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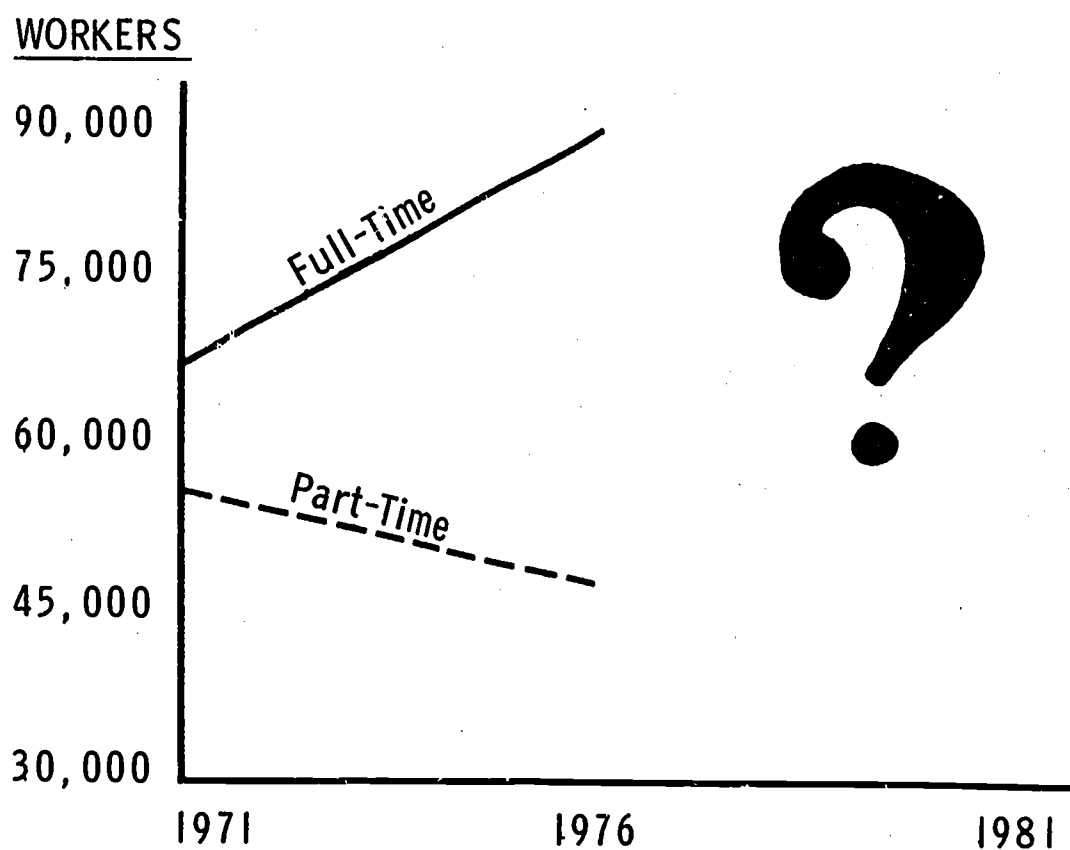
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## ABSTRACT

In order to meet the needs of educational planners this study was made to determine present and projected employment opportunities in New Jersey in natural resources and agriculture in respect to: (1) full, seasonal, and part-time employment, (2) desirable level of education for specific jobs, (3) salary characteristics, and (4) descriptive labor market information. The total population of agribusinesses was stratified and sampled with a mail questionnaire, using the job title as the major unit for data analysis. The agribusinesses were basically stratified by (1) the 23 business categories, (2) the northern, central, and southern geographical regions of New Jersey, and (3) business size as defined by no employees, 1 to 25 employees, and 26 or more employees. Changing employment patterns were projected from 1971 to 1976, including a 30.7 percent increase in full-time positions from 665,757 in 1971 to 85,930 in 1976, corresponding to a 17.2 percent decrease in seasonal or part-time positions from 55,548 in 1971 to 45,974 in 1976. A need was indicated for 19,627 additional full-time workers, although there would be a surplus of 4,434 seasonal or part-time workers. Numerous tables present the data. (Author/AG)

NEW JERSEY MANPOWER NEEDS  
IN  
NATURAL RESOURCES AND/OR AGRICULTURE



RUTGERS UNIVERSITY  
NEW BRUNSWICK  
NEW JERSEY  
1972

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NEW JERSEY MANPOWER NEEDS  
IN  
NATURAL RESOURCES AND/OR AGRICULTURE

COOPERATIVE RESEARCH PROJECT #5427

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NEW JERSEY STATE DEPARTMENT OF LABOR AND INDUSTRY

CONDUCTED

BY

RUTGERS UNIVERSITY

COLLEGE OF AGRICULTURE AND ENVIRONMENTAL SCIENCE

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DEPARTMENT OF VOCATIONAL-TECHNICAL EDUCATION

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## PREFACE

The industry of Natural Resources and/or Agriculture is basic to other industries. It is so immense and so thoroughly integrated with other industries that its scope is not easily circumscribed nor its gross national product readily measured. As this basic industry became more technical, more commercial, and more integrated with other sectors of the economy, information on workers with Natural Resources and/or Agricultural competencies and skills in manufacturing, wholesale and retail trade, services, and government was lost in the composite of data for each of the above conventional reporting classifications.

In this publication are manpower data provided by New Jersey employers. These data would otherwise be unavailable except in fragmented ways. Described herein are present and future occupational opportunities in New Jersey, educational training levels deemed necessary, and wages which can be expected for specific jobs.

Information on job titles provides educational planners with the basics for determining general areas of subject matter to be taught in courses. Clustering of the related job titles creates occupational areas and information which are essential in planning for instructional programs. The main chapters of this report were arranged, in most cases, because of commonality of the subject matter.

Baseline data presented herein should be of considerable assistance to New Jersey's educational planners responsible for implementing new programs and in reviewing on-going training programs at all levels and institutions within the state. These data should also be of interest to governmental agencies and related businesses and industry. The ultimate use intended for this publication is to encourage the training of a supply of graduates and entry level workers that will correlate with the manpower needs of the Natural Resources and/or Agricultural employers in New Jersey and thereby, improve the efficiency of matching people with jobs.

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## ABSTRACT

Purpose: The main purpose of the study was to determine present and projected employment opportunities for jobs in natural resources and/or agriculture in respect to: (1) full-time and seasonal or part-time employment; (2) educational levels desired by employers for specific jobs; (3) salary characteristics; and (4) descriptive labor market information.

Method: The total population of businesses in natural resources and/or agriculture was stratified by: (1) the 23 business categories; (2) the northern, central, and southern geographical regions of New Jersey, and (3) previous business size as defined by 0 employees, 1-25 employees, and 26 or more employees. Several exceptions to business size were necessary when this information was not available. Each stratum of business units was sampled with a mail questionnaire. Data were analyzed with the job title as the basic unit.

Findings: Changing employment patterns were projected for the five-year period from 1971 to 1976. A 30.7% increase in full-time positions from 65,757 in 1971 to 85,930 in 1976 was projected. The 17.2% decrease in seasonal or part-time positions was from 55,548 in 1971 to 45,974 in 1976. An analysis of new positions and replacements indicated a need for 19,627 additional full-time workers and a surplus of 4,434 seasonal or part-time workers.

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## I. INTRODUCTION

Comprehensive planning for educational programs in natural resources and/or agriculture requires current assessments and projections of labor market information. Planning information is needed to provide occupational preparation that is responsive to the changing needs of New Jersey industry. New Jersey, with the most intensive population density of any state in the nation, is facing challenges in the efficient utilization and improvement of renewable natural resources before these problems occur in less densely populated states. Trained manpower must be available to solve these problems and to provide the new services demanded by our citizens. Our youth are also seeking satisfying careers when they enter the labor market. For future educational programs, the leadership in schools must consider: (1) the changing employment patterns in natural resources and/or agriculture; (2) the increased public emphasis on the conservation, utilization, and improvement of natural resources; (3) the reallocation of open spaces to the urban sprawl; and (4) the development of new consumer-oriented service businesses in natural resources and/or agriculture. Base line data are needed to provide a coherent relationship between labor market information and educational programs.

### The Problem

Comprehensive manpower information has not been available in a form that could be used to plan training programs for

occupations in natural resources and/or agriculture. Most federal and state statistics on occupational needs are categorized by an industry classification instead of by occupations. Natural resources and/or agriculture is not an industry by itself; it is a group of related components of many industries. Educational programs are developed around the competencies needed for a job or a cluster of jobs. For example, there are more similarities than differences in the competencies required by veterinarians whether they are involved in private practice with small animal hospitals, regulatory activities with government agencies, or research development projects with pharmaceutical companies. Detailed information on the kinds of jobs, educational levels, and income characteristics will provide data for planning relevant and meaningful educational programs.

#### Background of the Study

Comprehensive planning for the coordination of manpower needs and training opportunities for occupations in natural resources and/or agriculture has been in a developmental stage during the past decade. Prior to 1963, the available information was limited almost exclusively to national projections of manpower needs. Federal laws favorable to vocational education and manpower training during the early 1960's stressed a need for more definitive information concerning the occupations for which students were being trained. In addition to planning efforts in vocational education and manpower training, New Jersey is also in the process of preparing a comprehensive plan for higher education. Changing skill requirements and shifts in occupational



careers can adapt to present and future needs.

The national outlook for most occupational opportunities in natural resources and/or agriculture is optimistic. A review of national projections by Fanning (1970) indicates that the five areas of environmental management -- ecology, earth sciences, resources and recreation, environmental design, and environmental protection -- will increase from 655,990 professional and paraprofessional jobs in 1970 to 1,181,800 by 1980. A review of the various state studies by Carpenter and Rodgers (1970) indicates that employment in off-farm jobs requiring competencies in agriculture are increasing while jobs in farm production are decreasing. They also noted considerable variation in occupational needs among the various states that were studied.

Several sources provide a partial composite of the economic and labor aspects of businesses related to natural resources and/or agriculture in New Jersey. Lambert (1968) concluded that the total economic impact of agriculture and agricultural-related businesses in New Jersey exceeded 1 1/2 billion dollars in 1966. Morrill, Hunter, and Carncross (1968) found that the problem of hiring qualified employees was a major problem for most of the New Jersey farm and farm-related industries in their study. Selected census reports by the U.S. Department of Commerce (1969, 1970a, 1970b, 1970c, 1970d) also provide data on the number of businesses and number of people employed by different industries. The census information relates to number of people within industries rather than the type of jobs within these industries.

Efficient and economical educational programs depend on sound educational priorities that are based on adequate data for determining future trends. Information is needed on the changing occupational opportunities, educational levels needed for specific jobs or job clusters, and an indication of the relative economic rewards of the various occupational opportunities. Part-time or seasonal workers constitute a significant portion of the labor force; additional information on the composition of this group in respect to their status as migrants, housewives, day-haul workers, retired persons, moonlighters, etc. may have some implications for variations in educational programs. Preparation and/or lack of preparation for employment has many implications for our entire society.

#### Objectives of the Study

1. To determine the present and projected employment opportunities for occupations in natural resources and/or agriculture.
2. To determine the educational levels desired by employers for selected job titles in natural resources and/or agriculture.
3. To determine salary characteristics for selected job titles in natural resources and/or agriculture.
4. To determine general characteristics of the seasonal labor force (i.e. migrants and other categories) for occupations in natural resources and/or agriculture in respect to off-season employment activities.

5. To determine employer views of the future manpower situation in New Jersey for occupations in natural resources and/or agriculture.
6. To determine present and projected output of potential employees from New Jersey educational institutions.
7. To explore the potential for the continued periodic projection of occupational opportunities and estimation of institutional graduates available where this knowledge is a unique condition for employment.

#### Operational Definitions

Family-operated Businesses: Firms that reported their businesses as family operations without any reference to job titles or 1976 projections.

Full-time: Refers to a job that involves the equivalent of 150 or more full-time days per year.

Job Title: The name by which a specific job is generally known.

Natural Resources and/or Agriculture: Refers to those activities requiring skills and knowledge of the functions of the production, processing, marketing, related services, conservation, utilization, and improvement of natural resources and/or agriculture.

Part-time or Seasonal: Refers to a job that requires less than the equivalent of 150 full-time days per year.

Standard Industrial Classification Code: A grouping of business according to their: (a) services rendered, (b) products manufactured, (c) processes used, and (d) raw materials used.

### Basic Assumptions and Limitations of the Study

The identification of basic assumptions and limitations is important so that the study is interpreted with these considerations in mind. The implementation of a research design is often characterized by a series of compromises due to the availability of financial and informational resources. The following three basic assumptions and the possible limitations resulting from them are an integral part of this research design.

First, it was assumed that employer responses provide the most reliable data concerning occupational opportunities in the respective business areas. The composite ability of employers to predict future manpower trends appears sound. Employers are constantly increasing or decreasing financial investments based on their future expectations of business trends.

Second, it was assumed that data collected with the use of a mail questionnaire would be valid data. The rationale for the use of the mail survey was: (1) it is an accepted research practice; (2) it provides more efficient use of the project resources of money and staff; (3) it creates less interruption of an employer's business than the use of personal interviews; and (4) it reduces the time required to collect the data.

The third basic assumption of the study was that the mailing lists obtained for the study represented the total universe of employers in each of the business categories. The major list for the study, which was provided by the New Jersey Division of Employment Security, included employers with a \$1,000 or more annual payroll; it did include almost all of the employees, but it

excluded some small family-operated businesses. The list for certified nursery dealers and nurserymen was the most complete list used for the study since both large and small business were included. The list of municipalities, counties, and departments of state government was also complete. The list for farmers other than nurserymen represented the greatest under-count; it included only those farmers who were members of the New Jersey Farm Bureau. The survey does not include vocational agriculture teachers, science teachers, grounds maintenance workers for schools and nonagricultural companies in addition to many small businessmen who were excluded because their annual payroll was less than \$1,000. Although it was expected that the total projections would be underestimated due to the nature of the mailing lists, it should be emphasized that these were the best estimates available short of a complete census count of every individual in the state.

## II. PROCEDURE

Identification of the Population

The advisory committee identified the business categories related to natural resources and/or agriculture that were important to New Jersey in respect to number of business firms and number of people employed. Governmental agencies and census reports provided the preliminary information in respect to the economic and manpower importance of each business category. A statistical review of business firms in selected business categories from regulatory lists was compiled by the Division of Employment Security of the New Jersey Department of Labor and Industry and the New Jersey State Department of Agriculture. This information was supplemented by economic and labor force statistics from selected census reports by the U.S. Department of Commerce (1969, 1970a, 1970b, 1970c, 1970d) and regular reports from the Statistical Reporting Service of the U.S. Department of Agriculture (1971-1972). The business categories and/or governmental units selected are identified in Table 1.

The population of the business categories was determined by the most complete lists of business firms and/or governmental employing units available in each category. The Standard Industrial Code was the guide for classifying employing units into business categories. The population of all categories, with the exception of nurseries, nursery dealers, farming, and governmental employing units, was provided by the Division of Employment Security of the New Jersey State Department of Labor

TABLE 1

STUDY POPULATION OF SELECTED BUSINESS CATEGORIES IN  
NATURAL RESOURCES AND/OR AGRICULTURE IN NEW JERSEY

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	<u>No. of Firms or Governmental Employing Units</u>
I. HORTICULTURAL BUSINESSES AND SERVICES	
1. Nurseries	1001
2. Nursery Dealers	271
3. Horticultural Services	1075
4. Golf Courses	184
5. Florists	452
6. Farm and Garden Supply	179
II. NATURAL RESOURCE BUSINESSES AND GOVERNMENTAL SERVICES	
1. Sporting and Recreational	76
2. Water Supply and Sewage	70
3. Municipal and County Government	586
4. State and Federal Government	6
III. AGRICULTURAL PRODUCTION AND RELATED SERVICES	
1. Commercial Farming	3727
2. Farm Machinery	116
IV. ANIMAL SERVICES	
1. Animal Health and Care	347
2. Pharmaceutical Research	90
3. Race Tracks and Stables	43
V. FOOD PROCESSING INDUSTRY	
1. Meat Products	98
2. Dairy Products	112
3. Canned Fruits and Vegetables	30
4. Grain Mill Products and Services	43
VI. FOOD DISTRIBUTION INDUSTRY	
1. Wholesale Food	1238
2. Retail Food	2514
VII. LUMBER AND BUILDING MATERIAL SERVICES	1102
VIII. FISHERY INDUSTRY	58

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and Industry. This list included all firms with an annual payroll of \$1,000 or more during the past two years. A complete list of nurseries and nursery dealers was obtained from the 1970 List of New Jersey Certified Nurserymen and Dealers, which was compiled by the New Jersey State Department of Agriculture. The best available list for farming was the membership list of the New Jersey Farm Bureau; nurserymen were deleted from this list because the 1970 List of New Jersey Certified Nurserymen and Dealers provided a more complete population. Lists of governmental employing units, such as municipalities, counties, etc. were available from governmental directories. The total population of each of the business categories, and/or governmental employing units, which was a result of the screening and selection process, is found in Table 1. The data in Table 1 do not include businesses that had moved out of New Jersey or had gone out of business.

#### Sampling Procedure

Generally, the sampling procedure was as follows: Each business category represented a separate population which was stratified by geographic area and size of business. Then the sample size was calculated for each of the strata. The procedure was designed to insure representation of differences in respect to business categories, location of business by geographical area, and by size of business in respect to the number of employees. Some exceptions to the sampling procedure were necessary when



preliminary data were not available or when unique circumstances indicated that variations to the basic approach were needed.

The geographical stratification of business firms within the business categories was according to their location in the (1) northern, (2) central, and (3) southern regions of the state. Businesses located in the counties of Bergen, Essex, Hudson, Hunterdon, Morris, Passaic, Somerset, Sussex, Union, and Warren were grouped into the northern region. The counties of Burlington, Mercer, Middlesex, Monmouth, and Ocean were grouped into the central region. The southern region was composed of the counties of Atlantic, Camden, Cape May, Cumberland, Gloucester, and Salem. Some businesses operated in several areas of the state, so they were sampled in an at-large or state-wide category.

The stratification by size of business was accomplished mainly by classifying the size of their work force by number of employees during the month of September 1970; this information was provided by the Division of Employment Security of the New Jersey State Department of Labor and Industry. The three strata for size of business were (1) 0 employees, (2) 1 to 25 employees, and (3) 26 or more employees.

The formula for determining the sample size for each strata was:

$$n = \left( \frac{\frac{N}{C^2 N}}{\frac{(CR)^2}{(CV)^2}} + 1 \right)$$

when: N= total population  
 n= sample population  
 C= error tolerated in population (5%)  
 CR= normal deviation (for 95%, use 1.96)  
 CV= coefficient of the variation (25%)

Several exceptions to the procedure for sampling by size of business were necessary. The nursery category was stratified by number of acres in the nursery business because information on the number of employees was not available; the two strata included (1) businesses with less than 10 acres and (2) businesses with 10 acres or more. Information was not available for classifying farming, governmental employing units, or nursery dealers by size; the final stratification for each of these areas was only by geographical region. The size of the farming sample was doubled for each strata after the size had been determined by the formula because the population appeared quite diverse. Governmental employing units also provide wide diversity in respect to job titles and number of employees in occupations related to natural resources and/or agriculture; 100% of the governmental employing units received the questionnaire.

#### Design of the Questionnaire

The basic questionnaire format included: (1) the letter of introduction, (2) instructions, (3) basic format for manpower needs data, and (4) descriptive information. Fifteen lists of job titles were developed for soliciting manpower needs data from the twenty-four business categories. A list of job titles was used for several business categories when similar job titles were developed.

The development of the lists of job titles was accomplished in four stages. First, a tentative list of occupational job titles available in New Jersey, that required some training in natural resources and/or agriculture, was prepared by the Bureau of Manpower Services of the New Jersey State Department of Labor and Industry. Second, the list was revised and adapted to business categories as information on business firms in each category became available. The Dictionary of Occupational Titles was the primary guide used to select the job titles for the various business categories. Third, due to the long list of job titles in semi-skilled areas, many of these job titles were grouped when they involved similar subject matter content. The grouping of semi-skilled job titles provided a more meaningful list for obtaining information needed to plan educational programs. Fourth, the variations of the questionnaire were pre-tested and reviewed informally by individuals representing the various business categories. A sample of the final revision of the questionnaire is in Appendix A.

#### Data Collection

A mail survey was conducted to solicit employer responses during the period from January 2, 1972 to April 28, 1972. The initial mailing was supplemented by two follow-up requests at approximately three-week intervals to those who did not respond. A complete questionnaire and a self-addressed, stamped, business reply envelope was included with each mailing.

### Treatment of the Data

The data on manpower needs, educational levels desired by employers, and salary characteristics were coded and keypunched on computer data cards. Computer analyses of the data were calculated by the Rutgers University Computer Services Center. Descriptive data were analyzed by content analysis.

The estimations of manpower needs were calculated using data from respondents in the sample who returned questionnaires. The data were stratified according to the size categories used in sampling the population. Some business firms did not list job titles or 1976 projections but they did report themselves as family-operated businesses. Prior to calculating manpower needs, the stratified population of firms in each business category was reduced by the percentage of business firms that were reported as family-operated businesses. Information on the estimated number of family businesses is reported within the text for each business category. A comparison of the total population, sample population, and sample returns in respect to family-operated businesses and non-family-operated businesses is in Appendix B.

The job title was the basic unit within each business category for estimating manpower needs. The total population estimate for each business category was the sum of the total population estimate for all job titles within that category. The following formula was used to estimate the total population

of each job title from the sample data:

$$Y_i = \sum_{j=1}^3 N_{ij} \bar{y}_{ij}$$

when:  $Y_i$  = total projected population for job title i

$N_{ij}$  = total number of firms in size category j for business category

$N_i = \sum_{j=1}^3 N_{ij}$  = total number of firms for business category

$\bar{y}_{ij} = \frac{\sum y_{ij}}{n_{ij}}$  = average of the sample for job title i and size category j

$\bar{y}_i^{st} = \frac{1}{N} \sum_{j=1}^3 N_{ij} \bar{y}_{ij}$  = stratified average of the sample for job title i

$n_{ij}$  = number of business firms in sample for job title i and size category j

Coefficients of variation were calculated and are reported in Appendix C for a selected sample of job titles.

The data on manpower needs were analyzed to determine the number of additional people needed for each business category during the five-year period. Expansion or contraction within

each business category was considered in addition to an annual replacement rate due to retirement and other related factors. The 2% average rate was selected after reviewing information from the U.S. Department of Labor (1969) on developing manpower projections. The average annual work force for the calculations was determined by averaging the 1971 and 1976 estimations. The replacement rate does not consider mobility from one occupation to another.

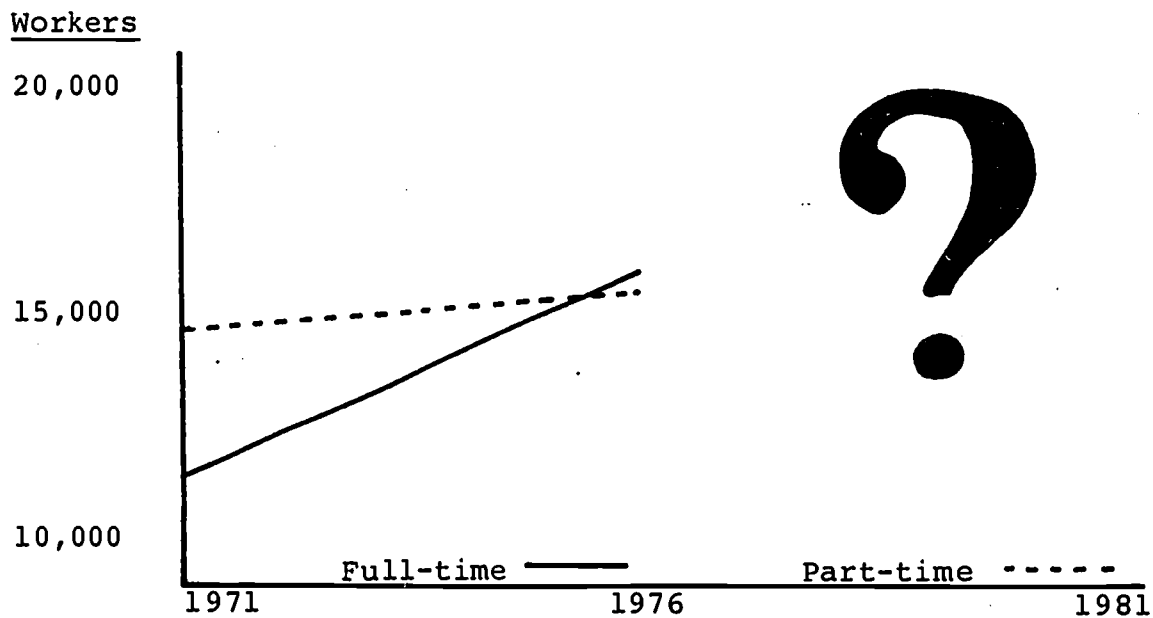
Data on the educational levels desired by employers were tabulated by the percentage of employers specifying each educational level. Since some employers specified more than one educational level for some job titles, the total percentage for a specific job title may be more than 100%. The educational level for some job titles was not reported by employers.

Salary characteristics data were analyzed to provide the lowest, highest, and mean for both the beginning weekly salary and the potential maximum weekly salary for each job title. Data were not available for some job titles. Although these data were tabulated based on the limited number of questionnaires that included salary information, they were reported because they represented the best information presently available.

Descriptive data on seasonal employment and the general manpower situation were analyzed by content analysis. Subjective judgements were made to group responses of similar content to provide a more coherent reporting of the descriptive data.

15/19

### III. HORTICULTURE AND HORTICULTURAL BUSINESSES AND SERVICES



An increase in demand for people with skills and knowledge in horticultural businesses and services was projected for the five-year period from 1971 to 1976. The estimations in Table 2 combine the six areas of nursery, nursery dealer, horticultural service, golf course, florist, and farm and garden supply businesses. The area of horticultural services consists mainly of landscaping and arboricultural services. A 28.4% increase in full-time positions from 11,929 in 1971 to 15,314 in 1976 was projected. An additional 3.4% increase in seasonal or part-time workers from 14,614 in 1971 to 15,116 in 1976 was projected for the same five-year period. Considering a 2% annual replacement rate due to retirement and other other factors, 4,578 people will have to be recruited and trained for the 3,385 new positions and the 1,193 replacement positions to provide the projected manpower

needs for full-time positions. An additional 1,963 seasonal or part-time workers also will be needed for the 502 new positions and 1,461 replacement positions. Further analysis of Table 2 indicates a trend toward more highly skilled or specialized workers when the increases for all workers are compared with the respective 5.2% and 26.6% decreases in full-time and part-time unskilled laborers.

A more detailed analysis of the trends in horticultural business and service occupations is available on the following pages. Table 2 provides a composite analysis of the manpower need trends in these occupations by job titles. The subsections for nursery, nursery dealer, horticultural service, golf course, florist, and farm and garden supply businesses provide trends for manpower needs, educational levels desired by employers, salary characteristics, and additional information on the general manpower situation in New Jersey.

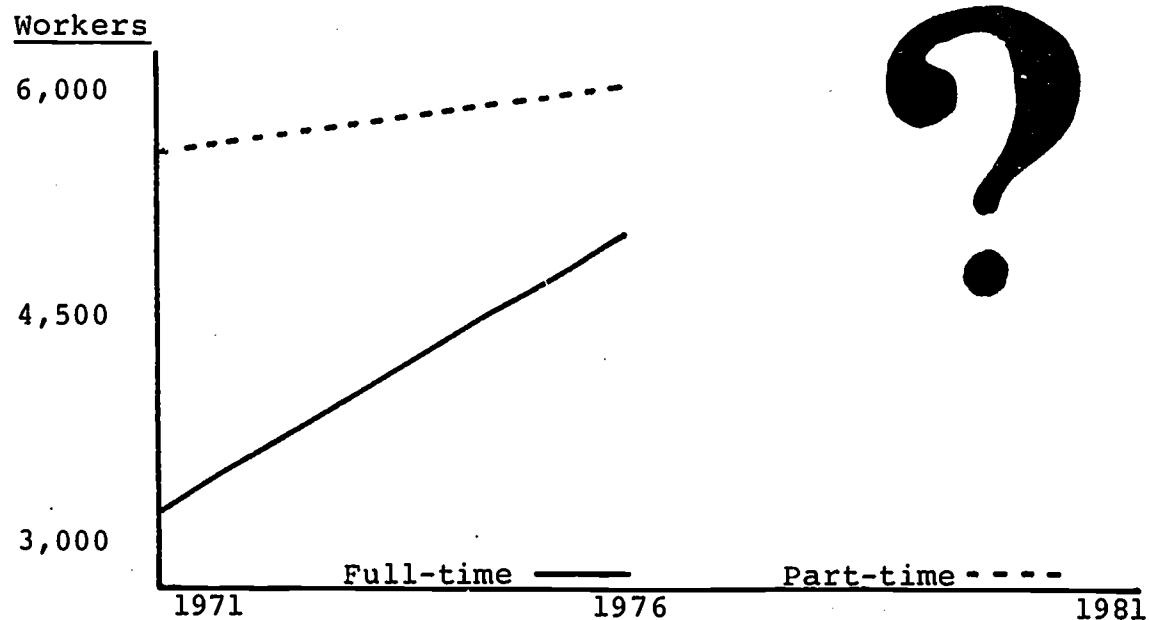


TABLE 2  
ESTIMATED EMPLOYMENT IN HORTICULTURAL BUSINESSES  
AND SERVICES IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs			1976 Jobs			% Increase or Decrease		
	No. of No. of			No. of No. of			Full Part		
	Full Time	Part Time	of Time	Full Time	Part Time	of Time	Full Time	Part Time	Time
Agric. Equip. Oper.	530		518	754		579	42.3		11.8
Assistant Manager	0		31	0		31	0.0		0.0
Asst. Superintendent	9		0	9		0	0.0		0.0
Chemical Sprayer	30		28	50		38	67.0		35.7
Equip. Set-Up Man	8		6	2		0	-75.0		-100.0
Feed Mixer	14		0	14		0	0.0		0.0
Floral Delivery	0		12	0		12	0.0		0.0
Floral Designer	1313		806	1363		1120	3.8		35.7
Florist	9		0	0		0	-100.0		0.0
Flower Grader	0		10	0		0	0.0		-100.0
Flower Grower	32		24	39		24	21.9		0.0
Flower Handler	77		1148	77		1224	0.0		6.6
Foreman	35		0	42		0	20.0		0.0
Greenhouse Worker	206		107	214		138	3.9		29.0
Greenskeeper	231		367	246		319	6.5		-13.1
Groundskeeper	598		763	874		897	46.2		17.6
Guides	0		30	0		0	0.0		-100.0
Heavy Equip. Oper.	25		12	25		0	0.0		-100.0
Insect Control Spec.	25		0	0		50	-100.0		Plus
Landscape Architect	162		85	275		42	69.8		-50.6
Landscape Contractor	13		0	13		0	0.0		0.0
Landscape Foreman	135		0	189		0	40.0		0.0
Landscape Gardener	1526		1495	2236		1951	46.5		30.5
Lawn Maint. Foreman	25		0	0		0	-100.0		0.0
Lawn Technician	75		63	138		88	84.0		39.7

TABLE 2 (continued)

Job Titles	1971 Jobs			1976 Jobs			% Increase or Decrease		
	No. of No. of			No. of No. of					
	Full Time	Part Time	Of	Full Time	Part Time	Of	Full Time	Part Time	
Manager/Superintendent	882	77		1066	62		20.9	-	19.5
Mechanic/Helper	274	140		350	162		27.7		15.7
Nursery Foreman	40	0		35	0		-	12.5	0.0
Nursery Worker	1109	1856		1544	2292		39.2		23.5
Nursery Worker (sales)	20	40		30	50		50.0		25.0
Nurseryman	14	27		34	61		142.9		125.9
Owner	20	0		10	0		-	50.0	0.0
Packer/Shipper	15	198		25	183		66.7		7.6
Partsman	28	7		21	7		-	25.0	0.0
Plant Man	14	7		20	41		42.9		485.7
Rose Man	5	0		0	0		-100.0		0.0
Sales Clerk	457	815		761	698		66.5		- 14.4
Salesman	469	184		860	352		83.4		91.3
Shrub Pruning/Shaping	25	0		25	0		0.0		0.0
Skilled Land. Worker	43	206		80	252		86.0		22.3
Small Engine Mech.	20	7		27	0		35.0		-100.0
Tree Foreman	125	0		138	0		10.4		0.0
Tree Pruner	905	118		989	100		9.3		- 15.3
Tree Surgeon	195	24		232	42		19.0		75.0
Tree Surgeon Helper	80	74		145	67		81.3		- 9.5
Truck Driver	781	1045		1068	1059		36.7		1.3
Truck Driver, Wareh.	20	0		20	0		0.0		0.0
Unskilled Laborer	1231	4257		1167	3121		-	5.2	- 26.6
Warehouseman	54	27		82	54		51.9		100.0
Weed Control Spec.	25	0		25	0		0.0		0.0
Total	11,929	14,614		15,314	15,116		28.4		3.4

Nurseries

Nurserymen projected a 32.6% increase in full-time positions and a 5.9% increase in seasonal or part-time positions during the five-year period reported in Table 3. They indicated a need for 4,308 full-time workers in 1976 compared with 3,250 in 1971. The estimation for seasonal or part-time workers was 5,979 in 1976 compared with 5,645 in 1971. Recruitment needs for replacement and expansion during the five-year period included 1,436 full-time and 915 seasonal or part-time workers. A trend toward more highly skilled or specialized workers was indicated when the increases for all workers were compared with the respective 29.2% and 20.4% decreases in full-time and part-time unskilled laborers. It should be noted that these figures do

not include the 18.6% of the businesses that were reported as family operated without any reference to job titles or 1976 projections.

Table 4 provides some indications of the educational levels desired by employers for selected job titles. It indicates areas of need for vocational, 2-year collegiate, 4-year collegiate, and short-term courses for many of the job titles in addition to the on-the-job training provided by employers.

Table 5 provides information on the 1971 salary characteristics for selected job titles. Although the data are limited, they do provide some impressions of the relative financial rewards of the various jobs.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. They reported that 17.1% provide housing for seasonal employees and 7.1% employ migrants. The seasonal or part-time work force included students, housewives, and retirees in addition to those who find other jobs, are unemployed, or return to Puerto Rico during the off-season.

The employers' views of the future manpower situation in New Jersey included: (1) shortage of skilled labor; (2) employees expect too much pay for too little work; and (3) liberal welfare regulations negatively affect the work force. The number of employers who reported the future manpower situation as good were equal to the number who reported the future outlook as bad.

