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# Dairy Guidelines

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## Results of the Labor Study on Virginia Dairy Farms Employing Full Time Workers <sup>1/</sup>

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### Summary

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Data on 376 farms were acquired from a direct mail questionnaire containing 31 questions. These farms were on a production testing program and employed one or more full time workers who spent 50% or more of their time with the herd.

The average worker was 38.6 years, had 6.8 years of schooling, and 5.9 years of dairy experience prior to his last employment. About 80% of the workers were married and had 3.6 children. Reasons why workers left dairy farms and where they went for employment were compiled on 262 workers.

The average farm had 69 cows, and 1.9 hired workers; 78% had loose housing, 71% pipeline milkers, 55% mechanical manure handling, and 32% mechanical silage feeding.

Average starting time was 5:00 a.m.; hour per day 9.75; days off per month, 3; wages per month, \$230.48; and benefits per month, \$81.65. In addition, incentives were provided by 37%; annual leave, 63%; and advancement opportunities, 94%.

### Introduction

Labor on dairy farms is becoming a larger problem to owners and managers each day. As the size of herds and total farm investments continue to increase, more problems arise. Cows must be milked twice daily, 7 days a week, including holidays and vacation time. This schedule is becoming more unpopular with farm owners every day and even less popular with the hired workers and their families. With the rapid increase in technology and mechanization on dairy farms, an effective worker must have extensive dairy experience and be able to adjust to the changing times. In addition, industry is making the labor market so competitive that many dairy farm owners find it exceedingly difficult to locate or attract workers. Few potential workers know much about farm opportunities. Dairy farmers have done little to present their labor opportunities to prospective workers.

<sup>1/</sup> This study was supported in part by the Virginia Dairy Foundation.



A descriptive type of study was designed to gather information pertaining to hired labor on Virginia dairy farms. A questionnaire, designed for this purpose, was mailed to all Virginia dairy farms which had one or more hired men who worked with the herd at least 50% of the time and were on a production testing program.

The objectives of this study were:

1. To determine the labor conditions that existed on dairy farms with full time workers.
2. To determine characteristics of the workers and farms.
3. To determine labor practices which were in effect on dairy farms.

**Methods**

On July 13, 1966, questionnaires were mailed to 582 Virginia dairymen. Included with the questionnaire was a cover letter and a self-addressed stamped envelope. The cover letter attempted to explain the nature of the study and to solicit the dairymen's cooperation in accurately completing the questionnaire.

In addition, a letter of explanation, a copy of the questionnaire, and a cover letter were sent to each Extension Agent, Agriculture and DHIA Supervisor in Virginia.

Two weeks later a follow-up letter was sent to each non-respondent. Again, after 2 weeks a follow-up letter was sent to the DHIA Supervisor and Extension Agent, Agriculture. These follow-up letters listed the non-respondents in the county or testing area for the attention of the Agents or DHIA Supervisors.

On September 17, 1966, the final follow-up letter was sent to non-respondents.

**Results**

Questionnaires were received from 376 dairymen (64%) and nearly 93% of all questions were answered.

Information pertaining to 735 dairy farm workers was reported. The age of dairy farm workers ranged from 12 to 72 years for 710 workers (Table 1). The average age was 38.6 years, with 25.7% over 49 and 18.7% less than 25.

The average years of schooling reported on 673 workers were 6.8 (Table 2). Twenty-seven had no formal schooling. Forty-four had attended school for 12 years, which can be assumed to be a high school education. There were 17 individuals who had attended college.

Table 1. Age of Dairy Farm Workers

Age of Worker	Number	Age of Worker	Number
12-16 years	20	42-46 years	80
17-21 years	59	47-51 years	87
22-26 years	98	52-56 years	69
27-31 years	77	57-61 years	43
32-36 years	73	62-66 years	23
37-41 years	73	67-71 years	7
		+71 years	1
		Total	710

Table 2. Years Dairy Farm Workers Attended School

Years in School	Number of Workers	Years in School	Number of Workers
0	27	7- 8	171
1- 2	29	9-10	94
3- 4	89	11-12	68
5- 6	168	13-14	10
		15-16	7
		Total	673

Reports on 727 workers indicated that 585 were married (80.5%), 137 were single (18.8%), and 5 were divorced or separated (0.7%). It was indicated that 573 of the married workers had an average of 3.6 children.

