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ABSTRACT

To improve vocational educational programs in  
agriculture, occupational information on a common core of basic  
skills within the occupational area of the dairy farmer is presented  
in the revised task inventory survey. The purpose of the occupational  
survey was to identify a common core of basic skills which are  
performed and are essential for success in the occupation. Objectives  
were accomplished by constructing an initial task inventory to  
identify duty areas and task statements for the occupation. The  
initial task inventory was reviewed by consultants in the field, and  
312 tasks were identified. A random sample of 74 dairy farmers based  
on the 1974-75 Ohio Young Farmers Association, Inc. was obtained.  
Data were collected utilizing a questionnaire. Forty-eight  
questionnaires were returned of which 43 were usable. A compilation  
of basic sample background information is presented on size and type  
of dairy operation, years as a dairy farmer, and preparation as a  
dairy farmer. A compilation of duty areas of work performed and work  
essential for the occupation is given. Percentage performance by  
incumbent workers and the average level of importance of specific  
task statements are presented in tabular form. (Author/EC)

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DETERMINATION OF A COMMON CORE  
OF BASIC SKILLS IN AGRIBUSINESS  
AND NATURAL RESOURCES

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**An Empirical  
Determination Of Tasks.  
Essential To  
Successful Performance  
As A  
Dairy Farmer**

DEPARTMENT OF AGRICULTURAL  
EDUCATION

THE OHIO STATE UNIVERSITY

COLUMBUS, OHIO 43210

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**AN EMPIRICAL DETERMINATION OF TASKS ESSENTIAL  
TO SUCCESSFUL PERFORMANCE AS A  
DAIRY FARMER**

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**Department of Agricultural Education**

**in cooperation with**

**The Ohio State University Research Foundation**

**The Ohio State University**

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## FOREWORD

The Department of Agricultural Education at The Ohio State University is involved in a major programmatic effort to improve the curricula in educational programs in agriculture. One product in this effort is this report of the dairy farmer task inventory survey. The data reported were collected as part of a more comprehensive thrust designed to develop a common core of basic skills in agribusiness and natural resources.

It is hoped that the revised task inventory contained in this report will be useful to curriculum developers working for improved occupational relevance in schools. Twenty-seven additional inventories in other occupational areas are also reported from this project.

The profession owes its thanks to J. Rick Byrd, graduate research associate, for his work in preparing this report. Special appreciation is also expressed to Richard Hummel, Executive Vice President and Treasurer of the Ohio Young Farmers Association and Area Supervisor for Vocational Education in Agriculture in Ohio, for his assistance in securing the cooperation of dairy farmers throughout Ohio.

J. David McCracken  
Project Director

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## INTRODUCTION

Occupational information is needed to develop and revise vocational and technical education curricula. Teachers and curriculum developers generally determine which skills might be taught in a program based upon teacher expertise, advisory committee input, informal and formal community surveys, and/or task inventories.

The Agricultural Education Department at The Ohio State University has utilized and revised a system for obtaining and using occupational information as an effective aid in planning, improving, and updating occupational education curricula. This report presents the results of a survey of the occupation, dairy farmer. The information contained herein may be used by curriculum development specialists, teachers, local and state administrators, and others involved in planning and conducting vocational and technical programs in agriculture.

### Purpose and Objectives

The major purpose of the occupational survey was to identify the skills which are performed and essential for success as a dairy farmer. The specific objectives of this survey were as follows:

1. Develop and validate an initial task inventory for the dairy farmer.
2. Identify the specific tasks performed by dairy farmers.
3. Determine the relative importance of the specific tasks to successful employment as a dairy farmer.

### Definition of the Occupational Area

The dairy farmer usually receives a major portion of his farm income from the dairy enterprise. The dairy farmer maintains a herd of milk cows and may or may not raise his own herd replacements. The specific duties he performs in relation to the dairy enterprise usually involve maintaining the herd health, formulating feeds and feeding the herd, milking the cows, selecting animals, managing the herd breeding program, sanitizing milking equipment, and marketing the milk through proper channels.

Because most dairy farmers operate farms where crops are raised, the operational management responsibilities of the dairy farmer include more than managing the milking herd. The dairy farmer is usually responsible for the planting, cultivating, harvesting, storing, and marketing of grain and forage crops. The dairy farmer also has a large investment in equipment and buildings and must manage that portion of the dairy farm business. The dairy farmer must operate equipment and machinery and maintain and repair such equipment. The dairy farmer also will be involved in minor building construction tasks and performs maintenance functions on the farm buildings and structures.

