

Characteristics, Plans, and Opinions of Kentucky Dairy Termination Program Participants

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Introduction

For the dairy industry, the decade of the 1980s can be characterized as a period of record-high government purchases of dairy products, declining price supports, and large annual increases in milk production. Increases in milk production were interrupted only twice by the effects of voluntary supply management programs. The Dairy and Tobacco Adjustment Act of 1983 provided for a voluntary Milk Diversion Program (MDP) to operate between January 1984 and March 1985. The MDP paid contracting producers \$10/cwt for reductions in milk production from a specified base for the 15-month period.

A second attempt at curbing production was the Dairy Termination Program (DTP), a provision of the Food Security Act of 1985. The dairy provisions of this Act focused on controlling the supply of milk through a combination of continued price support cuts plus the DTP. The DTP was designed to offer a more permanent solution to the milk surplus problem.

The Dairy Termination Program

The Dairy Termination Program allowed dairy farmers to voluntarily cease milk production for a five-year period in return for payments set on a bid basis. The program authorized three disposal periods during the 18 months from April 1, 1986 to September 30, 1987. During the five-year contract period, the producer cannot acquire any interest in the production of milk. Likewise, the facilities and farm cannot be used for milk production. All dairy cattle were sold for slaughter or export during the disposal period. Stiff penalties were assessed for noncompliance after entering into a contract.

Cost of the Dairy Termination Program totaled \$1.827 billion, spread over the five years of the program. However, dairy farmers paid about 38% of the total cost of the program through assessments on all milk marketed during the 18-month disposal period (40 cents/cwt during the first half and 25 cents/cwt for the second half). Estimated assessments totaled \$650-700 million.

A total of 39,534 U.S. dairy farmers submitted bids to participate in the program. Bids submitted represented 33 billion pounds of milk or about

23.5% of U.S. production in 1985. Bids ranged from \$3.40 to over \$1,000/cwt of milk. The maximum bid accepted was \$22.50/cwt, with an average of \$14.88.

In Kentucky, 1,513 dairy farmers submitted bids. USDA accepted 399 of those, representing about 8% of the total number of dairy farmers in the state. An estimated 199 million pounds of milk, or about 9.3% of the state's 1985 marketings, were removed from the market. A total of 19,064 cows, 5,633 heifers, and 4,898 calves were either slaughtered or exported.

The average accepted bid was \$15.46/cwt of milk, ranging from \$5.00 to \$22.50. Kentucky dairy farmers will have received approximately \$30,774,000 for participating in the DTP over the five-year period (Beck, Infanger, and Wade). Data on bids and contracts for the United States and Kentucky are summarized in Tables 1 and 2.

Table 1—Summary of DTP Contracts Accepted, Kentucky and United States, 1986.

	Kentucky	United States
Number of Bids Accepted	399	13,988
Contract Base (Mil. lbs.)	184	11,559
1985 Marketings (Mil. lbs.)	199	12,280
Estimated Payment (\$1000)	30,774	1,826,846
Cows (number)	19,064	951,619
Heifers (number)	5,633	340,789
Calves (number)	4,898	257,995
Low Bid (\$/cwt.)	5.00	3.40
High Bid (\$/cwt.)	22.50	22.50
Average Bid (\$/cwt)	15.46	14.88

Source: Data from USDA/ASCS state office, Lexington, Ky.

Objectives of the Study

Objectives of this study were to:

- ✓ examine the characteristics of Kentucky dairy farmers who participated in the DTP,
- ✓ determine the effects of the DTP on those who participated in the program,
- ✓ analyze the characteristics of Kentucky DTP participants who plan to re-enter dairying following the five year period,
- ✓ analyze differences between grade A and manufacturing milk participants, and

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Table 2—Number and Percent of DTP Herds by Size and Percent of Total Herds by Size, Ky

	Size of Herd (Cows)			
	1-29	30-49	50-99	100 or more
Number of Herds in Dairy Termination Program	130	152	89	28
Percent of Total Herds in Dairy Termination Program	32.6	38.1	22.3	7.0
Percent of Total Herds in State By Size (1986)	18.4	25.1	38.6	17.9

Source: Computed from data available from USDA/ASCS state office, Lexington, Kentucky and USDA/SRS, Milk Production. Da 1-1 (7-87), July, 1987.

