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SUMMARY REPORT OF A 1995 MAIL SURVEY OF FARM MANAGERS OF SMALL-SCALE PENNSYLVANIA DAIRY OPERATIONS

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This is your copy of the summary report from the dairy farm mail survey that you participated in the spring of 1994. This report represents the small-scale dairy farm operations in Pennsylvania. We will send a copy of this report to your county extension agent. We would like to thank all the respondents for their cooperation in this project.

The information you provided has given us many research topics to analyze. We are writing several short papers focusing on specific topics now. These shorter analyses will be available through your county extension agent or by contacting the authors of this summary (address and phone number are at the end of summary). Again, we thank you for your cooperation.

SUMMARY REPORT OF A 1995 MAIL SURVEY OF FARM MANAGERS OF SMALL-SCALE PENNSYLVANIA DAIRY OPERATIONS

by

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EXECUTIVE SUMMARY

Using data from a 1994 mail survey, the following describes the characteristics of an average small-scale Pennsylvania dairy farm operation, defined as having a herd size of less than 100 dry and lactating cows. The average farm manager was 46 years of age with a high school diploma. The dairy farm manager has managed the dairy farm for 21 years. Few farm managers (18.7%) or their spouses (30.0%) worked off-farm. Only seventy percent of the farm managers had health insurance, which was usually either purchased by themselves (58.9%) and/or provided through off-farm employment (18.9%).

The average small-scale dairy operation had an asset market value of $10,207 per cow and a gross farm income of $2,165 per cow. The average family living expense was $18,718.

The herds were primarily Holsteins. The small-scale operations had an average of 51 milk cows with 14.9 percent of the herd being dry. The farms had an average of 7.1 heifers and calves for every 10 milk cows. Many small-scale dairy farms (44.0%) are using pasture to graze their dairy livestock.

Most milking herds (73.0%) were housed in tie stall/stanchion/comfort stalls and either were milked using a barn pipeline system (58.9%) or bucket milkers (24.1%). The average annual milk production was 18,053 pounds per cow. Farm managers received an average gross milk price of $12.78 in 1994. Generally, 24.2 percent of the herd was culled with 36.7 percent of all culls being health-related.

The average small-scale dairy farm required 1.8 full-time and 1.9 part-time laborers including family members and hired help. The average operation had 258 total acres with 36.1 percent of those being rented from others.

Most of the farm managers' spouses actively participated in farm decision-making (83.7%) and farm tasks (84.5%). More than 80 percent of the farm managers (82.1%) were satisfied with their career in dairying, however only 57.8 percent would encourage their children to choose a career in the dairy industry.

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This report summarizes the results of a mail survey sent in March 1995 to farm managers of dairy operations in Pennsylvania with less than 100 dry and lactating cows. The survey's purpose was to develop a current profile of the small-scale dairy operations in Pennsylvania. Questions focused on existing dairy farm resources, the availability of additional resources, the use of technology, attitudes toward technological change and adoption of new products and services, responses to changing market conditions and government policies, and attitudes toward large-scale dairy operations.

The survey was sent to 400 farm managers, whose names were taken from all the farms with less than 100 cows on the Brucellosis ring test list. This list included information on herd size and was provided by the Pennsylvania Department of Agriculture. This research report defines a small-scale dairy farm operation in Pennsylvania as having a herd size of less than 100 lactating and dry cows. Almost one-half of the surveys were returned for an overall response rate (returned surveys divided by total surveys sent) of 48.3 percent. Of those returned, 151 completed the survey, 28 said they were no longer in the dairy industry, eight refused to participate, and six surveys were returned as undeliverable. Ten of the completed surveys were by farm managers of herds with more than 100 cows, therefore their responses were not used in this analysis. The survey yielded an adjusted response rate of 39.6 percent, calculated by dividing the number of usable surveys (141) by the number of eligible respondents (356), which includes the number of usable surveys, those who refused to participate, and those who did not return a survey.

This report provides a summary of the survey results. Additional analyses, with greater detail, will be published in the future. This report is divided into several general topic areas including general dairy farm characteristics, farm manager characteristics, labor management, livestock systems and practices, farm finances, attitudes toward risk management, attitudes toward large-scale dairy operations, past and planned farm investments, sources of information, attitudes about government policies, and technology.

GENERAL DAIRY FARM CHARACTERISTICS

Dairy Livestock

Nearly all the dairy farm managers (96.5%) had herds that were primarily (≥ 50%) made up of Holstein breed cattle. The other 3.5 percent were Jersey herds. The average herd size (both dry and lactating cows) was 51 milk cows with a median herd size of 45 milk cows (Table 1)[1]. The statewide average herd size with 10 or more cows from the 1992 Census of Agriculture for Pennsylvania was 56.2 cows and the average herd size of farms with 10-99 cows was 46.1 cows. Of those farm managers with dry cows at the time of the survey[2], on average, 14.9 percent of the cows in the herd were dry. Farm managers had an average of 36 head of young dairy stock. Less than one-half of the respondent's dairy farms (44.0%) had dairy breeding bulls over one year of age,

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[1] This report uses means and medians of the sample group. The mean is the average of all the answers. The median is the middle answer; one-half of the respondents gave an answer below the median value and one-half of the respondents gave an answer above the median value. Although the mean is useful information, it can be greatly influenced by a few very large or very small values. This is why both the mean and median values are used.

[2] Five farms indicated that no cows were dry at the time the survey was completed.

however, of those respondents with bulls only 11.3 percent had three or more.

Table 1: Total Size of Milking Herd on Pennsylvania Small-Scale Dairy Operations in 1995.

Herd Size*	Number of Respondents	Percent of Total
5-20	10	7.1
21-30	16	11.3
31-40	24	17.0
41-50	32	22.7
51-60	17	12.1
61-75	17	12.1
76-98	25	17.7
Survey Average : 51 Cows Survey Median : 45 Cows		
Total Usable Answers	141	100%

* Number of milking age cows, both dry and lactating.

Annual Milk Production

The mean annual milk production per cow was 18,053 pounds, while the median milk production per cow was 18,000 pounds (Table 2). Less than one-quarter of the respondents' dairy farms (22.4%) produced 21,000 pounds or more of milk per cow. The average 1994 milk production for all herd sizes reported by the Pennsylvania Agricultural Statistical Service was 16,009 lbs. per cow. The DHIA rolling herd average for all herd sizes was 18,287 lbs. per cow.[3]

Table 2: Annual Milk Production in Pounds per Cow on Pennsylvania Small-Scale Dairy Operations in 1995.

Annual Milk Production per Cow (pounds)	Number of Respondents	Percent of Total
10,000-14,999	17	13.6
15,000-16,999	27	21.6
17,000-18,999	38	30.4
19,000-20,999	15	12.0
21,000-22,999	18	14.4
23,000-25,000	10	8.0
Survey Average : 18,053 lbs/Cow Survey Median : 18,000 lbs/Cow		
Total Usable Answers	125	100%

[3] Only 3,626 farms, about one-third of all dairy farms in Pennsylvania, participated in DHIA in 1994.

Acres Farmed

The surveyed farms averaged 258 acres of total owned and rented land. Almost one-half of the farms (46.4%) had 200 or fewer total acres, while 7.9 percent had more than 500 acres (Table 3). The average farm had a mean and median of 5.6 acres per cow and 4.5 acres per cow, respectively, with a range from 0.3 acres per cow to 34.0 acres per cow.

Table 3: Total Acres Farmed (Owned and Rented) on Pennsylvania Small-Scale Dairy Operations in 1995.

Number of Acres	Number of Respondents	Percent of Total
10-100	29	20.7
101-150	19	13.6
151-200	17	12.1
201-250	20	14.3
251-300	12	8.6
301-400	18	12.8
401-500	14	10.0
Over 500	11	7.9
Survey Average : 258 Acres Survey Median : 215 Acres		
Total Usable Answers	140	100%

Although 35.0 percent of the small-scale dairy farm managers in Pennsylvania do not rent any land, 15.0 percent rent all the land they farm. On average, small-scale dairy farm managers rent 36.1 percent of the total acres they farm (Table 4).

Table 4: Rented Acres as a Percent of Total Acres Farmed on Pennsylvania Small-Scale Dairy Operations in 1995.

Percent	Number of Respondents	Percent of Total
0	49	35.0
1-25	19	13.6
26-50	26	18.6
51-75	15	10.7
76-99	10	7.1
100	21	15.0
Survey Average : 36.1% Survey Median : 27.2%		
Total Usable Answers	140	100%

Farm Business Organization

Most of the dairy farm business organizational structures were either a sole proprietorship (61.9%) or a family partnership (28.1%). Of the remaining 14 dairy farms, 12 were organized as family held corporations, one was a non-family partnership, and the other was a non-family corporation.

