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THE SAFETY EDUCATION TRAINING NEEDS OF FARMERS AND RANCHERS WITH PHYSICAL DISABILITIES

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Abstract

The purpose of this study was to determine the perceived safety education training needs of individuals who were farming or ranching with a physical disability. A survey was developed and administered to 1,954 farmers and ranchers who were known to have severe physical disabilities. A total of 627 surveys were returned for a response rate of 32.1 percent. Of the surveys returned, 552 were used in the final evaluation. Slightly over 41 percent of the respondents reported spinal cord injury as their disability and over 30 percent reported either an upper or lower limb amputation. Forty percent had been disabled for less than 10 years. Working with livestock was perceived by the respondents to be the most hazardous task on their farming or ranching operation, followed closely by operation of tractors and machinery. The participants in this study indicated a great need for educational safety training to reduce their rate of injury. They identified newsletters and related resources as being the most helpful in preventing injuries to those farming and ranching with a physical disability, as well as that most helpful system of delivering safety information, followed by farm magazines and the Cooperative Extension Service. Safety topic information most desired by respondents was machinery and tractors, followed by livestock.

It is estimated that there are approximately 500,000 farm and ranch family members who are hindered in completing work-related activities due to a disability (AgrAbility, 1993). Since 1979, the Breaking New Ground (BNG) Resource Center has provided technical assistance to thousands of individuals who desired to play an active role on their farms and ranches in spite of their disability.

During that time, concerns have been raised by family members, rural rehabilitation professionals, farm safety experts, health care providers, and the farmers themselves over the perceived increase in the perception of persons with disabilities being "less able" or "more dependent" and the fact that agricultural work is considered one of the most hazardous occupations (Accident Facts, 1993) in the United States, such vies are understandable.

With support from the United States Department of Education, Rehabilitation Services Administration, the BNG Resource Center undertook a three year study of potential hazards to farmers with severe physical disabilities their injuries experience, and perceived safety education training needs following a disability. This paper reports the findings of a survey of 1,954 farmers and ranchers who were known to have severe disabilities concerning their perceived educational training needs.

Purpose

The purpose of this study was to: 1) describe this population in terms of their disability, risks, and barriers encountered; and, 2) determine the educational training needs of individuals farming and ranching with a physical disability. The findings will be incorporated into resource materials being developed specifically for farmers and ranchers with disabilities and rural rehabilitation professionals who provide services to this population.

Methodology

Population and Census

A census of this population was conducted rather than a sample of farm and ranch operators with disabilities. Utilizing the mailing list of the BNG Resource Center, a list of 1,954 individuals were identified. Based on information gathered from prior surveys of this group, the list was known to be primarily made up of individuals who have contacted the BNG Resource Center for assistance and had experienced severe physical disabilities. The list included active farmers and ranchers from across the United States and Canada. The nature of disabilities ranged from profound hearing loss and visual impairments to high level spinal cord injuries.

A total of 627 surveys were returned. Of the surveys returned, 552 surveys represented 44 states, 5 Canadian provinces, and one survey from England were used in the final evaluation. Seventy-five of the returned surveys were not included in the final evaluation because the person who responded to the survey did not wish to fill it out, was not currently farming, was deceased, or returned the survey after the data were analyzed. Therefore, the usable response rate was 28.2%.

Instrumentation

The survey instrument was developed by the authors and field tested with input from the staff of the BNG Resource Center and the Agricultural Education faculty at Purdue University. It was also pilot tested during on-site visits with two Indiana farmers with spinal cord injuries.

The instrument contained three sections designed to gather information on the injury experience of the population, their perceptions of farm and ranch related hazards, perceived safety training needs, and general demographic characteristics.

Data Collection and Analysis

A one page cover letter and the survey instrument were prepared and mailed to the population. A follow-up post card was sent to individuals who had not responded approximately two weeks following the initial mailing to encourage additional responses. An incentive was offered in the initial letter so that the first 100 respondents would receive a free hat.

In addition to the 627 individuals who responded to the survey, a randomly selected sample of 20 non-responding subjects were contacted by telephone. According to Borg and Gall (1989), 20 cases are adequate to compare the responses of both groups to determine if the non-responding group was biased. Calls were made until twenty (20) individuals agreed to answer the survey over the phone.

The collected data were processed and coded using a computer spreadsheet and reported using appropriate statistical methods which included frequencies, percentages, and means.

