

An Analysis of Agricultural Accidents in Florida -- 1992¹

William J. Becker²

INTRODUCTION

The agricultural work force in the United States totals 3.2 million, which equates to 2.7 percent of our total work force. However, there are 1,300 deaths and 120,000 disabling injuries annually, or 12.5 percent of all workplace deaths and 7.1 percent of all disabling injuries. Both of these rates -- in deaths and disabling injuries -- exceed the rates of the construction and transportation industries, and only mining has a higher death rate. Unfortunately, agriculture is one of the more hazardous occupations in the United States.

Florida contributes to this problem. Over the seven past years there have been over 140 confirmed deaths due to work-related agricultural accidents, an average of twenty per year. During this seven-year period there has been an average of 3,340 serious injuries per year. (A serious injury is one in which the injured person misses a week or more of work.) This report analyzes the work-related deaths and injuries in Florida agriculture during 1992. The data for this analysis are from the Division of Workers' Compensation, supplemented by newspaper clippings and from dialogue with county extension personnel.

The fatality data are for all known agricultural-related deaths. The information on serious injuries is incomplete, since injuries reported only to the Division of Workers' Compensation are included. Many small family farm operations are not required to provide workers' compensation insurance; therefore, these injuries go unreported. It is estimated that 25 percent of all serious agricultural injuries go unreported.

FATALITIES

A total of 35 individuals were identified who were killed in some type of agricultural accident or who died as a result of natural causes during hours while employed in an agricultural occupation. Only one fatality was to an individual not employed or directly involved in agriculture. This was a female passenger who was killed when the pick-up truck in which she was riding ran into a feed wagon being towed by a tractor on a public road.

Ten of the fatalities were listed as natural causes or unknown when the original notice of injury, the source of most fatality data, was completed. Subsequent investigation may conclude that some of these fatalities might have had a work-related cause.

-
1. This document is SSAGE35, one of a series of the Agricultural and Biological Engineering Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Original publication date January 1994. Reviewed June 2003. Visit the EDIS Web Site at <http://edis.ifas.ufl.edu>.
 2. William J. Becker, professor and extension safety specialist, Agricultural Engineering Department, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville FL 32611.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Employment Opportunity - Affirmative Action Employer authorized to provide research, educational information and other services only to individuals and institutions that function without regard to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. For information on obtaining other extension publications, contact your county Cooperative Extension Service office. Florida Cooperative Extension Service / Institute of Food and Agricultural Sciences / University of Florida / Larry R. Arrington, Interim Dean

If these ten fatalities are not determined to be work-related and the five motor vehicle fatalities are considered (counted) as traffic fatalities, there were twenty fatalities which were agricultural work-related fatalities in Florida during 1992.

Thirteen of these fatalities were tractor-machinery accidents. Five were from tractor-equipment overturns, five were runover type accidents and three were crushed between a moving and fixed object.

The three fatalities in tree service or logging operations were one crushed by a falling log, the second by a falling tree and the third fell from a tree. The remaining four included two aircraft crashes, one died of burns and the other was shot by a co-worker.

Table 1 summarizes the agricultural, work and non-work fatalities during 1992 in Florida. Table 2 provides some information on each of these fatal accidents.

SERIOUS INJURIES

The Division of Workers' Compensation collects data on all serious injuries incurred by employees provided with workers' compensation insurance. In 1992, they reported 2,393 such injuries to agricultural workers. While this number is unacceptable by most standards, it is the lowest total in ten years. Serious injuries are those which cause an employee to miss a week or more of work.

Landscape and Horticultural Services, primarily those employed in lawn and garden maintenance, continue to "lead the industry" in the number of serious injuries. They accounted for 610 of these injuries in 1992, over 25 percent of all the reported serious injuries in agriculture.

This occupational area was followed by Crop Services, those employees primarily involved in crop harvesting. This area reported 407 serious injuries, 17 percent of the total.

These two areas were followed by Fruit, Berry, Grape and Nut Production -- in Florida this is primarily citrus production; and Livestock Production

-- primarily beef production. These four areas; Landscape and Horticultural Services, Crop Services, Fruit Production and Livestock Production accounted for 1,684 or over 70 percent of the serious work related injuries in Florida agriculture during 1992. Table 3 provides information on these and other serious injuries by type of agricultural business.

Forty percent of all serious injuries occur to employees under the age of thirty (see Table 4). This would indicate that more effective safety training and supervision is needed for younger employees. After age thirty there is a steady decline in the percent of serious injuries to the level of only 1.5 percent of all serious injuries occurring to employees 60 years of age or older.