TABLE 3  
ESTIMATED EMPLOYMENT IN NURSERIES  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Agric. Equip. Oper.	135	110	200	140	48.1	27.3
Assistant Manager	0	31	0	31	0.0	0.0
Floral Designer	122	168	122	245	0.0	70.0
Flower Grader	0	10	0	0	0.0	-100.0
Flower Grower	20	0	15	0	- 25.0	0.0
Flower Handler	77	1148	77	1224	0.0	6.6
Greenhouse Worker	199	107	214	138	7.5	29.0
Groundskeeper	66	230	127	306	92.4	33.0
Heavy Equip. Oper.	25	0	25	0	0.0	0.0
Landscape Architect	20	36	70	10	250.0	- 72.2
Landscape Foreman	40	0	56	0	40.0	0.0
Landscape Gardener	520	199	765	260	47.1	30.7
Manager/Superintendent	337	0	398	0	18.1	0.0
Mechanic/Helper	100	30	95	15	- 5.0	- 50.0
Nursery Foreman	30	0	25	0	- 16.7	0.0
Nursery Worker	853	1245	1177	1553	38.0	24.7
Packer/Shipper	15	168	15	153	0.0	- 8.9
Rose Man	5	0	0	0	-100.0	0.0
Sales Clerk	56	121	112	100	100.0	- 17.4
Salesman	132	92	305	204	131.1	121.7
Skilled Land. Worker	30	82	30	127	0.0	54.9
Tree Pruner	15	15	36	0	70.0	-100.0
Truck Driver	162	86	238	66	46.9	- 23.3
Unskilled Laborer	291	1767	206	1407	- 29.2	- 20.4
Total	3,250	5,645	4,308	5,979	32.6	5.9

TABLE 4

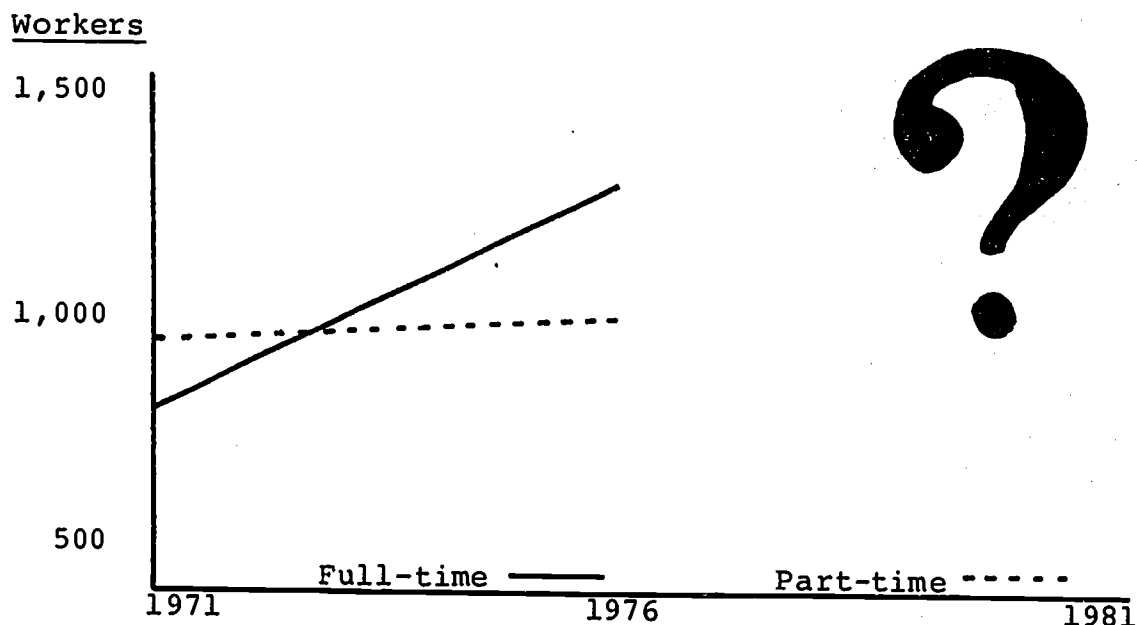
EDUCATIONAL LEVELS DESIRED FOR NURSERY  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level*						
		None	On-The- Job	Short Courses	High School Vocational	2-Year College	4-Year College	
Agric. Equip. Oper.	9	22.2	66.7	22.2	22.2	0.0	0.0	
Flower Grader	1	100.0	100.0	0.0	0.0	0.0	0.0	
Flower Grower	2	50.0	100.0	50.0	0.0	0.0	0.0	
Flower Handler	1	0.0	100.0	0.0	0.0	0.0	0.0	
Greenhouse Worker	4	0.0	75.0	0.0	25.0	0.0	0.0	
Groundskeeper	2	0.0	100.0	50.0	0.0	0.0	0.0	
Heavy Equip. Oper.	1	0.0	0.0	0.0	100.0	0.0	0.0	
Landscape Architect	5	0.0	0.0	0.0	0.0	40.0	50.0	
Landscape Foreman	2	0.0	0.0	0.0	0.0	100.0	0.0	
Landscape Gardener	7	0.0	71.4	14.2	28.5	14.2	0.0	
Manager/Superintendent	15	0.0	33.3	13.3	6.6	26.6	40.0	
Mechanic/Helper	10	0.0	30.0	20.0	60.0	0.0	0.0	
Nursery Foreman	1	0.0	100.0	0.0	0.0	0.0	0.0	
Nursery Worker	39	15.3	61.5	12.8	25.6	2.5	0.0	
Packer/Shipper	1	0.0	100.0	0.0	0.0	0.0	0.0	
Sales Clerk	7	0.0	85.7	28.5	0.0	0.0	0.0	
Salesman	13	0.0	30.7	15.3	38.4	30.7	15.3	
Skilled Land. Worker	2	0.0	50.0	0.0	50.0	0.0	0.0	
Tree Pruner	3	0.0	66.7	33.3	0.0	33.3	0.0	
Truck Driver	8	37.5	37.5	12.5	37.5	0.0	0.0	
Unskilled Laborer	19	47.3	42.1	0.0	10.5	0.0	0.0	

\*May add to more than 100 percent since employers may have indicated more than one level for some jobs.

TABLE 5  
SALARY CHARACTERISTICS FOR NURSERY  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary				
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)			
		Low	High Mean		Low	High Mean		
Agric. Equip. Oper.	7	90	150	116	7	120	200	163
Floral Designer	1	100	100	100	1	150	150	150
Flower Handler	1	70	70	70	1	85	85	85
Greenhouse Worker	5	60	120	90	4	60	170	122
Groundskeeper	2	100	150	125	2	125	180	152
Heavy Equip. Oper.	1	200	200	200	1	400	400	400
Landscape Architect	3	150	350	226	3	225	350	291
Landscape Foreman	1	180	180	180	2	200	220	210
Landscape Gardener	6	70	125	89	6	110	200	143
Manager/Supervisor	14	125	350	184	11	165	350	247
Mechanic/Helper	9	100	160	123	9	145	280	196
Nursery Foreman	1	100	100	100	1	150	150	150
Nursery Worker	36	55	202	99	34	55	300	142
Packer/Shipper	1	150	150	150	1	170	170	170
Sales Clerk	8	70	120	90	8	75	125	105
Salesman	10	90	350	150	9	150	450	231
Skilled Land. Worker	1	160	160	160	1	160	160	160
Truck Driver	8	80	140	108	8	120	210	157
Unskilled Laborer	15	60	150	92	14	80	200	125

Nursery Dealers

Nursery dealers projected a 71.0% increase in full-time positions and a 3.5% increase in seasonal or part-time positions during the five-year period reported in Table 6. They indicated a need for 1,286 full-time workers in 1976 compared with 752 in 1971. The estimation for seasonal or part-time workers was 924 in 1976 compared with 893 in 1971. Recruitment needs for replacement and expansion during the five-year period included 636 full-time and 122 seasonal or part-time workers. It should be noted that these figures do not include the 25.9% of the businesses that were reported as family operated without any reference to job titles or 1976 projections.

Table 7 provides some indications of the educational levels



desired by employers for selected job titles. In combination with other business areas, it indicates a need for vocational, 2-year collegiate, 4-year collegiate, and short-term courses for many of the job titles in addition to the on-the-job training provided by employers.

Table 8 provides information on the 1971 salary characteristics for selected job titles. Although the data are limited, they do provide some impressions of the relative financial rewards of the various jobs.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. The seasonal or part-time work force included students and housewives in addition to those who find other jobs or are unemployed during the off-season. Seasonal housing was not provided and migrants were not part of the work force.

The employers' views of the future manpower situation included: (1) need for trained manpower; and (2) higher salaries.

TABLE 6

ESTIMATED EMPLOYMENT IN NURSERY DEALER BUSINESSES  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Agric. Equip. Oper.	70	10	101	20	44.3	100.0
Floral Designer	10	0	20	0	100.0	0.0
Groundskeeper	20	0	70	30	250.0	Plus
Guides	0	30	0	0	0.0	-100.0
Landscape Architect	20	20	40	10	100.0	- 50.0
Landscape Gardener	131	80	181	141	38.2	76.3
Manager/Superintendent	121	0	141	0	16.5	0.0
Mechanic/Helper	30	0	60	0	100.0	0.0
Nursery Foreman	10	0	10	0	0.0	0.0
Nursery Worker	10	161	30	151	200.0	- 6.2
Nursery Worker (sales)	20	40	30	50	50.0	25.0
Owner	20	0	10	0	- 50.0	0.0
Packer/Shipper	0	30	10	30	Plus	0.0
Sales Clerk	10	50	20	50	100.0	0.0
Salesman	70	20	111	40	58.6	100.0
Tree Pruner	40	0	70	0	75.0	0.0
Tree Surgeon	10	0	30	0	200.0	0.0
Tree Surgeon Helper	10	0	40	0	300.0	0.0
Truck Driver	90	30	121	50	34.4	66.7
Unskilled Laborer	60	422	191	352	218.3	- 16.6
Total	752	893	1,286	924	71.0	3.5

TABLE 7

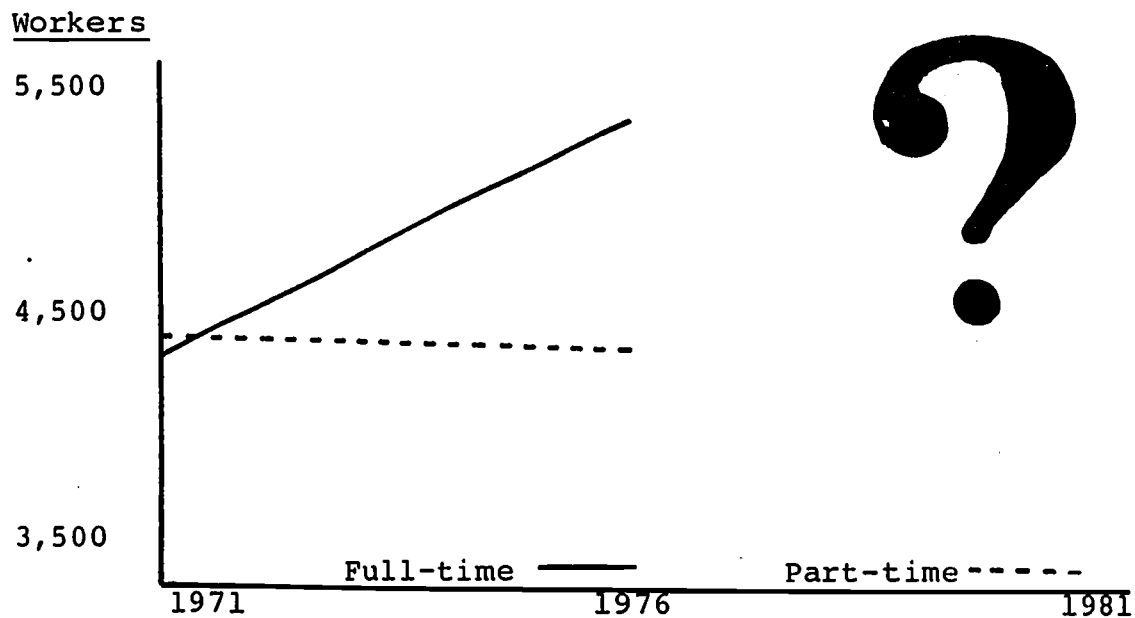
EDUCATIONAL LEVELS DESIRED FOR NURSERY DEALER  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level*						
		None	On-The- Job	Short Courses	High School Vocational	2-Year College	4-Year College	
Agric. Equip. Oper.	3	0.0	33.3	0.0	66.7	0.0	0.0	
Floral Designer	1	0.0	100.0	100.0	0.0	0.0	0.0	
Groundskeeper	1	0.0	0.0	0.0	100.0	0.0	0.0	
Guide	1	0.0	100.0	0.0	0.0	0.0	0.0	
Landscape Architect	3	0.0	0.0	33.3	0.0	0.0	66.7	
Landscape Gardener	4	0.0	100.0	25.0	25.0	0.0	0.0	
Manager/Superintendent	7	0.0	28.5	14.2	42.8	28.5	0.0	
Mechanic/Helper	3	0.0	66.7	33.3	66.7	0.0	0.0	
Nursery Foreman	1	0.0	0.0	0.0	0.0	100.0	0.0	
Nursery Worker	4	0.0	50.0	25.0	25.0	0.0	0.0	
Nursery Worker (sales)	1	0.0	100.0	0.0	0.0	0.0	0.0	
Packer/Shipper	1	0.0	0.0	0.0	100.0	0.0	0.0	
Sales Clerk	2	50.0	50.0	0.0	0.0	0.0	0.0	
Salesman	4	0.0	25.0	0.0	25.0	25.0	50.0	
Tree Pruner	2	0.0	50.0	0.0	50.0	0.0	0.0	
Tree Surgeon	2	0.0	0.0	50.0	0.0	50.0	0.0	
Tree Surgeon Helper	2	0.0	50.0	0.0	50.0	0.0	0.0	
Truck Driver	4	0.0	75.0	25.0	0.0	0.0	0.0	
Unskilled Laborer	3	0.0	66.7	0.0	33.3	0.0	0.0	

\*May add to more than 100 percent since employees may have indicated more than one level for some jobs.

TABLE 8  
SALARY CHARACTERISTICS FOR NURSERY DEALER  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary				Potential Maximum Salary			
	No. of		Weekly (dollars)		No. of		Weekly (dollars)	
	Employer Responses	Low	High	Mean	Employer Responses	Low	High	Mean
Agric. Equip. Oper.	3	125	180	145	3	145	210	171
Floral Designer	1	100	100	100	1	150	150	150
Groundskeeper	2	120	125	122	2	140	160	150
Landscape Architect	4	135	170	151	4	150	250	200
Landscape Gardener	4	80	125	106	4	90	160	127
Manager/Superintendent	8	100	210	160	7	150	250	221
Mechanic/Helper	3	120	150	130	3	150	200	170
Nursery Foreman	1	150	150	150	1	185	185	185
Nursery Worker	4	120	160	137	4	150	200	170
Nursery Worker (sales)	1	150	150	150	1	150	150	150
Packer/Shipper	1	100	100	100	1	150	150	150
Sales Clerk	1	150	150	150	0	0	0	0
Salesman	5	100	175	143	5	150	250	204
Tree Pruner	2	120	135	127	2	145	160	152
Tree Surgeon	2	140	150	145	2	165	170	167
Tree Surgeon Helper	2	80	120	100	2	100	160	130
Truck Driver	7	75	160	121	6	100	200	155
Unskilled Laborer	5	70	150	111	4	100	180	150

Horticultural Services

Horticultural service businessmen projected a 22.0% increase in full-time positions and a 2.7% decrease in seasonal or part-time positions during the five-year period reported in Table 9. They indicated a need for 5,312 full-time workers in 1976 compared with 4,354 in 1971. The estimation for seasonal or part-time workers was 4,307 in 1976 compared with 4,426 in 1971. Recruitment needs for replacement and expansion during the five-year period included 1,441 full-time and 390 seasonal or part-time workers. A trend toward more highly skilled or specialized workers was indicated when the trend for all workers was compared with the respective 14.6% and 37.5% decreases in full-time and part-time unskilled laborers. It should be noted

that these figures do not include the 6.2% of the businesses that were reported as family operated without any reference to job titles or 1976 projections.

Table 10 provides some indications of the educational levels desired by employers for selected job titles. It indicates areas of need for vocational, 2-year collegiate, 4-year collegiate, and short-term courses for many of the job titles in addition to the on-the-job training provided by employers.

Table 11 provides information on the 1971 salary characteristics of selected job titles. Although the data are limited, they do provide some impressions of the relative financial rewards of the various jobs.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. They reported that 7.7% provided housing for seasonal employees, but none of the seasonal employees were migrants. A large number reported hiring students; off-season activities of other workers included other jobs and unemployment. Approximately 25% of the employers did not comment or did not know the off-season activities of their workers.

The employers' views of the future manpower situation in New Jersey included: (1) shortage of skilled labor; and (2) negative views toward the unemployment compensation and welfare situation. Fifteen expected the future manpower situation to be good while twenty-one expected it to be bad. Approximately 35% did not comment.

TABLE 9  
ESTIMATED EMPLOYMENT IN HORTICULTURAL SERVICES  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs			1976 Jobs			% Increase or Decrease		
	No. of		No. of	No. of		Full Time	Part Time	Full Time	Part Time
	Full Time	Part Time		Full Time	Part Time				
Agric. Equip. Oper.	189	340	274	341	45.0	0.3			
Chemical Sprayer	30	28	50	38	66.7	35.7			
Floral Designer	25	13	25	13	0.0	0.0			
Greenskeeper	13	13	38	25	192.3	92.3			
Groundskeeper	269	253	385	351	43.1	38.7			
Heavy Equip. Oper.	0	12	0	0	0.0	-100.0			
Insect Control Spec.	25	0	0	50	-100.0	Plus			
Landscape Architect	115	13	165	13	43.5	0.0			
Landscape Contractor	13	0	13	0	0.0	0.0			
Landscape Foreman	81	0	106	0	30.9	0.0			
Landscape Gardener	875	1118	1290	1408	54.3	25.9			
Lawn Maint. Foreman	25	0	0	0	-100.0	0.0			
Lawn Technician	75	63	138	88	84.0	39.7			
Manager/Supervisor	220	22	278	38	26.4	72.7			
Mechanic/Helper	15	70	23	107	53.3	52.9			
Nursery Worker	180	252	205	239	13.9	5.2			
Sales Clerk	0	30	0	5	0.0	-83.3			
Salesman	126	34	184	77	46.0	126.5			
Shrub Pruning/Shaping	25	0	25	0	0.0	0.0			
Skilled Land. Worker	13	100	38	113	192.3	13.0			
Tree Foreman	125	0	138	0	10.4	0.0			
Tree Pruner	850	103	883	100	3.9	2.9			
Tree Surgeon	185	24	202	42	9.2	75.0			
Tree Surgeon Helper	70	74	105	67	50.0	9.5			

TABLE 9 (continued)

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Truck Driver	45	86	90	80	100.0	- 7.0
Unskilled Laborer	740	1778	632	1112	- 14.6	- 37.5
Weed Control Spec.	25	0	25	0	0.0	0.0
Total	4,354	4,426	5,312	4,307	22.0	- 2.7



TABLE 10  
EDUCATIONAL LEVELS DESIRED FOR HORTICULTURAL  
SERVICE OCCUPATIONS IN NEW JERSEY, 1971

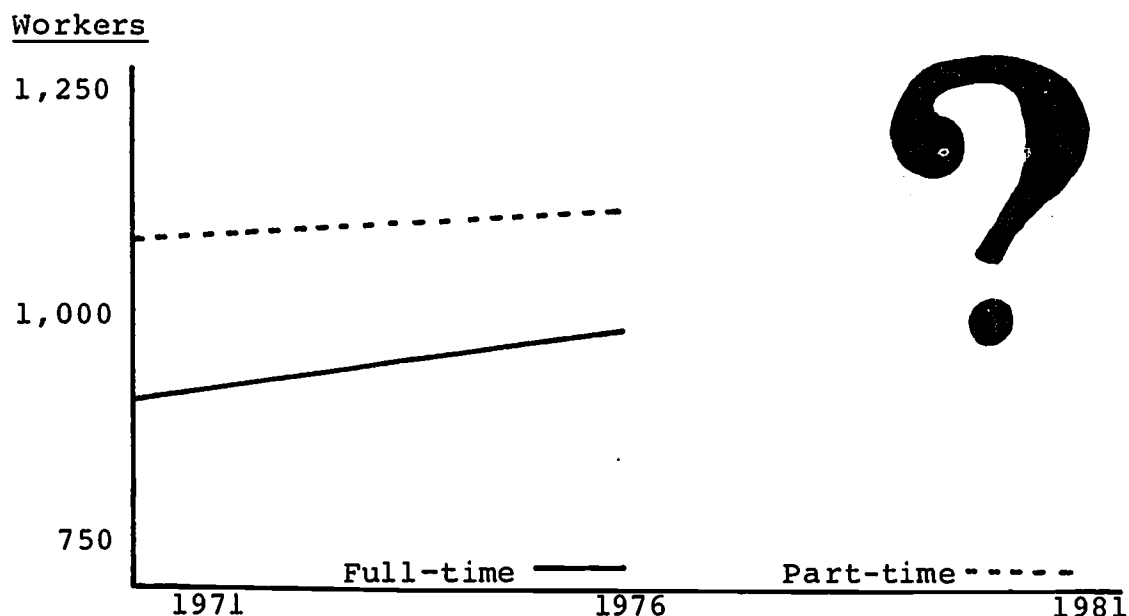
Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level*						
		None	On-The- Job	Short Courses	High School Vocational	2-Year College	4-Year College	
Agric. Equip. Oper.	21	0.0	80.9	14.2	28.5	0.0	0.0	
Chemical Sprayer	1	0.0	100.0	0.0	0.0	0.0	0.0	
Floral Designer	1	0.0	100.0	0.0	0.0	0.0	0.0	
Greenskeeper	1	0.0	0.0	0.0	100.0	0.0	0.0	
Groundskeeper	15	6.6	66.7	13.3	20.0	0.0	0.0	
Landscape Architect	8	0.0	0.0	0.0	0.0	12.5	87.5	
Landscape Contractor	1	0.0	100.0	100.0	100.0	0.0	0.0	
Landscape Foreman	2	0.0	0.0	0.0	0.0	100.0	0.0	
Landscape Gardener	47	2.1	61.7	17.0	23.4	10.6	4.2	
Lawn Maint. Foreman	1	0.0	100.0	0.0	0.0	0.0	0.0	
Lawn Technician	3	33.3	66.7	0.0	66.7	0.0	0.0	
Manager/Supervisor	18	5.5	16.6	16.6	22.2	33.3	11.1	
Mechanic/Helper	9	0.0	33.3	0.0	66.7	0.0	0.0	
Nursery Worker	9	0.0	77.7	55.5	22.2	11.1	0.0	
Sales Clerk	2	0.0	50.0	0.0	50.0	0.0	0.0	
Salesman	10	0.0	50.0	0.0	10.0	60.0	0.0	
Skilled Land. Worker	1	0.0	100.0	0.0	0.0	0.0	0.0	
Tree Foreman	1	0.0	100.0	0.0	0.0	0.0	0.0	
Tree Pruner	12	0.0	83.3	8.3	8.3	0.0	0.0	
Tree Surgeon	10	0.0	80.3	30.0	20.0	0.0	0.0	
Tree Surgeon Helper	6	16.6	83.3	0.0	16.6	0.0	0.0	
Truck Driver	7	0.0	85.7	0.0	42.8	0.0	0.0	
Unskilled Laborer	27	22.2	70.3	3.7	11.1	0.0	0.0	

\*May add to more than 100 percent since employers may have indicated more than one level for some jobs.

TABLE 11

SALARY CHARACTERISTICS FOR HORTICULTURAL SERVICE  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary				Potential Maximum Salary			
	No. of		Weekly (dollars)		No. of		Weekly (dollars)	
	Employer Responses	Low	High	Mean	Employer Responses	Low	High	Mean
Agric. Equip. Oper.	20	100	175	129	19	120	250	173
Chemical Sprayer	1	118	118	118	1	185	185	185
Floral Designer	1	70	70	70	1	80	80	80
Greenskeeper	1	120	120	120	1	130	130	130
Groundskeeper	15	80	160	112	15	100	200	147
Landscape Architect	9	120	250	173	8	180	300	242
Landscape Foreman	3	135	200	165	2	180	250	215
Landscape Gardener	45	72	200	114	40	75	250	161
Lawn Maint. Foreman	0	0	0	0	1	160	160	160
Lawn Technician	3	120	125	121	3	175	200	191
Manager/Superintendent	17	100	220	168	16	150	400	213
Mechanic/Helper	7	100	160	135	7	100	260	170
Nursery Worker	9	70	170	113	7	70	220	149
Sales Clerk	0	0	0	0	1	95	95	95
Salesman	9	100	200	149	8	140	350	251
Skilled Land. Worker	1	110	110	110	1	188	188	188
Tree Foreman	1	205	205	205	1	205	205	205
Tree Pruner	12	110	160	136	10	110	200	175
Tree Surgeon	9	110	150	133	8	160	210	181
Tree Surgeon Helper	8	90	130	111	6	130	210	158
Truck Driver	9	100	140	123	8	120	200	161
Unskilled Laborer	25	60	150	105	24	90	250	151

Golf Courses

Golf course employers projected a 13.5% increase in full-time positions and a 5.1% increase in part-time positions during the five-year period reported in Table 12. They indicated a need for 969 full-time workers in 1976 compared with 854 in 1971. The estimation for seasonal or part-time workers was 1,127 in 1976 compared with 1,072 in 1971. Recruitment needs for replacement and expansion during the five-year period included 206 full-time and 165 seasonal or part-time workers.

Table 13 provides some indications of the educational levels desired by employers for selected job titles. In combination with other business areas, it indicates a need for vocational, 2-year collegiate, 4-year collegiate, and short-term courses for many of the job titles in addition to the on-the-job

training provided by employers.

Table 14 provides information on the 1971 salary characteristics of selected job titles. Although the data are limited, they do provide some impressions of the relative financial rewards of the various jobs.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. The seasonal or part-time work force included students in addition to those who worked at other jobs or were unemployed during the off-season. They reported that 4.3% provided housing for seasonal employees and 4.3% employed migrants.

The employers' views of the future manpower situation in New Jersey included: (1) need trained manpower; (2) labor costs are increasing; (3) negative views toward the unemployment compensation and welfare situation; (4) poor outlook; and (5) manpower problems are increasing.

TABLE 12  
ESTIMATED EMPLOYMENT IN GOLF COURSE BUSINESSES  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Agric. Equip. Oper.	90	51	121	78	34.4	52.9
Asst.. Superintendent	9	0	9	0	0.0	0.0
Greenskeeper	218	354	208	294	- 4.6	- 16.9
Groundskeeper	231	280	280	210	21.2	- 25.0
Landscaper Architect	0	9	0	9	0.0	0.0
Landscaper Gardener	0	98	0	142	0.0	44.9
Manager/Suprintendent	107	4	113	0	5.6	-100.0
Mechanic/Helper	90	21	112	21	24.4	0.0
Nursery Worker	12	36	30	98	150.0	172.2
Sales Clerk	12	9	27	44	125.0	388.8
Unskilled Laborer	85	210	69	231	- 18.8	10.0
Total	854	1,072	969	1,127	13.5	5.1

TABLE 13

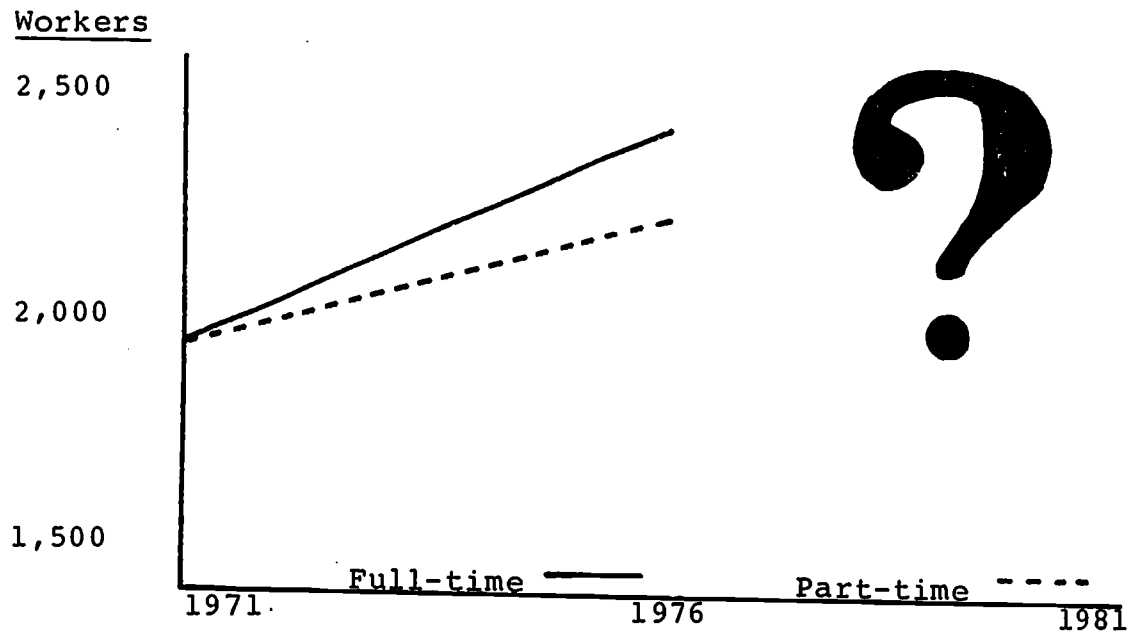
EDUCATIONAL LEVELS DESIRED FOR GOLF COURSE  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level*						
		None	On-The- Job	Short Courses	High School Vocational	2-Year College	4-Year College	
Agric. Equip. Oper.	6	0.0	33.3	0.0	66.7	0.0	0.0	
Asst. Superintendent	1	0.0	0.0	100.0	0.0	0.0	0.0	
Greenskeeper	13	0.0	53.8	30.7	23.0	15.3	0.0	
Groundskeeper	15	0.0	80.0	6.6	20.0	0.0	0.0	
Landscape Architect	1	0.0	0.0	0.0	0.0	0.0	100.0	
Landscape Gardener	2	0.0	50.0	0.0	50.0	0.0	0.0	
Manager/Supintendent	9	0.0	11.1	22.2	11.1	11.1	44.4	
Mechanic/Helper	12	0.0	41.6	8.3	58.3	8.3	0.0	
Nursery Worker	2	0.0	50.0	50.0	100.0	0.0	0.0	
Sales Clerk	1	0.0	0.0	0.0	100.0	0.0	0.0	
Unskilled Laborer	7	28.5	57.1	0.0	14.2	0.0	0.0	

\*May add to more than 100 percent since employers may have indicated more than one level for some jobs.

TABLE 14  
 SALARY CHARACTERISTICS FOR GOLF COURSE  
 OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary				Potential Maximum Salary			
	No. of		Weekly (dollars)		No. of		Weekly (dollars)	
	Employer Responses	Low	High	Mean	Employer Responses	Low	High	Mean
Agric. Equip. Oper.	5	75	140	100	5	100	168	116
Asst. Superintendent	1	115	115	115	1	160	160	160
Greenskeeper	15	80	225	127	13	100	275	160
Groundskeeper	15	60	145	101	14	100	180	125
Landscape Gardener	1	84	84	84	1	110	110	110
Manager/Superintendent	11	100	277	201	8	100	327	235
Mechanic/Helper	10	60	173	120	10	60	203	150
Nursery Worker	2	60	86	73	2	100	110	105
Sales Clerk	2	80	120	100	1	100	100	100
Unskilled Laborer	5	60	100	85	5	80	125	107

Florists

Florists projected a 20.3% increase in full-time positions and a 11.7% increase in part-time positions during the five-year period reported in Table 15. They indicated a need for 2,343 full-time workers in 1976 compared with 1,947 in 1971. The estimation for seasonal or part-time workers was 2,171 in 1976 compared with 1,943 in 1971. Recruitment needs for replacement and expansion during the five-year period included 611 full-time and 434 seasonal or part-time workers. Other data suggest that the number of florists is underestimated because a large number of these businesses have payrolls of less than \$1,000 per year.

Table 16 provides some indications of the educational levels desired by employers for selected job titles. In combination with



other business areas, it indicates a need for vocational, 2-year collegiate, 4-year collegiate, and short-term courses for many of the job titles in addition to the on-the-job training provided by employers.

Table 17 provides information on the 1971 salary characteristics for selected job titles. Although the data are limited, they do provide some impressions of the relative financial rewards of the various jobs.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. The seasonal or part-time work force included students, housewives, and retirees in addition to those who found other jobs during the off-season. Approximately one half of the employers did not comment or did not know what their employees did during the off-season. None of the employers reported hiring migrants, but 4.6% did provide housing for seasonal employees.

The employers' views on the future manpower situation in New Jersey included: (1) need for more skilled labor; (2) depends on growth of the industry; (3) negative views toward the unemployment compensation and welfare situation; and (4) unable to pay good wages.

