

EMPLOYERS' PERCEPTIONS OF MENTALLY HANDICAPPED EMPLOYEES
IN THE HORTICULTURE INDUSTRY

by

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Thesis submitted to the Faculty of the
Virginia Polytechnic Institute and State University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

in

Horticulture

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July, 1985

Blacksburg, Virginia

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(ABSTRACT)

The horticulture industry offers numerous unskilled and semi-skilled job opportunities for qualified handicapped individuals. A mail survey of 557 private Virginia ornamental horticultural businesses was conducted to document the employment of handicapped persons and to investigate employers' perceptions of mentally handicapped workers. A response rate of 60% was obtained. Forty-two percent of the respondents reported employing mentally, physically or emotionally handicapped persons. Primary businesses which have employed mentally handicapped workers were associated with grounds maintenance, nursery/garden centers, and golf courses. Overall the employers' perceptions were favorable of the general work habits and entry-level horticultural skill competencies of mentally handicapped persons. This indicated a potential for employment opportunities for these individuals. However, employers expressed concern over safety issues related to the use of power equipment and application of fertilizers and pesticides.

Dedication

This thesis is dedicated to my wonderful grandmother
and my talented uncle who
have both taught me much about the spirit of Life.

Acknowledgements

Thanks go first to my advisor, Dr. Diane Relf, for her careful evaluation and constructive criticism of this manuscript. She has devoted many of her evenings and weekends to this project and I have greatly enjoyed working with her. I also thank my committee members, Drs. Jerry Williams and Cherry Houck for their advise and support during the completion of this study.

I extend my gratitude to _____ for his technical assistance in compiling the statistical data and for his availability at a moments notice. Words of thanks go to all the ornamental horticultural employers who participated in this study which enabled its success. I am also indebted to all the horticultural graduate students for their friendship and humor in times of greatest need.

Words of appreciation and love go to my mother and father, _____ and _____ and to my entire family for their continual support and unfailing words of encouragement. Lastly, I thank the Lord Jesus Christ for His guidance and teachings throughout my life.

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INTRODUCTION

Today private and public rehabilitation facilities are using horticulture as a significant therapeutic and vocational training modality for individuals with various handicaps including those with a mentally handicapping condition. National efforts for the training and job placement of mentally handicapped individuals in the horticulture industry are relatively new. Although there has been much interest in these activities, there is a lack of documentation concerning the employment of mentally handicapped persons in private horticulture businesses.

Currently, the National Council of Therapy and Rehabilitation through Horticulture (NCTRH) is responsible for the operation of three federally supported horticulture industry Projects With Industry programs (PWI). These projects share the common goals of increasing the involvement of horticulture employers in the training and employment of handicapped individuals and in expanding employment opportunities for these individuals within the horticulture industry. A specific objective of these programs is to provide labor market information for future job training and placement strategies.

This study was designed to provide information needed by the horticulture industry. Specifically, it sought to determine whether mentally handicapped persons were perceived by employers as offering potential for safe, dependable and capable workers. Emphasis was placed on assessing how employers evaluated mentally handicapped individuals regarding their general work habits and specific horticultural job skill competencies and how many businesses have utilized this labor source.

Business characteristics including the segment of industry, sales or service orientation, number of employees, number of years established, annual income, and previous hiring of handicapped workers were also used to determine the relationship of these variables with the employer's perception of mentally handicapped individuals as an employee or potential employee. The results provide information which can be used by NCTRH and rehabilitation job placement specialists to improve vocational training, job development and placement of mentally handicapped individuals in the horticulture industry.

The Need for the Study

The problem addressed by this study was whether mentally handicapped individuals were perceived by employers and potential employers as capable employees for various segments of the ornamental horticulture industry. While studies have documented many important issues regarding the employment of handicapped persons, no study has examined the extent of their participation in horticultural businesses or how horticulture employers view them as employees.

Two significant issues contribute to understanding the need to address this problem. First, a major portion of handicapped Americans are unemployed and mentally handicapped individuals constitute approximately one-fourth of the handicapped population (10, 95). Thus, mentally handicapped persons are in need of employment opportunities. Legislation has been developed to facilitate the collaboration of private business and rehabilitation agencies. The Rehabilitation Act of 1973 (as amended) states as part of its purpose:

" ...to promote and expand employment opportunities in the public and private sectors for handicapped individuals and to place such individuals in employment."

Bringing the employer into the rehabilitation picture as a partner is a fundamental principle of the PWI concept. A significant factor in the employment of mentally handicapped persons is the employer's perception of, or attitude toward, the individual and how the individual is perceived as contributing to the employer's business (70, 90).

It has been shown that misconceptions and negative perceptions of handicapped individuals exist in other industries and may result in reduced employment opportunities (65).

Secondly, as a labor intensive market, the horticulture industry has a need for unskilled and semi-skilled laborers in crop production and horticultural services which include interior plantscaping, landscaping, and turf, tree and grounds maintenance. Employers in the horticulture industry represent a vital and essential role in guiding and directing the NCTRH-PWI programs and activities. In addition, the NCTRH has pointed out that:

- the horticulture industry has a sustained need for trained and productive workers;
- many handicapped persons can help meet the manpower needs of the industry;
- training and job development and placement for handicapped workers can be improved and enhanced through horticulture industry assistance and guidance (59).

Furthermore, it has been recognized that jobs in the horticulture industry have not as yet been adequately explored for handicapped individuals (59). Representatives and employers in the horticultural industry can contribute to the goals of the NCTRH-PWI projects by participating in efforts to determine hiring practices, labor force participation, specific job activities and employer attitudes towards employment of handicapped persons, (59).

This study was designed to indicate the employers' understanding of a mentally handicapped person as an employee; to what extent mentally handicapped persons are currently employed in various segments of the horticulture industry; and, what future potential there is for employing handicapped workers in the industry. If employers indicate substantially inaccurate perceptions of the work habits and abilities of mentally handicapped persons successful efforts at competitive job placements in this industry will be hindered due to poor acceptance or unrealistic expectations by employers. This study can also be helpful to the efforts of NCTRH by identifying the educational needs of the employers in the horticulture industry.

Purpose of the Study

The major purpose of this study was to determine the perceptions employers in the horticulture industry have of mentally handicapped individuals as employees and to document the employment of mentally handicapped workers in private horticultural businesses in Virginia.

Objectives of the Study

The research objectives for this study included determining employers' perceptions of the work habits of mentally handicapped individuals and relating these perceptions to previous research; determining employers' perceptions of the horticultural skill competencies of mentally handicapped individuals and relating these perceptions to various business characteristics; and, examining the extent of employment of handicapped individuals in private horticultural businesses and relating the various business characteristics to the businesses' hiring experience of handicapped workers. The seven specific objectives which were developed for this study are:

- to determine what the horticultural employers' perceptions were of the general work habits of mentally handicapped individuals as employees. The work habits examined were: worker motivation and compatibility with supervisors and co-workers, insurance and safety, attendance and punctuality, and job performance.

- to determine if a relationship can be seen between horticultural employer perceptions of mentally handicapped employees and findings of previous work habit studies on mentally handicapped employees.

- to determine what employers' perceptions were of the horticultural skill competencies of mentally handicapped employees. The horticultural skills examined were: minimum skill activities such as, the use of simple hand tools and routine plant care; skill and judgement activities such as, the use of non-power cutting tools and planting and transplanting stock; and, complex and hazardous skills which involve safety factors such as the use of power equipment, fertilizer and pesticides.

- to determine if a relationship exists between the various characteristics of the business and the employers' perceptions of the general work habits and horticultural skills of mentally handicapped employees. The business characteristics were: type of business, size of business, number of years established, and annual income.

- to determine the extent of employment of mentally handicapped individuals and other handicapped individuals in private Virginia horticultural businesses which responded to the survey. This included the percent of respondents who were currently or had previously employed a mentally handicapped worker and the percent of respondents who have employed individuals with a physical, visual, hearing, or emotional handicap.

- to determine if a relationship exists between the employers' perceptions of the work habits and horticultural skill competencies of mentally handicapped individuals and hiring experience of mentally handicapped employees in the business.

- to determine if a relationship exists between the various business characteristics and the employer's hiring experience of individuals with a mental, physical, visual, hearing, or emotional handicap.

LITERATURE REVIEW

The review of literature consists of seven areas which discuss the rehabilitation and employment of handicapped individuals, the horticulture industry, horticulture in rehabilitation, the benefits of horticulture in rehabilitation, the horticulture industry and mentally handicapped individuals, barriers to employment, and factors related to perceptions.

Rehabilitation and Employment of Handicapped Individuals

Historically, individuals with handicapping conditions have higher levels of unemployment than any other segment of the United States population, including Blacks and teenagers (10, 17). Each year approximately 625,000 handicapped young people graduate or terminate eligibility in our nation's schools (58). The President's Committee on the Employment of the Handicapped (PCEH) predicted that of these handicapped individuals:

- . 21% will be fully employed or enrolled in college,
- . 40% will be underemployed and at the poverty level,
- . 8% will be in their home community and idle much of the time,
- . 26% will be unemployed and on welfare, and
- . 3% will be totally dependent and institutionalized. (68).

The PCEH has stressed the need for local, state and national strategies for improving education, training, and employment opportunities available to handicapped youth (68, 72).

The first step in understanding the rehabilitation of handicapped

individuals is to understand some of the terminology used. In Section 504 of the Rehabilitation Act of 1973 a "handicapped" person is described as anyone who: 1) has a physical or mental impairment which substantially limits one or more of his or her major life activities including communication, socialization, education, vocational training, transportation, housing and employment; 2) has a record of such an impairment; and 3) is regarded as having such an impairment (89). Mental retardation is considered as such an impairment, other acceptable identifying terms for "mentally retarded" are "slow learning", "developmentally disabled" or "mentally handicapped" (89). For purposes of this thesis the terms mentally retarded and mentally handicapped will be used synonymously.

The American Association on Mental Deficiency (AAMD) defines mental retardation as "significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior, and manifested during the developmental period" (35). Compilations of various research reveal the following facts:

- the prevalence of mental retardation in the general population is 3 percent (35),
- based on this conservative estimate over six million persons in the United States are mentally retarded and approximately two million are 21 years of age or older (44),
- about one quarter of all handicapped school age children under 21 years of age are considered to be mentally retarded (95), and,
- in Virginia it is estimated that 150,000 persons are mildly, moderately, or severe and profoundly mentally handicapped.

Most of the handicapped individuals who are employed are underem-
ployed and are working only part time for minimum wage or less at unskilled
jobs with little opportunity for advancement (10, 90). Frank Bowe
(10), described a 1970 Urban Institute study which found that 51.6%
of handicapped Americans who were considered successfully rehabilitated
by the Vocational Rehabilitation Administration were employed in the
lowest ranking four occupations in terms of pay and, 18.1% were listed
as homemakers, unpaid household workers, and sheltered workshop employees.
Two-thirds of all adults with handicaps have income levels at or near
the poverty level (10, 86, 95). Approximately 85% of persons with
handicaps had incomes less than \$7000 and 52% of these made less than
\$2000 a year (86). Wolfe (97) described the situation as a picture
of a group far worse off than the nonhandicapped. Millions of state
and federal taxpayer dollars are spent annually on economic support
and rehabilitation service to handicapped individuals (84). Unemployed
disabled persons pose a significant tax burden and represent a substantial
reduction in our nation's manpower and work force. The philosophy
behind many rehabilitation programs today includes vocational training
coupled with career planning, work-study experiences, job try-outs,
on-the-job training in local business and industry, and an increase
in job placements in to the competitive labor market in order to further
the economic and social self sufficiency of handicapped individuals
(10, 64, 83, 90).

According to Vandergoot, et al (90):

"The rehabilitation process cannot be expected to continue
over a person's work life. However, it should contribute

to the quality of a career by enriching a person's productivity to a point where the worker can realize a suitable return from participating in the labor force. The rehabilitation counselor should attempt to work with a client to find a suitable placement in the primary labor market that affords a good opportunity for adequate monetary and nonmonetary income (p.35). "

The staff of the magazine, Disabled USA (30) asked national leaders in the federal government, "What is the one new program or activity you would like to see come into existence in the eighties to improve life for handicapped people?" Their responses identified the following as major needs: employment opportunities, training for independent living, change in attitudes, and elimination of information gaps. In the last twelve years important legislative advances have been made which include educational, training and employment opportunities for handicapped citizens. Some of the legislative Acts include:

- The Rehabilitation Act, 1973;
- The Education of All Handicapped Children Act of 1975;
- The Vocational Education Act, 1976;
- Comprehensive Employment and Training Act, 1978;
- Targeted Tax Credit Act, 1978; and,
- The Jobs Partnership Training Act, 1983.

Brolin (13) discussed the concept that appropriate training techniques and the discovery of occupations that handicapped persons can perform are the keys to their being able to compete effectively in the labor market. He pointed out that there are thousands of potentially appropriate

jobs in state and federal governments and that 75-85% of the mentally handicapped population could achieve a competitive level of vocational success if better training and placement techniques were available.

In view of the startling low employment rates of handicapped Americans the federal government has initiated several manpower campaigns to promote the hiring of handicapped individuals within the private sector. These programs emphasize job development, training and placement in the competitive labor market and offer monetary incentives to participating businesses (85). Legislation allowing tax credits to employers are based on the principle that "hiring disabled workers makes good business sense" (11, 44).

The United States Department of Labor and the National Association of Retarded Citizens (NARC) have cooperatively developed an on-the-job training project to enhance employment of mentally handicapped individuals (57, 67). Study after study has demonstrated the ability of mildly to severely mentally handicapped persons to acquire and perform a wide variety of vocational skills in both sheltered and nonsheltered employment (12, 16, 25, 34, 43, 40, 47, 48, 96). According to the NARC and three nation wide surveys conducted by the American Institute of Research in 1960, 1970 and 1977, mentally handicapped persons have occupied job positions ranging from animal caretakers, bakery workers, barbers, cemetery workers, cosmeticians, dressmakers, to nurse's aides, hotel-/motel cleaners, window washers and many more (43). In addition, studies show them to be steady and reliable workers (31, 40, 44, 48, 71, 72, 96).

Brolin (13) reported a study that demonstrated that 82% of vocational

rehabilitation clients can be placed successfully if careful procedures are instituted with the assistance of business and industry. One very successful employment program is Projects With Industry (PWI), which is funded by the Rehabilitation Services Administration (RSA) (85). In this program, business and industry serve in a leadership and advisory role in the rehabilitation and employment of handicapped persons. Thus, the free enterprise system and the rehabilitation community jointly facilitate job development and employment of handicapped persons in private business and industry (85). Reimbursement of a percentage of the handicapped workers' wages for up to a period of two years by state and federal vocational rehabilitation agencies is a prime hiring incentive of the PWI project. These programs benefit the handicapped citizen, the employer, state and federal governments, and the rehabilitation facility (95). Firms which have participated in the above projects include: Sears Roebuck & Co., IBM Corp., MacDonalds, AT & T, DuPont, NASA, Mutual of Omaha, Walt Disney, Bulova, Hughes Aircraft, Gruman Aerospace and Hyatt Hotels (12, 16, 64, 67, 71). In 1982, the NCTRH was granted funding for establishing a PWI program with the horticulture industry (59).

The Horticulture Industry

The horticulture industry is a major and expanding component of agri-business. Being a labor intensive industry, many unskilled and semi-skilled employment opportunities exist in nurseries, garden centers, greenhouses, landscaping installation and maintenance businesses, lawn and turf management businesses, arboreta, botanic gardens, plant production

and marketing facilities (50).

Jobs in the industry are related to product and service oriented businesses; they are diverse and widespread throughout the United States. The commercial aspects of the horticultural industry can be divided in to two major categories:

Horticultural Products including nursery and greenhouse crops, potted plants, cut flowers, fruit and vegetable crops, lawn and garden supplies (tools, fertilizer, etc.), sod, seed, plant supplies (pots, soil, etc.), flowers, and floral supplies, and other processed horticultural materials; and,

Horticultural Services such as landscaping, lawn and garden services, ornamental shrub and tree maintenance, grounds management, and other services related to the planning, planting and care of ornamental plants in shopping malls and large business complexes.

Over the past decade horticultural services have been one of the fastest growing segments of agricultural business in terms of new establishments, gross receipts, and payroll and number of employees. Current data on the horticulture industry indicates that jobs in this sector of the economy are plentiful and that job growth in the coming decade will be substantial (88). According to U. S. Census data,

- o 214,000 establishments provide horticultural products and services;
- o 530,000 workers are presently employed by these firms; and,
- o \$ 2.6 billion was paid in payroll by horticulture and related industry (88).

During the period from 1970 to 1980 employment in the industry

showed a 40% increase (88). For the 1980's the U. S. Department of Labor (88) projects that employment will grow by more than 102,000 workers (20%) to a total 630,000 employees. The industry will need to retain and employ new workers in many areas; especially in landscape and horticultural service firms (59, 76, 88, 91). Projections for labor needs to harvest the 1990 fruit and vegetable crops indicate an upward trend in required labor work hours (46). In the Appalachian region of the United States the demand for non-mechanized harvest laborer hours exceeds that of mechanized harvest laborer hours and is projected to climb from 17,720,000 hours in 1978-80 to 22,464,000 labor hours by 1990 (46).