Results

Personal Information

Of the 552 surveys utilized in this study, males comprised 95.3% of the survey participants. The majority (362) of the survey respondents were between the ages of 30 and 60, with the mean age being 49.1 years. The average age of all farm operators in the United States was 52 years of age, according to the United States Census of Agriculture (1987). Two major areas stood out as farm enterprises that served as the major source of the participants income. "Cash grain," and "beef" were reported as the primary source of income by 44.7%, and 28.4% of the respondents respectively. It was found that 31% of the respondents considered themselves to be a full-time farm operator working an average of 31.0 hours per week on the farm.

Table 1. Nature and Frequency of Initial Impairment

Type of Injury	Percent	Number
Spinal Cord Injury	41.30	228
Paraplegia	26.80	148
Quadriplegia	12.70	70
Amputation, upper limb (above elbow, below elbow, hand/finger)	19.00	105
Amputation, lower limb (above knee, below knee, foot/toe)	10.70	59
Arthritis	7.80	43
Hearing Impairment	6.20	34
Orthopedic impairment	5.90	33
Elbow	0.72	4
Hip	2.90	16
Knee	3.40	19
Other	1.80	
Visual impairment (cataracts, glaucoma, etc.)	5.30	29
Polio or post polio	4.70	26
Head Injury	3.90	22
Heart disease	3.90	22
Multiple sclerosis	3.60	20
Other, please specify	2.90	16
Hand impairment (carpal tunnel syndrome, etc.)	2.50	14
Muscular dystrophy	2.40	13
Cancer	1.90	11
Diabetes	1.60	9
Respiratory impairment	1.50	8
Cerebral palsy	0.91	5
Burn injuries	0.72	4
Amyotropic lateral sclerosis	0.54	3
Cognitive impairment, please specify	0.54	3
TOTAL		*707

*Some individuals reported more than one impairment.

Disability-Related Information

Spinal cord injuries accounted for 41.3% of the

responses (Table 1). The second largest category was upper limb amputations. Of the farmers and ranchers who participated, 40.6% have had their disability for 10 years or less, with 39.3% acquiring their disability as the result of a farm work-related injury (Table 2). Due to the disability, nearly 81% of the respondents reported there were necessary work-related tasks on their farm or ranch they could no longer perform or were seriously hindered from performing. Many of these individuals noted they had problems loading or moving livestock, hitching implements to tractors and equipment, fueling and routine maintenance of tractors, climbing, and carrying heavy objects.

Table 2. How Disability Was Acquired

Disability Acquired	Percent	Number
Farm work	39.30	217
Auto	16.30	90
Other	15.40	85
Health Condition	12.70	70
Recreation	8.70	48
Congenital	6.30	35
Home	1.30	7

Who Provides the Most Assistance*?*

Spouses (24.6%) were reported as being the person providing the most assistance in performing necessary physical tasks on the farm or ranch operation. Relatives (24.6%) and children (16.8%) were reported as providing the most assistance by the respondents. This suggests that a number of farmers may be placing children in high risk situations in order to complete essential work-related tasks. Slightly over 5% of the participants reported injuries to a co-worker of family member while assisting them when completing a task.

What Tasks Were Perceived Most Hazardous*?*

Working with livestock was perceived by the respondents to be the most hazardous task on their farming or ranching operation, followed closely by operation of tractors and machinery. There were a variety of answers to this question and responses varied by disability types. The most frequent responses were categorized and ranked according to the number of responses to each category (Table 3). Sixty percent, or 332 respondents believed that they were at greater risk of being injured on their farm or ranch because of their disability.

Table 3. Most Hazardous Task on Farm or Ranch

Most Hazardous Tasks	Number
Working with livestock	60
Operating tractors and machinery	57
Climbing	38
Chemical application/anhydrous ammonia	22
Hay harvesting	20
Chain saw operation/cutting wood	19
Mowing/bushhogging	19
Operating PTO/auger	16
Grain harvesting	10

Educational Training Needs

Three hundred ten, or 56.2% of the respondents rated articles in the BNG Resource Center newsletter as being one of the most effective resources to assist them in preventing work-related injuries. Many had been receiving this publication for over 10 years. Printed materials (brochures), and video tapes were also noted as effective resource materials by 38.8%, and 37.1% of the respondents respectively (Table 4).

Responses concerning delivery method were highly consistent with the desired format of the safety resources. Respondents reported that the most effective means of delivering safety information to them would be the Breaking New Ground newsletter (Table 5). The BNG Resource Center is a major source of information for this population. Farm magazines were also considered to be a very effective means of delivering

information with 44.9%, followed by the Cooperative Extension Service with 30.0% (Table 5).