TABLE 15  
ESTIMATED EMPLOYMENT IN FLORIST BUSINESSES  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Floral Designer	1156	625	1196	862	3.5	37.9
Floral Delivery	0	12	0	12	0.0	0.0
Florist	9	0	0	0	-100.0	0.0
Flower Grower	12	24	24	24	100.0	0.0
Groundskeeper	12	0	12	0	0.0	0.0
Manager/Superintendent	45	12	76	24	68.9	100.0
Mechanic/Helper	12	12	12	12	0.0	0.0
Sales Clerk	317	431	519	365	63.7	- 15.3
Salesman	24	12	83	24	245.8	100.0
Truck Driver	322	803	381	836	18.3	4.1
Unskilled Laborer	38	12	40	12	5.3	0.0
Total	1,947	1,943	2,343	2,171	20.3	11.7

TABLE 16

EDUCATIONAL LEVELS DESIRED FOR FLORIST  
OCCUPATIONS IN NEW JERSEY, 1971

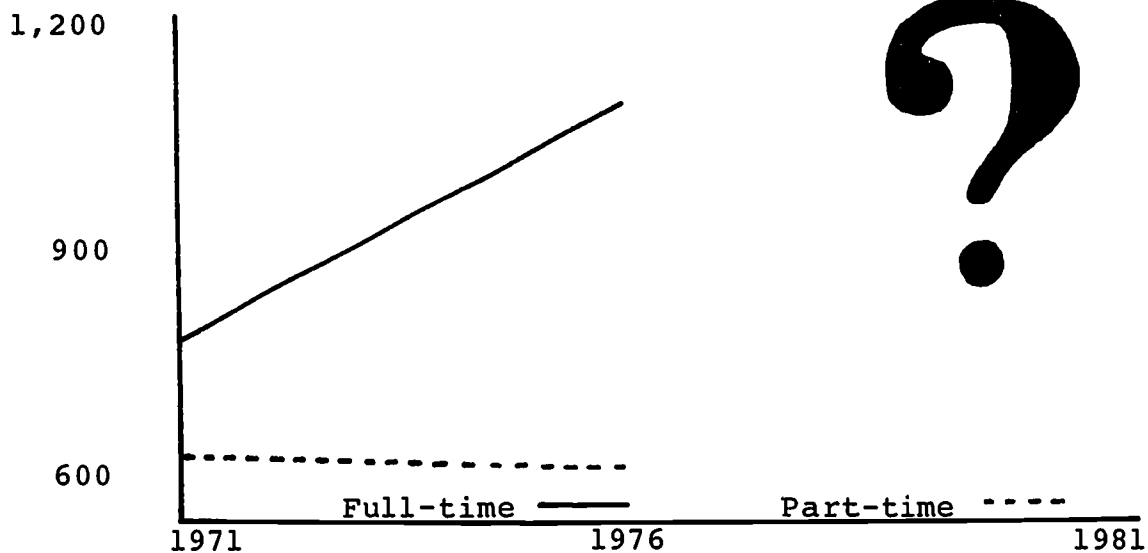
Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level*						
		None	On-The- Job	Short Courses	High School Vocational	2-Year College	4-Year College	
Floral Deliveryman	1	100.0	0.0	0.0	0.0	0.0	0.0	
Floral Designer	34	0.0	73.5	38.2	14.7	2.9	0.0	
Flower Grower	1	0.0	100.0	100.0	0.0	0.0	0.0	
Groundskeeper	1	0.0	100.0	0.0	0.0	0.0	0.0	
Manager/Superintendent	5	0.0	20.0	20.0	0.0	60.0	20.0	
Sales Clerk	15	6.6	60.0	20.0	20.0	0.0	0.0	
Salesman	2	0.0	50.0	100.0	0.0	50.0	0.0	
Truck Driver	22	13.6	77.2	9.0	18.1	0.0	0.0	
Unskilled Laborer	3	0.0	100.0	0.0	0.0	0.0	0.0	

\*May add to more than 100 percent since employers may have indicated more than one level for some jobs.

TABLE 17

SALARY CHARACTERISTICS FOR FLORIST  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary				
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)			
		Low	High Mean		Low	High Mean		
Floral Designer	34	60	150	94	34	80	250	158
Flower Grower	1	70	70	70	1	150	150	150
Groundskeeper	1	160	160	160	1	180	180	180
Manager/Superintendent	2	100	115	107	2	150	200	175
Mechanic/Helper	1	80	80	80	1	100	100	100
Sales Clerk	16	60	110	80	16	85	150	110
Salesman	1	90	90	90	1	120	120	120
Truck Driver	22	60	130	89	21	80	165	121
Unskilled Laborer	3	65	100	80	4	85	100	93

Farm and Garden SupplyWorkers

Farm and garden supply businessmen projected a 42.0% increase in full-time positions and a 4.3% decrease in seasonal or part-time positions during the five-year period reported in Table 18. They indicated a need for 1,096 full-time workers in 1976 compared to 772 in 1971. The estimation for seasonal or part-time workers was 608 in 1976 compared with 635 in 1971. Recruitment needs for replacement and expansion during the five-year period included 417 full-time and 35 seasonal or part-time workers. It should be noted that these figures do not include the 3.6% of the businesses that were reported as family operated without any reference to job titles or 1976 projections.

Table 19 provides some indications of the educational levels

desired by employers for selected job titles. In combination with other business areas, it indicates a need for vocational, 2-year collegiate, 4-year collegiate, and short-term courses for many of the job titles in addition to the on-the-job training provided employers.

Table 20 provides information on the 1971 salary characteristics of selected job titles. Although the data are limited, they do provide some impressions of the relative financial rewards of the various jobs.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. This part of their work force included students, housewives, and retirees in addition to those who find other jobs or are unemployed during the off-season. Seasonal housing was not provided and migrants were not part of the work force.

The employers' views of the future manpower situation in New Jersey included: (1) lack of trained manpower; (2) wages were too high; and (3) future outlook is poor. The majority did not comment.

TABLE 18  
ESTIMATED EMPLOYMENT IN FARM AND GARDEN SUPPLY  
BUSINESSES IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Agric. Equip. Oper.	46	7	58	0	26.1	-100.0
Equip. Set-Up Man	8	6	2	0	- 75.0	-100.0
Feed Mixer	14	0	14	0	0.0	0.0
Foreman	35	0	42	0	20.0	0.0
Greenhouse Worker	7	0	0	0	-100.0	0.0
Landscape Architect	7	7	0	0	-100.0	-100.0
Landscape Foreman	14	0	27	0	92.9	0.0
Manager	52	39	60	0	15.4	-100.0
Mechanic	27	7	48	7	77.8	0.0
Nurseryman	14	27	34	61	142.9	125.9
Nursery Worker	54	162	102	251	88.9	54.9
Partsman	28	7	21	7	- 25.0	0.0
Plant Man	14	7	20	41	42.9	485.7
Sales Clerk	62	174	83	134	33.9	- 23.0
Salesman	117	26	177	7	51.3	- 73.1
Skilled Land. Worker	0	24	12	12	Plus	- 50.0
Small Engine Mechanic	20	7	27	0	35.0	-100.0
Truck Driver	162	40	238	27	46.9	- 32.5
Truck Driver (Warehouse)	20	0	20	0	0.0	0.0
Unskilled Laborer	17	68	29	7	70.6	- 89.7
Warehouseman	54	27	82	54	51.9	100.0
Total	772	635	1,096	608	42.0	- 4.3

TABLE 19

EDUCATIONAL LEVELS DESIRED FOR FARM AND GARDEN  
SUPPLY OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level*					
		None	On-The- Job	Short Courses	High School Vocational	2-Year College	4-Year College
Agric. Equip. Oper.	3	0.0	100.0	0.0	0.0	0.0	0.0
Equip. Set-Up Man	2	0.0	50.0	50.0	0.0	0.0	0.0
Feed Mixer	1	0.0	100.0	0.0	0.0	0.0	0.0
Foreman	5	0.0	40.0	0.0	40.0	20.0	0.0
Greenhouse Worker	1	0.0	100.0	0.0	0.0	0.0	0.0
Landscape Architect	1	0.0	0.0	0.0	0.0	0.0	100.0
Landscape Foreman	1	0.0	0.0	0.0	0.0	100.0	0.0
Manager	8	0.0	0.0	25.0	25.0	50.0	25.0
Mechanic	2	0.0	50.0	0.0	50.0	0.0	0.0
Nurseryman	3	0.0	0.0	0.0	33.3	66.7	0.0
Nursery Worker	4	0.0	25.0	0.0	75.0	0.0	0.0
Partsman	3	33.3	33.3	0.0	66.7	0.0	0.0
Plant Man	1	0.0	0.0	0.0	0.0	100.0	0.0
Sales Clerk	9	11.1	33.3	22.2	44.4	33.3	0.0
Salesman	8	0.0	37.5	0.0	62.5	12.5	0.0
Small Engine Mechanic	1	0.0	100.0	0.0	0.0	0.0	0.0
Skilled Land. Worker	1	0.0	0.0	0.0	100.0	0.0	0.0
Truck Driver	10	10.0	60.0	0.0	20.0	10.0	0.0
Truck Driver (warehouse)	1	0.0	100.0	0.0	0.0	0.0	0.0
Unskilled Laborer	5	20.0	60.0	0.0	20.0	0.0	0.0
Warehouseman	3	0.0	100.0	33.3	0.0	0.0	33.3

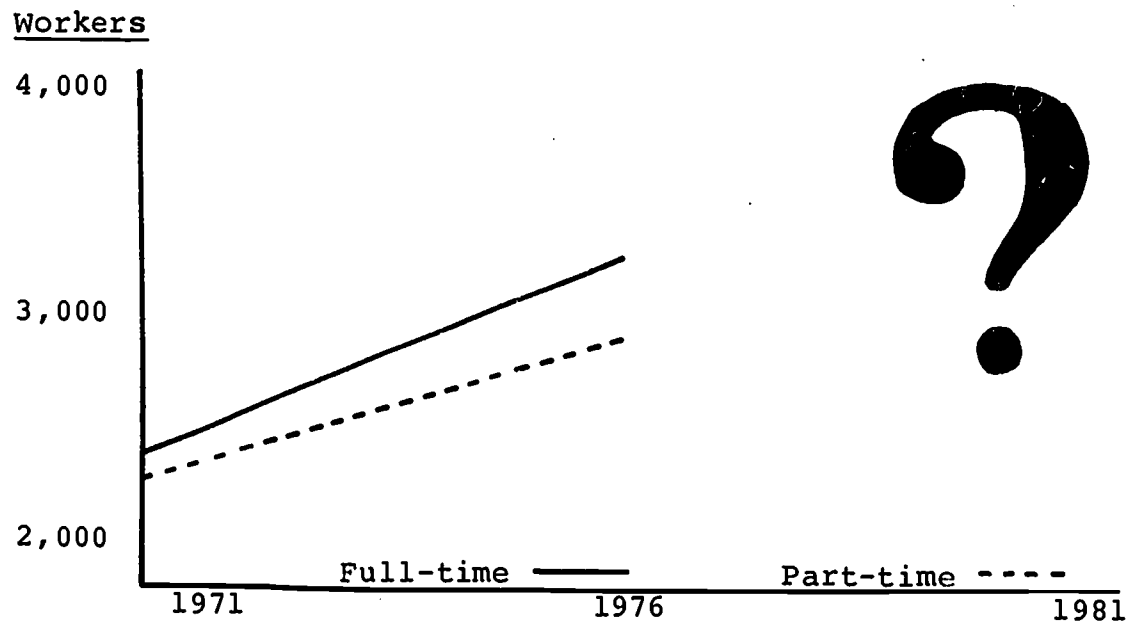
\*May add to more than 100 percent since employers may have indicated more than one level for some jobs.



TABLE 20  
SALARY CHARACTERISTICS FOR FARM AND GARDEN  
SUPPLY OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary				
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)			
		Low	High Mean		Low	High Mean		
Agric. Equip. Oper.	3	120	150	130	2	150	180	165
Equip. Set-Up Man	2	100	120	110	2	150	160	155
Feed Mixer	1	100	100	100	1	130	130	130
Foreman	4	116	130	125	3	142	198	166
Landscape Foreman	1	150	150	150	1	175	175	175
Manager	8	115	200	157	10	125	300	228
Mechanic	1	100	100	100	1	150	150	150
Nurseryman	3	100	150	125	2	150	175	162
Nursery Worker	3	80	150	106	2	88	90	89
Partsman	4	88	110	99	4	100	150	122
Plant Man	1	125	125	125	1	150	150	150
Sales Clerk	8	65	150	118	6	65	200	129
Salesman	8	100	150	125	7	142	300	192
Skilled Land. Foreman	1	100	100	100	1	150	150	150
Small Engine Mechanic	2	165	175	170	1	185	185	185
Truck Driver	11	80	175	118	9	130	200	163
Truck Driver (Warehouse)	1	90	90	90	1	125	125	125
Unskilled Laborer	5	75	110	97	3	95	150	125
Warehouseman	3	110	250	160	2	175	200	187

IV. NATURAL RESOURCE BUSINESSES AND GOVERNMENTAL SERVICES



The projected trend for people with skills and knowledge in natural resource businesses and governmental services indicated greater demand for both full-time and seasonal or part-time workers for the five-year period from 1971 to 1976. The projections in Table 21 combine the areas of sporting and recreational businesses, water supply and sewage businesses, municipal and county governmental services, and state and federal governmental services. A 29.3% increase in full-time positions from 2,387 to 3,086 in 1976 was projected. Seasonal or part-time positions are expected to increase 15.7% from 2,298 workers in 1971 to 2,659 in 1976. Considering a 2% annual replacement rate due to retirement and other factors, 973 people will have

to be recruited and trained for the 699 new positions and 274 replacement positions. The seasonal or part-time needs of 609 people included 361 new positions and 248 replacement positions.

A more detailed analysis of the trends in natural resource businesses and governmental services is available on the following pages. Table 21 provides a composite analysis of the manpower trends in these occupations by job title. The subsections for sporting and recreational businesses, water supply and sewage businesses, municipal and county governmental services, and state and federal governmental services provide trends for manpower needs, educational levels desired by employers, and salary characteristics for the state-wide situation in New Jersey.

TABLE 21

## ESTIMATED EMPLOYMENT IN NATURAL RESOURCE AND GOVERNMENTAL SERVICES IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Agric. Equip. Oper.	4	0	4	0	0.0	0.0
Agric. & Envir. Sci. Res. Teach., Ext., & Admin.	342	0	376	0	10.0	0.0
Agric. Economist	2	0	2	0	0.0	0.0
Agric. Marketing Spec.	3	0	3	0	0.0	0.0
Air Pollution Insp.	9	0	11	0	22.2	0.0
Air Pollution Spec.	0	9	3	6	Plus	- 33.3
Analyst, Agric.	2	0	1	0	- 50.0	0.0
Anim. & Pl. Health Super.	2	0	2	0	0.0	0.0
Animal Science Tech.	10	0	11	0	10.0	0.0
Bacteriologist	1	0	1	0	0.0	0.0
Biochem. & Micro. Tech.	5	0	6	0	20.0	0.0
Bio. & Lab. Technician	1	0	1	0	0.0	0.0
Bio. & Agric. Eng. Tech.	1	0	1	2	57.1	100.0
Biologist	7	1	11	2	57.1	100.0
Bureau Chief, Agric.	8	0	8	0	0.0	0.0
Camp Attendant	0	139	0	216	0.0	55.4
Camp Director	19	30	19	41	0.0	36.7
Camp Maintenance	19	0	19	0	0.0	0.0
Campground Caretaker	8	65	11	69	37.5	6.2
Campground Manager	4	0	8	0	100.0	0.0
Chemist	6	0	12	2	100.0	Plus
Chief, Engineer, Water	5	2	5	0	0.0	-100.0
Chlorine Station Oper.	20	0	0	0	-100.0	0.0
Computer Prog., Agric.	1	0	1	0	0.0	0.0
Conservation Officer	41	0	43	0	4.9	0.0

TABLE 21 (continued)

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Coordinator, Agric.	6	1	9	0	50.0	-100.0
Counselor	39	1243	54	1598	38.5	28.6
Dairyman	9	0	60	0	566.7	0.0
Dairyman, Head	6	0	7	0	16.7	0.0
Deputy Director, Agric.	3	0	3	0	0.0	0.0
Director, Public Works	6	0	6	0	0.0	0.0
Division Director, Agric.	8	0	8	0	0.0	0.0
Entomologist	4	1	4	1	0.0	0.0
Entomology Technician	3	0	3	0	0.0	0.0
Enumerator, Agric.	0	24	0	24	0.0	0.0
Environmental Aide	0	0	5	0	Plus	0.0
Envir. Engineer	48	12	67	15	39.6	25.0
Envir. Eng. Aide	2	0	3	0	50.0	0.0
Envir. Field Worker	15	0	25	0	66.7	0.0
Envir. Physiology Tech.	2	0	2	0	0.0	0.0
Envir. Program Spec.	0	0	1	0	Plus	0.0
Envir. Protection Spec.	3	0	0	3	-100.0	Plus
Envir. Science Instr.	0	34	0	68	0.0	100.0
Envir. Science Tech.	4	0	4	0	0.0	0.0
Envir. Specialist	4	0	4	0	0.0	0.0
Envir. Technician	0	0	10	4	Plus	Plus
Farm Supervisor	7	0	7	0	0.0	0.0
Farmer	16	0	26	0	62.5	0.0
Farmer, Assistant	6	0	26	0	333.3	0.0
Farmer, Head	8	0	8	0	0.0	0.0
Fisheries Biologist	10	15	10	16	0.0	6.7
Food Science Tech.	2	0	2	0	0.0	0.0

TABLE 21 (continued)

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Foreman, Sewage System	12	0	12	0	0.0	0.0
Foreman, Water Supply	12	0	12	2	0.0	Plus
Forester	22	0	28	0	27.3	0.0
Gardener	2	0	6	0	400.0	0.0
General Duties	2	0	2	0	0.0	0.0
Geologist	9	5	12	7	33.3	40.0
Greenhouseman, Asst.	2	0	2	0	0.0	0.0
Greenhouseman, Head	1	0	1	0	0.0	0.0
Greenskeeper	0	0	4	0	Plus	0.0
Groundsman (tree)	6	11	9	11	50.0	0.0
Groundsman	34	0	50	0	47.1	0.0
Groundsman, Assistant	36	0	40	0	11.1	0.0
Groundsman, Head	12	0	12	0	0.0	0.0
Head Counselor	0	2	0	2	0.0	0.0
Health Officer	11	11	17	6	54.5	- 45.5
Horticulture Tech.	9	0	10	0	11.1	0.0
Hunt./Fish. Guide	0	8	0	15	0.0	87.5
Industrial Hygienist	3	0	3	3	0.0	Plus
Inspector, Agric.	16	101	59	42	268.7	- 58.4
Inspector, Asst. (agric.)	0	34	0	34	0.0	0.0
Insp. (Fixtures/House)	0	2	0	2	0.0	0.0
Insp., Livestock & Inv.	3	0	3	0	0.0	0.0
Insp., Senior (agric.)	30	14	46	0	53.3	-100.0
Insp., Super. (agric.)	3	5	8	0	166.7	-100.0
Lab. &/or Insp. Chief	3	0	3	0	0.0	0.0
Lab. Asst. & Serv. Worker	5	12	4	4	- 20.0	- 66.7
Lab. Technician	4	3	4	2	0.0	- 50.0

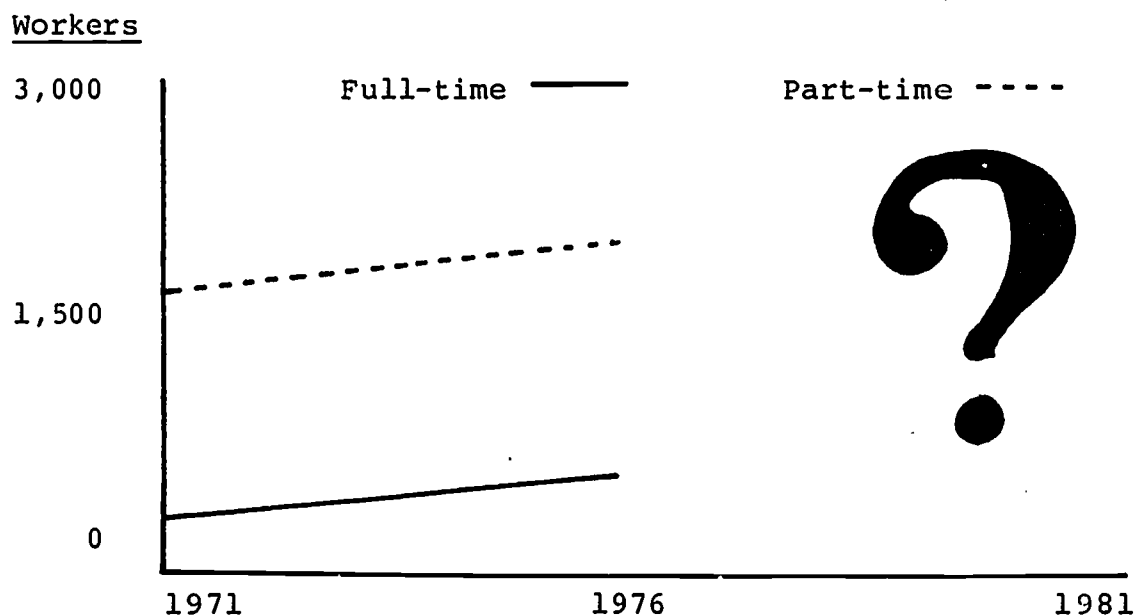
TABLE 21 (continued)

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Lab. Tech. Asst.	0	10	9	25	Plus	150.0
Land. Hwy. Maint. Fore.	15	0	20	0	33.3	0.0
Land. Maint. Super.	2	0	3	0	50.0	0.0
Marketing Rep., Agric.	5	0	5	0	0.0	0.0
Marine Biologist	2	0	8	0	300.0	0.0
Meat Inspector	3	0	3	0	0.0	0.0
Mechanic	5	0	9	0	80.0	0.0
Meter Installer	15	2	27	0	80.0	-100.0
Meter Reader	20	2	34	0	70.0	-100.0
Misc. Agric.	3	0	3	0	0.0	0.0
Nature Counselor	0	27	0	8	0.0	- 70.4
Nutrition Technician	2	0	2	0	0.0	0.0
Oyster Technician	5	0	6	0	20.0	0.0
Park Groundsman	369	207	482	224	30.6	8.2
Park Supt./Foreman	142	23	119	23	- 16.2	0.0
Picnic Pack Attendant	4	16	4	16	0.0	0.0
Plant Protect. Sup.	2	0	2	0	0.0	0.0
Poultryman, Head	1	0	1	0	0.0	0.0
Proced. Analyst	1	0	2	0	100.0	0.0
Public Health Engineer	6	0	6	0	0.0	0.0
Public Info. Asst.	1	1	2	0	100.0	-100.0
Pump Station Operator	47	0	44	0	- 8.5	0.0
Sanitarian	79	79	134	42	69.6	- 46.8
Sanitarian Trainee	6	3	60	11	900.0	266.7
Sanitary Engineer	20	9	17	3	- 15.0	- 66.7
Sanitary Inspector	48	6	91	3	89.6	- 50.0
Sanitary Technician	0	0	3	0	Plus	0.0

TABLE 21 (continued)

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of No. of		No. of No. of		Full Time	Part Time
	Full Time	Part Time	Full Time	Part Time		
Seed Analyst	3	0	3	0	0.0	0.0
Sr. Air Pollution Insp.	3	0	3	0	0.0	0.0
Sewage Plant Operator	151	29	169	20	11.9	- 31.0
Soil Conser. Spec.	3	0	3	0	0.0	0.0
Soils & Crops Tech.	5	0	5	0	0.0	0.0
Solid Waste Spec.	17	9	28	6	64.7	- 33.3
Statistician	3	0	3	0	0.0	0.0
Statistician, Asst.	1	0	1	0	0.0	0.0
Superintendent	24	5	19	2	- 20.8	- 60.0
Supt., Inst. Grounds	4	0	4	0	0.0	0.0
Supervisor, Agric.	10	5	12	0	20.0	-100.0
Super., Asst. (agric.)	1	0	1	0	0.0	0.0
Swimming Instr.	0	4	0	4	0.0	0.0
Tree Climber	17	0	28	0	64.7	0.0
Tree Foreman	6	0	6	0	0.0	0.0
Truck Driver	4	8	4	15	0.0	87.5
Unskilled Laborer	129	15	131	17	1.6	13.3
Veterinarian	5	4	5	0	0.0	-100.0
Vet. Med. Officer	6	0	6	0	0.0	0.0
Water Engineer	0	3	0	3	0.0	0.0
Water Plant Operator	5	3	14	0	180.0	-100.0
Water Resources Eng.	23	3	30	5	30.4	66.7
Water-Sewage Supt.	6	0	3	0	- 50.0	0.0
Water Superintendent	3	0	0	0	-100.0	0.0
Water Treatmt. Pl. Oper.	27	2	41	0	51.9	-100.0
Waterworks Asst.	82	20	116	17	41.5	- 15.0
Weights & Measure Insp.	68	3	85	3	25.0	0.0
Wildlife Biologist	10	16	10	17	0.0	6.3
Total	2,387	2,298	3,086	2,659	29.3	15.7



Sporting and Recreational

Sporting and recreational employers projected a 29.7% increase in full-time employment and a 30.4% increase in seasonal or part-time employment during the five-year period reported in Table 22. Closer inspection of the data shows that the bulk of employment in this area is for seasonal or part-time workers. They indicated a need for 131 full-time workers in 1976 compared with 101 in 1971. The estimations for seasonal or part-time workers was for 2,052 in 1976 compared with 1,576 in 1971. Recruitment needs for replacement and expansion included 42 full-time workers and 657 seasonal or part-time workers.

Table 23 provides some indications of the educational levels desired by employers for selected job titles. Most of the educational needs of this group would be provided by educational

programs that include more than the sporting and recreational subject matter.

Table 24 provides information on the 1971 salary characteristics of selected job titles. Although data are limited, they do provide some impressions of the relative financial rewards of the various jobs.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. Several employers reported housing seasonal or part-time employees. Most of the employees in this category were students; some were teachers or held other jobs during the remainder of the year.

The employers' views of the future employment situation for New Jersey were generally optimistic. They indicated a need for competent employees.

TABLE 22

ESTIMATED EMPLOYMENT IN SPORTING AND RECREATION  
BUSINESSES IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Agric. Equip. Oper.	4	0	4	0	0.0	0.0
Camp Attendant	0	139	0	216	0.0	55.4
Camp Director	19	30	19	41	0.0	36.7
Camp Maintenance	19	0	19	0	0.0	0.0
Campground Caretaker	8	65	11	69	37.5	6.2
Campground Manager	4	0	8	0	100.0	0.0
Counselor	39	1243	54	1598	38.5	28.6
Envir. Science Instr.	0	34	0	68	0.0	100.0
Greenskeeper	0	0	4	0	Plus	0.0
Head Counselor	0	2	0	2	0.0	0.0
Hunt./Fish. Guide	0	8	0	15	0.0	87.5
Mechanic	0	0	4	0	Plus	0.0
Nature Counselor	0	27	0	8	0.0	- 70.4
Picnic Pack Attendant	4	16	4	16	0.0	0.0
Swimming Instructor	0	4	0	4	0.0	0.0
Truck Driver	4	8	4	15	0.0	87.5
Total	101	1,576	131	2,052	29.7	30.4

TABLE 23

## EDUCATIONAL LEVELS DESIRED FOR SPORTING AND RECREATIONAL OCCUPATIONS IN NEW JERSEY, 1971

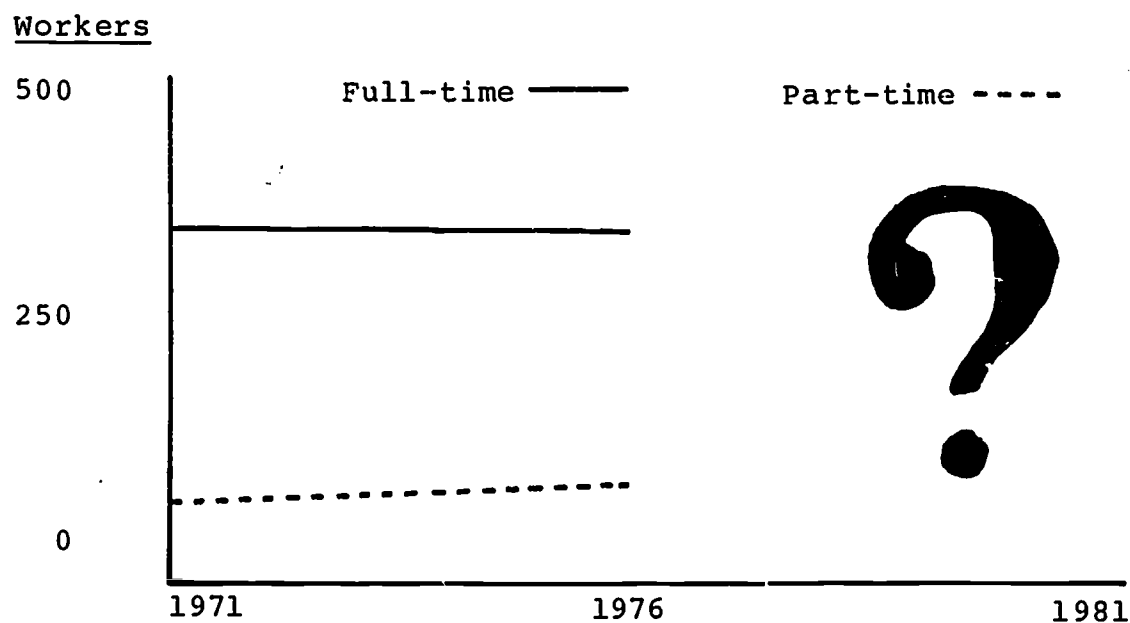
Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level*					
		None	On-The-Job	Short Courses	High School Vocational	2-Year College	4-Year College
Agric. Equip. Oper.	1	0.0	0.0	0.0	100.0	0.0	0.0
Camp Attendant	1	0.0	0.0	0.0	100.0	0.0	0.0
Camp Director	5	0.0	0.0	0.0	0.0	0.0	100.0
Camp Ground Caretaker	6	0.0	50.0	0.0	66.6	0.0	0.0
Camp Maintenance	1	0.0	100.0	0.0	0.0	0.0	0.0
Campground Man	1	0.0	0.0	0.0	100.0	0.0	0.0
Counselor	10	10.0	0.0	0.0	10.0	60.0	60.0
Envir. Science Instr.	3	0.0	0.0	0.0	0.0	0.0	100.0
Greenskeeper	1	0.0	0.0	0.0	100.0	0.0	0.0
Mechanic	1	0.0	0.0	0.0	100.0	0.0	0.0
Nature Counselor	1	0.0	0.0	100.0	0.0	0.0	0.0
Picnic Pack Attendant	1	0.0	100.0	0.0	0.0	0.0	0.0
Swimming Instructor	1	0.0	0.0	100.0	0.0	0.0	0.0
Truck Driver	1	0.0	0.0	0.0	100.0	0.0	0.0

\*May add to more than 100 percent since employers may have indicated more than one level for some jobs.

TABLE 24

SALARY CHARACTERISTICS FOR SPORTING AND RECREATIONAL  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary		
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)	
		Low	High Mean		Low	High Mean
Agric. Equip. Oper.	1	150	150	1	150	150
Camp Attendant	1	100	100	1	100	100
Camp Director	5	80	300	5	150	300
Campground Caretaker	4	80	200	4	50	200
Camp Maintenance	1	100	100	1	100	100
Counselors	1	85	85	1	150	150
Envir. Science Instr.	3	90	225	3	90	225
Head Counselor	1	85	85	1	150	150
Nature Counselor	1	50	50	1	50	50
Picnic Pack Attendant	1	60	60	1	60	60
Swimming Instructor	1	100	100	1	120	120
Truck Driver	1	150	150	1	150	150

Water Supply and Sewage

Water supply and sewage employers (not including municipal, county, or other governmental agencies) projected a 0.9% decrease in full-time employment and a 16.7% decrease in seasonal or part-time employment for the five-year period in Table 25. Actually an analysis of the data would indicate that this area is relatively stable. They estimated 341 full-time workers in 1976 compared with 344 in 1971. The seasonal or part-time estimation was for 25 workers in 1976 compared with 30 in 1971. The recruitment needs for replacement was 40 full-time workers; there would be a surplus of 2 seasonal or part-time workers.

Table 26 provides some indications of the educational levels desired by employers for selected job titles. The data indicate a need for short courses and some high school vocational program graduates in addition to on-the-job training provided by employers.

Table 27 provides information on the 1971 salary characteristics of selected job titles. Although data are limited, they do provide some impressions of the relative financial rewards of the various jobs.

Very little information was available on the seasonal or part-time employment situation because of the small number of employees involved.

Employers' views on the future manpower situation in New Jersey included: (1) lack of skilled workers; (2) workers want white collar jobs; and (3) it depends on the growth of industry. Approximately one-half of the employers did not comment.

TABLE 25

ESTIMATED EMPLOYMENT IN WATER SUPPLY AND SEWAGE  
BUSINESSES IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of No. of		No. of No. of		Full Time	Part Time
	Full Time	Part Time	Full Time	Part Time		
Asst. Pump Station Oper.	15	0	15	0	0.0	0.0
Asst. Sewage Plant Oper.	2	0	2	0	0.0	0.0
Chemist, Water Purif.	0	0	0	2	0.0	Plus
Chief Engineer, Water	5	2	5	0	0.0	-100.0
Chlorine Station Oper.	20	0	0	0	-100.0	0.0
Foreman, Sewage System	12	0	12	0	0.0	0.0
Foreman, Water Supply	12	0	12	2	0.0	Plus
General Duties	2	0	2	0	0.0	0.0
Insp. (Fixtures in House)	0	2	0	2	0.0	0.0
Mechanic	5	0	5	0	0.0	0.0
Meter Installer	15	2	27	0	80.0	-100.0
Meter Reader	20	2	34	0	70.0	-100.0
Pump Station Operator	32	0	29	0	- 9.4	0.0
Sewage Plant Operator	24	0	7	0	- 70.8	0.0
Superintendent	24	5	19	2	- 20.8	- 60.0
Unskilled Laborer	129	15	131	17	1.6	13.3
Water Tretmt. Pl. Oper.	27	2	41	0	51.9	-100.0
Total	344	30	341	25	- .9	- 16.7



TABLE 26

EDUCATIONAL LEVELS DESIRED FOR WATER SUPPLY AND  
SEWAGE OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level *						
		None	On-the- Job	Short Courses	High School Vocational	2-Year College	4-Year College	
Asst. Pump Station Oper.	1	100.0	0.0	0.0	0.0	0.0	0.0	
Asst. Sewage Plant Oper.	1	0.0	0.0	0.0	100.0	0.0	0.0	
Chemist, Water Purif.	1	0.0	0.0	100.0	0.0	0.0	0.0	
Chief Engineer, Water	2	50.0	50.0	0.0	0.0	0.0	50.0	
Chlorine Station Oper.	1	0.0	100.0	0.0	0.0	0.0	0.0	
Foreman, Sewage System	3	0.0	100.0	33.3	0.0	0.0	0.0	
Foreman, Water Supply	3	0.0	100.0	33.3	0.0	0.0	0.0	
General Duties	1	0.0	100.0	0.0	0.0	0.0	0.0	
Mechanic	1	0.0	100.0	0.0	0.0	0.0	0.0	
Meter Installer	3	0.0	100.0	33.3	0.0	0.0	0.0	
Meter Reader	3	0.0	100.0	33.3	0.0	0.0	0.0	
Pump Station Oper.	4	0.0	75.0	75.0	0.0	0.0	0.0	
Sewage Plant Oper.	3	0.0	66.6	66.6	0.0	0.0	0.0	
Superintendent	7	0.0	42.8	42.8	28.5	0.0	14.2	
Water Treat. Plant Oper.	5	0.0	60.0	60.0	20.0	0.0	20.0	
Unskilled Laborer	7	42.8	71.4	28.5	14.2	0.0	0.0	

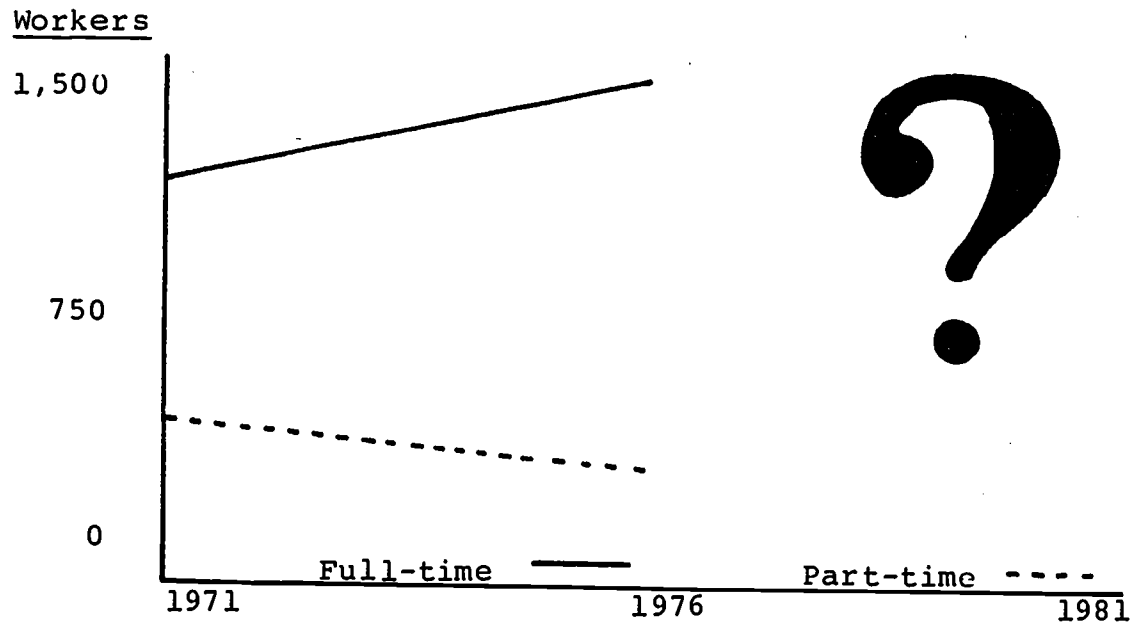
\* May add to more than 100 percent since employers may have indicated more than one level for some jobs.

