

# Variations In Flue-Cured Tobacco Prices



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L. D. BAVER, DIRECTOR  
STATE COLLEGE STATION  
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## SUMMARY

In 1937 and 1938 on the Farmville market, prices paid for different lots of the same U. S. grades of flue-cured tobacco varied widely within days. The average of daily spreads between high and low prices paid for 14 representative U. S. grades in 1938 amounted to \$15.33 for 100 pounds, or 63.5 per cent of the season average price of these grades. Even when the effect of extreme chance variations had been removed by the elimination of 10 per cent of the poundage at each extreme of the price range, there remained an average spread of \$8.07 per 100 pounds, or 33.4 per cent of the season average price.

Since company buyers do not regard U. S. grades in making their purchases, in the analysis of price variations in terms of company grades less variation was found, although daily prices paid for representative company grades varied considerably. Corresponding average spreads for 16 company grades were 28.9 per cent and 13.2 per cent of the season average prices.

Probably no sane individual would attempt to explain in full the wide variation in prices indicated. A considerable part of it is inherent in the system and defies logic. However, several factors associated with the variation have been examined, and the results may be summarized briefly.

Each company has its own private secret system of grades, and none of these systems correspond with the U. S. standard grades. A single company grade contains tobacco of many U. S. grades, and the tobacco of a single U. S. grade bought by a company is distributed among a number of company grades. The analysis of 15 representative company grades bought in 1938 on one market indicated that on the average 24.4 per cent of each company grade consisted of tobacco classified in one U. S. grade, 38.6 per cent in two U. S. grades, and 48.4 per cent in three. If the assumption is made that federal grading is accurate, company grades contain a wider range in quality of tobacco than U. S. grades, or have less uniformity of quality.

In the majority of U. S. grades of average or better quality tobacco examined, the prices tended to increase as the size of the lots increased, at least up to 400 pounds. This was not true of the cheapest grades.

The charge has been made that the "Big Three" domestic cigarette companies restrict competition by refraining from purchasing the same grades of tobacco on the same markets at the same time. This study showed that the three companies were purchasing the same grades at the same times in 1938 on the Farmville market. It should be emphasized, however, that this fact is not conclusive evidence of free competition on the market. Competition may be limited to the extent that each buyer is limited to a definite percentage of the sales to be purchased and that the three companies have the same ceiling on prices. No information was obtained on the last two points.

Interviews with growers suggest very strongly that the personal relationship between growers and buyers influences prices to a considerable extent.

# Variations In Flue-cured Tobacco Prices

By

S. L. CLEMENT

*Department of Agricultural Economics*

## INTRODUCTION

Tobacco growers and others interested in tobacco marketing from the growers' view point have long been aware of wide variations in prices paid within a given auction market for different lots of what appeared to be the same quality of tobacco on the same day. There have been numerous bits of evidence to support this belief. Frequently two growers with tobacco which appears to be of equal quality receive widely different prices, or often a grower who splits one grade of tobacco receives a much higher price for one segment of the grade than for another. Again the same lot of tobacco which is sold twice the same day in the same warehouse is sold for two greatly different prices.

While there have long been rumors and reports of such conditions, economists and marketing specialists have generally been unable to state the extent of such variations or to analyze satisfactorily the factors associated therewith, mainly because of the lack of satisfactory primary data. Attention has been centered largely upon average prices and proper preparation of the leaf for market and not upon those factors which cause variations in prices.

Influential growers who have been keenly conscious of these conditions have hesitated to speak openly against them, particularly since the failure of the great cooperative effort in 1926. Some of them admit that the situation is undesirable but state that it is better than that experienced under the cooperative. Others state that as individuals they fare well under the existing situation but that the average grower does not fare as well. Apparently the majority of the growers are very careful to stay on friendly terms with company buyers and seldom risk antagonizing them.

This study, therefore, is primarily intended: (1) To determine the extent of daily variations in prices paid for the same quality of tobacco on the same market; and (2) to measure, or indicate, the influence of some of the factors responsible for these variations.

## METHOD AND SCOPE

The study was begun in the fall of 1936, and, during this and the following season, data were obtained on growing, curing, grading, and selling practices of farmers by the survey method. Efforts were made to relate such practices to quality of tobacco produced and prices received. During the 1936-37 marketing season 200 growers in the Oxford area were interviewed for the purpose of obtaining information on cultural, curing, grading, and selling practices, as well as opinions of growers concerning marketing problems. These growers agreed to cooperate by keeping records of prices

and grades of their tobacco, but very few kept satisfactory records. As this phase of the study yielded only limited results, attention was concentrated during the two following seasons on price and price variations. From the standpoint of marketing the crop the most serious problems are centered around the auction sale.

During 1937-38 there were three flue-cured markets in the state on which federal inspection and market news services were provided. One of these, the Farmville market, was selected for study that year. With the assistance of county agents and warehousemen 100 landlords were selected who usually sold the majority of their tobacco on this market. These landlords ranged in size of operations from a single crop to more than 100 crops, or from less than 5 acres to more than 500 acres. Since it was desired to obtain information on specific tobacco crops, from one to several crops were selected under each landlord, making the total number of crops in the sample approximately 225.

After the promise of cooperation had been secured from the four warehousemen on the market, a man was employed to check the sale at all warehouses and obtain complete sales records of all tobacco sold by growers in the sample. A copy of the warehouse ticket for each lot was obtained and filed, showing the date of sale, name of grower, weight of the lot, selling price, U. S. grade, initials of the grader, the company purchasing the lot, and the company grade.

During the marketing season each of the landlords was interviewed for the purpose of obtaining information on growing, fertilizing, curing, grading, and selling practices. This information was obtained directly from those landlords who closely supervised all operations; in other instances the tenants were interviewed also. Especially prepared schedules were used for recording the information.

Sales records were obtained on 7,316 lots of tobacco with a total weight of 1,189,120 pounds, which represented approximately 5 per cent of the tobacco sold on the market. Complete records were not obtained on all sales of the selected growers.

In 1938-39 sales tickets were obtained from three warehouses in Farmville on 66,344 lots of tobacco, representing 9,276,136 pounds. Each of these tickets contained a complete record of the sale of one lot. These data were punched on cards for machine tabulation.

In the 1939-40 season a man was employed to obtain records of farmers' rejections and resale of tobacco on the Farmville market. Complete records were obtained on 908 lots.

### TOBACCO AUCTION PROCEDURE

For the benefit of any reader who is not familiar with the auction method of selling tobacco, the following brief description of the auction sale may help him to understand the discussion which follows:

Prior to bringing tobacco to the warehouse the farmer assort it into several grades on the basis of such factors as color, quality, and length of leaf, and the leaves are tied into hands, or bundles. Each curing, or barn of tobacco, is usually graded and marketed separately, so that from four to six sales are made from each crop. When the load of tobacco reaches the warehouse, each grade is placed on a basket and rolled to the scales where it is



Each grade of the farmer's tobacco is placed on a separate basket and rolled to the scales where it is weighed.

weighed. The date, initials of the seller, and the weight are recorded on a ticket which is placed on the top of the basket. From the scales the several baskets belonging to an individual grower are placed side by side on the warehouse floor for sale. The warehouse floor is marked off in rows with walking space between rows. The grower is careful to see that his various lots are arranged in the row in such order that the buyers reach his low grades first and proceed to his best tobacco.

Prior to the sale, on those markets where federal inspection and market news services are provided, federal licensed graders inspect each basket of tobacco and mark on the ticket the U. S. grade of the lot.

At the hour for opening the sale the buyers representing the domestic manufacturers, exporters, and dealers line up on one side of the row. In addition to these, there are usually several individual speculators who are licensed to buy on the market. On the other side of the row are the men representing the warehouse. First in line is the starter, who pulls from the basket a sample of the tobacco and calls out a starting price. The auctioneer, who follows the starter, takes up the starting price and calls for bids with his characteristic chant. He watches the buyers for bids which they indicate by a signal, such as a nod, a wink, or a gesture. Until the bidding reaches \$15 a hundred pounds, each bid means a raise of 25 cents a hundred. Between \$15 and \$25, each bid is a raise of 50 cents and above \$25 it is a raise of \$1. When, in his opinion, the final bid has been made, the auctioneer announces the sale to the highest bidder and passes on to the next lot. The ticket

marker, who follows the auctioneer and has been handed the ticket from the basket being sold, marks on the ticket the price, the name of the company making the bid, and the company grade of the lot, the latter being indicated by the buyer. Also following the auctioneer is a representative of the warehouse who enters bids for the warehouse from time to time to encourage higher bidding from buyers or to prevent certain lots selling too low. Any tobacco bought by the warehouse is resold on the auction floor at a later time.



After being weighed the baskets of tobacco are placed side by side in rows on the warehouse floor. Men, women, and children who accompanied the tobacco to market patiently await the sale.

Two other employees of the warehouse, a book man and a clip man, follow the sale, each with blanks on which are recorded the weight and serial number of each basket of the grower's tobacco. Each of them copies from the sales tickets on the baskets the price paid and the name of the purchaser and calculates the gross amount of the sale. When calculations have been made for all lots sold by one grower, these men compare totals to see that their calculations check. One of them sends his copy to the office for settlement with the grower, and the other keeps his copy as a permanent record of the warehouse.

During the sale, the grower whose tobacco is being sold is usually beside the auctioneer or warehouseman to announce that his tobacco is being sold and to influence the bidding if possible. If the grower is dissatisfied with the bid on any lot of tobacco, he has the privilege of rejecting it immediately after the sale, which he indicates by turning or mutilating the ticket.

## FEDERAL INSPECTION AND MARKET NEWS SERVICE

The tobacco Inspection Act of 1935 provides for three distinct free services to growers—demonstration, inspection, and market news. Inspection and market news services are provided as a measuring stick for quality and price to be used by growers in protecting themselves against loss in the sale of their tobacco, and to be used as a guide in accepting or rejecting bids on their tobacco. These services have been established in relatively few markets; only five of North Carolina's 38 markets had the services in 1940. Before they are established on a market, the Act provides that a referendum be held of all growers selling on that market and that two-thirds or more of the growers vote in favor of the services. The purpose of the demonstration service is to acquaint growers with standard grades and proper methods of sorting tobacco.