Method of Acquiring the Farm Operation

Over one-half of the respondents (56.8%) became the farm manager by purchasing the initial assets of the farm, while 22.7 percent inherited all or some of the initial assets of the farm (Table 5). Answers in the other category included started from scratch; inherited part, purchased part, and rent/lease part; and manage the dairy operation, which is part of a larger farm operation.

Table 5: Process Used in Becoming the Farm Manager on Pennsylvania Small-Scale Dairy Operations in 1995.

Means	Number of Respondents	Percent of Total
Purchased From Family Member	50	35.5
Purchased From Non-Relative	30	21.3
Inherited Part and Purchased Part	23	16.3
Currently Rent/Lease	15	10.6
Inherited All	9	6.4
Purchased Part and Rent/Lease Part	8	5.7
Started/Continued as Hired Manager	1	0.7
Other	5	3.5
Total Usable Answers	141	100%

FARM MANAGER CHARACTERISTICS

Age

The average and median age of small-scale dairy farm managers in Pennsylvania was 46.2 and 45.0 years, respectively. The ages ranged from 22 to 81 years (Table 6).

Table 6: Age of the Farm Manager on Pennsylvania Small-Scale Dairy Operations in 1995.

Age	Number of Respondents	Percent of Total
25 and Under	6	4.4
26-35	26	19.0
36-45	40	29.2
46-55	32	23.3
56-65	20	14.6
Over 65	13	9.5
Survey Average : 46.2 Years Survey Median : 45.0 Years		
Total Usable Answers	137	100%

Years as the Farm Manager

The respondents had owned and/or managed their dairy farms for an average of 20.6 years (Table 7). Over one-quarter of the farm managers (27.9%) have only been the farm manager for 10 or fewer years, while 19.1 percent have been the farm manager for more than 30 years.

Table 7: Number of Years as the Farm Manager on Pennsylvania Small-Scale Dairy Operations in 1995.

Years as the Farm Manager	Number of Respondents	Percent of Total
1-10	38	27.9
11-20	33	24.3
21-30	39	28.7
31-40	16	11.8
41 and Over	10	7.4
Survey Average : 20.6 Years Survey Median : 20.0 Years		
Total Usable Answers	136	100%

Education

In terms of educational attainment, 28.9 percent did not complete high school, 44.4 percent completed high school, and 26.7 percent received formal training beyond high school (Table 8).

Table 8: Education Level of the Farm Manager on Pennsylvania Small-Scale Dairy Operations in 1995.

Highest Level of Education Achieved	Number of Respondents	Percent of Total
Elementary School	31	23.0
Some High School	8	5.9
Completed High School or GED	60	44.4
Some Post High School Work	12	8.9
Completed Technical/Business School	10	7.4
Completed College Degree	12	8.9
Started/Completed Graduate Degree	2	1.5
Total Usable Answers	135	100%

Spouse Involvement in the Dairy Operation

Of the 116 married respondents[4] (85.3%), 105 have a spouse involved in the dairy operation. Just under one-half of those spouses are involved full-time, while the other 53.3 percent are involved part-time. The farm managers were then asked about their spouse's involvement in the decision-making process. One-half of the spouses (50.0%) are involved in only major decisions, while 33.7 percent are involved in all daily decisions, 15.4 percent have little involvement, and 1.0 percent have no involvement.

In addition, the respondents were asked what three areas of the dairy operation their spouses are most involved. Spouses were most involved in book/record-keeping, milking, and light chores/field work (Table 9). Answers in the other category included breeding, haymaking, and cattle shows.

[4] The majority of respondents (95.6%) were male.

Table 9: Spouse Involvement on Pennsylvania Small-Scale Dairy Operations in 1995.

Spouse Involvement	Number of Respondents*	Percent of Total**
Book Keeping and Record Keeping	53	54.1
Milking	51	52.0
Light Chores/Field Work	39	39.8
Feeding	34	34.7
Calves/Heifers	17	17.3
Management/Decision Making	12	12.2
Keeping Family/Support	11	11.2
Running Errands	7	7.1
Cow Management	4	4.1
Other	9	9.2

* Respondents could give more than one answer.

** Percent of total is of the 98 respondents who have a spouse involved in the dairy operation.

Off-Farm Employment

Only 18.7 percent of the farm managers worked off-farm while 30.0 percent of the farm manager's spouses worked off-farm (Table 10). Two-thirds of the farm managers with off-farm employment (68.0%) worked part-time.

Table 10: Off-Farm Employment of the Farm Manager and Farm Manager's Spouse on Pennsylvania Small-Scale Dairy Operations in 1995.

	Farm Manager		Farm Manager's Spouse	
	Number of Respondents	Percent of Total	Number of Respondents	Percent of Total
Farm Managers Working Off-Farm:				
Work Off-Farm	25	18.7	33	30.0
Do Not Work Off-Farm	109	81.3	77	70.0
Total Usable Answers	134	100%	110*	100%
Of Those Farm Managers Working Off-Farm:				
Work Full-Time	8	32.0	17	51.5
Work Part-Time	17	68.0	16	48.5
Total Usable Answers	25	100%	33	100%

* Six respondents, who are married, did not answer this question.

Health Insurance

Almost thirty percent of the dairy farm managers' families (29.6%) did not have health insurance coverage. Only 31.6 percent of the 57 dairy farm operations with hired workers provided health insurance benefits to their employees.

The types of health insurance provisions for farm managers and their families are presented in Table 11. Most of the farm families with health insurance coverage purchased their own (58.9%) and/or received insurance through an off-farm job (18.9%). Almost 17 percent of the farm managers (16.8%) had two types of health insurance, while 5.3 percent had three or more types of health insurance.

Table 11: Sources of Health Insurance (for those with health insurance) on Pennsylvania Small-Scale Dairy Operations in 1995.

Sources of Health Insurance	Only Type of Insurance Coverage	Used in Combination with Another Type(s) of Insurance	Percent of Total*
	------ Number of Respondents** ------		
Individual Health Insurance	43	13	58.9
Off-Farm Employment	16	2	18.9
Medicare	2	15	17.9
Purchased as a Farm Expense	7	4	11.6
Milk Marketing Cooperative	2	5	7.4
Medicaid	0	7	7.4
Other	4	2	6.3

* Percent of total is of the 95 respondents who have health insurance.

** Respondents could give more than one answer.

Farm Goals

The farm managers scored the importance of reaching various goals on their farm operation using a scale from 1 to 5, where a 1 means not important and a 5 means very important. Improving herd health, reducing feed costs, and increasing total milk sold were the three most important farm goals for small-scale dairy farm managers, although all the goals listed were rated high (Table 12). The two least important goals were increasing labor productivity and reducing labor costs.

Table 12: Importance of Various Farm Goals on Pennsylvania Small-Scale Dairy Operations in 1995.

	Not Important		Important		Very Important	
Farm Goal	1	2	3	4	5	Mean
	- - - - - - - - - - Percent of Total - - - - - - - - - -					
Improve Herd Health	3.0	0.8	6.8	24.2	65.2	4.5
Reduce Feed Costs	1.5	2.3	18.2	18.2	59.8	4.3
Increase Total Milk Sold	3.1	3.1	7.6	32.8	53.4	4.3
Increase Milk Production per Cow	3.8	4.6	6.9	34.4	50.4	4.2
Make the Farm Operation Safer	3.1	3.1	16.8	31.3	45.8	4.1
Reduce Financial Risks	3.8	3.0	19.7	22.7	50.8	4.1
Reduce Hours of Physical Labor	6.8	3.0	25.0	23.5	41.7	3.9
Minimize Environmental Effects	3.1	6.9	28.5	26.9	34.6	3.8
Provide Employment for Family	7.6	6.9	22.9	22.1	40.5	3.8
Increase Labor Productivity	11.8	3.1	23.6	29.9	31.5	3.7
Reduce Labor Costs	12.3	4.6	26.2	19.2	37.7	3.7

Dairying as a Career

Two questions were asked about the farm managers' career choice of dairying. More than 80 percent of the respondents (82.5%) were satisfied with their career as a dairy farm manager. However, only 58.7 percent of the farm managers would encourage their child/children to choose a career in the dairy industry. This indicates that although most dairy farm managers are satisfied with their own dairying career, many are not encouraging their own children to choose a career in dairying possibly due to the current economic situation of the dairy industry.