TABLE 27

SALARY CHARACTERISTICS FOR WATER SUPPLY AND  
SEWAGE OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary		
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)	
		Low	High Mean		Low	High Mean
Asst. Pump Station Oper.	1	126	126	1	132	132
Asst. Sewage Plant Oper.	1	125	125	1	200	200
Chlorine Station Oper.	1	131	131	1	137	137
Foreman, Sewage System	4	136	179	4	275	210
Foreman, Water Supply	4	130	155	4	275	195
General Duties	1	150	150	1	175	175
Insp. Fixtures in Houses	1	80	80	1	80	80
Mechanic	1	136	136	1	142	142
Meter Installer	4	100	105	4	110	130
Meter Reader	4	100	105	4	110	137
Pump Station Oper.	5	120	135	5	135	162
Sewage Plant Oper.	5	131	145	5	137	187
Superintendent	5	160	211	5	110	144
Unskilled Laborer	7	90	110	7	110	144
Water Treatment Plant Oper.	5	110	141	5	120	167

Municipal and County Governmental Services



Approximately 44.5% or 261 of the 586 municipal and county governments employ people with knowledge and skills in natural resources and/or agriculture. An increase of 35.1% for full-time positions and a 10.3% decrease for seasonal or part-time positions was projected for the five-year period reported in Table 28. These projections indicated a need for 1,392 full-time workers in 1976 compared with 1,030 in 1971. The projections for seasonal or part-time workers were 385 in 1976 compared with 429 in 1971. Recruitment needs for replacement and expansion during the five-year period included 484 full-time positions and a surplus of 2 for seasonal or part-time positions.

Table 29 provides some indications of the educational levels desired by employers for selected job titles. These data indicate that there are opportunities for workers at all educational levels in municipal and county governments.

Table 30 provides information on the 1971 salary characteristics of selected job titles. Although data are limited, they do provide some impressions of the relative financial rewards of the various jobs.

TABLE 28

## ESTIMATED EMPLOYMENT IN MUNICIPAL AND COUNTY GOVERNMENTAL SERVICES IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Air Pollution Insp.	9	0	11	0	22.2	0.0
Air Pollution Spec.	0	9	3	6	Plus	- 33.3
Director, Public Works	6	0	6	0	0.0	0.0
Environmental Aide	0	0	3	0	Plus	0.0
Envir. Engineer	0	6	0	3	0.0	- 50.0
Envir. Protection Spec.	3	0	0	3	-100.0	Plus
Forester	3	0	6	0	100.0	0.0
Groundman (tree)	6	11	9	11	50.0	0.0
Health Officer	11	11	17	6	54.5	- 45.5
Industrial Hygienist	3	0	3	3	0.0	Plus
Meat Inspector	3	0	3	0	0.0	0.0
Park Groundsman	369	207	482	224	30.6	8.2
Park Supt./Foreman	142	23	119	23	- 16.2	0.0
Public Health Engineer	6	0	6	0	0.0	0.0
Sanitarian	77	77	131	40	70.1	- 48.1
Sanitarian Trainee	6	3	60	11	900.0	266.7
Sanitary Engineer	20	9	17	3	- 15.0	- 66.7
Sanitary Inspector	48	6	91	3	89.6	- 50.0
Sanitary Technician	0	0	3	0	Plus	0.0
Senior Air Pollution Insp.	3	0	3	0	0.0	0.0
Sewage Plant Assist.	102	23	139	20	36.3	- 13.0
Sewage Plant Oper.	11	6	11	0	0.0	-100.0
Solid Waste Spec.	17	9	28	6	64.7	- 33.3
Tree Climber	17	0	28	0	64.7	0.0
Tree Foreman	6	0	6	0	0.0	0.0
Water Engineer	0	3	0	3	0.0	0.0

TABLE 28 (continued)

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Water Plant Oper.	3	3	3	0	0.0	-100.0
Water-Sewer Supt.	6	0	3	0	-50.0	0.0
Water Supt.	3	0	0	0	-100.0	0.0
Waterworks Asst.	82	20	116	17	41.5	-15.0
Weights & Measure Insp.	68	3	85	3	25.0	0.0
Total	1030	429	1392	385	35.1	-10.3

TABLE 29  
 EDUCATIONAL LEVELS DESIRED FOR MUNICIPAL AND COUNTY  
 GOVERNMENTAL SERVICE OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level *						
		None	On-the- Job	Short Courses	High School Vocational	2-Year College	4-Year College	
Air Pollution Insp.	1	0.0	100.0	0.0	0.0	0.0	0.0	0.0
Air Pollution Spec.	3	0.0	0.0	66.6	0.0	0.0	33.3	0.0
Director, Public Works	2	0.0	50.0	50.0	50.0	0.0	50.0	0.0
Environmental Aide	1	0.0	0.0	0.0	0.0	100.0	100.0	0.0
Envir. Protection Spec.	2	50.0	0.0	0.0	0.0	0.0	50.0	0.0
Forester	1	0.0	0.0	0.0	0.0	0.0	100.0	0.0
Groundman (tree)	1	0.0	100.0	0.0	0.0	0.0	0.0	0.0
Health Officer	7	0.0	0.0	0.0	14.2	14.2	71.4	0.0
Industrial Hygienist	1	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Meat Inspector	1	0.0	0.0	100.0	0.0	0.0	0.0	0.0
Park Groundsman	28	7.1	64.2	10.7	35.7	0.0	0.0	0.0
Park Super./Foreman	24	4.1	45.8	16.6	33.3	12.5	8.3	0.0
Public Health Engineer	2	0.0	0.0	0.0	0.0	0.0	100.0	0.0
Sanitarian	24	4.1	12.5	29.1	12.5	33.3	29.1	0.0
Sanitarian Trainee	4	0.0	50.0	25.0	50.0	25.0	0.0	0.0
Sanitary Engineer	4	0.0	0.0	0.0	25.0	25.0	50.0	0.0
Sanitary Inspector	4	0.0	50.0	25.0	0.0	75.0	0.0	0.0
Sanitary Technician	1	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Senior Air Pollution Insp.	1	0.0	100.0	0.0	0.0	0.0	0.0	0.0
Sewage Plant Assistant	22	9.0	40.9	27.2	40.9	4.5	4.5	0.0
Sewage Plant Operator	3	0.0	33.3	33.3	33.3	0.0	0.0	0.0
Solid Waste Specialist	6	0.0	16.6	66.6	0.0	0.0	33.3	0.0
Tree Climber	1	0.0	100.0	100.0	0.0	0.0	0.0	0.0
Tree Foreman	2	0.0	50.0	0.0	0.0	50.0	0.0	0.0
Waterwork Assistant	16	6.2	31.2	43.7	37.5	0.0	12.5	0.0

TABLE 29 (continued)

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level *					
		None	On-the Job	Short Courses	High School Vocational	2-Year College	4-Year College
Water Plant Operator	2	0.0	0.0	50.0	50.0	0.0	0.0
Water-Sewer Supt.	2	0.0	100.0	0.0	0.0	0.0	0.0
Weights & Measure Insp.	4	0.0	50.0	25.0	0.0	75.0	0.0

\* May add to more than 100 percent since employers may have indicated more than one level for some jobs.

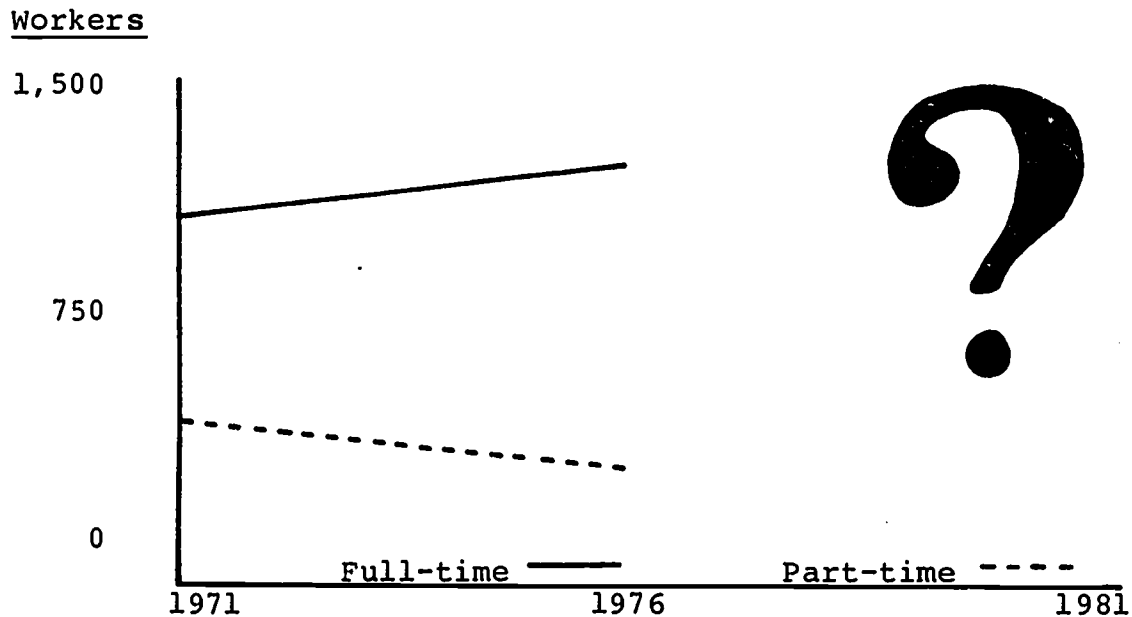


TABLE 30  
SALARY CHARACTERISTICS OF MUNICIPAL AND COUNTY GOVERNMENTAL  
SERVICE OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary		
	Weekly (dollars)			Weekly (dollars)		
	Low	High	Mean	Low	High	Mean
Air Pollution Insp.	130	130	130	175	175	175
Air Pollution Spec.	140	140	140	195	195	195
Director, Public Works	190	231	210	200	269	234
Environmental Engineer	210	210	210	280	280	280
Environ. Protection Spec.	154	154	154	154	154	154
Forester	195	195	195	245	245	245
Groundman (tree)	140	140	140	160	160	160
Health Officer	200	284	243	250	310	290
Industrial Hygienist	225	225	225	275	275	275
Meat Inspector	130	130	130	175	175	175
Park Groundsman	65	175	117	72	200	144
Park Supt./Foreman	80	250	167	98	300	201
Public Health Engineer	98	346	222	98	346	222
Sanitarian	75	219	159	100	350	203
Sanitarian Trainee	80	110	95	110	150	130
Sanitary Engineer	160	200	186	160	250	220
Sanitary Inspector	58	182	132	61	227	160
Sr. Air Pollution Insp.	170	170	170	225	225	225
Sewage Plant Assistant	96	192	135	96	212	154
Sewage Plant Operator	77	185	134	77	215	150
Solid Waste Specialist	132	225	185	225	275	250
Tree Climber	165	165	165	170	170	170
Tree Foreman	205	205	205	205	212	208

TABLE 30 (continued)

Job Titles	Beginning Salary			Potential Maximum Salary		
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)	
		Low	High Mean		Low	High Mean
Water Plant Operator	1	154	154	1	154	154
Water/Sewer Supt.	2	189	230	1	199	199
Water Superintendent	1	221	221	0	0	0
Waterwork Assistant	9	19	264	0	0	0
Weights & Measure Insp.	7	100	175	6	122	225
			127			161

State and Federal Governmental Services

An increase of 34.0% for full-time positions and a 21.3% decrease for seasonal or part-time positions was projected for the five-year period reported in Table 31. These projections indicate a need for 1,222 full-time workers in 1976 compared with 912 in 1971. The projections for seasonal or part-time workers were 197 in 1976 compared with 263 in 1971. Recruitment needs for replacement and expansion during the five-year period included 417 full-time positions and a surplus of 43 seasonal or part-time workers.

Table 32 provides some indications of the educational levels desired by employers for selected job titles. Although all educational levels were represented, the need for college graduates was indicated for the majority of positions.

Table 31 provides information on the 1971 salary characteristics of selected job titles. Different civil service classifications are often involved because similar job titles were grouped for reporting purposes. The salary range indicates the lowest and highest salaries in the single or combined civil service ranges. Mean salaries for reporting employers were not used because civil service classifications or state salary classification systems were used for these positions.

The data included in this section are only for those state and federal agencies that provided information. These agencies included the Rutgers University College of Agriculture and Environmental Science; New Jersey Department of Agriculture; New Jersey Crop Reporting Service; United States Department of Agriculture Animal and Plant Health Inspection Service; New Jersey Department of Institutions and Agencies; New Jersey Department of Transportation; and the following administrative units of the Department of Environmental Protection: Division of Water Resources, Division of Marine Services, Division of Fish, Game, and Shell Fisheries, and Bureau of Forests.

TABLE 31

ESTIMATED EMPLOYMENT IN STATE AND FEDERAL GOVERNMENTAL SERVICES IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Agri. & Envir. Sci. University Faculty	342	0	376	0	10.0	0.0
Agri. Economist	2	0	2	0	0.0	0.0
Agri. Market Spec. Analyst, Agri.	3	0	3	0	0.0	0.0
Animal & Plant Health Sup.	2	0	1	0	- 50.0	0.0
Animal Sci. Tech. Staff	2	0	2	0	0.0	0.0
Bacteriologist	10	0	11	0	10.0	0.0
Biochem. & Micro. Tech.	1	0	1	0	0.0	0.0
Biolog. Lab. Tech.	5	0	6	0	20.0	0.0
Biolog. & Agri. Eng. Tech. Biologist	1	0	1	0	0.0	0.0
Bureau Chief, Agri. Chemist	1	0	1	0	0.0	0.0
Computer Prog., Agri. Conservation Officer	7	1	11	2	57.1	100.0
Coordinator, Agri. Dairyman	8	0	8	0	0.0	0.0
Dairyman, Head	6	0	12	0	100.0	0.0
Deputy Director, Agri. Division Director, Agri. Entomologist	1	0	1	0	0.0	0.0
Entomology Tech. Enumerator, Agri.	41	0	43	0	4.9	0.0
	6	1	9	0	50.0	-100.0
	9	0	60	0	556.7	0.0
	6	0	7	0	16.7	0.0
	3	0	3	0	0.0	0.0
	8	0	8	0	0.0	0.0
	4	1	4	1	0.0	0.0
	3	0	3	0	0.0	0.0
	0	24	0	24	0.0	0.0

TABLE 31 (continued)

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Envir. Aide	0	0	2	0	Plus	0.0
Envir. Engineer	48	6	67	12	39.8	100.0
Envir. Engin. Aide	2	0	3	0	50.0	0.0
Envir. Field Worker	15	0	25	0	66.7	0.0
Envir. Physiology Tech.	2	0	2	0	0.0	0.0
Envir. Program Spec.	0	0	1	0	Plus	0.0
Envir. Science Tech.	4	0	4	0	0.0	0.0
Envir. Specialist	4	0	4	0	0.0	0.0
Envir. Tech.	0	0	10	4	Plus	Plus
Farm Supervisor	7	0	7	0	0.0	0.0
Farmer	16	0	26	0	62.5	0.0
Farmer, Assistant	6	0	26	0	333.3	0.0
Farmer, Head	8	0	8	0	0.0	0.0
Fisheries Biologist	10	15	10	16	0.0	6.7
Food Science Tech.	2	0	2	0	0.0	0.0
Forester	19	0	22	0	15.8	0.0
Gardener	2	0	6	0	400.0	0.0
Geologist	9	5	12	7	33.3	40.0
Greenhouseman, Assist.	2	0	2	0	0.0	0.0
Greenhouseman, Head	1	0	1	0	0.0	0.0
Groundsman	34	0	50	0	47.1	0.0
Groundsman, Assist.	36	0	40	0	11.1	0.0
Groundsman, Head	12	0	12	0	0.0	0.0
Hort. Tech.	9	0	10	0	11.1	0.0
Inspector, Agri.	16	101	59	42	268.7	- 58.4
Inspector, Assist. (Agri.)	0	34	0	34	0.0	0.0

TABLE 31 (continued)

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Inspector Livestock & Inv.	3	0	3	0	0.0	0.0
Inspector Senior (Agri.)	30	14	46	0	53.3	-100.0
Inspector, Sup. (Agri.)	3	5	8	0	166.7	-100.0
Lab. Assist. & Ser. Worker	5	12	4	4	-20.0	-66.7
Lab. and/or Insp. Chief	3	0	3	0	0.0	0.0
Lab. Tech.	4	3	4	2	0.0	-50.0
Lab. Tech. Assist.	0	10	9	25	Plus	150.0
Land. Hwy. Maint. Foreman	15	0	20	0	33.3	0.0
Land. Maint. Sup.	2	0	3	0	50.0	0.0
Marine Biologist	2	0	8	0	300.0	0.0
Marketing Rep. (Agri.)	5	0	5	0	0.0	0.0
Misc. Agri.	3	0	3	0	0.0	0.0
Nutrition Tech.	2	0	2	0	0.0	0.0
Oyster Tech.	5	0	6	0	20.0	0.0
Plant Protect. Sup.	2	0	2	0	0.0	0.0
Poultryman, Head	1	0	1	0	0.0	0.0
Proced. Analyst	1	0	2	0	100.0	0.0
Public Info. Assist.	1	1	2	0	100.0	-100.0
Sanitarian	2	2	3	2	50.0	0.0
Seed Analyst	3	0	3	0	0.0	0.0
Sewage Plant Oper.	12	0	10	0	-16.7	0.0
Soil Conser. Spec.	3	0	3	0	0.0	0.0
Soils & Crops Tech.	5	0	5	0	0.0	0.0
Statistician	3	0	3	0	0.0	0.0
Statistician, Assist.	1	0	1	0	0.0	0.0
Supt. Inst. Grounds	4	0	4	0	0.0	0.0

TABLE 31 (continued)

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Supervisor, Agri.	10	5	12	0	20.0	-100.0
Super. Assist. (Agri.)	1	0	1	0	0.0	0.0
Veterinarian	5	4	5	0	0.0	-100.0
Vet. Med. Officer	6	0	6	0	0.0	0.0
Water Plant Oper.	2	0	11	0	450.0	0.0
Water Resources Eng.	23	3	30	5	30.4	66.7
Wildlife Biologist	10	16	10	17	0.0	6.3
Total	912	263	1,222	197	34.0	- 21.3





TABLE 32

EDUCATIONAL LEVELS DESIRED FOR STATE AND FEDERAL OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level *					
		None	On-the-Job	Short Courses	High School Vocational	2-Year College	4-Year College
Agric. & Env. Sci. University Faculty	0	0.0	0.0	0.0	0.0	0.0	100.0
Agri. Economist	0	0.0	0.0	0.0	0.0	0.0	100.0
Agri. Market Spec.	0	0.0	0.0	0.0	0.0	0.0	100.0
Analyst Agri.	0	0.0	0.0	0.0	0.0	0.0	100.0
Animal & Plant Health Sup.	0	0.0	0.0	0.0	0.0	0.0	100.0
Animal Science Tech.	0	0.0	0.0	0.0	0.0	0.0	100.0
Bacteriologist	0	0.0	0.0	0.0	0.0	0.0	100.0
Biochem. & Micro. Tech.	0	0.0	0.0	0.0	0.0	0.0	100.0
Biolog. Lab. Tech.	0	0.0	0.0	0.0	100.0	0.0	0.0
Biolog. & Agri. Eng. Tech.	0	0.0	0.0	0.0	0.0	0.0	100.0
Biologist	0	0.0	0.0	0.0	0.0	0.0	100.0
Bureau Chief Agri.	0	0.0	0.0	0.0	0.0	0.0	100.0
Chemist	0	0.0	0.0	0.0	0.0	0.0	100.0
Computer Prog. Agri.	0	0.0	0.0	0.0	0.0	100.0	0.0
Conservation Officer	0	0.0	0.0	0.0	0.0	100.0	0.0
Coordinator, Agri.	0	0.0	0.0	0.0	0.0	100.0	0.0
Dairyman	0	0.0	100.0	0.0	0.0	0.0	0.0
Dairyman, Head	0	0.0	0.0	0.0	100.0	0.0	0.0
Deputy Director, Agri.	0	0.0	0.0	0.0	0.0	0.0	100.0
Division Director, Agri.	0	0.0	0.0	0.0	0.0	0.0	100.0
Entomologist	0	0.0	0.0	0.0	0.0	0.0	100.0
Entomology, Tech.	0	0.0	0.0	0.0	0.0	0.0	100.0
Enumerator, Agri.	0	0.0	0.0	0.0	100.0	0.0	0.0
Envir. Aide	0	0.0	0.0	0.0	0.0	100.0	0.0

TABLE 32 (continued)

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level *				
		On-the-Job	Short Courses	High School Vocational	2-Year College	4-Year College
Envir. Engineer	0	0.0	0.0	0.0	0.0	100.0
Envir. Eng. Aide	0	0.0	0.0	0.0	0.0	100.0
Envir. Field Worker	0	100.0	0.0	0.0	0.0	0.0
Envir. Physiology Tech.	0	0.0	0.0	0.0	0.0	100.0
Envir. Program Spec.	0	0.0	0.0	0.0	0.0	100.0
Envir. Science Tech.	0	0.0	0.0	0.0	0.0	100.0
Envir. Specialist	0	0.0	0.0	0.0	0.0	100.0
Envir. Tech.	0	0.0	0.0	0.0	100.0	0.0
Farm Supervisor	0	0.0	0.0	100.0	0.0	0.0
Farmer	0	0.0	100.0	0.0	0.0	0.0
Farmer, Assistant	0	0.0	0.0	0.0	0.0	0.0
Farmer, Head	0	100.0	0.0	100.0	0.0	0.0
Fisheries Biologist	0	0.0	0.0	0.0	0.0	100.0
Food Science Tech.	0	0.0	0.0	0.0	0.0	100.0
Forester	0	0.0	0.0	0.0	0.0	100.0
Gardener	0	100.0	0.0	100.0	0.0	0.0
Geologist	0	0.0	0.0	0.0	0.0	100.0
Greenhouseman, Assist.	0	100.0	0.0	0.0	0.0	0.0
Greenhouseman, Head	0	0.0	0.0	100.0	0.0	0.0
Groundsman	0	0.0	100.0	0.0	0.0	0.0
Groundsman, Assist.	0	0.0	0.0	0.0	0.0	0.0
Groundsman, Head	0	0.0	0.0	100.0	0.0	0.0
Hort. Tech.	0	0.0	0.0	0.0	0.0	100.0
Inspector, Agri.	0	100.0	100.0	100.0	0.0	0.0
Inspector, Assist. (Agri.)	0	0.0	0.0	100.0	0.0	0.0
Inspectors, Livestock & Inv.	0	0.0	0.0	0.0	100.0	0.0
Inspector, Senior (Agri.)	0	0.0	0.0	100.0	0.0	0.0
Inspector, Sup. (Agri.)	0	0.0	0.0	100.0	0.0	100.0

TABLE 32 (continued)

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level*						
		None	On-the-Job	Short Courses	High School Vocational	2-Year College	4-Year College	
Lab. Assist. & Ser. Worker	0	0.0	0.0	0.0	100.0	0.0	0.0	
Lab. and/or Insp. Chief	0	0.0	0.0	0.0	0.0	0.0	100.0	
Lab. Tech.	0	0.0	0.0	0.0	100.0	0.0	0.0	
Lab. Tech. Assist.	0	0.0	0.0	0.0	100.0	0.0	0.0	
Land. Hwy. Maint. Fore.	0	0.0	100.0	100.0	100.0	0.0	0.0	
Land. Maint. Sup.	0	0.0	100.0	100.0	100.0	0.0	0.0	
Marine Biologist	0	0.0	0.0	0.0	0.0	0.0	100.0	
Marketing Rep., Agri.	0	0.0	0.0	0.0	0.0	100.0	100.0	
Misc. Agri.	0	0.0	0.0	0.0	100.0	0.0	100.0	
Nutrition Tech.	0	0.0	0.0	0.0	0.0	0.0	100.0	
Oyster Tech.	0	0.0	100.0	0.0	0.0	0.0	0.0	
Plant Protect. Sup.	0	0.0	0.0	0.0	0.0	0.0	100.0	
Poultryman, Head	0	0.0	0.0	0.0	100.0	0.0	0.0	
Proced. Analyst	0	0.0	0.0	0.0	0.0	0.0	100.0	
Public Info. Assist.	0	0.0	0.0	0.0	0.0	0.0	100.0	
Sanitarian	0	0.0	0.0	0.0	0.0	0.0	100.0	
Seed Analyst	0	0.0	0.0	0.0	0.0	0.0	100.0	
Sewage Plant Oper.	0	0.0	0.0	0.0	100.0	0.0	0.0	
Soil Conse. Spec.	0	0.0	0.0	0.0	0.0	0.0	100.0	
Soils & Crops Tech.	0	0.0	0.0	0.0	0.0	0.0	100.0	
Statistician	0	0.0	0.0	0.0	0.0	0.0	100.0	
Statistician, Assist.	0	0.0	0.0	0.0	100.0	0.0	0.0	
Supt., Inst. Grounds	0	0.0	0.0	0.0	100.0	0.0	0.0	
Supervisor, Agri.	0	0.0	0.0	100.0	100.0	100.0	100.0	
Super., Assist. (Agri.)	0	0.0	0.0	100.0	0.0	0.0	0.0	
Veterinarian	0	0.0	0.0	0.0	0.0	0.0	100.0	
Vet. Med. Officer	0	0.0	0.0	0.0	0.0	0.0	100.0	

TABLE 32 (continued)

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level *					
		None	On-the-Job	Short Courses	High School Vocational	2-Year College	4-Year College
Water Plant Oper.	0	0.0	0.0	0.0	100.0	0.0	0.0
Water Resources Eng.	0	0.0	0.0	0.0	0.0	0.0	100.0
Wildlife Biologist	0	0.0	0.0	0.0	0.0	0.0	100.0

\* May add to more than 100 percent since employers have indicated more than one level for some jobs.

TABLE 33

SALARY CHARACTERISTICS FOR STATE AND FEDERAL  
GOVERNMENTAL OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary Weekly (dollars)	Potential Maximum Salary Weekly (dollars)
Agric. & Env. Sci.		
University Faculty	166	701
Agri. Economist	231	301
Agri. Market Spec.	190	272
Analyst, Agri.	172	332
Animal & Plant Health Super.	360	548
Animal Science Tech.	113	195
Bacteriologist	199	254
Biochem. & Micro. Tech.	113	195
Biolog. Lab. Tech.	140	183
Biolog. & Agri. Eng. Tech.	113	195
Biologist	172	300
Bureau, Chief, Agri.	231	365
Chemist	172	300
Computer, Prog., Agri.	140	276
Conservation Officer	143	186
Coordinator, Agri.	252	348
Dairyman	123	159
Dairyman, Head	164	214
Deputy Director, Agri.	310	402
Division Director, Agri.	281	516
Entomologist	181	272
Entomology Tech.	113	195
Enumerator, Agri.	112	185
Envir. Aide	125	175
Envir. Engineer	172	348
Envir. Engin. Aide	150	250

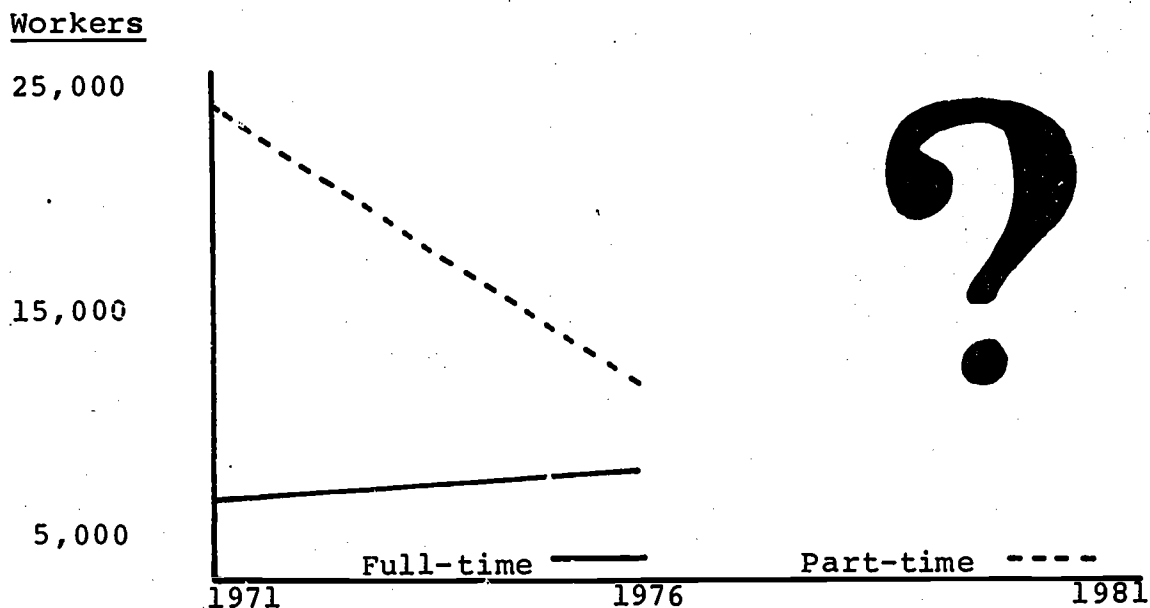
TABLE 33 (continued)

Job Titles	Beginning Salary Weekly (dollars)	Potential Maximum Salary Weekly (dollars)
Envir. Field Worker	135	235
Envir. Physiology Tech.	113	195
Envir. Program Spec.	150	300
Envir. Science Tech.	113	195
Envir. Specialist	172	224
Envir. Tech.	164	224
Farm Supervisor	172	273
Farmer	117	152
Farmer, Assistant	106	138
Farmer, Head	157	204
Fisheries Biologist	174	226
Food Science Tech.	113	195
Forester	181	423
Gardener	96	204
Geologist	164	348
Greenhouseman, Assist.	96	125
Greenhouseman, Head	157	204
Groundsman	117	152
Groundsman, Assist.	96	125
Groundsman, Head	157	204
Hort. Tech.	113	195
Inspector, Agri.	111	203
Inspector, Assist. (Agri.)	111	138
Inspector, Livestock & Inv.	140	183
Inspector, Senior (Agri.)	149	203
Inspector, Sup. (Agri.)	190	247
Lab. Assist. & Service Worker	87	137
Lab. and/or Insp. Chief	281	365
Lab. Tech.	129	167

TABLE 33 (continued)

Job Titles	Beginning Salary Weekly (dollars)	Potential Maximum Salary Weekly (dollars)
Lab. Tech. Assist.	61	86
Land. Hwy. Maint. Fore.	165	215
Land. Maint. Sup.	190	250
Marine Biologist	150	300
Marketing Rep., Agri.	172	247
Misc. Agri.	151	365
Nutrition Tech.	113	195
Oyster Tech.	113	195
Plant Protect Sup.	305	468
Poultryman, Head	157	204
Proced. Analyst	199	254
Public Info. Assist.	199	300
Sanitarian	172	300
Seed Analyst	172	254
Sewage Plant Oper.	157	204
Soil Conser. Spec.	199	348
Soils & Crops. Tech.	113	195
Statistician	140	466
Statistician, Assist.	141	184
Supt., Inst. Grounds	172	224
Supervisor, Agri.	151	247
Super, Assist. (Agri.)	122	159
Veterinarian	255	331
Vet. Med. Officer	212	549
Water Plant Oper.	157	204
Water Resources Eng.	172	348
Wildlife Biologist	174	226

## V. FARM PRODUCTION AND RELATED SERVICES



The projected trend for people with skills and knowledge in farm production and related services indicated greater demand for full-time workers and less demand for seasonal or part-time workers for the five-year period from 1971 to 1976. The projections in Table 34 combine the areas of commercial farming and agricultural machinery. A 15.1% increase in full-time positions from 6,221 in 1971 to 7,161 in 1976 was projected. The seasonal or part-time employment situation indicated a 51.7% decrease from 23,679 workers in 1971 to 11,441 in 1976. Considering a 2% annual replacement rate due to retirement and other factors, 1,609 people will have to be recruited and trained for the 940 new positions and the 669 replacement full-time positions. A surplus of 10,482 seasonal or part-time workers was projected which accounted for the



elimination of 12,238 positions minus the 1,756 replacements.

A more detailed analysis of the trends in farm production and related service occupations is available on the following pages. Table 34 provides a composite analysis of the manpower trends in these occupations by job title. The sub-sections for commercial farming and agricultural machinery provide trends for manpower needs, educational levels desired by employers, salary characteristics, and additional information on the general manpower situation in New Jersey.