These figures may also account for the high number of injuries in Horticultural Services and Crop Services; two occupational areas with a large percent of younger employees.

In previous years the male to female ratio was provided. It is estimated that there were four males injured for each female. The Division of Workers' Compensation did not provide information by sex for 1992.

If you have an object or perform a task at a work-site, it is capable of causing injury. As Table 5 indicates, thirty percent of all serious injuries are due to improper or excessive bodily motion or working surfaces. Bodily motion injuries are generally associated with lifting, pulling, pushing activities; working surfaces with slips, trips and falls.

Containers of all types are the only other agent of injury associated with more than five percent of all serious injuries. The twenty-five percent for miscellaneous or unknown agents is to be expected since the notice of injury form, from which this data is collected, does not specifically ask for the agent of injury.

Anyone who is truly concerned about controlling serious injuries must solve the problem of sprains and strains and slips, trips and falls. These types of accidents account for 58 percent of all serious injuries.

We need to consider any and all available means and methods to prevent heavy and repeated lifting, pushing, pulling and reaching -- those bodily motions which lead to sprains and strains. We need to study our working surfaces -- outdoors, indoors, on ladders, platforms, trucks, machines, etc. -- which lead to slips, trips and falls. These are the accidents which often result in sprains, strains, bruises, lacerations and fractures. We need to solve these problems.

The Notice of Injury Report, on which this analysis is based, does not adequately address the nature of most injuries. It may just say "The employee fell and injured his back." Therefore, many of the injuries are recorded as "All other or unknown" It would probably be a safe judgement to distribute this forty percent among the other listed nature of injury categories in proportion to the percent of each injury.

Nevertheless, it is clear that sprains and strains are the major problem with most of them being caused by improper bodily motion -- lifting, pulling and pushing and by slips, trips and falls.

The lower back is the body part most frequently injured. Back injuries are among the most costly injuries. The type of injury is most often a sprain or strain which are also the most frequent type of injury to the major joints of the body, the ankle, knee and hip, wrist, elbow and shoulder.

SUMMARY

Fatalities to agricultural workers in Florida continue to be associated with motorized vehicles and machinery. Tractors and machinery, motor vehicles and aircraft accounted for 21 of the 35 reported fatalities. Ten fatalities were either from natural causes or the cause was undetermined. While all unsafe conditions should be corrected, special

attention must continue to be given to tractor, machinery and motor vehicle safety.

Since over 40 percent of all serious injuries to agricultural workers occur to those employees in their teens and twenties, it is imperative that extensive safety training be provided at the time of employment and whenever a young employee is assigned a new task. We must improve safety training and safety supervision young and new employees.

Any analysis of Tables 5, 6 and 7 should clearly identify the weaknesses of our agricultural safety program. Our major problems are sprains and strains caused by improper or excessive bodily motions -- lifting, pushing and pulling and slips, trips and falls. Review the agents of injury in Table 5. What are the problems? Bodily motion and working surfaces are two. Review the other agents of injury listed. Notice how many of these are objects which we need to lift, pull or push. Table 6 confirms our analysis of Table 5. Bodily motion -- lifting, pushing and pulling and working surfaces lead to strains and sprains, slips, trips and falls which account for nearly 60 percent of all serious injuries.

Then review Table 7, Percent by Nature of Injury. Note that in Table 6 sprains and strains accounted for 38 percent of all serious injuries, while Table 6 reports that only 24 percent are sprains and strains. Why? Because the Notice of Injury Reports are not designed to effectively report the Nature of Injury; therefore many of the sprains and strains end up being recorded in the All other or Unknown category.

Finally, review Table 8, Percent by Body Part Injured. The back and our arm and leg joints account for a total of 42 percent of all injuries. And the most frequent injury to the back and joints are sprains and strains.

The author is not recommending that we forget the importance of safety training and supervision in the areas of tractors, machinery, motor vehicles, pesticides and other chemicals, hand or power tools, animals or in any other area. These safety programs must continue and improve. However, until our safety leaders, extension personnel, owners, managers, supervisors and workers in agriculture recognize that

our number one safety problem is sprains and strains caused by lifting, pushing and pulling or slips, trips and falls, our serious injury problems will continue. Workers will continue to suffer, medical costs will continue to climb, lost work days and lost productivity will be a problem, and an effective safety program will remain a dream.

We must continue to PUT MORE SAFETY IN OUR PROGRAMS and a major emphasis must be: **TO PREVENT IMPROPER LIFTING, PUSHING AND PULLING, TO PREVENT SLIPS, TRIPS AND FALLS, TO PREVENT SPRAINS AND STRAINS, AND TO PREVENT BACK AND JOINT INJURIES.**

Table 1.