### METHODOLOGY

Objectives were accomplished by constructing an initial task inventory, validating the initial inventory, selecting a sample of workers, collecting data, and analyzing data.

### Initial Task Inventory

Duty areas and task statements for the dairy farmer were identified by searching existing task lists, job descriptions, curriculum guides, and reference publications. Additionally, contacts with several dairy specialists at Ohio State University aided in clarifying the specific responsibilities of the dairy farmer. All the tasks that the project staff thought to be performed were assembled into one composite list.

The initial tasks were grouped into functional areas called "Duties".

After the task statements were grouped under the proper duty areas, each task statement was reviewed for brevity, clarity, and consistency. In all 348 task statements were included in the initial task inventory.

### Initial Inventory Validation

After the initial task inventory was constructed, it was reviewed by six dairy farmers.

The dairy farmers were asked to respond to the initial task list inventory by performing the following activities:

1. Indicate whether any of the tasks listed were not appropriate.
2. Add any additional tasks they believed were performed by the dairy farmer.
3. Make changes in the wording of tasks to help add clarity to the statements.

The comments from the six dairy farmers were pooled and needed revisions were made. Two new duty areas were developed as a result of the review process. The duty areas relating to the overall management of a dairy farm which were not unique to the dairy enterprise but common to several production agriculture occupations were removed from the dairy farmer questionnaire and incorporated into a separate farm manager (owner-operator) questionnaire.

As a result of the initial task inventory review process, 312 tasks were identified.

### Worker Sample Selection

An attempt was made to survey dairy farmers from all areas of the state with various size dairy operations. A sample of 74 dairy farmers was obtained from the 1974-75 directory of the Ohio Young Farmers Association using a multi-stage random sampling approach. The stages used in the sampling approach were local Ohio Young Farmer Association chapter and individual member.

### Data Collection

A packet of materials was sent to the randomly-selected dairy farmer. The packet of materials included:

1. A cover letter from the Ohio Young Farmers Association.
2. A questionnaire printed on yellow.
3. A stamped and self-addressed return envelope.

The dairy farmer was instructed to complete the questionnaire and return it in the stamped and self-addressed return envelope by the date specified in the cover letter.

A follow-up of non-respondents consisted of mailing a packet of materials two weeks after the initial mailing. The follow-up consisted of a packet of materials identical to the initial packet except that a cover letter on Ohio State University stationery replaced the cover letter on Ohio Young Farmer Association stationery.

### Data Analysis

The 48 questionnaires which were returned were checked for completeness and accuracy by the project staff. Information from the 43 usable responses was coded on Fortran coding sheets for key punching. In addition to coding appropriate respondent background information, each specific task statement was coded as to whether it was performed (1 = Task performed by respondent; blank = Task not performed by respondent) and the level of importance of the task (3 = Essential; 2 = Useful; 1 = Not Important). The information was keypunched on IBM cards and verified by personnel at the Instruction and Research Computer Center at The Ohio State University.

The data was analyzed using the SOUPAC computer program and the facilities of the Instruction and Research Computer Center. Consultant assistance for analyzing the data was provided by personnel at The Center for Vocational Education. The SOUPAC computer

analysis resulted in the computation of relative frequencies, means, and rankings for each task statement. The results of the computer analyses were printed in tabular form for ease of interpretation.

## FINDINGS

Objectives of the study resulted in the compilation of basic sample background information, the determination of tasks performed by the dairy farmer, and the identification of tasks essential to successful performance as a dairy farmer.

### Description of the Sample

Information regarding the performance of tasks and the importance of the tasks to be successful as a dairy farmer was obtained from dairy farmers across Ohio.

### Response to the Survey

A total of 74 questionnaires were mailed and 48 replies were received. This represented a 64.9% rate of return. The response to the questionnaire is summarized in TABLE I.

TABLE I

### DAIRY FARMER RESPONSE TO THE QUESTIONNAIRE

	N	Percent of All Farmers In the Survey
Dairy Farmers in Survey	74	100.0
Total Returns	48	64.9
Usable Returns	43	58.1
Unusable Returns	5	6.8
Nonrespondents	26	35.1

### Size and Type of Dairy Operation

Dairy farmers from various size dairy operations were included in the study. The size of the herd on the dairy farm was used to assess the size of the dairy operation.