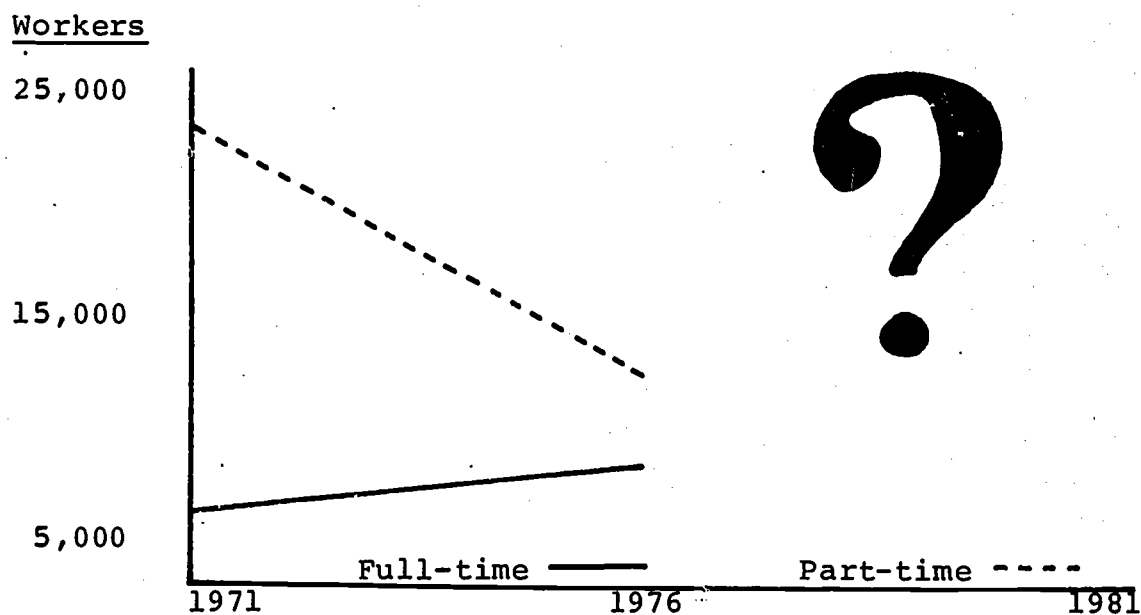
TABLE 34

ESTIMATED EMPLOYMENT IN FARM PRODUCTION AND RELATED SERVICES  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	Full Time	Part Time	Full Time	Part Time	Full Time	Part Time
Animal Caretaker	85	0	213	43	150.6	Plus
Berry Grower	170	1488	85	638	- 50.0	- 57.1
Dairyman	723	553	765	383	5.8	- 30.7
Equipment Operator	383	340	383	255	0.0	- 25.0
Farm Mach. Set-Up	14	21	36	9	157.2	57.1
Farm Mechanic	5	0	9	0	80.0	0.0
Field Crop Grower	85	85	0	0	-100.0	-100.0
Flower Grader	85	213	85	213	0.0	0.0
Flower Grower	85	128	128	170	50.6	32.8
Foreman	354	298	363	85	2.5	- 71.5
General Farmer	340	765	383	213	12.6	- 72.2
Herdsmen	170	128	213	128	25.3	0.0
Livestock Farmer	255	85	298	85	16.9	0.0
Manager	46	0	51	0	10.9	0.0
Mechanic	43	0	43	43	0.0	Plus
Mechanic/Diesel	37	7	78	0	110.8	-100.0
Mechanic/Gas	124	63	148	81	19.6	28.6
Mechanic Helper	5	0	5	0	0.0	0.0
Nursery Worker	128	255	128	425	0.0	66.7
Orchardist	255	978	298	128	16.9	- 86.9
Owner	5	0	0	0	-100.0	0.0
Painter	0	5	0	5	0.0	0.0
Parts Manager	30	0	34	0	13.3	0.0

TABLE 34 (continued)

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Poultryman	170	340	128	170	- 24.7	- 50.0
Refrig. Mech.	5	5	43	0	760.0	-100.0
Sales Cler, Parts	32	14	39	9	21.9	- 35.7
Salesman	75	11	123	0	64.0	-100.0
Sales Manager	14	0	21	0	50.0	0.0
Truck Driver	358	446	384	179	7.3	- 59.9
Vegetable Grower	298	1743	170	1233	- 43.0	- 29.3
Unskilled Laborer	1833	15,701	2493	6939	- 36.0	- 55.9
Welder	9	7	14	7	55.6	0.0
Total	6,221	23,679	7,161	11,441	15.1	- 51.7

Commercial Farming

Commercial farmers, excluding nurserymen, projected a 12.2% increase in full-time employment and a 52.0% decrease in seasonal or part-time employment for the five-year period reported in Table 35. They estimated a need for 6,296 full-time workers in 1976 compared with 5,613 in 1971. The estimations for seasonal employment were 11,270 in 1976 compared with 23,470 in 1971. Recruitment needs for replacement and/or expansion included 1,279 full-time workers and a surplus of 10,573 seasonal or part-time workers. It should be noted that these figures do not include the 31.6% of the businesses that were reported as family operated without any reference to job titles or 1976 projections. Some horticultural occupations were included because of a slight overlapping of mailing lists.

Table 36 provides some indications of the educational levels desired by employers for selected job titles. All educational levels are desired by some job titles. Further analysis is complicated by the projected surplus of seasonal or part-time workers. One of the biggest unanswered questions is whether the replacements for full-time workers will come from the seasonal or part-time segment of the work force. It is obvious that a great deal of emphasis is directed toward on-the-job training.

Table 37 provides information on the 1971 salary characteristics for selected job titles. Although data are limited, they do provide some impressions of the relative financial rewards of the various job titles. It should be noted that fringe benefits such as housing, some farm products, etc. are often provided, which are difficult to put a specific dollar value on; these fringe benefits, when they are provided, would be in addition to the salaries in this table.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. In answer to the question on employing day-haul workers, 21.7% employed day-haul workers, 68.3% did not employ day-haul workers, and 10% did not comment. In respect to off-season activities of the employees, the two major responses were: (1) that they attended school and (2) that they migrated to another area (Puerto Rico or other states). A smaller number of employers indicated that the off-season activities of their employees

included other jobs or unemployment. In many situations, employers did not know what the employees did during periods of the year when not working for them.

The employers' views of the manpower situation in New Jersey were related to their views on the future of farming. Although many employers were optimistic about the future, others cited high labor costs, high taxes, and high land values as problems in the future. Competition for labor may require higher salaries; the problem faced by many was how to pay higher salaries and still remain in business. Some were concerned that liberal unemployment compensation and welfare regulations tend to discourage a willingness to work.

TABLE 35

ESTIMATED EMPLOYMENT IN COMMERCIAL FARMING  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Animal Caretaker	85	0	213	43	150.6	Plus
Berry Grower	170	1488	85	638	- 50.0	- 57.1
Dairyman	723	553	765	383	5.8	- 30.7
Equipment Oper.	383	340	383	255	0.0	- 25.0
Field Crop Grower	85	85	0	0	-100.0	-100.0
Flower Grader	85	213	85	213	0.0	0.0
Flower Grower	85	128	128	170	50.6	32.8
Foreman	340	298	340	85	0.0	- 71.5
General Farmer	340	765	383	213	12.6	- 72.2
Herdsmen	170	128	213	128	25.3	0.0
Livestock Farmer	255	85	298	85	16.9	0.0
Mechanic	43	0	43	43	0.0	Plus
Nursery Worker	128	255	128	425	0.0	66.7
Orchardist	255	978	298	128	16.9	- 86.9
Poultryman	170	340	128	170	- 24.7	- 50.0
Refrig. Mech.	0	0	43	0	Plus	0.0
Truck Driver	340	425	340	170	0.0	- 60.0
Vegetable Grower	298	1743	170	1233	- 43.0	- 29.3
Unskilled Laborer	1658	15,646	2253	6888	35.9	- 56.0
Total	5,613	23,470	6,296	11,270	12.2	- 52.0

TABLE 36

EDUCATIONAL LEVELS DESIRED FOR COMMERCIAL FARMING OCCUPATIONS  
IN NEW JERSEY, 1971

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level *					
		None	On-the- Job	Short Courses	High School Vocational	2-Year College	4-Year College
Animal Caretaker	1	0.0	100.0	100.0	0.0	0.0	0.0
Berry Grower	5	20.0	60.0	0.0	0.0	0.0	20.0
Dairyman	11	0.0	72.7	9.0	9.0	9.0	9.0
Equip. Oper.	5	0.0	80.0	20.0	20.0	0.0	0.0
Field Crop Grower	1	0.0	100.0	100.0	0.0	0.0	0.0
Foreman	7	0.0	71.4	0.0	14.2	28.5	0.0
General Farmer	7	0.0	85.7	0.0	28.5	0.0	0.0
Herdsmen	6	16.6	66.6	0.0	0.0	16.6	0.0
Laborer	21	23.8	76.1	0.0	4.7	0.0	0.0
Livestock Farmer	3	0.0	66.6	0.0	33.3	0.0	0.0
Mechanic	1	0.0	0.0	100.0	0.0	0.0	0.0
Orchardist	3	0.0	55.6	0.0	33.3	0.0	0.0
Poultryman	2	0.0	100.0	0.0	0.0	0.0	0.0
Truck Driver	6	0.0	100.0	0.0	0.0	0.0	0.0
Vegetable Grower	11	18.1	81.8	9.0	0.0	0.0	0.0

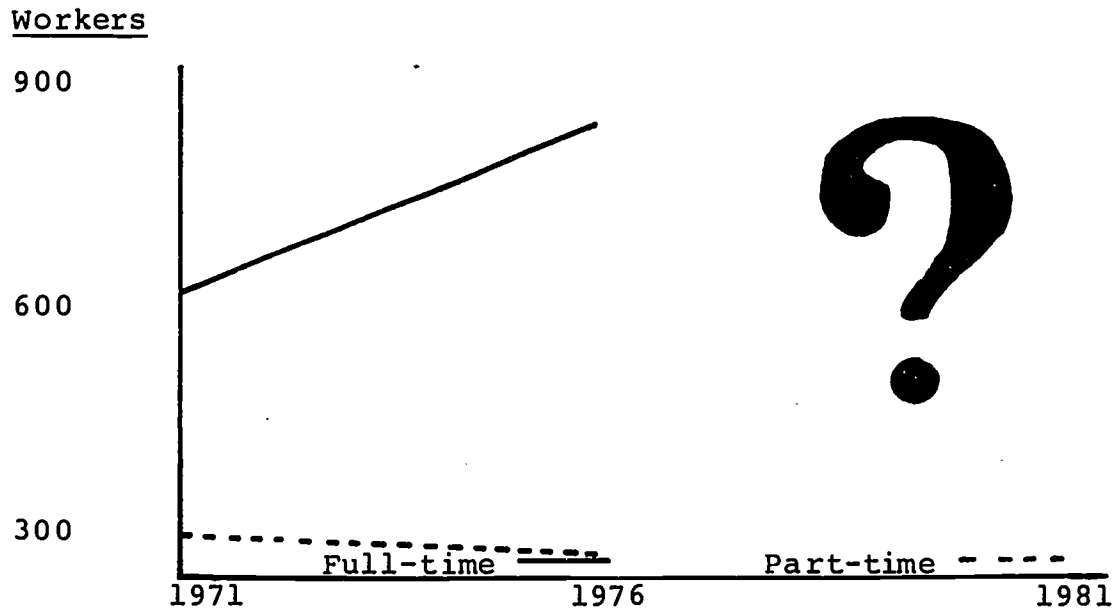
\* May add to more than 100 percent since employers may have indicated more than one level for some jobs.



TABLE 37

SALARY CHARACTERISTICS FOR COMMERCIAL FARMING  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary				Potential Maximum Salary			
	No. of		Weekly (dollars)		No. of		Weekly (dollars)	
	Employer Responses	Low	High	Mean	Employer Responses	Low	High	Mean
Animal Caretaker	1	85	85	85	1	120	120	120
Berry Grower	4	70	100	81	5	90	125	104
Dairyman	8	50	100	85	7	75	125	107
Equip. Oper.	5	72	120	89	4	86	160	115
Field Crop Grower	1	125	125	125	1	150	150	150
Foreman	7	90	150	150	5	115	200	160
General Farmer	7	70	130	87	6	90	140	113
Herdsmen	3	80	120	100	3	100	230	151
Livestock Farmer	4	80	125	101	3	125	150	141
Orchardist	3	70	164	104	3	115	180	138
Poultryman	1	70	70	70	1	120	120	120
Truck Driver	4	75	125	95	4	100	160	127
Vegetable Grower	8	65	115	89	7	100	160	133

Agricultural Machinery

Agricultural machinery businessmen projected a 42.3% increase in full-time employment and an 18.2% decrease in seasonal or part-time employment during the five-year period reported in Table 38. Closer inspection of the data indicates that the number of people involved is relatively small. They indicated a need for 865 full-time workers in 1976 compared with 608 in 1971. The estimations for seasonal or part-time workers was 171 in 1976 compared with 209 in 1971. Recruitment needs for replacement and/or expansion included 331 full-time workers and a surplus of 19 seasonal or part-time workers. It should be noted that these figures do not include the 4.2% of the businesses that were reported as family operated without any reference to job titles or 1976 projections.

Table 39 provides some indications of the educational levels desired by employers for selected job titles. The data indicate a need for vocational, 2-year collegiate, 4-year collegiate, and short-term courses in addition to on-the-job training provided by employers.

Table 40 provides information on the 1971 salary characteristics for selected job titles. Although data are limited, they do provide some impressions of the relative financial rewards of the various jobs.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. Off-season activities of this work force included school and other jobs.

The employers' views of the future employment situation included: (1) shortage of trained labor; and (2) concern with liberal welfare regulations.

TABLE 38  
ESTIMATED EMPLOYMENT IN AGRICULTURAL MACHINERY BUSINESSES  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Farm Mach. Set-Up	14	21	36	9	157.2	57.1
Farm Mechanic	5	0	9	0	80.0	0.0
Foreman	14	0	23	0	64.3	0.0
Manager	46	0	51	0	10.9	0.0
Mechanic/Diesel	37	7	78	0	110.8	-100.0
Mechanic/Gas	124	63	148	81	19.6	28.6
Mechanic Helper	5	0	5	0	0.0	0.0
Owner	5	0	0	0	-100.0	0.0
Painter	0	5	0	5	0.0	0.0
Parts Manager	30	0	34	0	13.3	0.0
Refrig. Mechanic	5	5	0	0	-100.0	-100.0
Sales Clerk/Parts	32	14	39	9	21.9	-35.7
Salesman	75	11	123	0	64.0	-100.0
Sales Manager	14	0	21	0	50.0	0.0
Truck Driver	18	21	44	9	144.4	-57.1
Unskilled Laborer	175	55	240	51	37.1	-7.3
Welder	9	7	14	7	55.6	0.0
Total	608	209	865	171	42.3	-18.2

TABLE 39  
EDUCATIONAL LEVELS DESIRED FOR AGRICULTURAL MACHINERY OCCUPATIONS  
IN NEW JERSEY, 1971

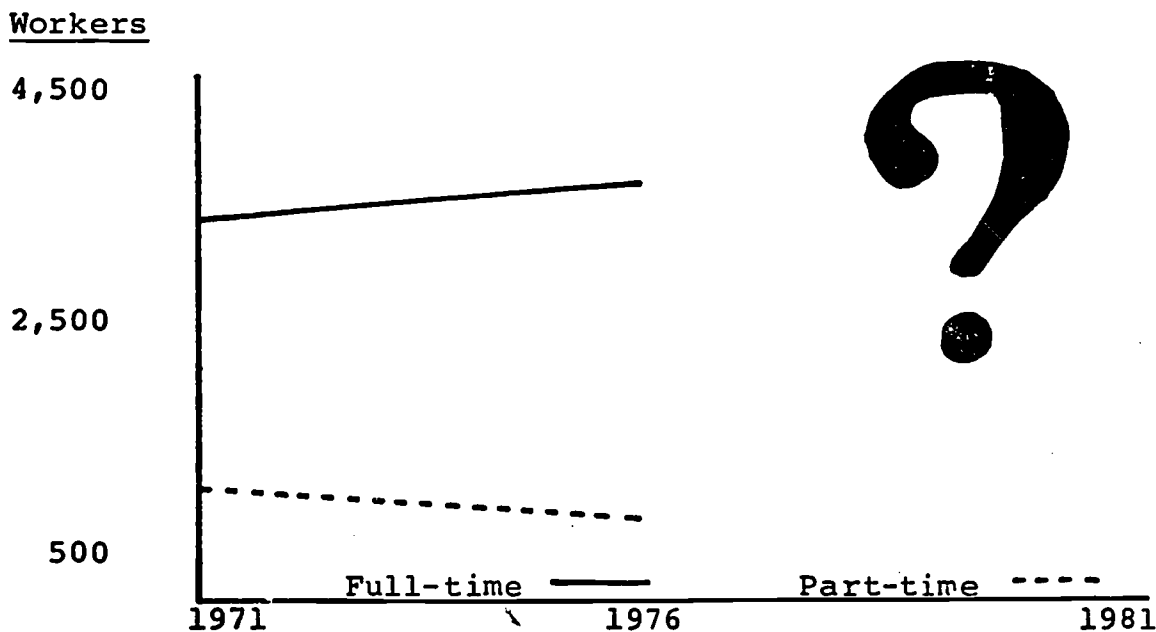
Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level *					
		None	On-the Job	Short Courses	High School Vocational	2-Year College	4-Year College
Farm Mach. Set-Up Man	4	0.0	100.0	25.0	25.0	0.0	0.0
Farm Mechanic	1	0.0	0.0	0.0	100.0	0.0	0.0
Foreman	4	0.0	0.0	0.0	0.0	75.0	25.0
Manager	7	0.0	14.2	0.0	14.2	28.5	42.8
Mechanic/Diesel	5	0.0	20.0	0.0	60.0	20.0	0.0
Mechanic/Gas	15	0.0	33.3	13.3	53.3	13.3	0.0
Parts Manager	6	0.0	33.3	0.0	16.6	50.0	0.0
Refrigeration Mech.	1	0.0	0.0	100.0	0.0	0.0	0.0
Sales Clerk/Parts	5	0.0	20.0	0.0	60.0	20.0	0.0
Salesman	9	0.0	44.4	33.3	11.1	55.5	11.1
Sales Manager	3	0.0	0.0	0.0	0.0	33.3	66.6
Truck Driver	5	20.0	20.0	0.0	60.0	0.0	0.0
Unskilled Laborer	2	50.0	50.0	0.0	50.0	0.0	0.0
Welder	2	0.0	0.0	0.0	100.0	0.0	0.0

\* May add to more than 100 percent since employers may have indicated more than one level for some jobs.

TABLE 40  
SALARY CHARACTERISTICS FOR AGRICULTURAL MACHINERY OCCUPATIONS  
IN NEW JERSEY, 1971

Job Titles	Beginning Salary				Potential Maximum Salary			
	No. of		Weekly (dollars)		No. of		Weekly (dollars)	
	Employer Responses	High	Low	Mean	Employer Responses	High	Low	Mean
Farm Mach. Set-Up Man	4	100	80	92	5	125	160	141
Farm Mechanic	1	125	125	125	1	180	180	180
Foreman	4	225	100	162	4	180	300	228
Manager	8	300	100	191	7	150	400	257
Mechanic/Diesel	5	180	90	129	6	150	200	177
Mechanic/Gas	15	180	80	119	15	125	220	177
Painter					1	130	130	130
Parts Manager	5	200	90	146	6	150	260	184
Refrigerator Mech.	1	150	150	150	1	200	200	200
Sales Clerk/Parts	6	140	90	108	6	125	160	145
Salesman	8	225	100	135	8	135	300	202
Sales Manager	3	300	100	183	3	200	400	283
Truck Driver	6	140	80	101	6	100	200	141
Unskilled Laborer	4	80	80	80	3	80	125	101
Welder	2	130	120	125	2	160	175	167

VI. ANIMAL SERVICES



The projected trend for people with skills and knowledge in animal services indicates greater demand for full-time workers and less demand for seasonal or part-time workers during the five-year period from 1971 to 1976. The estimations in Table 41 combine the areas of animal health and care services, pharmaceutical research, and race tracks and stables. A 16.7% increase in full-time positions from 3,233 in 1971 to 3,774 in 1976 was projected. The projections included a decrease of 25.7% for seasonal or part-time workers from 1,087 in 1971 to 808 in 1976. Considering a 2% annual replacement rate due to retirement and other factors, 891 people will have to be recruited and trained for the 541 new positions and the 350 replacement full-time positions. The seasonal or part-time situation is different.

When the replacement number of 95 is considered, there will still be a surplus of 184 seasonal or part-time workers.

A more detailed analysis of the trends in animal care occupations is available on the following pages. Table 41 provides a composite analysis of the manpower need trends in these occupations by job title. The sub-sections for animal health and care services, pharmaceutical research, and race tracks and stables provide trends for manpower needs, educational levels desired by employers, salary characteristics, and additional information on the general manpower situation in New Jersey.



TABLE 41

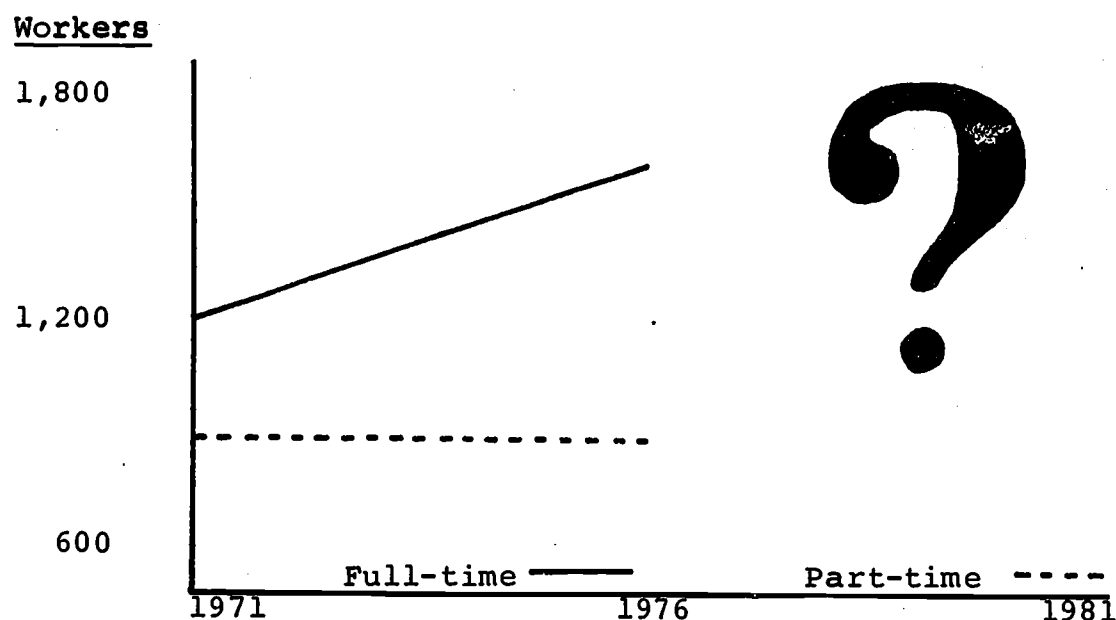
ESTIMATED EMPLOYMENT IN ANIMAL SERVICES  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Agric. Equip. Oper	0	31	0	6	0.0	- 80.6
Animal Caretaker	639	142	855	125	33.8	- 12.0
Asst. Res. Assoc., Para.	13	0	13	0	0.0	0.0
Dog Bath Fluffer	8	4	0	0	-100.0	-100.0
Dog Groomer	29	6	12	35	- 58.6	483.3
Farm Manager	13	0	13	0	0.0	0.0
Farmer	6	0	6	0	0.0	0.0
Foreman	34	0	33	0	- 2.9	0.0
Groom	344	47	249	46	- 27.6	- 2.1
Groundskeeper	0	100	0	0	0.0	-100.0
Horse Exerciser	61	7	23	0	- 63.9	-100.0
Horse Race Timer	0	5	0	0	0.0	-100.0
Horseshoer	12	0	12	0	0.0	0.0
Horse Trainer	24	0	18	0	- 25.0	0.0
Hot Walkers	77	7	22	0	- 71.4	-100.0
Kennel Man	194	281	242	256	24.7	- 8.9
Lab. Director	11	0	22	0	100.0	0.0
Lab. Technician (Vet.)	356	27	518	12	45.5	- 55.6
Lab. Technician	35	0	57	0	62.9	0.0
Manager	23	25	29	25	26.1	0.0
Mechanic	11	0	12	0	13.4	0.0
Paddock Judge	0	5	0	0	0.0	-100.0
Plant Technician	44	0	66	0	50.0	0.0

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TABLE 41 (continued)

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Receptionist	10	31	16	18	60.0	- 41.9
Res. Assoc., Micro.	26	0	26	0	0.0	0.0
Res. Assoc., Para.	13	0	13	0	0.0	0.0
Research Director	11	0	22	0	100.0	0.0
Sales Clerk	18	12	25	12	38.9	0.0
Salesman	143	8	232	12	62.2	50.0
Senior Lab. Tech.	26	0	26	0	0.0	0.0
Sr. Res. Invest., Nut.	13	0	13	0	0.0	0.0
Sr. Res. Invest., Para.	13	0	13	0	0.0	0.0
Stable Boys	0	7	0	0	0.0	-100.0
Truck Driver	6	25	25	29	316.7	16.0
Truck Driver (light)	10	110	0	0	-100.0	-100.0
Unskilled Laborer	418	152	544	166	30.1	9.2
Veterinarian	561	24	562	29	0.0	20.0
Veterinarian Med. Asst.	0	6	6	6	plus	0.0
Veterinary Nurse	31	25	49	31	58.1	24.0
Total	3,233	1,087	3,774	808	- 25.7	256.7

Animal Health and Care

Animal health and care businessmen projected a 31.1% increase in full-time positions and a 1.2% decrease in seasonal or part-time positions during the five-year period reported in Table 42. They indicated a need for 1,570 full-time workers in 1976 compared with 1,196 in 1971. The estimation for seasonal or part-time workers was 797 in 1976 compared with 807 in 1971. Recruitment needs for replacement and expansion during the five-year period included 557 full-time and 70 seasonal or part-time workers.

Table 43 provides some indications of the educational levels desired by employers for selected job titles. In combination with other areas, it indicates a need for vocational, 2-year collegiate, 4-year collegiate, and short-term courses in addition to the on-the-job training provided by employers.

Table 44 provides information on the 1971 salary characteristics for selected job titles. Although data are limited for some job titles they do provide some impressions of the relative financial rewards of the various jobs.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. None of the employers hired migrants, but 9.4% provided housing for seasonal employees. A large number reported hiring students and some hired housewives. Other workers in this category worked at other jobs or were unemployed during the off-season. Some employers did not comment and some did not hire seasonal or part-time workers.

The employers' views of the future manpower situation in New Jersey included: (1) need trained manpower; and (2) depends on growth of industry. More employers considered the future good than poor, but most did not comment.

TABLE 42

ESTIMATED EMPLOYMENT IN ANIMAL HEALTH AND CARE  
SERVICES IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of No. of		No. of No. of		Full Time	Part Time
	Full Time	Part Time	Full Time	Part Time		
Agri. Equip. Oper.	0	6	0	6	0.0	0.0
Animal Caretaker	207	142	302	125	45.9	- 12.0
Dog Bath Fluffer	8	4	0	0	-100.0	-100.0
Dog Groomer	29	6	12	35	- 58.6	483.3
Farmer	6	0	6	0	0.0	0.0
Foreman	27	0	33	0	22.2	0.0
Groom	153	33	139	35	- 9.2	6.1
Horse Exerciser	16	0	16	0	0.0	0.0
Horseshoer	12	0	12	0	0.0	0.0
Horse Trainer	20	0	18	0	- 10.0	0.0
Kennel Man	194	281	242	256	24.7	- 8.9
Lab. Tech. (Vet.)	51	27	104	12	103.9	- 55.6
Manager	23	25	29	25	26.1	0.0
Mechanic	6	0	12	0	100.0	0.0
Receptionist	10	31	16	18	60.0	- 41.9
Salesman	33	8	78	12	136.4	50.0
Sales Clerk	18	12	25	12	38.9	0.0
Truck Driver	6	25	25	29	316.7	16.0
Unskilled Laborer	33	152	49	166	48.5	9.2
Veterinarian	313	24	397	29	26.8	20.1
Veterinary Med. Asst.	0	6	6	6	plus	0.0
Veterinary Nurse	31	25	49	31	58.1	24.0
Total	1,196	807	1,570	797	31.1	- 1.2

TABLE 43

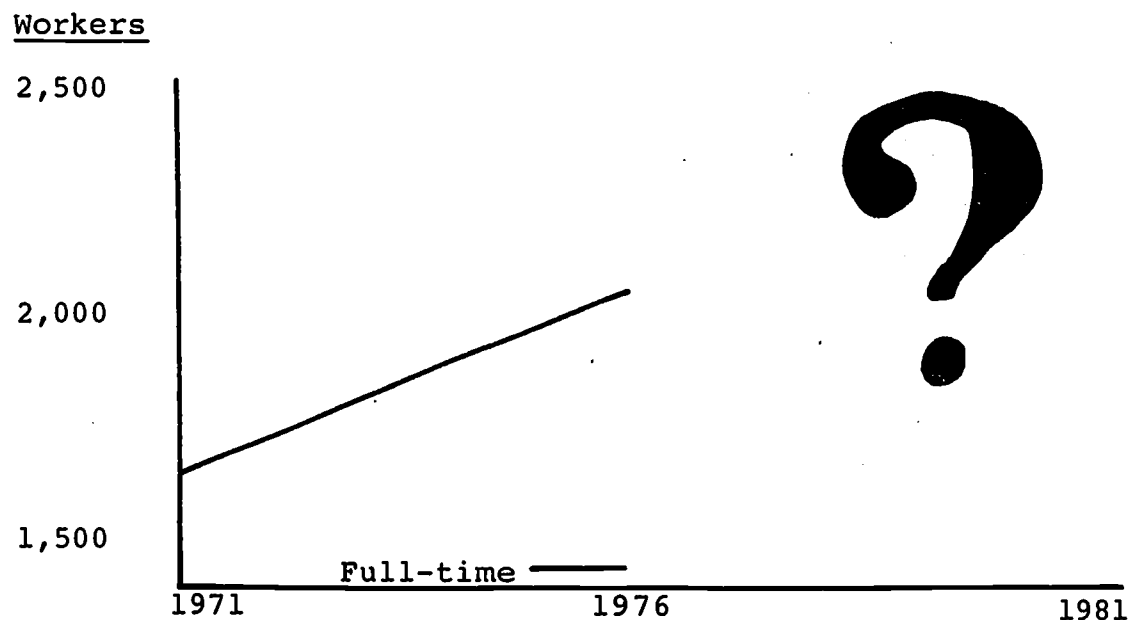
EDUCATIONAL LEVELS DESIRED FOR ANIMAL HEALTH AND CARE  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level*						
		None	On-The- Job	Short Courses	High School Vocational	2-Year College	4-Year College	
Agric. Equip. Oper.	1	0.0	100.0	0.0	0.0	0.0	0.0	
Animal Caretaker	11	18.1	54.5	18.1	36.3	0.0	0.0	
Dog Bath Fluffer	2	0.0	50.0	50.0	0.0	0.0	0.0	
Dog Groomer	3	0.0	100.0	0.0	0.0	0.0	0.0	
Foreman	4	0.0	25.0	25.0	100.0	25.0	0.0	
Groom	7	14.2	85.7	42.8	14.2	0.0	0.0	
Horseshoer	1	0.0	100.0	100.0	0.0	0.0	0.0	
Horse Trainer	2	0.0	50.0	50.0	50.0	50.0	0.0	
Kennel Man	31	9.6	80.6	6.4	16.1	3.2	0.0	
Lab Technician (Vet.)	17	5.8	5.8	23.5	29.4	58.8	5.8	
Manager	3	0.0	0.0	0.0	0.0	33.3	66.6	
Mechanic	1	0.0	0.0	0.0	100.0	0.0	0.0	
Receptionist	2	0.0	100.0	0.0	0.0	0.0	0.0	
Sales Clerk	2	0.0	100.0	0.0	0.0	0.0	0.0	
Salesman	1	0.0	0.0	0.0	100.0	0.0	0.0	
Truck Driver	2	0.0	50.0	0.0	50.0	0.0	0.0	
Unskilled Laborer	4	25.0	75.0	25.0	0.0	0.0	0.0	
Veterinarian	26	0.0	3.8	3.8	3.8	3.8	100.0	
Vet., Med. Asst. Tech.	1	0.0	0.0	0.0	0.0	0.0	100.0	
Vet Nurse	2	0.0	50.0	0.0	50.0	0.0	0.0	

\*May add to more than 100 percent since employers may have indicated more than one level for some jobs.

TABLE 44  
SALARY CHARACTERISTICS FOR ANIMAL HEALTH AND CARE  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary		
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)	
		Low	High Mean		Low	High Mean
Agric. Equip. Oper.	1	100	100	1	125	125
Animal Caretaker	9	50	150	8	110	136
Dog Bath Fluffer	1	75	75	2	100	150
Dog Groomer	2	30	80	2	80	115
Foreman	4	150	170	4	175	191
Groom	7	85	115	8	100	131
Horse Exerciser	1	125	125	1	150	150
Horse Trainer	1	250	250	1	350	350
Kennel Man	27	25	110	26	30	120
Lab. Technician (Vet.)	11	75	125	12	100	150
Manager	3	110	200	3	150	250
Mechanic	1	125	125	1	175	175
Receptionist	1	80	80	1	115	115
Sales Clerk	2	80	100	2	100	125
Salesman	2	100	150	2	200	250
Truck Driver	2	80	125	2	115	132
Unskilled Laborer	5	25	100	5	35	105
Veterinarian	18	185	300	18	250	394
Vet., Med. Asst. Tech.	1	125	125	1	150	150
Vet., Nurse	2	100	100	2	130	140

Pharmaceutical Research

Businessmen involved in pharmaceutical research projected a 21.9% increase in full-time positions during the five-year period reported in Table 45. They indicated a need for 2,052 full-time workers in 1976 compared with 1,684 in 1971. Replacement and expansion for the five-year period showed a need for 555 full-time workers. No seasonal or part-time workers were employed.

Table 46 provides some indications of the educational levels desired by employers for selected job titles. A greater percentage of the job titles required four years of college and less emphasis was placed on on-the-job training than in most business areas, but there was an indication of some need for vocational and



2-year college programs for selected job titles.

Table 47 provides information on the 1971 salary characteristics for selected job titles. Although data are exceptionally limited in respect to the number of employer responses, it does provide some impressions of the relative financial rewards of the various jobs.