Table 4. Most Effective Format for Safety Resource Materials as Indicated By Respondents

Safety Resource Materials	Percent	Number
Articles in the BNG Newsletter	56.2	310
Printed materials (brochures)	38.8	214
Video tapes	37.1	205
Articles in the farm press	22.1	122
Exhibits at trade shows and fairs	19.8	109
On-farm consultation	18.8	104
Television programs	15.6	86
Country and local meetings	9.2	51
Computer programs	6.3	35
Radio announcements	4.4	24
Other, specify	2.5	14

When asked which safety information topics they desired to know more about, respondents ranked machinery (42.0%), and tractors (40.2%) first and second. Even though livestock was perceived to be a greater hazard, it was identified by only 29.7% of the participants (Table 6).

Conclusions

Sixty percent of the survey population considered themselves to be at greater risk of injury due to their disability. Nearly 81% of the respondents felt as though there were necessary tasks they could no longer perform or were seriously hindered from performing. Tasks most frequently identified were related to livestock, tractors and machinery, and climbing which were also identified as the most hazardous tasks.

Table 5. Most Effective Delivery Method

Delivery Method	Percent	Number
Breaking New Ground newsletter	65.8	363
Farm magazines	44.9	248
Cooperative extension service	30.0	166
Farm television & radio programs	25.3	140
Farm Organization (Farm Bureau, etc)	25.2	139
Voc-Rehab facilities	19.0	105
Local High School agriculture teachers	6.5	36
Rural hospitals & health clinics	4.4	24
Other, specify	4.3	24
Rural churches	2.9	16

Table 6. Topics of Desired Information Regarding Methods of Reducing Risks

Desired Topics	Percent	Number
Machinery	42.0	232
Tractors	40.2	222
Livestock handling	29.7	164
Shop & maintenance tools	18.3	101
All terrain vehicles (ATV)	14.3	79
Crop handling & storage	13.2	73
Chemicals	12.9	71
Motor vehicle (car, truck)	11.6	64
Communication aids	11.1	61
Safety around the home	9.1	50
Fire protection	7.3	40
Farm buildings	6.3	35
Logging	3.8	21
Firearms	2.2	12
Other	1.6	9

Children were identified by respsondents as the primary source of assistance in completing essential tasks on the farm or ranch. This suggests that there may be a significant number of children,

regardless of age, placed in high risk situations in order to carry out tasks that are difficult or impossible for the farmer or rancher with a disability. The percent of respondents reporting they could recall an injury to a co-worker or family member while assisting them is comparable to the percentage of by-stander injuries reported by the general farm population.

Many of the respondents have been receiving the Breaking New Ground newsletter for more than 10 years. Evidence of the newsletter's popularity is apparent because of the number of respondents who felt the newsletter and related resources were the most helpful to them in preventing injuries on their farming/ranching operation, as well as the most effective system of delivering safety information.

Even though working with livestock, especially cattle, was identified as the most hazardous task, the demand for safety material on machinery and tractors was much greater than the demand for livestock safety material. All three of these areas have been given considerable attention by agricultural safety and health professionals as they relate to the general farm/ranch population.

The findings from this study should serve as a preliminary step in the effort to reduce the risk of injury to all farmers and ranchers, especially those with disabilities. The data collected indicates safety training needs of the population and how best to disseminate educational safety materials.

Recommendations

The following are specific recommendations that were developed as a result of the study:

1) There needs to be adequate safety education materials (including both printed and audio-visual resources) on machinery, tractors, and livestock handling, for use in hazard prevention and preventing injuries following a disability.

2) There needs to be developed high quality, task specific safety education material for use by farmers and ranchers with disabilities who are actively involved in agricultural production. This material should initially focus on hazard identification, injury prevention techniques, and disability specific hazards.

3) Information on the potential risks of farming or ranching with a disability should be distributed to rural rehabilitation professionals and major rehabilitation facilities for use in preparing farmers and ranchers following a disability to safety return to their operation if they so desire.

4) Even though the incidence rate of injury to other individuals assisting a farmer or rancher with a physical disability is low, there appears to be a high potential for injury, especially to children. Resources need to be developed to help educate individuals with physical disabilities to become aware of the hazards to care givers and assistants.

5) A concerted effort is recommended to monitor the injury experience of this population in order to identify and address unique hazards that could result in additional or secondary injuries.

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