Of the 48 questionnaires received, 43 included information regarding size of the dairy operation. TABLES II and III summarize the responses to the question "How many milk cows, heifers, and calves do you have?" The size of the dairy milking herd ranged from 16-148 milk cows. The average milk cow herd size was 67.7. The number of replacement heifers and calves ranged from 10-210. The average number of heifers and calves was 62.1.

TABLE II  
SIZE OF OPERATION  
(Milk Cows)

Number of Milk Cows	N	Percent of Respondents
0-40	10	23.2
41-80	21	48.9
81-120	10	23.2
120 or more	2	4.7
Total	43	100.0

$\bar{X}$  number of milk cows = 67.7

TABLE III  
SIZE OF OPERATION  
(Heifers and Calves)

Number of Heifers and Calves	N	Percent of Respondents
0-40	16	37.2
41-50	16	37.2
51-120	9	20.9
121 or more	2	4.7
Total	43	100.0

$\bar{X}$  number of heifers and calves = 62.1

### Years as a Dairy Farmer

Dairy farmers with varying amounts of experience in dairy farming were included in the study. TABLE IV summarizes the responses to the question, "How many total years have you been a dairy farmer?" Sixteen or 40% had been dairy farmers from 10-14 years. Ten or 25% had been dairy farmers 15-20 years. Nine or 22.5% had been dairy farmers from five to nine years. The range was 5-33 years with a mean of 13.5 years.

TABLE IV

#### TOTAL AMOUNT OF WORK EXPERIENCE IN DAIRY FARMING

Years	N	Percent of Respondents
5-9	9	22.5
10-14	16	40.0
15-20	10	25.0
21 or more	5	12.5
Total	40	100.0

$\bar{X}$  years as a dairy farmer = 13.5

### Preparation as a Dairy Farmer

Dairy farmers obtained training for their occupation from various sources. TABLE V summarizes their responses to the question, "Where did you receive your preparation for farming?" Forty-three dairy farmers or 100% indicated they received training on-the-job. Twenty-eight dairy farmers or 70% indicated they attended a high school course to receive training as a dairy farmer. Twenty-four dairy farmers or 60% indicated they had received training as a dairy cattle farmer by attending adult education courses. Nine or 22.5% indicated they received training through a college/university program. Thirteen or 32.5% received training as a dairy farmer from other sources.

### Duty Areas of Work Performed by the Dairy Farmer

The 312 tasks were grouped under 17 duty areas. Each respondent indicated whether he performed the specific task in his

TABLE V  
SOURCE OF TRAINING RECEIVED AS A DAIRY FARMER

Source	N	Percent of All Farmers In Survey
On-The-Job	43	100.0
High School Program	28	70.0
College/University Program	9	22.5
Adult Education Program	24	60.0
Technical Program	2	5.0
Others	13	32.5

current position as a dairy farmer. The percentages of respondents performing each task were averaged for all tasks under each duty area. The mean percentage of dairy farmers who performed specific tasks in specified duty areas is presented in TABLE VI.

Duty areas of work in which 50% or more of the dairy farmers performed the tasks were:

1. Observing Legal Requirements in Dairy Operations
2. Following General Safety Precautions
3. Maintaining Equipment and Vehicles
4. Using and Maintaining Hand and Power Tools
5. Operating Equipment and Vehicles
6. Constructing and Maintaining Dairy Buildings and Structures
7. Assembling and Installing Dairy Operations Equipment
8. Maintaining Dairy Herd Health
9. Formulating Feeds and Feeding Dairy Cattle
10. Marketing and Shipping Dairy Products and Dairy Cattle
11. Selecting Breeding Cows and Replacement Stock
12. Breeding Cows and Heifers
13. Handling and Caring for Animals
14. Milking Cows
15. Sanitizing and Maintaining Milking Equipment
16. Handling and Disposing of Animal Wastes

Duty Areas of Work Essential for  
Successful Performance as a Dairy Farmer

A level of importance rating was obtained for each task. The respondent could rate the task as essential, useful, or

not important for successful performance as a dairy farmer. A ranking of essential was assigned a numerical rating of "3", useful a numerical rating of "2", and not important a numerical rating of "1". The level of importance ratings for each task were averaged for all tasks under each duty area. The average level of importance ratings for the specific tasks in the specified duty areas are presented in TABLE VI.