✓ gain some insight into the DTP participants' opinions about dairy policy and alternative methods of supply control.

Methodology

A mail survey was used to collect data on the physical and financial characteristics, adjustments, future plans, and opinions of Kentucky DTP participants. The questionnaire was sent to all 399 dairy farms participating in the program. The questionnaires were mailed in April 1988. Usable questionnaires were received from 209 participants, a 52% response rate.

The data were statistically analyzed using one-way frequency analysis and two-way cross tabulation of variables. For each cross tabulation, a Chi-square (X^2) test of independence was used to determine significant differences across groupings.

Characteristics of DTP Participants

Farm Characteristics

Kentucky DTP participants are predominantly sole owners of the farming operation, with 68% reporting individual ownership. Participants averaged 49 years of age with 22 years of dairy farming experience. Grade A and manufacturing milk participants were roughly proportional to the number of each in the state at that time (76% grade A and 24% manufacturing milk).

Forty-eight percent of the participants had milking parlors, 32% had pipeline systems, and 14% used bucket milkers. Milk production per cow averaged 10,893 lb, somewhat higher than the state average of 9,000 lb/cow. Participants' farms were small in both herd size and acreage. The average herd size was 50 cows with only 9% of the farms milking 100 cows or more. The average size farm was 118 acres of cropland with only 31% having more than 100 acres. An average of 77 acres was used for the dairy operation. This implies that dairying was not the only enterprise.

Financial Status

A large proportion of participants had highly diversified operations. Almost half of the operations (45%) received less than 75% of gross income from the dairy enterprise. Tobacco was the major alternative enterprise (89% derived some income from tobacco in 1985). On average, participants received a major portion of their income from dairy and tobacco with only about 10% of their income from other farm enterprises (beef, hogs, sheep, corn, soybeans), off-farm income and other sources (Table 3).

Table 3—Financial Status of DTP Participants, Kentucky, 1988

Sources of Income	% of Income
Dairy	69
Tobacco	22
Other	10
Income From Different Sources	% of Income
> 50% Dairy Income	
Dairy	75
Tobacco	19
Other	6
< 50% Dairy Income	
Dairy	32
Beef	8
Tobacco	36
Corn	5
Off-Farm Income	12
Other	7
Percent Proceeds Retained ¹	% of Group
Zero	35
1-24	11
25-49	10
50-74	4
75-99	11
100	29

Source: Survey data

¹Funds retained from DTP payments and sale of the herd after all debts were paid.

Diversification beyond dairy and tobacco was limited when at least 50% of income was from the dairy enterprise. Reliance on alternative sources of income (livestock, cash crops, and off farm income), however, was higher for farmers receiving less than 50% of their income from the dairy enterprise. Tobacco was the major income source for the more highly diversified farms.

Gross farm sales were near or below the level that would indicate a commercial farm (gross sales \$40,000) with 46% of participants having gross sales of \$50,000 or less. Sixty-seven percent had net farm income less than \$25,000. Only 12% reported off-farm income.

Effect of the DTP on Participants

Lifestyle Changes

Participation in the DTP meant temporarily giving up a way of life—at least for the five-year period. The cows and the daily activities associated with them were gone. While policy makers anticipated that many participants would retire, only 6% indicated plans to retire and leave farming even though 32% of them were 60 years of age or older. Almost two-thirds (64%) of those over 60 continued to farm full-time while another 22% continued to farm part-time. Ninety percent of all respondents reported continuing to farm at some level of activity while 59% reported that they were farming full-time (Table 4). Only 10% of the participants left agriculture for non-farm employment or retirement.