Commercial aspects of Virginia's horticultural industry contributes an estimated 160 million dollars annually to Virginia's economy with tree fruits and vegetables constituting the largest portion (2, 92). In Virginia, the ornamental horticulture industry contributes approximately 75 million dollars of income to the State's economy on an annual basis (2, 92). These figures could easily be tripled in their economic impact if retail sales and maintenance values were incorporated. The turf industry alone contributes an additional 444 million dollars annually to Virginia's economy (93).

The ornamental horticulture industry is one of the fastest growing phases of agriculture in Virginia and throughout the nation. The urbanization of agriculture land and the expanding economy have created a new demand for horticulture products (76, 91). Similarly, a demand for horticultural services arises from the increasing development of townhouse and condominium complexes (76). At the 77th Annual American

Society for Horticultural Science Symposium both the landscape maintenance and nursery industry representatives cited high employee turnover as a major problem and stated a future need for workers who are prepared for hard, routine and often dirty work at modest wages (76). The continual growth of Virginia's ornamental horticulture industry has resulted in an increased demand for qualified and dedicated seasonal and non-seasonal employees. While horticulture has contributed to our nation's economy it also has contributed to the rehabilitation of our nation's citizens.

Horticulture in Rehabilitation

The horticulture environment provides therapeutic, rehabilitative and employment potential for many handicapped persons and special populations (21, 38, 73). These include psychiatric patients, criminal offenders, and mentally, physically or sensory impaired individuals (4, 15, 21, 24, 26, 33). Historically, the use of horticulture as a rehabilitative tool can be traced to ancient Egyptian times when physicians prescribed walks in the gardens for patients (52). In 1798, Dr. Benjamin Rush, psychiatrist and signer of the Declaration of Independence, noted that digging in the soil had a curative effect on mentally ill patients (94). Patients who were required to pay for their care by working in the institution's gardens, dairies or fields appeared to improve faster than those who did not need to pay for their treatment (15, 94).

Campbell (14) described the community enthusiasm and participation in a New York inner city greenhouse project in the late 19th century. In 1899, Johnson (45) cited the value of plants and gardening in working

with mentally handicapped children. Following the two world wars many horticultural activities were used in veteran's hospitals for rehabilitating physically and mentally disabled patients (1, 22, 94). Starting in the 1950's, treatment for patients at the Menninger Clinic in Topeka, Kansas and the Institute for Rehabilitation Medicine at New York University Medical Center included greenhouse therapy activities (94). The Prince George's County Maryland Association for Retarded Citizens established a vocational training center in 1963 for mentally handicapped adults as a place "where people and plants can grow (p. 5)" (22). Today the center is the Melwood Horticultural Training Center and is internationally respected as a model for training and work co-op programs.

In 1973 the NCTRH, composed of individuals, service organizations, and commercial firms, was formed to promote and expand the application of horticulture in therapeutic and rehabilitative programs. The Council is also involved in assisting vocational rehabilitation, training and job placement of handicapped citizens. Three federally funded grants have been awarded to NCTRH to facilitate training and employment opportunities for handicapped and disadvantaged persons in the horticulture industry. Utilizing the PWI conceptual framework, the projects Horticulture Hiring the Disabled (HHD) awarded in 1982, Horticulture Industry Rehabilitation and Employment (HIRE) awarded in 1983, and Plantwork awarded in 1984, share the following goals:

- to increase the interest, involvement, and participation of the horticulture industry in the training and employment of mentally, physically or developmentally disabled persons;

- to enhance, expand and increase public/private employment opportunities for handicapped workers in the horticulture industry;
- to provide training and/or referral and employment for handicapped workers; and,
- to support Regional and National Horticulture Industry Councils composed of leaders in the major components of the horticulture industry which has responsibility for policies related to employment and training of handicapped persons (59).

Two specific objectives of the grants are:

- to determine existing problems and barriers impeding employment of disabled workers in the horticulture industry and create approaches to dealing with these barriers; and,
- to determine hiring practices, labor force participation, specific job requirements, personnel policies, occupational skill requirements, and employer attitudes toward employment and training programs for disabled workers (59).

The federal government had allocated 1.9 million dollars towards the operation of these three projects. Collectively the projects are committed to train, refer, and place 2500 handicapped individuals by 1987. However, to date only 446 persons have been served and many of those placed into competitive employment are in the traditional occupations of food and custodial services rather than in the horticulture industry (60). Much more information is needed regarding the extent of employment opportunities for handicapped persons in the horticulture industry.

One reason for limited job placements in the horticulture industry may be because rehabilitation personnel have not established communication channels with employers and businessmen in this new occupational placement area for handicapped workers. Answers to questions regarding how employers in this sector perceive handicapped persons and which segments of the horticulture industry have hired handicapped workers will provide much needed employment information. This information will also help to direct the efforts of the NCTRH for development of a communication system between job placement specialists and employers. Horticulture not only represents potential employment opportunities for handicapped individuals but also offers benefits not usually available through traditional rehabilitation programs.

Benefits of Horticulture in Rehabilitation

The potential benefits of horticulture in the rehabilitation of mentally handicapped persons have been noted by many professionals in the field (21, 33, 39, 56, 61, 66). According to Copus (1), "Horticulture has more to interest the handicapped because it is not a routine, mechanical activity." In the article, "People-Plant Interaction", Lewis (52) stated that since plants are non-threatening and non-discriminating, any individual can find success and confidence in growing plants. He further suggested that horticulture helps to alleviate social, psychological, and physical stress. This view is shared by the Horticulture Therapy staff of the Chicago Horticultural Society who use plants in rehabilitation therapy to improve a person's self-esteem, increase intellectual development, stimulate socialization, develop

specific skills, and contribute to leisure time and vocational activities (26). O'Connor (61) found horticultural therapy programs to be beneficial in "decreasing anxiety, restlessness, expressed inability, verbal negativism, and inflexibility (p.25)."

Hefley (38) described the following benefits of horticultural programs for mentally handicapped individuals:

Intellectual. Attainment of new skills; improved vocabulary and communication skills, an aroused sense of curiosity; increased powers of observation; vocational and prevocational training; and stimulation of sensory perception;

Social. Interaction within a group; interaction outside of a group;

Emotional. Improved self-confidence, self-esteem; opportunities for the release of aggressive drives; enthusiasm for the future through interest promoting activities; opportunities for satisfying creative drives; and,

Physical. Development and improvement of basic motor skills; and increased outdoor activities.

Stoutamire in Blackstock (6) described the value of horticulture as a rehabilitation medium for mentally handicapped trainees and stated that, "The retarded are being trained in a profession which is realistic in relation to their capabilities...His confidence increases as he attributes much of the plants growth to his own efforts...Successive positive experiences with the earth and her products contribute to developing better social relationships, greater reliability, more initiative and ultimately, employability."

James in Cigard (17) explained the reciprocal rewards between plants and people saying that, "For the handicapped worker, horticulture provides an easily learned, repetitive yet enjoyable task which combines fine and gross motor skills. Since nursery work necessarily involves the nurturing of green, living things, horticulture offers an opportunity for a unique role reversal for disabled individuals. They become "care-giver" instead of "care-receiver." The utilization of horticultural activities for the rehabilitation of mentally handicapped individuals has led to their participation in the horticulture industry.

The Horticulture Industry and Mentally Handicapped Persons

The acquisition of horticultural skills greatly expands the abilities of handicapped individuals (38, 73). Mentally handicapped individuals have shown their ability to acquire a variety of vocational horticultural skills (23, 25, 26, 27, 29, 36, 56, 81). Delp (29) reviewed several case studies of mentally handicapped clients who were capable of performing horticultural work and who had IQ's below the presumed minimum mental level. Some clients were able to plant flowers, harvest fruits and vegetables, trim hedges, use lawn mowers, and drive tractors. Kerns (49), working on teaching mentally handicapped persons gardening and greenhouse tasks, has found moderately and severely handicapped students are able to master 80% of the tasks. Daniels (25) reported successful training of horticultural competencies to mildly, moderately, and severely mentally handicapped persons. Using task analysis, Morris (56) instructed eight moderately and severely mentally handicapped adults to prepare flats with soil, transplant cuttings, and water plants in a greenhouse.

After training, the productivity of the adults ranged from 31-68% of the rate for non-handicapped workers in the horticulture industry.

Horticultural training may provide mentally handicapped citizens with an important opportunity for satisfying employment (17, 27, 36, 43, 56, 60, 79, 81). Due to a lack of laborers, California growers were aided by 19 mentally handicapped state hospital residents. After a brief training program residents picked 3250 boxes of tomatoes with a market value of \$2400 (23). Stoler (81) recounted a similiar experience where 107 mentally handicapped state hospital residents harvested tomatoes, apples and potatoes. They were paid the same wages and treated the same as the other workers. Hanson (36) reported that a group of seven mentally handicapped adolescents worked cooperatively on clean-up projects at a large recreational area including lawn work and weeding. Posner (66) assisted a work crew of eleven mentally handicapped men and women who cut grass at RFK Stadium in Washington, D.C.. He noted that the workers were willing to help each other and took pride in their work. According to Gallison, Job Placement Specialist at NCTRH Headquarters there are more than 150 rehabilitation facilities in the United States that use horticulture in their vocational training curriculum and he further states that more are being identified daily.

Many sources have cited horticulture as an exemplary pre-vocational and vocational training medium for mentally handicapped individuals (21, 24, 29). The majority of establishments using horticulture base their programs on one of the following: a) the therapeutic benefits of horticulture to trainees or clients, b) the need for horticultural products or services in the community, or c) the existence of job oppor-

tunities within the horticulture industry. Rehabilitation centers using horticulture as a prevocational and vocational training medium which offer horticultural products or services to the community provide a source of revenue for the program and provide a realistic job setting which furthers the development of appropriate work habits and specific job skills. Horticultural training programs based on a business model assist mentally handicapped persons to reach their maximum work potential and prepare them to enter into sheltered or competitive employment (22).

Today, horticulture has been nationally recognized as a valuable rehabilitational tool in the vocational preparation and employment of mentally handicapped individuals (3, 20, 63). Various individuals have reported the abilities and accomplishments of mentally handicapped persons to perform many horticultural and related job skills in both sheltered and non-sheltered employment (21, 22, 23, 36, 39, 43, 60, 33,). Horticultural training facilities have received contracts to maintain the grounds of county libraries, nursing homes, government buildings, recreational areas and industrial parks (23). With appropriate training and supervision, mentally handicapped persons have proven themselves as capable greenhouse and nursery workers, floral shop assistants, landscapers, grounds maintenance workers, and fruit and vegetable farm workers (43).

In the Handbook for Job Placement of Mentally Handicapped Workers, Jacobs, et al (43) analyzed 158 different job placements made state vocational rehabilitation agencies. The job profiles included a listing of job activities and specific skill requirements for each occupational

title. However, no analysis was made to determine if mentally handicapped employees were capable of accomplishing all the skills in each job profile area. Under the occupational grouping, Agriculture/Fishing/Forestry, job activities in horticulture refer to the planting, cultivating and harvesting fruits, nuts, vegetables, and florist crops, and the maintenance of ornamental trees and shrubs and landscaped areas. Specific skills and abilities necessary for this type of work include the following:

- proper use of common garden and building tools,
- basic gardening and landscape techniques,
- knowledge of use and hazards associated with hand and power equipment and garden chemicals,
- ability to safely and carefully lift and move heavy objects (i.e., trees for transplanting), and,
- ability to perform strenuous physical activities such as digging and lawn mowing over extended periods (43).

Although mentally handicapped individuals have repeatedly demonstrated their diverse occupational capabilities, successful job placement may be impeded for reasons other than lack of qualifications.

Barriers to Employment Despite Ability

Although mentally handicapped persons are capable of successful employment they may encounter difficulties at job placement in competitive employment settings. Gellman and Freidman (32) stated "even in a favorable labor market the mere possession of a useful work skill is not sufficient for employment (p. 29)." Factors influencing a smooth transition from

vocational training to competitive employment include "attitudinal" characteristics of the individual, his or her family, the rehabilitation counselor, and the employer (8, 9, 13, 16, 17, 18, 19, 32, 34, 37, 40, 41, 44, 51, 54, 55, 64, 65, 68, 70, 71, 72, 74, 75, 80, 83, 98). Roeher (75) stated that many disabled individuals fail to realize their potential due to negative attitudinal and emotional reactions of society toward its handicapped members. According to the PCEH (70), "idea barriers" that exist toward handicapped individuals and employment include:

- negative public reaction to retarded people,
- non acceptance by fellow workers,
- the belief that mentally handicapped people are more prone to job related injuries.

Employers are attentive to factors they believe are associated with productivity. Concerns about a handicapped individual's ability may stem from uncertain feeling about disabilities in general, and may be unrelated to the individual job applicant (34, 90). Unfortunately, persons with handicaps are often perceived on the basis of an assumed lack of productivity due to their disability (44, 69, 70, 71, 72, 74, 75, 90, 98). In turn, employers may see more obstacles than actually exist in hiring handicapped individuals. Consequently, when two people apply for a job and are equal in all characteristics except for the presence of disability in one person, the non-handicapped person will more often be hired (40). The basis for hiring one individual over another may be influenced by factors associated with the individual employer.

Factors Related to Employers' Perceptions

The relationship between an employer's perception of handicapped individuals and characteristics of the employer or his or her business has been studied by many researchers (5, 7, 19, 37, 65). Perceptions may be influenced by various personal characteristics of the employer such as age, sex, number of years employed, educational history and previous interaction with handicapped individuals or may be related to characteristics of the employer's business, such as the type of business, the size of the business and the number of employees (7, 19, 65). In some studies there appears to be a positive relationship between the number of employees and employer receptivity toward handicapped employees. Larger firms tended to indicate a more favorable perception of handicapped employees (5, 7, 37).

Phelps (65) found that hospitals and motels are sites where mentally handicapped persons were more likely to find a positive response for employment as opposed to dry cleaner or nursing home establishments. However, he offered no explanation for this observation. Davis (27) reported florist shop environments were too stressful for developmentally disabled clients because the pressure and demand for multiple skills caused emotional problems to surface. Thus, employers did not express a willingness to continue employing these individuals.

Bolanovich and Rassmussen (7) reported an unanimous agreement between surveyed employers that "retardates" were not good source for retail sales clerks. Barber (5) found that the education and position of employers did not relate to positive or negative perceptions. However, data indicated a relationship does exist between positive employer

perception and successful hiring experiences with mentally handicapped workers. Also, employers identified as having a positive perception of mentally handicapped workers listed more job skills and abilities than employers with a less positive perception.

The importance of previous hiring experience often indicates whether or not the employer will hire mentally handicapped workers in the future (19, 27, 41, 69). Similarly, Bolanovich and Rasmussen (7) showed that favorable perceptions accompany more involvement with the employment of mentally handicapped persons. They concluded that employers who have had positive experiences will continue to hire more mentally handicapped employees. Further, employers perceived simple, routine and less dangerous job tasks to be more suited for mentally retarded workers. These researchers suggested that employers with sophisticated industrial training programs may be willing to devote their efforts toward incorporating mentally handicapped workers into the training program.

Barber (5) noted that employers felt workers and foremen might be unreceptive towards the employment of mentally handicapped workers. However, Hill and Wehman (40) refuted this claim by reporting that both supervisors and co-workers expressed predominantly positive perceptions of mentally handicapped workers who were placed in their work establishments.

The attitude of the employer toward handicapped persons may be a barrier or an asset in the job training, placement, and adjustment of these individuals in competitive employment (34, 40, 64, 72, 80,82). Therefore, rehabilitation personnel must have information on employer receptivity, and devise methods of assessing and improving acceptance (34,

40, 64, 80). When contacted by rehabilitation job placement specialists, employers from a variety of industries frequently expressed a reluctance to hire handicapped workers (34, 44, 54, 55, 62, 72, 77, 78, 90, 96).

In a survey of the Fortune 500 companies, employers indicated three significant factors influencing their decision to hire a handicapped worker: (1) productivity, (2) attendance records, and (3) the ability of a handicapped worker to perform his or her job (55). These factors are also similiar to those which influence the decision to hire non-handicapped workers (90). In other studies employers expressed concern that productivity would decrease, insurance rates would increase, safety records would be jeopardized and that co-workers would not accept the handicapped worker (44, 54, 96). Employers have used these reasons to justify not hiring a handicapped person (54, 76).

Malikin and Rusalem (54) described the objections employers raise such as lower productivity, high turnover, increased accidents, high absenteeism and incompatibility with co-workers and supervisors as "myths" about handicapped workers in general and mentally handicapped workers in particular. Several studies have been conducted to examine the work records of handicapped persons, including those who are mentally handicapped. Results suggest that employers' fears are unsubstantiated (31, 40, 48, 62, 71, 77). In fact, findings depicted handicapped employees as safe, reliable and competent workers (31, 40, 69, 71, 77, 96).