LABOR MANAGEMENT

Labor Characteristics

Most respondents (94.3%) answered the question, "How many FAMILY (immediate family members only) and HIRED people work full-time and part-time on your dairy operation." Two-thirds of those who answered (66.9%) used only family labor while just 3.0 percent used only hired labor; the remaining 30.1 percent used both family and hired labor.

Of the 133 farms that answered the question, 87.2 percent had full-time family members, 70.7 percent had part-time family members, 13.5 percent had full-time hired workers, and 27.8 percent had part-time hired workers. On average, small-scale dairy operations in Pennsylvania used 1.7 full and 1.5 part-time family members and 0.2 full and 0.4 part-time hired workers. The hired worker means are low because all the means were calculated using all 133 farms who answered this labor question despite whether they used every type of labor. Those who did not have a particular type of labor were included as zeros in calculating the mean. The average and median total hired labor expenditure in 1994 was $11,708 and $7,500, respectively, with a range from $100 to $80,000.

Farm Task Responsibility

Farm managers were asked to indicate who was in charge of various farm tasks and, where applicable, others who helped complete each farm task. The person in charge of each farm task is presented in Table 13. For some tasks, both the farm manager and someone else were indicated as being in charge of a particular task so this response is shown in the "Manager and Someone Else" column. The column heading "Other" includes spouses, children under 18, and various other people (such as a neighbor, a sister-in-law, etc.).

The farm manager was more often in charge of farm tasks than anyone else except tax preparation. Small-scale dairy operations most relied on the farm manager for making feed purchases (90.2%), manure management (80.8%), herd health (80.6%), and supervising labor (80.0%). Other adult family members were most often in charge of raising calves (12.8%), keeping breeding records (10.7%), and milking cows (10.2%). The full and part-time hired labor was most often in charge of feeding milk cows and heifers (4.6%) and milking cows (2.2%). Custom and contract services were used most often for tax preparation (39.5%), ration formulation (38.0%), keeping milking records (22.5%), and sire selection (12.4%). Although the table does not provide a separate column for spouses, they were mostly in charge of payroll records (30.8%), financial records (31.5%), tax preparation (19.4%), and raising calves (16.5%).

Table 13: Person in Charge of Various Farm Tasks on Pennsylvania Small-Scale Dairy Operations in 1995.

Farm Task	Number Answering	Farm Manager	Family Members Over 18	Full and Part-Time Hired Labor	Custom / Contract Service	Manager & Someone Else	Other
		Percent of Total*					
Milk Cows	137	67.9	10.2	2.2	0.0	13.9	5.8
Feed Milk Cows and Heifers	130	70.8	9.2	4.6	0.0	10.8	4.6
Raise Calves	131	53.4	12.8	0.8	0.8	6.1	26.3
Heat Detection	127	74.0	7.9	0.8	0.0	11.0	6.3
Sire Selection	121	69.4	9.1	0.8	12.4	3.3	3.3
Herd Health	129	80.6	4.7	0.8	3.9	7.0	3.2
Cull Decisions	132	79.5	5.3	0.0	0.0	14.4	0.8
Planting, Cultivating, and Harvesting	132	75.0	6.1	0.8	0.8	10.5	6.1
Fertilizer / Chem. Spreading	130	79.2	5.4	0.8	6.2	3.9	3.1
Manure Management	130	80.8	8.5	0.8	1.5	5.5	3.1
Feed Purchases	133	90.2	4.6	0.0	0.0	3.1	2.3
Ration Formulation	121	48.8	3.3	0.0	38.0	6.6	3.2
Equipment Repairs	130	70.8	7.0	1.5	3.1	8.5	9.2
Supervise Labor	115	80.0	2.6	0.0	0.0	6.1	1.7
Payroll Records	104	40.4	3.8	1.0	2.9	1.0	30.8[1]
Cropping Records	124	78.2	5.6	0.0	0.8	4.0	6.4
Breeding Records	131	68.7	10.7	1.5	3.8	6.9	8.5
Milking Records	129	53.5	7.0	0.8	22.5	7.1	6.2
Financial Records	128	55.4	4.6	0.8	3.8	3.1	32.3[2]
Tax Preparation	129	34.9	1.6	0.0	39.5	3.9	20.2[3]

* Rows may not sum to 100 percent as some respondents indicated that a particular task was not applicable to their farm.

[1] Spouses comprised 100 percent of the other category.

[2] Spouses comprised 97.5 percent of the other category.

[3] Spouses comprised 96.0 percent of the other category.

LIVESTOCK SYSTEMS AND PRACTICES

Livestock Housing

The type of housing used for the milking herds is shown in Table 14. Most of the farm managers housed their milking herds in either tie stall/stanchion/comfort stall barns (73.0%) or free stall housing (19.9%). Six farm managers indicated that they used two types of housing facilities

for their milking herd.

Table 14: Milking Herd Housing Facilities on Pennsylvania Small-Scale Dairy Operations in 1995.

Housing Facility	Number of Respondents	Percent of Total
Tie Stall/Stanchion/Comfort Stall	103	73.0
Free Stall	28	19.9
Loose Housing/Shed/Bedded Pack	4	2.8
Free Stall and Tie Stall/Stanchion	4	2.8
Loose Housing and Another Housing	2	1.4
Total Usable Answers	141	100%

Milking Facilities

The different types of milking facilities in use on small-scale Pennsylvania dairy farms are summarized in Table 15. Most of the farm managers used a barn pipeline system (58.9%), while 24.1 percent of the farm managers used bucket milkers. Four respondents indicated that they hand milk their milking herd.

Table 15: Type of Milking Facility on Pennsylvania Small-Scale Dairy Operations in 1995.

Milking Facility	Number of Respondents	Percent of Total
Barn Pipeline System	83	58.9
Bucket Milkers	34	24.1
Herringbone/Side Opening Parlor	8	5.7
Parallel Milking Parlor	7	5.0
Hand Milking	4	2.8
Flat Barn Parlor	4	2.8
Other	1	0.7
Total Usable Answers	141	100%

Most of the farm managers (97.9%) milk their cows twice a day; only 2 farm managers (1.4%) milked their cows three times a day and 1 farm manager (0.7%) milked once a day. The milking period ranged from 0.9 to 7.5 minutes per cow. The parlors required the least amount of time per cow, while bucket milkers and hand milking required the most time (Table 16).

Table 16: Minutes per Cow Required to Milk by Milking Facility on Pennsylvania Small-Scale Dairy Operations in 1995.

Milking Facility	Number of Respondents	Mean	Minimum	Maximum
		Minutes per Cow		
Various Milking Parlors	20	1.60	0.91	2.92
Barn Pipeline System	83	1.88	1.11	4.29
Bucket Milkers	33	2.67	1.07	5.45
Hand Milking	4	5.91	4.50	7.50
Total Usable Answers	140	2.14	0.91	7.50

Feeding Practices

On most of the respondent's dairy farms (78.0%), the cows were not fed in groups. However, the cows were fed grain during milking on 62.4 percent of the dairy farms. A computer feeder was used on 9.2 percent of the small-scale dairy operations. Over one-third of the farm managers (34.8%) used a total mixed ration.

All of the small-scale dairy farm managers purchase at least some grains and concentrates fed to their dairy herd. The average and median percent of purchased grains and concentrates fed was 58.3 and 34.8 percent, respectively (Table 17). Almost one-third of the farm managers (31.2%) purchase all of the grains and concentrates fed to their dairy herd.

Table 17: Percent of Grains and Concentrates Fed to the Dairy Herd That Are Purchased on Pennsylvania Small-Scale Dairy Operations in 1995.

Percent	Number of Respondents	Percent of Total
1-10	15	10.9
11-25	17	12.3
26-50	41	29.7
51-75	12	8.7
76-99	10	7.2
100	43	31.2
Survey Average : 58.3% Survey Median : 34.8%		
Total Usable Answers	138	100%

Health and Reproduction Practices

Almost two-thirds of the farm managers (63.1%) have regularly scheduled veterinarian visits. Only 13.5 percent of the farm managers do monthly body condition scoring. About eighty-four percent of the farm managers (83.7%) dry treat all cows at the end of lactation. Three out of five farm managers (63.8%) predip all teats before milking and 84.4 percent postdip all teats after milking. However, 14.2 percent of the small-scale dairy farm managers did not predip or postdip. DHI records are used by 46.1 percent of the farm managers to identify problems.

Cow Culling Practices

Total culls and health-related culls, expressed as a percent of milking herd size, are presented in Table 18. A total culling rate of 20 percent or less was reported by 43.2 percent of the farm managers. More than 90 percent of the farm managers (91.5%) reported a health-related culling rate of 20 percent or less.

Table 18: Total and Health Related Cow Culls as a Percent of Milking Herd on Pennsylvania Small-Scale Dairy Operations in 1995.