On markets having inspection and market news services, federal licensed graders place an official grade on the ticket of each basket of tobacco prior to sale. Market news reports are made available to growers, giving the current average price paid for each grade of tobacco. By comparing the grades assigned his various lots of tobacco with this report, the farmer may obtain some idea as to the current price of his quality of tobacco, assuming, of course, that the tobacco has been correctly graded. During the first years of experimentation with these services, the U. S. grade of each graded lot was announced to the buyers before they started bidding. This practice has now been discontinued because of objection on the part of warehousemen. At present the buyer does not have an opportunity at the time of bidding to observe the U. S. grade assigned each lot, since the ticket is removed from the basket during bidding.<sup>1</sup>

Without going into a detailed description of the various U. S. grades, a few words regarding the number of grades may be worth while. There are four broad divisions into which tobacco leaves are divided. They are lugs, cutters, leaf, and wrappers, designated by the letters X, C, B, and A, respectively.<sup>2</sup> There are also three sub-groups, designated as smoking leaf (H), primings (P), and non-descript (N). Each group is divided into qualities designated by numbers, as 1 for the best quality in each group, 2 for the next best, and so on to the lowest quality in each group. Color, which is the third factor considered in grades, is also designated by certain letters, as L for lemon, F for orange, R for red, D for dark, and G for green. For illustration, "X3P" is the grade designation describing a lot of lugs (X) of third quality (3) in orange color (F).

Thus it is readily seen that a large number of grades will be involved in grading all the tobacco that comes to a given market during an entire season. The 66,344 lots on which records were obtained in 1938-39 on the Farmville market were classified into 226 grades and sub-grades by the federal graders.

<sup>1</sup>If a buyer is interested in ascertaining the U. S. grade of any particular lot of tobacco before the sale starts or at a time when the sale has been stopped temporarily, there is nothing to prevent his examining the ticket.

<sup>2</sup>See "Preparation and Marketing of Flue-Cured Tobacco," by Frank P. Wilkinson and Hugh W. Taylor, 1935.

## COMPANY GRADING SYSTEMS

The following eight tobacco companies had buyers on the Farmville market: Imperial Tobacco Company, Export Tobacco Company, American Tobacco Company, Liggett and Myers Tobacco Company, Reynolds Tobacco Company, A. C. Monk Tobacco Company, W. B. Lea Tobacco Company, and Ficklen Tobacco Company. Each company uses its own system of grading, the buyer designating the grade to be assigned each lot purchased.

Little is known concerning the grading by the several companies. From the records obtained on the Farmville market, it was possible to learn something about the private grades by analyzing company grades in terms of the U. S. grades going into them. This analysis is presented in another section of this study.

## VARIATIONS IN PRICES FOR INDIVIDUAL LOTS OF A GIVEN GRADE

## Daily Variations In Relation to U. S. Grades

In measuring the variation in prices paid for different lots of the same quality tobacco on the same day, it was found necessary to use a definite standard of quality. The two standards which are available for use are U. S. grades and company grades. When either of these standards is used the assumption is made that the selected standard is correct and accurate, an assumption which is of doubtful validity, as will be pointed out more specifically later. Regardless of the standard by which measures are made, however, it is a well recognized fact that prices paid for the same quality of tobacco vary considerably.

The price is analyzed first in terms of U. S. grades. Table 1 and Figures 1 and 2 show the daily variation in prices paid for different lots of selected U. S. grades of Type 12 flue-cured tobacco on one market. Column 5 of the table shows the average daily spread between the highest and the lowest prices paid. For example, there was an average daily spread of \$13.03 per 100 pounds of U. S. grade B6F, a grade which sold for a season average price of \$12.20 per 100 pounds. This average spread amounted to 106.80 per cent of the season average price. It will be realized, of course, that this total spread between high and low prices paid for a given grade is in some instances unduly influenced by a few lots selling at extremely low or extremely high prices. This weakness is overcome if 10 per cent of the poundage at each extreme of the price range is eliminated and the price range of the remaining central 80 per cent of the poundage is measured. Thus the average of daily spread between the 10th and 90th percentiles was \$6.08 per 100 pounds for grade B6F, or 49.84 per cent of the season average price.

TABLE 1. WEIGHTED AVERAGE PRICE AND AVERAGE DAILY SPREAD BETWEEN HIGH AND LOW PRICES PAID FOR SELECTED FEDERAL GRADES OF FLUE-CURED TOBACCO, FARMVILLE, 1938-39.

U. S. grade	Total number of lots in sample	Total number of lbs. in sample	Season weighted average price	Average daily spread between high and low prices			
				Total Sales		Central 80% of sales	
				Spread	Percent of ave. price	Spread	Percent of ave. price
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
B3F	3,613	541,119	\$30.11	\$17.50	58.12	\$7.69	25.54
B4L	1,672	274,948	29.21	15.13	51.80	7.54	25.81
B4F	4,391	696,816	24.79	18.22	73.50	9.41	37.96
B5F	4,011	563,852	18.16	18.14	99.89	9.86	54.39
B6F	2,645	377,377	12.20	13.03	106.80	6.08	49.84
H4F	1,152	162,004	25.81	12.76	49.44	7.93	30.72
H5F	1,013	126,777	20.82	14.25	68.44	9.94	47.74
C4L	996	186,763	33.68	13.06	38.78	7.06	20.96
C5L	813	142,454	31.05	10.70	34.46	6.95	22.38
X2L	1,663	276,147	29.26	12.37	42.28	6.91	20.54
X2F	1,603	264,098	28.87	12.26	42.47	6.19	21.44
X3F	2,383	322,144	25.33	16.14	63.72	7.98	31.50
X4F	1,256	144,991	20.99	14.81	70.56	8.95	42.64
P4L	2,144	299,090	19.47	14.25	73.19	9.50	48.79
Total	28,755	4,378,780	\$24.29	\$15.45	63.52	\$5.11	33.39

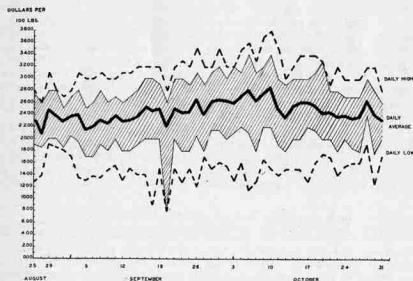


Figure 1. Daily high, low, and weighted average price paid for U. S. grade B6F flue-cured tobacco, Farmville, 1938-39.

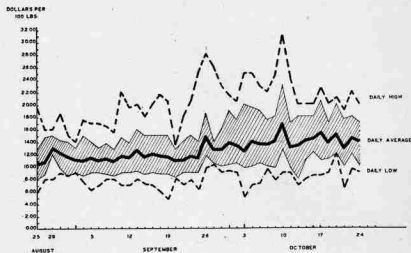


Figure 2. Daily high, low, and weighted average price paid for U. S. grade B4F flue-cured tobacco, Farmville, 1928-39.

The weighted average of daily total spreads for the 14 U. S. grades was \$15.43 per 100 pounds, or 63.52 per cent of the season average price. The weighted average of daily spreads between the 10th and 90th percentiles (central 80 per cent of sales) for the 14 grades was \$8.11, or 33.39 per cent of the season average price.

In Figures 1 and 2 are presented more detailed pictures of the daily price variation for U. S. grades B6F and B4F. The broken lines indicate the extreme daily high and low prices; the heavy line shows the weighted daily average prices; and the shaded area represents the price range of the central 80 per cent of the poundage sold, between the 10th and 90th percentiles. It is seen from these charts that on certain days there is an extremely wide spread between low and high prices. For B6F the range on September 26 was from \$9.75 to \$28.00, a spread of \$18.25 as compared with a weighted average price of \$14.79 for that day.

From the data presented in Table 1 it appears that the variation in prices paid for grades selling at a low average price was almost as wide as for grades selling at a high average price. This statement is further substantiated by data in Table 2 in which are shown standard deviations of prices at various price levels for selected grades.<sup>3</sup>

#### Daily Variations Paid for Selected Company Grades

The wide price variations discussed in the preceding paragraphs were based on prices paid for different lots of the same U. S. grades of tobacco. It may be argued that buyers do not buy on U. S. grades but on grades established by their several companies. On this assumption one should expect

<sup>3</sup>The standard deviation measures the range in prices above and below the mean price within which approximately two-thirds of the poundage falls. That is, two-thirds of the poundage may be expected to sell within that range above and below the mean.

TABLE 2. STANDARD DEVIATIONS OF PRICES PAID FOR 7 SELECTED U. S. GRADES OF TYPE 12 FLUE-CURED TOBACCO AT VARYING PRICE LEVELS.

B6F		H5F		X4F		B4F	
Mean price	Standard deviation	Mean price	Standard deviation	Mean price	Standard deviation	Mean price	Standard deviation
\$	\$	\$	\$	\$	\$	\$	\$
10.76	2.18	17.20	3.37	17.46	3.56	21.73	3.65
10.99	1.73	18.91	3.91	18.24	3.51	22.83	3.15
11.40	2.03	20.10	3.87	19.18	2.97	23.23	3.42
11.57	2.52	20.61	2.98	19.76	2.49	23.62	3.84
11.78	2.22	21.46	3.54	20.90	3.66	23.91	3.49
12.60	3.29	21.95	3.26	21.63	3.63	24.56	4.10
12.99	3.07	22.82	3.31	23.37	3.75	25.07	3.62
13.62	2.78	23.76	4.09			25.96	3.78
14.13	2.94					26.44	3.82
16.29	3.49					27.37	4.28

X3F		B9F		C4L	
Mean price	Standard deviation	Mean price	Standard deviation	Mean price	Standard deviation
\$	\$	\$	\$	\$	\$
21.71	3.60	26.11	3.14	28.43	2.18
22.81	3.73	27.42	2.62	30.63	2.31
23.61	3.15	27.99	3.99	31.20	2.34
24.63	3.10	28.27	2.89	31.91	4.56
25.08	3.05	28.51	2.57	32.37	2.14
25.65	3.56	29.29	3.61	32.69	2.76
26.19	3.64	29.85	2.99	33.96	2.91
27.50	2.87	30.37	2.85	34.70	2.86
		31.47	3.55	35.19	3.21
		32.89	3.79	37.42	3.50

to find a uniform price paid for different lots of the same company grade. Analysis similar to that described for U. S. grades has been made for 16 representative company grades. Results for two grades are shown in Figures 3 and 4 and for all 16 grades in Table 3. It will be observed that the variation has been reduced but is still considerable.