In 1948 the U.S. Department of Labor surveyed the performance of 11,000 physically handicapped workers in manufacturing industries and concluded that there was no significant difference between handicapped and non-handicapped employees in productivity, on the job injuries,

absenteeism, or voluntary terminations (44). Jamero (44) and Wolfe (96) cited a survey by the U. S. Chamber of Commerce and the National Association of Manufacturers which reported no effect on company insurance costs as a direct result of hiring handicapped workers. A study by the Alliance of America Insurers revealed that handicapped employees "measure up" in terms of safety performance on the job and do not increase workmen's compensation rates (71). Results from a 1978 survey conducted by the International Telephone and Telegraph Company reported that no handicapped worker had suffered more than a minor on-the-job injury since starting at the company and that they had fewer absences than their co-workers and in many cases proved more productive (71).

The E.I duPont de Nemours and Company (31) examined and evaluated the job performance, safety record and attendance of 2,745 handicapped company employees. Findings revealed that 92% of the handicapped employees were rated average or above average on the performance of their job duties, 96% were rated average or above average on job safety and 85% were rated average or above average on attendance. Individuals with a mentally handicapping condition were also evaluated as a separate group. For this subgroup, 84% were rated average or above average in job performance, 90% were rated average or above in job safety and 82% were rated average and above in attendance (31).

Studies also document that the more exposure and positive experiences employers have with handicapped individuals the higher the degree of acceptance of handicapped workers by the employers (7, 16). Thus, just as the development of good work habits and marketable job skills assist competitive job placement in the community, the more employment

opportunities and experiences mentally handicapped persons have in the world of work, the more able they are to progress toward a productive vocational status and enhanced self-sufficiency (34, 54, 90).

MATERIALS AND METHODS

Development of the Survey Instrument

A mail questionnaire survey was developed to measure employers' perceptions of mentally handicapped individuals as employees in private horticultural businesses. The data collection technique was selected in order to sample a much larger population at a lower cost than that of face-to-face or telephone interviews. It also allowed for follow-up contacts which increase the response rate. Employers in private ornamental horticultural businesses in Virginia were chosen as respondents for the survey because of the existence of vocational training programs for mentally handicapped persons in this area of horticulture and the expanding nature of this industry in the State of Virginia. Personnel managers were requested to complete the survey because of their responsibility for the hiring and placement of workers. The construction and implementation of the mail survey was based on the Total Design Method (TDM) by Dillman (28). The TDM is a validated, research method which consists of step by step details ranging from how to write individual survey questions to layout, printing and mailing procedures.

The questionnaire was designed to determine the perceptions employers have of the general work habits and specific horticultural skill competencies of mentally handicapped individuals through a series of opinion questions. Questions also addressed characteristics of the respondent's business and sought to identify whether the business had previously employed a handicapped individual in order to determine if these factors were related to the employer's perceptions. Each question was close

ended with ordered answer choices wherein choices were provided as opposed to respondents making their own response answers and writing them in a blank space on the questionnaire. Two different answer formats were used. One employed answer choices along a continuum, the other utilized a six point extent of agreement to non-agreement rating scale where answer choices ranged from: strongly disagree, tend to disagree, no opinion, tend to agree, strongly agree, and unable to judge (28, 99). Respondents were asked to circle the the answer most appropriate for their individual situation or opinion (Figs. 1 and 2).

The questionnaire was divided into four sections. Section A included six questions which defined general characteristics of the business such as: segment of the ornamental industry, sales or service business orientation, number of year round and seasonal employees, and the average annual income of the business (Figure 1). Previous research has indicated that a relationship may exist between factors such as these and employers' perceptions of handicapped workers (7, 65).

Section B was designed to determine employers' perceptions of the general work habits of mentally handicapped workers. Nine statements were made which identified those characteristics desirable in an employee such as: motivation to work, positive interpersonal relationships with co workers and supervisors, favorable safety and attendance records and successful job performance. Respondents were instructed to indicate their extent of agreement with these statements as applied to mentally handicapped workers (Figure 2). The questions were selected from previous investigations by the DuPont de Nemurs Co., the American Alliance of Insurers, the President's Committee on Employment of the Handicapped and several independent researchers (19, 31, 40, 43, 67, 68, 71, 96).

HORTICULTURE INDUSTRY SURVEY

SECTION A.

Please complete the questions by circling the corresponding number.

1. How would you describe your firm?

- | | | | |
|---|-----------------------|---|---------------------------|
| 1 | Nursery/Garden Center | 5 | Tree Service/Arborist |
| 2 | Greenhouse | 6 | Golf Course/Turf Division |
| 3 | Lanscaper/Contractor | 7 | Lawn Service |
| 4 | Grounds Maintenance | 8 | Other (please specify) |

2. Is your firm primarily:

- | | | | | | |
|--------------|---|--------------------|----------------|---|------------|
| Sales | 1 | Wholesale | Service | 3 | Commercial |
| | 2 | Retail | | 4 | Homeowner |
| | | Other _____ | | | |

3. Within the past year (March 1984-March 1985), how many year round or regular employees did your firm or division employ?

- | | | | | | | | | | | |
|------------------|---|---|---|---|---|---|---|---|---|-----|
| Full Time | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| Part Time | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |

4. Within the past year (March 1984-March 1985), how many seasonal or temporary employees did your firm or division employ?

- | | | | | | | | | | | |
|------------------|---|---|---|---|---|---|---|---|---|-----|
| Full Time | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |
| Part Time | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10+ |

5. How many years has your firm been established?

- | | | | | | | | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|-----|
| Years | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15+ |
|--------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|-----|

6. What is your firm's average annual total sales volume (i.e., gross income)?

- | | | | |
|---|--------------------|---|---------------------------|
| 1 | Less than \$20,000 | 5 | 250,001-500,000 |
| 2 | 20,001-50,000 | 6 | 500,001-1,000,000 |
| 3 | 50,001-100,000 | 7 | More than 1,000,000 |
| 4 | 100,001-250,000 | 8 | Information not available |

Figure 1. Section A of the horticulture industry survey:
Business characteristics.

For purposes of Sections B. and C. the term "mentally handicapped" is defined as: a person who learns at a significantly slower rate than the general population and may require specialized education and training for employment. You may be more familiar with the term "mentally retarded".

Directions: Please respond to the statements and tasks described below by circling the corresponding number on the right. Numbers refer to:

1 = strongly disagree 2 = tend to disagree 3 = do not have opinion
4 = tend to agree 5 = strongly agree 6 = unable to judge

SECTION B. Statements

Mentally handicapped employees:

1. want to work and like their jobs.	1	2	3	4	5	6
2. usually get along well with supervisors.	1	2	3	4	5	6
3. usually get along well with co-workers.	1	2	3	4	5	6
4. have insurance rates comparable to non-handicapped workers.	1	2	3	4	5	6
5. have safety records comparable to non-handicapped workers.	1	2	3	4	5	6
6. have attendance records comparable to non-handicapped workers.	1	2	3	4	5	6
7. regularly arrive and leave work on time.	1	2	3	4	5	6
8. are successfully working in the competitive labor market (i.e., private business).	1	2	3	4	5	6
9. can perform many jobs as well as non-handicapped workers.	1	2	3	4	5	6

SECTION C. Tasks

With appropriate training and a moderate amount of supervision, a mentally handicapped person can satisfactorily perform the following tasks:

1. Use hand and garden tools (trowel, rake, etc.).	1	2	3	4	5	6
2. Dig and shovel soil, mulch, etc.	1	2	3	4	5	6
3. Water plants with sprinkle or hose.	1	2	3	4	5	6
4. Load and unload trucks.	1	2	3	4	5	6
5. Move plants with wheelbarrel or hand cart.	1	2	3	4	5	6
6. Plant seeds, cuttings, bulbs, etc.	1	2	3	4	5	6
7. Transplant seedlings, annuals, trees, shrubs, sod, etc.	1	2	3	4	5	6
8. Use pruners, clippers, etc.	1	2	3	4	5	6
9. Apply or assist in the application of fertilizer.	1	2	3	4	5	6
10. Apply or assist in the application of pesticides.	1	2	3	4	5	6
11. Operate lawnmower and nylon-cord weed eater.	1	2	3	4	5	6
12. Assist cleaning of equipment.	1	2	3	4	5	6
13. Assist cutting and harvest of flowers, fruit, vegetables, etc.	1	2	3	4	5	6
14. Weed, thin, and cultivate around plants.	1	2	3	4	5	6
15. Clean work areas, buildings, etc.	1	2	3	4	5	6

Figure 2. Sections B and C of the horticulture industry survey: Work habit statements and horticultural tasks.

SECTION D.

Please read each question and circle corresponding number.

1. Is your firm currently employing a mentally handicapped worker?

1 Yes 2 No 3 Cannot judge

2. Has your firm ever hired a mentally handicapped worker?

1 Yes 2 No 3 Cannot judge

3. Has your firm ever hired an individual with any of the following handicapping conditions?

	Yes	No	Cannot judge
Physical	1	2	3
Visual	1	2	3
Hearing	1	2	3
Emotional	1	2	3

Please return the completed form in the accompanying pre-paid, pre-addressed envelope or return to: Horticulture Department, Virginia Tech, Blacksburg, Va 24061

THANK YOU !

Figure 3. Section D of the horticulture industry survey:
Employment of handicapped individuals.

Section C was designed to determine employer's perceptions of the basic horticultural skill competencies of mentally handicapped workers. A list of fifteen horticultural tasks applicable to most entry level job positions in ornamental horticulture businesses was based on the Directory of Occupational Titles (87) and the Handbook for Job Placement of Mentally Retarded Workers, by Jacobs, et al (43) which describes over 158 job titles mentally handicapped individuals have proven their ability to occupy in sheltered workshops, vocational training centers and non-sheltered competitive employment. Twenty-two of the job descriptions are directly related to horticultural and agricultural industries and the 15 tasks included in section C were taken from this source. Respondents were instructed to indicate the extent of their agreement with the statement, "With appropriate training and a moderate amount of supervision, a mentally handicapped person can satisfactorily perform the following: " as applied to each task (Figure 2).

Section D sought to determine whether the employers have hired an individual with a mental, physical, emotional, visual or hearing handicap and if the employer was currently employing a mentally handicapped person (Figure 3). The purpose of this section was to determine if employers were using handicapped laborers as a manpower resource and, if so, which segments of the ornamental industry were hiring these workers. This information would also show whether previous hiring experience was related to the employer's responses to Sections B and C.

The content and format of the 36 item questionnaire was critically

evaluated by several professionals concerned with the rehabilitation and welfare of mentally handicapped individuals and by a local horticultural businessman for clarity, ease of reading and for acceptability by the industry. As a project of the Virginia Cooperative Extension Service, a cover letter describing the purpose and usefulness of the study and the entire four part questionnaire was assembled and printed front and back on 8 x 14" legal size Cooperative Extension letterhead stationery (Appendix A).

Participant responses were considered confidential and at no time was the name of the employer or his or her business directly associated with individual responses. A statement of this confidentiality was clearly described in the cover letter.

A mailing list was prepared including the names and addresses of members of professional horticultural organizations for the State of Virginia. The list concentrated on privately owned and operated businesses associated with ornamental horticulture, including greenhouses, nurseries, grounds maintenance firms, interior plantscaping firms, and golf courses. Specific names of businesses selected for the survey were derived from the 1984-85 membership lists of the Virginia Nurserymen Association, Virginia Greenhouse Growers Association, Interior Plantscape Society, Virginia Seed Tradesmen Society, Landscape Contractors of the Washington Metropolitan Area, Professional Grounds Management Society, International Arboriculture Society, and the Virginia Tech Turf Extension Newsletter. Use of the membership mailing lists for purposes of this research project was approved by the Executive Director or President of the respective organizations. The total number of businesses on

the mailing list was 557, each of which received a survey package.

Implementation

Assembling the Survey Package. Each survey questionnaire was stamped with an individual identification number so that follow-up mailings would only be sent to those not responding to the initial mailing. This lowered the additional mailing costs and ensured that only one questionnaire would be returned by each respondent and reduced the annoyance to participants who had already responded. The number was placed in the upper right hand corner of the questionnaire. Identification numbers corresponded to similar ones next to the recipient's name on the mailing list and address labels.

In accordance with the TDM, the surveys were folded in quarters, tucked under the envelope flap of the pre-addressed and stamped business reply mailer and inserted into a no. 9 official business mailing envelope. Pressure sensitive address labels corresponding to the survey identification number were then placed on the envelope.

Mailing and Follow-up. All 557 surveys were mailed on March 4, 1985 using first class postage. A very important part of the TDM is the subsequent follow-up mailings. The three mailings that completed the follow-up sequence occurred over a period of seven weeks from the initial mailing date. After one week (March 11, 1985), a postcard reminder was sent to all employers which stated that a questionnaire had been sent the previous week and restated the purpose of the study. It thanked those who had already returned their questionnaire and asked those who had not "to do so today". The postcard also included a phone

number to call for a replacement, should it be needed (Appendix B). The employer's name and business address were applied to the reverse side with pressure sensitive labels. After three weeks (March 25, 1985), a letter, replacement questionnaire, and return envelope were sent to non-respondents. Similar to the appearance of the original mailout, it had a shorter cover letter which informed the employers that their completed questionnaire had not been received, and appealed for its return (Appendix C). The TDM suggests a third follow-up mailing to be sent via certified mail to remaining non-respondents seven weeks following the initial mailing date. Due to an acceptable response rate, this procedure was deleted from the methodology.

Recording the Data

To facilitate statistical analysis the response data were grouped into smaller categories than those used on the questionnaire. For example, in Section A, question #3 asked how many year round employees are employed by the business and listed ten answer choices ranging from, 0 through 10+. To score this question answers were condensed into two categories: 0-5 and 6 or more. Likewise, the six response categories in Sections B and C were condensed into four categories: disagree, agree, no opinion, and unable to judge.

A descriptive analysis of all 36 items was tabulated for the four sections of the survey. Utilizing Fisher's Test of Chi squared, contingency tables were established to cross classify the employers' responses to Sections A with Sections B, C and D (A*B, A*C, A*D). Sections B and C were cross classified with Section D (B*D, C*D). The Chi Square

Test for Homogeneity was utilized to determine if employers answered the work habit statements and horticultural tasks in a homogenous manner. This test was used to determine if a trend or pattern existed in how respondents responded.

R E S U L T S

The discussion of the survey results includes an overall descriptive analysis of the employers' responses to the four sections of the survey, followed by the cross classification of different sections of the survey. The cross classifications reported were (1) business characteristics with the employers' perceptions of the general work habits and horticultural skill competencies of mentally handicapped individuals (A*B, A*C); (2) employers' hiring experience with the employers' perceptions of the general work habits and horticultural skill competencies of mentally handicapped workers (D*B, D*C); and (3) hiring experience with the characteristics of the business (A*D). This presentation follows the same format previously set forth by the objectives and will also be used in the discussion.

Employer Response to the Survey

During the first week after the initial survey mailing, 76 (13%) respondents had returned their questionnaires. The post office returned five "undeliverable" surveys which were later dropped from the study. Approximately two weeks following the postcard mailing 235 (42%) questionnaires had been returned. During this time, several employers phoned in to request a replacement questionnaire because they had not received one or because it had been misplaced. Five weeks after the initial mailing date (April 7, 1985), 350 (63%) questionnaires had been returned. Thirteen respondents returned their questionnaire unanswered because they were no longer in the horticulture business, were a family business

and did not hire employees or because they did not "fill out surveys." These individuals were included in the response rate but dropped from the data analysis.

The final response rate was calculated by subtracting the 5 undeliverable and 13 incomplete surveys from the total number of surveys returned (350) and then by dividing this number (332) by the total number of surveys sent out initially (557). This resulted in a final response rate of 60%.

A high response rate contributed to the ability to conduct statistical analysis. Data from 332 completed surveys were entered into the statistical analysis system (SAS). The data analysis for this study was conducted in two ways: descriptive statistics, and tests for statistical significance at the .05 alpha level. Statistical tests performed were Fisher's Test for Independence and the Chi Square Test for Homogeneity. Percentages were calculated for each scored category of the four questionnaire sections: Section A, business characteristics, Section B, general work habit statements, Section C, horticultural skill tasks, and Section D, hiring experience (Tables 1 - 4).

Table 1. Questionnaire results to Section A:
Business characteristics.

1. Segment of the industry:	
Nursery/ Garden Center	19.3%
Greenhouse	12.3
Landscaper	12.0
Grounds Maintenance	12.3
Tree Service	5.1
Golf Course	18.9
Lawn Service	4.2
Other	15.0
2. Type of business:	
Sales	38.5%
Service	26.5
Both	21.0
Other	13.8
3. Number of year round employees:	
0 - 5	45%
6+	55
4. Number of seasonal employees:	
0 - 5	64%
6+	36
5. Number of years in business:	
0 - 14	54%
15+	46
6. Average annual income:	
\$0 - 50,000	53%
50,000+	32
No information	15

Table 2. Questionnaire results to Section B:
General work habits.