On these farms 712 workers had been employed at the present farm an average of 6 years, 10 months (Table 3). When the study was conducted, 120 workers had been on the job less than 1 year, while 183 had been on the same job more than 10 years.

Dairy experience that workers had obtained prior to being hired by their present employer is shown in Table 4. The average worker brought with him 5.9 years of dairy experience. However, more than 40% of them had no previous dairy experience.

Table 3. Length of Time Workers Were Employed at Present Farm

Time Employed	Number of Workers	Time Employed	Number of Workers
0- 2 Mo.	35	4- 6 Yr.	114
3- 5 Mo.	32	7- 9 Yr.	54
6- 8 Mo.	53	10-14 Yr.	73
9-11 Mo.	19	15-20 Yr.	72
1- 3 Yr.	222	+21 Yr.	38
		Total	712

Table 4. Dairy Experience of Workers Prior to Their Present Employment

Years of Dairy Experience	Number of Workers	Percent of Workers
None	286	40.9
0- 3	92	13.1
3- 8	129	18.4
9-19	140	20.0
+19	53	7.6
Total	700	100.0

Forty-one percent of the farms (156) reported losing one or more workers during the previous year, a total of 262 or 1.7 per farm (Table 5). The age of 251 workers who left their jobs ranged from 14 to 65 years. The average was 32.5 years, 11.5% were 50 or older and 32.3% were less than 25. Nearly 75% of these workers were married.

The average length of time 207 workers were employed was 23.5 months. Many of them worked only a few weeks, while others had worked on dairy farms for longer periods of time.



The most significant reasons those workers left their jobs and what their jobs were at the time the study was made are reflected in Tables 6 and 7, respectively.

Table 5. Number of Workers Lost per Dairy Farm During 1 Fiscal Year<sup>a/</sup>

Workers Lost per Farm	Number of Farms	Total Workers Lost
1	92	92
2	36	72
3	18	54
4	8	32
+4	<u>2</u>	<u>12</u>
	Total 156	Total 262

a/ July 1, 1965 to June 30, 1966

Table 6. Reasons Workers Left Dairy Farms

Item	Number of Workers	Percent
Better job, more money, or less responsibility	43	25.7%
Fired or unreliable	39	23.3%
Hours too long	16	9.6%
Family problems	13	7.8%
Drinking	9	5.4%
Up and quit	8	4.8%
Drafted	7	4.2%
Wanted off farm work	7	4.2%
Bad health	6	3.6%
Trouble with law	4	2.4%
Bought farm	3	1.8%
Unknown	<u>12</u>	<u>7.2%</u>
	Total 167	100.0%

Table 7. Present Jobs of Workers Who Left Dairy Farms

Item	Number of Workers	Percent
Public work	42	21.9%
Another dairy farm	34	17.7%
Farm other than dairy	14	7.3%
Truck driving	9	4.7%
Factory	9	4.7%
Army, Navy, etc.	8	4.2%
Prison or reform school	3	1.5%
Miscellaneous	10	5.2%
Unknown	<u>63</u>	<u>32.8%</u>
	Total 192	100.0%

The average herd size for these farms with hired labor was 69 cows. The average number of hired workers per dairy farm was 1.9, with most farms (79.7%) having 1 or 2 workers.

Loose housing of the milking herd existed on 78.6% of the farms. There were pipeline milkers either in the parlor or barn on 71.6% of the farms. Silage was mechanically removed from about 1/3 of the silos. Once the silage was removed from the silos, 32.4% of the farms had a mechanical feeding system. Manure was mechanically handled on 55.2% of the farms.

The average starting time for dairy workers was 5:00 a.m. (Table 8). About 71% of the dairy workers started the day before 6:00 a.m. Working hours per day were on the average 9-3/4 hours (Table 9). Days worked per week were 6-1/4 for a total of 60.9 hours weekly per worker (Table 10).