Notice, for example company grade 112<sup>4</sup> with a season average price of \$20.45 per hundred pounds. The average of daily spreads between high and low prices was \$9.94, or 48.61 per cent of the season average price. The average of daily spreads between the 10th and 90th percentiles (range in prices paid for the central 80 per cent of sales) was \$5.12, or 25.04 per cent of the season average price. For the 16 company grades selected the weighted

<sup>4</sup>The companies and company grades have been coded and will be referred to by these code numbers. Company grades in the one hundred group (e.g. 112) are grades of Company 1. Other companies and corresponding grades are as follows:

- Company 2: Grades in the 200 group;
- Company 3: Grades in the 300 group;
- Company 4: Grades in the 400 group;
- Company 5: Grades in the 500 group;
- Company 6: Grades in the 600, 1300, and 1400 groups;
- Company 7: Grades in the 700 and 800 groups;
- Company 8: Grades in the 900 and 1000 groups.

average of daily spreads was \$7.72, or 28.89 per cent of the season average price, and the average of daily spreads between the 10th and 90th percentiles was \$3.53, or 13.21 per cent of the season average price.

While data are presented for only the season 1938-39, practically the same results were found from a smaller sample of sales on the same market during the preceding season.

TABLE 3. WEIGHTED AVERAGE PRICE AND AVERAGE DAILY SPREAD BETWEEN HIGH AND LOW PRICES PAID FOR SELECTED COMPANY GRADES OF FLUE-CURED TOBACCO, FARMVILLE, 1938.

Company grade	Total number of lots in sample	Total number of lbs. in sample	Season weighted average price	Average daily spread between high and low price			
				Total sales		Central 80% of sales	
				Spread	Percent of ave. price	Spread	Percent of ave. price
105	779	122,664	\$28.73	\$3.22	11.21	\$1.87	6.51
107	1,038	147,758	26.13	4.90	18.75	2.68	10.26
112	1,794	220,321	20.45	9.94	48.61	5.12	25.04
302	2,041	290,834	27.25	4.83	17.72	2.21	8.11
304	3,124	375,370	24.04	7.14	29.70	3.57	14.85
306	1,215	131,284	19.43	7.22	37.16	3.74	19.35
412	714	124,264	29.65	2.71	9.14	1.93	6.51
414	963	135,688	26.30	5.52	20.99	3.46	13.16
501	2,690	484,032	32.33	16.84	52.09	6.53	20.20
502	3,814	656,274	29.39	6.62	22.52	2.64	8.98
517	1,810	359,229	32.94	6.92	21.01	3.20	9.71
537	636	82,870	14.59	2.52	17.27	1.19	8.16
747	442	32,034	11.80	10.18	86.27	7.50	63.56
811	462	42,088	13.48	3.94	22.55	2.04	15.13
817	479	38,284	16.09	4.11	25.64	2.65	15.85
904	332	37,310	12.49	2.59	20.41	1.69	13.32
Total	22,333	3,280,704	\$26.72	\$7.72	28.89	\$3.53	13.21

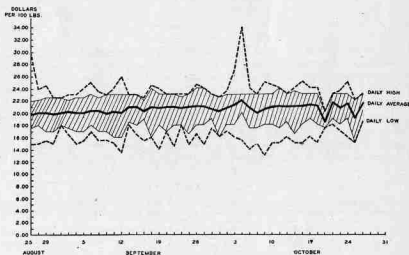


Figure 3. Daily high, low, and weighted average price paid for company grade 112 flue-cured tobacco, Farmville, 1938-39.

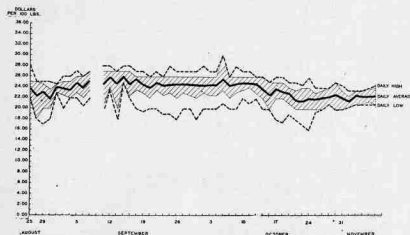


Figure 4. Daily high, low, and weighted average price paid for company grade 304 flue-cured tobacco, Farmville, 1938-39.

## FACTORS ASSOCIATED WITH PRICE VARIATIONS

While it is not possible for all of the daily variation in prices paid for given grades of tobacco to be explained, evidence points to several factors associated with such variation. Among these factors are the following:

1. Lack of agreement between company grading and federal grading.
  2. Variation in size of lots in which tobacco is sold.
  3. Personal relation of growers with buyers and warehousemen.
  4. Normal variations in quality within grades.
- In the following sections each of these factors will be considered.

### Lack of Agreement Between Company Grading and Federal Grading

*Comparison of U. S. grades with company grades.* One method of comparing the grading system of a given company with U. S. standard grades is for the investigator to determine the U. S. grades of tobacco placed by the companies in their various private grades. For example, how many U. S. grades went into company grade 107? It seems reasonable to assume that if there were complete agreement between U. S. grades and grades of Company 1, only one U. S. grade would go into a given grade of this company. The information is shown in Table 4. Columns 2 and 3 indicate that 27 U. S. grades and 9 sub-grades were represented in company grade 107 during the season. Columns 10, 11, and 12 indicate that 34.6 per cent of the poundage in this company grade consisted of one U. S. grade, 48.1 per cent of two U. S. grades and 59.4 per cent of three U. S. grades. In company grade 304 were represented 47 U. S. grades and 57 subgrades, 17.7 per cent of the poundage consisting of one U. S. grade, 27.6 per cent of two U. S. grades, and 35.3 per cent of three U. S. grades. Considering the 15 company grades shown in the table, on the average 24.4 per cent of each consisted of tobacco classified in one U. S. grade, 38.6 per cent in two U. S. grades, and 48.4 per cent in three U. S. grades.



TABLE 4. NUMBER OF U. S. GRADES AND SUBGRADES REPRESENTED IN EACH OF SEVERAL SELECTED COMPANY GRADES, AVERAGE PRICES PAID, AND PER CENT OF POUNDAGE IN LARGEST U. S. GRADE OR SUBGRADE, TWO LARGEST, AND THREE LARGEST.

Company grade	Number Federal grades represented		Weighted mean price	Range in mean price			Average price paid for				Percent pounds in		
	Pure grades	Sub-grades		High	Low	Largest Federal grade	Second Federal grade	Third Federal grade	Largest Federal grade	Second Federal grade	Third Federal grade		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		
107	27	9	\$26.13	\$31.00	\$22.50	\$25.82	\$24.98	\$27.00	34.6	48.1	59.4		
112	38	27	20.45	30.00	15.50	19.91	20.89	21.11	36.2	46.8	53.2		
302	44	44	27.25	34.56	16.01	27.12	26.97	27.23	19.3	23.6	30.6		
304	47	57	24.95	26.27	19.00	24.22	24.10	24.05	17.7	27.6	35.3		
306	40	51	19.42	22.00	16.00	19.32	20.06	18.67	13.3	23.6	33.9		
412	35	15	29.65	31.00	25.00	29.51	29.75	29.97	15.9	35.9	43.9		
414	32	25	26.29	28.00	23.00	26.63	26.24	26.91	24.5	41.6	51.2		
501	29	18	33.59	36.00	30.00	33.88	33.61	32.91	23.3	34.6	43.8		
502	34	40	29.37	38.00	25.00	29.65	29.32	29.27	22.2	37.6	51.5		
517	28	17	32.93	35.00	21.00	32.97	33.16	32.15	33.9	54.1	67.8		
637	22	18	14.67	15.50	11.00	14.72	14.40	15.50	30.8	51.5	77.0		
747	16	44	11.73	20.00	5.00	10.51	13.58	9.37	36.1	50.3	57.3		
811	10	23	13.48	14.73	10.00	13.25	13.12	13.81	33.7	40.6	58.1		
817	12	26	16.69	30.00	8.50	16.23	16.18	15.86	31.0	50.6	62.1		
994	17	21	12.71	14.00	11.68	12.66	12.86	12.78	38.3	52.0	60.7		
Total average									24.4	38.4	48.4		

Another method of comparing grades is the classification made by each company of the tobacco in a single U. S. grade. For example, into how many company grades did each company classify tobacco designated as B3F by the federal inspectors? Table 5 shows this information for 14 U. S. grades. Column 2 shows the number of company grades into which each company distributed the various U. S. grades.<sup>5</sup> Company 1 placed B3F tobacco into 6 company grades, 87.78 per cent going into one company grade, 90.85 per cent going into two and 93.71 per cent into three. Company 2 distributed this U. S. grade among 26 company grades, placing 17.42 per cent in one largest grade, 33.67 per cent in two, and 46.54 per cent in three. Company 3 distributed it among 6 company grades, 40.98 per cent in one, 76.83 per cent in two, and 93.03 per cent in three. Company 4 distributed it among 7 company grades, placing 25.81 per cent in one grade, 50.08 per cent in two, and 66.51 per cent in three. Company 5 distributed it among 15 company grades, assigning 35.93 per cent to one grade, 63.58 per cent to two, and 80.80 per cent to three. While the season average price paid for U. S. grade B3F was \$30.11, there was wide variation in average prices paid for the company grades among which it was distributed. (Columns 4 and 5). For example, the average prices paid for this tobacco going into 6 grades of Company 1 ranged from \$27.00 to \$37.00. The remainder of the table contains similar data for 14 other U. S. grades.

*Measures of agreement.* While this analysis of grades indicates considerable variation between U. S. grades and company grades, it does not give an exact measure of the closeness of agreement. One method by which this relationship between U. S. grading and the grading by a given company can be measured is the correlation of the distribution of a given quantity of tobacco by U. S. grades with the distribution by company grades.<sup>6</sup> Purchases of 1,474,530 pounds by Company 5 were distributed among ten U. S. grades and nine company grades. From this two-way distribution of poundage was calculated a coefficient of contingency,<sup>7</sup> which corresponds closely to the correlation coefficient. For Company 5 the coefficient of contingency was .8290 and the coefficient squared was .6874, which may be interpreted roughly as indicating that there is approximately 69 per cent agreement between federal grading and grading by this company. Another way of expressing it is to say that the grading by Company 5 agrees with federal grading two-thirds of the time. Corresponding figures for the other companies, shown in Table 6 are as follows: Company 1, 52 per cent; Company 2, 83 per cent; Company 3, 45 per cent; and Company 4, 56 per cent.