<u>Statements</u>	<u>Response Category (%)</u>			
	<i>Disagree</i>	<i>No Opinion</i>	<i>Agree</i>	<i>Unable to Judge</i>
Mentally handicapped workers:				
1. want to work and like their jobs.	2.5	3.1	58.5	31.3
2. get along well with supervisors.	3.5	12.6	46.2	37.9
3. get along well with co-workers.	5.5	14.4	40.4	40.1
4. have insurance rates comparable to non-handicapped workers.	7.0	17.4	11.1	64.5
5. have safety records comparable to non-handicapped workers.	8.7	13.8	22.7	54.8
6. have attendance records comparable to non-handicapped workers.	5.7	7.2	43.2	43.9
7. arrive and leave work on time.	3.9	9.9	44.4	41.8
8. are successfully employed in the competitive labor market.	9.9	11.9	33.1	45.5
9. can perform many jobs as well as non-handicapped workers.	9.0	5.7	51.3	34.0

Table 3. Questionnaire results to Section C:
Horticultural skills.

Tasks	Response Category (%)			
	<i>Disagree</i>	<i>No Opinion</i>	<i>Agree</i>	<i>Unable to Judge</i>
With appropriate training and a moderate amount of supervision mentally handicapped workers can successfully perform the following:				
1. use hand tools	2.4	3.6	64.4	29.3
2. dig and shovel	3.0	3.6	64.4	29.0
3. water plants	6.3	3.6	60.4	29.8
4. load and unload trucks	5.7	6.0	56.6	31.7
5. move plants with wheelbarrel	3.0	5.4	60.2	31.4
6. plant seeds, cuttings, bulbs	11.4	9.9	45.2	33.5
7. transplant annuals, trees, shrubs	13.8	9.9	42.0	34.3
8. use pruners, clippers	17.0	12.0	37.6	33.4
9. apply or assist fertilization	27.1	7.5	32.0	33.4
10. apply or assist pesticide use	38.8	7.5	19.3	34.4
11. operate lawnmower and weed-eater	25.0	7.0	35.6	32.7
12. assist cleaning of equipment	6.0	7.3	53.6	32.6
13. assist cutting and harvesting of flowers, fruit, and vegetables	4.8	11.1	50.0	34.1
14. weed, thin and cultivate	5.7	6.3	55.5	32.5
15. clean work areas and buildings	3.3	4.8	62.0	29.9

Table 4. Questionnaire results to Section D:
Employment of handicapped individuals.

1. Currently employing a mentally handicapped worker:

yes	9.9%
no	81.9
unable to judge	8.2

2. Have ever employed a mentally handicapped worker:

yes	31.9%
no	54.2
unable to judge	13.9

3. Ever employed an individual with one of the following handicapping conditions:

<u>Physical</u>		<u>Hearing</u>	
yes	30.1%	yes	18.9%
no	55.4	no	62.0
unable to judge	14.5	unable to judge	19.1
<u>Visual</u>		<u>Emotional</u>	
yes	13.8%	yes	31.9%
no	64.8	no	45.7
unable to judge	21.4	unable to judge	22.4

Business Characteristics

Responses to the questions in Section A are presented in Table 1. Most respondents were associated with nurseries and garden centers and golf courses. Most firms were primarily "sales" oriented, employed 6 or more year round workers, employed 5 or less seasonal workers, were established less than 15 years and grossed less than \$50,000 annually.

Work Habit Perceptions

Employers' responses to the nine work habit statements of Section B are presented in Table 2. Respondents agreed more often to the statements related to a mentally handicapped individual's desire to work and ability to perform many jobs as well as non-handicapped individuals. The majority of respondents were unable to judge the statements regarding the comparison of the insurance rates and safety records of mentally handicapped workers to that of non-handicapped workers. Responses to these two statements also had the least amount of agreement responses than any other work habit statements.

Horticultural Skill Perceptions

The extent of the employers' responses to each of the 15 horticultural tasks is shown in Table 3. Employers agreed more often than any other answer choice that mentally handicapped individuals were capable of performing 13 of the tasks. Employers disagreed more often with the ability of mentally handicapped workers to apply pesticides and were more often unable to judge the ability of mentally handicapped workers to apply fertilizers.

Employment of Handicapped Individuals

Data obtained from Section D of the survey, the employment of handicapped individuals, is presented in Table 4. Thirty-three businesses (9.9%) indicated they were currently employing a mentally handicapped worker and 106 businesses (32%) indicated they had hired a mentally handicapped employee previously. One hundred businesses (30%) responded that they had hired a worker with a physical handicap, 46 businesses (14%) had hired a worker a visual handicap, 63 businesses (19%) had hired a worker with a hearing impairment and 106 businesses (32%) had hired a worker with an emtional handicap (Table 4).

Statistical Analysis of Relationships

Fisher's Test for Independence was used to determine if individual business characteristics as reported in Section A were related to the employer's perceptions of the general work habits of mentally handicapped individuals from Section B (indicated by A*B) and to the horticultural skill competencies of mentally handicapped workers as given in Section C (indicated by A*C). Similiarly, Section D, employer hiring experience, was cross classified with the employers' perceptions of the general work habits (indicated by D*B); and, with the employers' perceptions of the horticultural skill competencies of mentally handicapped employees (indicated by D*C). The six business characteristics were cross classified with hiring experience (indicated by A*D).

Business characteristics and employers' perceptions

The business characteristics were cross classified with the employers'

perceptions of the general work habits and horticultural skills of mentally handicapped employees. This analysis revealed nine significant tables at the .05 alpha level out of a possible 144 which were tested. Therefore it can be interpreted that overall the respondents represented a group with no inherent perceptual biases concerning the work habits and horticultural skill abilities of mentally handicapped individuals based on their business characteristics. Contingency tables which yielded significance are in Tables 5 - 13. See Appendix D.

Those tables with statistical significance indicated employers with less than 6 year round employees were more likely to agree that mentally handicapped workers can perform many jobs as well as non-handicapped workers, A3*B9 (Table 5). However, this group also more often disagreed that mentally handicapped workers can dig with a shovel, A3*C2; move plants with a wheelbarrel or handcart, A3*C5; and assist the cutting and harvesting of flowers, fruit, and vegetables, A3*C13 (Tables 6 - 8). Employers who had been in business more than 15 years tended to agree more often that mentally handicapped workers can assist the cutting and harvesting of flowers, fruit and vegetables A4*C13 (Table 9). The remaining significant contingency tables showed that businesses established less than 15 years or businesses grossing more than \$50,000 were either more often unable to judge or had no opinion on questions B3, B4, B9 and C13. A5*B9, A5*C13, A6*B3, A6*B4 (Tables 10 - 13).

Hiring experience and employers perceptions

The employers' responses to the hiring experience questions were

cross classified with the responses to the work habit statements and horticultural skill tasks (D*B, D*C). This analysis yielded three significant relationships at the .05 alpha level. The unable to judge responses were omitted from this test because they initially skewed the data, thereby, resulting in invalid test results. Two tables were of considerable interest, as they both were related to one specific work habit question. Employers who were currently employing a mentally handicapped worker or who had previously employed a mentally handicapped worker tended more often to agree that these individuals have insurance rates comparable to non-handicapped workers, D1*B4 and D2*B4 (Tables 14 - 15). See Appendix D.

Current hiring experience yielded one significant relationship with how employers perceived the abilities of mentally handicapped workers to perform horticultural work. Businesses currently employing a mentally handicapped employee disagreed more often that mentally handicapped workers can assist cutting and harvesting of flowers, fruit and vegetables, D1*C13 (Table 16). See Appendix D. Previous hiring experience showed no significant relationships with horticultural skill perceptions.

Business characteristics and hiring experience

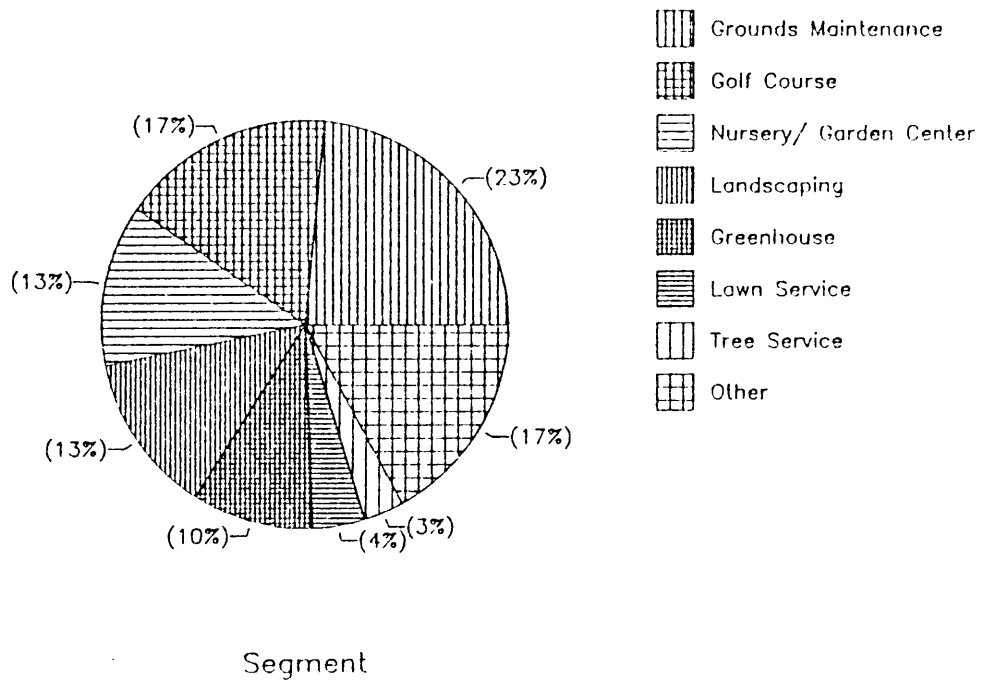
The business characteristics in Section A were cross classified with the hiring experience of handicapped workers in Section D. This analysis yielded 28 significant relationships at the .05 alpha level out of a possible 36 (Figs. 17 - 45). See Appendix D. Therefore, the business characteristics which were examined in this survey had

a strong relationship with the employment of mentally handicapped individuals and individuals with physical, visual, hearing, or emotional handicaps.

Cross classification of the represented segments of the ornamental industry with hiring experience showed that businesses which had hired a mentally handicapped worker were in the following segments of the ornamental horticulture industry: nurseries and garden centers 19%, greenhouses 9%, landscapers 11%, grounds maintenance 22%, tree service 3%, golf courses 16%, lawn service 4%, and other businesses (e.g., supply firms, distributors, manufacturers) 16%. This data is graphically represented in Figure 4. Businesses which were currently employing a mentally handicapped worker were associated with the following segments of the ornamental horticulture industry: nurseries and garden centers 12.2%, greenhouses 3.0%, landscapers 12.2%, grounds maintenance 33.4%, tree service 3%, golf courses 15.2%, lawn service 3%, and other related businesses 18%.

Figure 4. Percent of segments of the ornamental horticulture industry which have employed a mentally handicapped individual.

Employment of Mentally Handicapped Individuals



Grounds maintenance firms were significantly more likely to have hired mentally, visually and emotionally handicapped individuals than any other segment of the industry, A1*D2, A1*D4, & A1*D5 (Figures 17 - 19). In two cases the business characteristic of sales or service orientation, proved to be significantly related to the employment of individuals with a visual or hearing handicap. Businesses which had hired an employee with a visual handicap were more often sales oriented and businesses which had an employee with a hearing handicap were more often associated with both sales and service oriented businesses, A2*D4, A*D5 (Tables 20 - 21).

Significant relationships were also expressed with the following business characteristics: number of year round and seasonal employees, the number of years established, and the annual income of the business. Businesses with 6 or more year round employees, 6 or more seasonal employees, established 14 or more years, or grossing more than \$50,000 annually were more often currently employing a mentally handicapped individual than businesses with less than 6 year round employees, less than 6 seasonal employees, established less than 14 years or grossing less than \$50,000 annually, A3*D1, A4*D1, A5*D1, A6*D1 (Tables 22 - 25). The above statement is also true for businesses which had hired a mentally handicapped employee previously but were not currently, A3*D2, A4*D2, A5*D2, A6*D2 (Tables 26 - 29). This pattern is consistent for businesses which have hired an individual with a physical, visual, hearing, or emotional handicap with only one exception, A3*D3, A4*D3, A5*D3, A6*D3, A3*D4, A4*D4, A5*D4, A6*D4, A3*D5, A4*D5, A5*D5, A6*D5, A3*D6, A5*D6, A6*D6 (Tables 30 - 42, 44, & 45). The one exception

was that businesses with less than 6 seasonal employees had more often hired an emotionally handicapped individual than businesses with more than 6 seasonal employees, A4*D6 (Table 43).

Homogeneity Testing

Using the Chi Square Test for Homogeneity contingency tables were established to determine if respondents were answering all the work habit statements and horticultural skill tasks in a similar or 'homogeneous' manner regardless of the question being asked. Twenty-five percent (25%) of all respondents chose "unable to judge" as their response to all of the 24 the opinion statements and tasks in Sections B and C. Only 3% agreed to all the questions, 0% disagreed with all the questions and the remaining 72% chose a variety of answer choices. Cross classification of the employers' responses to each statement or task was found to be statistically significant at the .05 alpha level, therefore the test for homogeneity was rejected. Thus, respondents did not answer all the work habit statements or horticultural skill tasks with the same response, rather they responded individually to each. The rejection of the test for homogeneity contributes to the validity of the research survey instrument. It also established that a distinct trend existed in how employers were responding to each statement or task, for example, respondents agreed more often to certain horticultural skill tasks more than others and disagreed more often to other ones.

Work habit statements which contributed the most statistical significance to this test were a high percent of agreement (58.5%) to question B1, a mentally handicapped worker's desire to work, and a high percent

of can not judge responses (64%) to statement B4, the comparison of insurance rates of mentally handicapped workers with non-handicapped workers. Horticultural skill tasks which contributed the most statistical significance to this test were a high percent of disagreement responses to tasks C9, the ability to apply or assist the application of fertilizers (27.1%); C10, the ability to apply or assist the application of pesticides (38.8%); and, a relatively high percent of disagreement responses to C11, the ability to operate a lawnmower or weed-eater (25%).

DISCUSSION

The determination of whether mentally handicapped individuals were perceived by employers and potential employers as capable of meeting the labor needs of various segments of the ornamental horticulture industry will be addressed through the examination of the objectives set forth for this study. Based on the high percent response rate to the survey sufficient data were provided for interpretation and inferences can be made regarding the entire ornamental horticultural industry in Virginia.

Employers' perceptions of work habits

The first objective, to determine the employers' perceptions of the general work habits of mentally handicapped individuals as employees was analyzed in four areas: motivation and compatibility, insurance and safety records, attendance and punctuality, and job performance. The response percentages were grouped according to the four work habit areas (Figure 46). Because the response categories 'no opinion' and 'unable to judge' represented very similar judgements they were combined for ease of interpretation and discussion.

Motivation and compatibility. Nearly half (48%) of the employers agreed with the work habit statements that mentally handicapped employees like their job and want to work, and are compatible with supervisors and co-workers. An equal percent (48%) had no opinion or were unable to judge these statements and 4% disagreed. Therefore it would appear that most employers in the horticulture industry do not hold a preconceived negative perception of these worker characteristics.

Table 46. Percent of employers' responses to the four general work habit areas as applied to mentally handicapped individuals.

Statements

Mentally handicapped workers:	<u>Response Category (%)</u>		
	<u>Disagree</u>	<u>Agree</u>	<u>No Opinion</u>
<u>A. Motivation and compatibility</u>			
1. want to work and like their jobs.	2.5	58.5	39.4
2. get along well with supervisors.	3.5	46.2	50.0
3. get along well with co-workers.	5.5	40.4	54.5
Subtotal average	4.0	48.0	48.0
<u>B. Insurance and safety</u>			
4. have insurance rates comparable to non-handicapped workers.	7.0	11.1	81.9
5. have safety records comparable to non-handicapped workers.	8.7	22.7	68.5
Subtotal average	8.0	17.0	75.0
<u>C. Attendance and punctuality</u>			
6. have attendance records comparable to non-handicapped workers.	5.7	43.2	51.1
7. arrive and leave work on time.	3.9	44.4	51.7
Subtotal average	5.0	44.0	51.0
<u>D. Job performance</u>			
8. are successfully employed in the competitive labor market.	9.7	33.1	57.2
9. can perform many jobs as well as non-handicapped workers.	9.0	51.3	39.7
Subtotal average	9.0	42.0	49.0
Total average percent	6.0	39.0	55.0

Insurance and safety. Three quarters (75%) of the employers had no opinion or were unable to judge the questions in the second work habit area, insurance and safety records. Seventeen percent agreed and 8% disagreed that mentally handicapped employees have insurance rates and safety records comparable to non-handicapped employees. While the total percent of disagreement to this work habit area was a little higher than the previous area, the percent of agreement dropped significantly. The increase in unable to judge responses to the insurance and safety statements highlights these worker characteristics as ones of concern to employers.

