVESTED AT WEEKLY INTERVALS AND CLASSIFIED AS MATURE, INTERMEDIATE, AND IMMATURE, STRATFORD, 1965.

Sampling Date	Days After Planting	Maturity Classification			Standard
		Mature	Intermediate	Immature	
9-10-65	111	36.96	36.26	34.39	38.96
9-17-65	118	38.80	37.93	32.83	38.86
9-24-65	125	40.06	41.48	31.15	34.71
10- 1-65	132	41.26	40.03	32.41	36.62
10- 8-65	139	44.35	45.65	32.59	35.62
10-15-65	146	44.26	36.42	36.65	37.96
Mean		40.95	39.63	33.34	37.12

TABLE LXIII

TABLE OF CRITICAL VALUES OF T IN THE WILCOXON MATCHED-PAIRS SIGNED-RANKS TEST*

N	Level of Significance for One-Tailed Test		
	.025	.01	.005
	Level of Significance for Two-Tailed Test		
	.05	.02	.01
6	0	--	--
7	2	0	--
8	4	2	0
9	6	3	2
10	8	5	3
11	11	7	5
12	14	10	7
13	17	13	10
14	21	16	13
15	25	20	16
16	30	24	20
17	35	28	23
18	40	33	28
19	46	38	32
20	52	43	38
21	59	49	43
22	66	56	49
23	73	62	55
24	81	69	61
25	89	77	68

* Adapted from Table I of Wilcoxon, F. 1949. Some Rapid Approximate Statistical Procedures. New York: American Cyanamid Company, p. 13, with the kind permission of the author and publisher.

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