Duty areas of work which received a 2.0 or higher level of importance rating by incumbent workers were:

1. Observing Legal Requirements in Dairy Operations
2. Following General Safety Precautions
3. Maintaining Equipment and Vehicles
4. Using and Maintaining Hand and Power Tools
5. Operating Equipment and Vehicles
6. Constructing and Maintaining Dairy Buildings and Structures
7. Assembling and Installing Dairy Operations Equipment
8. Maintaining Dairy Herd Health
9. Formulating Feeds and Feeding Dairy Cattle
10. Marketing and Shipping Dairy Products and Dairy Cattle
11. Selecting Breeding Cows and Replacement Stock
12. Breeding Cows and Heifers
13. Handling and Caring for Animals
14. Milking Cows
15. Sanitizing and Maintaining Milking Equipment
16. Handling and Disposing of Animal Wastes

Percentage Performance and Level of Importance  
Ratings of Specific Tasks

The percentage performance by incumbent workers and the level of importance for each specific task is also presented in TABLE VI.

It is recommended that the results for each specific task be examined by educators and others who are developing educational programs to determine curriculum content for preparing dairy farmers. Specific tasks with a high level of performance and a high level of importance rating should be given more emphasis in the educational program than specific tasks with a low level of performance and a low level of importance rating.

TABLE VI

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE\*  
OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
<b>Observing Legal Requirements in Dairy Operations</b>		
Follow laws relating to chemical use . . . . .	97	2.8
Interpret feed additive mixing regulations . . . . .	79	2.6
Identify EPA regulations which apply to dairy operations . . . . .	55	2.1
Interpret milk production standards . . . . .	83	2.7
<b>Mean Rating . . . . .</b>	<b>78.5</b>	<b>2.6</b>
<b>Following General Safety Precautions</b>		
Follow safe work habits . . . . .	90	2.6
Identify potential safety hazards . . . . .	79	2.6
Store chemicals . . . . .	79	2.4
Use fire extinguishers . . . . .	62	2.3
Wear appropriate protective clothing . . . . .	46	2.2
Ventilate work areas . . . . .	55	2.3
Interpret information on labels and signs . . . . .	86	2.6
Use proper lifting and carrying methods . . . . .	58	2.2
Store inflammable materials . . . . .	72	2.3
Wear appropriate work clothes . . . . .	83	2.2
Adjust safety devices . . . . .	81	2.5
Install safety devices . . . . .	65	2.2
Determine when climatic conditions provide unsafe work situations . . . . .	51	2.0
Correct potential safety hazards . . . . .	83	2.4
Remove debris from work areas . . . . .	83	2.3
Use electrical connectors and safety devices . . . . .	86	2.5
Dispose of chemical containers . . . . .	86	2.3
<b>Mean Rating . . . . .</b>	<b>73.2</b>	<b>2.3</b>
<b>Maintaining Equipment and Vehicles</b>		
Add coolant to radiators . . . . .	100	2.9
Add oil to equipment . . . . .	100	2.8
Adjust carburetors . . . . .	67	2.3
Adjust clutch pedal free travel . . . . .	79	2.6
Bleed diesel fuel system . . . . .	76	2.5
Change oil and oil filters . . . . .	100	2.8

\*Average rating of importance may range from 1-3 with 3 being the highest

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE  
OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Change thermostats . . . . .	65	2.0
Clean debris from equipment . . . . .	95	2.5
Grease equipment . . . . .	100	2.9
Inflate tires . . . . .	100	2.8
Inspect cooling system for leaks . . . . .	88	2.6
Install and adjust belts . . . . .	97	2.5
Install and adjust chains . . . . .	100	2.6
Install and service battery . . . . .	97	2.6
Interpret maintenance directions in operator's manuals . . . . .	100	2.6
Remove equipment from storage . . . . .	97	2.4
Repack bearings . . . . .	90	2.5
Replace and adjust spark plugs . . . . .	95	2.5
Replace bearings and seals . . . . .	95	2.4
Replace diesel fuel nozzles . . . . .	44	2.0
Replace spark plug wires . . . . .	81	2.3
Replace radiator hoses . . . . .	90	2.4
Replace universal joints . . . . .	69	2.3
Service air cleaners . . . . .	95	2.8
Service fuel strainer, fuel filters, and sediment bowl on gas fuel system . . . . .	100	2.7
Time engines . . . . .	39	2.1
Prepare equipment for storage . . . . .	95	2.5
Install carburetor repair kit . . . . .	39	2.0
Mean Rating . . . . .	82	2.5
<b>Using and Maintaining Hand and Power Tools</b>		
Adjust tools . . . . .	93	2.4
Clean tools . . . . .	90	2.4
Identify tools . . . . .	81	2.3
Interpret tool operation instructions . . . . .	86	2.5
Recondition tools . . . . .	65	2.0
Select tools for specific jobs . . . . .	83	2.4
Sharpen tools . . . . .	81	2.5
Store tools . . . . .	93	2.5
Use hand tools safely . . . . .	98	2.7
Use power tools safely . . . . .	93	2.7
Set-up tools . . . . .	72	2.1
Mean Rating . . . . .	84.1	2.4

