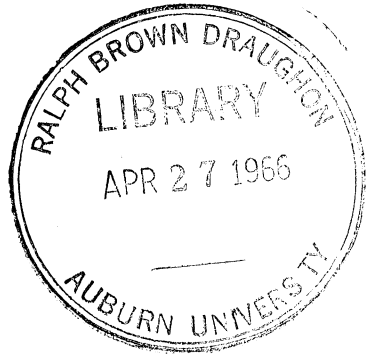


MARKET VALUES AND
TRANSFERS OF

MILK QUOTAS

IN ALABAMA



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Market Values and Transfers of Milk Quotas In Alabama*

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SEASONAL MILK PRICING PLANS have been used for many years as incentives for producers to reduce seasonal fluctuations of milk deliveries. Since the 1930's, the Alabama Milk Control Board has utilized a series of base-excess plans as encouragement for dairy farmers to supply quantities of milk that more nearly match the demand for fluid milk.

The theory behind any base-excess plan is that each producer establishes a "base" by his milk deliveries made during the fall or winter months, or both, when markets tend to be in short supply. Farmers who establish large bases during this period of shortage gain a greater claim to the market in succeeding months than farmers who sell less milk in the base-forming period.

In Alabama, bases are transferable. They have a monetary value because they serve, to a degree, as a license to sell milk in the fluid market, and because base milk is priced much higher than surplus milk, which is all deliveries in excess of the producer's base.

Since 1960, approximately 30 per cent of the Grade A milk producers in Alabama have purchased base or quota,¹ mostly from dairymen who were ceasing Grade A production. This fits the changing pattern of dairying during that time, when numbers of

* The study reported, supported with funds provided by the Agricultural and Marketing Act of 1946 and by State research funds, was carried out as Hatch Research Project 609.

¹ Technically, "base" plans are related to production, while "quota" plans are based on sales. In this report, quota and base are used synonymously. This usage is implied in the rules of fair trade practices of the Alabama Milk Control Board, and is accepted terminology of personnel connected with the dairy industry in the State. Actually there are in use in Alabama one base plan and two base-quota plans.

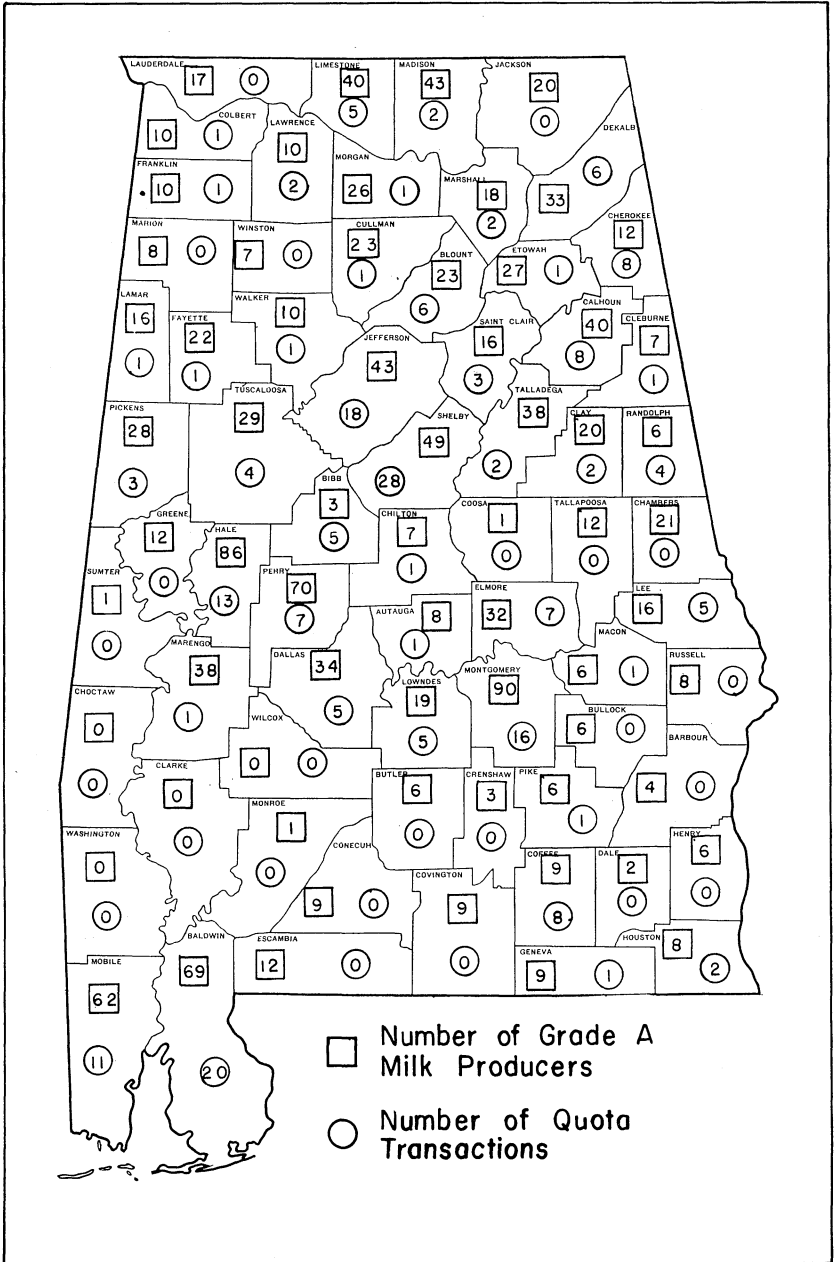


FIG. 1 Shown on this Alabama map are the number of Grade A milk producers and the number of quota transactions for each county in 1963.

dairymen were decreasing and remaining producers were increasing volume of sales. (Number of Grade A producers dropped from 1,656 in 1959 to 1,201 in 1964. Most small producers in 1959 either discontinued production or increased sales.) Almost all producers who left Grade A production sold their quotas, either to other producers who were attempting to increase size or gain price advantage, or to persons entering Grade A production. Location of Alabama dairymen in 1963 and numbers of quota transactions in each county are shown in Figure 1.

There was a wide range in prices that producers paid for quota, according to information from the Alabama Milk Control Board and data from a 1964 survey. This variation was observed even in the case of transactions among producers shipping to the same plant.

STUDY OBJECTIVES AND PROCEDURE

Specific objectives of this study were: (1) to determine the conditions of transfer, number and volume of transactions, prices paid, and factors affecting the value of quotas transferred in Alabama; and (2) to develop procedures for estimating market value of quota in the State under alternative market situations.

A list of producers who had bought and sold quota since 1960 was assembled from records made available by the Alabama Milk Control Board. Other data gathered included dates of purchase, volume purchased, and class utilization of producer deliveries. The study period selected was January 1961 through August 1964. Of the producers in business in 1964, a total of 387 purchased base during the 44-month study period. A systematic sample was drawn, consisting of six quota purchasers shipping to each of eight plants. The criteria for selecting the sample plants were number of quota transfers, market area, and type of quota plan used. A questionnaire was developed and personal interviews were obtained from 39 dairymen to determine prices paid for quota and factors related to purchase of quota. Other characteristics of producers were obtained from a 1964 survey of 800 dairy farmers.

QUOTA PROVISIONS IN ALABAMA

Two main quota plans are used in Alabama. (See Appendix for detailed information on quota provisions.) Under the "plant

usage method" all milk delivered by a producer to a distributor during the base-building period, September through February, is used in calculating his quota. Each producer's quota is the ratio that his deliveries of milk during the base-building months are to total deliveries during that period. The quota remains effective for 1 year beginning the first day of March. Rapid adjustments are possible under this plan.

Under the "alternative quota plan," quotas are related more closely to plant sales. Although base-building and base-using periods are the same under this plan, the quantity of a producer's milk used in calculating his new quota cannot exceed 115 per cent of his share of plant Class I and II sales.² Because of the relative ease of maintaining quota under this plan, it can be properly referred to as a "semi-frozen" base plan.

In 1960 the Milk Control Board eased restrictions on transfer of quotas. In general, a quota is deemed to be the personal property of a producer and may be sold or transferred in almost any manner incident to the sale of the producer's herd. The base may be divided and sold to several persons. Purchase of a seller's cattle is not a requirement for buying quota.

CHARACTERISTICS OF BUYERS AND NONBUYERS OF QUOTA

ADJUSTMENTS IN SIZE

Additional investment required for the purchase of base may be a deterring factor to potential new producers and to producers desiring to expand deliveries (4). Producer sales records for the 1959 and 1964 base-building periods were obtained from the Alabama Milk Control Board for analysis of adjustments. Records were obtained on 1,656 dairymen in 1959 and 1,201 dairymen in 1964.³ Between the two periods, 667 producers ceased production and there were 212 new producers; thus, 989 dairymen were in business during both base-building periods.

² This figure was reduced to 110 per cent for the 1965-1966 base-building period.

³ These figures include all Alabama Grade A dairymen in business in 1959 and 1964 except those shipping to one producer cooperative not under State regulation and one plant that was nonregulated in 1958-1959. Also excluded are some Alabama producers selling milk to out-of-state distributors. Included, however, are a number of out-of-state producers shipping milk to regulated Alabama plants.