Table 1. Types of accidents resulting in agricultural-related fatalities in Florida in 1992	
Type of Accident	Number of Fatalities
Tractor-Machinery	13
Motor Vehicle	5*
Logging - Tree Service	3
Aircraft	2
Shooting	1
Burns	1
Natural Causes or Unknown	10
Totals	35
* While four of these motor vehicle accidents were work-related, they are not considered to be agricultural accidents; rather, they are classified as accidents.	

Table 2.

Table 2. Agricultural Fatalities in Florida -- 1992			
CountyDate	Employer	Employee	Cause
Taylor01-10-92	T & M LoggingPerry	Fred Weaver	Crushed -- logrolled off truck
Hendry01-11-92	D & K HarvestingLa Belle	Jean Monpremier	Motor vehiclepublic road
Polk01-11-92	Maxime Air, Inc.Frostproof	Harry McCollum	Airplane crash
Palm Beach02-20-92	Talisman Sugar Corp.South Bay	Unknown	Cane truck overturnpublic road
Martin03-04-92	Waldrep & Legg DairyIndiantown	James Smith	Natural causes

Table 2.

Table 2. Agricultural Fatalities in Florida -- 1992			
CountyDate	Employer	Employee	Cause
Pasco04-27-92	P & H DairyZephyrhills	Deborah Nealnon-employee	Truck hit tractor & feed wagon -- public road
Suwannee05-01-92	Jym Seago LoggingMadison	Willie Morgan	Natural causes
Hernando05-06-92	Orange Kare, Inc.Brooksville	David Gonzalez	Thrown from tractor, hit a tree
Sarasota05-28-92	Cadys Grove ServiceSarasota	Jessie Stanley	Motor vehiclepublic road
Escambia06-09-92	Carl PetersonByrnesville	Bruce McCurdy	Tractor overturnroad embankment
DeSota06-16-92	Arthur L. SmithNocatee	Arthur L. SmithSelf-employed	Tractor passengerknocked off, runover
Polk06-17-92	Dan WeatherfordLakeland	Dan WeatherfordSelf-employed	Jump-startingtractor, runover
Lake06-24-92	Golden GemGrovers Umatilla	James Simmon	Between tractor & mower -- runover
Hendry06-26-92	ABC Farms, Inc.Immokalee	Alonzo CurryManager	Helicopter crash
Dade07-01-92	Bruce GroupEnterprisesGoalds	Orlando Williams	Natural causes
Dade07-15-92	J & V FarmsMiami	Apello Baldolado	Natural causes
Hillsborough07-15-92	Apopka Tree ServiceApopka	Victor Broome	Citrus topperoverturned
Hillsborough08-14-92	Tampa Farm ServiceTampa	Raymond Barton	Crushed between tractor & dumpster
Santa Rosa08-27-92	Alabama LoggingCo.	Henry Bush	Crushed by fallingtree
Dade08-31-92	Jackies Parnel Sod Co.Miami	Jacqueline Kogerco-owner	Motor vehicle
Polk09-01-92	Etoile Altman GrovesFt. Meade	L.D. Moreland	Tractor overturnNatural causes?

Table 2.

Table 2. Agricultural Fatalities in Florida -- 1992			
CountyDate	Employer	Employee	Cause
Polk09-02-92	Davey Tree Expert Co.Winter Park	Damilton Rush	Fell from tree
St. Lucie09-09-92	Phillip HoeffnerFt. Pierce	Phillip HoeffnerSelf-employed	Tractor overturncanal bank
Manatee10-08-92	Whisenate FarmsParrish	Jose Aquilar	Natural causeschoked on food
St. Lucie10-27-92	Stewart HarvestingFt. Pierce	Willie Mitchell	Natural causes
Palm Beach11-05-92	Osceola FarmsPahokee	Llewelyn Lemonious	Crushed byoverturned cane wagon
Palm Beach11-18-92	U.S. Sugar Corp.Clewiston	Charles Marshall	Tractor overturncanal bank
Palm Beach11-25-92	New Hope South, Inc.South Bay	Mackie West	Crushed byequipment on lowboy
Broward11-25-92	B & S Tree ServiceDavie	Richard BenaOwner	Natural causes
Orange11-30-92	Roper Grove Coop.Winter Garden	Bobbie Davis	Natural causesbanking trees
St. Lucie12-02-92	SoutheasternAgricultural ServiceFt. Pierce	Robert Cade	Shot by co-worker
Palm Beach12-07-92	Talisman Sugar Corp.South Bay	Lamar Phillips	Tractor overturncanal bank
Collier12-08-92	Redi-PlantsNaples	Ralph Brown	Natural causes
Hendry12-28-92	U.S. Sugar Corp.Clewiston	Jorge Hernandez	Burns
Hendry12-29-92	D & K HarvestingLa Belle	James Gilbert	Natural causes

Table 3.