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE  
OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
<b>Operating Equipment and Vehicles</b>		
Interpret equipment gauge readings . . . . .	97	2.8
Operate equipment and vehicles on public highways . . . . .	93	2.8
Add wheel and front end weights . . . . .	90	2.4
Adjust equipment safety shields . . . . .	93	2.4
Connect front end operated equipment . . . . .	69	2.3
Connect hydraulic systems and hydraulic operated equipment . . . . .	97	2.7
Correct equipment safety hazards . . . . .	83	2.6
Connect 3-point hitch equipment . . . . .	93	2.6
Hitch towed equipment . . . . .	83	2.4
Identify potential equipment safety hazards . . . . .	83	2.5
Install safety shields and devices . . . . .	81	2.5
Interpret hand operating signals . . . . .	65	2.3
Interpret safety and operating instructions . . . . .	93	2.6
Interpret safety symbols on equipment . . . . .	88	2.6
Operate equipment under work conditions . . . . .	95	2.7
Refuel power units . . . . .	97	2.8
Use appropriate equipment and vehicles for specific jobs . . . . .	90	2.5
<b>Mean Rating . . . . .</b>	<b>87.6</b>	<b>2.6</b>
<b>Constructing and Maintaining Dairy Buildings and Structures</b>		
Apply wood and metal preservatives . . . . .	79	2.3
Clean and oil electric motors on structures . . . . .	86	2.5
Build and remove concrete forms . . . . .	86	2.1
Determine cost of repairs . . . . .	83	2.4
Develop bill of materials needed for repairs . . . . .	72	2.3
Repair and hang gates and doors . . . . .	100	2.4
Install electric motors . . . . .	81	2.2
Lay blocks . . . . .	53	1.8
Mix, pour, finish, and cure concrete . . . . .	72	2.0
Read and interpret blueprints . . . . .	41	1.8
Install and repair bracing in buildings and structures . . . . .	72	2.2
Repair electrical cords and broken wires . . . . .	95	2.7
Repair minor leaks in roof of buildings . . . . .	100	2.5
Replace belts and pulleys . . . . .	95	2.7
Reset circuit breakers . . . . .	95	2.6

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Replace electrical switches . . . . .	100	2.7
Replace fuses . . . . .	90	2.6
Replace lighting fixtures . . . . .	90	2.6
Install and replace valves in water system . . . . .	81	2.3
Install and repair faucets . . . . .	86	2.4
Replace water pipe . . . . .	81	2.2
Replace window panes . . . . .	90	2.1
Wire simple electrical circuit . . . . .	88	2.3
Construct and repair fences and gates . . . . .	97	2.6
Install and repair wood siding on buildings and structures . . . . .	90	2.3
Repair metal structures with arc and oxy-acetylene welder . . . . .	62	2.1
<b>Mean Rating . . . . .</b>	<b>83.3</b>	<b>2.3</b>
<b>Assembling and Installing Dairy Operations Equipment</b>		
Adjust belts on equipment . . . . .	97	2.7
Adjust chains on equipment . . . . .	95	2.7
Adjust controls on equipment . . . . .	95	2.6
Adjust safety shields on equipment . . . . .	90	2.4
Check for missing equipment parts or hardware . . . . .	83	2.6
Follow written assembly instructions . . . . .	93	2.5
Identify hardware . . . . .	81	2.3
Inspect equipment for operating defects . . . . .	95	2.6
Install equipment in proper places . . . . .	93	2.6
Interpret assembly diagrams . . . . .	86	2.3
Interpret assembly instructions . . . . .	79	2.3
Use proper equipment and tools to assemble and install equipment . . . . .	88	2.3
<b>Mean Rating . . . . .</b>	<b>89.6</b>	<b>2.5</b>
<b>Maintaining Dairy Herd Health</b>		
Evaluate influence health has on production . . . . .	90	2.8
Identify common livestock internal and external parasites . . . . .	83	2.5
Identify sanitation problems which may affect herd health . . . . .	100	2.7
Identify symptoms of nutritional imbalance . . . . .	90	2.8
Select materials to control internal and external parasites . . . . .	88	2.5