TABLE 1. ADJUSTMENT IN AVERAGE DAILY SALES OF 989 ALABAMA DAIRYMEN, AS RELATED TO PURCHASE OF QUOTA, ALABAMA, 1959-1964

Times quota was bought	Dairy-men	Average daily sales		Increase in average daily sales	
		1959	1964		
	<i>Number</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Pounds</i>	<i>Per cent</i>
1.....	202	998	1,637	639	64
2.....	67	1,239	2,196	957	77
3.....	14	1,875	3,058	1,183	63
4 and over.....	7	1,223	2,982	1,759	144
All dairymen who bought quota.....	290	1,101	1,867	766	70
Nonbuyers.....	699	814	1,155	341	42
TOTAL.....	989	898	1,364	466	52

Of the 1,201 producers in business in 1964, 387 had purchased quota during the period January 1961-August 1964. Out of this total there were 989 producers who were in business in 1959 and 1964, and 290 of these had purchased quota during the study period. Average deliveries of the 989 producers in 1959 were 898 pounds. The 290 producers who subsequently bought quota shipped an average of 1,101 pounds a day, as compared with 814 pounds a day for the 699 nonbuyers, Table 1. By 1964, the 989 producers increased sales to 1,364 pounds daily, a 52 per cent increase over 1959. Producers who purchased quota increased deliveries to 1,867 pounds, an increase of 70 per cent. Nonbuyers of quota shipped an average of 1,155 pounds, a 42 per cent increase.

VOLUME OF SALES IN 1963 OF DAIRYMEN WHO BEGAN PRODUCTION AFTER 1959

Alabama's quota plans may be a deterrent, but they are not a barrier to entry into the Grade A market. More than half the 212 producers entering the industry since 1959 did not purchase base during the study period, Table 2. Some of these 115 entrants may have either built their original base or obtained a contract price from a distributor.⁴ The 97 producers who bought base, however, had reached an average daily production of almost 550 pounds more than the nonbuyers by 1963.

⁴ An attempt was made to trace the status of each operation in both periods; however, some producers who were actually in business in 1958-1959 were probably included as entrants because of changes in names by which the farms were licensed.

TABLE 2. AVERAGE DAILY SALES OF 212 ALABAMA DAIRYMEN WHO ENTERED PRODUCTION AFTER 1958, AS RELATED TO PURCHASE OF QUOTA, 1963-1964

Times quota was bought	Dairymen	Average daily sales in 1963-1964
	<i>Number</i>	<i>Pounds</i>
1.....	64	1,349
2.....	21	2,001
3.....	7	1,859
4 and over.....	5	2,038
All dairymen who bought quota.....	97	1,563
Nonbuyers.....	115	1,017
TOTAL.....	212	1,266

OTHER CHARACTERISTICS

Information presented about other characteristics of buyers and nonbuyers was obtained through a survey schedule mailed to 1,348 Grade A milk producers in Alabama. An analysis of 800 usable returns was made using the responses to the question, "Did you purchase base during past year?" Responses of the 778 producers who answered this question were as follows:

	<i>Number</i>	<i>Per cent</i>
Bought base.....	137	18
Did not buy base.....	641	82
TOTAL.....	778	100

Of the 137 producers who bought base in 1963, 99 purchased plant usage quota and 38 bought base built on the alternative quota plan.

Farmers who purchased base in 1963 tended to have larger herds than those who did not, Table 3. About 84 per cent of the 137 dairymen who bought base had herds of 50 or more cows, as compared with 62 per cent of the nonbuyers. These figures include dry and milking cows.

TABLE 3. SELECTED CHARACTERISTICS OF 778 DAIRYMEN, AS RELATED TO PURCHASE OF QUOTA, 1963

Characteristic	Proportion reporting	
	Buyers of quota	Nonbuyers of quota
	<i>Per cent</i>	<i>Per cent</i>
Under 45 years of age.....	48	37
Farmed 200 acres or more.....	46	37
Milked more than 50 cows.....	84	62
Increased herd size in 1963.....	62	37
Had predominately Holstein herds.....	66	57
More than 70 per cent of sales as Class I.....	74	64
Used production testing.....	53	42
Used artificial insemination.....	71	66

Most responding dairymen who bought base increased herd size during 1963. Almost two-thirds of the buyers reported more cattle than in 1962, but only a third of the nonbuyers had expanded herd size. Farmers who bought quota were younger than the group who did not purchase quota. Slightly less than half who bought base were under 45 years old, as compared with 37 per cent of the nonpurchasing group. Predominately Holstein herds were reported by 66 per cent of the quota buyers and 57 per cent of the nonbuyers.

Seventy-four per cent of the farmers who bought quota sold more than 70 per cent of their October 1963 deliveries at the Class I price. Of the producers who did not purchase quota in 1963, only 64 per cent were able to obtain this level of Class I utilization. Production testing and artificial insemination were used by a higher proportion of the 137 producers who purchased base than of the 641 nonpurchasers.

QUOTA TRANSACTIONS IN ALABAMA

NUMBER OF TRANSACTIONS

During the period beginning January 1, 1961, and ending August 31, 1964, 466 dairymen sold Grade A milk quotas. There were 387 buyers of quota in this period who were still in business in August 1964,⁵ and they made 568 quota purchases. Many dairymen bought quota two or more times, as shown by the following table:

<i>Number of purchases</i>	<i>Number of producers</i>
1	266
2	88
3	21
4 and over	12
Total purchasers	387
Nonpurchasers	814
TOTAL PRODUCERS	1201

There were 516 quotas sold during the 4-year period beginning January 1, 1961. Of these, 95 were determined by the alternative quota plan and 420 by the plant usage plan. There was

⁵ There was no accurate count made of producers who bought quota and subsequently ceased Grade A production. Inspection of the records available identified few former producers in this category, probably 20 to 30. These producers are included in the 466 sales of base, but not in the 387 buyers of quota.

one sale of base occurring under the "winter production is summer base" plan. The 516 sales, by years, are as follows:

Year	Number of sales
1961.....	91
1962.....	141
1963.....	148
1964.....	136

SEASONALITY OF QUOTA SALES

A fairly high degree of seasonality was found in the sale of base. In 3 of the 4 years, more sales occurred in September than in any other month. August was high the other year, 1961, Figure 2. It is doubtful, however, that sale of quota, *per se*, had much influence on the seasonality of producers quitting Grade A production. Occasionally, particularly under the alternative quota plan, the sale of quota provides a large percentage of a seller's receipts from dispersal of his herd and other assets, but generally this has not been the case.

PRICES PAID FOR QUOTA

Personal interviews were obtained from 21 purchasers of quota who shipped to four plants that calculated quotas by the alternative quota plan, and 18 purchasers who shipped to four plants that used the plant usage plan. The 18 plant usage buyers bought quota 26 times and the 21 alternative quota buyers made 27 quota purchases. One quota purchaser at a plant under the alternative plan bought plant usage quota since the date of purchase was more than 1 year prior to adoption of the new plan at his plant. Five buyers purchased plant usage quota, yet received the benefit of the alternative plan. Because the new plan was approved by producers shipping to their plants shortly after the quota transactions, the quota was considered to be under the alternative plan.

Prices paid for quota can be expressed in a number of ways. For quota under plant usage, a common expression is price per 100 pounds of daily base. There are two drawbacks in using price per 100 pounds of daily base in this report. First, there can be no direct comparison between prices paid for quota under the two plans. Base can be maintained with reasonable certainty for more than one base period under alternative quota, and pounds of Class I per day will change if plant sales change.