The failure of company grading to agree with federal grading involves two factors: First, the failure of company grades to correspond with U. S. grades, and second, the inaccuracy of classification by both federal inspectors and company buyers. From information available it is impossible to determine the extent to which each factor contributes to the disagreement. No

<sup>5</sup>The five companies included in this analysis are: Export, Imperial, American, Liggett and Myers, and Reynolds, although not in that order. The three dealer companies are not included.

<sup>6</sup>Because of the excessive calculations involved, only 17 of the major U. S. grades were used in the analysis. These 17 grades represented the following percentages of the total purchases by the five companies: Co. 1, 73.5 per cent; Co. 2, 59.1 per cent; Co. 3, 66.5 per cent; Co. 4, 68.7 per cent; Co. 5, 73.3 per cent.

<sup>7</sup>The coefficient of contingency approaches the coefficient of correlation in value as the number of classes is increased. With the number of classes in these tables the maximum value of the coefficient of contingency (C) is approximately .96. See Croxton and Cowden, "Applied General Statistics," pp. 687-688.

TABLE 5. NUMBER OF COMPANY GRADES INTO WHICH EACH COMPANY DIVIDED THE TOBACCO OF SELECTED U. S. GRADES, AVERAGE PRICES PAID, AND PERCENTAGE OF EACH U. S. GRADE GOING INTO LARGEST COMPANY GRADE, TWO LARGEST AND THREE LARGEST.

Federal grades and companies	Number of grades and companies merged	Range in mean price		Average price paid for			Percent of pounds in:		
		High	Low	Largest company grade	Second largest company grade	Third largest company grade	Largest company grades	Two largest company grades	Three largest company grades
BHF-1	6	\$27.00	\$27.00	\$29.60	\$27.00	\$30.50	97.78	90.85	53.71
	2	29.12	29.00	29.96	29.17	29.17	97.78	90.85	53.71
	2	29.98	29.00	29.96	29.17	29.17	40.88	75.83	93.03
	4	31.49	26.42	31.49	26.42	31.37	26.81	30.08	66.51
	5	38.00	14.80	32.97	29.97	26.33	35.83	63.58	80.50
BAL-1	3	.....	.....	.....	.....	.....	.....	.....	.....
	3	.....	.....	.....	.....	.....	.....	.....	.....
	4	.....	.....	.....	.....	.....	.....	.....	.....
	4	37.16	28.12	29.82	31.84	25.71	50.03	68.42	86.23
	9	29.49	.....	.....	.....	.....	.....	.....	.....
B4F-1	6	26.75	19.00	21.74	26.09	65.27	85.50	98.78	.....
	3	28.55	18.00	24.05	27.50	30.17	79.41	80.17	.....
	3	25.23	14.80	27.23	24.05	20.01	39.59	75.41	.....
	4	28.85	25.37	27.24	28.82	43.20	66.99	89.11	.....
	11	26.07	16.45	25.26	29.82	19.98	48.66	76.09	.....
BHF-1	6	22.26	19.00	20.72	28.16	33.39	78.98	92.03	.....
	3	22.26	19.00	20.72	28.16	33.39	78.98	92.03	.....
	3	21.40	16.97	23.68	18.32	16.78	42.32	76.15	.....
	4	26.00	14.91	25.33	29.00	14.91	69.08	86.91	.....
	5	19.69	12.44	19.35	24.67	15.19	47.61	65.40	.....
BHF-1	3	20.05	18.87	18.87	24.00	28.00	81.22	93.94	100.00
	3	16.81	12.00	16.81	19.08	12.05	26.84	51.54	.....
	4	18.87	15.00	19.08	14.29	12.05	26.84	51.54	.....
	4	14.89	11.88	11.88	18.66	18.66	49.16	77.84	.....
	6	27.47	22.01	28.54	22.01	27.28	76.45	84.79	.....
H4F-1	6	27.47	22.01	28.54	22.01	27.28	76.45	84.79	.....
	3	25.85	20.00	20.00	24.02	20.60	48.90	80.61	.....
	2	27.49	24.60	24.61	28.54	28.54	53.64	78.09	.....
	4	27.49	24.60	24.61	28.54	28.54	53.64	78.09	.....
	6	26.96	16.90	22.67	26.49	20.69	94.09	92.91	.....
HBF-1	5	28.45	23.00	21.14	28.72	36.33	62.17	87.28	.....
	3	22.13	16.96	23.44	19.71	25.65	56.67	80.99	.....
	2	24.81	18.99	25.02	18.99	18.99	47.64	66.54	.....
	4	20.58	15.00	20.07	24.68	15.71	44.73	78.31	.....
	6	.....	.....	.....	.....	.....	.....	.....	.....

TABLE 5. (Continued)

Federal grades and companies	Number of grades and companies merged	Range in mean price		Average price paid for			Percent of pounds in:		
		High	Low	Largest company grade	Second largest company grade	Third largest company grade	Largest company grades	Two largest company grades	Three largest company grades
C4L-1	8	\$24.43	\$25.71	\$24.43	\$20.44	\$31.98	28.94	53.14	73.36
	2	29.85	25.00	29.85	27.62	35.00	61.83	97.20	.....
	5	30.57	31.84	31.84	31.84	30.18	47.80	59.39	.....
	4	34.95	26.08	35.61	37.68	33.37	47.50	84.41	.....
	9	.....	.....	.....	.....	.....	.....	.....	.....
CBL-1	8	36.00	24.48	32.31	30.20	29.29	33.44	57.46	73.25
	2	27.52	24.92	27.57	29.55	24.92	56.01	88.99	.....
	13	29.58	24.92	29.58	29.55	24.92	56.01	88.99	.....
	6	29.58	24.92	29.58	29.55	24.92	56.01	88.99	.....
	6	31.77	18.00	30.62	31.77	29.38	41.88	66.75	.....
XEL-1	11	29.99	22.15	29.41	30.27	31.82	38.38	53.35	66.22
	2	27.51	23.00	27.51	29.50	25.42	53.45	81.83	.....
	4	28.65	22.00	28.65	27.38	25.42	53.45	81.83	.....
	7	28.65	22.00	28.65	27.38	25.42	53.45	81.83	.....
	8	30.79	23.68	28.98	33.10	29.66	54.78	77.65	.....
XPF-1	12	29.75	28.60	29.21	30.69	30.88	38.41	56.67	69.66
	2	29.12	19.34	27.20	29.27	24.68	46.88	74.34	.....
	4	29.12	19.34	27.20	29.27	24.68	46.88	74.34	.....
	7	29.13	26.37	29.72	27.64	32.19	46.21	73.46	.....
	6	30.26	25.69	29.19	30.33	25.99	32.22	72.47	.....
XBF-1	9	27.12	21.08	26.77	29.48	21.08	29.07	48.96	69.64
	2	24.86	17.26	24.86	24.86	24.86	53.14	84.58	.....
	4	24.86	17.26	24.86	24.86	24.86	53.14	84.58	.....
	12	26.16	18.50	26.03	29.37	25.32	52.82	72.81	.....
	4	27.59	18.77	25.87	29.65	26.78	44.73	81.96	.....
X4F-1	7	22.98	20.84	20.89	25.62	26.64	66.28	81.20	90.60
	2	22.12	18.04	23.97	20.06	16.93	53.09	82.51	.....
	4	22.12	18.04	23.97	20.06	16.93	53.09	82.51	.....
	6	22.35	17.00	22.35	19.89	18.76	39.42	77.32	.....
	6	26.05	16.00	25.13	19.85	16.00	66.16	78.84	.....
P4L-1	9	29.07	28.01	19.81	24.08	7.43	74.46	93.13	96.30
	2	21.70	20.80	23.12	18.66	23.53	62.65	94.12	97.89
	8	21.70	20.80	23.12	18.66	23.53	62.65	94.12	97.89
	5	24.89	18.85	24.41	18.66	19.66	58.73	91.08	96.92
	6	40.00	23.97	24.47	20.00	33.90	62.27	87.79	95.01

TABLE 6. CORRELATION BETWEEN U. S. GRADES AND GRADES OF DIFFERENT COMPANIES.

Company	Coefficient of contingency squared	Percent of poundage in a given number of U. S. grades for each company grade			Percent of price variance associated with average prices paid for	
		Highest U. S. grade <sup>1</sup>	Two highest U. S. grades	Three highest U. S. grades	Company grades	U. S. grades
(1)	(2)	(3)	(4)	(5)	(6)	(7)
No. 1	.5168	42.31	60.28	73.78	68.5	45.1
No. 2	.8321	46.89	69.62	81.83	94.2	62.0
No. 3	.4547	22.60	37.09	49.29	70.3	35.5
No. 4	.5579	51.86	76.93	87.81	53.0	45.0
No. 5	.6874	54.07	75.48	85.64	87.4	60.0

<sup>1</sup>"Highest U. S. grade" refers to the U. S. grade containing the largest poundage within the given company grade.

doubt both factors are important. Since the classification of tobacco is to some extent based on personal judgment, complete accuracy is not possible. Comparison of grades assigned the same lots of tobacco on two independent inspections shows differences in the grading. Furthermore, the wide variation in average prices paid for different company grades within a given federal grade, as indicated in a previous section, indicates either that company buyers disagree with federal graders as to the quality of various lots of tobacco or that the company grades are, in part, price grades rather than quality grades; that is, buyers assign grades corresponding to the price paid.

In this connection it is of interest to inquire what per cent of the poundage in each company grade, on the average, consisted of one, two, and three U. S. grades. Columns 3, 4, and 5, Table 6, show this information for each of the five companies. In the case of Company 1, 42.31 per cent of each company grade, on the average, consisted of the single largest U. S. grade, 60.28 per cent of the two largest, and 73.78 per cent of the three largest U. S. grades. Among the five companies the average percentages composed of a single U. S. grade for each company grade varied from 22.60 per cent for Company 3 to 54.07 for Company 5. The average percentages accounted for by the three highest U. S. grades varied from 49.29 per cent for Company 3 to 87.81 per cent for Company 4.