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE  
OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Work with veterinarians in developing herd health program . . . . .	88	2.7
Disinfect and whitewash buildings and equipment . . . . .	74	2.5
Select proper chemicals to clean buildings and equipment . . . . .	86	2.5
Use insecticide repellents in buildings . . . . .	83	2.5
Apply insecticides to cattle to control external parasites . . . . .	90	2.7
Identify symptoms of common cattle diseases . . . . .	93	2.7
Identify symptoms of major dairy cattle parasites . . . . .	72	2.5
Evaluate life cycles of parasites to determine control procedures . . . . .	58	2.1
Calculate cost of treatments . . . . .	55	2.1
Supply medication through feed and water . . . . .	62	2.3
Isolate animals with transmissible diseases . . . . .	67	2.6
Select appropriate method to control diseases . . . . .	79	2.6
Worm animals . . . . .	72	2.2
Vaccinate animals . . . . .	79	2.4
Determine amount of medication or materials needed in specific situations . . . . .	81	2.6
Interpret labels on medications and insecticide containers . . . . .	93	2.7
Give intra-muscular injections . . . . .	88	2.7
Determine when to rotate pastures to control diseases and parasites . . . . .	60	2.2
Observe new animals for symptoms of diseases and parasites . . . . .	83	2.7
Determine when the veterinarian should be called . . . . .	97	2.9
Apply medication to cuts and bruises . . . . .	97	2.6
Identify and isolate injured animals . . . . .	93	2.6
Blood test cows . . . . .	53	2.1
Inspect udders for mastitis and bruises, cuts, and bumps . . . . .	97	2.8
Place magnet in animals stomach . . . . .	55	1.9
Mean Rating . . . . .	80.2	2.5
Formulating Feeds and Feeding Dairy Cattle		
Develop rations . . . . .	90	2.7
Calculate cost of rations and feed mixtures . . . . .	90	2.7
Calculate feed efficiency . . . . .	69	2.3
Classify feeds . . . . .	60	2.3

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE  
OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Determine amount of feed additives to add to mixtures . . . . .	81	2.6
Determine amount to feed per animal . . . . .	86	2.7
Determine appropriate form for preparing feed . . . . .	65	2.3
Substitute for various feedstuffs in rations . . . . .	58	2.0
Determine nutrient level requirements for animals . . . . .	76	2.5
Determine purpose of various classes of feedstuffs in rations and mixtures . . . . .	65	2.3
Determine why various nutrients are needed in rations and mixtures . . . . .	58	2.3
Determine relative nutritive value of feedstuffs . . . . .	74	2.4
Determine total amount of feed needed for herds . . . . .	88	2.6
Determine water requirements for animals . . . . .	67	2.3
Determine when additives should be withdrawn from animals . . . . .	79	2.5
Determine when rations and mixtures should be changed . . . . .	86	2.6
Determine which feeds and additives may be included in animal feed mixtures . . . . .	79	2.4
Determine which feedstuffs and amount of feedstuffs may be substituted in rations . . . . .	58	2.3
Evaluate the influence the quality of feedstuffs has on production . . . . .	72	2.7
Evaluate how ration imbalance may affect production . . . . .	69	2.4
Evaluate influence residues in milk have on marketing problems . . . . .	65	2.6
Identify factors that influence feed requirements and feed efficiency . . . . .	65	2.3
Identify factors that influence quality of feedstuffs . . . . .	67	2.5
Determine purpose of various nutrients in rations and mixtures . . . . .	65	2.3
Evaluate the influence the digestive system has on feed-stuffs that may be fed . . . . .	46	2.2
Interpret feed analysis reports . . . . .	74	2.5
Interpret feed tags and labels . . . . .	90	2.6
Interpret feeding charts and tables . . . . .	76	2.3
Select appropriate feeding methods . . . . .	90	2.4
Determine how feed palatability may be improved . . . . .	65	2.3
Work with veterinarian and feed salesman in formulating feeds and planning feeding programs . . . . .	79	2.5
Identify essential nutrients needed in rations and mixtures . . . . .	69	2.3