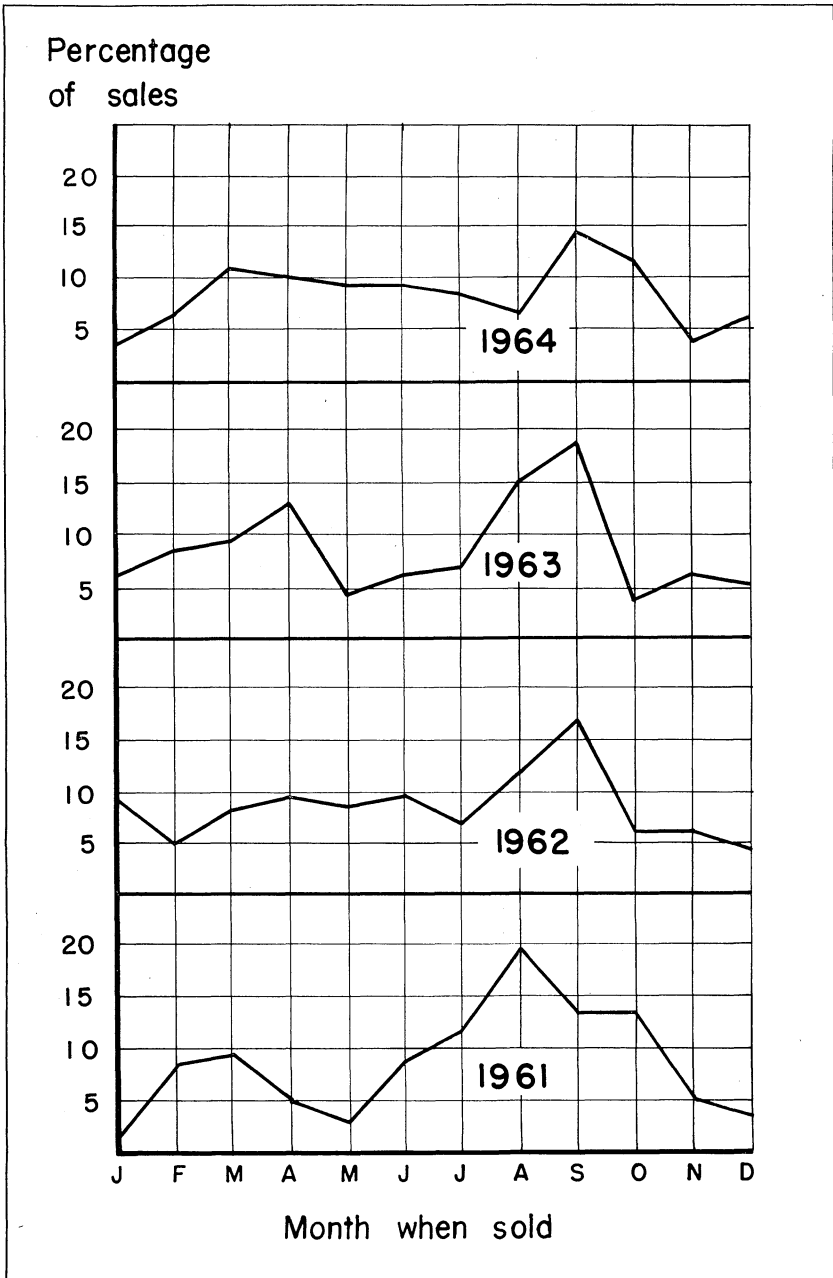


FIG. 2 Percentage of quota sales by month during 1961-64 in Alabama.

Second, only 11 of the 39 producers interviewed recalled the number of pounds a day they purchased. All but 3 of the 11 overestimated amount purchased, some by a considerable margin.

Price paid for quota in plants under the alternative quota plan was often quoted as "price per point," which is dollars per 1 per cent of the plant's quota. This form of price quotation also presented a problem in comparing with prices paid for plant usage quota. A flat price per point under the plant usage plan is illogical, since 1 per cent of quota is worth more at the beginning of the base-using period than toward the end.

A relative price that is comparable between the two plans is price per 100 pounds of Class I eligibility. Quota expressed as a percentage is meaningless until it is converted to pounds of higher class milk that the quota enables its owner to sell. For plant usage transactions, price per 100 pounds of Class I eligibility was determined by dividing amount paid for the quota by the estimated Class I sales during the months remaining in the base using period. For purchases of alternative quota, a price was also calculated per 100 pounds of Class I eligibility acquired within a 1-year span from date of purchase. This price was computed because of the likelihood of quota being maintained for longer periods.

Plant Usage Method

Total dollar amounts paid for plant usage quota ranged from \$160 to \$3,900. The 19 purchasers who made 25 transactions paid \$29,417 for base. Average expenditure per buyer was \$1,548 and each transaction averaged \$1,177.

Price Per Hundredweight of Class I Eligibility. Prices paid per hundredweight of Class I eligibility ranged from \$0.39 to \$1.96, with most being in the \$0.75 to \$1.50 range, Table 4. The averages were \$0.78, \$0.95, \$1.23, and \$1.00 for plants W, X, Y, and Z, respectively.

Plant usage transactions were further subdivided into large and small, with 100,000 pounds of Class I selected as the dividing point between the two groups. The nine large transactions accounted for 72 per cent of the total volume of quota purchased by the sample group. Average price per hundredweight of Class I eligibility was \$0.85 for the 9 large transactions and \$1.21 for the 16 small transactions.

The key figure to be used in comparison with the prices shown in Table 4 is \$3.44 per hundredweight. This is the gain buyers received from moving 100 pounds of milk from Class III to Class I, assuming the Class III price was \$3.12 and the Class I price was

TABLE 4. PRICES PAID PER HUNDREDWEIGHT OF CLASS I ELIGIBILITY, 19 ALABAMA DAIRYMEN WHO PURCHASED QUOTA AT PLANTS UNDER THE PLANT USAGE PLAN, JANUARY 1961-AUGUST 1964¹

Producer	Class I eligibility	Total cost of quota	Cost per cwt.
	<i>Cwt.</i>	<i>Dol.</i>	<i>Dol.</i>
Plant W			
1P.....	902	900	1.00
2P.....	756	570	.75
3P.....	2,428	2,000	.82
4P.....	4,794	3,500	.73
Plant total.....	8,880	6,970	.78
Plant X			
5P.....	2,580	1,000	.39
6P.....	293	500	1.71
7P.....	560	730	1.30
	440	555	1.26
	303	400	1.32
	563	700	1.24
	698	940	1.35
8P.....	588	715	1.22
	293	385	1.32
9P.....	294 ²	160	.54
	587	777	1.32
Plant total.....	7,199	6,862	.95
Plant Y			
10P.....	1,456	2,220	1.52
11P.....	286	290	1.01
12P.....	1,391	1,350	.97
Plant total.....	3,133	3,860	1.23
Plant Z			
13P.....	2,364	1,200	.51
14P.....	767	1,500	1.96
15P.....	548	525	.96
16P.....	643 ²	700	1.09
17P.....	4,577	3,900	.85
18P.....	1,344	2,400	1.78
Plant total.....	10,243	10,225	1.00
Plant A			
5A.....	1,563	1,500	.96
TOTAL.....	31,018	29,417	.95
9 large transactions ³	22,497	19,070	.85
16 small transactions.....	8,521	10,347	1.21

¹ Producers were designated 1P-21P and plants were designated W, X, Y, and Z. Producer 5A bought plant usage quota (see text).

² Purchase occurred during base-building period. Production of seller was transferred to apply to building the buyer's quota for the subsequent base-using period.

³ Over 100,000 pounds of Class I equivalent purchased.

\$6.56 at 4 per cent butterfat. The \$3.44 difference between Class I and Class III prices remains constant regardless of butterfat content, however. Any purchaser listed in Table 4 who moved the entire amount of milk from surplus to Class I made an excellent buy regardless of whether he was already producing surplus or was increasing production that would have gone into surplus had he not purchased base.

In some special cases where none of a producer's milk is used in Class III products, a large percentage of his deliveries may be purchased as Government Contract Milk. Under this condition, an additional hundred pounds of Class I eligibility would result in a gain of \$1.81 if the milk were moved up from the Government Class.⁶ For the State as a whole, use of milk in this class is relatively small, accounting for about 5 per cent of total producer receipts in 1963. Other gains may occur as the result of moving small amounts of milk from Class II into Class I and Class III into Class II. Gains of this nature are of lesser importance, hence the major emphasis is on the difference between Class I and surplus prices.

Minimum Number of Months to Recover Investment. Dairy-men who buy quotas under the plant usage method receive benefit from it only to the end of the current base-using period, the last day of February. At that time the producer changes to the new quota he has just earned. A producer who purchases quota on March 1 has a full year to regain his investment, whereas one who buys on September 1 has only 6 months. Purchases made during the base-building period usually have an income-producing value beyond the last day of February. For example, one who buys base on November 1 gets the benefit of the purchased quota for 4 months. In addition, he is credited with his prorata share of milk sales of the seller during September and October in determining his new quota.

The minimum number of months required to regain purchase price was computed, based on pounds of Class I quota equivalent per month and the spread between Class I and surplus price, Table 5. It is not implied that the purchaser did repay his investment in this period. In most instances, however, a producer could have re-

⁶ Prior to November 1, 1963, the Government Contract price was \$4.15. Thus, those who purchased base prior to that date would have had a potential gain of \$2.41 per hundredweight for milk moved from Government Contract Milk to Class I uses.

TABLE 5. MINIMUM NUMBER OF MONTHS TO RECOVER INVESTMENT IN QUOTA, 19 ALABAMA DAIRYMEN WHO PURCHASED QUOTA AT PLANTS UNDER THE PLANT USAGE PLAN, JANUARY 1961-AUGUST 1964

Producer	Minimum time to regain investment	Producer estimate of months to regain investment ¹	Time remaining to use quota
	<i>Months</i>	<i>Months</i>	<i>Months</i>
Plant W			
1P.....	2.5	2.0	7.3
2P.....	1.5	---	8.0
3P.....	2.5	---	10.0
4P.....	2.7	3.5	12.0
Plant X			
5P.....	1.3	---	11.0
6P.....	3.0	---	6.0
7P.....	2.7	---	7.3
	2.3	---	6.0
	2.3	---	6.0
	4.0	---	11.0
	3.7	---	9.0
8P.....	2.0	1.5	6.0
	2.3	1.5	6.0
9P.....	1.0	---	16.7
	2.3	2.5	6.0
Plant Y			
10P.....	4.7	---	10.2
11P.....	2.7	---	8.3
12P.....	3.0	---	9.5
Plant Z			
13P.....	1.5	7.0	9.3
14P.....	3.3	---	6.0
15P.....	2.0	2.5	7.0
16P.....	2.5	---	12.3
17P.....	1.5	3.5	6.0
18P.....	6.3	---	12.0
Plant A			
5A.....	3.2	---	10.5
AVERAGE.....	2.6	---	8.8
13 purchases, under 9 months use, average.....	2.4	---	6.6
12 purchases, 9 or more months use, average.....	3.0	---	11.1

¹ Only seven purchasers made estimates.

covered his investment in the time shown, provided he shipped the full Class I equivalent of the purchased quota. A producer might pay off purchase price in less than the calculated minimum if he received additional Class I, II, and Government Contract Milk by redistribution. (See Appendix.)