Another question which presents itself is: Do prices of tobacco purchased by a given company vary less with company grades or with federal grades? A partial answer to this question was obtained when it was shown that tobacco of a given U. S. grade purchased by a company was distributed among a number of company grades of varying prices. Statistical analysis, in the computation of correlation ratios, gives further information on the question. Consider the poundage bought by Company 5 in 17 selected U. S. grades. Prices of individual lots of tobacco purchased by this company were correlated first with the average prices paid for company grades to which they were assigned, and then with the average prices of U. S. grades

assigned them. Squaring the correlation ratios obtained gives the approximate percentages of the variance in prices associated with differences in average prices paid for the various company grades and with differences in average prices paid for the various U. S. grades. These percentages obtained are shown in Table 6, columns 6 and 7. In the case of tobacco purchased by Company 1, 68.6 per cent of the price variance was found to be associated with average prices paid for the different company grades and 45.1 per cent with average prices paid for U. S. grades represented. This means that prices paid by this company are related more closely to company grades than to U. S. grades. This was shown to be true for each of the five companies included, although the difference was not the same for all companies. The greatest difference was found in the case of Company 3, where twice as much of the price variance was associated with company grades as with U. S. grades.

#### Effect of Size of Lot on Price Paid

As growers prepare a barn of tobacco for market, they assort it into several lots according to quality. When these lots are placed on the warehouse floor for sale, they vary in weight from less than 50 pounds to more than 600 pounds. The question has been raised as to what influence the size of lot has on the price paid. Analysis of prices paid for lots of varying weight reveals that there is some relation between price and weight of lots in which tobacco is sold.

*Analysis in terms of U. S. grades.* In Table 7 is shown for 15 selected U. S. grades the distribution of the lots of tobacco by weight groups and by the weighted average price paid during the 1938-39 season for each group. In grade B3F, for example, there were 618 lots weighing less than 100 pounds, 256 lots from 300 to 399 pounds, 40 lots from 400 to 499 pounds and 10 lots from 500 to 599 pounds. The average price of the lowest weight group was \$28.97 per 100 pounds and the price for each succeeding weight group increased, with the exception of the group from 300 to 399 pounds, to \$32.32 per 100 pounds for lots weighing from 500 to 599 pounds. The largest weight group sold for an average of \$3.35 per 100 pounds above the price for the smallest weight group.

An examination of the data indicates that in 10 of the 15 selected grades prices tended to vary directly with the size of lot in which the tobacco was sold. In most of the grades the number of lots in the last two weight groups, above 399 pounds, was too small to determine whether or not the relationship held for them. The same relationship did not hold for grades selling at the lower prices, as B5F, B6F, and P4L. Neither did it hold for the two grades in the smoking leaf group, H4F and H5F.

It may be contended that this analysis is not valid because the seasonal trend in prices was ignored and because all weight groups might not have been represented on every day of the season. In order to test this, the analysis of variance was applied to the weight groups in grade B4F, using only the 17 days during the season on which each of the five weight groups up to 499 pounds were sold. This analysis showed that the average price increased for each succeeding group from the smallest weight group to the

TABLE 7. WEIGHTED AVERAGE PRICES PAID FOR DIFFERENT SIZED LOTS OF SELECTED U. S. GRADES OF TYPE 12 FLUE-CURED TOBACCO, FARMVILLE, 1938-39.

U. S. grade	Size of lots in pounds									
	0-99		100-199		200-299		300-399		400-499	
	Num-ber lots	Ave. price	Num-ber lots	Ave. price	Num-ber lots	Ave. price	Num-ber lots	Ave. price	Num-ber lots	Ave. price
B3F	618	\$28.97	1,227	\$29.79	850	\$30.48	256	\$30.28	40	\$31.19
B4L	392	27.80	783	28.85	416	29.43	96	30.79	14	29.46
B4F	1,194	23.78	1,900	24.34	990	25.13	263	25.80	40	26.45
B5F	1,323	17.05	1,686	18.82	735	19.92	167	18.90	23	16.54
B6F	843	12.73	1,201	12.22	500	11.97	87	11.94	12	12.48
H4F	390	25.79	505	25.62	198	25.59	51	26.64	8	28.57
H5F	428	20.75	428	20.47	127	21.41	26	21.58	..	..
C4L	162	32.91	418	33.69	296	33.98	101	33.29	13	34.74
C5L	155	29.91	346	30.65	243	31.22	63	31.82	5	31.67
X2L	409	28.43	715	29.16	409	29.36	109	29.59	20	30.13
X2F	397	26.87	689	28.38	405	29.18	92	29.77	17	28.49
X3F	873	22.99	1,066	24.11	364	25.18	72	26.35	9	23.82
X4F	616	19.42	507	20.59	144	21.47	18	21.65	..	..
P3L	776	19.38	1,210	21.06	469	25.09	89	26.01	6	25.70
P4L	381	18.15	1,151	17.25	356	18.14	38	18.54	..	..

largest, from \$24.27 per 100 pounds for lots weighing less than 100 pounds to \$26.76 for those weighing from 400 to 499 pounds. It indicated that this difference was significant even after day-to-day variation in price was taken into consideration. The same analysis was applied to grade B4L with similar results. Although the analysis of variance was not applied to the remaining grades, there is no reason to believe it would show relationships different from those shown in Table 7. Although these conclusions are based on data for a single season, the analysis of a smaller sample of records obtained on the same market in 1937 tended to substantiate the findings.

Not only do the better grades of tobacco sold in small lots tend to bring lower prices, but also the warehouse charges per 100 pounds tend to be higher on small lots than on large lots.<sup>8</sup> From a practical standpoint it may be impossible for the small grower to sell his tobacco in larger lots without mixing grades, but many growers could do so. On farms with several tenants, it might be practical to pool the same grades belonging to two or more tenants in order to obtain larger lots.<sup>9</sup>

*Analysis in terms of company grades.* When similar analysis is made of tobacco placed by the buyers in selected company grades, somewhat different results are obtained. Table 8 shows weighted average prices paid for lots of different sizes in 14 selected company grades during the 1938-39 season. An

<sup>8</sup>The following warehouse charges are collected: Weighing fee, 10c per 100 pounds with a minimum of 10c per lot; auction fee, 15c per lot under 100 pounds and 25c per lot of 100 pounds and over; commission, 2½ per cent of gross sales. The first two fees vary in cost per 100 pounds with size of lot. For example, the average cost of these two fees, per 100 pounds, varies for selected weights as follows:

25 pounds	.....	\$1.00	300 pounds	.....	\$.18
50 pounds	.....	.50	400 pounds	.....	.16
100 pounds	.....	.35	500 pounds	.....	.15
200 pounds	.....	.23	600 pounds	.....	.14

<sup>9</sup>It should not be overlooked, however, that dividing the same grade into several lots is a method of self insurance since the prices vary markedly for the same grade.

examination of this table indicates that in nine of these grades there was a tendency for prices to increase slightly as the weight of lots increased, up to 399 pounds at least. The price increases, however, were not nearly so great as in the case of U. S. grades. This fact may be illustrated by a comparison of U. S. grade B4F and company grade 502. In the former the price increased from \$23.78 per 100 pounds for lots under 100 pounds to \$25.80 for lots weighing 300 to 399 pounds; whereas the comparable price in the company grade increased from \$29.17 to \$29.68. This was an increase of \$2.02 per hundred in the case of U. S. grade B4F against an increase of 51 cents in the case of company grade 502. These relationships are difficult to understand when it is known that Company 5 (the company having company grade 502) purchased more than 60 per cent of U. S. grade B4F during the season and that more than 22 per cent of the tobacco going into that company grade had been classified as U. S. grade B4F. The results appear almost contradictory.

A more thorough analysis of the distribution of the purchase of B4F tobacco by Company 5 among the various company grades gives at least a partial explanation of the apparent discrepancy. By referring to Table 9 it will be seen that there is a direct relationship between the average size of lot and the average price paid for the various company grades. It should be emphasized that all tobacco included in the table is U. S. grade B4F tobacco bought by Company 5. The 17 lots placed in company grade 505 weighed on the average 136 pounds and sold for an average of \$16.45 per 100 pounds. There was a gradual increase in average price and average weight per lot to \$29.28 and 174 pounds respectively, for the 511 lots in grade 502. The 28 lots in grade 508 averaged 189 pounds and sold for an average of \$28.75. The three remaining grades averaged over 190 pounds per lot and sold for average prices above \$32.15 per 100 pounds, although the price increase was not constant. In fact, after reaching \$35.36 the price decreased slightly for the two remaining grades.

TABLE 8. WEIGHTED AVERAGE PRICES PAID FOR DIFFERENT SIZED LOTS OF SELECTED COMPANY GRADES, FARMVILLE, 1938-39.

Company grade	Size of lots in pounds													
	0-99		100-199		200-299		300-399		400-499		500-599			
	Num-ber lots	Ave. price	Num-ber lots	Ave. price	Num-ber lots	Ave. price	Num-ber lots	Ave. price	Num-ber lots	Ave. price	Num-ber lots	Ave. price		
107	397	\$26.25	524	\$26.09	178	\$26.24	25	\$25.84	3	\$25.31	..	..		
112	723	20.36	813	20.39	232	20.57	25	21.04	1	21.00	..	..		
302	663	27.45	887	27.23	400	27.23	72	27.05	8	27.43	1	27.90		
306	651	19.21	421	19.44	117	19.55	22	20.11	2	18.00	2	19.71		
416	157	29.55	306	29.74	187	29.64	55	29.47	8	29.28	1	32.00		
414	332	28.01	423	28.27	168	28.30	31	26.72	8	26.98	1	28.00		
501	385	35.48	992	33.55	750	35.56	223	33.91	33	33.17	7	32.60		
502	823	29.17	1748	29.28	961	29.38	296	29.68	48	29.03	7	30.14		
517	229	32.97	722	32.76	615	32.97	294	33.04	36	33.24	3	33.28		
637	219	14.32	311	14.77	95	14.59	10	14.91	1	15.00	..	..		
747	333	13.20	87	13.39	21	11.65	1	9.00	..	..	..	..		
811	286	13.44	141	13.43	32	13.64	2	14.54	1	12.75	..	..		
817	344	16.19	107	16.14	24	16.85	4	16.49	..	..	..	..		
914	165	12.72	126	12.62	35	12.77	5	12.93	1	12.75	..	..		