Attendance and punctuality. The majority of employers (51%) had no opinion or were unable to judge, 44% agreed and 5% disagreed that mentally handicapped employees have comparable attendance records and are as punctual as non-handicapped employees. Because a relatively large proportion of employers agreed compared to the small proportion that disagreed with these statements it suggests that horticultural employers have positive concept of this work habit area as applied to mentally handicapped employees.

Job performance. Forty-nine percent (49%) of the employers had no opinion or were unable to judge, 42% agreed and 9% disagreed that mentally handicapped employees are successfully employed in the competitive labor market and can perform many jobs as well as non-handicapped employees. The high percent of agreement and unable to judge responses to this work habit area also indicates employers have a more positive perception than negative perception of the employability of mentally handicapped individuals.

Summary of work habit perceptions. Overall, horticultural employers appear to have a favorable perception of the motivation, compatibility, attendance, punctuality, and job performance of mentally handicapped individuals in the workplace. Statements related to the comparison of insurance rates and safety records of mentally handicapped employees to non-handicapped employees resulted in considerably less agreement responses. This suggests that this work habit area is a major concern to horticultural employers. Based on the minimal amount of disagreement employers do not appear to be unreceptive toward hiring mentally handicapped individuals. However, the fact that so many were unable to judge the work habits indicates a need to inform the horticultural industry of the positive attributes and capabilities of mentally handicapped individuals in the competitive labor market if more horticultural jobs are to become available to them.

Work habit perceptions compared to previous research

The second objective was to relate the employers' perceptions of the work habits of mentally handicapped employees to research in other industries. From this comparison parallels may be drawn to the horticulture industry to determine its receptivity toward hiring mentally handicapped individuals. This information can be used for improving vocational training strategies and employment opportunities of mentally handicapped individuals.

Motivation and compatibility. Previous research has shown mentally handicapped individuals to be motivated to work and to be safe, dependable and capable employees (31, 40, 57, 69, 71). According to the PCEH,

the NARC, and the U.S. Civil Service Commission, mentally handicapped employees have a positive attitude toward work, are proud of their jobs, and have good relations with their co-workers and supervisors (57, 69, 89). Hill and Wehman (40) and Hoskin (41) also found that both employers and co-workers of mentally handicapped employees reported these employees appeared satisfied and pleased with their jobs, had a strong desire to work and were eager, enthusiastic, and compatible employees.

A large percentage of employers (48%) in the ornamental horticulture industry agreed that mentally handicapped employees want to work and like their jobs and are compatible employees which indicates an accurate appraisal of these individuals as demonstrated by research. An equally large proportion (48%) had no opinion or were unable to judge these statements which suggests that horticultural employers do not have preconceived attitudes of mentally handicapped employees which would conflict with actual work habit studies. This indicates a need to educate these employers in this regard. The fact that very few employers disagreed with this work habit area reinforces the belief that employers do not have a negative concept of mentally handicapped persons.

Insurance and safety. Research in other industries concerning insurance and safety records has shown these not to be adversely affected by the employment of mentally handicapped employees (40, 68, 71, 96). DuPont (31) reported 90% of their 146 mentally handicapped employees had average and above average safety records. However, these are major areas of expressed concern by employers who are approached for the first time with idea of hiring a handicapped employee (44, 55, 71). Only

17% of the horticultural employers agreed that mentally handicapped employees have insurance rates and safety records comparable to non-handicapped employees. In this regard many horticultural employers are no different than employers in other industries in their apprehension. The inability of horticultural employers to judge these statements suggests that they are concerned with the possibility that handicapped employees will suffer more severe injuries than non-handicapped employees thus complicating their handicapping condition (71). The horticulture industry should be made aware that all states provide second injury funds financed by insurance carriers and self insured employers in each state to relieve the employer of liability for preexisting handicaps in employees (71).

Employers' reservations as to the comparison of insurance rates of mentally handicapped employees to non-handicapped employees must be examined in light of the nature of the business. The employer's overall safety record and paid workmen's compensation claims contribute to the businesses' insurance rates. Therefore it is necessary to examine the occupational hazards associated with the horticulture industry versus occupations such as food or custodial service due to the bearing they have on the businesses' insurance rates governing its employees.

Attendance and punctuality. Studies on the attendance and punctuality records of mentally handicapped employees have been favorable from food service, hotel/motel and other industries (40, 41, 69, 71). Perceptions of employers in Virginia's ornamental horticulture industry were also favorable, 44% of the employers agreed that mentally handicapped employees had attendance records similar to non-handicapped

employees thus in agreement with previous research findings. However, because the majority (51%) had no opinion or were unable to judge, there is clearly a need to inform the horticulture industry of the positive attributes the dependability and regularity of mentally handicapped employees.

Job performance. Studies have also shown mentally handicapped employees to be capable of performing a multitude of job skills in both sheltered and competitive employment sectors (31, 57, 58, 65, 67). Forty-two percent (42%) of the employers in the ornamental horticulture industry agreed and only 9% disagreed that mentally handicapped individuals are successfully employed in the competitive labor market and can perform many jobs as well as non-handicapped workers. This shows that mentally handicapped job applicants may be positively received by the ornamental horticulture industry. Almost half of the employers (49%) had no opinion or were unable to judge this work habit area which again reinforces the need to educate these employers as to the employment capabilities of mentally handicapped individuals.

Summary of comparisons. Generally the perceptions of horticultural employers regarding the general work habits of mentally handicapped employees compares similarly to previous studies which have found mentally handicapped individuals to be motivated to work, compatible with supervisors and co-workers, reliable, dependable, safe and capable employees. Averaging the agree responses showed that more than one-third of the employers (39%) agreed with the majority of work habit statements thus indicating a positive perception and of mentally handicapped individuals as employees. In addition, only 6% disagreed with all of the

work habits which suggests the ornamental horticulture industry offers potential as a successful and satisfying career option for mentally handicapped persons. The large proportion of no opinion and unable to judge responses represents a potentially positive atmosphere and with proper information the employment of mentally handicapped individuals can be enhanced within the horticulture industry. Advantage should be taken of the open minded attitude of these employers by educating them as to the benefits of employing a mentally handicapped employee.

An informative campaign can be directed toward the entire horticultural industry through the trade journals most commonly subscribed to by the various segments. For example, articles describing the outstanding employment history of mentally handicapped individuals could be published in the American Nurseryman, Florists Review, Weed & Turf, Greenhouse Growers News, and other trade journals in the horticulture industry. Brief summaries of studies describing the positive work habits of mentally handicapped employees could be presented in horticultural trade association newsletters such as Virginia's Greenhouse Growers Association Newsletter, VNA News, and specialized state extension newsletters. These articles should include the address of the NCRTH headquarters for future employer contact. The NCTRH should continue to present displays of their programs at national and regional horticultural meetings. Vocational rehabilitation and public school work-study program personnel should consider directly contacting local horticultural businesses in the community for job placement and on-the-job training opportunities.

Employers' perceptions of horticultural skills

A series of specific job related tasks was developed to determine the employers' perceptions of the horticultural skill competencies of mentally handicapped employees. The results to Section C were also grouped according to the three horticultural skill areas as described in the third objective (Table 47). No opinion and unable to judge responses were combined for the same reasons as described above. The 15 horticultural tasks were divided into three areas of increasing skill and ability. These were a) minimum skill activities such as the use of simple garden tools and routine plant care, b) skills and judgement activities such as the use of non-power cutting and pruning tools, c) complex and hazardous skills or those involving a safety risk such as planting and transplanting of plant material, the use of power equipment and the application of agricultural chemicals. On the average, the perceptions of ornamental horticulture employers showed 44% agreed, 41% had no opinion or were unable to judge and 15% disagreed that with appropriate training and a moderate amount of supervision mentally handicapped employees could successfully perform the horticultural skill questions addressed in Section C of the survey (Table 47).

Minimum level skills. Eight of the tasks in section C were based on the first horticultural skill area. The average percent of the employers responses to these tasks showed that 60% agreed, 36% had no opinion or were unable to judge and 4% disagreed that mentally handicapped employees had the ability to use hand tools; dig and shovel; water plants; load and unload trucks; move plants with a wheelbarrel or handcart; weed, thin and cultivate around plantings; and, assist

Table 47. Percent of employers' responses to the three horticultural skill areas as applied to mentally handicapped individuals.

Tasks	Response Category (%)		
	<i>Disagree</i>	<i>Agree</i>	<i>No Opinion</i>
With appropriate training and a moderate amount of supervision mentally handicapped workers can successfully perform the following:			
<u>A. Minimum level skills</u>			
1. use hand tools	2.4	64.4	33.2
2. dig and shovel	3.0	64.4	32.6
3. water plants	6.3	60.4	33.4
4. load and unload trucks	5.7	56.6	37.7
5. move plants with wheelbarrel	3.0	60.2	36.8
12. assist cleaning of equipment	6.0	53.6	40.4
14. weed, thin and cultivate	5.7	55.5	38.8
15. clean work areas and buildings	3.3	62.0	34.7
Subtotal average	4.0	60.0	36.0
<u>B. Skill and judgement</u>			
6. plant seeds, cuttings, bulbs	11.4	45.2	43.4
7. transplant annuals, trees, shrubs	13.8	42.0	44.2
8. use pruners, clippers	17.0	37.6	45.4
13. assist cutting and harvesting of flowers, fruit, and vegetables	4.8	50.0	45.2
Subtotal average	12.0	43.0	34.0
<u>C. Complex and Hazardous skills</u>			
9. apply or assist fertilization	27.1	32.0	40.9
10. apply or assist pesticide use	38.8	19.3	41.9
11. operate lawnmower and weed-eater	25.0	35.6	39.7
Subtotal average	30.0	29.0	41.0
Total average percent	15.0	44.0	41.0

the cleaning of equipment, work areas, and buildings. These are skills basic to most horticultural vocational training programs for mentally handicapped individuals and ones usually necessary for entry level positions in horticultural occupations. They require the ability to use common non-mechanical garden tools and involve a minimal amount of manual dexterity. They also require the ability to consistently repeat a sequence of tasks. Because the majority of employers perceived mentally handicapped individuals to be capable of performing these tasks, it appears the horticulture industry may have many entry level job positions available for these individuals and a receptivity toward hiring them.

Skill and judgement. The second skill area involved the use of non-power cutting tools and the planting and transplanting of plant material, which required a greater degree of manual dexterity, finer hand/eye coordination, discrimination and the ability to make judgements such as determining planting depth, the ripeness of fruit, and the precise location to prune. Forty-three percent (43%) of the employers agreed that with appropriate training and a moderate amount of supervision mentally handicapped employees had the ability to plant seeds, cuttings and bulbs; transplant annuals, trees and shrubs; use pruners or clippers; and, assist the cutting and harvesting of flowers, fruit and vegetables. A slightly larger proportion (45%) had no opinion or were unable to judge and 12% disagreed to the horticultural skill tasks in this second skill area. The three fold increase in disagreement and the higher percentage of no opinion and unable to judge responses to these tasks may be because these skills require training even for non-handicapped

employees and may be perceived as beyond the abilities of mentally handicapped individuals. It is also easier for an employee to damage the plants which would result in economic loss to the employer. Employers were more reserved in their agreement to this horticultural skill area which implies that businesses specializing in this kind of work may not be as eager to place a mentally handicapped employee in these job positions. However, because a large proportion of employers did agree compared to those that disagreed it remains that the horticulture industry perceives mentally handicapped individuals as capable of performing many horticultural job skills and may be in favor of employing these workers on a part time or seasonal basis. Further, it can be documented that mentally handicapped individuals are performing these types of skills in rehabilitation training centers and sheltered workshops and therefore are capable employees.

Complex and hazardous skills. The third horticultural task area dealt with more complex skills required more judgement to execute and involved a safety risk such as the use power equipment, fertilizers and pesticides. This horticultural skill area was the one that employers indicated the greatest amount of disagreement and the least amount of agreement. Forty-one percent (41%) of the employers had no opinion or were unable to judge, 29% agreed and 30% disagreed that with appropriate training and a moderate amount of supervision mentally handicapped employees had the ability to successfully operate power equipment such as a lawn mower and nylon cord weed-eater or successfully apply or assist the application of fertilizers and pesticides. The small percent of agreement may be because these skills require more extensive training,

judgement, and familiarization with the hazards associated with chemicals. They also present a greater need for an awareness of safety and caution of the user and other workers (43). Extreme caution must be taken by the user for his or her own protection and that of others within the vicinity. Failure to observe necessary safety precautions may result in physical harm to the operator or his or her co-workers, products, and/or the environment. Skills which may also be necessary include the ability to read labels, dials or gauges, write, perform simple mathematical calculations, measure and combine liquids and/or dry materials.

The nearly three fold increase in disagreement may be due to the fact that most commercial businesses using insecticides, herbicides, and fungicides must legally require the applicator to be certified in pesticide usage for which many mentally handicapped employees would not qualify. The high percent of disagreement to these skills may be a reflection of the employers' concern regarding the insurance rates and safety records of mentally handicapped employees.

Summary. The successful acquisition of different horticultural jobs depend on skills at varying ability levels. A trend was clearly evident in how employers responded to the horticultural skill competencies of mentally handicapped individuals. The horticultural skills that employers agreed with that a mentally handicapped individual could demonstrate were those that required less judgement and discrimination to perform, such as watering plants, unloading trucks and weeding and others described in the first basic skill area. The more simple or routine the task and the less danger involved, the greater the number of horticultural skills mentally handicapped employees were perceived

capable of successfully performing. These findings are supported by the study conducted by Bolanovich and Rasmussen (7) which found employers perceived simple, routine and less dangerous tasks as ones more suited for mentally handicapped employees other industries.

Employers were more reserved in their agreement with the abilities of mentally handicapped employees to perform the tasks in the second horticultural skill area such as planting trees and shrubs and to using pruners and clippers. Employers disagreed more often with the tasks in the third horticultural skill area which required a higher degree of discrimination in safety and accuracy, such as the usage of power equipment and hazardous chemicals. This may also be a controversial area in terms of training mentally handicapped workers due to level of potential physical harm to both plants and people involved in the usage of chemicals and power equipment.

The findings of this research has several implications in terms of the vocational training and employment of mentally handicapped individuals in the horticultural industry. First, 39% of all the horticultural employers agreed that with appropriate training and a moderate amount of supervision, mentally handicapped individuals were capable of successfully performing the majority of horticultural tasks listed which indicates that the horticulture industry has a positive perception of the work abilities of these individuals. Second, because a substantial proportion of employers agreed that these individuals could perform tasks in the first two skill areas, these appear to be ones in which vocational horticultural training should specialize so that mentally handicapped workers will have a marketable job skill.

Third, in view of this favorable response it appears the industry not only perceives mentally handicapped individuals as capable horticultural workers but also may offer them employment opportunities. Fourth, rehabilitation job placement specialists should initiate contact with horticultural employers to establish a communication network for the placement of mentally handicapped individuals in the industry. Public school systems with work-study programs should take advantage of the potential opportunity for these programs with local horticultural businesses. Fifth, mentally handicapped individuals may find the greatest amount of receptivity towards employment in entry level horticultural positions such as seasonal workers in nurseries, garden centers, greenhouses, and landscape businesses. Employers in lawn and tree service businesses may be less receptive towards employing mentally handicapped individuals as these occupations require the extensive use of power equipment and chemicals.

In conclusion, responses to the work habit statements and horticultural tasks indicated employers in the horticultural industry viewed mentally handicapped workers positively and that horticulture represents a potentially satisfying career option for mentally handicapped individuals.

Business characteristics and perceptions

Statistical analysis of Chi Square tables was used to determine if the employers' perceptions of the general work habits and horticultural skill competencies of mentally handicapped employees were related to various characteristics of the employer's business. The question of whether a relationship exists between an employer's perception of

handicapped employees and characteristics of the business has been studied by many researchers (5, 7, 19, 37, 65). Employer perceptions may be related to characteristics such as the type of business which influences the nature of the work being done and the number of employees (5, 7, 65).

Type of business. Studies have found that fast pace work environments requiring employees to manage multiple job skills may be too demanding or stressful for mentally handicapped employees (7, 27). They also have reported that mentally handicapped persons may be better utilized in positions of simple or routine work and not in retail sales positions (7). These findings tend to suggest that employment opportunities in the horticulture industry would probably not be in high pressure job situations demanding multiple job duties such as in small retail businesses but rather in positions where an employee may perform a repetitive job task for an extended period of time, for example, watering or potting plants on a daily basis.