It is apparent from Table 5 that almost all purchasers could have repaid their quota investments in a short time. The mean minimum time required to regain investment was 2.6 months. If

each purchaser had taken twice as long as the minimum, only two producers would have lost money on the purchased base.

Producers were asked to estimate either monetary gain from purchase of quota or number of months for the quota to pay out. Seven plant usage buyers volunteered such estimates. Estimates of profit were converted to approximate number of months to pay out and are included in Table 5. Although there were not enough observations for detailed study, producers who ventured an estimate came reasonably close to the calculated minimum.

Alternative Quota Plan

Amounts paid for quota at plants under the alternative quota plan were higher than for plant usage quota. The range paid by the 20 purchasers studied was from \$375 to \$7,200. Average expenditure per buyer was \$2,354, and average amount per transaction was \$1,811.

Price Per Hundredweight of Class I Eligibility. Table 6 gives data regarding price per 100 pounds of Class I eligibility for the 20 alternative quota buyers. Price per hundredweight of Class I eligibility in the base-using period was included for comparisons with prices paid for plant usage quota. Average price paid for Class I eligibility in the base-using period in Plant A, \$0.80 per hundredweight, was lower than the average for all plant usage transactions. All other alternative quota transactions studied, however, were at much higher prices. Still, there were only nine transactions in which the original investment could not possibly have been regained during the remainder of the base-using period, excluding interest.

As stated previously, price per hundredweight of Class I eligibility acquired was figured on the basis of a full year from date of purchase. It was calculated by dividing amount paid by the number of additional hundredweight of Class I milk that the purchase enabled the buyer to sell in the 1-year period from date of purchase. No discount was applied to this price.

The assumption behind figuring price per 100 pounds of Class I eligibility for 1 year from date of purchase was that the purchaser maintained his old quota, plus the purchased quota, in the following base-building period. Because of the relative ease of maintaining quota under this plan (a maximum overshipment of 15 per cent more than the producer's share of Class I and II sales was required), it is a likely assumption in most cases.

TABLE 6. PRICE PAID PER HUNDREDWEIGHT OF CLASS I ELIGIBILITY, BASE-USING PERIOD AND ONE YEAR FROM DATE OF PURCHASE, 20 ALABAMA DAIRYMEN WHO PURCHASED QUOTA AT PLANTS UNDER THE ALTERNATIVE QUOTA PLAN, JANUARY 1961-AUGUST 1964¹

Producer	Class I eligibility		Cost of quota		
	Remainder of base-using period	One year	Total cost	Remainder of base-using period	One year
	<i>Cwt.</i>	<i>Cwt.</i>	<i>Dol.</i>	<i>Dol./cwt.</i>	<i>Dol./cwt.</i>
Plant A					
1A.....	901	1,022	825	.92	.81 ²
	981	1,302	700	.71	.54 ²
2A.....	1,330	1,506	1,000	.75	.66
	315	640	710	2.25	1.11
3A.....	755	812	475	.63	.58
4A.....	257	436	375	1.46	.86 ²
5A.....	257	436	375	1.46	.86 ²
	2,267	2,330	1,425	.63	.61
6A.....	257	436	375	1.46	.86 ²
	2,267	2,330	1,450	.64	.62
Plant total.....	9,587	11,250	7,710	.80	.69
Plant B					
7A.....	376	445	1,500	3.99	3.37
8A.....	1,825	1,939	4,000	2.19	2.06 ²
9A.....	747	844	1,000	1.34	1.18 ²
10A.....	808	956	3,000	3.71	3.14
	455	1,257	2,500	5.49	1.99
11A.....	376	445	1,500	3.99	3.37
Plant total.....	4,587	5,886	13,500	2.94	2.29
Plant C					
12A.....	489	593	750	1.54	1.26
13A.....	489	593	750	1.54	1.26
14A.....	489	593	750	1.54	1.26
Plant total.....	1,467	1,779	2,250	1.54	1.26
Plant D					
16A.....	466	899	2,000	4.30	2.22
17A.....	585	1,130	2,500	4.27	2.21
18A.....	975	975	2,650	2.72	2.72
19A.....	183	415	1,400	7.65	3.37
20A.....	569	1,098	2,870	5.05	2.61
21A.....	927	1,424	5,000	5.39	3.51
	588	987	7,200	12.24	7.29
Plant total.....	4,293	6,928	23,620	5.50	3.41
TOTAL.....	19,934	25,843	47,080	2.36	1.82
10 large transactions ³	---	15,337	22,270	---	1.45
16 small transactions.....	---	10,506	24,810	---	2.36

¹ Producers were designated 1A-21A. Plants were designated A, B, C, and D.

² Purchased plant usage quota, but quota plan was changed to alternative plan while plant usage quota was still good.

³ Over 100,000 pounds of Class I equivalent purchased within 1 year.

Prices per 100 pounds of Class I eligibility, calculated on a 1-year basis, varied widely, but there was more variation among plants than among transactions within the plants. Average price paid per additional hundredweight of Class I eligibility acquired during 1 year from purchase date ranged from \$0.69 at Plant A to \$3.41 at Plant D, Table 6. The average was \$1.45 for the large transactions and \$2.36 for the small transactions.

Minimum Number of Months to Recover Investment. Under the alternative plan, a purchaser of quota may subjectively select

TABLE 7. MINIMUM NUMBER OF MONTHS TO RECOVER INVESTMENT IN QUOTA, 20 ALABAMA DAIRYMEN WHO PURCHASED QUOTA UNDER THE ALTERNATIVE QUOTA PLAN, JANUARY 1961-AUGUST 1964

Producer	Minimum time to regain investment	Producer estimate of time to regain investment
	<i>Months</i>	<i>Months</i>
Plant A		
1A.....	3.3 ¹	---
	2.0 ¹	---
2A.....	2.5	---
	4.0	---
3A.....	2.5	---
4A.....	3.0 ¹	2.5
5A.....	3.0 ¹	---
	2.5	---
6A.....	3.0 ¹	3.0
	2.5	3.0
Plant B		
7A.....	11.5	---
8A.....	7.3 ¹	---
9A.....	4.5 ¹	9.5
10A.....	10.8	---
	6.7	---
11A.....	11.5	---
Plant C		
12A.....	5.0	3.0
13A.....	5.0	12.0
14A.....	5.0	---
Plant D		
16A.....	7.5	---
17A.....	7.5	---
18A.....	9.5	36.0
19A.....	11.8	12.0
20A.....	9.0	---
21A.....	12.3	12.0
	25.0	30.0
AVERAGE	6.8	---

¹ Purchased plant usage quota, but plan was changed to alternative plan while plant usage quota was still good.

a period in which he desires to recover his investment. Purchasers of quota shipping to Plant A could have regained investment much more rapidly than those selling to the other plants, Table 7. The longest minimum time needed to regain investment in a quota transaction at Plant A was 4 months, which was less than the minimum for any transaction at the other three plants. Average minimum repayment time for all alternative quota transactions was 6.8 months, as compared with 2.6 months for all plant usage transactions. Most alternative quota buyers who estimated number of months to repay investment came close to the calculated minimum. Of the 10 transactions for which producer estimates were made, 5 were within 1 month of the calculated number.

CASE STUDIES OF FOUR PURCHASES OF QUOTA

For a more thorough study of the monetary outcome of producers who purchased quota, production and pay data were obtained for four of the producers who were interviewed. Two producers under each quota plan were selected.

An analysis of this type can take into consideration additional milk used in higher classes resulting from redistribution, delivery of purchased quota, and additional revenue from Class II and Government Contract Milk. The primary assumption used was that each of the producers would have delivered the same amounts of milk, regardless of whether additional base had been purchased.

TABLE 8. EFFECT OF PURCHASE OF QUOTA ON PRODUCER RECEIPTS FROM DATE OF PURCHASE THROUGH FEBRUARY 29, 1964, USING PRICES EXISTING AT TIME OF PURCHASE, FOUR ALABAMA DAIRYMEN

Producer	Value of receipts		Increase in receipts	Price of quota	Net gain
	Earned plus purchased quota	Earned quota only			
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1 ¹	12,100	11,148	952	375	577
2 ¹	21,110	20,439	671	1,400	-----
3 ²	11,673	11,128	545	500	45
4 ²	109,711	105,888	3,823	2,220	1,603

¹ Alternative quota plan. Both of these producers maintained quota in the succeeding base-building period. Producer 2 would continue to write-off his investment and would probably write-off purchase price within 6 or 7 more months. Producer 1 would continue to increase his profit on the transaction.

² Plant usage plan.

Allocations of receipts were calculated using the producer's earned quota only; these were compared with actual allocation of receipts as determined by earned quota plus purchased quota for each month, beginning on date of purchase and ending February 29, 1964. The computed values of the producers' receipts, assuming 4 per cent butterfat, are given in Table 8. The net gain received by each producer as a result of purchasing quota rather than producing milk without additional quota is listed in the last column. Table 8 is based on actual producer prices existing at time of purchase, \$4.00 for Class II and \$4.15 for Government Contract Milk. Assuming these prices, all except Producer 2 paid off their investments, excluding interest, and showed gains on the transactions. Producer 2 maintained his quota and would continue to write-off the investment at a similar rate during the new base-using period. A high rate of return on investment in quota was noted. Even Producer 3's annual return on investment would amount to about 18 per cent.