It is apparent from these figures that Company 5 tended to pay higher prices for the large lots within U. S. grade B4F, but to assign them different company grades from those assigned the smaller lots within this U. S. grade. This might suggest that the company tended to grade according to price paid. On the other hand, it might be interpreted as being further evidence of disagreement between company grading and federal grading. It is true that among the grades of Company 5, as well as among those of other companies and U. S. grades, the average size of lot is larger in the higher priced grades than in the lower priced grades.

While figures are not presented for companies other than Company 5, the above relationships were found to hold for them also. Within given U. S. grades there was a tendency for the larger lots to be placed in the higher priced grades.

TABLE 9. AVERAGE WEIGHT OF LOTS AND AVERAGE PRICE PAID FOR B4F, FLUE-CURED TOBACCO PLACED BY COMPANY 5 IN ITS VARIOUS GRADES, FARMVILLE, 1938-39.

Company grade	Average size of lots pounds	Average price	Number of lots	Number of pounds
505	136	\$16.45	17	2,304
511	149	17.01	59	8,786
504	163	19.95	458	71,274
508	170	25.34	1310	222,564
502	174	29.28	511	89,078
508	189	28.75	28	5,298
510	192	35.36	4	768
501	194	33.68	25	4,844
517	205	32.15	112	23,000

#### Personal Relation of Growers with Buyers and Warehousemen

Interviews with a large number of tobacco growers in 1936 and 1937 in two market areas indicate that there is a definite belief among growers that personal factors have considerable influence on the price paid for tobacco on the auction floor. Under the existing system it appears that there is nothing to prevent a buyer's paying one grower a higher price than another grower for tobacco of the same quality. It is a generally known fact, substantiated by statements from the growers themselves, that many growers who sell regularly on one market make an effort to become personally acquainted with the buyers and to stay on the most friendly terms with them.

Growers interviewed in the Oxford area were asked the question, "Do you know growers on the market who obtain special prices because of factors other than quality of tobacco?" Of the 199 growers interviewed, 130 growers, or 65.3 per cent, replied in the affirmative. Among the explanations of such factors, gifts to buyers ranked first with 62 growers naming this factor. Among the items which were reported to be given the buyers by certain

growers were fresh meat, sausage, game, turkeys, and liquor. Hunting with buyers or keeping hunting dogs for them ranked second among the factors named, with 55 growers, or 27.6 per cent of those interviewed, naming this factor. Personal friendship with buyers or warehousemen was named by 15 growers. Among other factors specified were the following: "Cultivating land owned by tobacco men," "family connections," "entertaining buyers at barbecues or other special events," and "being community leaders."

When growers were asked the question "Have you any kind of relation or understanding with certain buyers or warehousemen which helps to get a better price for your tobacco?", 42 growers, or 21.1 per cent of those interviewed, replied in the affirmative. There were 20 who named friendship as the factor influencing the price of their tobacco. Nine others said that they had relatives in the warehouse or among the buyers, and five stated that they hunted game with buyers or warehousemen. Two hauled tobacco for certain warehouses, and two solicited business for warehouses.

There were a number of growers who frankly stated that they found it profitable to stay on intimate terms with buyers or warehousemen. Some indicated that they promoted such intimate relationship by inviting buyers to hunt game on their farms and by giving them such things as birds, turkeys, fresh pork, and various farm produce. The statement was made by a number of white growers that a poor Negro farmer, as a rule, received a lower price for his tobacco than the average white grower with the same quality tobacco. However, one Negro among those interviewed stated that he was a "buyers' pet" and received top prices for his tobacco. Buyers, he stated, paid him top prices because he frequently served as cook for them on camping trips. He was instructed to let them know when his tobacco was being sold. He ordinarily reported the fact to one buyer, who called to the other buyers "Help old Joe on this tobacco!"

Growers interviewed in the Farmville area were asked the following question: "In comparing your selling advantage on the market with that of other growers, do you consider it above average, average, or below average?" The majority of the growers stated that they considered their selling advantage average, although a number of them frankly stated that theirs was above average. One large grower stated that he spent his entire time during marketing season at the warehouse looking after the selling of his tenants' tobacco and that "inside information" enabled him to sell when the price was highest. Another large grower stated that staying on intimate terms with buyers, entertaining them in various ways, enabled him to get prices above average.

An effort was made to determine to what extent growers having advantageous connections received higher prices than growers without such connections. Growers whose sales records were obtained were classified into two groups according to whether or not they had such connections which might influence the price received. From the data available, however, it was not possible to determine definitely whether or not these personal factors influenced the prices paid.

## Normal Variations in Quality within Grades

Grades for agricultural commodities are continuous rather than discrete. That is, each grade shades into those grades immediately above and below it. Each grade contains products which are almost good enough for the next higher grade and others which are scarcely good enough for this grade.

For commodities which are normally sold on the basis of standard grades the price usually does not vary with the quality within a grade. A cotton merchant, for example, will buy 1,000 bales of Strict Middling inch cotton at a definite fixed price, although the individual bales will vary slightly in both grade and staple length. This is not true in the case of a commodity like tobacco, which is not bought on the basis of standard grades. Standard grades have been established, but, as has been pointed out, buyers do not make their purchases on the basis of these grades. Each lot is purchased on the basis of its individual quality as judged by the buyers. It is to be expected, therefore, that there should be a variation in prices paid for different lots of the same U. S. grade of tobacco corresponding to the normal range in quality within the grade. It is impossible to make a definite statement as to how wide the normal range in prices for a given grade due to the range in quality should be, but it certainly would not be as great as the variation found in the grades examined. On a certain date in 1940 the Market News Service reported the average prices of U. S. grades X1L, X2L, and X3L as \$30.00, \$28.00, and \$24.00, respectively. One should be safe in saying that the normal expected range in prices for different lots of X2L would not be greater than \$3.00, or between \$26.00 and \$29.00. Any wider variation should probably be attributed to such factors as differences in judgment of quality, differences in weight of lots, pure chance, personal factors, and others.

## DAY-TO-DAY AND SEASONAL VARIATIONS IN PRICES

## Day-to-Day Variations

Interviews with growers indicate that the majority of growers in the areas surveyed believe that, on the average, prices are higher on Mondays and Fridays than on other days of the week. Some of the larger growers expressed the conviction that prices are definitely better on those days, and many of them attempt to sell only on Mondays and Fridays. Largely as a result of this belief, sales on these days are much larger than on other days. Figure 5 and Table 10 show the distribution of sales on the Farmville market by days of the week during the seasons 1937 and 1938.

In view of the definite opinion expressed by growers that Mondays' and Fridays' prices are better than prices on other days, an attempt was made to determine whether or not this opinion is justified. On first examination of daily average prices for selected U. S. grades it appears that the high average prices tend to occur most frequently on Monday and Friday. However, a closer examination reveals that low average prices occur frequently on these days to offset the high averages, and, when weighted average prices of given U. S. grades are calculated by days of the week for the entire season, Monday and Friday average prices do not appear to be higher than prices on other days. When a number of grades are considered, it does not appear that any day of the week has an advantage over other days.

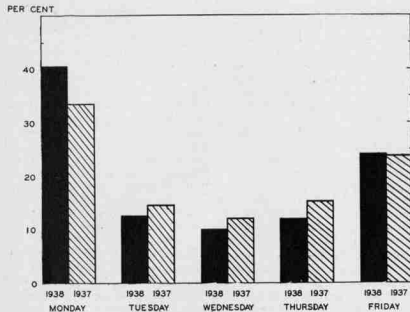


Figure 5. Percentage distribution by days of the week of tobacco poundage sold on Farmville market, seasons 1938 and 1937.

TABLE 10. TOTAL SALES OF TOBACCO BY DAYS OF THE WEEK, FARMVILLE, 1937 AND 1938.<sup>1</sup>

Day of week	1937		1938	
	Pounds	Percent of Total	Pounds	Percent of Total
Monday	7,805,109	33.57	6,948,082	40.60
Tuesday	3,466,187	14.91	2,158,598	12.61
Wednesday	2,890,123	12.44	1,742,552	10.18
Thursday	3,563,940	15.33	2,092,988	12.23
Friday	5,521,423	23.75	4,171,460	24.38
Total	23,246,782	100.00	17,113,680	100.00

<sup>1</sup>Daily sales figures supplied by sales supervisor. The table above includes only 12 full weeks each season. Incomplete weeks at beginning and end of season are not included.

## Seasonal Variations in Prices

For a number of years the Market News Service of the United States Department of Agriculture has been reporting weekly average prices by U. S. grades for the various types of tobacco. Since 1936 all tobacco has been graded on certain markets where the inspection service has been established. From 1928 to 1935 grading was on a voluntary basis on selected

markets. Those growers who wished their tobacco graded were charged a small fee. This grading service has furnished the basis of weekly and seasonal average prices reported.

Figure 6 shows weekly average prices reported for U. S. grade B4F, Type 12 tobacco, for the seven seasons 1934 to 1940. These prices have been expressed as percentages of the season average price. The season 1940 shows low prices during the first four weeks, high prices during the next four weeks, and low prices during the last four weeks of the season. The relative prices ranged from less than 90 per cent of the season average price during the third week to more than 110 per cent during the 6th and 7th weeks to less than 85 per cent during the 11th week. In other words, the average price was more than 10 per cent below the season average price during the 3rd week, more than 10 per cent above the season average price during the 6th and 7th weeks and more than 15 per cent below the season average price during the 11th week. In 1937, 1938, and 1939 the seasonal price pattern was similar to the 1940 pattern, with relatively low prices at the beginning and end of the season and relatively high prices in the middle of the season. Prices in 1934 to 1936, inclusive, did not show this seasonal pattern.

It appears from this chart that the seasonal peak price has been shifting since 1937 toward an earlier week in the season. In 1937 the peak was reached in the 8th week of the season. In 1938 it was reached in the 7th week, and in 1939 in the 8th week. In 1940 it came during the 6th week. In 1939 there was a marketing holiday of about 4 weeks beginning September 13.