The questions on seasonal or part-time workers did not apply because no one was employed in this category.

Employers' views of the future manpower situation in New Jersey indicated: (1) a need for skilled workers; and (2) overall manpower needs were increasing.

TABLE 45  
ESTIMATED EMPLOYMENT IN PHARMACEUTICAL RESEARCH BUSINESSES  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of No. of		No. of No. of		Full Time	Part Time
	Full Time	Part Time	Full Time	Part Time		
Animal Caretaker	425	0	540	0	27.1	0.0
Asst. Res. Assoc., Para.	13	0	13	0	0.0	0.0
Farm Manager	13	0	13	0	0.0	0.0
Lab., Director	11	0	22	0	100.0	0.0
Lab. Technician	35	0	57	0	62.9	0.0
Lab. Technician (Vet.)	305	0	414	0	35.7	0.0
Plant Technician	44	0	66	0	50.0	0.0
Research Assoc., Micro.	26	0	26	0	0.0	0.0
Research Assoc., Para.	13	0	13	0	0.0	0.0
Research Director	11	0	22	0	100.0	0.0
Salesman	110	0	154	0	40.0	0.0
Senior Lab. Tech.	26	0	26	0	0.0	0.0
Sr. Res. Inves., Nut.	13	0	13	0	0.0	0.0
Sr. Res. Inves., Para.	13	0	13	0	0.0	0.0
Unskilled Laborer	385	0	495	0	28.6	0.0
Veterinarian	241	0	165	0	- 31.5	0.0
Total	1,684	0	2,052	0	21.9	0.0

TABLE 46

EDUCATIONAL LEVELS DESIRED FOR PHARMACEUTICAL  
RESEARCH OCCUPATIONS IN NEW JERSEY, 1971

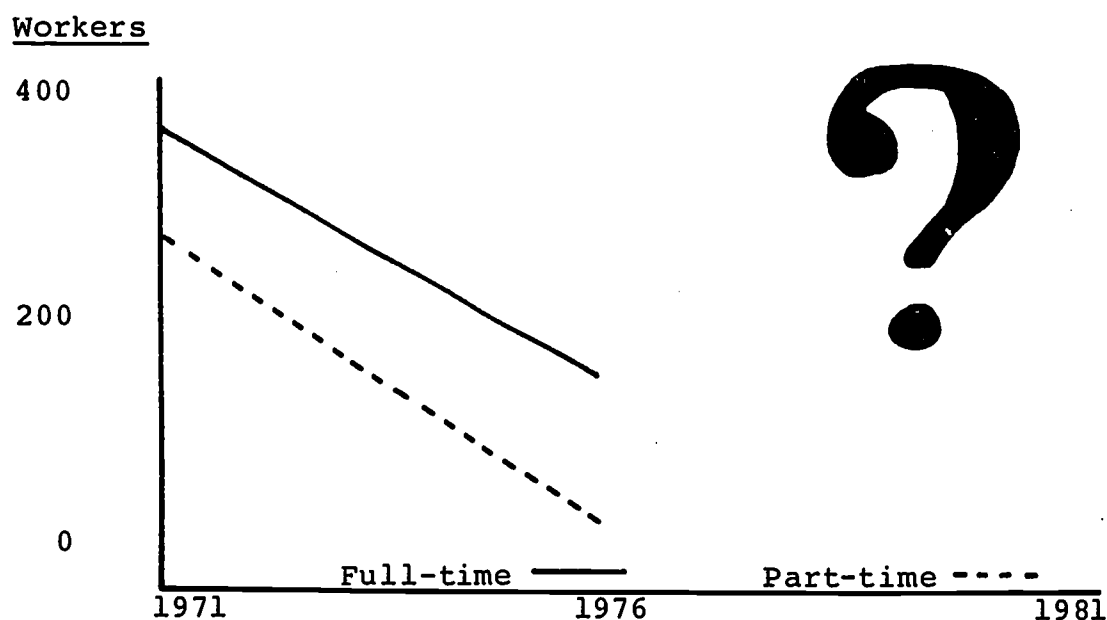
Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level*					
		None	On-The- Job	Short Courses	High School Vocational	2-Year College	4-Year College
Animal Caretaker	3	0.0	66.6	0.0	33.3	0.0	0.0
Asst. Res. Assoc., Par.	1	0.0	0.0	0.0	0.0	0.0	100.0
Lab Director	1	0.0	0.0	0.0	0.0	0.0	100.0
Lab Technician	2	0.0	0.0	0.0	0.0	50.0	50.0
Lab. Technician (Vet.)	2	0.0	50.0	0.0	0.0	50.0	0.0
Plant Technician	1	0.0	0.0	0.0	100.0	0.0	0.0
Res. Assoc., Micro.	1	0.0	0.0	0.0	0.0	0.0	100.0
Res. Assoc., Para.	1	0.0	0.0	0.0	0.0	0.0	100.0
Research Director	1	0.0	0.0	0.0	0.0	0.0	100.0
Salesman	1	0.0	0.0	0.0	0.0	0.0	100.0
Senior Lab. Tech.	1	0.0	0.0	0.0	0.0	100.0	0.0
Sr. Res. Invest., Nut.	1	0.0	0.0	0.0	0.0	0.0	100.0
Sr. Res. Invest., Para.	1	0.0	0.0	0.0	0.0	0.0	100.0
Veterinarian	3	0.0	0.0	0.0	0.0	0.0	100.0

\*May add to more than 100 percent since employers may have indicated more than one level for some jobs.

TABLE 47

SALARY CHARACTERISTICS FOR PHARMACEUTICAL RESEARCH  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary				
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)			
		Low	High Mean		Low	High Mean		
Animal Caretaker	3	100	130	113	3	130	136	133
Asst., Res. Assoc., Par.	1	230	230	230	1	353	353	353
Farm Manager	1	200	200	200	1	303	303	303
Lab. Director	1	225	225	225	1	275	275	275
Lab. Technician	1	225	225	225	2	168	175	171
Plant Technician	1	100	100	100	1	200	200	200
Res. Assoc., Micro.	1	200	200	200	1	303	303	303
Res. Assoc., Para.	1	200	200	200	1	303	303	303
Research Director	1	250	250	250	1	350	350	350
Salesman	1	200	200	200	1	350	350	350
Senior Lab. Tech.	1	176	176	176	1	188	188	188
Sr. Res. Invest., Nut.	1	321	321	321	1	430	430	430
Sr. Res. Invest., Para.	1	321	321	321	1	430	430	430
Unskilled Laborer	1	85	85	85	1	110	110	110

Race Tracks and Stables

Race track and stable employers projected a 56.9% decrease in full-time positions and a 96.1% decrease in part-time positions during the five-year period reported in Table 48. They indicated a decrease in full-time workers from the 1971 estimations of 353 to 1976 projections of 152. The estimation of seasonal or part-time workers was 280 in 1971 compared with 11 in 1976. It should be noted that the projections may have been affected by a very small number of responses since other sources indicate that the actual figures for 1971 are considerably higher than the estimations that were generated in this study.

Table 49 provides some indications of the educational levels desired for selected job titles. It indicates that there is more reliance on on-the-job training than on formal education as

preparation for most of the job titles.

Table 50 provides information on the 1971 salary characteristics of selected job titles. Data are limited, but they do provide some impressions of the relative financial rewards of the various jobs.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. Approximately one-half of the employers provided housing for seasonal employees, but none of the employers reported hiring migrants. Very little information was available on the off-season activities of this segment of the work force.

The employers' views of the future manpower situation ranged from good to poor and included more rigid control of unemployment compensation and the need for trained personnel.

TABLE 48  
ESTIMATED EMPLOYMENT IN RACE TRACK AND STABLE  
BUSINESSES IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of		No. of		Full Time	Part Time
	Full Time	Part Time	Full Time	Part Time		
Agric. Equip. Oper.	0	25	0	0	0.0	-100.0
Animal Caretaker	7	0	13	0	85.7	0.0
Foreman	7	0	0	0	-100.0	0.0
Groom	191	14	110	11	-42.4	-21.4
Groundskeeper	0	100	0	0	0.0	-100.0
Horse Exerciser	45	7	7	0	-84.4	-100.0
Horse Race Timer	0	5	0	0	0.0	-100.0
Horse Trainer	4	0	0	0	-100.0	0.0
Hot Walkers	77	7	22	0	-71.4	-100.0
Mechanics	5	0	0	0	-100.0	0.0
Paddock Judge	0	5	0	0	0.0	-100.0
Stable Boys	0	7	0	0	0.0	-100.0
Truck Driver (light)	10	110	0	0	-100.0	-100.0
Veterinarian	7	0	0	0	-100.0	0.0
Total	353	280	152	11	-56.9	-96.1

TABLE 49  
EDUCATIONAL LEVELS DESIRED FOR RACE TRACKS  
AND STABLE OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level*					
		None	On-The- Job	Short Courses	High School Vocational	2-Year College	4-Year College
Agric. Equip Oper.	1	0.0	100.0	0.0	0.0	0.0	0.0
Animal Caretaker	1	0.0	100.0	0.0	0.0	0.0	0.0
Groom	6	0.0	83.3	16.6	16.6	16.6	0.0
Groundskeeper	1	0.0	100.0	0.0	0.0	0.0	0.0
Horse Exerciser	2	0.0	100.0	50.0	0.0	0.0	0.0
Horse Race Timer	1	0.0	100.0	0.0	0.0	0.0	0.0
Horse Trainer	1	0.0	100.0	0.0	0.0	0.0	0.0
Hot Walker	3	0.0	100.0	0.0	0.0	0.0	0.0
Mechanic	1	0.0	0.0	100.0	0.0	0.0	0.0
Paddock Judge	1	0.0	0.0	100.0	0.0	0.0	0.0
Truck Driver (light)	1	0.0	100.0	0.0	0.0	0.0	0.0
Veterinarian	1	0.0	100.0	0.0	0.0	0.0	100.0

\*May add to more than 100 percent since employers may have indicated more than one level for some jobs.

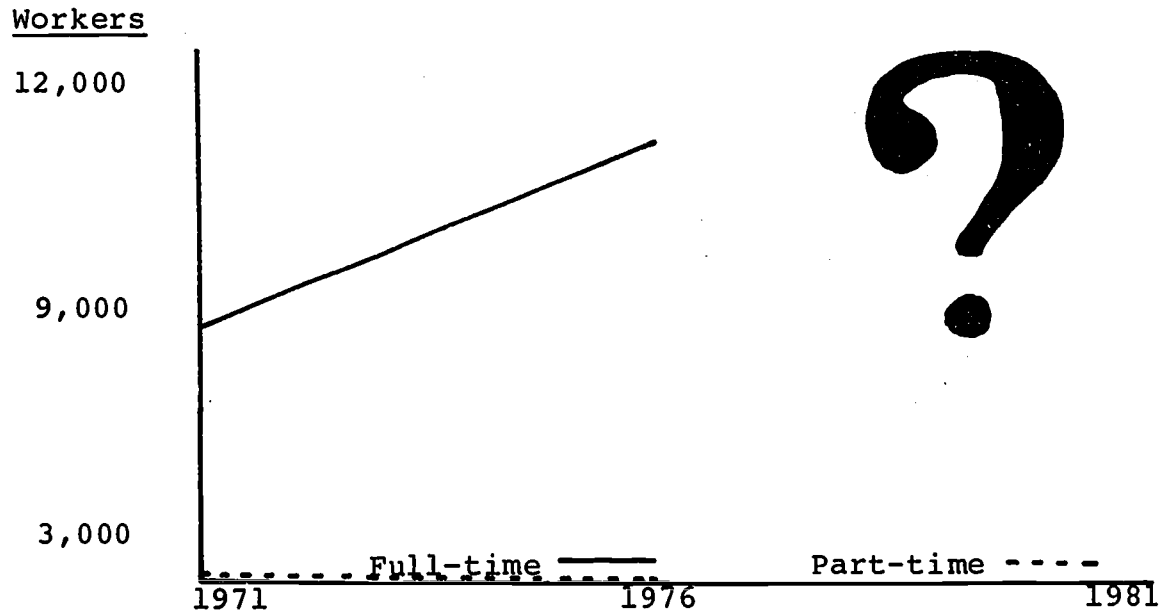


TABLE 50

## SALARY CHARACTERISTICS FOR RACE TRACK AND STABLE OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary				Potential Maximum Salary			
	No. of Employer Responses	Weekly (dollars)			No. of Employer Responses	Weekly (dollars)		
		Low	High	Mean		Low	High	Mean
Foreman	1	160	160	160	1	160	160	160
Groom	7	70	175	117	6	100	150	125
Horse Exerciser	4	125	175	147	3	150	185	166
Horse Race Timer	1	240	240	240	0	0	0	0
Horse Trainer	1	200	200	200	1	250	250	250
Hot Walker	4	65	100	73	4	65	120	85
Paddock Judge	1	240	240	240	0	0	0	0
Stable Boys	1	75	75	75	0	0	0	0

## VII. FOOD PROCESSING INDUSTRY



An increase in demand for people with skills and knowledge in food processing occupations is projected for the five-year period from 1971 to 1976. The estimations in Table 51 combine the areas of meat product processing, dairy product processing, canned fruit and vegetable processing, and grain mill products and services. A 24.3% increase in full-time positions from 8,734 in 1971 to 10,852 in 1976 is expected. An additional 20.8% increase in seasonal or part-time workers from 216 in 1971 to 261 in 1976 is also projected for the same five-year period. Considering a 2% annual replacement rate due to retirement and other factors, 3,097 people will have to be recruited and trained for the 2,118 new positions and the 979 replacement positions to provide the projected manpower needs for full-time

positions. An additional 69 seasonal or part-time workers will be needed for the 45 new positions and 24 replacement positions.

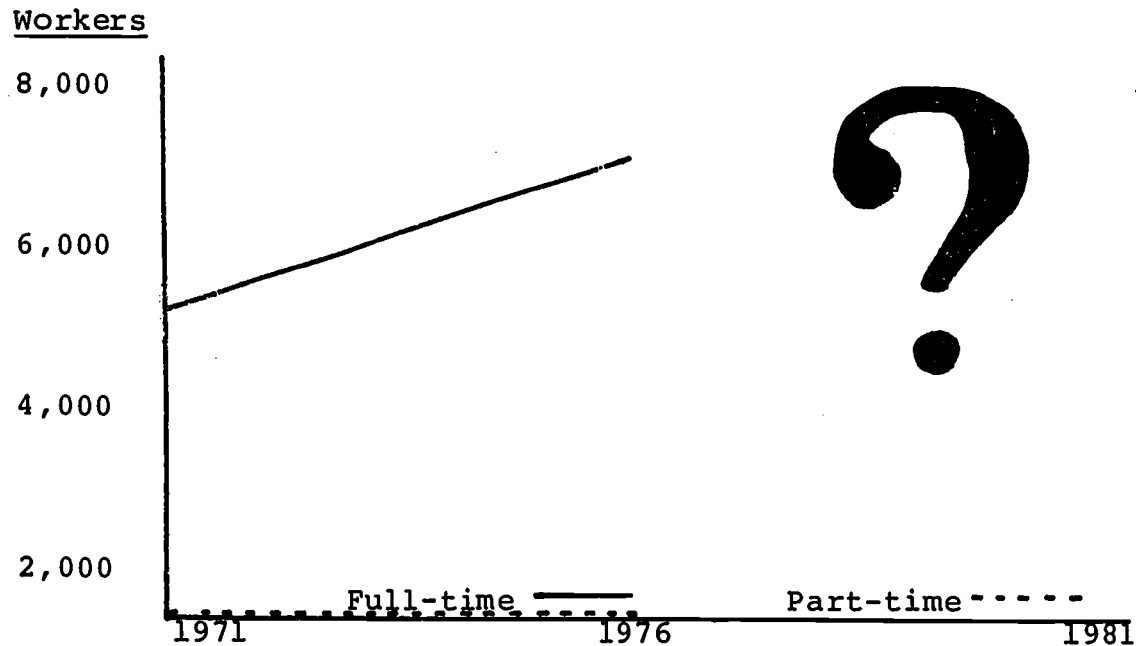
A more detailed analysis of the trends in food processing occupations is available on the following pages. Table 51 provides a composite analysis of the manpower need trends in these occupations by job title. The subsections for meat product processing, dairy product processing, canned fruit and vegetable processing, and grain mill products and services provide trends in manpower needs, educational levels desired by employers, salary characteristics, and additional information on the general manpower situation in New Jersey.

TABLE 51  
ESTIMATED EMPLOYMENT IN FOOD PROCESSING INDUSTRY  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Assistant Manager	13	0	13	0	0.0	0.0
Butcher	1081	10	1384	0	28.0	-100.0
Buyer	50	0	50	0	0.0	0.0
Fieldman	21	13	21	9	0.0	- 30.8
Fireman	14	0	14	0	0.0	0.0
General Manager	131	0	120	0	- 8.4	0.0
General Plant Laborer	13	0	22	0	69.2	0.0
Inspector	8	0	17	0	- 28.9	0.0
Lab. Technician	163	4	268	4	64.4	0.0
Main Mechanic/Foreman	550	0	613	0	11.5	0.0
Mechanic Helper	21	0	21	0	0.0	0.0
Mixer Operator	5	0	5	0	0.0	0.0
Office Manager	75	0	75	0	0.0	0.0
Packers	10	10	0	0	-100.0	-100.0
Personnel Manager	32	0	42	0	31.3	0.0
Prep. & Canning Super.	9	0	13	0	44.4	0.0
Pressman	151	0	239	0	58.3	0.0
Process. Equip. Oper.	1195	0	1241	0	3.8	0.0
Prod. & Ware. Foreman	417	0	492	0	18.0	0.0
Production Manager	89	0	101	0	13.5	0.0
Quality Control Tech.	131	4	194	4	48.1	0.0

TABLE 51 (continued)

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Route Driver	33	0	42	0	27.3	0.0
Route Driver	88	0	88	0	0.0	0.0
Route Salesman	142	0	142	0	0.0	0.0
Sales Manager	75	0	72	0	-	0.0
Salesman	413	29	492	25	19.1	- 44.2
Ship. & Receiving Clerk	222	0	297	0	33.	0.0
Truck Driver	562	30	790	51	40.6	70.0
Truck Lift Operator	92	0	167	0	81.5	0.0
Unskilled Laborer	2923	116	3812	168	30.4	44.8
Weightmaster	5	0	5	0	0.0	0.0
Total	8,734	216	10,852	261	24.3	20.8

Meat Product Processing

Meat product processing businessmen projected a 26.9% increase in full-time positions and a 9.8% increase in seasonal or part-time positions during the five-year period reported in Table 52. They indicated a need for 6,684 full-time workers in 1976 compared with 5,266 in 1971. The estimation for seasonal or part-time workers was 123 in 1976 compared with 112 in 1971. Recruitment needs for replacement and expansion during the five-year period included 2,016 full-time and 23 seasonal or part-time workers. The majority of the part-time work force was in the unskilled category.

Table 53 provides some indications of the educational levels desired by employers for selected job titles. In combination with other areas, it indicates a need for vocational, 2-year

collegiate, 4-year collegiate, and short-term courses in addition to the on-the-job training provided by employers.

Table 54 provides information on the 1971 salary characteristics for selected job titles. Although data are limited, they do provide some impressions of the relative financial rewards of the various job titles.

The questions on seasonal or part-time workers provided very little information because of the small number of employees in this category.

The employers' views of the future manpower situation in New Jersey included: (1) shortage of skilled labor; and (2) concern over the welfare situation.

TABLE 52  
ESTIMATED EMPLOYMENT IN MEAT PRODUCT PROCESSING BUSINESSES  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Butcher	1077	10	1375	0	27.7	-100.0
Buyer	33	0	33	0	0.0	0.0
General Manager	43	0	43	0	0.0	0.0
Lab. Technician	132	0	220	0	66.7	0.0
Maint. Mech./Foreman	362	0	384	0	6.1	0.0
Office Manager	32	0	32	0	0.0	0.0
Packers	10	10	0	0	-100.0	-100.0
Personnel Manager	11	0	11	0	0.0	0.0
Pressman	132	0	220	0	72.7	0.0
Process. Equip. Oper.	978	0	999	0	2.1	0.0
Prod. & Ware. Foreman	241	0	285	0	18.3	0.0
Production Manager	22	0	32	0	45.4	0.0
Quality Control Tech.	110	0	165	0	50.0	0.0
Sales Manager	11	0	11	0	0.0	0.0
Salesmen	143	0	186	0	30.1	0.0
Ship. & Receiving Clerk	120	0	164	0	36.7	0.0
Truck Driver	153	0	261	0	70.6	0.0
Truck Lift Operator	11	0	44	0	300.0	0.0
Unskilled Laborer	1645	92	2219	123	34.9	33.7
Total	5,266	112	6,684	123	26.9	9.8



TABLE 53

EDUCATIONAL LEVELS DESIRED FOR MEAT PRODUCT  
PROCESSING OCCUPATIONS IN NEW JERSEY, 1971

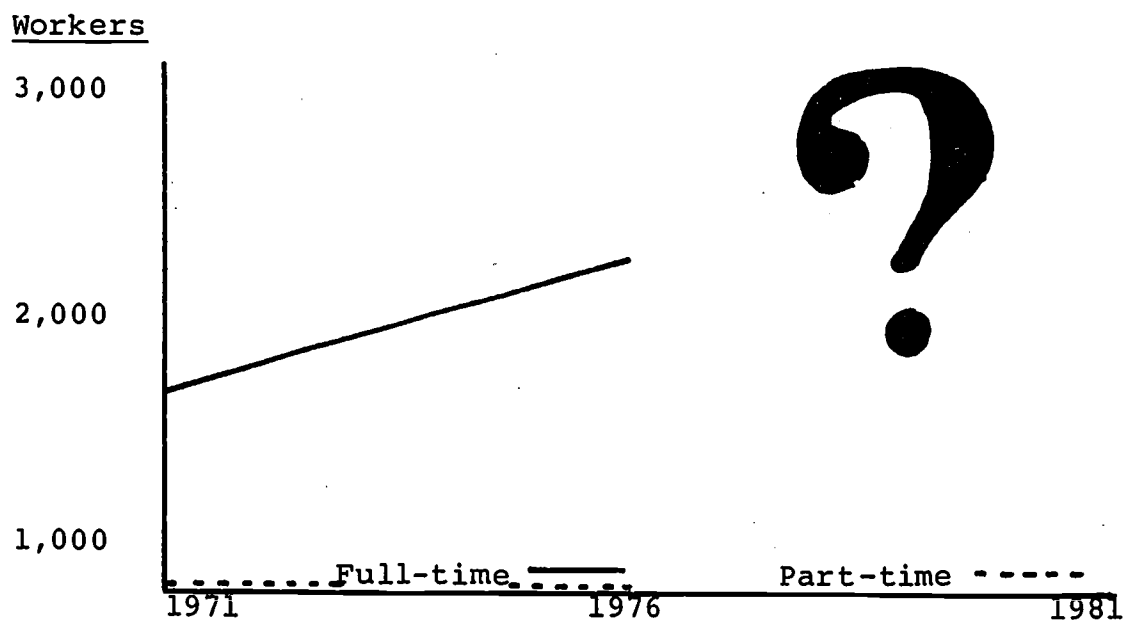
Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level *					
		None	On-The- Job	Short Courses	High School Vocational	2-Year College	4-Year College
Butcher	3	0.0	100.0	0.0	0.0	0.0	0.0
Buyer	1	0.0	0.0	0.0	0.0	0.0	0.0
General Manager	3	0.0	33.3	0.0	0.0	33.3	33.3
Lab. Technician	1	0.0	0.0	0.0	0.0	100.0	0.0
Main./Foreman	3	0.0	33.3	33.3	66.6	0.0	0.0
Office Manager	2	0.0	0.0	0.0	0.0	50.0	50.0
Packers	1	0.0	100.0	0.0	0.0	0.0	0.0
Personnel Manager	1	0.0	0.0	0.0	0.0	0.0	100.0
Pressman	2	0.0	100.0	0.0	0.0	0.0	0.0
Process. Equip. Oper.	3	0.0	100.0	0.0	0.0	0.0	0.0
Prod. & Ware. Foreman	4	0.0	50.0	0.0	50.0	0.0	0.0
Production Manager	2	0.0	0.0	0.0	50.0	0.0	0.0
Quality Control Tech.	1	0.0	0.0	0.0	0.0	100.0	0.0
Sales Manager	1	0.0	0.0	0.0	0.0	0.0	100.0
Salesman	2	0.0	0.0	0.0	0.0	50.0	50.0
Ship. & Receiving Clerk	4	0.0	75.0	0.0	25.0	0.0	0.0
Truck Driver	2	0.0	100.0	0.0	0.0	0.0	0.0
Truck Lift Operator	2	0.0	100.0	0.0	0.0	0.0	0.0
Unskilled Laborer	7	28.5	85.7	0.0	0.0	0.0	0.0

\* May add to more than 100 percent since employees may have indicated more than one level for some jobs.

TABLE 54

SALARY CHARACTERISTICS FOR MEAT PRODUCT PROCESSING  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary				
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)			
		Low	High		Low	High	Mean	
Butcher	3	130	145	138	2	176	195	185
Buyer	2	200	250	225	2	400	400	400
General Manager	3	180	200	193	2	300	350	325
Lab. Technician	1	110	110	110	1	160	160	160
Main. Mech./Foreman	4	140	180	155	4	180	220	200
Office Manager	3	120	180	150	3	190	275	221
Packers	1	90	90	90				
Pressman	2	132	132	132	4	130	180	152
Prod. & Ware. Foreman	5	120	200	156	5	180	400	247
Production Manager	3	150	300	203	3	220	450	336
Quality Control Tech.	1	110	110	110	1	160	160	160
Sales Manager	1	350	350	350	1	500	500	500
Salesman	2	150	200	175	2	350	400	375
Ship & Receiving Clerk	5	120	150	137	4	150	270	193
Truck Driver	3	120	160	140	3	160	285	209
Truck Lift Operator	2	120	140	130	2	172	185	178
Unskilled Laborer	6	100	135	116	4	130	180	152

Dairy Product Processing

Dairy product processing businessmen projected a 27.2% increase in full-time positions and a 70.8% increase in seasonal or part-time positions during the five-year period reported in Table 55. They indicated a need for 2,079 full-time workers in 1976 compared with 1,634 in 1971. The estimation for seasonal or part-time workers was 111 in 1976 compared with 65 in 1971. Recruitment needs for replacement and expansion included 631 full-time and 55 seasonal or part-time workers during the five-year period. It should be noted that these figures do not include the 10.5% of the businesses that were reported as family operated without any references to job titles or 1976 projections.

Table 56 provides some indications of the educational levels desired by employers for selected job titles. In combination with other areas, it indicates a need for vocational, 2-year collegiate, 4-year collegiate, and short-term courses in addition to the on-the-job training provided by employers.

Table 57 provides information on the 1971 salary characteristics for selected job titles. Although data are limited, they do provide some impressions of the relative financial rewards of the various jobs.

The questions on seasonal or part-time employees provided very little information because of the small number of employees in this category.

The employers' views of the future manpower situation in New Jersey included: (1) shortage of trained people; (2) competition for manpower because of industrial growth; and (3) unions demand too much. Approximately 50% did not comment.

TABLE 55

ESTIMATED EMPLOYMENT IN DAIRY PRODUCT PROCESSING BUSINESSES  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	
Assistant Manager	8	0	8	0	0.0
Buyer	4	0	4	0	0.0
Fieldman	21	4	21	4	0.0
General Manager	38	0	27	0	- 28.9
Inspector	8	0	17	0	112.5
Lab. Technician	21	4	38	4	81.0
Maint. Mech./Foreman	63	0	104	0	65.0
Mechanic Helper	21	0	21	0	0.0
Office Manager	23	0	23	0	0.0
Personnel Manager	13	0	23	0	76.9
Prep. & Canning Super.	4	0	8	0	100.0
Process. Equip. Oper.	75	0	92	0	22.7
Prod. & Ware. Foreman	48	0	65	0	35.4
Production Manager	36	0	29	0	- 19.4
Quality Control Tech.	13	4	21	4	61.5
Route Driver	33	0	42	0	27.3
Route Salesman	142	0	142	0	0.0
Routeman	88	0	88	0	0.0
Sales Manager	59	0	56	0	- 5.1
Salesman	242	21	238	25	- 1.7
Ship. & Receiving Clerk	75	0	106	0	41.3
Truck Driver	276	21	391	42	41.7
Truck Lift Operator	29	0	71	0	144.8
Unskilled Laborer	294	11	444	32	51.0
Total	1,634	65	2,079	111	27.2
					70.8

TABLE 56

## EDUCATIONAL LEVELS DESIRED FOR DAIRY PRODUCT PROCESSING OCCUPATIONS IN NEW JERSEY, 1971

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Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level *					
		None	On-The Job	Short Courses	High School Vocational	2-Year College	4-Year College
Assistant Manager	2	0.0	50.0	0.0	0.0	0.0	50.0
Buyer	1	0.0	0.0	0.0	0.0	100.0	0.0
Fieldman	3	0.0	0.0	0.0	0.0	100.0	0.0
General Manager	2	0.0	50.0	0.0	0.0	0.0	50.0
Inspector	1	0.0	0.0	0.0	0.0	100.0	0.0
Lab. Technician	3	0.0	0.0	0.0	0.0	66.6	33.3
Main. Mech./Foreman	5	0.0	40.0	0.0	40.0	20.0	0.0
Mechanic Helper	1	0.0	100.0	0.0	100.0	0.0	0.0
Office Manager	2	0.0	0.0	0.0	0.0	0.0	100.0
Personnel Manager	1	0.0	0.0	0.0	0.0	0.0	100.0
Process Equip. Oper.	4	0.0	100.0	0.0	25.0	0.0	0.0
Production Manager	5	0.0	20.0	0.0	0.0	20.0	60.0
Prod. Warehouse Foreman	2	0.0	100.0	0.0	0.0	0.0	0.0
Quality Control Tech.	3	0.0	0.0	0.0	0.0	33.3	66.6
Route Driver	1	0.0	100.0	0.0	0.0	0.0	0.0
Route Man	1	0.0	100.0	0.0	0.0	0.0	0.0
Salesman	6	0.0	33.3	0.0	50.0	33.3	0.0
Sales Manager	4	0.0	25.0	0.0	0.0	50.0	25.0
Ship Receiving Clerk	4	0.0	75.0	0.0	25.0	0.0	0.0
Truck Driver	4	0.0	100.0	0.0	25.0	0.0	0.0
Truck Lift Operator	2	0.0	100.0	0.0	0.0	0.0	0.0
Unskilled Laborer	6	33.3	66.6	0.0	0.0	0.0	0.0

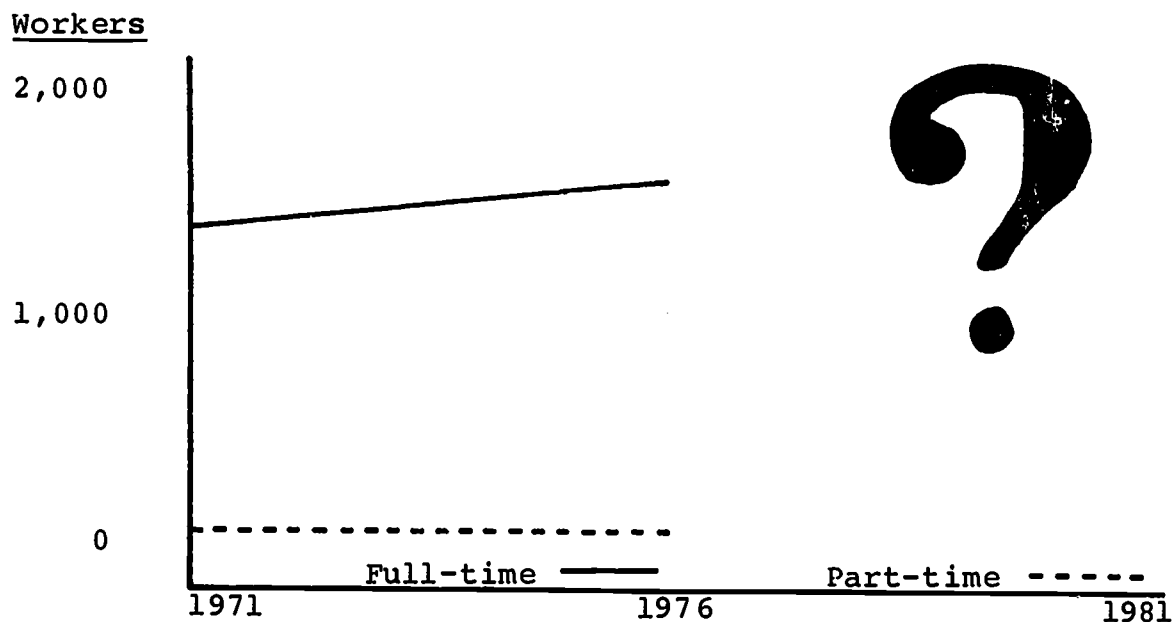
\* May add to more than 100 percent since employees may have indicated more than one level for some jobs.

TABLE 57

SALARY CHARACTERISTICS FOR DAIRY PRODUCT PROCESSING  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary				Potential Maximum Salary			
	No. of		Weekly (dollars)		No. of		Weekly (dollars)	
	Employer Responses	Low	High	Mean	Employer Responses	Low	High	Mean
Assistant Manager	2	145	200	172	2	183	300	241
Buyer	1	150	150	150	1	200	200	200
Fieldman	2	125	140	132	2	175	200	187
General Manager	1	150	150	150	1	300	300	300
Lab. Technician	1	130	130	130	1	175	175	175
Main. Mech./Foreman	3	130	200	176	3	176	250	208
Mechanic Helper	1	190	190	190	1	205	205	205
Office Manager	1	200	200	200	1	250	250	250
Personnel Manager	1	150	150	150	1	200	200	200
Prep. & Canning Super.	1	92	92	92	1	96	96	96
Process Equip. Oper.	2	92	140	116	2	96	176	136
Production Manager	4	250	300	273	4	290	400	332
Prod. Warehouse Foreman	1	150	150	150	1	200	200	200
Quality Control Tech.	2	130	150	140	2	176	200	188
Route Driver	1	130	130	130	1	200	200	200
Route Man	1	157	157	157	1	157	157	157
Route Salesman	1	200	200	200	4	185	225	202
Salesman	4	120	150	136	3	250	300	283
Sales Manager	4	175	250	207	3	145	160	151
Ship Receiving Clerk	4	100	182	141	2	210	225	217
Truck Driver	2	150	180	165	1	96	96	96
Truck Lift Operator	1	92	92	92	5	75	200	134
Unskilled Laborer	5	75	175	117				

Canned Fruit and Vegetable Processing



Canned fruit and vegetable processing businessmen projected a 16.0% increase in full-time positions and no change in seasonal or part-time jobs during the five-year period reported in Table 58. They indicated a need for 1,594 full-time workers in 1976 compared with 1,374 in 1971. The need for seasonal or part-time workers remained at 22 for the same five-year period. Recruitment needs for replacement and expansion during the five-year period included 368 full-time and 2 seasonal or part-time workers.