Table 8 presents a distorted picture, however. On November 1, 1963, the Board raised the producer prices of Class II and Government Contract Milk to \$4.75 (8). How this price increase affected producer receipts is shown in Table 9. A price change is one of the factors a potential quota purchaser must consider in applying a discount for uncertainty on the price he is willing to pay.

TABLE 9. EFFECT OF PURCHASE OF QUOTA ON PRODUCER RECEIPTS FROM DATE OF PURCHASE THROUGH FEBRUARY 29, 1964, USING ACTUAL PRICES, FOUR ALABAMA DAIRYMEN

Producer	Value of receipts		Increase in receipts	Price of quota	Net gain	Potential gain or write-off
	Earned plus purchased quota	Earned quota only				
	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>	<i>Dollars</i>
1 ¹	12,203	11,235	968	375	593	501
2 ¹	21,353	20,664	689	1,400	723 ³
3 ²	11,700	11,234	466	500	-34	537
4 ²	114,455	111,810	2,645	2,220	425	2,890

¹ Alternative quota plan. Both of these producers maintained quota in the succeeding base-building period. Producer 2 would continue to write-off his investment and would probably write-off purchase price within 6 or 7 more months. Producer 1 would continue to increase his profit on the transaction.

² Plant usage plan.

³ Potential write-off.

The last column of Table 9 gives the probable potential gain by February 29, 1964, or in the case of Producer 2, potential write-off by this date. This figure was computed by the same procedure as minimum months to recover investment, using the difference between Class III and Class I price. Producer 1 gained more from purchase of quota than the calculated potential gain, because of a large percentage of Class I he received through redistribution. Producer 2 was paying off his investment at the approximate computed rate. Producer 3 could have made about \$537 by purchasing the quota; yet the highly seasonal nature of his operation caused him to lose money. His deliveries during fall and winter were so small that he would have received the Class I price for all deliveries with only his earned quota.

Producer 4 presented a special case since there was no Class III at his plant during the study period. He could not possibly have gotten the full potential benefit of moving surplus into Class I, yet he did move considerable Government Contract Milk into Class I. Thus, Producer 4 made \$425 on a \$2,220 investment in less than a year.

RELATED FACTORS ASSOCIATED WITH PURCHASE OF QUOTA

Purchase of Cows

Cows were included with 20 of the 52 quota transactions studied. Producers who bought cows along with plant usage quotas purchased an average of 30 cows per transaction, as compared with 19 cows each for alternative quota buyers. Several quota buyers mentioned that a large percentage of the cows purchased had to be culled. A few buyers said they were forced to buy cows in order to obtain the quota.

Reasons for Purchase

The 39 dairymen were questioned as to their primary reasons for purchasing quotas. The majority were either increasing volume of sales or attempting to gain a price advantage by getting the Class I price for a higher proportion of their deliveries, Table 10. Eleven purchasers were trying to accomplish both objectives. Three purchasers were entering Grade A production for the first time, and one buyer sold his quota at one plant and bought quota at another.

TABLE 10. REASONS FOR BUYING QUOTA, 39 ALABAMA DAIRYMEN, 53 QUOTA TRANSACTIONS, BY QUOTA PLAN, JANUARY 1961-AUGUST 1964

Reasons for buying quota	Quota plan		Total
	Plant usage	Alternative	
	Number	Number	Number
Increasing size.....	17	11	28
Attempt to raise blend price.....	13	15	28
New Grade A producer.....	2	1	3
Trying to hold own.....	0	5	5
Transfer to another distributor.....	1	0	1
Insurance against future surplus.....	1	2	3
To utilize new bulk tank.....	1	1	2
Trying to bid up price of quota.....	1	0	1
No answer.....	0	3	3
TOTAL ¹	36	38	74

¹ There were 53 purchases; 2 reasons were given for 21 transactions.

Sources of Assistance in Calculating Price to Pay for Quota

Most of the dairymen interviewed obtained assistance in determining what price to pay for quota, Table 11. In 25 of the transactions help was given by the distributor, usually the plant field representative or plant manager. The role of the plant in determining price of quota ranged from giving an estimate of the pounds of Class I eligibility of the quota to buying all quotas sold by the plant's producers and reselling at cost to other producers.

At each plant studied, quota buyers usually turned to a particular source of assistance available in their area. Those at one plant usually received help from a professional agricultural worker. The plant field representative advised most purchasers at two plants, and the plant manager was the most common source

TABLE 11. SOURCES OF ASSISTANCE IN DETERMINING PRICE TO PAY FOR QUOTA, 39 ALABAMA DAIRYMEN, BY QUOTA PLAN, JANUARY 1961-AUGUST 1964

Source of assistance	Quota plan		Total
	Plant usage	Alternative	
	Number	Number	Number
Personnel at plant.....	15	10	25
Professional agricultural workers.....	2	5	7
Other dairymen.....	1	4	5
Milk Control Board.....	1	1	2
No assistance received.....	8	7	15
No answer.....	0	1	1
TOTAL ¹	27	28	55

¹ There were 53 transactions; 2 sources of assistance were given for 2 transactions.

of assistance at three plants. Most purchasers at the remaining plant received no aid in calculating value of base.

ESTIMATION OF QUOTA VALUE

Alabama dairymen who are considering purchase or sale of quotas need to be able to calculate the potential value of quota. The 39 purchasers interviewed gave the following answers when questioned as to how they arrived at the price paid for quota:

<i>Method</i>	<i>Number using</i>
Used some method of calculating price.....	10
Paid asking price.....	8
Plant figured price.....	8
Plant bought quota and resold at cost to purchaser.....	4
Compared with other prices paid for quota at plant.....	3
Compared with price of quota at other plants.....	1
Bid for quota until all other bidders dropped out.....	1
Guessed.....	1
No answer.....	3
TOTAL.....	39

Only one-fourth of the sample group actually calculated prices to pay for quota. The remainder either paid the seller's asking price, had their distributor calculate price, decided on basis of other quota prices, or arbitrarily arrived at a figure. The latter group may have made just as good or better purchases, but the dairymen who calculated value probably had more complete information regarding their probable financial outcome.

METHODS USED BY ALABAMA DAIRYMEN
TO CALCULATE QUOTA VALUE

Methods used by the 10 dairymen who calculated quota price were simple and basically similar. Three dairymen determined the plant's Class I sales for the month prior to quota purchase. This figure was multiplied by the percentage of quota for sale, giving the Class I equivalent for that amount of quota for the month. Multiplying this figure by the difference in Class I and surplus price, \$3.44, gave the approximate value of quota per month. This value was multiplied by a maximum of 3 months under plant usage and a maximum of 7 months under alternative quota to obtain the ceiling price they would bid for the base.

Another group of three dairymen used an almost identical system of calculation, except they relied on the plant to figure monthly pounds of Class I eligibility. Since these dairymen were

operating under the plant usage method, they multiplied monthly value of the quota times the number of months remaining in the base-using period. They bid up to half of this calculated total value.

Two purchasers who bought alternative quota calculated quota value the same way as the first group, except the number of months to recover investment was decided by each one on the basis of individual preference.

The final two purchasers subtracted the Class III price from expected blend price after the quota purchase. This quota value was multiplied by the number of months they were willing to wait to regain their investment to compute price to pay. This method may have added an additional and unnecessary discount to the value of the base. It can take into account sales of surplus milk after quota purchase, which the quota could not be expected to move into higher classes because amount of base purchased might be less than amount of surplus sales.

AN ALTERNATIVE METHOD OF CALCULATING QUOTA VALUE

There is no one formula that is best for calculating the value of base. For dairymen who are already producing surplus milk, the following might give an estimate of the price one could afford to pay for quota within a given time limit (1):

$$P = T \times S$$

Where: T = time in months

S = spread between Class I and Class III price

P = price per hundredweight per month for base

This formula would be equally applicable to either quota plan used in Alabama. For example, if a producer were willing to take 6 months to pay out, he could pay as much as \$20.64 per hundredweight per month (\$3.44 times 6). If the purchased quota was worth approximately 10,000 pounds of Class I per month, he could pay as much as \$2,064.00, provided he was shipping that much surplus.⁷

BUILDING VERSUS BUYING QUOTA

Under the plant usage method, a dairyman may increase his quota if his shipments during the base-building period provide

⁷ For a dairyman who is not producing surplus milk, yet desires to expand production, the quota price he can afford to pay depends on how expansion will affect his marginal cost of production relative to the price of Class I milk.

a greater proportion of his plant's receipts than they did during the previous base-building period. Under the alternative plan, quota can be gained if other producers undership their allotment. In most cases, a base increase can only be made through the sale of surplus.⁸ An effective way of evaluating value of building base is to adjust the marginal revenue of surplus milk delivered during the base-building period for the possibility of increasing quota during the next base-using period.

