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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 buildings and grounds foreman 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 107 tasks were identified. A random sample of 48 parks and recreation departments based on the directory of the Ohio Parks and Recreation Association was obtained. Data were collected utilizing an employee questionnaire. Thirty questionnaires were returned of which 27 were usable. A compilation of basic sample background information is presented on total work experience, employment at current job, and preparation as a buildings and grounds foreman. 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)

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

An Emperical Determination Of Tasks Essential To Successful Performance As A Buildings And Grounds Foreman

DEPARTMENT OF AGRICULTURAL EDUCATION
THE OHIO STATE UNIVERSITY
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AN EMPERICAL DETERMINATION OF TASKS ESSENTIAL TO SUCCESSFUL PERFORMANCE AS A BUILDINGS AND GROUNDS FOREMAN

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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 education programs in agriculture. One product in this effort is this report of the buildings and grounds foreman. 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 Paul H. Waddy, graduate research associate, for his work in preparing this report.

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, buildings and grounds foreman. 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 buildings and grounds foreman. The specific objectives of this survey were as follows:

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

Definition of the Occupational Area

The buildings and grounds foreman works in various public and private settings such as public parks, public schools, and private industrial complexes. The buildings and grounds foreman supervises a crew of workers and may do some of the actual maintenance work himself. The specific duties will vary with the type of setting where he is employed. In general, the buildings and grounds foreman has immediate charge of a group of skilled, semi-skilled, and unskilled workers who maintain the facility. The buildings and grounds foreman organizes and supervises his staff; assigns specific responsibilities to the workers; identifies work which must be performed; purchases materials and supplies; instructs and advises workers on technical aspects of specific work assignments; keeps required records; and participates in staff meetings and conferences.

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 buildings and grounds foreman were identified by searching existing task lists, job descriptions, curriculum guides, and reference publications. Additionally, contacts with several industry personnel aided in clarifying the specific responsibilities of the buildings and grounds foreman. 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, 104 task statements were included in the initial task inventory.

Initial Inventory Validation

After the initial task inventory was constructed, it was reviewed by four consultants employed in park management positions. These consultants were either grounds foremen or park managers.

The consultants 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 buildings and grounds foreman.
3. Make changes in the wording of tasks to help add clarity to the statements.

The comments from the four consultants were pooled and needed revisions were made. Eight duty areas were eliminated and two duty areas were combined. One new duty area was added as a result of the review process.

As a result of the initial task inventory review process, 107 tasks were identified.

Worker Sample Selection

Since the specific duties and tasks performed by the individual buildings and grounds foreman are related to the size of business where employed, an attempt was made to survey buildings and grounds foremen in a variety of settings. It was not possible to secure a list of the specific names and addresses of all incumbent buildings and grounds foremen in the state. Therefore, a sample of 48 parks and recreation departments in Ohio was obtained from the directory of the Ohio Parks and Recreation Association using a stratified random sampling approach. The strata used were type of operation and geographical location.

Data Collection

A packet of materials was sent to the director or manager of the randomly selected parks and recreation departments. The packet of materials included:

1. A cover letter from the Agricultural Education Department at The Ohio State University.
2. An employee questionnaire printed on yellow.
3. A stamped and self-addressed return envelope.

The manager or director was instructed to have a responsible buildings and grounds foreman 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.

Data Analysis

The 30 questionnaires which were returned were checked for completeness and accuracy by the project staff. Information from the 27 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 buildings and grounds foreman, and the identification of tasks essential to successful performance as a buildings and grounds foreman.

Description of the Sample

Information regarding the performance of tasks and the importance of the tasks to successful employment as a buildings and grounds foreman was obtained from buildings and grounds foremen in various parks and recreation departments across Ohio.

Response to the Survey

A total of 48 questionnaires were mailed and 30 replies were received. This represented a 62.5% rate of return. The response to the questionnaire is summarized in TABLE I.