	Total Culls as a Percent of Herd Size		Health Culls as a Percent of Herd Size	
Percent	Number of Respondents	Percent of Total	Number of Respondents	Percent of Total
1-10	15	12.0	65	61.3
11-20	39	31.2	32	30.2
21-30	41	32.8	8	7.6
36-40	18	14.4	1	0.9
Over 40	12	9.6	0	0.0
Survey Average :	24.2%		10.3%	
Survey Median :	22.9%		9.1%	
Total Usable Answers	125	100%	106	100%

Besides health-related culls, the survey also asked about the number of culls due to breeding problems, low production, and other reasons. Of the 125 farm managers who responded to the culling question, on average, 36.7 percent of all culls were health related, 31.4 percent were due to breeding problems, 18.0 percent were due to low production, and 13.9 percent were due to other reasons. Health related culls were reported by 106 farm managers, while 103, 75, and 38 farm managers reported culling for breeding problems, low production, and other reasons, respectively.

Young Dairy Stock

Most of the dairy farms (96.5%) had some young dairy stock on the farm. Farm managers had an average of 34 head of young dairy stock. Dividing the number of young dairy stock by the milking herd size yields a mean of 70.7 percent or 7.1 heifers and calves for every 10 milk cows (Table 19). Twelve farm managers had more than 10 head of young dairy stock for every 10 milk cows in the herd.

Table 19: Young Dairy Stock as a Percent of Milking Herd on Pennsylvania Small-Scale Dairy Operations in 1995.

Percent	Number of Respondents	Percent of Total
0	5	3.5
1-20	4	2.8
21-40	9	6.4
41-60	35	24.8
61-80	43	30.5
81-100	33	23.4
>100	12	8.5
Survey Average : 70.7% Survey Median : 70.0%		
Total Usable Answers	141	100%

Milk Cows or Bred Heifers Purchased

Over one-third of the farm managers (35.3%) purchased dairy cows for their milking herd in the past year. Of those making livestock purchases in the past year, the average and median percent of the herd purchased was 17.5 and 11.4 percent.

Record-Keeping Practices

Most farm managers kept records for crops, breeding and calving, milk production, finances, and taxes. Cropping records were kept by hand by almost three-quarters of the farm managers (73.6%) (Table 20). Breeding and calving records were kept primarily by hand (40.0%), but also by DHIA (26.2%). More than 60 percent of the farm managers (62.7%) had their milk production records kept by DHIA. Farm managers kept payroll and financial records primarily by hand (52.1% and 49.5%, respectively). Consultants kept tax records for 50.8 percent of the respondents.

Table 20: Types of Records and How They Are Kept on Pennsylvania Small-Scale Dairy Operations in 1995.

Type of Record	Number of Respondents Who Keep Records*	How Records Are Kept				
		Hand Written Notes	Computer	DHIA	Consultant	Other
		Percent of Total**				
Cropping	91	73.6	7.7	0.0	15.4	0.0
Breeding & Calving	130	40.0	4.6	26.2	3.1	23.8[1]
Milk Production	110	23.6	4.5	62.7	1.8	3.6
Payroll	48	52.1	25.0	0.0	1.8	6.3
Financial	111	49.5	18.9	0.0	21.6	3.6
Tax Preparation	120	28.3	11.7	0.0	50.8	1.7

* This column indicates the number of farm managers keeping a particular record out of the 141 surveyed respondents.
** Percent is of the number of respondents who keep that particular record. However, the rows may not sum to 100 percent as some respondents did not indicate how their records were kept.
[1] This includes 22 respondents, who indicated a breeding wheel.

Grazing Dairy Livestock

Almost one-half of the farm managers (44.0%) graze their milking herd, while 66.0 percent graze their dry cows and 70.2 percent graze their heifers. The 62 farm managers who graze their milking herd were asked about any noticed changes with their milking herd between the grazing and non-grazing period. Two-thirds of the farm managers indicated better herd health (67.7%) and/or easier heat detection (66.1%) (Table 21). Most of the farm managers (61.3%) indicated some change in milk production during the grazing period (compared with the non-grazing period), as 48.4 percent indicated a milk production increase while 12.9 percent indicated a decrease.

Table 21: Changes Noticed Between the Grazing and Non-Grazing Period on Pennsylvania Small-Scale Dairy Operations in 1995.

Change Noticed	Number of Respondents*	Percent of Total**
Better Herd Health	42	67.7
Easier Heat Detection	41	66.1
Fewer Foot Problems	33	53.2
Increased Milk Production	30	48.4
Decreased Milk Production	8	12.9
Grazed for Exercise	7	11.3
Other	7	11.3

* Respondents could give more than one answer.
** Percent of total is of the 62 respondents who graze their milking herd.

FARM FINANCES

Financial Planning

The survey included several questions about farm finances and management. Only 4.4 percent of the farm managers do not perform any kind of financial planning. Most of the farm managers (84.6%)[5] do their own financial planning. Others who help with the financial planning included other family members (36.0%), lenders/bankers (35.3%), consultants (27.9%), and cooperative extension agents (6.6%).

Farm managers were asked if they have started planning for their retirement from farming. Only 40.2 percent of the farm managers indicated that they have started planning for their retirement.

Changes in Financial Portfolio

Farm managers were asked how the following financial characteristics of their farm operation have changed compared to five years ago. Besides net worth, which on average increased, all of the financial characteristics either remained the same or decreased slightly (Table 22). Specifically, 37.5 percent of the small-scale dairy farm managers indicated that money available to support family living has decreased compared to five years ago and 30.0 percent indicated that return on assets has decreased.

Table 22: Financial Characteristics Compared to Five Years Ago on Pennsylvania Small-Scale Dairy Operations in 1995.

	Greatly Decreased		Stayed the Same		Greatly Increased	
Financial Characteristic	1	2	3	4	5	Mean
	- - - - - - - - - - Percent of Total - - - - - - - - - -					
Net Worth	3.1	8.7	24.4	47.2	16.5	3.7
Net Income	10.4	15.2	32.8	36.0	5.6	3.1
Ability to Pay Current Bill Payments on Time	8.7	16.7	44.4	22.2	7.9	3.0
Non-Farm Retirement Savings	10.6	7.1	61.1	18.6	2.7	3.0
Return on Assets	12.5	17.5	49.2	18.3	2.5	2.8
Money Available to Support Family Living	16.4	21.1	39.1	17.2	6.3	2.8

[5] Respondents could give more than one answer.

Actual Financial Information

About 70 percent of the farm managers (69.5%) answered the questions related to financial information. The mean and median market values of farm assets were $460,011 and $400,000, respectively. Table 23 presents the financial information on a per cow basis. Although the farm managers were not asked to indicate their net worth, it was calculated by subtracting farm liabilities from the market value of farm assets.

Table 23: Descriptive Statistics of Financial Information on a per Cow Basis on Pennsylvania Small-Scale Dairy Operations in 1995.

Financial Information	Number of Respondents	Mean	Median	Minimum	Maximum
		---------- $ Per Cow ----------			
Market Value of Farm Assets	98	10,207	7,889	1,500	80,000
Farm Liabilities	91	1,702	1,176	0	6,273
Net Worth*	89	8,480	5,909	-1,042	80,000
Gross Farm Income	84	2,165	2,217	33	6,184
Total Farm Cash Costs	58	1,690	1,457	120	7,738
Gross Farm Expenses	75	1,995	1,967	267	5,455

* This value was calculated by subtracting farm liabilities from the market value of farm assets for each respondent.

From the data in the above table, a cash margin per cow was calculated (gross farm income per cow minus gross farm expenses per cow). More than one out of every six small-scale dairy farm managers (17.3%), who responded to both questions, had a negative cash margin per cow. The mean cash margin per cow was $172 (Table 24).

Table 24: Cash Margin per Cow on Pennsylvania Small-Scale Dairy Operations in 1995.

Cash Margin per Cow	Number of Respondents	Percent of Total
-$1 and Under	13	17.3
$0 to $200	15	20.0
$201 to $400	17	22.7
$401 to $600	11	14.7
$601 to $800	12	16.0
Over $800	7	9.3
Survey Average : $172 Survey Median : $275		
Total Usable Answers	75	100%

The dairy operation provided 100 percent of the farm's gross income for 57.3 percent of the 89 respondents who answered this question, while 79.8 percent of the farm managers indicated that 90 percent or more of their gross income was from the dairy operation. The mean family living expense was $18,718 as shown in Table 25.

Table 25: Family Living Expenses on Pennsylvania Small-Scale Dairy Operations in 1995.