Table 3. Number of Serious Agricultural Injuries by Type of Agricultural Business -- 1992		
Type of Business	Number Serious Injuries	Percent of Total

Table 3.

Table 3. Number of Serious Agricultural Injuries by Type of Agricultural Business -- 1992		
Type of Business	Number Serious Injuries	Percent of Total
Landscape and Horticultural Services:-Primarily lawn & garden maintenance	610	25.5
Crop Services:-Primarily crop harvesting	407	17.0
Fruit Production:-Primarily citrus production-Includes berry, grape and nuts	373	15.6
Livestock Production:-Primarily beef and hogs-Excludes dairy and poultry	294	12.3
Horticultural Production:-Primarily ornamental nursery products	205	8.6
General Crop Production:-Includes cash grains, cotton, tobacco,sugar cane and potatoes	152	6.4
Vegetable and Melon Production:	93	3.9
Horse Farms-Production, training	82	3.4
Animal Services:-Including veterinary services	72	3.0
Dairy Farms:-Milk production, young stock	57	2.4
Timber Production and Services:-Nursery and pulpwood only	19	0.8
Poultry Production:-Broilers and eggs	18	0.8
Fishing and Fish Hatcheries	11	0.5
TOTALS	2,393	100.2*
*Variation due to rounding off of numbers		

Table 4.

Table 4. Percent of Serious Injuries by Age - 1992	
Age	Percent
Under 20	5.0
20-24	18.0
25-29	17.5

Table 4.

Table 4. Percent of Serious Injuries by Age - 1992	
Age	Percent
30-34	13.5
35-39	12.0
40-45	10.5
45-49	10.0
50-54	7.0
55-59	5.0
60 or over	1.5

Table 5.

Table 5. Percent by Agent of Injury	
Agent of Injury	Percent
Bodily motion	18.0
Working surfaces	12.0
Containers, boxes, bags, etc.	9.0
Motor vehicles	4.5
Sharp objects	4.0
Trees or limbs	4.0
Animals	3.5
Machines	3.0
Hand tools	2.5
Heavy objects, unnamed	2.5
Skids, Pallets	2.5
Poisons, Infectious agents	2.0

Table 5.

Table 5. Percent by Agent of Injury	
Agent of Injury	Percent
Miscellaneous or unknown	25.0
Hand trucks	< 2.0
Thorns	< 2.0
Power tools	< 2.0
Food Products	< 2.0
Ladders	< 2.0
Metal objects	< 2.0
Cable-Rope	< 2.0
Pipe	< 2.0
Lumber	< 2.0
Brick-Blocks	< 2.0
Ditch	< 2.0
Door-Gate	< 2.0
Tires-Wheels	< 2.0
Wire	< 2.0

Table 6.

Table 6. Percent by Accident Type	
Accident Type	Percent
Strains-sprains	38.0
Slips-trips-falls	20.0
Struck by falling, flying or moving object	16.0
Striking-falling into-against object	8.5

Table 6.

Table 6. Percent by Accident Type	
Accident Type	Percent
Caught in-under-between object	5.0
Motor vehicle collision	2.5
Stepping on sharp object	2.0
Miscellaneous-Unknown	8.0

Table 7.

Table 7. Percent by Nature of Injury	
Nature of Injury	Percent
Sprains - Strains	24.0
Lacerations	8.5
Fractures	8.5
Bruises - Contusions	4.5
Amputations	2.5
Crushing	2.0
Hernias	2.0
Punctures	2.0
Respiratory and Occupational Diseases	2.0
Infections	1.5
Dislocations	1.5
All other or Unknown	40.0

Table 8.

Table 8. Percent by Body Part Injured	
Body part	Percent
Back	22.0
Lower extremities:	30.0
Knee	8.0
Ankle	7.0
Foot	6.5
Lower leg	4.5
Hip	1.5
Multiple parts	1.5
Toes	1.0
Upper extremities:	23.0
Fingers - Thumb	7.5
Hand	6.0
Upper arm	4.5
Elbow	2.0
Wrist	1.5
Multiple Parts	1.5
Multiple Body Parts	16.0
Head:	3.5
Eyes	1.5
Skull	1.0
Face	1.0