Table 4—Changes in Activities/Enterprises of DTP Participants, Kentucky, 1988

Activity	
Following Participation	% of Participants
Full-Time Farm	59
Farm and Non-Farm Job	26
Retired	6
Semi-Retired	5
Non-Farm Job	4
Alternative Facility Use	
	% of Participants
Beef	37
Feed	8
Storage	8
Hogs	5
Feedlot	8
Other	9
Nothing	25

Source: Survey data

The DTP resulted in some dairy facilities being idled. This would have represented a loss to Kentucky's agricultural productive capacity if these facilities had not been converted to other productive uses. The principal alternative use for these facilities was beef production (37%). Most participants not continuing to farm (10% of respondents) either sold their farms or rented them out for farming.

The DTP also idled non-family farm labor, forcing them to find alternative sources of income. Thirty percent of the participants reported letting one or more employees go. At the time of the survey, 32% of former employees had found other farm employment, 55% found non-farm employment, and 13% remained unemployed.

Financial Changes

To gain insight into participants' changing financial situation, pre-DTP financial characteristics were compared to post-DTP financial characteristics. The comparison was made for participants who were full-time farmers and who reported only non-dairy income for the year 1987.

Participation in the DTP meant finding new income sources to replace the lost income from the dairy enterprise. As expected, the number of participants earning income from tobacco did not change significantly because of allotment restrictions on tobacco production. However, the number of participants earning income from beef cattle increased.

Table 5—Sources of Income of DTP Participants Remaining in Full Time Farming, Kentucky, 1988

Income Sources	% of Group	
	Pre-DTP	Post-DTP
Beef	28	81
Hogs	2	14
Tobacco	93	90
Corn	11	22
Soybeans	9	19
Off-Farm Income	6	17
Other	6	12
Income From Different Sources	% of Income	
Beef	39	
Hogs	6	
Tobacco	38	
Corn	5	
Soybeans	4	
Off-Farm Income	5	
Other	3	

Source: Survey data

The percentage of DTP participants earning some portion of their income from beef increased from 28% prior to DTP to 81% following DTP. Participation in hog production increased from 2% to 14%. Shifts in other income sources are shown in Table 5. Alternative income sources relied on by the group in 1987 were primarily beef cattle, tobacco, hogs and corn and, to a lesser extent, off-farm employment, soybeans, and other miscellaneous enterprises.

Total farm sales dropped following DTP with 75% of participants grossing less than \$50,000 in 1987; up from 46% in 1985. Net farm income, however, did not become more concentrated below \$24,000 with 75% in that category before and after DTP. Changes within that range may have occurred but the data do not differentiate beyond that level. For those earning some off-farm income, the level of off-farm income earned decreased with 33% reporting off-farm income greater than \$6,000 in 1987, down from 50% prior to DTP.

This, however, is only part of the story. A dairy farmer could break even with DTP only if certain costs were covered. These costs include debt repayment, capital loss (resulting from the sale of cows and specialized equipment below its depreciated value), and income loss for a period until an alternative income source could be found.

A large number of the participants (35%) did not retain any funds from the DTP contract and the sale of the dairy herd after paying all debts (Table 3). These participants, having supposedly covered their debts, did not receive compensation for any incurred capital loss or loss of income-generating potential tied to leaving the dairy industry.

Characteristics of Selected Participant Groups

The Re-entry Decision

One provision of the DTP contract restricts re-entry into the dairy industry during a five-year period. This section investigates whether participants who plan to re-enter dairying are a distinct group or just a random association of individuals. Relationships between willingness to return to dairying and physical/financial characteristics of participants planning to re-enter were examined.