Family Living Expenses	Number of Respondents	Percent of Total
$5,000 and Under	7	10.8
$5,001 to $10,000	16	24.6
$10,001 to $15,000	10	15.4
$15,001 to $20,000	13	20.0
$20,001 to $25,000	5	7.7
$25,001 to $30,000	7	10.8
Over $30,000	7	10.8
Survey Average : $18,718 Survey Median : $15,000		
Total Usable Answers	65	100%

Milk Price Received

The average gross milk price (before subtracting marketing costs) received for the most recent month[6] was $12.70 per hundredweight (Table 26). The average gross price received for the past year was $12.78 per hundredweight and ranged from a low of $10.00 to a high of $14.31. Using data from the Pennsylvania Agricultural Statistics Service, the statewide mean price for the months when the surveys were returned (March to June 1995) was $13.20, while the mean price from April 1994 to March 1995 was $13.72. More than 60 percent of the small-scale dairy farm managers (63.8%) belonged to a milk marketing cooperative.

[6] The surveys were returned during March 1995 to June 1995.

Table 26: Average Milk Price Received on Pennsylvania Small-Scale Dairy Operations in 1995.

Average Price	Last Month		Past Year	
	Number of Respondents	Percent of Total	Number of Respondents	Percent of Total
$11.99 and Under	16	15.0	11	11.0
$12.00 to $12.49	20	18.7	21	21.0
$12.50 to $12.99	28	26.2	21	21.0
$13.00 to $13.49	28	26.2	20	20.0
$13.50 to $13.99	11	10.3	20	20.0
$14.00 and Over	4	3.7	7	7.0
Survey Average :	$12.70		$12.78	
Survey Median :	$12.79		$12.86	
Total Usable Answers	107	100%	100	100%

Comparing Financial Situation to Other Dairy Farm Families and Non-Farm Households

Most of the farm managers (61.8%) thought their family's financial situation was the same as other dairy farm families, while 29.8 percent thought their financial situation was better (Table 27). However, when the farm managers compared their financial situation to non-farm households in their county, about the same percentage felt they were the same as (42.0%) or worse off (41.2%) financially.

Table 27: Financial Situation Comparison on Pennsylvania Small-Scale Dairy Operations in 1995.

Financial Comparison with		Better Than Average	Average	Worse Than Average	Total Usable Answers
Other Dairy Farm Families	# :	39	81	11	131
	% :	*29.8*	*61.8*	*8.4*	*100%*
Non-Farm Households	# :	22	55	54	131
	% :	*16.8*	*42.0*	*41.2*	*100%*

ATTITUDES TOWARD RISK MANAGEMENT

Risk Taking

Farm managers were asked to assess various statements about their attitudes toward risk and their farm operation using a scale from 1 to 5, where a 1 means strongly disagree and a 5 means strongly agree. The statement, the percent of responses for each numeric category, and the means are given in Table 28.

Table 28: General Attitudes about Risk on Pennsylvania Small-Scale Dairy Operations in 1995.

	Strongly Disagree		Neither Agree nor Disagree		Strongly Agree	
Statement	1	2	3	4	5	Mean
	- - - - - - - - - Percent of Total - - - - - - - - -					
You would trade away the possibility of a small gain to avoid a large loss on your farm.	2.3	3.9	28.1	30.5	35.2	3.9
You feel you have to take a number of risks to be successful.	5.3	8.3	28.8	37.9	19.7	3.6
You are generally cautious about accepting new ideas.	2.3	17.8	29.5	30.2	20.2	3.5
You are reluctant to adopt new ways of doing things until you see them working for others.	9.2	18.3	26.0	28.2	18.3	3.3
You are willing to take a few more risks than others.	9.2	14.6	37.7	27.7	10.8	3.2

Farm managers were given a hypothetical scenario in which they could choose to have a fixed, but lower-on-average, milk price over a period of time rather than a variable, but higher-on-average, milk price. If the farm manager chose to have the milk price fixed, they were asked how much of an average reduction would they give up to receive a fixed price. Most of the farm managers (81.4%) chose to keep the higher variable milk price. Of the 18.6 percent who would accept a lower fixed price, 12.4 percent would only accept a 2% or less price reduction, while 3.9% and 2.3% of the farm managers would accept a 5% and 10% price reduction, respectively. The results of this question seem to indicate that considering the current economic situation, most farm managers were not willing to take a milk price reduction even if it would remain fixed.

Importance of Risk and Uncertainty in Farming

Farm managers were given a list of risks and uncertainties found in farming and asked to rate these sources of risks and uncertainties in terms of importance to their farm decision making using a scale where a 1 means not important and a 5 means very important. Milk production variability, milk price variability, and health concerns of the farm manager and family were the three most important sources of risk and uncertainty for small-scale dairy farm managers (Table 29). Changes in family/hired labor availability, changes in U.S. agricultural programs, and forage price variability were considered the least important sources of risk and uncertainty found in dairy farming.

Table 29: Sources of Risk and Uncertainty Found in Farming on Pennsylvania Small-Scale Dairy Operations in 1995.

	Not Important		Important		Very Important	
Risk/Uncertainty Source	1	2	3	4	5	Mean
	- - - - - - - - - - Percent of Total - - - - - - - - - -					
Milk Production Variability	1.6	0.8	7.0	32.0	58.5	4.5
Milk Price Variability	1.6	1.6	12.6	25.2	59.1	4.4
Health Concerns of the Farm Manager and Family	3.1	4.6	12.3	18.5	61.5	4.3
Changes in U.S. State Regulations & Taxation Rates	7.7	3.8	11.5	23.1	53.8	4.1
Forage Yield Variability	3.1	0.8	21.1	35.2	39.8	4.1
Cost of Non-Feed Inputs	2.3	6.3	23.4	26.6	41.4	4.0
Interest Rates	9.4	8.6	10.2	22.7	49.2	3.9
Changes in U.S. Environmental Regulations	7.9	4.7	18.1	25.2	44.1	3.9
Grain Price Variability	4.8	4.0	24.6	31.0	35.7	3.9
Changes in Machinery Prices	5.5	7.8	22.7	24.2	39.8	3.9
Credit Availability	11.6	7.8	16.3	16.3	48.1	3.8
Grain Yield Variability	10.9	1.6	21.1	32.0	34.4	3.8
Changes in Family/Hired Labor Availability	12.6	11.0	17.3	28.3	30.7	3.5
Changes in U.S. Agricultural Policies	14.2	10.2	23.6	19.7	32.3	3.5
Forage Price Variability	13.4	12.6	27.6	22.0	24.4	3.3

Management Response to Risk and Uncertainty in Farming

Farm managers were given a list of possible management responses to risk and uncertainty in farming. They were asked to score each management response in terms of its importance to their dairy farm operation where a 1 means not important and a 5 means very important. In addition, the farm manager could indicate if they did not use a particular management response. Keeping debt low, hail and fire insurance, and health insurance were regarded as the three most important management responses to risk and uncertainty (Table 30). On the other hand, having an off-farm job, participating in government farm programs, and having multiple peril crop insurance were not important management responses to risk and uncertainty. Besides these management responses not being important, many farm managers did not use them (48.0%, 42.7%, and 48.5%, respectively).

Table 30: Management Responses to Risk and Uncertainty Found in Farming on Pennsylvania Small-Scale Dairy Operations in 1995.

	Do Not Use	Not Important		Important		Very Important	
Management Response	0	1	2	3	4	5	Mean*
	- - - - - - - - - - - - - - Percent of Total - - - - - - - - - - - - - -						
Keeping Debt Low	0.8	0.8	2.3	18.0	27.1	51.1	4.3
Hail and Fire Insurance	13.0	3.8	4.6	12.2	17.6	48.9	4.2
Health Insurance	17.6	4.6	4.6	9.9	19.1	44.3	4.1
On Farm Feed Reserves	8.7	3.1	6.3	15.7	30.7	35.4	4.0
Life Insurance	22.9	4.6	9.2	13.7	16.8	32.8	3.8
Maintaining Extra Cash	10.6	6.1	4.5	25.0	24.2	29.5	3.7
Having Back-Up Labor	20.0	10.8	17.7	31.5	9.2	10.8	2.9
Diversification of Farming Enterprises	32.3	13.8	16.2	18.5	8.5	10.8	2.8
Having an Off-Farm Job	48.0	22.8	4.7	10.2	4.7	9.4	2.5
Gov't Farm Program Participation	42.7	19.1	13.7	13.0	4.6	6.9	2.4
Multiple Peril Crop Insurance	48.5	23.5	8.3	9.8	5.3	4.5	2.2

* Mean is only of those who use the management response.