Table 8. Starting Hour in the Morning for Dairy Farm Workers

Starting Hour	Number of Farms	Starting Hour	Number of Farms
8:00 a.m.	4	4:00 a.m.	66
7:00 a.m.	14	3:00 a.m.	23
6:00 a.m.	92	2:00 a.m.	3
5:00 a.m.	169	Other	3
		Total	374

Table 9. Working Hours per Day per Farm

Work Hours per Day	Number of Farms	Work Hours per Day	Number of Farms
8	69	11	48
9	73	12	31
10	141	13	5
		Others	6
		Total	373

Table 10. Work Days per Week per Farm

Days per Week	Number of Farms	Days per Week	Number of Farms
5	6	6½	125
5½	44	7	105
6	93	Total	373

In addition to the regular time off each week, 63% of the farms gave from 1 to 2 weeks of annual leave with pay. Sick leave with pay was offered by 87.2% of the farms.

Cash wages were reported by 342 farms. Weekly wages, reported by 146 farms, averaged \$53.91 ranging from \$32 to \$95. The remaining 176 farms reported monthly wages averaging \$240.68 ranging from \$50 to \$700 (Table 11). These figures for cash wages per week, or per month did not include any cash value from an incentive program that was provided by more than 1/3 of the dairy farms.

Value of benefits for each worker per year was reported by 304 farms at an average of \$979.86 (Table 12). Total earnings per dairy farm worker are reported in Table 13.



Table 11. Range in Cash Wages Paid Weekly or Monthly

Weekly Cash Wages	Number of Farms	Monthly Cash Wages	Number of Farms
\$32-\$35	5	\$ 50-\$149 <sup>a/</sup>	13
\$36-\$45	35	\$150-\$249	97
\$46-\$55	51	\$250-\$349	58
\$56-\$65	40	\$350-\$449	11
\$66-\$75	9	\$450-\$549	5
\$76-\$85	5	\$550-\$649	1
\$86-\$95	1	\$650-\$700 <sup>b/</sup>	1
Avg. \$53.91	Total 148	Avg. \$240.68	Total 196

a/ The worker who received \$50 per month was 65 years old and did not work a full 60 hour week.

b/ The individual who received \$700 per month was the manager of a 100 cow herd. The owner completed the questionnaire and listed the manager as a worker.

Table 12. Benefits to Dairy Farm Workers in Addition to Wages

Item	Farms	Percent	Average Yr. Value	Average Mo. Value
House	333	93.5	\$494.52	\$41.21
Milk	336	94.4	\$182.88	\$15.25
Utilities	241	67.7	\$ 98.37	\$ 8.20
Meat & eggs	143	40.2	\$ 81.32	\$ 6.78
Insurance	123	34.6	\$ 54.80	\$ 4.57
Phone	61	17.1	\$ 26.52	\$ 2.21
Garden land	317	89.0	\$ 21.00	\$ 1.75
Others	100	28.1	\$ 20.45	\$ 1.70
		Total	\$979.86	\$81.66

Table 13. Total Earnings per Dairy Farm Worker

	Weekly	Monthly	Yearly
Cash wage	\$54.84	\$237.64	\$2,851.65
Benefits	18.84	81.66	979.86
	\$73.68	\$319.30	\$3,831.51 <sup>a/</sup>

a/ This figure for total yearly earnings did not include any value from an incentive program that was provided by more than one-third of the dairy farms.

Total yearly hours worked per worker (3,105) was calculated by multiplying 60.9 working hours per week by 51 weeks. Most farms offered annual leave plus some free time during holidays. Thus, cash wages per hour worked was 92¢ and total earnings per hour worked was \$1.23 plus incentive payments. Forty percent of the respondents indicated that their employees knew the cash value of benefits received. An additional 14.7% indicated that some of their employees knew the benefits in dollar value, but 48.2% were not sure.

Advancement opportunities were reported by 94% of the farms (Table 14). Many farmers with an advancement program had more than one item as the basis for their program.

Table 14. Advancement Opportunities for Dairy Farm Workers

<u>Item</u>	<u>Number of Farms</u>	<u>Percent</u>
Higher wages	284	85.3
Shorter hours	25	7.6
Extra fringe benefits	82	24.6
Promotion	21	6.3
Buy into the herd	17	5.1
Other (specify)	25	7.6

Incentive programs for dairy workers were established on 36.7%, or 132 farms. Nearly 11% of the farmers replied that the workers did not seem interested in doing a better job. Another 10% said that they had tried incentives but they did not seem to work. For complete coverage on incentive programs, refer to Guideline Series 200 "Labor Incentives" Boost Dairy Profit.

Exactly 50% of the respondents to the questionnaire, of which 85.4% were the owners, get away from their farms 5 to 6 days a year or less. Fifty-nine percent indicated that they would like to take more time off but had too little or unreliable farm help.