Table 59 provides some indications of the educational levels desired by employers for selected job titles. In combination with other areas, it indicates a need for vocational,



2-year collegiate, 4-year collegiate, and short-term courses in addition to the on-the-job training provided by employers.

Table 60 provides information on the 1971 salary characteristics for selected job titles. Although data are limited, they do provide some impressions of the relative financial rewards of the various job titles.

The questions on seasonal or part-time employment provided very little information because of the small number of employees in this category.

The employers' views of the future manpower situation in New Jersey included: (1) need for more skilled labor; and (2) competition for manpower because of industrial growth.

TABLE 58

ESTIMATED EMPLOYMENT IN CANNED FRUIT AND VEGETABLE PROCESSING BUSINESSES  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Butcher	4	0	9	0	125.0	0.0
General Manager	19	0	19	0	0.0	0.0
General Plant Labor	13	0	22	0	69.2	0.0
Lab. Technician	10	0	10	0	0.0	0.0
Maint. Mech./Foreman	81	0	81	0	0.0	0.0
Office Manager	7	0	7	0	0.0	0.0
Personnel Manager	3	0	3	0	0.0	0.0
Process. Equip. Oper.	119	0	127	0	6.7	0.0
Prod. Manager	18	0	27	0	50.0	0.0
Prod. & Warehouse Foreman	114	0	128	0	12.3	0.0
Quality Control Tech.	3	0	3	0	0.0	0.0
Salesman	7	0	7	0	0.0	0.0
Shipping & Receiving Clerk	10	0	10	0	0.0	0.0
Truck Driver	14	9	19	9	35.7	0.0
Truck Lift Oper.	47	0	47	0	0.0	0.0
Unskilled Laborer	905	13	1075	13	18.8	0.0
Total	1,374	22	1,594	22	16.0	0.0

TABLE 59

EDUCATIONAL LEVELS DESIRED FOR CANNED FRUIT AND VEGETABLE  
PROCESSING OCCUPATIONS IN NEW JERSEY, 1971

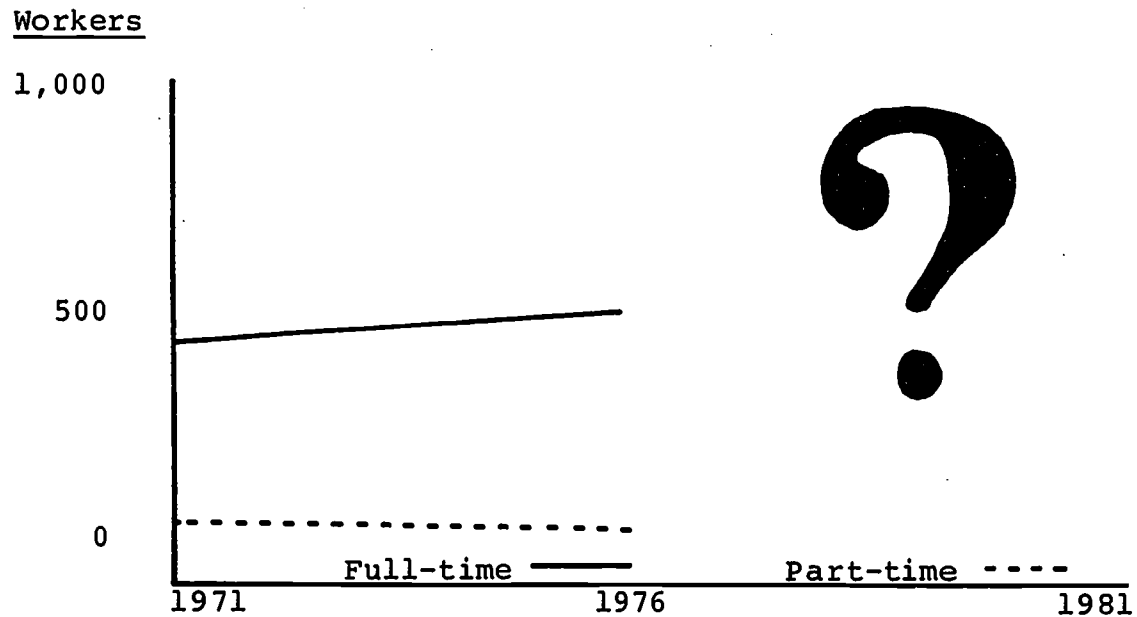
Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level *						
		None	On-The- Job	Short Courses	High School Vocational	2-Year College	4-Year College	
Butcher	1	0.0	0.0	0.0	100.0	0.0	0.0	
General Manager	2	0.0	0.0	0.0	0.0	100.0	0.0	
Lab Technician	2	0.0	0.0	0.0	100.0	0.0	0.0	
Main.Mech./Foreman	2	0.0	0.0	50.0	50.0	0.0	0.0	
Office Manager	1	0.0	0.0	0.0	0.0	0.0	100.0	
Personnel Manager	1	0.0	0.0	0.0	0.0	0.0	100.0	
Process. Equip. Oper	2	0.0	50.0	0.0	50.0	0.0	0.0	
Production Manager	3	0.0	0.0	0.0	66.6	0.0	33.3	
Prod. & Warehouse Foreman	2	0.0	0.0	0.0	100.0	0.0	0.0	
Quality Control Tech.	1	0.0	0.0	0.0	100.0	0.0	0.0	
Ship. & Receiving Clerk	2	0.0	0.0	0.0	100.0	0.0	0.0	
Truck Driver	2	50.0	0.0	0.0	50.0	0.0	0.0	
Truck Lift Operator	2	0.0	0.0	100.0	0.0	0.0	0.0	
Unskilled Laborer	5	20.0	80.0	0.0	0.0	0.0	0.0	

\* May add to more than 100 percent since employers may have indicated more than one level for some jobs.

TABLE 60

SALARY CHARACTERISTICS FOR CANNED FRUIT AND VEGETABLE  
PROCESSING OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary		
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)	
		Low	High Mean		Low	High Mean
Butcher	1	120	120	130	130	130
General Manager	2	200	300	275	400	337
General Plant Laborer	1	100	100	125	125	125
Lab. Technician	2	110	120	140	155	147
Main. Mech./Foreman	2	125	150	200	250	225
Office Manager	1	150	150	200	200	200
Personnel Manager	1	150	150	200	200	200
Process Equip. Oper.	2	100	100	120	145	132
Production Manager	3	130	200	150	275	225
Prod. & Warehouse Foreman	2	150	150	200	200	200
Quality Control Tech.	1	120	120	155	155	155
Ship. & Receiving Clerk	2	100	120	140	170	155
Truck Driver	1	110	110	130	180	155
Truck Lift Operator	2	100	125	125	180	152
Unskilled Laborer	4	85	90	100	130	114

Grain Mill Products and Services

The occupations involved in the processing of grain mill products are expected to remain relatively stable in the five-year period reported in Table 61. Even though a 7.6% increase in full-time positions and a 70.6% decrease in seasonal or part-time positions were projected, the number of people involved is relatively small. An increase from 460 in 1971 to 495 was projected in the full-time positions, and 5 part-time or seasonal positions are projected for 1976 compared with 17 for 1971.

Table 62 provides some indications of the educational levels desired by employers for selected job titles. It is apparent that there is great diversity in the educational requirements among these job titles.

Table 63 provides information on the 1971 salary characteristics of selected job titles. Data are limited, but they do provide some impressions of the relative financial rewards of the various jobs.

The questions on seasonal or part-time employment provided very little information because of the small number of employees in this category.

There was very little response to the question on the future manpower situation in New Jersey.

TABLE 61

ESTIMATED EMPLOYMENT IN GRAIN MILL PRODUCT PROCESSING  
BUSINESSES IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs			1976 Jobs			% Increase or Decrease	
	No. of No. of			No. of No. of			Full Time	Part Time
	Full Time	Part Time	No. of Jobs	Full Time	Part Time	No. of Jobs		
Assistant Manager	5	0	0	5	0	0	0.0	0.0
Buyer	13	0	0	13	0	0	0.0	0.0
Fieldman	0	9	0	0	5	0	0.0	- 44.4
Fireman	14	0	0	14	0	0	0.0	0.0
General Manager	31	0	0	31	0	0	0.0	0.0
Main. Mechanic/Foreman	44	0	0	44	0	0	0.0	0.0
Mixer Operator	5	0	0	5	0	0	0.0	0.0
Office Manager	13	0	0	13	0	0	0.0	0.0
Personnel Manager	5	0	0	5	0	0	0.0	0.0
Prep. & Canning Super.	5	0	0	5	0	0	0.0	0.0
Pressman	19	0	0	19	0	0	0.0	0.0
Process. Equip. Oper.	23	0	0	23	0	0	0.0	0.0
Production Manager	13	0	0	13	0	0	0.0	0.0
Prod. & Ware. Foreman	14	0	0	14	0	0	0.0	0.0
Quality Control Tech.	5	0	0	5	0	0	0.0	0.0
Salesman	21	8	0	61	0	0	190.5	-100.0
Sales Manager	5	0	0	5	0	0	0.0	0.0
Ship Receiving Clerk	17	0	0	17	0	0	0.0	0.0
Truck Driver	119	0	0	119	0	0	0.0	0.0
Truck Lift Operator	5	0	0	5	0	0	0.0	0.0
Unskilled Laborer	79	0	0	74	0	0	- 6.3	0.0
Weightmaster	5	0	0	5	0	0	0.0	0.0
Total	460	17	17	495	5	5	7.6	- 70.6

TABLE 62

EDUCATIONAL LEVELS DESIRED FOR GRAIN MILL PRODUCT  
PROCESSING OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level*						
		None	On-The- Job	Short Courses	High School Vocational	2-Year College	4-Year College	
Assistant Manager	1	0.0	0.0	0.0	0.0	100.0	0.0	
Buyer	2	0.0	50.0	0.0	100.0	0.0	0.0	
Fieldman	2	0.0	0.0	0.0	100.0	0.0	0.0	
General Manager	3	0.0	0.0	0.0	33.3	33.3	33.3	
Main. Mechanic/Foreman	4	0.0	25.0	0.0	75.0	0.0	0.0	
Mixer Operator	1	0.0	0.0	0.0	100.0	0.0	0.0	
Office Manager	2	0.0	0.0	0.0	50.0	100.0	0.0	
Prep. & Canning Super.	1	0.0	100.0	0.0	0.0	0.0	0.0	
Process. Equip. Oper.	1	0.0	100.0	0.0	0.0	0.0	0.0	
Production Manager	1	0.0	0.0	0.0	100.0	0.0	0.0	
Prod. & Ware. Foreman	2	50.0	0.0	0.0	50.0	0.0	0.0	
Quality Control Tech.	1	0.0	0.0	0.0	100.0	100.0	0.0	
Sales Manager	1	0.0	0.0	0.0	0.0	100.0	0.0	
Salesman	2	50.0	0.0	0.0	50.0	0.0	0.0	
Ship Receiving Clerk	2	0.0	50.0	0.0	50.0	0.0	0.0	
Truck Driver	4	25.0	25.0	0.0	50.0	0.0	0.0	
Truck Lift Operator	1	100.0	0.0	0.0	0.0	0.0	0.0	
Unskilled Laborer	2	0.0	50.0	0.0	50.0	0.0	0.0	
Weightmaster	1	0.0	0.0	0.0	100.0	0.0	0.0	

\*May add to more than 100 percent since employers may have indicated more than one level for some jobs.

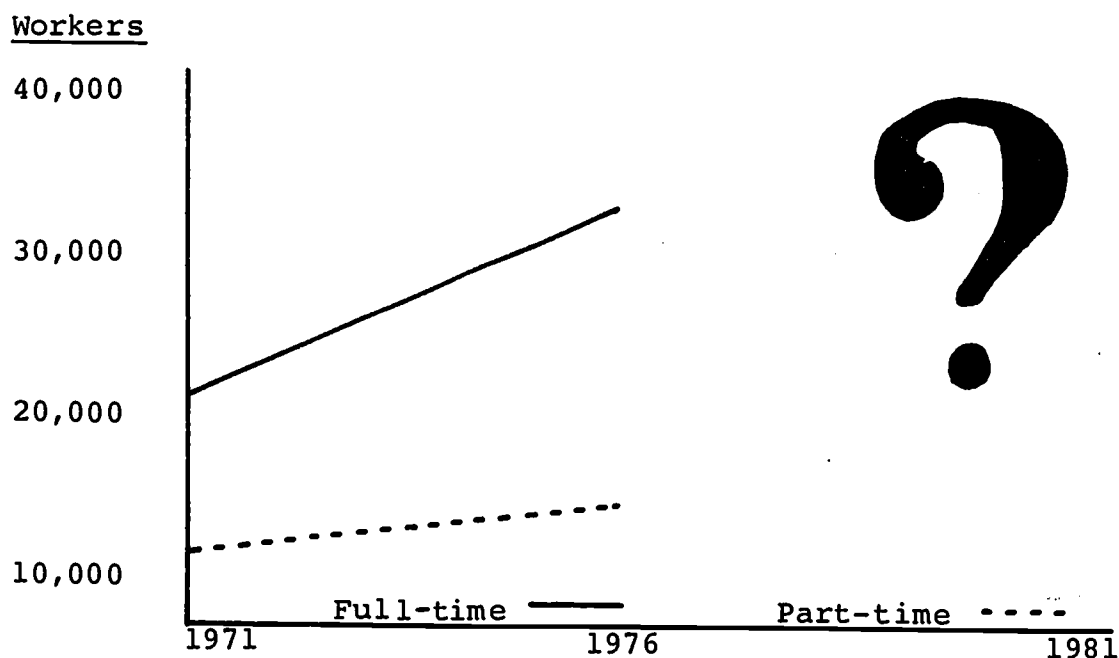


TABLE 63

SALARY CHARACTERISTICS FOR GRAIN MILL PRODUCT  
PROCESSING OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary		
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)	
		Low	High Mean		Low	High Mean
Assistant Manager	1	200	200	200	250	250
Buyer	2	125	200	162	175	187
Fieldman	2	50	100	75	50	87
General Manager	3	270	300	290	250	298
Main. Mechanic/Foreman	4	110	200	145	145	178
Mixer Operator	1	200	200	200	220	220
Office Manager	2	130	150	140	130	152
Personnel Manager	0	0	0	0	150	150
Prep. & Canning Super.	1	100	100	100	200	200
Process. Equip. Oper.	1	105	105	105	115	115
Production Manager	1	150	150	150	150	175
Prod. & Ware. Foreman	2	125	220	172	150	200
Quality Control Tech.	1	130	130	130	150	150
Salesman	2	125	135	130	135	142
Sales Manager	1	240	240	240	265	265
Ship Receiving Clerk	2	120	120	120	120	125
Truck Driver	3	110	200	145	110	160
Truck Lift Operator	1	105	105	105	115	115
Unskilled Laborer	1	175	175	175	195	195
Weightmaster	1	200	200	200	220	220

## VIII. FOOD DISTRIBUTION INDUSTRY



An increase in demand for people with skills and knowledge in food distribution occupations is projected for the five-year period from 1971 to 1976. The estimations in Table 64 combine the wholesale and retail food distribution areas. A 55.0% increase in full-time positions from 20,762 in 1971 to 32,173 in 1976 was projected. They also projected an additional 15.9% increase in seasonal or part-time workers from 11,300 in 1971 to 13,105 in 1976 for the same five-year period. Considering a 2% annual replacement rate due to retirement and other factors, 14,058 people will have to be recruited and trained for the 11,411 new positions and the 2,647 replacement positions to provide the projected manpower needs for full-time positions.

An additional 2,025 seasonal or part-time workers will be needed for the 1,805 new positions and 1,220 replacement positions.

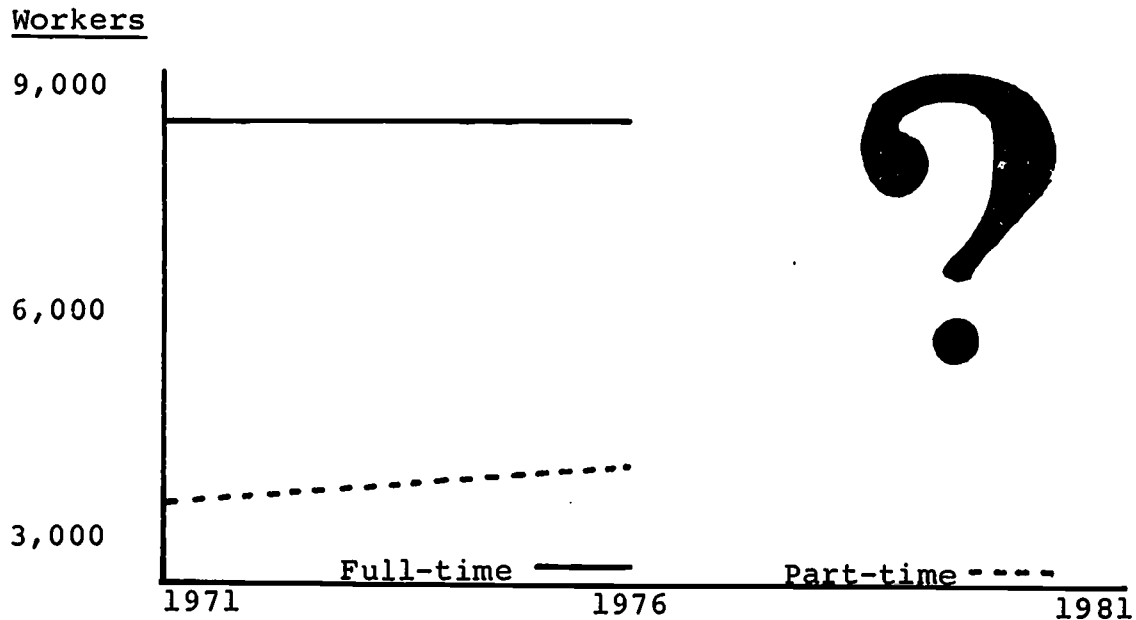
A more detailed analysis of the trends in food distribution occupations is available on the following pages. Table 64 provides a composite analysis of the manpower need trends in these occupations by job title. The sub-sections for wholesale and retail food distribution provide trends for manpower needs, educational levels desired by employers, salary characteristics, and additional information on the general manpower situation in New Jersey.

TABLE 64  
ESTIMATED EMPLOYMENT IN FOOD DISTRIBUTION INDUSTRY  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of		No. of		Full Time	Part Time
	Full Time	Part Time	Full Time	Part Time		
Butcher	169	0	169	0	0.0	0.0
Buyer, Meat Products	560	39	450	20	- 19.6	- 48.7
Commission Man	76	0	86	0	13.2	0.0
Dairy Clerk	482	607	596	809	23.7	33.3
Dairy Manager	50	88	50	117	0.0	33.0
Deli. Counterman	185	20	129	20	- 30.3	0.0
Deli. Manager	61	0	100	20	63.9	Plus
Equipment Operator	365	183	386	194	5.8	6.1
Foreman	20	0	20	0	0.0	0.0
Foreman, Warehouse	214	10	164	20	- 23.4	100.0
Frozen Food Manager	369	0	369	0	0.0	0.0
Grocery Dept. Head	53	0	53	0	0.0	0.0
Grocery Employees	288	320	309	128	7.3	- 60.0
Manager, Pack./Storage	194	0	157	0	- 19.1	0.0
Manager, Retail	2131	1255	3660	190	71.8	- 84.7
Manager, Whlse./Pack.	11	21	11	11	0.0	- 47.6
Materials Handler	116	0	0	0	-100.0	0.0
Meat Clerk	1195	1322	3510	2769	193.7	109.5
Meat Cutter	4247	948	7470	825	75.9	- 13.0
Meat Dept. Head	684	11	1413	0	106.6	-100.0
Meat Trimmer	50	20	40	20	- 20.0	0.0
Meat Wrapper	20	0	40	0	100.0	0.0
Packer	363	0	70	0	- 80.7	0.0
Produce Clerk	1297	2009	3332	2113	156.9	5.2

TABLE 64 (continued)

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of No. of		No. of No. of		Full Time	Part Time
	Full Time	Part Time	Full Time	Part Time		
Produce Dept. Head	559	96	1393	21	149.2	- 78.1
Route Driver	1141	773	2010	1625	76.2	110.2
Salesman, Food Prod.	1853	168	2240	275	20.9	63.7
Salesman, Livestock	59	0	59	0	0.0	0.0
Truck Driver	2250	478	2399	570	6.6	25.6
Unskilled Laborer	1452	2932	1230	3358	- 15.3	14.5
Warehouseman	248	0	258	0	4.0	0.0
Total	20,762	11,300	32,173	13,105	55.0	15.9

Wholesale Food Distribution

Wholesale food distribution businessmen projected no change in full-time positions and a 24.3% increase in seasonal or part-time positions during the five-year period reported in Table 65. The estimation for full-time workers was 8,613 and 8,614 respectively for 1971 and 1976. The estimations for seasonal or part-time workers was 4,013 in 1976 compared with 3,228 in 1971. Recruitment needs for replacement and expansion during the five-year period included 861 full-time workers and 1,147 seasonal or part-time workers. It should be noted that these figures do not include the 11.3% of the businesses that were reported as family operated without any reference to job titles or 1976 projections.

Table 66 provides some indications of the educational levels desired by employers for selected job titles. The entire range of educational levels is represented, but the majority of the workers received on-the-job training.

Table 67 provides information on the 1971 salary characteristics of selected job titles. Although data are limited, they do provide some impressions of the relative financial rewards of the various job titles.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. Off-season activities of this segment of the work force included school, other jobs, and welfare or unemployment.

Employers' views of the future manpower situation in New Jersey included: (1) lack of skilled labor; and (2) depends on growth of the industry.

TABLE 65

ESTIMATED EMPLOYMENT IN WHOLESALE FOOD DISTRIBUTION  
SERVICES IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs			1976 Jobs			% Increase or Decrease	
	No. of No. of			No. of No. of			Full Time	Part Time
	Full Time	Part Time		Full Time	Part Time			
Buyer, Meat Products	317	39		386	20		21.8	- 48.7
Commission Man	76	0		86	0		13.2	0.0
Dairy Manager	29	88		29	117		0.0	33.0
Deli. Counterman	129	20		129	20		0.0	0.0
Deli. Manager	40	0		79	20		97.5	Plus
Equipment Operator	199	60		199	60		0.0	0.0
Foreman	20	0		20	0		0.0	0.0
Foreman, Warehouse	214	10		164	20		- 23.4	100.0
Frozen Food Manager	348	0		348	0		0.0	0.0
Manager, Pack./Storage	194	0		157	0		- 19.1	0.0
Materials Handler	60	0		0	0		-100.0	0.0
Meat Clerk	29	0		29	0		0.0	0.0
Meat Cutter	411	0		441	29		7.3	Plus
Meat Dept. Head	69	0		49	0		- 29.0	0.0
Meat Trimmer	50	20		40	20		- 20.0	0.0
Meat Wrappers	20	0		40	0		100.0	0.0
Packers	328	0		0	0		-100.0	0.0
Route Driver	694	27		870	27		25.4	0.0
Salesman, Food Prod.	1719	147		2096	187		21.9	27.2
Salesman, Livestock	59	0		59	0		0.0	0.0
Truck Driver	2025	295		2075	401		2.5	35.9
Unskilled Laborer	1335	2522		1060	3092		- 20.6	22.6
Warehouseman	248	0		258	0		4.0	0.0
Total	8,613	3,228		8,614	4,013		0.0	24.3



TABLE 66

EDUCATIONAL LEVELS DESIRED FOR WHOLESALE FOOD  
DISTRIBUTION OCCUPATIONS IN NEW JERSEY, 1971

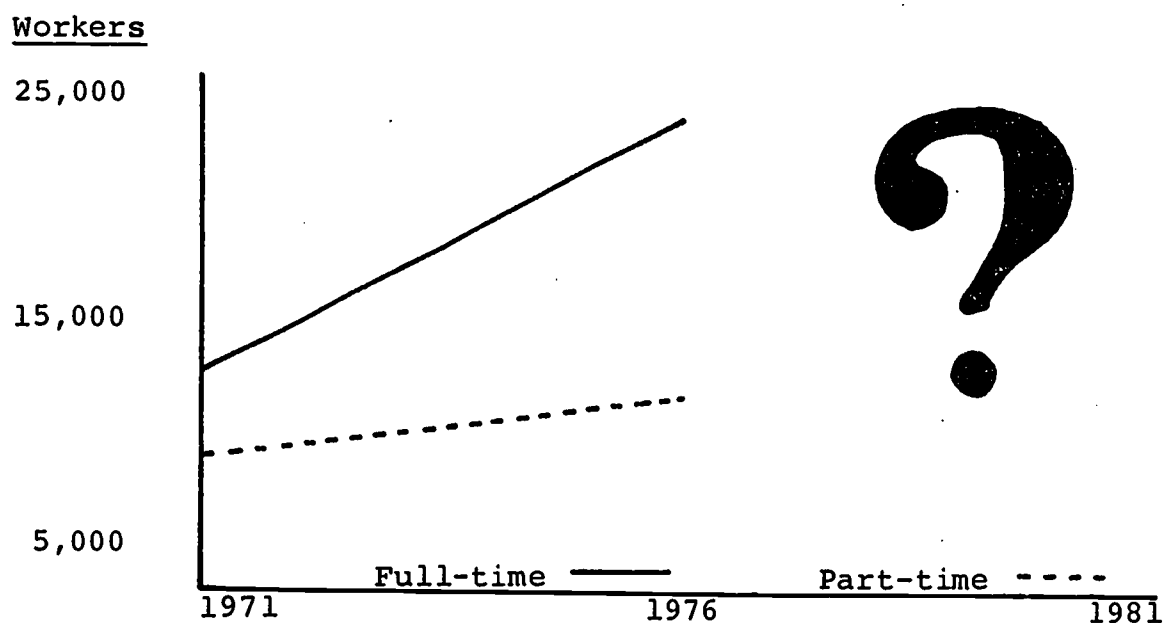
Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level*					
		None	On-The- Job	Short Courses	High School Vocational	2-Year College	4-Year College
Buyer, Meat Products	12	8.3	75.0	0.0	8.3	0.0	0.0
Commission Man	2	0.0	100.0	0.0	0.0	0.0	0.0
Dairy Manager	1	100.0	0.0	0.0	0.0	0.0	0.0
Deli. Counterman	1	100.0	0.0	0.0	0.0	0.0	0.0
Deli. Manager	2	0.0	100.0	0.0	0.0	0.0	0.0
Equipment Operator	1	100.0	0.0	0.0	0.0	0.0	0.0
Foreman	1	0.0	100.0	0.0	0.0	0.0	0.0
Foreman, Warehouse	11	9.0	54.5	9.0	27.2	0.0	0.0
Frozen Food Manager	1	0.0	100.0	0.0	0.0	0.0	0.0
Manager, Warehouse Pack.	7	0.0	100.0	0.0	0.0	14.2	0.0
Meat Clerk	1	0.0	100.0	0.0	0.0	0.0	0.0
Meat Cutter	6	0.0	83.3	0.0	0.0	16.6	0.0
Meat Dept. Head	3	0.0	66.6	33.3	0.0	0.0	0.0
Meat Trimmer	1	0.0	100.0	0.0	0.0	0.0	0.0
Meat Wrapper	1	0.0	100.0	0.0	0.0	0.0	0.0
Route Driver	3	0.0	100.0	0.0	0.0	0.0	0.0
Salesman, Food Prod.	26	7.6	53.8	7.6	11.5	15.3	11.5
Salesman, Livestock	1	100.0	0.0	0.0	0.0	0.0	0.0
Truck Driver	22	22.7	59.0	4.5	13.6	0.0	0.0
Unskilled Laborer	15	20.0	66.6	0.0	13.3	0.0	0.0
Warehouseman	1	0.0	100.0	0.0	0.0	0.0	0.0

\*May add to more than 100 percent since employers may have indicated more than one level for some jobs.

TABLE 67

SALARY CHARACTERISTICS FOR WHOLESALE FOOD  
DISTRIBUTION OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary				
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)			
		Low	High Mean		Low	High Mean		
Buyer, Meat Products	9	100	500	238	10	175	500	283
Commission Man	1	125	125	125	0	0	0	0
Dairy Manager	1	80	80	80	1	160	160	160
Deli. Counterman	2	100	145	122	2	125	250	187
Deli. Manager	2	90	158	124	2	100	206	153
Equipment Operator	1	150	150	150	1	167	167	167
Foreman	1	150	150	150	1	280	280	280
Foreman, Warehouse	11	120	200	155	12	150	350	203
Frozen Food Manager	1	120	120	120	1	130	130	130
Manager, Warehouse, Pack.	8	125	300	194	8	150	350	232
Materials Handler	1	110	110	110	1	138	138	138
Meat Clerk	1	130	130	130	1	250	250	250
Meat Cutter	4	120	200	159	4	167	225	200
Meat Dept. Head	2	140	180	160	2	180	190	185
Meat Trimmer	1	150	150	150	1	250	250	250
Meat Wrapper	1	85	85	85	1	91	91	91
Packer	1	90	90	90	1	130	130	130
Route Driver	3	120	200	156	3	165	400	245
Salesman, Food Prod.	24	100	225	136	23	130	600	261
Salesman, Livestock	1	125	125	125	1	200	200	200
Truck Driver	22	75	225	136	23	85	325	177
Unskilled Laborer	14	50	220	109	14	75	300	147
Warehouseman	1	150	150	150	1	198	198	198

Retail Food Distribution

Retail food distribution businessmen projected a 93.9% increase in full-time positions and a 12.6% increase in seasonal or part-time positions during the five year period reported in Table 68. They indicated a need for 23,559 full-time workers in 1976 compared with 12,149 in 1971. The estimation for seasonal or part-time workers was 9,092 in 1976 compared with 8,072 in 1971. Recruitment needs for replacement and expansion during the five-year period included 13,195 full-time and 4,119 seasonal or part-time workers. The areas of greatest need appeared to be for retail managers and for employees in the meat and produce departments. It should be noted that these figures do not include the 21.1% of the businesses that were reported as family operated without any reference to job titles or 1976 projections.

Table 69 provides some indications of the educational levels desired by employers for selected job titles. It indicates areas of need for vocational, 2-year collegiate, 4-year collegiate, and short-term courses in addition to the on-the-job training provided by employers.

Table 70 provides information on the 1971 salary characteristics of selected job titles. Although data are limited by the number of employer responses, they do provide some impressions of the relative financial rewards of the various job titles.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. This part of their work force included a large percentage of students with some housewives and retirees in addition to those who worked at other jobs when they were not working for the reporting employer.

The employers' views of the future manpower situation in New Jersey included: (1) lack of skilled labor; (2) concern over the welfare and unemployment situation; (3) expected an increase in needs; and (4) described the future as poor. Approximately 40% did not comment.

TABLE 68

## ESTIMATED EMPLOYMENT IN RETAIL FOOD DISTRIBUTION SERVICES IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of Full Time	No. of Part Time	Full Time	Part Time
Butcher	169	0	169	0	0.0	0.0
Buyer, Meat Prod.	243	0	64	0	73.7	0.0
Dairy Clerk	482	607	596	809	23.7	33.3
Dairy Manager	21	0	21	0	0.0	0.0
Deli. Counterman	56	0	0	0	-100.0	0.0
Deli. Manager	21	0	21	0	0.0	0.0
Equipment Operator	166	123	187	134	12.7	8.9
Frozen Food Manager	21	0	21	0	0.0	0.0
Grocery Dept. Head	53	0	53	0	0.0	0.0
Grocery Employees	288	320	309	128	7.3	-60.0
Manager, Retail	2131	1255	3660	190	71.8	-84.7
Manager, Whlse./Pack.	11	21	11	11	0.0	-47.6
Materials Handler	56	0	0	0	-100.0	0.0
Meat Clerk	1166	1322	3481	2769	198.5	109.5
Meat Cutter	3836	948	7029	796	81.8	-16.0
Meat Dept. Head	615	11	1364	0	121.8	-100.0
Packer	35	0	70	0	100.0	0.0
Produce Clerk	1297	2009	3332	2113	156.9	5.2
Produce Dept. Head	559	96	1393	21	149.2	-78.1
Route Driver	447	746	1140	1598	155.0	113.9
Salesman, Food Prod.	134	21	144	88	7.5	319.0
Truck Driver	225	183	324	169	44.0	-7.7
Unskilled Laborer	117	410	170	266	45.3	-35.1
Total	12,149	8,072	23,559	9,092	93.9	12.6

TABLE 69

EDUCATIONAL LEVELS DESIRED FOR RETAIL FOOD DISTRIBUTION  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level*					
		None	On-The- Job	Short Courses	High School Vocational	2-Year College	4-Year College
Butcher	1	0.0	100.0	100.0	0.0	0.0	0.0
Buyer, Meat Prod.	5	0.0	60.0	20.0	20.0	0.0	20.0
Dairy Clerk	2	0.0	100.0	0.0	0.0	0.0	0.0
Dairy Manager	1	0.0	100.0	0.0	0.0	0.0	0.0
Deli. Manager	1	0.0	100.0	0.0	0.0	0.0	0.0
Equipment Operator	1	0.0	100.0	0.0	0.0	0.0	0.0
Frozen Food Manager	1	0.0	100.0	0.0	0.0	0.0	0.0
Grocery Dept. Head	1	0.0	0.0	0.0	100.0	0.0	0.0
Grocery Employees	1	0.0	0.0	0.0	100.0	0.0	0.0
Manager, Retail	26	0.0	61.5	15.3	23.0	15.3	7.6
Manager, Whlse./Pack.	1	0.0	0.0	100.0	0.0	0.0	0.0
Meat Clerk	19	5.2	73.6	10.5	31.5	0.0	0.0
Meat Cutter	27	22.2	70.3	18.5	29.6	3.7	0.0
Meat Dept. Head	10	0.0	60.0	20.0	30.0	20.0	0.0
Packer	1	0.0	100.0	0.0	0.0	0.0	0.0
Produce Clerk	18	16.6	77.7	5.5	16.6	0.0	0.0
Produce Dept. Head	13	0.0	69.2	15.3	23.0	15.3	0.0
Route Driver	3	0.0	100.0	66.6	66.6	0.0	0.0
Salesman, Food Prod.	2	0.0	50.0	50.0	0.0	0.0	0.0
Truck Driver	6	50.0	16.6	16.6	0.0	16.6	0.0
Unskilled Laborer	5	20.0	40.0	20.0	0.0	20.0	0.0

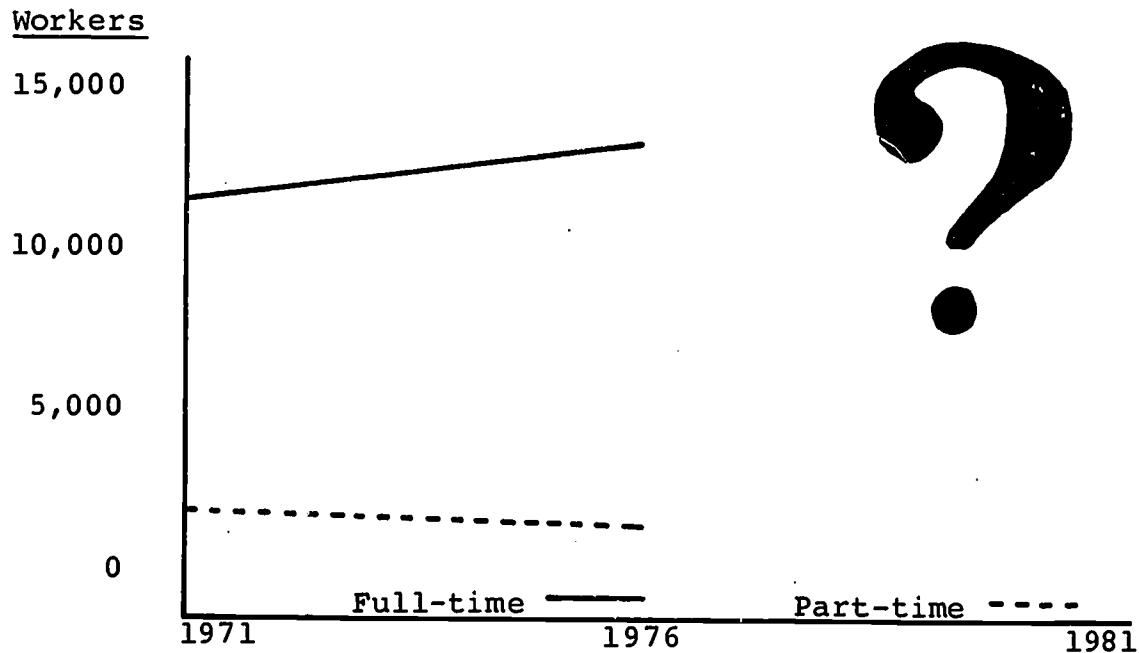
\*May add to more than 100 percent since employers may have indicated more than one level for some jobs.