Plant Usage Method

The rapid year-to-year changes that can occur in quotas under the plant usage method make it important that producers look at possible additional quota on a short term (1-year) basis. The following formula of the type suggested by Hoepner (3) may provide a useful estimate of the adjusted value of surplus as it applies toward building additional quota:

$$V_q = \left[(P_1 - P_3) \frac{P_j}{(1 + i)} \right] K$$

- Where: V_q = discounted value of additional quota
 P_1 = price of Class I milk
 P_3 = price of Class III milk
 P_j = subjective probability of the program being operated in the year j (for plant usage, the coming year)
 i = risk free interest rate
 K = subjective probability of getting additional quota times the proportion of surplus that is anticipated as additional quota

For an Alabama producer, this equation might become:

$$V_q = (\$6.56 - \$3.12) \frac{1}{1.06} .25$$

$$V_q = (\$3.44) (.943) (.25)$$

$$V_q = \$0.81 \text{ per hundredweight}$$

since P_j probably equals 1 for the coming year, and K values might range from about .1 to .5, depending on the individual situation.

If an individual could purchase quota for less than \$2.43 per hundredweight (\$3.44 discounted for 1 year minus \$0.81), he should buy it; if not he should attempt to build base. Nothing

⁸ Even without being changed, a producer's quota as a percentage may still be worth more in Class I equivalent if the plant has an increase in Class I sales. He can obtain his share of these added sales by increasing production at the approximate rate of the sales increase, which may not entail surplus production.

has been assumed about the cost position of the producer, except that he has determined to expand his shipments. The marginal revenue of surplus milk produced during the base-building period only, adjusted for the possibility of obtaining more quota, is $\$3.12 + \0.81 , or $\$3.93$.

Alternative Quota Plan

The same formula can be adapted to the alternative quota plan, except that the time horizon may now be broadened to include several years. The formula becomes:

$$V_q = \left[(P_1 - P_3) \sum_{j=1}^n \frac{P_j}{(1+i)^j} \right] K$$

using the same representations as defined previously.

A 3-year time period is probably adequate under present Alabama conditions. The following equation might provide a reasonable estimate of the value of building quota under the alternative plan:

$$V_q = (\$6.56 - \$3.12) \frac{1}{1.06} + \frac{.67}{(1.06)^2} + \frac{.33}{(1.06)^3} .075,$$

assuming, for planning purposes only, that the program will not be in operation 4 years hence. An additional hypothesis is that K will be small, since the proportion of surplus granted as additional quota will probably be small, as will the probability of additional quota being earned (other than that granted for normal expansion of plant sales).

The equation becomes:

$$\begin{aligned} V_q &= (\$3.44) (.943 + .596 + .277) (.075) \\ V_q &= (\$3.44) (1.816) (.075) \\ V_q &= \$.47 \text{ per hundredweight}^9 \end{aligned}$$

The adjusted marginal return from the sale of 100 pounds of surplus milk is $\$3.12 + \0.47 , or $\$3.59$, during the base-building period. Using a 3-year time horizon, the producer should pur-

⁹ Under the alternative plan, the amount of surplus considered for new quota is at most 15 per cent of producer share of Class I and II sales; hence, surplus production beyond this point causes the value of K to drop rapidly. The figure shown, therefore, should be considered a reasonable possibility only for small increases in quota. (See footnote 2.)

chase quota at prices less than \$6.25 per hundredweight (\$3.44 per 100 pounds a year, assuming K as 1.0 for purchased quota).

STEPS IN ESTIMATING QUOTA VALUE

The preceding data show that most Alabama dairymen have been able to buy base more cheaply than they could build it. However, many do not appear to be well informed about base provisions and need to know how to estimate quota values. Preliminary steps in estimating quota value require producers to keep informed on current quota provisions and on changes in regulations affecting quotas. Once this has been accomplished, the potential base purchaser (or seller) in Alabama can use the following general steps to estimate the value of quota:

1. The quota must be converted from a percentage to its equivalent in Class I milk. This can be accomplished in several ways. It can be figured by plant personnel, or the producer can obtain total plant Class I sales for a specific period and multiply Class I sales by the percentage of quota being sold.

This information, however, can be determined from the producer's milk check stubs. By dividing his earned quota into the amount of Class I milk he delivered in a particular month, he can determine with a fair amount of accuracy what his plant's Class I sales were during the particular pay period, provided he over-shipped his Class I entitlement. Plant sales can be calculated for each of the preceding 12 months and an average obtained, or a typical month can be selected. By multiplying Class I sales times the amount of quota being sold, monthly Class I equivalent can be obtained.

2. The producer needs to observe the trend in the plant's Class I sales. If sales during the first half of the year were up 5 per cent over the year before, the trend could probably be expected to continue in the last half of the year.

Potential purchasers under the plant usage method can then determine total pounds of Class I expected by the last day of February by multiplying the expected amount in an average month by the number of months remaining in the base-using period.

Prospective alternative quota buyers can follow the same procedure, except the calculated figure may be expanded to the

number of Class I pounds expected in a year (or longer, if desired) from the date of quota purchase.

3. The producer must determine how additional Class I entitlement compares with amount of surplus milk he expects to ship during the same period under his earned quota. If he anticipates having more surplus than the amount of Class I calculated, he can go on to step 4.

4. The next step is to multiply the difference between Class I and Class III price times the number of hundredweight calculated in steps 1 and 2. If a purchaser expects to have less surplus than the amount of Class I calculated, he has several alternatives depending on his particular situation. If he does not plan on expanding production, he may wish to consider only the amount of surplus he can move to Class I, multiplying that figure by \$3.44; or he may attempt to purchase a smaller amount of base. A producer who has no surplus but receives a large amount of Government Contract Milk would multiply by the spread between this price and the Class I price, or \$1.81 at present. Finally, a producer who is expanding production must take into consideration the effect of increased production on his marginal cost.

5. The estimated future receipts must be discounted for risk and uncertainty. This step can generally be disregarded by plant usage quota buyers, since it is fairly certain that quota provisions will not be changed within the current base-using period. However, if there is reasonable doubt that any of the computed additional receipts will not be forthcoming, the uncertain receipts should be eliminated.

Under the alternative quota plan, estimated future receipts of which the purchaser is not reasonably sure must likewise be eliminated. Examples of how future receipts might be lowered include the possibility of the plan being discontinued, possible failure to produce all the milk, and possible loss of quota in subsequent base periods.

6. Since people are less interested in receiving a future return than in getting the same return at present, the estimated additional future receipts must be discounted to their present value. A producer who is considering the purchase of quota can simply discount future receipts at a rate of 6 per cent annually, although this overstates the discount.

As the additional receipts will be forthcoming on a monthly

basis, the following discount formula is more accurate for either quota plan:

$$P = \frac{V}{(1 + r)^n}$$

Where: P = present value
 r = monthly interest rate (.5 per cent in most cases)
 n = number of months that will elapse before receipts will be received
 V = value of additional receipts¹⁰

The present value of future additional receipts from purchase of quota as calculated in these steps can provide a suitable guide for dairymen.¹¹ At any price under this value, additional base would be a profit-making investment. Values calculated by this method are generally much higher than prices paid by Alabama dairymen. This differential, apparently caused by a high discount for risk and uncertainty, leads to the belief that most Alabama dairymen who have purchased quota have made excellent bargains.

SUMMARY AND CONCLUSIONS

FINDINGS OF THE STUDY

During the period beginning January 1, 1961, and ending August 31, 1964, 466 Grade A dairymen sold milk quotas. Of those who purchased quota during this period, 387 were still producing milk in August 1964. These 387 purchasers participated in 568 quota transactions. The disparity of the three figures can be explained by some sellers of quota dispersing their base to more than one buyer, and by some dairymen making more than one purchase of quota.

Analysis of milk sales records of 1,201 dairymen for the 1959 and 1964 base-building periods revealed that the 387 producers who bought quotas sold considerably more milk than the 814

¹⁰ Trial calculations indicated that differences between answers obtained by the formula and those from a straight 6 per cent annual discount were not large enough to be considered important, especially since most Alabama dairymen (on the basis of the sample group) have paid only a fraction of quota value.

¹¹ The same procedure can be followed in calculating additional receipts from moving surplus milk up to Class II. Additional quota does bring about an increased Class II entitlement, yet the amount of milk thus moved is small and the price differential at present is only \$1.81. Omission of this calculation saves time and, in effect, results in a small additional hedge against risk and uncertainty.

nonbuyers. Average daily sales during the 1964 base-building period were 1,791 pounds and 1,136 pounds for the buyers and nonbuyers, respectively. Purchasers of quotas who sold milk in both periods had higher production than nonpurchasers in 1959 as well as in 1964, and showed a greater average percentage production increase during the same period.

Data obtained from a survey of 800 dairymen revealed that a higher percentage of the producers who bought quotas in 1963 engaged in so-called "good management practices" than did nonbuyers. These practices included production testing, silage feeding, and use of artificial breeding. This difference, however, may be attributed largely to the differences in size of operation between the two groups. Previous studies have indicated that larger producers are more prone to use good management practices.

Producers who bought quotas paid a wide range of prices. The 39 dairymen who were interviewed paid \$160 to \$7,200. Price per 100 pounds of Class I eligibility ranged from \$0.39 to \$1.96 for plant usage quotas. Price per 100 pounds of Class I eligibility within 1 year from date of purchase ranged from \$0.54 to \$7.29 for base bought under the alternative quota plan. Average price per 100 pounds of Class I eligibility under both quota plans was lower for large transactions than for small transactions.