The need for additional workers was pointed out by 99 farmers. They indicated that they were looking for 154 additional full-time hired dairy workers. The types of workers needed were: 10 managers, 25 herdsmen, 54 milkers, and 55 flexible helpers.

A training program for new employees was in effect on 58 farms. Most of these 58 dairymen specified that their program lasted from 2 weeks to a month or that it depended on the worker and his response. Two hundred and nine dairymen said that they did not really have a program, but just told the workers what to do.

"Would you be in favor of a farm organization to train young workers in dairy skills in order to attract more workers and then to find them employment on dairy farms?" was the final question. Two-hundred and forty farmers, or 66.9%, said "No," and 104 28.7% said "sounds good." One-hundred and sixty-six dairymen would like to know more about it. Finally, 69 or 19% responded, "Yes, I would even financially support an organization as such, if I would know where I might even find trained dairy workers."

By comparing those farms that lost workers with those farms that had a high producing herd, one could find little difference in labor practices (Table 15). The wages and mechanization were somewhat higher on the farms with a top herd in contrast to the farms that lost workers. The principal points were the differences between the 2 groups of farms in average production per cow and income above feed costs.



Table 15. Comparison of Farms that Lost Workers  
With Farms that Had a High Producing Herd

Item	Farms that Lost Workers	Farms with High Herd
Wages per month	\$236.14	\$246.65
Hours worked per day	9.86	9.97
Days worked per week	6.30	6.28
Advancement opportunities	95.7%	97.3%
Incentive programs	33.8%	38.9%
Paid sick leave	85.5%	84.6%
Workers knew value of benefits	33.8%	40.7%
Pipeline milkers	72.5%	74.1%
Mechanical silage feeding	28.9%	30.7%
Mechanical manure handling	53.2%	60.3%
Herd size	76.3	67.5
Average production per cow	11,589#	14,275#
Income above feed cost	\$350.00	\$421.00

#### Discussion

Dairy herds are increasing in size and total investment. With technological changes constantly taking place, a dairy operator's team (owner, plus workers) must keep abreast of these changes. Dairy farm owners, who are usually cost-conscious, naturally think of hired labor as an expense and want to cut costs wherever possible.

The majority of the dairy herds on a production testing program in Virginia are so large that the farm family alone cannot supply all the needed labor. Therefore, hired labor on these dairy farms becomes a needed resource and a management responsibility. The responsibility is that these workers are needed and that the demand for laborers is extremely competitive. Furthermore, a responsibility exists because many of the present workers must be re-trained to understand the innovations and new equipment. New workers must be trained in such a way that they will comprehend the reasoning behind each practice.

The farms under study employed an average of 1.9 workers. Nearly 80% had 1 or 2 workers. Fifty percent of the workers were 37 or older and 25.7% were over 50.

By combining the age factor with the average years of schooling per worker, which was 6.8 years, one can comprehend the type of training program which would be needed to be effective.

Eighty percent of the workers were married. Those that were married had, on the average, 3.6 children. This fact complicates the problem of housing on the farm or at a training center.

More than 40% of the workers on dairy farms had no dairy experience at the time of last employment. When the study was conducted nearly 50% of the workers had been employed on the same farm for 3 years or less. Only 20% had worked on the same farm for a total of 10 or more years. This lack of dairy experience and high percentage of new employees indicated some problems for further consideration.



Forty-one percent of the 376 farms lost in one fiscal year an average of 1.7 workers. On the average these workers were 6 years younger than the ones who remained. The average length of employment was 23.5 months. Three primary reasons accounted for about 60% of the workers who left dairy farms: they got a better job; the hours were too long; or they were fired. However, 25% of the workers who left their jobs went to work on another dairy farm or to a non-dairy farm. This indicated that many differences exist among farms in respect to labor conditions and relationships.

In spite of labor shortages and costs, milk was carried by hand on 88 farms, silage was manually thrown out of 687 of the 1055 silos. Furthermore, 146 farms had no mechanical silage feeding, and manure was handled manually on 77 farms. If it were possible to calculate the tons of milk, silage, and manure moved by hand on these farms annually, the figure would be enormous.