The percentage of participants who indicated plans for returning to dairying following the five-year period was less than for those who indicated that they would not return (Table 6). In response to the question "Will you return to dairy farming after five years?," 9% of the participants indicated "Yes," 14% indicated "Maybe," 49% indicated a definite "No," and 28% were uncertain. For the

Table 6—Plans for Re-entry into Dairying by DTP Participants, Kentucky, 1988

Re-entry Plans	% of Participants
Yes	9
No	49
Maybe	14
Uncertain	28

Source: Survey data

Table 7—Characteristics Related to the "Yes"/"No" Re-entry Decision Groups, DTP Participants, Kentucky, 1988

Characteristics	% of Group		Chi-square
	Yes	No	
Age			
Under 50	75	36	
50 or Over	25	64	18.47* (1)
Funds Retained (%)			
0-49	72	50	
50-100	28	50	4.19* (1)
Off-Farm Income Utilization			
<i>Pre-DTP</i>			
None	79	92	
Some	21	8	4.78* (1)
<i>Post-DTP</i>			
None	46	70	
Some	54	30	4.39* (1)
Milking Facilities			
Parlor	60	44	
Other Type	40	56	3.15 (1)
Producer Type			
Grade A	87	73	
Manufacturing Milk	13	27	3.40 (1)

*Denotes significance at the 5 percent level. Degrees of freedom in parentheses.

Source: Survey data

analysis, participants were grouped into two groups: the "Yes" group included those who responded "Yes" or "Maybe" (23% of the participants) and the "No" group included only those who definitely do not plan to re-enter (49% of the respondents).

Age Difference. The most noticeable difference between the two groups is age of the operator. The Yes group was younger with 75% less than 50 years old. The average age was 44 years. In contrast, 64% of the No group was 50 or older, with an average of 52 years (Table 7).

Funds Retained. One indicator of the amount a participant has to lose is the net funds retained from DTP payments and the sale of the herd. In the Yes group, 72% retained less than 50% of these funds. In the No group, on the other hand, 50% of its members retained more than 50% of these funds. The Yes group appears to have retained less as a group and would thus risk less by re-entering the dairy industry.

Off-Farm Income. The Yes group utilized off-farm income more than the No group prior to DTP and following the sell-out. Prior to DTP, 21% of the Yes group earned at least some portion of their income off the farm. This increased to 54% following the program. Only 8% of the No group, however, reported off-farm income prior to DTP. This increased to 30% following DTP.

In using off-farm income to offset some of the inherent risks of dairy farming, the Yes group may

have viewed dairy farming as less risky than the No group. The No group, having less experience in the off-farm work place, as well as being older, may not consider the risk-reducing potential of off-farm income and thus may anticipate a higher degree of risk attached to returning to the dairy industry.

Specialized Assets. Another difference between the two groups is that the Yes group was more likely to have greater investments in specialized fixed assets than the No group. Milking parlors (generally considered a specialized fixed asset) were reported by 60% of the Yes group and only 44% of the No group.

Since milking parlors represent considerable fixed investment, have limited alternative uses and low salvage value, it is possible that the Yes group incurred greater unrecoverable exit costs than the No group. This higher level of unrecoverable exit costs may provide incentive to return so as to recover some of the investment in facilities.

Table 8—Characteristics Related to the Grade A/Manufacturing Milk Groups, DTP Participants, Kentucky, 1988

Characteristics	Grade A		Chi-square
	—	— % of Group —	
Ownership Arrangement			
Individual	68	72	7.04
Family Partnership	17	20	(3)
Other Partnership	11	—	
Corporation	4	8	
Number of Cows			
< 50	58	93	19.81*
50-99	30	7	(4)
100-149	8	—	
150-199	3	—	
>200	1	—	
Acres of Cropland			
0-49	31	67	17.20*
50-99	34	15	(6)
100-199	19	7	
200-299	8	7	
300-399	2	—	
400-499	1	4	
>500	5	—	
Milking Facilities			
Herringbone Parlor	30	6	25.62*
Other Parlor	26	19	(4)
Pipeline	26	50	
Bucket	10	25	
Other	8	—	
Income From Dairy (%)			
0-24	1	8	8.44*
25-49	11	12	(3)
50-74	28	37	
75-100	60	43	

*Denotes significance at the 5 percent level. Degrees of freedom in parentheses.