ATTITUDES TOWARD LARGE-SCALE DAIRY OPERATIONS

Large-Scale Dairy Operations as Defined by Small-Scale Dairy Farm Managers

Respondents were asked two questions about large-scale dairy farm operations. One question asked which of the following categories (under 50, 50-100, 101-200, and over 200) best describes the number of cows (dry and lactating) on the largest dairy farms in their local area. Table A1 in the Appendix contains the responses to this question by county.

Respondents were asked what characteristics define a large-scale dairy operation. Although this was an open-ended question, the question suggested that the number of cows and acres, types of facilities, technologies, management practices, etc. could be used for answers. Almost eighty percent of the respondents (78.7%) answered this question. A specific herd size was mentioned by 91.9 percent of the respondents answering the question. Almost forty percent of the small-scale dairy farm managers (39.2%) considered a large-scale farm to have 100 to 150 cows (Table 31). However, 14.7 percent of the small-scale dairy farm managers felt more than 400 cows were needed to be considered a large-scale dairy operation.

Table 31: Herd Size of a Large-Scale Dairy Operation as Defined by Farm Managers on Pennsylvania Small-Scale Dairy Operations in 1995.

Number of Cows	Number of Respondents	Percent of Total
Under 100	6	5.9
100-150	40	39.2
151-200	23	22.5
201-300	14	13.7
301-400	4	3.9
Over 400	15	14.7
Total Usable Answers	102	100%

One-third of the respondents, who answered the question, provided other characteristics of a large-scale dairy farm operation, besides herd size. A specific number of acres was given by 43.2 percent of the dairy farm managers (Table 32). The other characteristics were combined into the following categories: types of facilities, amount of hired labor, management/organization, and technologies used.

Table 32: Other Characteristics of a Large-Scale Dairy Operation as Defined by Farm Managers on Pennsylvania Small-Scale Dairy Operations in 1995.

Characteristic	Number of Respondents*	Percent of Total**
Acres[1]	16	43.2
Types of Facilities--(milking parlors, free stalls, loose housing)	9	24.3
Amount of Hired Labor	8	21.6
Management/Organization--(manage labor so cannot help with work, operation not watched as closely, coop, have investors)	8	21.6
Technologies Used--(computerized, TMR, confinement feeding)	5	13.5

* Respondents could give more than one answer.

** Percent of total is of the 37 respondents who provided a non-herd size characteristic of a large-scale dairy operation.

[1] The distribution was [# acres (# respondents)]: Under 300 (3), 400 (2), 500 (6), and 1,000 (5).

Impact of Large-Scale Dairy Operations on the Local Community and Small-Scale Dairy Operations

Respondents were asked whether they agreed or disagreed with several statements about the impact of large-scale dairy operations on the local community and smaller-scale dairy operations. A 5-point scale was used where a 1 means strongly disagree and a 5 means strongly agree. Overall, respondents disagreed with the notion that large-scale dairy operations would have a positive impact on the community, bring other dairy related business to the community, and improve the lifestyle of other dairy farm managers in the area (Table 33). Answers to the statements about the impact of large-scale dairy farm operations on small-scale dairies indicated that the respondents felt that small-scale dairy farm managers would be forced to become more competitive, their net farm income would be reduced, their current operations would be affected, and their relationship with farm neighbors and non-farm neighbors would change.

Table 33: Impact of Large-Scale Dairy Operations on the Local Community and Small-Scale Dairies as Described by Farm Managers on Pennsylvania Small-Scale Dairy Operations in 1995.

	Strongly Disagree		Neither Agree Nor Disagree		Strongly Agree	
Large-scale dairy farm operations would affect	1	2	3	4	5	Mean
	- - - - - - - - - - Percent of Total - - - - - - - - - -					
the LOCAL COMMUNITY by						
Having a positive impact on their local community	32.8	19.8	32.1	7.6	7.6	2.4
Bringing other dairy related business to the local community	36.4	15.2	34.1	8.3	6.1	2.3
Improving the lifestyle of other dairy farm managers in the area	50.4	17.3	24.8	4.5	3.0	1.9
SMALL-SCALE DAIRIES by						
Forcing small-scale dairy farms to become more competitive	10.6	6.8	12.9	34.8	34.8	3.8
Reducing small-scale dairy farms' net farm income	12.8	8.3	19.5	21.1	38.3	3.6
Changing small-scale dairy farm managers' relationship with farm neighbors	13.1	6.9	37.7	21.5	20.8	3.3
Changing small-scale dairy farm managers' relationship with non-farm neighbors	10.7	6.1	46.6	17.6	19.1	3.3
Not affecting small-scale dairy farms' current operations	33.8	24.1	15.8	10.5	15.8	2.5

Effects from the Trend of Increasing Herd Size on Your Community

The final two questions in this section asked the dairy farm managers about other effects related to the trend of increasing herd size on their community today and 10 years in the future. Only 63.1 percent of the farm managers answered the first question. The answers were categorized and are summarized in Table 34. Although 28.1 percent of those answering the question did not see any effects, 39.3 percent cited financial or economic effects and 27.0 percent noted environmental effects from the trend of increasing herd size.

Table 34: Effects of the Increasing Herd Size Trend in Your Community Today as Described by Farm Managers on Pennsylvania Small-Scale Dairy Operations in 1995.

Effect	Number of Respondents*	Percent of Total**
Financial/Economic--(low milk price/too much milk, fewer dairy farms, small farms going out of business, keeps out younger farmers, more debt)	35	39.3
No Change	25	28.1
Environmental--(pollution, water quality, more regulations, manure management)	24	27.0
Farm/Non-Farm Relations--(poor relations with non-farmers, disruption of community, overall negative effect)	9	10.1
Land Availability--(housing growth will not allow farm size to increase, Amish buying farms for sale, not enough water supplies)	8	9.0
Hired Labor--(more hired labor, labor shortage, younger generation does not see future)	5	5.6
Business Relations--(more competition, fewer local agricultural businesses/jobs, neglect from business people in industry)	3	3.4
Other--(animal health, farm family issues, feed availability, must increase herd size)	10	11.2

* Respondents could give more than one answer.

** Percent of total is of the 89 respondents who answered the question.

The last question asked the respondents to look 10 years into the future, and then speculate what the additional effects will be on their community due to the trend of increasing herd size. Only 53.2 percent of the respondents answered this question. Answers were similar to the previous question as 17.3 percent saw no change due to the trend of increasing herd size, while 45.3 percent suggested financial or economic effects, 18.7 percent foresaw environmental effects, and 17.3 percent answered land availability (Table 35).

Table 35: Effects of the Increasing Herd Size Trend in Your Community in 10 Years as Described by Farm Managers on Pennsylvania Small-Scale Dairy Operations in 1995.

Effect	Number of Respondents*	Percent of Total**
Financial/Economic--(low milk price/too much milk, fewer dairy farms, small farms going out of business, keeps out younger farmers, more debt)	34	45.3
Environmental--(pollution, more regulations, manure management)	14	18.7
No Change	13	17.3
Land Availability--(housing growth will not allow farm size to increase, cheaper land, harder to rent cropland)	13	17.3
Business Relations--(buy supplies outside the community, fewer local ag businesses/jobs, banks make more money)	6	8.0
Hired Labor--(fewer owners and more hired labor, labor shortage, easier jobs available with no major capital investment required)	4	5.3
Other--(farm/non-farm relations, feed issues, farm family issues, must increase herd size)	11	14.7

* Respondents could give more than one answer.

** Percent of total is of the 75 respondents who answered the question.

PAST AND PLANNED FARM INVESTMENTS

Recent and Planned Changes in Land, Herd Size, and Labor

Farm managers were asked if they have changed the amount of cropland, pasture acreage, grain acreage, forage acreage, number of milking cows, family labor, and hired labor in the past five years (Table 36) and if they plan to make any changes in the next five years (Table 37). The major changes in the past five years included an increase in milk cows (43.3%), an increase in forage acres (41.5%), an increase in crop acreage (30.3%), and a decrease in hired labor (29.7%). More farm managers made changes in acreage in the past 5 years than planned changes for the next 5 years. The major change planned by the farm managers in the next 5 years is an increase in milk cows (45.8%).

Table 36: Changes in Land, Herd Size, and Labor Made in the Past 5 Years on Pennsylvania Small-Scale Dairy Operations in 1995.

Change in	Number of Respondents	Increased	Stayed the Same	Decreased
		Percent of Total		
Crop Acres	132	30.3	56.8	12.9
Pasture Acres	134	23.1	67.9	9.0
Grain Acres	130	24.6	49.2	26.2
Forage Acres	130	41.5	49.2	9.2
Milking Cows	134	43.3	48.5	8.2
Family Labor	132	17.4	63.6	18.9
Hired Labor	111	18.0	52.3	29.7

Table 37: Changes in Land, Herd Size, and Labor Planned for the Next 5 Years on Pennsylvania Small-Scale Dairy Operations in 1995.