TABLE 70

SALARY CHARACTERISTICS FOR RETAIL FOOD DISTRIBUTION  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary				
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)			
		Low	High Mean		Low	High Mean		
Buyer, Meat Prod.	4	110	250	182	3	150	550	350
Dairy Clerk	2	80	88	84	2	102	120	111
Dairy Manager	2	110	139	124	2	110	139	124
Deli. Counterman	1	140	140	140	1	165	165	165
Deli. Manager	2	130	178	154	2	150	180	165
Equipment Operator	3	90	110	100	3	125	160	145
Frozen Food Manager	2	139	140	139	2	139	160	149
Grocery Dept. Head	2	95	150	122	2	190	200	195
Grocery Employees	2	75	108	91	2	153	160	156
Manager, Retail	26	90	275	173	25	150	350	223
Meat Clerk	20	45	185	111	18	60	290	149
Meat Cutter	28	60	232	140	25	130	250	190
Meat Dept. Head	11	125	250	195	11	175	350	225
Packer	1	120	120	120	1	200	200	200
Produce Clerk	16	65	132	103	15	80	200	134
Produce Dept. Head	13	80	200	142	11	139	250	184
Route Driver	5	100	250	155	5	135	250	192
Salesman, Food Prod.	1	125	125	125	1	155	155	155
Truck Driver	5	40	200	122	5	50	200	141
Unskilled Laborer	2	80	100	90	2	145	150	147

## IX. LUMBER AND BUILDING MATERIAL SERVICES



Lumber and building material businessmen projected a 10.4% increase in full-time positions and a 5.2% decrease in seasonal or part-time positions during the five-year period reported in Table 71. They indicated a need for 13,273 full-time workers in 1976 compared with 12,024 in 1971. The estimation for seasonal or part-time workers was 1,684 in 1976 compared with 1,777 in 1971. Considering a 2% annual replacement rate due to retirement and other factors, 2,514 people will have to be recruited and trained for the 1,249 new positions and the 1,265 replacement positions for full-time workers during the five-year period. The seasonal or part-time situation is different. A decrease of 113 positions reduces the replacement need to 60 workers.

The lumber and building material area is very diversified in



respect to the technical background needed for the various job titles. It was assumed that many of the job titles would require knowledge and skills in natural resources, but a large number of these jobs require knowledge and skills in other areas. A more detailed analysis of the trends by job title is available in Table 71.

Table 72 provides some indications of the educational levels desired by employers for selected job titles. The entire range of educational levels is represented, but the majority of workers are prepared on-the-job, in short courses, or in high school vocational programs.

Table 73 provides information on the 1971 salary characteristics of selected job titles. Although data are limited, they do provide some impressions of the relative financial rewards of the various jobs.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. A large number of the employers hired students, and many of the seasonal or part-time workers were employed at other jobs during the off-season.

The employers' views of the future manpower situation in New Jersey included: (1) lack of skilled workers; (2) optimistic; (3) pessimistic; and (4) depends on the industry.

TABLE 71  
ESTIMATED EMPLOYMENT IN LUMBER AND BUILDING MATERIAL  
SERVICES IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs			1976 Jobs			% Increase or Decrease	
	No. of Full Time	No. of Part Time	No. of No. of	No. of Full Time	No. of Part Time	No. of No. of	Full Time	Part Time
Alum. Siding Instal.	8	8	8	8	0	8	0.0	0.0
Alum. Window/Door Instal.	8	0	0	25	0	0	212.5	0.0
Block Machine Oper.	25	0	0	25	0	0	0.0	0.0
Carpenter	247	17	17	180	0	0	- 27.1	-100.0
Concrete Bat./Block Mach.	51	0	0	59	0	0	15.7	0.0
Concrete Bat./Concrete Pl.	139	0	0	161	0	0	15.8	0.0
Fence Installer	8	8	8	25	17	17	212.5	112.5
Fence Installer Helper	8	0	0	8	8	8	0.0	Plus
Foreman, Bldg. Materials	406	6	6	459	0	0	13.1	-100.0
Foreman, Carpenter	141	0	0	85	0	0	- 39.7	0.0
Foreman, Kit. Cabinet	82	17	17	118	25	25	43.9	47.1
Hardware Man	6	0	0	0	0	0	-100.0	0.0
Ironworker	76	0	0	126	0	0	65.8	0.0
Kitchen Cab. Instal.	25	0	0	76	0	0	204.0	0.0
Kitchen Cab. Serviceman	101	0	0	152	0	0	50.5	0.0
Machine Operator	121	0	0	182	0	0	50.4	0.0
Manager	629	57	57	564	25	25	- 10.3	- 56.1
Mechanic Helper	0	25	25	51	0	0	Plus	-100.0
Oil Burner Serviceman	6	0	0	0	0	0	-100.0	0.0
Plumber	236	93	93	227	202	202	- 3.8	117.2
Roof Installer	505	126	126	505	0	0	0.0	-100.0
Sales Clerk	655	56	56	474	25	25	- 27.6	- 55.4
Salesman	1560	290	290	1468	322	322	- 5.9	11.0

TABLE 71 (continued)

Job Titles	1971 Jobs			1976 Jobs			% Increase or Decrease		
	No. of			No. of			Full Time		
	Full Time	Part Time	No. of Time	Full Time	Part Time	No. of Time	Full Time	Part Time	Time
Sanders	12	0	0	0	0	0	-100.0	0.0	0.0
Service Technician	42	0	0	59	0	0	40.5	0.0	0.0
Sheet Rock Finisher	12	0	0	12	0	0	0.0	0.0	0.0
Sheet Rock Hanger	34	0	0	51	0	0	50.0	0.0	0.0
Sheet Rock Taper	24	0	0	24	0	0	0.0	0.0	0.0
Shopman	202	51	0	202	0	0	0.0	-100.0	0.0
Spray Man	6	0	0	0	0	0	-100.0	0.0	0.0
Truck Driver	2452	294	0	2110	366	0	-13.9	24.5	0.0
Truck Driver Helper	8	17	0	0	0	0	-100.0	-100.0	0.0
Truck Lift Operator	754	88	0	633	113	0	-16.0	28.4	0.0
Unskilled Laborer	917	549	0	815	498	0	-4.6	-9.3	0.0
Warehouse Stockman	542	24	0	1804	24	0	232.8	0.0	0.0
Woodworkers	1900	51	0	2500	51	0	31.6	0.0	0.0
Yardman	76	0	0	25	0	0	-67.1	0.0	0.0
Total	12,024	1,777	0	13,273	1,684	0	10.4	-5.2	0.0

TABLE 72

EDUCATIONAL LEVELS DESIRED FOR LUMBER AND BUILDING  
MATERIAL OCCUPATIONS IN NEW JERSEY, 1971

Percent of Employers Specifying Each Educational Level *							
Job Titles	No. of Employer Responses	None	On-the Job	Short Courses	High School Vocational	2-Year College	4-Year College
Alum. Siding Instal.	1	100.0	0.0	0.0	0.0	0.0	0.0
Alum. Window/Door Instal.	1	0.0	100.0	0.0	0.0	0.0	0.0
Block Machine Oper.	1	0.0	100.0	0.0	0.0	0.0	0.0
Carpenter	8	0.0	50.0	0.0	62.5	0.0	0.0
Concrete Bat./Blk. Mach.	1	0.0	100.0	0.0	0.0	0.0	0.0
Concrete Bat./Concrete Pl.	1	0.0	100.0	0.0	0.0	0.0	0.0
Drafting Estimator	1	0.0	0.0	0.0	0.0	100.0	0.0
Fence Installer	3	33.3	100.0	0.0	0.0	0.0	0.0
Fence Installer Helper	1	0.0	100.0	0.0	0.0	0.0	0.0
Foreman, Bldg. Materials	20	10.0	70.0	5.0	25.0	0.0	0.0
Foreman, Carpenter	9	33.3	44.4	11.1	22.2	0.0	0.0
Foreman, Ironworker	1	0.0	0.0	100.0	0.0	0.0	0.0
Foreman, Kit. Cabinet	3	33.3	33.3	0.0	66.6	0.0	0.0
Hardware Man	1	0.0	100.0	0.0	100.0	0.0	0.0
Ironworker	1	0.0	0.0	100.0	0.0	0.0	0.0
Kitchen Cab. Instal.	1	0.0	0.0	0.0	100.0	0.0	0.0
Kitchen Cab. Serviceman	1	0.0	0.0	0.0	100.0	0.0	0.0
Lead Man	1	0.0	100.0	0.0	100.0	0.0	0.0
Machine Operator	1	100.0	0.0	0.0	0.0	0.0	0.0
Manager	22	18.1	45.4	4.5	22.7	13.6	13.6
Oil Burner Serviceman	1	0.0	0.0	0.0	100.0	0.0	0.0
Roof Installer	1	100.0	0.0	0.0	0.0	0.0	0.0
Sales Clerk	15	6.6	60.0	0.0	33.3	0.0	0.0

TABLE 72 (continued)

Job Titles	No. of Employers Responses	Percent of Employers Specifying Each Educational Level *					
		None	On-the Job	Short Courses	High School Vocational	2-Year College	4-Year College
Salesman	37	8.1	37.8	2.7	16.2	37.8	8.1
Sanders	1	0.0	100.0	0.0	100.0	0.0	0.0
Service Technician	1	0.0	0.0	0.0	100.0	0.0	0.0
Sheet Rock Finishers	1	0.0	100.0	0.0	0.0	0.0	0.0
Sheet Rock Hangers	2	0.0	100.0	0.0	0.0	0.0	0.0
Sheet Rock Tapers	1	0.0	100.0	0.0	0.0	0.0	0.0
Shopman	1	100.0	0.0	0.0	0.0	0.0	0.0
Spray Man	1	0.0	100.0	0.0	100.0	0.0	0.0
Truck Driver	34	8.8	67.6	5.8	20.5	0.0	0.0
Truck Lift Oper.	22	9.0	81.8	0.0	9.0	0.0	0.0
Unskilled Laborer	19	21.0	84.2	0.0	5.2	0.0	0.0
Warehouse/Stockman	2	0.0	50.0	0.0	100.0	0.0	0.0
Woodworkers	1	0.0	100.0	0.0	0.0	0.0	0.0
Yardman	3	66.6	33.3	0.0	0.0	0.0	0.0

\*May add to more than 100 percent since employees may have indicated more than one level for some jobs.

TABLE 73

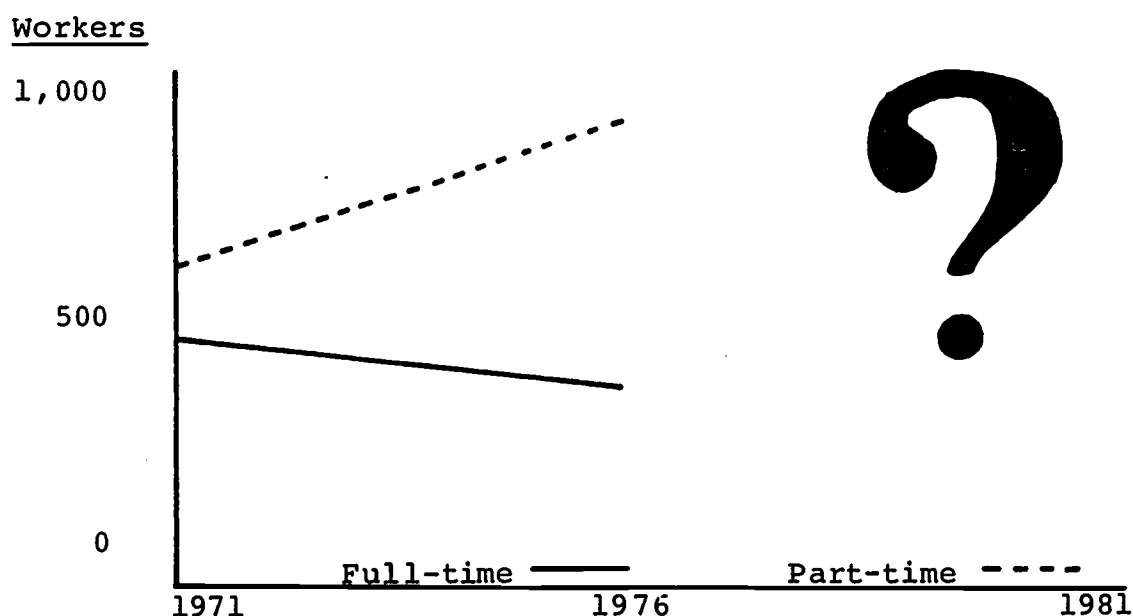
SALARY CHARACTERISTICS FOR LUMBER AND BUILDING  
MATERIAL OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary		
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)	
		Low	High		Low	High
Alum. Siding Instal.	1	150	150	1	300	300
Alum. Window/Door Instal.	1	120	120	1	200	200
Block Machine Oper.	1	120	120	1	140	140
Carpenter	7	92	300	7	125	176
Concrete Bat./Blk.Mach.	1	120	120	1	140	140
Concrete Bat./Concrete Pl.	1	120	120	1	140	140
Fence Installer	3	110	150	3	180	188
Fence Installer Helper	1	80	80	1	110	110
Foreman, Bldg. Materials	16	120	200	17	125	191
Foreman, Carpenter	8	120	240	8	160	209
Foreman, Kitchen Cabinet	2	100	200	2	200	250
Kitchen Cab. Instal.	1	160	160	1	200	200
Kitchen Cab. Serviceman	1	160	160	1	200	200
Machine Operator	1	120	120	1	135	135
Manager	19	130	300	22	140	239
Oil Burner Serviceman	1	225	225	1	250	250
Plumbers	1	120	120	1	160	160
Roof Installer	1	125	125	1	250	250
Sales Clerk	14	97	195	12	125	159
Salesman	31	100	300	31	135	233
Sheet Rock Finisher	1	200	200	1	375	375
Sheet Rock Hanger	2	120	150	2	170	235
Sheet Rock Tapers	1	175	175	1	325	325
Shopman	1	100	100	1	150	150
Truck Driver	33	90	459	32	100	156
Truck Driver Helper	1	100	100	1	150	150

TABLE 73 (continued)

Job Titles	Beginning Salary				Potential Maximum Salary			
	No. of Employer Responses		Weekly (dollars)		No. of Employer Responses		Weekly (dollars)	
	Low	High	Low	High	Low	High	Low	High
Truck Lift Oper.	18	100	175	123	20	110	200	149
Unskilled Laborer	14	80	120	100	15	100	165	123
Warehouse Stockman	1	120	120	120	1	143	143	143
Woodworkers	1	100	100	100	1	160	160	160
Yardman	3	95	115	103	2	105	120	112

## X. FISHERY INDUSTRY



Fishery businessmen projected a 36.4% decrease in full-time positions and a 56.0% increase in seasonal or part-time positions during the five-year period reported in Table 74. They indicated a reduction in the number of full-time positions from 467 in 1971 to 297 in 1976. The estimation for seasonal or part-time workers was 900 in 1976 compared with 577 in 1971. It was difficult to obtain projections in this area because of the many fluctuations that influence this industry. Several good years of fishing may increase the size of the industry very rapidly, but several poor years may influence people to seek other types of work.

Table 75 provides some indications of the educational levels desired by employers. Most of the positions involved on-the-job



training, but some of the job titles did indicate need for short-courses or high school vocational programs.

Table 76 provides some information on the 1971 salary characteristics for selected job titles. It should also be noted that the financial rewards of this industry vary widely with dependence on successful fishing.

Employers provided some perspective into seasonal or part-time employment in respect to several questions. The off-season activities of seasonal or part-time workers included school, other jobs, and unemployment.

The employers' views of the future manpower situation in New Jersey included lack of trained manpower and a concern over liberal welfare regulations. Several did not comment, and some considered the future outlook as poor.

TABLE 74  
ESTIMATED EMPLOYMENT IN THE FISHERY INDUSTRY  
IN NEW JERSEY FOR 1971 AND 1976

Job Titles	1971 Jobs			1976 Jobs			% Increase or Decrease		
	No. of Full Time	No. of Part Time	No. of Time	No. of Full Time	No. of Part Time	No. of Time	Full Time	Part Time	Time
Captain, Fishing Vessel	11	38	23	72	109.1	89.5			
Cook, Fishing Vessel	0	30	0	49	0.0	63.3			
Deckhand	21	90	7	62	- 66.7	- 31.1			
Engineer, Marine Diesel	0	84	0	92	0.0	9.5			
Fisherman	8	164	23	475	187.5	189.6			
Hatchery Foreman	7	21	10	34	42.9	61.9			
Hatchery Worker	14	0	21	0	50.0	0.0			
Mate	0	15	0	46	0.0	206.7			
Pilot	0	15	0	46	0.0	206.7			
Salesman	7	0	10	0	42.9	0.0			
Unskilled Laborer	399	120	203	24	49.1	80.0			
Total	467	577	297	900	- 36.4	56.0			

TABLE 75

EDUCATIONAL LEVELS DESIRED FOR FISHERY  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	No. of Employer Responses	Percent of Employers Specifying Each Educational Level *						
		None	On-the- Job	Short Courses	High School Vocational	2-Year College	4-Year College	
Capt. Fishing Vessel	5	20.0	60.0	0.0	20.0	0.0	0.0	
Cook, Fishing Vessel	3	33.3	33.3	33.3	0.0	0.0	0.0	
Deckhand	5	20.0	80.0	0.0	0.0	0.0	0.0	
Engineer, Marine Diesel	1	0.0	0.0	0.0	100.0	0.0	0.0	
Fisherman	2	0.0	100.0	0.0	0.0	0.0	0.0	
Hatchery Foreman	1	0.0	100.0	0.0	0.0	0.0	0.0	
Hatchery Worker	1	0.0	100.0	0.0	0.0	0.0	0.0	
Mate	1	0.0	0.0	0.0	100.0	0.0	0.0	
Pilot	1	0.0	0.0	0.0	100.0	0.0	0.0	
Salesman	1	0.0	100.0	0.0	0.0	0.0	0.0	
Unskilled Laborer	5	40.0	60.0	0.0	0.0	0.0	0.0	

\* May add to more than 100 percent since employees may have indicated more than one level for some jobs.

TABLE 76  
SALARY CHARACTERISTICS FOR FISHERY  
OCCUPATIONS IN NEW JERSEY, 1971

Job Titles	Beginning Salary			Potential Maximum Salary				
	No. of Employer Responses	Weekly (dollars)		No. of Employer Responses	Weekly (dollars)			
		Low	High Mean		Low	High Mean		
Capt. Fishing Vessel	2	220	250	235	2	220	250	235
Cook, Fishing Vessel	1	135	135	135	2	135	350	242
Deckhand	3	100	230	176	3	100	230	176
Engineer, Marine Diesel Fisherman	1	150	150	150	1	500	500	500
Hatchery Foreman	1	100	100	100	1	350	350	350
Hatchery Worker	1	150	150	150	1	200	200	200
Mate	1	100	100	100	1	150	150	150
Pilot	1	150	150	150	1	500	500	500
Salesman	4	50	110	82	1	500	500	500
Unskilled Laborer	4	50	110	82	1	200	200	200
					4	110	200	146

## XI. SUMMARY AND CONCLUSIONS

Effective occupational preparation requires a coherent relationship between the education of people and the labor market in which they will work. Educational programs in natural resources and/or agriculture should be responsive to the changing needs in New Jersey. Changing employment patterns and related occupational information are needed for planning, administering, and evaluating educational programs if they are to be successful.

### The Problem

The major purposes of the study were to determine the present and projected employment opportunities for jobs in natural resources and/or agriculture in respect to: (1) full-time and seasonal or part-time employment; (2) educational levels desired by employers for specific jobs; (3) salary characteristics; and (4) descriptive labor market information.

### Procedure

Business categories related to natural resources and/or agriculture in New Jersey were identified by the advisory committee. A list of employers with an annual payroll of \$1,000 or more was prepared for all business categories with the exception of nurseries, nursery dealers, commercial farmers, and governmental employing units. The 1970 List of New Jersey Certified Nurserymen and Dealers was used for nurseries and nursery dealers. The Farm Bureau mailing list, except for

nurserymen, was used for commercial farmers. A complete list of governmental employing units was available.

The mailing lists were sampled within each business category to insure representation for the three geographical areas of the State and three size-of-business categories.

A basic questionnaire format was developed that included: (1) the letter of introduction, (2) instructions, (3) basic format for manpower needs data, and (4) descriptive information. Fifteen lists of job titles were developed for soliciting the manpower needs data from the various business categories. Some lists of job titles were used for several business categories when similar job titles were involved.

Data were analyzed for each job title to determine: (1) full-time and seasonal or part-time employment opportunities for 1971 and 1976; (2) levels of education desired by employers; (3) salary characteristics; and (4) descriptive information on the manpower situation in New Jersey.

#### Summary

Changing employment patterns were projected for occupations in natural resources and/or agriculture during the five-year period from 1971 to 1976. The most noticeable changes included greater opportunities for full-time jobs and fewer opportunities for seasonal or part-time jobs. Data in Table 77 indicate a 30.7% increase in full-time positions from 65,757 in 1971 to 85,930 in 1976. Seasonal or part-time positions show a 17.2%

TABLE 77

## ESTIMATED EMPLOYMENT IN NATURAL RESOURCES AND/OR AGRICULTURAL BUSINESSES AND SERVICES IN NEW JERSEY FOR 1971 AND 1976

Business Areas	1971 Jobs		1976 Jobs		% Increase or Decrease	
	No. of No. of		No. of No. of		Full Time	Part Time
	Full Time	Part Time	Full Time	Part Time		
Horticultural Businesses & Services	11,929	14,614	15,314	15,116	28.4	3.4
Natural Resource Bus. & Govern. Services	2,387	2,298	3,086	2,659	29.3	15.7
Farm Production & Related Services	6,221	23,679	7,161	11,441	15.1	- 51.7
Animal Services	3,233	1,087	3,774	808	16.7	- 25.7
Food Processing Industry	8,734	216	10,852	261	24.3	20.8
Food Distribution Industry	20,762	11,300	32,173	13,105	55.0	15.9
Lumber and Building Material Services	12,024	1,777	13,273	1,684	10.4	- 5.2
Fishery Industry	467	577	297	900	- 36.4	56.0
Total	65,757	55,548	85,930	45,974	30.7	- 17.2

decrease from 55,548 in 1971 to 45,974 in 1976. Considering a 2% annual replacement rate due to retirement and other factors, 27,051 people will have to be recruited and trained for the 19,627 new positions and the 7,424 replacement positions for the full-time work force. The seasonal or part-time situation is different. When the replacement number of 5,036 is considered, there will still be a surplus of 4,434 workers.

Presently, approximately 250 college graduates and 500 high school vocational agriculture graduates are prepared for entry into these occupations each year. This preparation is supplemented by on-the-job training, young and adult evening vocational classes, and short courses for people who are presently involved in these occupations. Moderate expansion is presently planned at the high school, 2-year collegiate, and 4-year collegiate levels.

A general review of the data on educational levels desired by employers indicates that: (1) most of the expansion is in job titles where training is desired; (2) many of the job titles with large decreases in numbers require very little training; and (3) many of the seasonal or part-time employees are in jobs that require very little training.

The seasonal or part-time work force is very complex. It includes migrants who may work at similar jobs in other geographic areas during other seasons of the year. It may be the only employment desired by many housewives, students, and retirees.



It may also supplement another local seasonal or full-time job in other industries in some situations.

### Conclusions

The following conclusions were drawn from the analyzed data:

1. Employers predict an increased need for full-time workers and a surplus of seasonal or part-time workers.
2. There is a need for more training than is presently provided by public educational institutions.
3. The major gap in occupational preparation is at the 2-year collegiate or technical level.
4. Salary characteristics vary. They appear to be a reward for educational preparation, but in some situations, salary may be a reward for initiative, i.e. salesman. Often, it is a reward for a high degree of specialization. The highest salaries are in professional, sales, and managerial areas.
5. Employers are concerned that liberal welfare and unemployment compensation regulations tend to discourage a willingness to work.
6. Current assessments of changing occupational patterns will be needed at approximately five-year intervals to provide base line data for re-evaluating and revising educational programs that prepare people for occupations in natural resources and/or agriculture.

It is recommended that a feasibility grant be generated to study alternatives and recommend a state plan for offering technical education in natural resources and/or agriculture in New Jersey.

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APPENDICES

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NEW JERSEY MANPOWER NEEDS SURVEY  
of  
NATURAL RESOURCES AND AGRICULTURE

1. Please write the job title of the individual completing the survey (owner, manager, personnel director, etc.) \_\_\_\_\_
2. List the New Jersey (county) in which your business is located (location of employees). \_\_\_\_\_
3. Briefly describe your type of business (i.e. florist, fruit and vegetable processing, farm and garden supply stores, etc.) \_\_\_\_\_

Section A:

The list of job titles should describe most of the jobs that require knowledge and skills in natural resources and agriculture. Use the job titles that most clearly define the duties. If you cannot find some of the job titles that fit your business, please list them under "other job titles" in the blank spaces at the end of the list. Do not include secretaries, bookkeepers, or others who do not require training in natural resources and agriculture.

Section B:

Please list the correct number of part-time or seasonal and full-time positions (employees and/or owners) for 1971 and estimates for 1976 who are employed in New Jersey. A part-time or seasonal employee is one who works less than the equivalent of 150 full-time days per year. Count a position only once if you have had a turnover of several people in the position during the year.

Section C:

Please check only one of the six columns that best describes the type of training you desire for each of the job titles.

Section D:

Please use 1971 figures to show both the beginning and potential maximum salary on a weekly basis.

NEW JERSEY MANPOWER NEEDS  
IN AREAS RELATED TO  
NATURAL RESOURCES AND AGRICULTURE

A STATE-SPONSORED STUDY

10 Seminary Place  
Rutgers University  
New Brunswick, N. J. 08903

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Vocational Ed.

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New Jersey Dept. of  
Labor and Industry

DIRECTOR

Dr. Philip L. Edgecomb  
(201) 247-1766 Ext. 6937

Dear Sir:

*Do you have problems hiring trained manpower? We may be able to help. The allocation of funds for short-term and long-term training programs (out-of-school, high school, and college) depends on accurate manpower needs information. You can help insure that your type of business is well represented in the priorities for New Jersey educational programs by completing the enclosed confidential survey. The success of the project depends on people like you because your estimate of future manpower needs is our best source of information.*

*All replies are confidential. The information will be summarized so that your firm cannot be identified in the final report.*

*We are eager to get the results to you as quickly as possible. Summaries of the various business areas will be published in the respective trade journals. On the survey form, please list any trade journals that should receive a copy of the report.*

*Please complete the survey and return it to us in the enclosed postpaid envelope. It will help speed up our reports to the trade journals if it can be completed this week.*

Sincerely yours,

*Philip L. Edgecomb*

Philip L. Edgecomb  
Project Director



ARBORICULTURE AND HORTICULTURE

Section A Job Titles	Section B Number of Jobs	Section C Training Required (check one)				Section D Salary Information				
	Actual Number of Jobs-1971	Estimated Number of Jobs-1976	Home	On-the-job	Short courses	2 year college	4 year college	Beginning Salary (1971)	Weekly	Potential Maximum Weekly Salary (1971)
<i>Example: Salesman</i>		0	2	1	3					\$110 1150
51 Agric. Equip. Operator										
52 Floral Designer										
53 Greenskeeper										
54 Groundskeeper										
55 Landscape Architect										
56 Landscape Gardener										
57 Manager or Supt.										
58 Mechanic and/or helper										
59 Nursery Worker										
60 Salesman										
61 Sales Clerk										
62 Tree Pruner										
63 Tree Surgeon										
64 Tree Surgeon helper										
65 Truck Driver										
66 Unskilled Laborer										
Other Job Titles (Specify)										
Total number of jobs in your										
business requiring competencies										
in natural resources and agriculture.										

Are any of the seasonal employees listed above primarily migrants?

Of the number of employees listed above, how many do you house on a seasonal basis?



APPENDIX B

POPULATION, SAMPLE, AND SAMPLE RETURNS FOR  
SELECTED BUSINESS CATEGORIES

Business Categories	Population	Sample	Sample Returns	Family Businesses in Sample	Non-Family Businesses in Sample
<b>I. HORTICULTURAL BUSINESSES AND SERVICES</b>					
1. Nurseries	1001	322	86	16	70
2. Nursery Dealers	271	134	27	7	20
3. Horticultural Services	1075	329	113	7	106
4. Golf Courses	184	145	24	0	24
5. Florists	452	201	46	0	46
6. Farm & Garden Supply	179	130	29	1	28
<b>II. NATURAL RESOURCE BUSINESSES AND GOVERNMENTAL SERVICES</b>					
1. Sporting & Recreational	76	74	16	0	16
2. Water Supply & Sewage	70	63	13	0	13
3. Municipal & County Govt.	586	586	206	0	206
4. State & Federal Govt.	6	6	6	0	6
<b>III. FARM PRODUCTION &amp; RELATED SERVICES</b>					
1. Commercial Farming	3727	534	86	26	60
2. Agricultural Machinery	116	99	24	1	23

APPENDIX B (continued)

Business Categories	Population	Sample	Sample Returns	Family Businesses in Sample	Non-Family Businesses in Sample
<b>IV. ANIMAL SERVICES</b>					
1. Animal Health & Care	347	199	63	0	63
2. Pharmaceutical Research	90	81	11	0	11
3. Race Tracks & Stables	43	38	9	0	9
<b>V. FOOD PROCESSING INDUSTRY</b>					
1. Meat Products	98	88	8	0	8
2. Dairy Products	112	99	19	2	17
3. Canned Fruits & Vegetables	30	30	8	0	8
4. Grain Mill Products & Ser.	43	43	6	0	6
<b>VI. FOOD DISTRIBUTION INDUSTRY</b>					
1. Wholesale Food	1208	447	62	7	55
2. Retail Food	2514	543	71	15	56
<b>VII. LUMBER &amp; BUILDING MATERIAL SERVICES</b>					
	1102	393	57	2	55
<b>VIII. FISHERY INDUSTRY</b>					
	58	51	13	0	13
<b>TOTAL</b>	<b>13,418</b>	<b>4,635</b>	<b>1,003</b>	<b>84</b>	<b>919</b>

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APPENDIX C

COEFFICIENTS OF VARIATION FOR ESTIMATED EMPLOYMENT OPPORTUNITIES IN SELECTED BUSINESS CATEGORIES

Business Categories	Coefficients of Variation (Percentages)			
	1971		1976	
	Full Time	Part Time	Full Time	Part Time
<b>I. HORTICULTURAL BUSINESS &amp; SERVICES</b>				
1. Nurseries	202	244	192	234
2. Nursery Dealers	112	97	119	110
3. Horticultural Services	383	220	348	218
4. Golf Courses	46	72	70	118
5. Florists	75	109	101	122
<b>II. NATURAL RESOURCE BUSINESSES AND GOVERNMENTAL SERVICES</b>				
1. Sporting & Recreational	260	78	217	107
2. Water Supply & Sewage	192	181	156	227
3. Municipal & County Govt.	178	151	263	191
4. State & Federal Govt.	0	0	0	0
<b>III. FARM PRODUCTION &amp; RELATED SERVICES</b>				
1. Commercial Farming	390	175	223	140
2. Agricultural Machinery	155	130	164	157

APPENDIX C (continued)

Business Categories	Coefficients of Variation (Percentages)			
	1971		1976	
	Full Time	Part Time	Full Time	Part Time
<b>IV. ANIMAL SERVICES</b>				
1. Animal Health & Care	112	149	116	163
2. Pharmaceutical Research	85	0	85	0
3. Race Tracks & Stables	98	241	149	346
<b>V. FOOD PROCESSING INDUSTRY</b>				
1. Meat Products	121	150	110	214
2. Dairy Products	187	211	234	262
3. Canned Fruits & Vegetables	137	263	119	263
4. Grain Mill Products & Services	77	115	77	291
<b>VI. FOOD DISTRIBUTION INDUSTRY</b>				
1. Wholesale Food	147	574	159	615
2. Retail Food	319	350	383	418
<b>VII. LUMBER &amp; BUILDING MATERIAL SERV.</b>				
	144	165	191	189
<b>VIII. FISHING INDUSTRY</b>				
	232	134	249	219