Similar data for grades C2F, C3F, C4F, and C5F, and for X1F, X2F, X3F, X4F, and X5F, in general, present the same picture for these grades as is presented for the three grades in the B group.

#### Relation Between Quality Sold and Prices Received

Figures 7, 8, and 9 show the relation between weekly average prices paid for six selected U. S. grades of tobacco in 1938 on the Farmville market and the quantity of each grade sold. Both price and quantity are expressed as percentages of the season averages. Figure 7 indicates that the peak prices for B3F and B4F came during the 6th to 8th weeks while the peak sales of these grades came during the 4th week. Figure 8 shows that the price peak for C4L and C5L came during the 7th and 8th weeks while the peak of sales occurred in the 8th and 9th weeks. According to Figure 9 the price peak for X3F and X4F occurred during the 6th and 7th weeks and the peak of sales during the 7th week.

It may be observed from these charts that while price peaks and sale peaks did not coincide exactly, both prices and quantities tended to be relatively low at the beginning and at the close of the season and high near the middle of the season.

As a practical application to growers, this analysis indicates that those who sold tobacco during the first four weeks of the marketing seasons in Eastern North Carolina lost money as compared with those who sold during the next four or five weeks, and that those who sold during the last two or three weeks of the season also received lower prices.

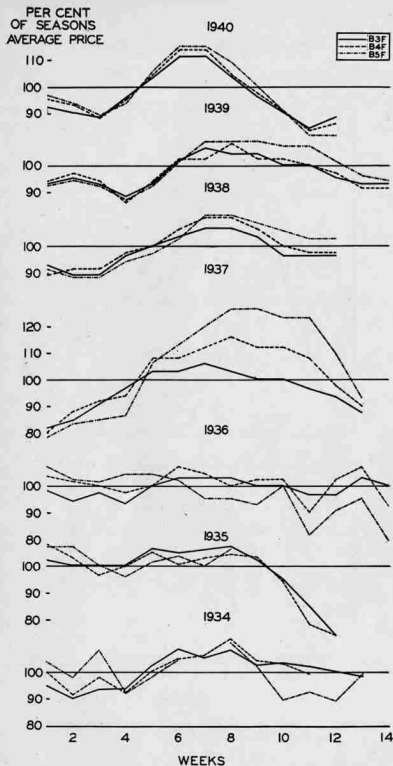


Figure 6. Weekly average prices paid for U. S. grade B4F, type 12 flue-cured tobacco

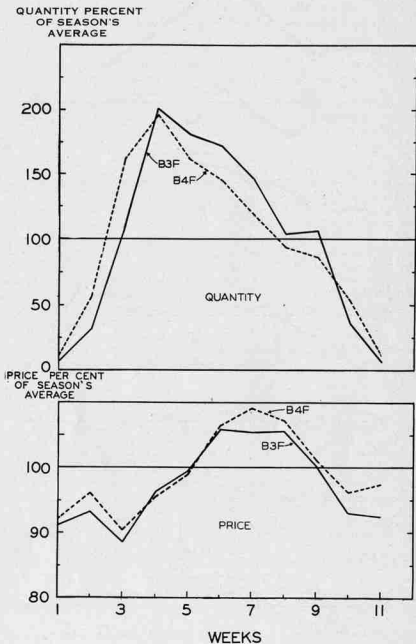


Figure 7. Relative weekly average prices and quantities of U. S. grades B3F and B4F flue-cured tobacco, Farmville, 1938.

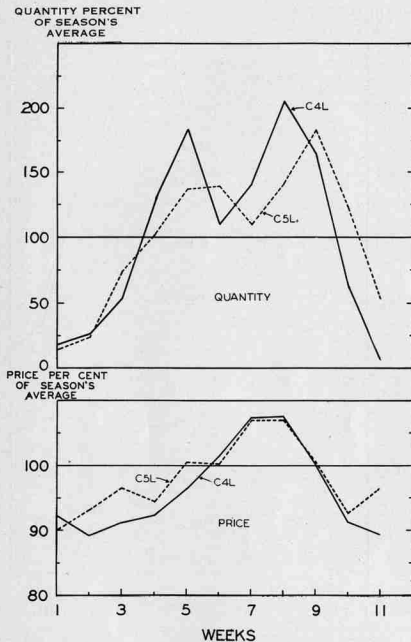
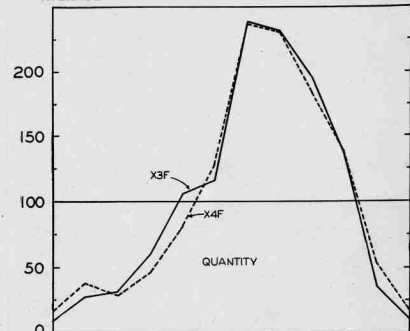


Figure 8. Relative weekly average prices and quantities of U. S. grades C4L and C5L flue-cured tobacco, Farmville, 1938.



QUANTITY PERCENT  
OF SEASON'S  
AVERAGE



PRICE PER CENT  
OF SEASON'S  
AVERAGE

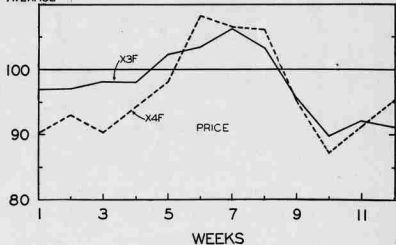


Figure 9. Relative weekly average prices and quantities of U. S. grades X3F and X4F flue-cured tobacco, Farmville, 1938.

### FINANCIAL RESULTS OF RESALE BY GROWERS

In view of the previous discussion, it is of interest to examine the financial results to the growers of rejecting bids and of reselling tobacco. Many isolated reports have been current concerning profits made by reselling tobacco, but practically no authentic data have been assembled on this phase of tobacco marketing.<sup>10</sup> Table 11 shows a summary of the financial results of reselling 430 lots on the same market the same day the first bid was rejected. Almost two-thirds of these lots, or 64.2 per cent, were resold at a price higher than the original bid, 18.8 per cent resold at the same price, and 17.0 per cent resold at a lower price. The 276 lots which showed a gain increased an average of \$2.72 per 100 pounds.<sup>11</sup> On the total of 430 lots, weighing 83,850 pounds, there was a net gain of \$1,225.15, or an average gain of \$1.46 per 100 pounds.

One of the stated objectives of tobacco inspection and market news services is to supply the growers a measuring stick for quality and price to be used in protecting themselves against loss in the sale of their tobacco, and to be used as a guide in accepting or rejecting bids on their tobacco. In Table 12 these rejections are classified as to whether the original bid was higher or lower than, or even with the average price paid for the corresponding grade on the previous day as shown by the Market News report.<sup>12</sup> For 285 of the lots the original bids were lower than the averages shown for the previous marketing day, for 15 lots they were even, and for 71 lots they were higher. The price increased on resale for 68.1 per cent of the lots in the first group, 60.0 per cent in the second group, and 49.3 per cent in the third group. Lower prices were received on resale for 14.4 per cent of the lots in the first group, for 13.3 per cent in the second group, and for 22.5 per cent in the third group.

TABLE 11. FINANCIAL RESULTS OF REJECTIONS OF BIDS AND RESALE OF TOBACCO ON THE SAME DAYS, FARMVILLE, 1939.

Results of resales classified	Lots		Pounds	Total increase or decrease in returns	Increase or decrease per lot	Increase or decrease per 100 pounds
	No.	Percent				
Price even	81	18.8	15,796	\$ . . . . .	\$ . . . . .	\$ . . . . .
Price higher	276	64.2	53,820	1,466.16	5.31	2.72
Price lower	73	17.0	14,234	-241.01	-3.30	-1.69
Total	430	100.0	83,850	1,225.15	2.85	1.46

<sup>10</sup>Farmers frequently report large increases in price but seldom speak of losses incurred. Perhaps one reason for this is that in years past many farmers made a practice of keeping the ticket from the rejected bid and slipping it on the lot of tobacco after the resale in case the second price was lower. In most markets today this practice is not permitted.

<sup>11</sup>Warehouse charges are collected only on the final sale.

<sup>12</sup>This tabulation shows only 371 lots as compared with 430 lots in the preceding table. In some instances the recorder failed to identify the grade and on some days no average price was reported for certain grades by the Market News Service.

TABLE 12. RELATION OF RESALE PRICES TO MARKET NEWS REPORTS FOR 371 LOTS REJECTED AND RESOLD SAME DAY, SAME MARKET, WITHOUT COMBINING OR SPLITTING LOTS, 1939.

	Total lots		Price received on resale compared with original bid					
			Higher		Even		Lower	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
1. Lower	285	100.0	194	68.1	50	17.5	.41	14.4
2. Even	15	100.0	9	60.0	4	26.7	2	13.3
3. Higher	71	100.0	35	49.3	20	28.2	16	22.5
Total	371	100.0	238	64.1	74	20.0	59	15.9

TABLE 13. RELATION OF RESALE PRICES TO MARKET NEWS REPORTS FOR 397 LOTS REJECTED AND RESOLD ONE OR MORE DAYS LATER, SAME MARKET, WITHOUT MIXING OR SPLITTING LOTS, 1939.

	Total lots		Price received on resale					
			Higher		Even		Lower	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
1. Lower	285	100.0	213	74.8	30	10.5	42	14.7
2. Even	23	100.0	13	56.6	5	21.7	5	21.7
3. Higher	89	100.0	46	51.7	9	10.1	34	38.2
Total	397	100.0	272	68.5	44	11.1	81	20.4

Table 13 shows similar results for 397 lots resold one or more days after the rejection. Thus, it appears that the chance of making a profit by rejecting unsatisfactory bids and reselling was somewhat greater when the bid was below the average reported by the Market News Service than when it was even with or higher than this average.

#### U. S. GRADES OF FLUE-CURED TOBACCO PURCHASED BY THE "BIG THREE" CIGARETTE COMPANIES

The charge has been made that the three major cigarette companies refrain from buying the same grades of tobacco at the same time on the same market in order to limit competition. In order to determine to what extent they purchased the same grades on the Farmville Market during 1938-39, the weekly purchases of each of the three companies were analyzed in terms of U. S. grades. The results are shown in Table 14.