Change in	Number of Respondents	Increase	Stay the Same	Decrease
		Percent of Total		
Crop Acres	130	16.9	69.2	13.8
Pasture Acres	130	13.8	80.8	5.4
Grain Acres	124	15.3	67.7	16.9
Forage Acres	129	24.0	67.4	8.5
Milking Cows	131	45.8	45.0	9.2
Family Labor	129	22.5	61.2	16.3
Hired Labor	110	18.2	66.4	15.5

Recent and Planned Investments in Facilities

Farm managers were asked if they invested more than $10,000 in physical facilities during the past five years and if they planned to invest more than $10,000 in the next 5 years. The specific investments included livestock housing; milking facilities and equipment; feed storage and handling; and waste storage and handling. More than 60 percent of the farm managers (62.4%) had either invested and/or planned to invest in at least one facility. On the other hand, 37.6 percent of the farm managers had neither invested in the last 5 years nor planned any investments in the next 5 years.

The number of farm managers who invested in the past 5 years and who plan to invest in the next 5 years is reported in Table 38. The two most common investments made in the past 5 years by small-scale dairy farm managers were livestock housing (24.8%) and feed storage and handling

(21.3%). Over one-quarter of the farm managers (25.5%) are planning investments in livestock housing within 5 years.

Table 38: Past and Planned Farm Investments over $10,000 on Pennsylvania Small-Scale Dairy Operations in 1995.

	Investments Made in the Past 5 Years		Investments Planned for the Next 5 Years	
Investment	Number of Respondents	Percent of Total	Number of Respondents	Percent of Total
Livestock Housing	35	24.8	36	25.5
Feed Storage & Handling	30	21.3	26	18.4
Milking Facilities & Equipment	26	18.4	21	14.9
Waste Storage & Handling	14	9.9	16	11.3

Willingness to Sell Farm

Less than one-third of the farm managers (30.4%) would be willing to sell their dairy farm operation today for its fair market value (Table 39). The other 69.6 percent of the farm managers, who were not willing to sell their farm at fair market value, were asked how much more in addition to fair market value would be needed to interest them in selling their farms. Over one-third of all the farm managers (36.6%) would not sell their farm for any price.

Table 39: Value Needed to Sell Farm as Stated by Farm Managers on Pennsylvania Small-Scale Dairy Operations in 1995.

Value Needed to Sell Farm	Number of Respondents	Percent of Total
Fair Market Value	34	30.4
Less Than 10% over Fair Market Value	1	0.9
10% over Fair Market Value	4	3.6
25% over Fair Market Value	8	7.1
50% over Fair Market Value	8	7.1
Twice the Fair Market Value	12	10.7
Would Not Sell Farm for Any Price	41	36.6
Did not Specify	4	3.6
Total Usable Answers	112	100%

SOURCES OF INFORMATION

Written Sources of Information

Dairy farm managers regularly read, on average, five magazines and/or journals for information on managing their dairy operation. Over two-thirds of the farm managers read *Pennsylvania Farmer*, *Hoard's Dairyman*, and/or *Dairy Today* (Table 40). Of the 31 farm managers providing names of other magazines and journals, *Stockman Grass Farmer*, *Farmer's Friend*, *Farm and Dairy*, and *Holstein World* were frequently listed as additional sources.

Table 40: Magazines/Journals Read Regularly by Farm Managers on Pennsylvania Small-Scale Dairy Operations in 1995.

Magazine/Journal	Number of Respondents	Percent of Total
Pennsylvania Farmer	107	75.9
Hoard's Dairyman	96	68.1
Dairy Today	95	67.4
Dairy Herd Management	91	64.5
Lancaster Farming	88	62.4
Cooperative Extension Publications	59	41.8
Farmshine	57	40.4
Successful Farming	55	39.0
Dairy Profit Weekly	8	5.7
Other Magazines/Journals	31	22.0

Use of Consultants

The farm managers were asked how often (weekly, monthly, yearly, or never) they consult with various professionals. Because many farm managers indicated 'consult as needed,' an additional column heading with this response was added to Table 41. The results indicated that the three most useful types of consultants were the farm managers' veterinarian, nutritional consultant, and milk hauler.

Table 41: Use of Consultants by Farm Managers on Pennsylvania Small-Scale Dairy Operations in 1995.

Consultant	Never	Yearly	Monthly	Weekly	As Needed
	- - - - - - - - - - - - - Percent of Total - - - - - - - - - - - - -				
Veterinarian	2.2	14.0	69.9	9.6	4.4
Nutritional Consultant	18.0	11.3	58.6	10.5	1.5
Milk Hauler	28.7	8.5	16.3	45.0	1.6
Feed Broker	45.0	8.4	33.6	12.2	0.8
DHIA Representative	40.7	0.0	57.8	0.0	1.5
Marketing Coop/Milk Dealer	15.3	57.3	26.7	0.0	0.8
Banker/Lender	32.3	59.4	6.0	0.8	1.5
Paid Agricultural Consultant	80.8	10.0	6.9	1.5	0.8
County Agricultural Extension Agent	56.8	39.4	2.3	0.8	0.8
PSU or Other University Specialist	75.4	22.4	0.7	0.7	0.7

Most of the farm managers (50.3%) regularly talk with other farm managers about problems on their dairy operation and other dairy issues (5.0% daily, 20.1% weekly, and 25.2% monthly). However, 43.9 percent rarely and 5.8 percent never talk to other dairy farm managers about problems on their dairy operation and other dairy issues.

ATTITUDES ABOUT GOVERNMENT POLICY

Current Government Dairy Programs

Farm managers on average slightly favored eliminating or phasing out the federal price support program compared with maintaining or modifying it (45.4% vs. 41.1%) as shown in Table 42. Of those wanting to keep dairy price supports, most wanted to modify rather than maintain the program as is (29.8% vs. 11.3%). Farm managers showed more support for the current Federal Milk Marketing Order System, as 52.5 percent favored maintaining or modifying the existing program versus 31.9 percent favoring the immediate or gradual elimination of the program. Again, twice as many farm managers believed the program should be modified rather than maintained as is (35.5% vs. 17.0%).

Table 42: Attitudes about Current Government Dairy Programs as Stated by Farm Managers on Pennsylvania Small-Scale Dairy Operations in 1995.

	Federal Price Support Program		Federal Milk Marketing Order	
Action Needed	Number of Respondents	Percent of Total	Number of Respondents	Percent of Total
Immediately Eliminate	22	15.6	26	18.4
Phase Out Over 5-10 Years	42	29.8	19	13.5
Uncertain/No Opinion	19	13.5	22	15.6
Continue, But Modify	42	29.8	50	35.5
Maintain As Is	16	11.3	24	17.0
Total Usable Answers	141	100%	141	100%

Alternative Government Dairy Programs

Farm managers were asked to indicate their support for two alternative dairy programs. Only 29.3 percent of the dairy farm mangers thought the government should use a voluntary milk supply control program (like a milk diversion and/or a dairy buy out). Of those who agreed with the use of a voluntary milk supply control program, one-half indicated that they would participate in such a program, while the other half said they would not participate. Similarly, only 29.0 percent of the farm managers thought the government should use a mandatory milk supply control program (like a marketing quota or production base). Of those who agreed, the mean minimum milk price they would require to support such a program was $16.12. However, the prices ranged from $13.00 to $25.00 (this compares to last year's average milk price of $12.78 (see Table 26)).

Policies Affecting Dairying

The farm managers were asked to assess statements about policies that affect dairying using a 5-point scale, where a 1 means strongly disagree and a 5 means strongly agree. Most farm managers agreed with a decrease in workmans compensation rates and benefits for farms and employees, while very few agreed with assessing dairy farms to pay for government dairy programs (Table 43).

Table 43: Attitudes about Policies Affecting Dairying as Stated by Farm Managers on Pennsylvania Small-Scale Dairy Operations in 1995.