These chores are purely physical tasks requiring very little mental ability. Also, they offer little opportunity for an individual to gain any satisfaction. Difficulties in securing workers who would be content to do these chores center around 4 possible factors. They are the low cash wages, long daily and weekly hours, instability of such workers, and their limited capabilities.

These laborious, non-satisfying tasks have been nearly eliminated on many farms. Installing a gutter cleaner as a bonus for the workers may also eliminate the need for an extra worker. Adding a pipeline for easing the milking task or purchasing a silo unloader has many non-economic advantages. It could possibly be a way of adding status or prestige to the worker's job. It may possibly instill pride in the workers to know that the owner is interested in improving dairy labor conditions.

A dairy employer was exchanging \$54.84 in cash wages (92¢ per hour) for 60.9 hours of work weekly per worker. The average value in fringe benefits per week was \$18.84. Total earnings to the worker per hour worked were \$1.23. On the surface this \$1.23 per hour appears to be quite competitive until one realizes that a worker must work 60 hours per week and 6-1/4 days a week every week of the year.

Two of the previously discussed reasons why workers left dairy farms were that the hours were too long or they were fired. This indicates that one cannot expect to hire a worker who will do a good job if the worker must start at 6:00 a.m. or earlier, and work 60 hours a week for \$73.68. These conditions tend to attract workers with little education and little desire to do a good job. This possibly accounts for the rather high percentage of workers being fired or considered unreliable.

The 40-hour work week and high wages in industry are difficult for dairymen to compete with. Because of a shortage of dairy workers, those who remained were overworked in hours per day and days per week. Ninety-nine farms indicated a need for 154 additional full time workers.

Two items often considered to be fringe benefits are advancement opportunities and incentive programs. In this study, 94% of the dairymen provided advancement opportunities and 36% had an incentive program. The most popular advancement was higher wages, while the most offered incentive was based upon milk shipped monthly.

Many of the incentive programs offered to the workers were very attractive and were a real reward for doing a good job. However, some of the incentives were difficult to interpret. An example was the owner who offered his worker \$2 per month per 1/10 of a point increase in butterfat test above 3.5%. This would be rather difficult for the worker to achieve. Another difficult incentive to evaluate would be a



bonus for maintaining a clean dairy and doing a good job of dairying. Problems with this incentive were to interpret how often paid, who determined the cleanliness, and what constituted a good job.

Incentives that appeared to be the most easily understood were those that involved a third party. The third party for herd production goals was the DHIA Supervisor; for monthly milk shipped, the plant manager; for bacteria counts, the bacteriologist; and pregnancies, the veterinarians. It appears that greater understanding could be achieved by the workers and owners when a third party was incorporated into an incentive system.

It appears that when the owner and laborers work together as a team, incentives can play an important role.

Eighty-five percent of the respondents who completed the questionnaire were the farm owners. More than 1/2 of the owners take less than 6 days a year off but would like more free time. The 2 primary reasons stated for not taking more time off were too little or unreliable help.

As the investment in the dairy farms increases, the need for competent skilled dairy workers also greatly increases. Nearly 1/2 of the respondents expressed a desire to learn more about a dairy labor training organization. Nineteen percent said they would even financially support an organization that would attract and train young dairy workers.

With this information on dairy farm labor, one can begin to better understand the labor problems facing the production of milk.

One point this study failed to show was the labor costs to produce 100 lbs. of milk (family labor was not included in the questionnaire). This is needed to see if there is a relationship between higher paid laborers and lower labor costs per 100 lbs. of milk. A positive relationship would exist if the higher paid workers were able to increase the production per cow. If such a relationship could be found, then improving the quality of laborers would take on added meaning.

The dairy farmer must find ways of solving labor problems and cutting labor costs per unit of output. If an incentive program or advancement opportunities will help, they must be used as well as many other practices.

**Conclusions**

1. Dairy farm working hours and wages must become more competitive to attract competent workers. In one fiscal year, 60% of the workers leaving dairy farms in this study were offered better jobs and/or shorter hours or they were considered unreliable and fired.
2. Training for dairy workers is needed. Forty percent of the present workers had no previous dairy experience prior to their last employment.
3. A need was indicated for additional dairy farm workers. Forty percent of the farms (99) needed 154 additional full-time workers at the time of study.
4. Many dairy farm employers offered advancement opportunities and incentive programs. Ninety-four percent offered advancements and 36% offered incentives to their workers.