TABLE I

EMPLOYEE RESPONSE TO THE QUESTIONNAIRE

	N	Percent of All Employees In the Survey
Employees in Survey	48	100.0
Total Returns	30	62.5
Usable Returns	27	56.2
Unusable Returns	3	6.3
Nonrespondents	18	37.5

Total Work Experience

Buildings and grounds foremen with varying amounts of work experience in buildings and grounds supervision were included in the study. TABLE II summarizes the responses to the question, "How many total years have you worked in buildings and grounds supervision?" Seven buildings and grounds foremen or 25.9% had 23 or more total years of work experience in buildings and grounds supervision. Six buildings and grounds foremen or 22.2% had from four to six total years of work experience in buildings and grounds supervision. Five buildings and grounds foremen or 18.6% had from 11-14 total years of work experience in buildings and grounds supervision. The total years of work experience in

buildings and grounds supervision ranged from 2-40 years. Buildings and grounds foremen had an average of 15 years of total work experience in buildings and grounds supervision.

TABLE II

TOTAL AMOUNT OF WORK EXPERIENCE IN BUILDINGS AND GROUNDS SUPERVISION

Years	N	Percent of Respondents
1-3	1	3.6
4-6	6	22.2
7-10	3	11.1
11-14	5	18.6
15-18	2	7.4
19-22	3	11.2
23 or more	7	25.9
Total	27	100.0

$\bar{X}$ years in buildings and grounds supervision = 15.0

Employment at Current Job

Buildings and grounds foremen in the survey had spent varying amounts of time in their present job. TABLE III summarizes the responses to the question, "How many years have you worked at your present job?" Eight buildings and grounds foremen or 29.9% had worked at their present job from seven to ten years. Seven buildings and grounds foremen or 25.9% had worked at their present job from one to three years. Seven buildings and grounds foremen or 25.9% had worked at their present job from four to six years. The years of work at their present job ranged from 1-30 years. Buildings and grounds foremen had been employed at their present job an average of 7.0 years.

Preparation as a Buildings and Grounds Foreman

Buildings and Grounds foremen obtained training for their job from various sources. TABLE IV summarizes their responses to the question, "Where did you receive your training as a buildings and grounds foreman?" Twenty-five buildings and grounds foremen or 95.8% indicated they received training on-the-job. Nine buildings and grounds foremen or 33% indicated they received training through a college or university program. Five buildings and

grounds foremen or 18.5% indicated they had received training by attending a high school program.

TABLE III

LENGTH OF TIME AT PRESENT JOB

Years	N	Percent or Respondents
1-3	7	25.9
4-6	7	25.9
7-10	8	29.9
11-14	2	7.5
15-22	1	3.6
23-26	1	3.6
27 or more	1	3.6
Total	27	100.0

$\bar{X}$ years at present job = 7.0

TABLE IV

SOURCE OF TRAINING RECEIVED AS A BUILDINGS AND GROUNDS FOREMAN

Source	N	Percent of All Employees In the Survey
On-The-Job	25	95.9
High School Program	5	18.5
Technical School Program	2	7.4
College/University Program	9	33.0
Adult Education Program	2	7.4
Other	6	22.2

Duty Areas of Work Performed by the Buildings and Grounds Foreman

The 107 tasks were grouped under twenty duty areas. Each respondent indicated whether he performed the specific task in his current position as a buildings and grounds foreman. The percentages of respondents performing each task were averaged for all tasks under each duty area. The mean percentage of incumbents who performed specific tasks in specified duty areas is presented in TABLE V.

Duty areas of work in which 50% or more of the incumbent workers performed the tasks were:

1. Performing General Office Work
2. Recording Information
3. Inventorying Supplies
4. Observing Legal Requirements
5. Maintaining Facilities and Grounds
6. Following General Safety Precautions
7. Organizing and Supervising Workers
8. Maintaining Equipment and Vehicles
9. Fertilizing Plants
10. Operating Equipment and Vehicles
11. Purchasing Supplies
12. Controlling Weeds
13. Constructing and Maintaining Buildings and Structures
14. Maintaining Trees, Shrubs, and Hedges
15. Maintaining Lawns
16. Maintaining Roadways and Sidewalks
17. Assisting in Planning Buildings and Structures
18. Planning the Equipment Program

Duty Areas of Work Essential for Successful Performance as a Buildings and Grounds Foreman

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 buildings and grounds foreman. 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 V.