Policy	Strongly Disagree 1	2	No Opinion 3	4	Strongly Agree 5	Mean
	- - - - - - - - - - Percent of Total - - - - - - - - - -					
Decrease in workmans compensation rates and benefits for farms and employees	5.4	3.1	31.8	23.3	36.4	3.8
Creating one grade of milk (eliminating Grade B milk)	19.7	11.8	29.9	19.7	18.9	3.1
A federal or state-sponsored health insurance plan that includes farmers	27.1	11.6	22.5	12.4	26.4	3.0
Gov't subsidizes for exporting dairy products	16.8	16.8	38.4	16.8	11.2	2.9
Lowering the Grade A somatic cell count level to 500,000	27.5	11.5	25.2	22.1	13.7	2.8
Tying crop support payments to implementing soil conservation practices	26.4	12.4	27.9	24.8	8.5	2.8
Terminating milk promotion and research check offs	28.7	18.6	27.9	9.3	15.5	2.6
Setting U.S. dairy prices based on world market prices	34.1	11.4	37.4	12.2	4.9	2.4
Stricter environmental regulations on storage and handling of manure	38.5	21.5	33.1	6.2	0.8	2.1
Assessments on dairy farms to pay for gov't dairy programs	56.0	12.8	21.6	5.6	4.0	1.9

TECHNOLOGY

Bovine Somatotropin

Several survey questions asked small-scale dairy farm managers about bovine somatotropin (also known as bST, BGH, or bovine growth hormone), which is used to increase milk production when given to lactating cows. Only 11.9 percent of the farm managers use bST, while 73.9 percent do not use bST (Table 44). In addition, seven farm managers said they used bST at one time but have since discontinued using it, while 9.0 percent have not yet decided whether to use bST.

Table 44: bST Use on Pennsylvania Small-Scale Dairy Operations in 1995.

bST Use	Number of Respondents	Percent of Total
Have Decided Not to Use bST	99	73.9
Currently Using bST	16	11.9
Have Not Yet Decided Whether to Use	12	9.0
Have Discontinued Using bST	7	5.2
Total Usable Answers	134	100%

Sixty percent of the farm managers (60.0%) felt they had enough information to make an informed decision about using bST. The farm managers were then asked what were the three most important information sources they used. Written information sources, veterinarian, Monsanto, and cooperative extension were used most for information about bST (Table 45).

Table 45: Information Sources Used to Make an Informed Decision about bST by Farm Managers on Pennsylvania Small-Scale Dairy Operations in 1995.

Information Source	Number of Respondents*	Percent of Total**
Publications/Magazines/Journals	34	51.5
Veterinarian	28	42.4
Monsanto	13	19.7
Cooperative Extension/PSU	10	15.2
Other Farmers	8	12.1
Consultants	8	12.1
Milk Company	4	6.1
Farmers on the Trial or Used bST	1	1.5

* Respondents could give more than one answer.

** Percent of total is of the 66 respondents who answered this part of the question.

Forty percent of the farm managers (40.0%) felt as though they did not have enough information to make an informed decision about using bST. Of these farm managers, 61.4 percent answered the follow-up question of what additional information would have helped them make an informed decision[7]. Some answers to this open-ended question included side effects/long term effects on the cows (37.0%); effects on herd health (29.6%); consumer reaction (11.1%); additional research, and effect on milk supply (7.4%, each); and effects on humans, profits from use, how to use, and experiences of other farmers (3.7%, each).

Farm managers who are currently using bST were asked several additional questions. Over one-half of the farm managers (56.3%) used bST on all eligible cows in the herd while the other

[7] Respondents could give more than one answer.

43.7 percent used bST on only a few select cows in the herd. Next, farm managers were asked if they were reluctant to discuss their bST use with various people. Over one-half of the farm managers (56.3%) were reluctant to talk about their bST use with non-dairy farm neighbors, while 50.0, 50.0, and 18.8 percent were reluctant to talk about their bST use with friends, other dairy farmers, and other family members, respectively. Finally, 43.7 percent of the farm managers who use bST indicated that their milk buyer was aware of their bST use, although none of these farm managers had signed an agreement stating their use or non-use of bST. The other 53.3 percent of the farm managers indicated that their milk buyer was not aware of their bST use.

All of the farm managers were asked to score their level of concern about various issues relating to bST using a scale from 1 to 5 where a 1 means not concerned and a 5 means very concerned. Most of the farm managers were very concerned about all the issues, although on average farm managers were most concerned with herd health and impact on milk prices (Table 46).

Table 46: Specific Concerns about bST Among Farm Managers on Pennsylvania Small-Scale Dairy Operations in 1995.

	Not Concerned		Somewhat Concerned		Very Concerned	
Concern	1	2	3	4	5	Mean
	Percent of Total					
Dairy Cow Health	2.5	4.2	19.3	18.5	55.5	4.2
Impact on Milk Price	5.0	5.0	15.8	15.8	58.3	4.2
Adverse Consumer Reaction	5.0	4.2	28.6	12.6	49.6	4.0
Survival of Small Farms	10.8	6.7	15.8	12.5	54.2	3.9

Other Technology

Farm managers were asked to list any practices that are unique to their farm operation; only 32.6 percent of the farm managers answered this question. Several farm managers indicated using rotational grazing while others noted a specific cropping or feeding practice. In addition, many answers were indeed unique as no one else specified the following practices: farm with horses, do crop consulting, and take leaves from the township for bedding composting.

FOR FURTHER INFORMATION

A number of shorter, more detailed, reports on the topics covered in this general summary will be published during the next year. Copies will be available through local county extension offices or by contacting:

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REFERENCES

Bureau of Census, U.S. Department of Commerce. *1992 Census of Agriculture-Pennyslvania.* (1994):Volume 1, Part 38.

Pennsylvania Agricultural Statistics Service. *1994-1995 Statistical Summary and Annual Report.* (1995): PASS-117.

Pennsylvania Agricultural Statistics Service. *Special Dairy Report.* (July 1996 (2nd Quarter)): Volume 96. No. 2.

Pennsylvania Dairymen's Association. *1995 Yearbook.* S.B. Beshore, editor. New cumberland, PA. (1995).

Appendix: Number of Cows on the Largest Dairy Farms by County as Reported by Farm Managers on Pennsylvania Small-Scale Dairy Operations in 1995.

County	Number of Respondents	# of Cows on the Largest Farms in Your Area			
		Under 50	50 - 100	101-200	Over 200
		Percent			
Armstrong	1	0.0	100.0	0.0	0.0
Beaver	1	0.0	100.0	0.0	0.0
Bedford	6	0.0	50.0	16.7	33.3
Berks	6	16.7	16.7	33.3	33.3
Blair	4	0.0	25.0	0.0	75.0
Bradford	5	0.0	20.0	60.0	20.0
Butler	2	0.0	0.0	100.0	0.0
Centre	6	33.3	66.7	0.0	0.0
Clearfield	1	0.0	100.0	0.0	0.0
Columbia	3	0.0	33.3	33.3	33.3
Crawford	3	0.0	66.7	0.0	33.3
Cumberland	3	0.0	0.0	33.3	66.7
Dauphin	1	0.0	100.0	0.0	0.0
Erie	9	11.1	33.3	22.2	33.3
Fayette	1	0.0	0.0	100.0	0.0
Franklin	4	25.0	0.0	25.0	50.0
Fulton	1	0.0	0.0	100.0	0.0
Huntingdon	3	0.0	33.3	33.3	33.3
Indiana	3	0.0	33.3	33.3	33.3
Jefferson	2	0.0	50.0	50.0	0.0
Juniata	2	0.0	0.0	50.0	50.0
Lackawanna	1	100.0	0.0	0.0	0.0
Lancaster	17	29.4	58.8	0.0	11.8
Lawrence	5	40.0	0.0	20.0	40.0
Lebanon	2	0.0	50.0	0.0	50.0
Luzerne	2	100.0	0.0	0.0	0.0
Lycoming	1	100.0	0.0	0.0	0.0
McKean	2	0.0	100.0	0.0	0.0
Mercer	2	0.0	50.0	0.0	50.0
Mifflin	2	50.0	0.0	50.0	0.0
Monroe	1	0.0	0.0	100.0	0.0
Northampton	1	0.0	0.0	100.0	0.0
Northumberland	2	0.0	50.0	50.0	0.0
Perry	2	0.0	50.0	50.0	0.0
Potter	1	0.0	0.0	100.0	0.0
Schylkill	3	0.0	33.3	66.7	0.0
Snyder	2	50.0	0.0	50.0	0.0
Somerset	5	0.0	20.0	40.0	40.0
Susquehanna	4	25.0	50.0	25.0	0.0
Tioga	9	11.1	44.4	33.3	11.1
Union	2	0.0	50.0	50.0	0.0
Venango	3	33.3	33.3	0.0	33.3
Warren	1	0.0	0.0	0.0	100.0
Westmoreland	1	0.0	0.0	100.0	0.0
Wyoming	3	0.0	66.7	33.3	0.0
State Average	*141*	*14.9*	*36.2*	*27.0*	*22.0*