Average minimum number of months required to regain investment in quota was 2.6 for plant usage transactions and 6.8 for alternative quota transactions. Although only 15 of the 39 purchasers ventured an estimate of the time needed to regain the purchase price, 10 of the 15 estimated within 2 months of the calculated minimum.

Most of the farmers interviewed had received assistance in determining price to pay for quotas. Plant personnel were the most common source of assistance. Producers at each plant commonly used a particular source of assistance available in their area.

The majority of the sample group said they purchased quota in either an attempt to raise blend price, to increase size, or in many instances, a combination of the two. Three-fourths of the dairymen stated that they made a good buy on quotas, but only a third said they would definitely attempt to purchase more quotas in the future.

CONCLUSIONS

Answers given on the producer survey and responses given by some producers when interviewed lead to the conclusion that many dairymen are not well informed about quota regulations in the State. Because of the effect these regulations have on their incomes, it is economically important that producers become more familiar with pertinent regulations. Not only is such information a prerequisite for purchasing quota, but it makes dairymen better equipped to make ordinary year-to-year production and marketing adjustments. Better knowledge about quota provisions could also work indirectly toward bettering producer-distributor relations.

On the basis of the sample, Alabama dairymen apparently place a high discount for risk and uncertainty on the value of quota. This high discount seems to have led to the purchase of quotas at low prices relative to their potential value. The low investment in quota causes the time necessary to regain purchase price, or period of "write-off," to be short. These factors, coupled with the sales increases effected by purchasers of quota, indicate that quotas have permitted size adjustments. It appears that most producers who have been willing to purchase quotas have been able to boost sales cheaply. Alabama dairymen have probably been able to purchase quota more cheaply than they could build it.

From the standpoint of the seller, money made from sale of quota is of lesser importance than receipts from dispersal of the rest of his operation. However, the industry benefits if sale of quota helps stimulate inefficient producers to stop production.

The danger of high-priced, negotiable production quotas being added into the long-term costs of production remains a threat, particularly if more producers change from the plant usage method of quota building to the alternative quota plan. Price data obtained in the sample indicate this has not happened to date, and it is unlikely to happen if producers continue to place high discounts on risk and uncertainty. Still, if more producers become interested in the possibilities of expansion through purchase of base, the increased demand would cause a rise in price. It is likely that producer knowledge about quota transfers will increase if producer numbers continue to decline as expected, as most larger producers tend to be better managers.

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APPENDIX

QUOTA PROVISIONS IN ALABAMA

Types of Quota Plans¹

Plant Usage Method. Under the "plant usage" method all milk delivered by a producer during the months of September through February builds his quota at the distributor's plant for the following year. Each shipper's quota is determined by the ratio his deliveries of milk during the base-building period are to total producer receipts by the distributor during this period. The ratio is expressed as a percentage and becomes the producer's quota. This quota remains effective from the first day of March through the last day of February the following year (5). A producer with a quota of 10 per cent is entitled to receive the Class I and Class II prices for amounts of milk equal to at least 10 per cent² of his distributor's sales of Class I and Class II products. Many plants in the State have two additional classes of milk, Government Contract Milk and inter-plant transfer of bulk milk. Producers shipping to a distributor who sells one or both classes are paid at the appropriate price for amounts of these sales as determined by their quotas. All milk delivered by a producer in excess of Class I, II, Government, and inter-plant transfer is purchased at Class III (surplus) price.

Current producer prices and class designations of Grade A milk as established by the Alabama State Milk Control Board are shown in Appendix Table I. The butterfat differential has generally been 5 cents for each 0.1 per cent of butterfat content over or under 4 per cent, although on occasion the differential has risen to 6 cents.

The plant usage method is the most commonly used quota plan in the State at present. At the time of this study, it was used by 28 of the 36 milk distributors in Alabama.

Butterfat content has no effect in determining quotas, nor does class utilization of milk delivered during the base-building period.

¹ A third quota plan, "winter production is summer base," was commonly used in Alabama for many years. This is a true base plan. This plan can still be used to build quota in Alabama, but in recent years all plants except one have discontinued its use.

² Appendix Tables 2 and 3 show how an individual can in some instances receive the Class I and Class II prices for amounts of milk in excess of his quota.

APPENDIX TABLE 1. CLASS DEFINITIONS AND PRICES OF GRADE A MILK IN ALABAMA, AS OF NOVEMBER 1, 1965¹

Class of milk	Products included	Producer price per hundredweight ²
Class I	Raw milk; pasteurized creamline milk; homogenized milk; dispenser milk; whole milk buttermilk; clabbered whole milk; milk equivalent of half and half blend; coffee cream and whipping cream; 92 per cent of sales of chocolate milk; skim milk with added solids; plain skim milk	\$6.56
Class II	Chocolate or flavored drinks and 99 per cent of sales of nonfat or cultured buttermilk	\$4.75
Class III	All milk purchased from producers in excess of Class I and Class II milk	\$0.80 plus four times the average of Chicago 92 score butterfat quotations for each 2-week period. (In almost all periods studied the producer price was \$3.12.)
United States Government Contract Milk	All controlled Grade A milk sold under contract to the United States Government and its agencies wherein the resale price is not controlled by the Alabama Milk Control Board	\$4.75
Inter-plant transfers of bulk milk	All milk sold in bulk by one licensee plant to another	The selling plant receives the current fair market price for such milk and deducts a 10 per cent commission. The producer price is thus 90 per cent of the selling price. Under no circumstances may this price be less than the current Class III price, f.o.b. the plant.

¹ Obtained from Official Orders 1-63 and 2-63, October 16, 1963, and Standing Order NS-11, effective September 1, 1961.

² For milk testing 4 per cent butterfat.

Under the plant usage system, there is no carryover of base from one production period to another. Each producer must build a new base during the months of September through February each year. An assumed set of producer quotas earned under the plant usage method is given in Appendix Table 2. In the example, note that the previous year's quota has no effect on calculating new quota. Rapid adjustments can be made from 1 year to the next.

Alternative Quota Plan. Assignment of producer quotas by the plant usage plan based on deliveries created a "race for base"

APPENDIX TABLE 2. PRODUCER QUOTAS DETERMINED BY THE PLANT USAGE METHOD

Producer	Old quota	Deliveries during base-building period	New quota
	<i>Per cent</i>	<i>Pounds</i>	<i>Per cent</i>
A.....	10.00	58,000	9.51
B.....	30.00	162,000	26.56
C.....	24.00	174,000	28.52
D.....	36.00	216,000	35.41
TOTAL.....	100.00	610,000	100.00

situation in many areas of the State. Some producers, desiring to obtain greater shares of their handlers' markets, expanded production and herd numbers rapidly. Others were forced to increase sales to maintain their share of the market in succeeding base-building periods. As a result some distributors' supplies increased faster than their sales of Class I and II products. The end result was that some producers were saddled with a burdensome surplus problem; distributors had excess surplus milk supplies; blend prices declined; and many small producers left the dairy business. The situation led the Milk Control Board to authorize a new quota plan on September 6, 1961. At the time of the study this "alternative quota plan," which is a "frozen base" plan, had been adopted by producers shipping to seven distributors in the State.

The alternative plan emphasizes sales rather than deliveries. Amount of a producer's milk delivered during the base-building months used in calculating new quotas cannot exceed 115 per cent of his share of the plant's Class I and Class II sales.³ The following formula is used to compute quotas under the alternative plan:

$$\frac{\text{Eligible producer deliveries}}{\text{Total eligible deliveries}} \times 100 = \text{producer quota (per cent)}$$

Eligible producer deliveries are defined as either (1) actual producer deliveries during the base-building period when these amounts are equal to or less than 115 per cent of the producer's current quota share of the plant's Class I and Class II sales, or (2) 115 per cent of the producer's share of Class I and Class II sales when actual deliveries exceed 115 per cent of his share of the plant's sales in these classes. Total eligible deliveries are the

³ Reduced to 110 per cent during the 1965-1966 base-building period.

APPENDIX TABLE 3. PRODUCER QUOTAS DETERMINED BY THE ALTERNATIVE QUOTA PLAN

Producer	Deliveries during base-building period	Producer share of Classes I and II sales (Col. 5 × 510,000)	115% of producer share of Class I and II sales (115% of Col. 2)	Eligible producer deliveries (Col. 1 or Col. 3, whichever is least)	Old quota	New quota	
						Plant usage	Alternative quota plan
	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Pct.</i>	<i>Pct.</i>	<i>Pct.</i>
A.....	58,000	51,000	58,650	58,000	10.00	9.51	10.14
B.....	162,000	153,000	175,950	162,000	30.00	26.56	28.33
C.....	174,000	122,400	140,760	140,760	24.00	28.52	24.61
D.....	216,000	183,600	211,140	211,140	36.00	35.41	36.92
TOTAL.....	610,000 ¹	510,000	586,500	571,900	100.00	100.00	100.00

¹ Distributor's class utilization is assumed to be 510,000 pounds Class I and Class II products, and 100,000 pounds surplus.