The grades are listed in the order of quantities purchased by Company 3, since this company purchased a larger quantity during the season than the other two companies. During the first week U. S. grade P3L constituted 40.5 per cent of the purchases by Company 3, 32.3 per cent by Company 1 and 36.2 per cent by Company 4. Grade P4L made up 19.8 per cent, 32.6 per cent and 16.9 per cent, respectively of the three companies. Relatively large quantities of grade P2L were also purchased by each of the companies. During the second and third weeks the distributions were similar to the distribution for the first week.

During the fourth and succeeding weeks there was somewhat more variation between the companies in U. S. grades purchased. Grades purchased by companies 1 and 4 corresponded very closely, whereas the purchases of each of these companies differed somewhat more from purchases of Company 3. For example, during the fourth weeks the most important grade purchased by Company 3 was B4F, comprising 11.6 per cent of the total purchases. Only 2.4 per cent and .4 per cent of the purchases by companies 1 and 4, respectively, consisted of this grade. The most important grade purchased by these companies during this week was P3L, comprising 12.8 per cent and 10.9 per cent, respectively, of their purchases. However, Company 3 did purchase a considerable quantity of this grade also, 5.2 per cent of the total purchases.

Even with the variation noted in the U. S. grades purchased by the three companies, as shown by this analysis of weekly purchases, it cannot be said that the companies were refraining from the purchase of the same grades at the same time on this market. This fact, however, by no means justifies the conclusion that there is free competition among the three companies. It only means that this method of restricting competition apparently was not being used.

Table 15 shows a similar analysis of the season's purchases by each of the three companies. Although there was some variation in the percentages of the different U. S. grades purchased by the three companies, there were several grades of which all three companies purchased considerable proportions. For example, U. S. grade X3F constituted 12.8 per cent of the purchases of Company 3, 7.6 per cent of those of Company 1, and 9.6 per cent of purchases of Company 4. U. S. grade P3L was also an important grade with all three, constituting 8.0 per cent, 16.5 per cent, and 12.7 per cent, respectively, of the purchases by the three companies. The three U. S. grades X3F, P3L, and X2F, combined made up more than 25 per cent of the purchases of each company. If the four additional grades P4L, P2L, X3L, and X2L are included, approximately 41 per cent of the purchases of Company 3, 66 per cent of the purchases of Company 1, and 62 per cent of those of Company 4 are accounted for. Seventeen grades make up approximately 75 per cent of the purchases of each of the companies.

TABLE 14. ANALYSIS OF WEEKLY PURCHASES OF FLUE-CURED TOBACCO BY THE THREE MAJOR CIGARETTE COMPANIES ON THE FARMVILLE MARKET, 1938-39.

Week	Rank	U. S. Grade	Company 3		Company 1		Company 4	
			Pounds	Percent	Pounds	Percent	Pounds	Percent
1	1	P3L	26396	40.55	41699	32.34	17312	36.18
	2	P4L	12870	19.77	42076	32.64	8106	16.94
	3	P2L	9890	15.20	15950	12.37	5752	12.02
	4	P3F	5248	8.06	3726	2.89	5368	11.22
	5	P4F	2552	3.92	4012	3.11	3850	8.05
	6	P2F	2426	3.73	2542	1.97	1498	3.13
	7	P1L	1908	1.55	2208	1.71	612	1.28
	8	P5L	926	1.42	4106	3.19	1184	2.47
	9	X2L	1040	1.14	1928	1.50	792	1.66
	10	X3L	546	.84	2636	2.05	460	.96
	All other			2488	3.82	8024	6.23	2912
Total			65090	100.00	128898	100.00	47846	100.00
2	1	P3L	19598	29.59	40024	28.25	25990	31.64
	2	P4L	17876	26.99	38348	27.07	13162	16.03
	3	P2L	8514	12.85	19922	14.06	13130	15.99
	4	P3F	6614	9.99	4160	2.94	7062	8.60
	5	P4F	4472	6.75	4886	3.45	4558	5.55
	6	P2F	1424	2.15	2168	1.53	3052	3.72
	7	P5L	1194	1.80	4360	3.08	1102	1.34
	8	X3F	970	1.47	2362	1.67	1216	1.48
	9	P1L	968	1.46	2082	1.47	2140	2.60
	10	X2L	862	1.30	4402	3.11	2404	2.93
	All other			3742	5.65	18938	13.37	8312
Total			66234	100.00	141652	100.00	82128	100.00
3	1	P3L	13740	24.55	7648	14.46	9714	16.54
	2	P2L	8214	14.67	4128	7.80	7354	12.52
	3	P4L	3862	6.90	9028	17.07	7174	12.22
	4	P3F	3156	5.64	1634	3.09	5854	9.97
	5	X2F	2784	4.97	1050	1.99	2032	3.46
	6	P2F	2622	4.68	1566	2.96	2166	3.69
	7	C4L	2252	4.02	890	1.68	578	0.98
	8	P1L	2236	4.00	1518	2.87	4442	7.57
	9	B3F	1838	3.28	1620	3.06	40	0.07
	10	H4F	1616	2.89	2292	4.33	930	1.60
	All other			13658	24.40	21920	40.89	19136
Total			55978	100.00	52894	100.00	58720	100.00
4	1	R4F	7094	11.59	1068	2.42	298	0.41
	2	X2L	4270	7.07	3314	7.51	6246	8.57
	3	X3F	3956	6.55	3500	7.93	5700	7.82
	4	C5L	3940	6.52	1520	3.44	3068	4.21
	5	X2F	3394	5.62	2276	5.15	4458	6.12
	6	P3L	3136	5.19	6654	12.81	7956	10.92
	7	B3F	2920	4.83	1658	3.76	326	0.45
	8	B5F	2296	3.80	760	1.70	--	--
	9	H4F	2146	3.55	--	--	688	0.95
	10	P3F	2112	3.50	938	2.12	3862	5.30
	All other			25236	41.78	23472	53.16	40252
Total			60410	100.00	44150	100.00	72854	100.00

TABLE 14. (Continued)

Week	Rank	U. S. Grade	Company 3		Company 1		Company 4	
			Pounds	Percent	Pounds	Percent	Pounds	Percent
5	1	X3F	10946	12.49	5292	9.30	5866	6.95
	2	B4F	9178	10.47	640	1.13	264	0.31
	3	B3F	6388	7.29	578	1.02	1042	1.23
	4	X2F	6290	7.18	3808	6.69	7780	9.32
	5	X2L	5078	5.79	6176	10.85	9210	10.92
	6	B5F	4576	5.22	372	0.65	....	....
	7	H4F	3192	3.64	....	....	594	0.69
	8	X3L	3192	3.64	3918	6.89	9242	10.95
	9	B4L	2548	2.91	588	1.03	294	0.35
	10	P3F	2332	2.66	1624	2.85	3314	3.93
	All other			33928	38.71	33914	59.59	46860
Total			87648	100.00	56910	100.00	84376	100.00
6	1	B4F	17758	14.84	460	1.12	1022	1.58
	2	X3F	13726	11.47	3624	8.83	7308	11.29
	3	B5F	10780	9.01	462	1.13	18	0.03
	4	X2F	8244	6.89	3514	8.57	8162	12.41
	5	X2L	4898	4.09	6938	16.91	8736	13.50
	6	B3F	4524	3.78	672	1.64	786	1.21
	7	X3L	3866	3.23	4146	10.11	4628	7.15
	8	B4L	3734	3.12	456	1.11	696	0.94
	9	X4F	2900	2.42	3016	7.35	2482	3.84
	10	B5L	2736	2.28	106	0.26	258	0.40
	All other			46528	38.87	17630	42.97	39790
Total			119694	100.00	41024	100.00	64706	100.00
7	1	X3F	24672	14.90	11252	15.16	9188	16.20
	2	B4F	16734	10.11	1532	2.06	1156	2.04
	3	X2F	13676	7.66	4846	6.53	6904	12.17
	4	B5F	10156	6.12	2164	2.94	264	0.47
	5	X3L	9814	5.93	8110	10.93	4898	8.64
	6	B3F	6166	3.72	432	0.58	450	0.79
	7	X4F	6034	3.64	8504	11.46	3538	6.24
	8	H4F	5542	3.35	....	....	550	0.97
	9	X2L	5236	3.20	6276	8.45	6294	11.10
	10	C5F	4800	2.90	432	0.58	1082	1.91
	All other			63698	38.47	30662	41.31	22388
Total			165568	100.00	74220	100.00	56712	100.00

TABLE 15. QUANTITY AND PERCENTAGE DISTRIBUTION OF TOBACCO PURCHASED BY THE THREE MAJOR DOMESTIC CIGARETTE MANUFACTURERS BY U. S. GRADES, FARMVILLE, SEASON 1938.<sup>1</sup>

U. S. Grade	Company 3		Company 1		Company 4	
	Pounds	Per-cent	Pounds	Per-cent	Pounds	Per-cent
X3F	113,052	12.84	47,896	7.62	57,810	9.63
P3L	70,128	7.96	103,898	16.52	76,452	12.74
B4F	69,588	7.90	7,936	1.26	4,592	0.76
X2F	49,856	5.66	27,030	4.30	45,710	7.62
B5F	49,756	5.65	7,326	1.16	718	0.12
P4L	37,740	4.28	104,580	16.63	44,946	7.49
P2L	33,811	3.84	48,268	7.67	41,570	6.93
X3L	30,654	3.48	44,156	7.02	51,246	8.54
X2L	27,327	3.10	41,692	6.63	37,480	6.58
X4F	27,022	3.07	50	0.01	19,680	3.28
P3F	25,832	2.93	15,252	2.43	33,114	5.52
B3F	25,210	2.86	6,074	0.97	4,082	0.68
H5F	23,420	2.66	6,100	0.97	2,116	0.35
H4F	23,322	2.65	.....	.....	5,388	0.90
B6F	17,526	1.99	2,046	0.32	192	0.03
B4L	15,812	1.80	3,568	0.57	1,970	0.33
B5L	15,738	1.79	2,090	0.33	1,258	0.21
All others	224,981	25.54	160,942	25.59	151,780	25.29
Total	880,775	100.00	628,904	100.00	600,104	100.00

<sup>1</sup>U. S. grades are listed in the order of quantity purchased by Company 3, the largest purchaser.