Source: Survey data

Producer Type. The Yes group consisted of a slightly higher percentage of grade A producers than the No group: 87% versus 73%. Differences between grade A and manufacturing milk participants are examined in detail in the following section.

In Summary. At the .05 level of significance, the decision to re-enter dairying following the five-year period was influenced by operator age, percent of DTP funds retained, and off-farm income. The decision was independent of milking facilities and type of producer.

Grade A and Manufacturing Milk Producers

The proportion of grade A milk producers to manufacturing milk producers participating in DTP was slightly higher than the proportion for total producers in the state. Seventy-six percent of the respondents were grade A producers; 24% manufacturing milk producers. Grade A and manufacturing milk participants differed prior to DTP. These differences occurred in ownership arrangements, farm characteristics and degree of specialization. Differences between the two groups are summarized in Table 8.

Ownership. Grade A dairy farms were individually owned by 68% of the respondents while 32% were held in some form of partnership or corporation. The manufacturing milk dairy farms, on the other hand, were individually owned by 72% of the respondents.

Farm Characteristics. The grade A group tended to have:

- ✓ larger herds,
- ✓ more cultivated cropland, and
- ✓ higher proportion of milking parlors.

Only 7% of the manufacturing milk group had 50 or more cows while 42% of the grade A group had herds of more than 50. Sixty-nine percent of the grade A group had 50 or more acres of cropland compared to only 33% for the manufacturing milk

group. Modern milking facilities were more prevalent on grade A farms with 56% having some type of milking parlor in contrast to only 25% of the manufacturing milk farms.

Specialization. The presence of larger herds, more acres of cropland, and modern milking equipment indicates that the grade A group may have become more specialized. Sixty percent of the grade A group received 75% or more of their income from the dairy enterprise.

Post-DTP Activity. Compared to the manufacturing milk group, the grade A group was less likely to retire, semi-retire, take a non-farm job, or farm part-time. The grade A group, however, showed a higher percentage remaining in full-time farming following the sell-out. Sixty-three percent of the grade A group continued farming full-time compared to only 44% of the manufacturing milk group.

The grade A group tended to be more aggressive in converting dairy facilities to alternative uses. For those keeping their farms, 81% of the grade A group converted the dairy facility to other uses while only 58% of the manufacturing milk group indicated alternative uses (Table 9).

In Summary. At the .05 level, a significant relationship, or association, between the type of producer (grade A or manufacturing) and herd size, farm size, milking facilities, percentage of income from dairying, activity following the sale, and the conversion of facilities to other uses was observed. Ownership arrangement was not significant.

Table 9—DTP Post Employment and Use of Dairy Facilities, Grade A and Manufacturing Milk Participants, Kentucky, 1988.

	Grade A	Manufacturing	Chi-Square
	— — % of Group — —	— —	
Activity Following Sale			
Retired	5	8	13.06*
Non-Farm Job	2	12	(4)
Full-Time Farming	63	44	
Farm & Non-Farm Job	27	28	
Retire & Part-Time Farm	3	8	
Facility Conversion			
Nothing	19	42	24.49*
Beef	42	20	(9)
Feed Storage	6	11	
Storage	6	16	
Hogs	5	7	
Beef and Hogs	4	2	
Beef, Sheep and Hogs	1	—	
Feedlot Beef	10	—	
Tobacco Storage	3	2	
Other	4	—	

*Denotes significance at the 5 percent level. Degrees of freedom in parentheses.

Source: Survey data

DTP Participants' Opinions on Dairy Policy

DTP participants were asked their opinions on:

- ✓ the effectiveness of DTP,
- ✓ dairy policy, and
- ✓ alternative methods of supply control.