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

1. Performing General Office Work
2. Recording Information
3. Inventorying Supplies
4. Observing Legal Requirements
5. Maintaining Facilities and Grounds
6. Following General Safety Precautions
7. Organizing and Supervising Workers
8. Maintaining Equipment and Vehicles
9. Fertilizing Plants
10. Operating Equipment and Vehicles
11. Purchasing Supplies
12. Controlling Weeds
13. Constructing and Maintaining Buildings and Structures
14. Maintaining Trees, Shrubs, and Hedges
15. Maintaining Lawns
16. Maintaining Roadways and Sidewalks
17. Assisting in Planning Buildings and Structures
18. Planning the Equipment Program
19. Controlling Plant Insects and Diseases
20. Establishing Trees and Shrubs

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 V.

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 buildings and grounds foremen. 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 V

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE* OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Performing General Office Work		
File forms and records	77	2.5
Meet with people	92	2.7
Operate office equipment	44	1.8
Schedule appointments	88	2.6
Use telephone	88	2.8
Write letters, notes, and memos	81	2.5
Use 2-way radio	55	2.3
Mean Rating	75.0	2.4
Recording Information		
Record inventory information	55	2.1
Record information on work or job sheets and time cards	74	2.7
Record equipment maintenance information	66	2.8
Mean Rating	65.0	2.5
Inventorying Supplies		
Take inventory	70	2.6
Determine inventory on hand	81	2.6
Determine amount to carry on inventory	77	2.7
Mean Rating	76.0	2.6
Observing Legal Requirements		
Interpret OSHA regulations	66	2.7
Mean Rating	66.0	2.7
Maintaining Facilities and Grounds		
Evaluate influence sanitary conditions have on facility and grounds use by public	88	2.9
Mean Rating	88.0	2.9

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

TABLE V (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Following General Safety Precautions		
Follow safe work habits	85	3.0
Identify potential safety hazards	92	3.0
Interpret information on labels and signs	96	2.7
Use proper lifting and carrying methods	74	2.8
Determine what safety devices need to be installed	77	2.7
Determine when climatic conditions provide unsafe work situations	92	2.9
Correct potential safety hazards	96	2.9
Mean Rating	87.4	2.8
Organizing and Supervising Workers		
Plan work schedules	96	2.7
Establish priorities on work to be completed	92	2.8
Identify peak labor periods	92	2.6
Determine amount of labor needed	88	2.8
Hire and fire workers	70	2.2
Train workers to perform tasks	92	2.7
Evaluate workers' performance	96	2.7
Assign responsibilities to workers	96	2.7
Identify ways to reduce inefficient use of labor	92	2.7
Recommend whether to hire the work completed by outside firms	77	2.4
Mean Rating	89.1	2.6
Maintaining Equipment and Vehicles		
Interpret maintenance instructions in operator's manuals	74	2.7
Remove equipment from storage	62	2.3
Prepare equipment for storage	77	2.7
Identify repairs needed	74	2.7
Mean Rating	71.7	2.6