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE  
OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Evaluate how feed additives influence production and efficiency . . . . .	62	2.2
Determine amount of weight animals should gain . . . . .	41	2.1
Fill feed troughs and bunks . . . . .	86	2.3
Fill and clean waterers . . . . .	90	2.5
Prepare feed mixtures . . . . .	81	2.5
Flush animals . . . . .	18	1.5
Precondition animals for shipping . . . . .	20	1.6
Evaluate influence of using pasture on feeding requirements . . . . .	48	2.0
Wean animals . . . . .	93	2.5
Precondition animals for feedlot . . . . .	27	1.8
Evaluate affect of various feeding practices on carcass composition and feed efficiency . . . . .	16	1.7
Prepare milk replacer solution for calves . . . . .	79	2.4
Determine when calves may be started on grain and roughages . . . . .	97	2.8
Lead feed producing cows . . . . .	58	2.0
Determine when cows may be turned out to pasture . . . . .	72	2.1
Precondition cattle before turning out to pasture . . . . .	41	1.9
Determine when dairy cattle should be removed from pasture . . . . .	69	2.1
Replace salt and mineral blocks . . . . .	88	2.4
Calculate and feed rations for lactating cows . . . . .	86	2.6
Calculate and feed rations for dry cows . . . . .	62	2.3
Calculate and feed rations for cows just before and after calving . . . . .	60	2.5
Calculate and feed rations for calves from weaning to six months of age . . . . .	86	2.6
Calculate and feed ration for heifers from six months of age to freshening . . . . .	79	2.4
Dry-off cows . . . . .	95	2.6
Determine amount of milk or replacer to feed . . . . .	95	2.7
Feed calves from buckets . . . . .	83	2.2
Identify moldy or spoiled feedstuffs . . . . .	88	2.5
Mean Rating . . . . .	70.2	2.3
<b>Marketing and Shipping Dairy Products and Dairy Cattle</b>		
Calculate expected returns and profits on sales . . . . .	79	2.4

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE  
OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Determine feasibility of participating in futures market . . . . .	41	1.8
Evaluate influence of market grade or class on returns . . . . .	53	1.9
Load animals . . . . .	93	2.3
Prepare carriers for hauling animals . . . . .	53	2.1
Select markets . . . . .	81	2.5
Prepare advertising announcements for selling animals . . . . .	20	1.9
Interpret market reports . . . . .	67	2.4
Analyze market cycles . . . . .	44	2.1
Select appropriate marketing system for milk . . . . .	46	2.1
Select truckers . . . . .	53	2.0
Determine affect middlemen and retailers have on producers' prices . . . . .	46	2.2
Determine whether animals should be held over for another year's income . . . . .	79	2.4
Estimate market grades . . . . .	37	1.9
Develop plan to spread marketing throughout year . . . . .	51	2.2
Determine the affect milk substitutes have on prices and demands . . . . .	30	2.0
Take pictures of animals for advertising announcements . . . . .	09	1.6
Determine when calves are ready to market . . . . .	65	2.4
Determine number of animals to load on trucks . . . . .	60	2.2
Consign outstanding individuals at sales . . . . .	16	1.8
Determine base butterfat test . . . . .	41	2.0
Compare milk hauling expenses of companies . . . . .	37	1.9
Compare company base milk prices and differential prices for butterfat differences . . . . .	55	2.1
Read measuring stick on bulk tank . . . . .	95	2.7
Mean Rating . . . . .	52.1	2.1
Selecting Breeding Cows and Replacement Stock		
Determine age of animals . . . . .	95	2.6
Establish production goals for culling purposes . . . . .	97	2.7
Evaluate advantages of various breeds . . . . .	67	2.1
Evaluate general condition of animals . . . . .	90	2.6
Evaluate overall performance and health records of animals . . . . .	93	2.5

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE  
OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Evaluate the degree various traits and characteristics are inherited . . . . .	67	2.2
Identify parts of animals . . . . .	81	2.1
Identify reputable sources for obtaining stock . . . . .	74	2.4
Inspect animals for defects . . . . .	76	2.6
Inspect animals for desirable traits and characteristics . . . . .	81	2.6
Select breeding system to follow . . . . .	90	2.7
Select foundation stock . . . . .	67	2.3
Evaluate advantages of raising replacements vs. buying replacements . . . . .	81	2.5
Identify breeds . . . . .	76	2.0
<u>Mean Rating . . . . .</u>	<u>81.1</u>	<u>2.4</u>
<b>Breeding Cows and Heifers</b>		
Determine due date for animals . . . . .	95	2.9
Determine when to breed . . . . .	93	2.9
Identify various causes of breeding difficulty . . . . .	86	2.6
Select a breeding method . . . . .	93	2.7
Pregnancy test animals . . . . .	65	2.3
Store and prepare semen . . . . .	48	2.2
Artificially inseminate animals . . . . .	58	2.2
<u>Mean Rating . . . . .</u>	<u>76.9</u>	<u>2.5</u>
<b>Fitting and Showing Dairy Cattle</b>		
Fit animals for show . . . . .	34	1.8
Register animals for show . . . . .	32	1.8
Show animals . . . . .	32	1.6
<u>Mean Rating . . . . .</u>	<u>33</u>	<u>1.7</u>
<b>Handling and Caring for Animals</b>		
Assist animals in delivering young . . . . .	97	2.8
Castrate animals . . . . .	62	2.3
Check animals milk supply . . . . .	88	2.6
Clean newborn animals . . . . .	79	2.4