Participants were asked to react to specific statements. Analysis of their responses is based on the entire sample. Opinions are summarized in Table 10.

Success of the DTP. Two-thirds of the participants

Table 10—DTP Participants' Opinions About DTP and Other Dairy Policies, Kentucky, 1988

Statement	Agree	Indifferent	Disagree
	%		
1) The DTP has been a success in reducing the milk surplus problem for the long run.	18	16	66
2) The DTP has been a success in reducing the milk surplus problem for the short run.	68	13	19
3) The DTP has been a success in providing a way out for the financially depressed dairy farmer.	70	13	17
4) A quota system, restricting milk production through price differentials, would be an acceptable method of long term supply control in this country.	55	17	28
5) A supply control program that penalizes those who increase production and gives incentive to those who decrease production would be an acceptable method of long term supply control in this country.	49	23	28
6) During the last three decades federal dairy programs have hindered the dairy industry from adjusting to changing market conditions.	44	31	25

Source: Survey data

thought the DTP had been successful in reducing the milk surplus but only in the short run. This is consistent with the actual situation where milk production declined slightly following initiation of the program and then continued to rise. When asked if DTP had provided an exit for financially-depressed dairy farmers, 70% of the participants agreed.

Additional Supply Control. Participants were asked their opinions regarding additional supply control measures. A quota system as a means of controlling supply was favored by 55% of the participants. Forty-nine percent favored providing incentives to producers who decrease milk production. These results show some favor for alternative supply control measures.

Past Policy. Dairy policy supporting milk prices has possibly isolated the industry from actual market conditions. A large portion of the participants (44%) agreed that past federal dairy programs have hindered the adjustment of the dairy industry to changing market conditions. Only 25% disagreed with this statement.

Summary

Dairy farmers leaving the industry through the DTP were characterized as having individually-owned businesses and using advanced dairy technology. A high percentage produced grade A milk.

Output per cow was comparable to the state average, indicating that the group was not made up of marginal producers. Tobacco was a major source of income, especially on highly diversified farms. The income-generating power of the participating farms was rather low and there was limited use of off-farm income.

Most DTP participants continued farming, with more than half continuing full time farming. Most of the non-family labor released by DTP found other employment, primarily in non-farm jobs.

Dairy facilities were generally used for alternative enterprises, the most common being beef cattle production. Participants continuing to farm full-time with non-dairy income tended to shift primarily to beef, hogs, corn, soybeans, and off-farm employment.

Participants continuing to farm full-time earned less gross farm income, the same level of net farm income, and slightly less off-farm income in 1987. A large portion retained nothing from DTP proceeds.

The major difference between the Yes group (those planning to re-enter dairying) and the No group (those not planning to re-enter dairying) was the age of the operator. Understandably, older participants may be planning to retire sometime in the next decade, making a return to the industry unlikely.

A second difference between the two groups is that of risk perception. The Yes group has less to lose, more time to recoup losses and more access to risk reducing off-farm income than the No group. As a result the Yes group may perceive less risk associated with returning to dairy farming.

A third difference between the two groups was the presence of fixed, specialized assets. The Yes group had more milking parlors (a fixed, specialized asset) than the No group. The recovery of this loss might be a factor behind plans to return to dairying.

Differences between the grade A group and the manufacturing milk group existed prior to DTP.

These differences were primarily associated with ownership arrangement, type of milking facility used, and degree of specialization in the dairy enterprise. The grade A group reported more non-individual ownership arrangements, milking parlors, and specialized farms.

Following DTP, grade A participants were less likely to retire, semi-retire, take a non-farm job, or engage in part-time farming. They were more likely to farm full-time and to convert dairy facilities to alternative uses. Otherwise, no other significant differences were found.

A large number of the participants recognized the limitations of DTP as a long-term supply control program. Other supply control measures were favored by a large number of participants. Adverse effects of past policies on the dairy industry were recognized.

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