Number of employees. Studies have reported that there appears to be a positive relationship between the number of employees and employer receptivity toward handicapped employees. Larger firms tended to indicate a more favorable perception of handicapped employees (5, 7, 37). The implications of these studies to the employment of mentally handicapped individuals in the horticultural industry suggest that businesses employing large numbers of employees may also more favorably perceive the work habits and horticultural skill competencies of mentally handicapped workers. In addition, because most horticultural firms hire many seasonal employees, employers may be more receptive towards hiring mentally

handicapped workers during the peak business season.

Analysis of Chi square tables. The cross classification of the business characteristics in Section A with employers' responses to the general work habits, Section B, and the horticultural skills, Section C, revealed very few significant Chi square contingency tables. Overall, employers in Virginia's ornamental horticulture industry represented a group which perceived the work habits and horticultural skill competencies of mentally handicapped employees and potential employees without a variation in opinion due to business characteristics including the segment of the ornamental horticulture industry, sales or service orientation, the number of year round or seasonal employees, the number of years established, or, the average annual income of the business. Therefore no direct relationships could be drawn from the influence of these characteristics and the employers' perceptions.

Tables which were significant will be described briefly. Respondents with less than 6 year round employees agreed more often that mentally handicapped employees can perform many jobs as well as non-handicapped employees (A3*B9). However, this group also disagreed more often with three of the horticultural skill tasks: dig and shovel, move plants with a wheelbarrel or handcart, and assist the cutting and harvesting of flowers, fruit and vegetables (A3*C2, A3*C4, A3*C13). It would appear that employers associated with small businesses tended to underestimate the capabilities of mentally handicapped employees and may be more hesitant toward employing them. Smaller firms may also require their employees to be responsible for many job duties which would have the negative aspect shown in earlier studies.

Respondents in businesses established 15 years or more agreed more often that mentally handicapped employees could assist the cutting and harvesting of flowers, fruit and vegetables. As most of the employers surveyed were not associated with fruit and vegetable production it is not possible to draw any type of conclusion from this contingency table.

The other statistically significant tables did not contribute substantial data to be of value in addressing this objective. These tables showed an association with business characteristics and no opinion or unable to judge responses. Because so few business characteristics were significantly related to the perceptions of the work habits and horticultural skill competencies of mentally handicapped employees, it was not possible to report any conclusive correlation between the two.

Employment of handicapped individuals

The fourth section of the survey was designed to determine the extent of employment of mentally handicapped individuals and other handicapped individuals in private ornamental horticultural businesses in Virginia.

Hiring of mentally handicapped. Thirty-three (9.9%) of the respondents in Virginia's ornamental horticultural industry were currently employing a mentally handicapped employee, and 106 (32%) of the respondents had previously employed a mentally handicapped employee.

Employment of other handicapped individuals. One hundred (30%) of the responding employers had previously hired an individual with

a physical handicap, 46 (14%) had hired an individual with a visual handicap, 63 (19%) had hired an individual with a hearing handicap and 106 (32%) had hired an individual with an emotional handicap.

Based on the responses to this survey, the hiring of handicapped individuals is not a new pattern and deserves further exploration. Future information to be sought should include the determination of an employers' motivation for hiring a handicapped worker and why the individual was no longer employed.

Perceptions and hiring experience

Statistical analysis of the employers' responses to Sections B, C, and D of the survey was used to determine if employer perceptions of the work habits and horticultural skills of mentally handicapped employees were associated with current or previous hiring experience.

Work habits. Cross classification of hiring experience yielded two very interesting statistically significant contingency tables. Both employers who were currently employing a mentally handicapped employee or who had previously employed a mentally handicapped employee agreed more often that these individuals have insurance rates comparable to non-handicapped employees. This suggests that employers with hiring experience have found insurance rates and safety records not to be adversely affected by mentally handicapped employees. This one finding appears consistent with studies that have reported positive employer perceptions accompany more involvement with mentally handicapped persons (7). It also suggests that the lesser amount of agreement responses to this work habit statement may have been due to the large proportion

of employers without hiring experience.

Horticultural skills. No statistically significant difference could be determined between those employers who had hired and those who had not hired a mentally handicapped worker on any of the horticultural skill tasks (D*C). The lack of significant difference may have been the result of not enough data to completely fill the Chi square cells for a valid test or because the population which had hired may have been too small to contribute substantial influencing data. These factors presented an inability to statistically analyze hiring experience versus the employers perceptions of the horticultural skill competencies of mentally handicapped individuals. However, it should be noted that of the 106 employers who had hired mentally handicapped employees their percent of agreement was 10-30% higher to both the work habits and horticultural skills than employers who had not or who were unable to judge whether they had employed a mentally handicapped worker. Perceptions related to insurance rates, safety, and the use of power equipment and gardening chemicals were also more favorable from employers with hiring experience. It appears positive employer perceptions of the skills and abilities of mentally handicapped employees is related to hiring experience which is supported by previous research in other industries (5, 7, 37).

This further reinforces the potential existence of employment opportunities for mentally handicapped individuals in the horticulture industry because many have already been employed and were favorably perceived by their employers. Additionally, these findings strengthen the need to inform employers in the ornamental horticulture industry

that mentally handicapped employees are a dependable, safe and capable workforce which can contribute to their business as well.

Business characteristics and hiring experience

Statistical analysis was conducted to determine if characteristics of the business were associated with the reported employment experience.

Mentally handicapped

Several business characteristics were statistically significantly related to employers who were currently employing or had previously employed a mentally handicapped employee. The contingency tables showed a significantly higher number of businesses which were currently employing or had previously employed a mentally handicapped employee to be associated with the following characteristics:

- grounds maintenance,
- more than five year round employees,
- more than five seasonal employees,
- established more than fourteen years, or,
- grossing more than \$50,000 annually.

Segment of the industry. The segments of the ornamental horticultural industry responding to the survey which had employed mentally handicapped more often were associated with grounds maintenance (22%) and golf courses (16%) (Figure 4). Job tasks within this sector often utilize a small team or work crew approach for daily routine grounds and plant care involving repetitive work such as weeding, watering, and planting

which may need to be done all day long, day after day. It is suggested that these two occupational areas which have employed mentally handicapped individuals more often may be due to the simple and routine nature of the work and that with a work crew approach the co-workers provide reinforcement of the mentally handicapped employee. This type of system may be best able to accommodate the abilities and limitations of a mentally handicapped employee. There is evidence that the work crew approach has been successful with mentally handicapped individuals performing horticultural work (22, 23, 36, 79, 81). Future research may be conducted to more closely examine the specific jobs being done by mentally handicapped employees within these segments of the horticulture industry.

Nursery/ garden centers (13%) and landscape businesses (13%) had a moderate amount of employment experience with mentally handicapped employees. These businesses usually employ more seasonal or part-time workers during the late spring, summer and fall. While many of the job tasks in these segments are diverse, one or two employees may be assigned to watering or transplanting all day. These tasks may be daily activities during the peak season, therefore a mentally handicapped employee may be responsible for these repetitive job duties.

Businesses associated with tree (3%) and lawn (4%) service had the least amount of previous employment experience with mentally handicapped employees. These businesses are usually small, have few employees, tend to be seasonal in nature and require the operation of power equipment such as lawn mowers and chain saws, the application of fertilizers and pesticides, and frequently employees must work without supervision.

The skills required for these occupations were also the horticultural skills that many employers doubted whether a mentally handicapped employee would be able to perform successfully. Further, tree service occupations are especially hazardous and employees must be constantly aware of dangers associated with the job.

Sales or service. No significant relationships were shown for the business characteristic of sales or service orientation and the employment of mentally handicapped employees.

Size of firm. Larger firms in other industries have shown a tendency toward a more favorable perception of mentally handicapped employees this supports findings that ornamental horticultural businesses with more than 5 year round or seasonal employees have employed mentally handicapped employees more often than firms with 5 or less year round or seasonal employees. Ornamental horticultural businesses established more than 14 years or grossing over \$50,000 annually also have had more employment experience with mentally handicapped employees. The larger the and more well established businesses may have in-house training programs for new employees which would also assist the work adjustment of mentally handicapped employees.

Other handicaps

Several business characteristics were associated with those firms who had hired these individuals. Businesses associated with grounds maintenance had more often hired individuals with a visually or emotionally handicapping condition. Businesses that were primarily sales oriented had hired visually handicapped employees more often than service oriented businesses. Businesses which were both sales and service oriented

tended to have hired an individual with a hearing handicap more often than businesses primarily oriented towards either sales or service. Businesses associated with more than 5 year round employees, more than 5 seasonal employees, established more than 14 years or grossing more than \$50,000 annually had more often hired individuals with physical, visual, hearing, and emotional handicaps than businesses with less than 6 year round employees, less than 6 seasonal employees, established less than 15 years, or grossing less than \$50,000 annually. The one exception to this trend was that businesses with less than 6 seasonal employees had more often hired emotionally handicapped employees than businesses with 5 or more seasonal employees. Reasons for these hiring patterns may be similar to those discussed in the employment of mentally handicapped employees. Larger, more well established businesses may have in-house training programs for new employees which are adaptable to individuals with a handicapping conditions. Larger firms may also have strategies for maximizing employee efficiency such as a team or group effort programs, commission sales benefits or payment on a piece rate or hourly basis as opposed to salary. Some horticultural businesses are already taking advantage of the hiring incentives and tax breaks offered through the federal government (42).

CONCLUSION

The findings of this study indicate the importance of appropriate job identification and horticultural skill development for successful placement of mentally handicapped employees in the ornamental horticultural industry. It is essential that vocational rehabilitation specialists and the horticulture industry work together to identify the jobs that mentally handicapped individuals can perform, the skills necessary, and the amount of training and supervision required. For example, at some vocational horticultural training centers mentally handicapped workers are successfully operating power equipment such as lawn mowers for large-scale contractual grounds maintenance work, with varying amounts of supervision. Because many ornamental horticultural employers disagreed with the ability of mentally handicapped employees to use lawn mowers, it is important to convey to them that with proper training and supervision this is a realistic job assignment.

Employers who were able to give an opinion portrayed a positive perception of the work habits and horticultural skill competencies of mentally handicapped employees. Yet, the majority of respondents either had no opinion or were unable to judge the work habits or horticultural skill competencies of mentally handicapped employees. This reaffirms the need to inform the ornamental horticulture industry as to the merits of the mentally handicapped labor force and to educate these employers how to utilize these individuals in their business most effectively. Vocational rehabilitation agencies need to establish a strong working relationship with horticultural employers in the community in order to increase the industry's accessibility to mentally handicapped

employees. They must also determine specific local employment opportunities and direct the training of mentally handicapped individuals in these job skill areas. Likewise, the NCTRH must continue to publicize and promote the capabilities and capacities of mentally handicapped employees to the ornamental horticultural industry and inform employers of federal hiring programs which provide wage subsidies and tax breaks.

Based on the fact that 10% of the respondents were currently employing a mentally handicapped employee and 33% had previously employed a mentally handicapped individual coupled with a 60% survey response rate, a strong interest and potential for employing additional mentally handicapped individuals appears to exist within the ornamental horticulture industry in Virginia. Further, 33 respondents requested a copy of the survey results indicating a desire by some members of the industry to learn more about mentally handicapped individuals as employees.

Future research needs include identifying the specific horticultural jobs mentally handicapped employees are performing in other states and other segments of the horticulture industry. A similar survey conducted in major horticultural employment regions of the United States such as California, Oregon and Florida may elicit specific information regarding the employers' perceptions of mentally handicapped individuals in fruit, vegetable and foliage plant production.

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APPENDIX

Appendix A. First cover letter of the survey.

VIRGINIA COOPERATIVE EXTENSION SERVICE

**VIRGINIA
TECH**

**VIRGINIA
STATE**

Blacksburg, Virginia 24061

To: Employers in the Horticulture Industry
From: Diane Reif, Extension Specialist, Horticulture
Mary DeHart, Graduate Student, Horticulture

March 1, 1985

The Virginia Horticulture Extension office is interested in manpower resources to meet the need for qualified and reliable workers in private businesses such as yours. Mentally handicapped individuals are one potential labor source, yet little is known to what extent these persons are contributing to horticulture and related businesses. Information relating perceptions and experiences of employers like yourself would be advantageous to Virginia's labor market.

Your firm has been carefully selected to consult with on this issue. It is important that each questionnaire be completed and returned. It is also important that the person responsible for hiring employees complete this questionnaire.

You may be assured of complete confidentiality. The questionnaire has an identification number for mailing purposes only. This is so that we may check your firm's name off the mailing list when your questionnaire is returned. Your name will never be placed on the questionnaire.

The results of this research will be made available to professional organizations and trade journals. You may receive a summary of results by writing "copy of results requested" on the back of the return envelope, and printing your name and address below it. Please do not put this information on the questionnaire itself.

I would be most happy to answer any questions you might have. Please write or call. The telephone number is

Please return the completed form in the accompanying pre-paid, pre-addressed envelope or return to: Horticulture Department, Virginia Tech, Blacksburg, Va 24061

THANK YOU !

Virginia Cooperative Extension Service programs, activities, and employment opportunities are available to all people regardless of race, color, religion, sex, age, national origin, handicap, or political affiliation. An equal opportunity/affirmative action employer.

An Educational Service of the Virginia Polytechnic Institute and State University and Virginia State University
Virginia's Land-Grant Institutions, with U.S. Department of Agriculture and Local Governments Cooperating.

Appendix B. Post card for the survey follow-up.

VIRGINIA COOPERATIVE EXTENSION SERVICE

**VIRGINIA
TECH****VIRGINIA
STATE**

Last week the Virginia Horticulture Extension Service sent you a questionnaire seeking your input about mentally handicapped individuals as employees. Your name was drawn from a carefully selected sample of employers in Virginia.

If you have already completed and returned it to us please accept our sincere thanks. If not, please do so today. Because it has been sent to a specific sample of Virginia businesses it is extremely important that yours also be included in the project if the results are to accurately represent Virginia employers.

If by some chance you did not receive the questionnaire, or it got misplaced, please call me right now and will get another in the mail to you today.

Sincerely,

Diane Relf, Extension Specialist, Horticulture

Virginia Cooperative Extension Service programs, activities, and employment opportunities are available to all people regardless of race, color, religion, sex, age, national origin, handicap, or political affiliation. An equal opportunity/affirmative action employer.

An Educational Service of the Virginia Polytechnic Institute and State University and Virginia State University
Virginia's Land-Grant Institutions, with U.S. Department of Agriculture and Local Governments Cooperating.

Appendix C. Second cover letter for the survey follow-up.

VIRGINIA COOPERATIVE EXTENSION SERVICE

**VIRGINIA
TECH**

**VIRGINIA
STATE**

Blacksburg, Virginia 24061

March 25, 1985

Dear Employer,

About three weeks ago Mary DeHart, a horticulture therapy graduate student, and I wrote to you seeking your perceptions and/or experiences with mentally handicapped individuals as employees. As of today we have not received your completed questionnaire.

This research project is important to extension and the horticulture industry because of the need for qualified and reliable employees. Employer perspectives are a valuable resource to the future job training and development of handicapped individuals.

I am writing to you again because of the significance each questionnaire has to the usefulness of this study. Your firm was carefully selected for this study. In order for the results of this manpower project to truly represent Virginia's horticulture industry it is essential that each employer in the sample return their questionnaire. As mentioned in our last letter, the questionnaire should be completed by those responsible for hiring employees.

In the event that your questionnaire has been misplaced, a replacement is enclosed.

Your participation is greatly appreciated.

Sincerely,

Dr. Diane Relf
Extension Specialist, Horticulture

P.S. A number of people responding to the survey have requested a copy of the results. We hope to have them out sometime next month and will send you a copy on request.

Virginia Cooperative Extension Service programs, activities, and employment opportunities are available to all people regardless of race, color, religion, sex, age, national origin, handicap, or political affiliation. An equal opportunity/affirmative action employer.

An Educational Service of the Virginia Polytechnic Institute and State University and Virginia State University
Virginia's Land-Grant Institutions, with U.S. Department of Agriculture and Local Governments Cooperating.

Appendix D. Tables 5 - 45.

Table 5. Number of year round employees (A3) cross classified with statement B9: perform many jobs as well as non-handicapped workers.

A3	B9	disagree no opinion agree unable to judge		TOTAL
FREQUENCY EXPECTED	CELL CHI2	PERCENT	ROH PCT	COL PCT
0 - 5	11	6	88	42
	35.3	8.4	75.3	50.0
	0.4	0.7	2.2	1.3
	3.31	7.81	26.51	12.65
	7.48	18.08	59.86	28.57
	36.67	91.58	317.76	171.17
6+	19	13	82	71
	16.7	10.5	97	63.0
	5.72	3.92	24.70	21.39
	10.27	7.05	44.32	33.38
	65.55	66.42	48.26	62.85
TOTAL	30	19	170	113
	9.06	5.72	51.20	35.04
				100.00

DF= 3 PROB=0.0455

Table 6. Number of year round employees (A3) cross classified with task C2: dig and shovel.