TABLE V (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Fertilizing Plants		
Determine amount of fertilizer to apply	55	2.5
Determine kind of fertilizer to apply	51	2.5
Determine when to fertilize	55	2.5
Identify nutrient deficiency symptoms in plants	22	2.2
Interpret labels on fertilizer bags	59	2.8
Determine nutrient requirements of plants	44	2.3
Determine what areas need fertilization	66	2.6
Mean Rating	50.2	2.4
Operating Equipment and Vehicles		
Interpret gauge readings on equipment	77	3.0
Operate vehicles on public highways	77	2.9
Identify equipment safety hazards	85	3.0
Install equipment safety shields	62	2.6
Interpret safety and operating instructions in operator's manuals	81	2.9
Operate equipment under work conditions	77	2.7
Use proper equipment for specific jobs	81	2.7
Mean Rating	77.1	2.8
Purchasing Supplies		
Determine amount of supplies to order	81	2.9
Determine what to order	81	2.8
Determine when to order	81	2.7
Compare costs and quality of products from various sources	66	2.5
Determine amount of supplies to keep on hand	81	2.7
Identify sources of supplies	77	2.5
Evaluate future supply needs	74	2.6
Mean Rating	77.2	2.6
Controlling Plant Insects and Diseases		
Determine amount of chemicals to apply	44	2.6

TABLE V (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Determine when to apply chemicals	40	2.6
Identify common diseases	37	2.5
Identify common insects	37	2.5
Identify damage caused by insects and diseases	40	2.5
Select proper chemicals to apply	37	2.6
Use proper method to apply chemicals	40	2.8
Contact specialists for assistance	55	2.6
Interpret chemical labels	55	2.8
Determine total amount of chemicals needed	44	2.6
Mean Rating	42.9	2.6
Controlling Weeds		
Determine amount of chemicals to apply	59	2.6
Determine when to apply chemicals	59	2.6
Identify common weeds	51	2.5
Select proper chemicals to apply	48	2.6
Mean Rating	54.2	2.5
Establishing Trees and Shrubs		
Determine size of planting hole needed	55	2.6
Stake trees	51	2.5
Wrap trees	40	2.3
Determine what trees are to be planted	48	2.3
Determine where trees are to be planted	55	2.4
Mean Rating	49.8	2.4
Constructing and Maintaining Buildings and Structures		
Identify and calculate cost of repairs needed	77	2.7
Develop bill of materials needed for repairs	70	2.7
Read and interpret blueprints	81	2.6
Mean Rating	76.0	2.6

TABLE V (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Maintaining Trees, Shrubs, and Hedges		
Determine when to prune	62	2.6
Identify branches to be pruned	59	2.6
Mean Rating	60.5	2.6
Maintaining Lawns		
Determine when to cut grass	74	2.7
Determine when to water	59	2.6
Determine when to aerate grass areas	48	2.4
Determine when to roll grass areas	68	2.3
Mean Rating	57.2	2.5
Maintaining Roadways and Sidewalks		
Determine what repairs are needed	74	2.6
Select proper materials for making repairs	70	2.6
Identify various types of road stone and uses of each	66	2.6
Mean Rating	70.0	2.6
Assisting in Planning Buildings and Structures		
Help calculate construction, remodeling, and repair costs	77	2.3
Help determine size of buildings or structures needed	81	2.5
Help determine whether permanent or temporary structures are needed	85	2.4
Help determine the type of buildings or structures needed	81	2.5
Help determine whether to repair or replace buildings and structures	85	2.6
Help determine where to locate buildings and structures	85	2.4
Help estimate future building and structure needs	74	2.3
Help identify repair needs	81	2.6
Help select type of building materials needed	88	2.6
Work with others in planning buildings and structures	81	2.4
Help determine where special equipment should be installed	85	2.6
Mean Rating	82.0	2.4

TABLE V (Cont.)

PERCENTAGE PERFORMANCE AND AVERAGE RATING OF IMPORTANCE OF SPECIFIC TASKS

TASK STATEMENTS	Percent Performing	Average Level of Importance
Planning the Equipment Program		
Determine current conditions of tools and equipment	88	2.9
Determine size of equipment and tools to purchase	88	2.6
Determine what tools and equipment are needed	88	2.6
Determine whether tools and equipment should be bought or leased	77	2.3
Determine whether to buy new or used equipment	77	2.3
Develop regular equipment maintenance program	85	2.7
Evaluate advantages and disadvantages of specific types and brands of equipment and tools	81	2.6
Identify ways to reduce equipment and tool costs	74	2.5
Mean Rating	82.2	2.5