APPENDIX TABLE 4. ALLOCATION OF PRODUCER RECEIPTS USING QUOTAS ESTABLISHED UNDER THE ALTERNATIVE QUOTA PLAN IN A SELECTED PAY PERIOD

Producer	Milk delivered	Quota	Class I entitlement	Unused Class I	Distribution of unused Class I	Total Class I	Volume left for lower class use	Class II entitlement	Unused Class II	Distribution of unused Class II	Total Class II	Volume remaining (Class III)
A.....	9,000	10.14	7,605	0	318	7,923	1,077	811	0	266 ¹	1,077	0
B.....	19,000	28.33	21,247	2,247	0	19,000	0	2,266	2,266	0	0	0
C.....	32,000	24.61	18,458	0	772	19,230	12,770	1,969	0	800	2,769	10,001
D.....	35,000	36.92	27,690	0	1,157	28,847	6,153	2,954	0	1,200	4,154	1,999
TOTAL.....	95,000	100.00	75,000	2,247	2,247	75,000	20,000	8,000	2,266	2,266	8,000	12,000

¹ Producer A was entitled to 321 pounds of Class II under a first redistribution. The 55 pounds which he fell short of delivering was divided according to quota, 22 pounds to Producer C and 33 pounds to Producer D, in a second redistribution.

sum of all eligible producer deliveries to the plant during the base-building months. The quota-building period used under the alternative method is also September 1 through the last day in February (7).

Appendix Table 3 gives an example of quota determination by the alternative plan (the same sales are used as in Appendix Table 2). The last two columns show comparisons of quotas for each producer computed by the two methods. Under the plant usage method, Producer C gained quota at the expense of the other three producers, but under the alternative quota plan he was unable to make any significant increase. Producers A and D gained base under the alternative plan, even though Producer A's shipments were less than 115 per cent of his eligibility. This was because of the relatively low percentage of eligibility shipped by Producer B.

Allocation of Producer Receipts

The application of quotas can be illustrated by showing the allocation of producer receipts for a selected pay period. Producer receipts are allocated in the same manner under both procedures of quota calculation. Appendix Tables 4 and 5 give the allocation of producer receipts and the determination of payments for the four producers using the quotas calculated by the alternative quota plan. The hypothetical distributor shown in the example is assumed to have sales of 75,000 pounds of Class I products and 8,000 pounds of Class II products during the selected pay period.

Appendix Table 4 lists the allocation of receipts with quotas established under the alternative plan. In the example, Producer B fell short by 2,247 pounds of fulfilling his Class I entitlement. This amount was proportionately divided according to quota among the other producers, all of whom shipped milk in excess of their Class I entitlement. Since all of Producer B's milk went into Class I, he fulfilled none of his Class II entitlement. This 2,226 pounds was divided in the same manner. The remaining milk shipped by Producer C and D was purchased at the surplus price.

The value of each producer's shipments is given in Appendix Table 5. All producers were assumed to have shipped milk testing 4 per cent butterfat. In many cases, producers shipping to a

APPENDIX TABLE 5. DETERMINATION OF VALUE OF PRODUCER RECEIPTS ALLOCATED BY QUOTAS CALCULATED BY THE ALTERNATIVE QUOTA PLAN FOR A SELECTED PAY PERIOD

Class allocation	Price	Amount	Value	Blend price
	<i>Dol.</i>	<i>Lb.</i>	<i>Dol.</i>	<i>Dol.</i>
Producer A				
Class I.....	6.56	7,923	7,519.75	
Class II.....	4.75	1,077	51.16	
Class III.....	3.12	0	0.00	
Total.....	---	9,000	570.91	6.34
Producer B				
Class I.....	6.56	19,000	1,246.40	
Class II.....	4.75	0	0.00	
Class III.....	3.12	0	0.00	
Total.....	---	19,000	1,246.40	6.56
Producer C				
Class I.....	6.56	19,230	1,261.49	
Class II.....	4.75	2,769	131.53	
Class III.....	3.12	10,001	312.03	
Total.....	---	32,000	1,705.05	5.33
Producer D				
Class I.....	6.56	28,847	1,892.36	
Class II.....	4.75	4,154	197.32	
Class III.....	3.12	1,999	62.37	
Total.....	---	35,000	2,152.05	6.15
GRAND TOTAL.....	---	95,000	5,674.41	5.97

plant share in the sales of Government Contract and inter-plant transfer milk. The only effect is the addition of two more classes of milk, however, and method of calculating returns to producers remains the same.

Transfer Provisions

Prior to 1960, regulations in Alabama regarding transfers of quota were restrictive. A producer could transfer quota only as an incident to the sale of his herd. The Milk Control Board allowed quota transfers only when the purchaser bought at least 50 per cent of the milking cows in the herd being dispersed. The entire quota could then be transferred to the buyer, provided shipments continued to the same distributor. A distributor objecting to a transfer was allowed to petition the Board showing just cause for voiding any transactions (6).

As herd sizes increased in the State, base transfers became even more restrictive. Few producers had access to the capital re-

quired to purchase large numbers of dairy cattle. In many instances, most of the cows purchased were immediately resold, often for slaughter. In 1960 the Board reduced transfer restrictions. The new regulations were closely aligned with producer opinions and economic needs existing at that time (9).

Present regulations still allow transfer of quota only as an incident to the sale of a producer's herd. A quota is deemed to be the personal property of the producer in whose name a license is held at the Milk Control Board. Any producer owning a quota may transfer his quota for any consideration he deems sufficient. A producer may divide his quota for sale or transfer in as many ways as he desires. All transfers are subject to the following restrictions:

1. If any portion of a producer's quota is transferred, the entire quota must be dispersed. The producer is not allowed to retain any portion of the quota for his own use.
2. Each transfer of quota must be approved by the Alabama Milk Control Board prior to becoming final.
3. Transfer of any quota or portion of a quota to a party or parties not currently holding quota at the plant where the base was established can be made only with the consent of the plant involved.
4. A quota held by a producer who dies, retires, or enters military service may be transferred to a member of the producer's immediate family who will continue the dairy operation, without approval of the plant at which the quota was earned.
5. A quota that is held jointly may be transferred to one of the joint holders if the agreement is terminated.
6. Any other methods of transfer must be approved by the Board (5).

Effect of Purchase of Quota on Allocation of Producer Receipts

As an example of how quota purchase affects return, suppose that Producer A decides to get out of Grade A milk production. Producer C purchases A's quota on the first day of the selected pay period. Producer C buys none of A's cows and ships the same amount of milk as shown in Appendix Table 4.

Appendix Table 6 shows that the additional 10.14 per cent

APPENDIX TABLE 6. EFFECT OF PURCHASE OF QUOTA ON ALLOCATION OF PRODUCER RECEIPTS USING QUOTAS ESTABLISHED UNDER THE ALTERNATIVE QUOTA PLAN IN A SELECTED PAY PERIOD

Producer	Milk delivered	Quota	Class I entitlement	Unused Class I	Distribution of unused Class I	Total Class I	Volume left for lower class use	Class II entitlement	Unused Class II	Distribution of unused Class II	Total Class II	Volume remaining (Class III)
	<i>Lb.</i>	<i>Pct.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>	<i>Lb.</i>
A.....	out of business, sold 10.14 per cent quota to Producer C											
B.....	19,000	28.33	21,247	2,247	0	19,000	0	2,266	2,266	0	0	0
C.....	32,000	34.75	26,063	0	1,090	27,153	4,847	2,780	0	1,099	3,879	968
D.....	35,000	36.92	27,690	0	1,157	28,847	6,153	2,954	0	1,167	4,121	2,032
TOTAL.....	86,000	100.00	75,000	2,247	2,247	75,000	111,000	8,000	2,266	2,266	8,000	3,000

quota enabled Producer C to move all but 968 pounds of his surplus into higher classes. The additional Class I and Class II receipts gave Producer C an increase in the value of his milk of \$290.64, and an increase in blend price from \$5.33 to \$6.24 per hundredweight, Appendix Table 7.

The foregoing situation should not be presumed to be typical. Each plant and producer situation must be considered separately. The example shown might have been voided at the request of the distributor. If Producer C had not increased production, the plant would have been left with well under the 10 to 15 per cent surplus needed as a cushion for sales fluctuations and would have been forced to obtain supplementary milk supplies to meet daily requirements.

APPENDIX TABLE 7. EFFECT OF PURCHASE OF QUOTA ON VALUE OF PRODUCER RECEIPTS ALLOCATED BY THE ALTERNATIVE QUOTA PLAN FOR A SELECTED PAY PERIOD

Class allocation	Price		Value <i>Dol.</i>	Blend price <i>Dol./Cwt.</i>
	<i>Dol./Cwt.</i>	Amount <i>Lb.</i>		
Producer A	out of business			
Producer B				
Class I	6.56	19,000	1,246.40	
Class II	4.75	0		
Class III	3.12	0		
Total	---	19,000	1,246.40	6.56
Producer C				
Class I	6.56	27,153	1,781.24	
Class II	4.75	3,879	184.25	
Class III	3.12	968	30.20	
Total	---	32,000	1,995.69	6.24
Producer D				
Class I	6.56	28,847	1,892.36	
Class II	4.75	4,121	195.75	
Class III	3.12	2,032	63.40	
Total	---	35,000	2,151.51	6.15
GRAND TOTAL	---	86,000	5,393.60	6.27