A3	C2	disagree no opinion agree unable to judge		TOTAL
FREQUENCY EXPECTED	CELL CHI2	PERCENT	ROH PCT	COL PCT
0 - 5	0	5	104	38
	4.4	5.3	94.8	42.5
	0.0	0.0	0.9	0.5
	0.00	1.51	31.33	11.45
	0.00	3.40	70.75	25.85
	0.00	41.67	48.60	39.58
6+	10	7	110	58
	5.6	6.7	119.2	53.5
	3.01	2.11	33.13	17.47
	5.41	3.78	59.46	31.35
	58.55	51.40	60.42	
TOTAL	10	17	214	96
	3.01	3.61	64.46	28.92
				100.00

DF= 3 PROB=0.0151

Table 7. Number of year round employees (A3) cross classified with task C3: move plants with a wheelbarrel or hand cart.

A3	C3	disagree no opinion agree unable to judge		TOTAL
FREQUENCY EXPECTED	CELL CHI2	PERCENT	ROH PCT	COL PCT
0 - 5	1	6	98	62
	4.6	8.0	88.6	66.0
	2.7	0.5	1.0	0.4
	0.50	1.81	29.52	12.65
	0.68	4.08	66.67	28.57
	10.00	33.33	69.00	40.58
6+	9	12	102	62
	5.6	10.0	111.4	58.0
	2.1	0.4	0.8	0.3
	2.71	3.61	30.72	18.67
	4.86	6.49	55.14	33.51
	90.00	66.67	51.00	59.62
TOTAL	10	18	200	104
	3.01	5.42	60.24	31.33
				100.00

DF= 3 PROB=0.0443

Table 8. Number of year round employees (A3) cross classified with task C13: cut and harvest flowers, fruit and vegetables.

A3	C13	disagree no opinion agree unable to judge		TOTAL
FREQUENCY EXPECTED	CELL CHI2	PERCENT	ROH PCT	COL PCT
0 - 5	3	13	84	67
	7.1	16.4	73.5	50.0
	2.4	0.7	1.5	0.2
	0.90	3.92	25.30	14.16
	2.04	8.84	57.14	31.97
	18.75	35.14	50.60	41.59
6+	13	24	82	66
	8.9	20.6	92.5	63.0
	1.9	0.6	1.2	0.1
	3.92	7.23	24.70	19.88
	7.05	12.97	44.32	35.68
	81.25	64.86	49.40	58.41
TOTAL	16	37	166	113
	4.82	11.14	50.00	34.04
				100.00

DF= 3 PROB=0.0367

Table 9. Number of seasonal employees (A4) cross classified with task C13: cut and harvest flowers, fruit, and vegetables.

A4	C13		disagree no opinion agree unable to judge		TOTAL
FREQUENCY EXPECTED CELL CHI2 PERCENT ROW PCT COL PCT	13	16	109	76	
0 - 5	10.3	23.8	107.0	72.8	214
	0.7	0.6	0.0	0.1	
	3.92	4.82	32.83	22.89	64.46
	6.07	7.48	50.93	35.51	
	81.25	43.24	65.66	67.26	
6+	3	21	57	37	118
	5.7	13.2	59.0	40.2	
	1.3	4.7	0.1	0.2	
	0.90	6.33	17.17	11.14	35.54
	2.54	17.80	48.31	31.36	
	18.75	56.76	34.34	32.74	
TOTAL	16	37	166	113	332
	4.82	11.14	50.00	34.04	100.00

DF= 3 PROB=0.0210

Table 11. Number of years established (A5) cross classified with task C13: cut and harvest flowers, fruit, and vegetables.

A5	C13		disagree no opinion agree unable to judge		TOTAL
FREQUENCY EXPECTED CELL CHI2 PERCENT ROW PCT COL PCT	5	17	104	54	
0 - 14	8.7	20.1	90.0	61.3	180
	1.6	0.5	2.2	0.9	
	1.51	5.12	31.33	16.27	54.22
	2.78	9.44	57.78	30.00	
	31.25	45.95	62.65	47.79	
15+	11	20	62	59	152
	7.3	16.9	76.0	51.7	
	1.8	0.6	2.6	1.0	
	3.51	6.02	18.67	17.77	45.78
	7.24	13.16	40.79	38.82	
	68.75	54.05	37.35	52.21	
TOTAL	16	37	166	113	332
	4.82	11.14	50.00	34.04	100.00

DF= 3 PROB=0.0114

Table 10. Number of years established (A5) cross classified with statement B9: perform many jobs as well as non-handicapped workers.

A5	B9		disagree no opinion agree unable to judge		TOTAL
FREQUENCY EXPECTED CELL CHI2 PERCENT ROW PCT COL PCT	0 - 14	9	103	50	
0 - 14	16.3	10.3	92.2	61.3	180
	0.2	0.2	1.3	2.1	
	5.42	2.71	31.02	15.06	54.22
	10.00	5.00	57.22	27.78	
	60.00	47.37	60.59	44.25	
15+	12	10	67	63	152
	13.7	8.7	77.8	51.7	
	0.2	0.2	1.5	2.5	
	3.61	3.01	20.18	18.98	45.78
	7.89	6.58	44.08	41.45	
	40.00	52.63	39.41	55.75	
TOTAL	30	19	170	113	332
	9.04	5.72	51.20	34.04	100.00

DF= 3 PROB=0.0466

Table 12. Annual income (A6) cross classified with statement B3: compatible with co-workers.

A6	B3		disagree no opinion agree unable to judge		TOTAL
FREQUENCY EXPECTED CELL CHI2 PERCENT ROW PCT COL PCT	\$0 - 50,000	5	35	69	
\$0 - 50,000	9.1	23.6	71.6	70.9	177
	1.6	0.1	0.1	0.1	
	1.5	10.52	20.78	20.48	53.31
	2.92	19.77	38.98	38.42	
	25.41	72.92	51.49	51.15	
\$50,000+	12	13	65	65	155
	7.9	22.4	62.6	62.1	
	2.1	4.0	0.1	0.1	
	3.61	3.92	19.58	19.58	46.69
	7.74	8.39	41.94	41.94	
	70.59	27.08	48.51	48.87	
TOTAL	17	48	134	133	332
	5.12	14.46	40.36	40.06	100.00

DF= 3 PROB=0.0083

Table 13. Annual income (A6) cross classified with statement B4: insurance rates comparable to non-handicapped workers.

FREQUENCY EXPECTED CELL CHI2 PERCENT ROW FCT COL FCT	disagree no opinion		agree unable to judge		TOTAL
	disagree	no opinion	agree	unable to judge	
\$0 - 50,000	8	60	16	113	177
	12.3	30.9	19.7	116.1	
	2.1	9.7	0.7	0.0	
	4.1	12.05	6.82	39.04	
	4.52	22.60	9.06	63.84	55.31
	34.78	68.97	43.24	52.80	
\$50,000+	15	18	21	101	155
	10.7	27.1	17.3	99.9	
	1.7	3.0	0.8	0.0	
	4.52	5.42	6.33	30.52	
	9.68	11.61	13.55	65.16	46.69
	65.22	31.03	56.76	47.20	
TOTAL	23	58	37	214	332
	6.93	17.47	11.14	64.46	100.00

DF= 3 PROB=0.0154

Table 15. Previous employment of mentally handicapped workers (D2) cross classified with statement B4: insurance rates comparable to non-handicapped workers.

FREQUENCY EXPECTED CELL CHI2 PERCENT ROW FCT COL FCT	disagree no opinion		agree		TOTAL
	disagree	no opinion	agree		
Yes	10	20	22	52	52
	9.6	26.3	16.2		
	0.0	1.5	2.1		
	19.21	19.42	21.36		
	52.63	38.46	42.31		50.49
	52.63	38.46	68.75		
No	9	32	10	51	51
	9.4	25.7	15.5		
	0.0	1.5	2.1		
	8.74	31.07	9.72		
	17.65	62.75	19.61		49.51
	47.37	61.54	31.25		
TOTAL	19	52	32	103	103
	18.45	50.49	31.07	100.00	

DF= 2 PROB=0.0258

Table 14. Currently employing a mentally handicapped worker (D1) cross classified with statement B4: insurance rates comparable to non-handicapped workers.

FREQUENCY EXPECTED CELL CHI2 PERCENT ROW FCT COL FCT	disagree no opinion		agree		TOTAL
	disagree	no opinion	agree		
Yes	3	10	6	16	21
	4.0	10.1	6	6.9	
	0.2	3.77	7.2		
	2.53	3.77	13.21		19.81
	14.29	19.05	66.67		
	13.00	7.84	40.00		
No	17	47	21	85	85
	16.0	40.9	28.1		
	0.1	0.9	1.8		
	16.04	44.34	19.81		80.19
	20.00	55.29	24.71		
	85.00	92.16	60.00		
TOTAL	20	51	35	106	106
	18.87	48.11	33.02	100.00	

DF= 2 PROB=0.0010

Table 16. Currently employing a mentally handicapped worker (D1) cross classified with task C13: cut and harvest flowers, fruit, and vegetables.

FREQUENCY EXPECTED CELL CHI2 PERCENT ROW FCT COL FCT	disagree no opinion		agree		TOTAL
	disagree	no opinion	agree		
Yes	5	9	18	32	32
	2.5	5.5	23.9		
	2.4	4.6	1.5		
	2.46	4.46	8.21		15.84
	15.63	28.13	56.21		
	31.25	23.71	11.92		
No	11	26	133	170	170
	13.5	29.5	127.1		
	0.5	0.4	0.3		
	5.45	12.87	65.84		84.16
	6.47	15.29	78.24		
	68.75	74.29	88.08		
TOTAL	16	35	151	202	202
	7.92	17.33	74.75	100.00	

DF= 2 PROB=0.0280

Table 17. Segment of the industry (A1) cross classified with previous employment of mentally handicapped employees (D2).

D2 FREQUENCY EXPECTED CELL CHIZ PERCENT ROW PCT COL PCT	A1		Nursery/ garden center	Green- house	Land- scape	Grounds maint- enance	Tree service	Golf course	Lawn service	Other	TOTAL
	Yes	No									
20.4	10	12	20	10	12	23	3	17	4	17	106
0.0	13.1	12.6	0.0	0.7	0.0	13.1	5.4	20.1	4.5	16.6	
6.02	3.01	3.61	6.02	3.01	3.61	7.5	1.1	5.12	0.0	0.0	
18.87	9.43	11.32	18.87	9.43	11.32	6.93	0.90	16.04	1.20	5.12	31.93
31.25	24.39	30.00	31.25	24.39	30.00	21.70	2.83	26.98	3.77	16.04	
						56.10	17.65	26.98	28.57	32.69	
39.7	30	23	39.7	30	23	13	13	30	7	25	180
0.5	22.2	21.7	0.5	2.7	0.1	22.2	9.2	34.2	7.6	28.2	
11.75	9.04	6.93	11.75	9.04	6.93	3.8	1.6	9.05	0.0	0.4	
21.67	16.67	12.78	21.67	16.67	12.78	7.22	3.92	16.04	2.11	7.53	54.22
60.94	73.17	57.50	60.94	73.17	57.50	31.71	76.47	47.62	50.00	48.08	
5	1	5	5	1	5	5	1	16	3	10	46
8.9	5.7	5.5	8.9	5.7	5.5	5.7	2.4	8.7	1.9	7.2	
1.7	3.9	0.1	1.7	3.9	0.1	0.1	0.8	6.1	0.6	1.1	
10.87	2.17	10.87	10.87	2.17	10.87	10.87	0.30	4.82	0.90	3.01	13.86
7.81	2.44	12.50	7.81	2.44	12.50	12.20	2.17	34.78	6.52	21.76	
							5.88	25.40	21.43	19.23	
TOTAL	64	60	19.28	12.35	12.05	12.35	5.17	18.98	4.22	15.66	332
											100.00

DF= 14 PROB=0.0023

Table 18. Segment of the industry (A1) cross classified with employment of visually handicapped employees (D4).

D4	A1	Nursery/ Garden center	Green- house	Land- scape	Grounds maint- enance	Tree service	Golf course	Lawn service	Other	TOTAL
Yes	FREQUENCY	9	4	5	11	1	8	1	7	46
	EXPECTED CELL CHIZ	8.9	5.7	5.5	5.7	2.4	8.7	1.9	7.2	
	PERCENT ROW PCT	0.0	0.5	0.1	5.0	0.8	0.1	0.5	0.0	
No	FREQUENCY	19.57	8.70	10.87	23.91	2.17	17.59	2.17	15.22	13.86
	EXPECTED CELL CHIZ	14.06	9.76	12.50	26.83	5.88	12.70	7.14	13.46	
	PERCENT ROW PCT	43	33	27	22	16	33	8	30	212
Unable to judge	FREQUENCY	40.9	26.2	25.5	26.2	10.9	40.2	8.9	33.2	63.86
	EXPECTED CELL CHIZ	0.1	1.8	0.1	0.7	2.4	1.3	0.1	0.3	
	PERCENT ROW PCT	12.95	9.96	8.13	6.63	4.82	9.94	2.41	9.04	
TOTAL		67.19	80.49	67.50	53.66	94.12	52.38	57.14	57.69	74
TOTAL	FREQUENCY	12	4	8	8	0	22	5	15	332
	EXPECTED CELL CHIZ	16.3	9.1	8.9	9.1	3.8	14.0	3.1	11.6	
	PERCENT ROW PCT	3.61	2.9	0.1	0.1	0.00	4.5	1.1	1.0	
TOTAL		19.28	12.35	12.05	12.35	5.12	18.98	4.22	15.66	100.00

DF= 14 PROB=0.0164

Table 19. Segment of the industry (A1) cross classified with employment of emotionally handicapped employees (D6).

D6		A1										TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT ROW FCI COL FCI		Nursery/ Garden center	Green- house	Land- scape	Grounds mainte- nance	Tree service	Golf course	Lawn service	Other			TOTAL
Yes		19	11	16	22	4	16	4	14		106	
		20.4	13.1	12.8	13.1	5.4	20.1	4.5	16.6			
		0.1	0.3	0.8	6.1	0.4	0.8	0.0	0.4			
		5.72	3.31	4.82	6.63	1.20	4.82	1.20	4.22			
		17.92	10.38	15.09	20.75	3.77	15.09	3.77	13.21			
		29.69	26.83	40.00	53.66	23.53	25.40	28.57	26.92		31.93	
No		33	27	19	8	10	25	7	23		152	
		29.3	18.8	18.3	18.8	7.8	28.8	6.4	23.8			
		0.5	3.6	0.0	6.2	0.6	0.5	0.1	0.0			
		9.94	8.13	5.72	2.41	3.01	7.53	2.11	6.93			
		21.71	17.76	12.50	5.26	6.58	16.45	4.61	15.13			
		51.56	65.85	47.50	19.51	58.82	39.68	50.00	44.23		45.78	
Unable to judge		12	3	5	11	3	22	3	15		74	
		14.3	9.1	8.9	9.1	3.8	14.0	3.1	11.6			
		0.4	4.1	1.7	0.4	0.2	4.5	0.0	1.0			
		3.61	0.90	1.51	3.31	0.90	6.63	0.90	4.52			
		16.22	4.05	6.76	14.86	4.05	29.73	4.05	20.27			
		18.75	7.32	12.50	26.83	17.65	34.92	21.43	28.85		22.29	
TOTAL		64	41	40	41	17	63	14	52		332	
		19.28	12.35	12.05	12.35	5.12	18.98	4.22	15.66		100.00	

DF= 14 PROB=0.0031

Table 20. Type of business (A2) cross classified with employment of visually handicapped employees (L4).

A2	D4		TOTAL
	Yes	No	
Sales	18	82	128
	17.7	81.7	28.5
	0.0	0.0	0.1
	5.62	24.70	8.63
Service	11	60	88
	12.2	56.2	19.6
	0.1	0.3	0.3
	3.51	18.07	5.12
Both	8	51	70
	9.7	44.7	15.6
	0.3	0.9	1.4
	2.41	15.36	3.51
Other	9	19	46
	6.4	29.4	10.3
	1.1	3.7	5.9
	2.71	5.72	5.42
TOTAL	46	212	352
	13.66	63.86	22.29
			100.00

DF= 6 PROB=0.0310

Table 21. Type of business (A2) cross classified with employment of individuals with a hearing handicap (D5).

A2	D5		TOTAL
	Yes	No	
Sales	17	85	128
	24.3	79.4	24.3
	2.2	0.6	0.1
	5.12	25.60	7.83
Service	13	56	88
	16.7	56.6	16.7
	0.8	0.0	0.3
	3.92	16.87	5.72
Both	16	44	70
	13.3	43.4	13.3
	0.6	0.0	0.8
	4.82	13.25	3.01
Other	17	21	46
	8.7	28.5	8.7
	7.8	2.0	0.1
	5.12	6.33	2.41
TOTAL	63	206	332
	18.98	62.05	18.98
			100.00

DF= 6 PROB=0.0192

Table 22. Number of year round employees (A3) cross classified with currently employing a mentally handicapped employee (D1).