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE  
OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Dehorn animals . . . . .	88	2.4
Determine space needed for animals . . . . .	83	2.4
Disinfect and clip naval cord . . . . .	60	2.3
Evaluate influence of stress on growth and condition of animals . . . . .	46	2.1
Exercise animals . . . . .	34	2.0
Help young to nurse . . . . .	83	2.4
Identify signs of approaching birth . . . . .	95	2.8
Identify due dates for animals . . . . .	95	2.7
Isolate newly purchased animals for observation . . . . .	46	2.2
Mark animals for identification . . . . .	88	2.7
Move cows to calving pens . . . . .	79	2.6
Move calves to nurse cows . . . . .	37	1.8
Observe animals regularly . . . . .	97	2.7
Pen animals according to size, weight, and sex . . . . .	79	2.5
Remove afterbirth . . . . .	76	2.4
Remove non-compatible animals . . . . .	55	2.3
Trim hoofs . . . . .	69	2.1
Weigh animals . . . . .	20	1.5
Regulate air movement and temperature in housing for dairy cattle . . . . .	55	2.3
House spring heifers with the milking herd . . . . .	69	2.0
Restrain cows with ropes or hobbles . . . . .	32	1.6
Move milking cows to holding pen or area . . . . .	90	2.3
Clip dairy cattle . . . . .	69	2.0
Determine length of dry period . . . . .	93	2.5
Ring animals . . . . .	34	1.5
Milk fresh cows by hand . . . . .	34	1.4
Remove excess teats from heifers . . . . .	55	2.1
Clean animals with brush or comb . . . . .	25	1.4
Bed animals . . . . .	100	2.7
Check udders on heifers and cows . . . . .	100	2.7
Prevent animals from stampeding . . . . .	60	2.0
Mean Rating . . . . .	67.8	2.2
<b>Milking Cows</b>		
Adjust pulsator speed . . . . .	65	2.4
Attach milker . . . . .	100	2.8

TABLE VI (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE  
OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Check for abnormal milk . . . . .	100	2.8
Determine when cow is finished milking . . . . .	100	2.9
Determine when milk is ready for shipping . . . . .	88	2.5
Dip teat cups in sanitizing solution . . . . .	72	2.4
Establish and follow milking schedule . . . . .	93	2.7
Evaluate influence pulsator speed has on milking of cow . . . . .	53	2.1
Prevent "climbing" of milkers . . . . .	55	2.2
Strip cows . . . . .	62	2.0
Wash and dry udders . . . . .	95	2.6
<b>Mean Rating . . . . .</b>	<b>80.3</b>	<b>2.5</b>
<b>Sanitizing and Maintaining Milking Equipment</b>		
Adjust vacuum . . . . .	88	2.7
Check freon in coolers . . . . .	48	2.2
Clean pulsators . . . . .	93	2.6
Remove milkstone . . . . .	97	2.8
Replace inflations . . . . .	100	2.9
Replace rings on milker heads . . . . .	58	2.2
Replace teat cup liners . . . . .	86	2.7
Select proper cleaning agents . . . . .	100	2.7
Set automatic timers . . . . .	62	2.1
<b>Mean Rating . . . . .</b>	<b>81.3</b>	<b>2.5</b>
<b>Handling and Disposing of Animal Wastes</b>		
Evaluate how animal wastes decay . . . . .	48	1.9
Prevent waste runoff from feedlots and housing quarters . . . . .	79	2.4
Remove dead animals . . . . .	95	2.9
Remove manure from pens and quarters . . . . .	100	2.7
Spread manure on fields . . . . .	97	2.7
<b>Mean Rating . . . . .</b>	<b>83.8</b>	<b>2.5</b>