A3		D1		TOTAL
FREQUENCY EXPECTED CELL CHI2 PERCENT ROW PCT COL PCT	Yes	No	Unable to judge	
0 - 5		7	135	147
		14.6	120.4	147
		6.0	1.8	12.0
		2.11	40.68	44.28
		4.76	91.86	100.00
		21.21	49.63	118.52
6+		26	137	185
		18.4	151.6	185
		3.2	1.4	15.0
		7.83	41.27	55.72
		14.05	74.05	100.00
		78.79	50.37	118.48
TOTAL		33	272	332
		9.94	81.93	100.00

DF= 2 PROB=0.0002

Table 23. Number of seasonal employees (A4) cross classified with currently employing a mentally handicapped employee (D1).

A4		D1		TOTAL
FREQUENCY EXPECTED CELL CHI2 PERCENT ROW PCT COL PCT	Yes	No	Unable to judge	
0 - 5		14	188	214
		21.33	175.33	214
		0.9	1.7	17.4
		4.22	56.63	64.46
		6.54	87.85	100.00
		42.42	69.12	111.44
6+		19	84	118
		11.7	96.7	118
		4.5	1.7	3.0
		5.72	25.30	35.54
		16.10	71.19	100.00
		57.58	30.88	88.46
TOTAL		33	272	332
		9.94	81.93	100.00

DF= 2 PROB=0.0008

Table 24. Number of years established (A5) cross classified with currently employing a mentally handicapped employee (D1).

A5		D1		TOTAL
FREQUENCY EXPECTED CELL CHI2 PERCENT ROW PCT COL PCT	Yes	No	Unable to judge	
0 - 14		11	155	180
		17.9	147.5	180
		2.7	0.4	14.0
		3.31	46.69	54.22
		6.11	86.11	100.00
		33.33	56.99	91.85
15+		22	117	152
		15.1	124.5	152
		3.1	0.5	0.0
		6.63	35.24	45.78
		14.67	76.97	100.00
		66.67	43.01	81.15
TOTAL		33	272	332
		9.94	81.93	100.00

DF= 2 PROB=0.0351

Table 25. Annual income (A6) cross classified with currently employing a mentally handicapped employee (D1).

A6		D1		TOTAL
FREQUENCY EXPECTED CELL CHI2 PERCENT ROW PCT COL PCT	Yes	No	Unable to judge	
\$0 - 50,000		10	160	177
		17.6	145.0	177
		3.3	1.5	3.8
		3.01	48.19	53.31
		5.65	90.40	100.00
		30.30	58.82	25.93
\$50,000+		23	112	155
		15.4	127.0	155
		3.7	1.3	4.0
		6.93	33.73	46.69
		14.96	71.18	100.00
		89.70	41.18	74.07
TOTAL		33	272	332
		9.94	81.93	100.00

DF= 2 PROB=0.0001

Table 26. Number of year round (A3) employees cross classified with previous employment of a mentally handicapped employee (D2).

A3	D2		TOTAL
	Yes	No	
FREQUENCY EXPECTED	27	108	135
CELL CHI2	46.9	79.7	126.6
PERCENT	8.5	10.0	18.5
KOH PCT	18.37	73.47	91.84
COL PCT	25.47	60.00	85.47
0 - 5	12	20.4	32.4
6+	59.1	100.3	159.4
	6.7	8.0	14.7
	23.80	21.69	45.49
	47.70	38.92	86.62
	74.53	40.00	114.53
TOTAL	106	180	286
	31.93	54.22	86.15

DF = 2 PROB = 0.0001

Table 27. Number of seasonal employees (A4) cross classified with previous employment of a mentally handicapped employee (D2).

A4	D2		TOTAL
	Yes	No	
FREQUENCY EXPECTED	51	141	192
CELL CHI2	68.3	116.0	184.3
PERCENT	4.4	5.4	9.8
KOH PCT	15.36	42.47	57.83
COL PCT	23.83	65.89	89.72
0 - 5	29	29.7	58.7
6+	37.7	64.0	101.7
	8.0	13.75	21.75
	16.57	33.05	49.62
	46.66	26.54	73.20
	51.86	21.67	73.53
TOTAL	106	180	286
	31.93	54.22	86.15

DF = 2 PROB = 0.0001

Table 28. Number of years established (A5) cross classified with previous employment of a mentally handicapped employee (D2).

A5	D2		TOTAL
	Yes	No	
FREQUENCY EXPECTED	65	114	179
CELL CHI2	97.7	24.9	122.6
PERCENT	2.7	0.7	3.4
KOH PCT	13.55	34.54	48.09
COL PCT	25.00	63.33	88.33
0 - 14	25	11.67	36.67
15+	61	66	127
	48.5	82.4	130.9
	3.2	3.3	6.5
	18.57	19.88	38.45
	60.13	43.42	103.55
	57.55	36.67	94.22
TOTAL	106	180	286
	31.93	54.22	86.15

DF = 2 PROB = 0.0013

Table 29. Annual income cross (A6) classified with previous employment of a mentally handicapped employee (D2).

A6	D2		TOTAL
	Yes	No	
FREQUENCY EXPECTED	61	121	182
CELL CHI2	96.5	26.5	123
PERCENT	12.55	36.65	49.2
KOH PCT	23.16	68.36	91.52
COL PCT	38.68	67.22	105.9
\$0 - 50,000	15	15	30
\$50,000+	49.5	84.0	133.5
	4.9	7.5	12.4
	19.58	17.77	37.35
	41.94	38.06	80.00
	61.32	32.78	94.10
TOTAL	106	180	286
	31.93	54.22	86.15

DF = 2 PROB = 0.0001

Table 30. Number of year round employees (A3) cross classified with employment of a physically handicapped employee (D3).

A3		D3			TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT KOH PCT COL PCT	Yes	No	Unable to judge		
0 - 5	28	107	12	147	
	49.3	81.5	21.3		
	6.0	8.0	4.0		
	8.43	32.23	3.61	44.28	
	19.05	72.79	8.16		
	28.00	58.15	25.00		
6+	72	77	36	185	
	55.7	102.5	26.7		
	4.8	3.6	3.2		
	34.92	41.12	10.84	55.72	
	72.06	41.85	73.46		
TOTAL	100	186	48	332	
	30.12	55.42	14.46	100.00	

DF= 2 PR0B=0.0001

Table 31. Number of seasonal employees (A4) cross classified with employment of a physically handicapped employee (D3).

A4		D3			TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT KOH PCT COL PCT	Yes	No	Unable to judge		
0 - 5	51	136	27	214	
	64.5	118.6	30.9		
	2.8	2.6	0.5		
	15.36	40.96	8.13	64.46	
	23.83	63.55	12.62		
	51.00	73.91	56.25		
6+	49	48	17.1	118	
	35.5	65.4	17.1		
	5.1	4.6	0.7		
	14.45	16.48	19.80	35.54	
	49.00	26.09	43.75		
TOTAL	100	184	48	332	
	30.12	55.42	14.46	100.00	

DF= 2 PR0B=0.0005

Table 32. Number of years established (A5) cross classified with employment of a physically handicapped employee (D3).

A5		D3			TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT KOH PCT COL PCT	Yes	No	Unable to judge		
0 - 14	44	118	18	180	
	59.2	99.8	26.0		
	1.9	3.3	2.5		
	13.25	35.54	5.42	54.22	
	24.44	65.56	10.00		
	44.00	64.13	37.50		
15+	56	66	30	152	
	45.8	89.2	22.0		
	2.3	3.9	2.9		
	16.87	19.88	9.04	45.78	
	36.84	43.42	19.74		
	56.00	55.87	62.50		
TOTAL	100	184	48	332	
	30.12	55.42	14.46	100.00	

DF= 2 PR0B=0.0001

Table 33. Annual income (A6) cross classified with employment of a physically handicapped employee (D3).

A6		D3			TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT KOH PCT COL PCT	Yes	No	Unable to judge		
\$0 - \$50,000	40	120	17	177	
	53.3	98.1	25.6		
	3.3	4.9	2.9		
	12.05	36.14	5.12	53.31	
	22.60	67.80	9.60		
	40.00	65.22	35.42		
\$50,000+	60	64	31	155	
	46.7	85.9	22.4		
	3.8	5.6	3.3		
	18.07	19.28	9.34	46.69	
	38.71	41.29	20.00		
	60.00	54.78	64.58		
TOTAL	100	184	48	332	
	30.12	55.42	14.46	100.00	

DF= 2 PR0B=0.0001

Table 35. Number of seasonal employees (A4) cross classified with employment of a visually handicapped employee (D4).

A4		D4		TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT ROH PCT COL PCT	Yes	No	Unable to Judge	
0 - 5	29	150	40	214
	29.7	136.7	47.7	
	1.1	65.18	12.05	64.46
	7.23	70.09	18.69	
	11.71	70.75	54.05	
	22	62	34	118
	16.5	75.3	26.5	
	2.0	2.4	2.3	35.54
	6.63	18.67	10.24	
	18.64	52.54	28.81	
	47.83	29.25	45.95	
TOTAL	46	212	74	332
	13.86	63.86	22.29	100.00

DF= 2 PROB=0.0061

Table 34. Number of year round employees (A3) cross classified with employment of a visually handicapped employee (D4).

A3		D4		TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT ROH PCT COL PCT	Yes	No	Unable to Judge	
0 - 5	13	115	19	147
	20.4	93.9	52.8	
	2.7	4.8	5.8	44.28
	3.92	34.64	5.72	
	8.84	78.23	12.93	
	28.26	54.25	25.68	
	33	97	55	185
	25.6	118.1	41.2	
	7.1	33.8	4.6	55.72
	9.94	29.22	16.57	
	17.74	22.52	74.32	
TOTAL	66	212	74	352
	13.86	63.86	22.29	100.00

DF= 2 PROB=0.0001

Table 37. Annual income (A6) cross classified with employment of a visually handicapped employee (D4).

A6		D4		TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT ROH PCT COL PCT	Yes	No	Unable to Judge	
\$0 - 50,000	15	136	26	177
	24.5	113.0	39.5	
	3.7	4.7	4.6	53.31
	4.52	40.96	7.83	
	8.47	76.84	14.69	
	32.61	64.15	35.14	
\$50,000+	31	97	48	155
	21.5	92.6	36.5	
	4.2	23.8	14.46	46.69
	9.34	66.03	30.97	
	20.90	33.85	64.86	
TOTAL	46	212	74	332
	13.86	63.86	22.29	100.00

DF= 2 PROB=0.0001

Table 36. Number of years established (A5) cross classified with employment of a visually handicapped employee (D4).

A5		D4		TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT ROH PCT COL PCT	Yes	No	Unable to Judge	
0 - 14	22	134	24	180
	24.9	114.9	40.1	
	0.3	3.2	6.5	54.22
	6.63	40.36	7.23	
	12.22	74.44	13.33	
	47.83	63.21	32.43	
15+	24	78	50	152
	21.1	97.1	33.9	
	0.4	3.7	15.7	45.78
	7.23	23.49	12.86	
	15.77	31.72	67.37	
TOTAL	46	212	74	332
	13.86	63.86	22.29	100.00

DF= 2 PROB=0.0001

Table 38. Number of year round employees (A3) cross classified with employment of an individual with a hearing handicap (D5).

A3		D5			TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT NON PCT COL PCT	Yes	No	Unable to Judge		
0 - 5	16	27.9	91.4	19	147
	6.9	5.7	27.8		
	4.22	34.34	5.22		44.28
	9.52	77.55	12.45		
	22.22	55.54	30.16		
6+	49	35.1	114.8	44	185
	5.5	4.5	35.1		
	14.76	27.71	13.25		55.72
	26.49	49.73	23.78		
	77.78	44.66	69.84		
TOTAL	63	206	63		332
	18.98	62.05	18.98		100.00

DF= 2 PROB=0.0001

Table 39. Number of seasonal employees (A4) cross classified with employment of an individual with a hearing handicap (D5).

A4		D5			TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT NON PCT COL PCT	Yes	No	Unable to Judge		
0 - 5	32	145	37	214	
	40.6	132.8	40.6		
	1.8	1.1	0.3		
	9.64	43.67	11.14	64.46	
	14.95	67.76	17.29		
	50.79	70.39	58.73		
6+	31	61	26	118	
	22.4	73.2	22.4		
	3.3	2.0	0.6		
	9.34	18.37	7.83	35.54	
	26.27	51.69	22.93		
	49.21	29.61	41.27		
TOTAL	63	206	63	332	
	18.98	62.05	18.98	100.00	

DF= 2 PROB=0.0101

Table 40. Number of years established (A5) cross classified with employment of an individual with a hearing handicap (D5).

A5		D5			TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT NON PCT COL PCT	Yes	No	Unable to Judge		
0 - 14	21	130	29	180	
	34.2	111.7	34.2		
	5.1	3.0	0.8		
	6.33	39.16	8.73	54.22	
	11.67	72.72	16.81		
	33.33	63.11	46.01		
15+	62	76	34	152	
	28.8	94.3	28.8		
	6.0	3.6	0.9		
	12.65	22.89	10.24	45.78	
	27.63	50.00	22.37		
	66.67	36.89	53.97		
TOTAL	63	206	63	332	
	18.98	62.05	18.98	100.00	

DF= 2 PROB=0.0001

Table 41. Annual income (A6) cross classified with employment of an individual with a hearing handicap (D5).

A6		D5			TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT NON PCT COL PCT	Yes	No	Unable to Judge		
\$0 - 50,000	20	131	26	177	
	31.6	104.1	31.6		
	6.0	19.66	7.63	53.31	
	11.30	76.01	14.69		
	31.72	63.59	41.27		
\$50,000+	43	75	37	155	
	29.4	96.2	29.4		
	6.3	4.7	2.0		
	12.95	22.59	11.14	46.69	
	27.74	48.39	23.87		
	68.25	36.41	58.73		
TOTAL	63	206	63	332	
	18.98	62.05	18.98	100.00	

DF= 2 PROB=0.0001

Table 42. Number of year round employees (A3) cross classified with employment of an emotionally handicapped employee (D6).

A3		D6		TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT ROH PCT COL PCT	Yes	No	Unable to judge	
0 - 5	53	97	17	147
	46.9	67.3	32.8	
	4.1	13.1	7.6	
	9.94	29.22	5.12	44.28
	22.45	65.99	11.56	
	31.13	63.82	22.97	
6+	73	55	57	185
	59.1	84.7	41.2	
	3.3	10.4	6.0	
	21.92	18.57	17.17	55.72
	49.27	29.73	50.81	
	68.87	56.18	77.03	
TOTAL	106	152	74	332
	31.93	45.78	22.29	100.00

DF= 2 PROB=0.0001

Table 43. Number of seasonal employees (A4) cross classified with employment of an emotionally handicapped employee (D6).

A4		D6		TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT ROH PCT COL PCT	Yes	No	Unable to judge	
0 - 5	58	116	42	214
	68.2	98.0	47.7	
	17.47	26.6	16.7	
	21.10	34.36	12.65	64.46
	54.72	75.00	56.76	
6+	48	38	32	118
	37.7	54.0	26.3	
	2.8	4.8	1.2	
	14.46	11.45	9.64	35.54
	40.68	32.20	27.12	
	45.28	25.00	43.24	
TOTAL	106	152	74	332
	31.93	45.78	22.29	100.00

DF= 2 PROB=0.0011

Table 44. Number of years established (A5) cross classified with employment of an emotionally handicapped employee (D6).

A5		D6		TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT ROH PCT COL PCT	Yes	No	Unable to judge	
0 - 14	56	98	26	180
	57.5	62.4	40.1	
	0.0	2.9	5.0	
	16.87	29.52	7.83	56.22
	31.11	54.44	14.44	
	52.83	64.47	35.14	
15+	50	54	48	152
	48.5	69.6	33.9	
	0.0	3.5	5.9	
	15.06	16.27	14.46	45.78
	32.89	35.53	31.58	
	47.17	35.53	64.86	
TOTAL	106	152	74	332
	31.93	45.78	22.29	100.00

DF= 2 PROB=0.0002

Table 45. Annual income (A6) cross classified with employment of an emotionally handicapped employee (D6).

A6		D6		TOTAL
FREQUENCY EXPECTED CELL CHIZ PERCENT ROH PCT COL PCT	Yes	No	Unable to judge	
\$0 - 50,000	51	102	24	177
	56.5	81.0	39.5	
	0.5	5.4	6.1	
	15.36	30.72	7.23	53.31
	28.81	57.63	13.56	
	48.11	67.11	32.43	
\$50,000+	55	50	50	155
	49.5	71.0	34.5	
	0.6	6.2	6.9	
	16.57	15.06	15.06	46.69
	35.48	32.26	32.26	
	51.89	32.89	67.57	
TOTAL	106	152	74	332
	31.93	45.78	22.29	100.00

DF= 2 PROB=0.0001

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