



# Identifying Fatality and Injury Risks for Senior Farmers

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AgrAbility Virtual National Training Workshop  
Tuesday, January 29, 2019  
12:00 p.m. ET

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- ▶ Problems: use chat window or email [jonesp@purdue.edu](mailto:jonesp@purdue.edu)



**AgrAbility:** USDA–sponsored program that assists farmers, ranchers, and other agricultural workers with disabilities.

- ▶ Partners land–grant universities with disability services organizations. Currently 20 state projects
- ▶ National AgrAbility Project: Led by Purdue’s Breaking New Ground Resource Center. Partners include:
  - ▶ Goodwill of the Finger Lakes
  - ▶ APRIL (Association of Programs for Rural Independent Living)
  - ▶ Colorado State University
  - ▶ Washington State University
- ▶ More information available at [www.agrability.org](http://www.agrability.org)

# Identifying Fatality and Injury Risks for Senior Farmers

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# Our Aging Agricultural Population

- Average age of farmers is 58.3 (USDA, Census of Agriculture)
  - ❑ One third are 65 or above
  - ❑ About 12% are over 75 years
- Strong feelings towards agriculture
  - ❑ 42% of 1,288 older farmers defined health as the ability to work (Reed et al, 2012)
  - ❑ 27% of 418 farmers said “they intended never to retire” (Duffy et al, 2000)
- Financial issues
  - ❑ Only 15% of 972 farmers said they would sell farmland or other assets for retirement funds (Baker and Epley, 2009)
  - ❑ Social security only accounts for around 13% of farmers total income (Mishra et al, 2005)



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Grant Wood

# Physical and Mental Effects of Aging

## ➤ Mobility

- ❑ Older farmers with mobility issues are twice as likely to experience farm work injuries (Heaton et al., 2012)

## ➤ Hearing

- ❑ Hearing loss is common with aging (NIHCD, 2017)
- ❑ Farming increases loss of hearing sensitivity (Plakke & Dare, 1992)
- ❑ Hearing loss increases the risk of sustaining farm related injuries (Getts, Ploss, & Brusnighan, 1995)





# Physical and Mental Effects of Aging

## ➤ Vision

- ❑ Age increases probability of blindness or vision impairment (Kahn et al, 1977)
- ❑ Changes in the eyes reduce the amount of light received by the retina
  - 2/3 amount of light captured by the retina is lost from age 20 to age 60 (LRC, 2017)



## ➤ Mental Reaction Time/Judgement

- ❑ Aging leads to slower reflexes and reaction times (Kenney, 1982)

# Risks of Agriculture

## ➤ Farming is a dangerous profession

### ❑ Census of Fatal Occupational Injuries (CFOI)

- 2016 had an fatal work injury rate of 3.6 for all workers (CFOI, 2016)
- 23.1 for farmers (CFOI, 2016)

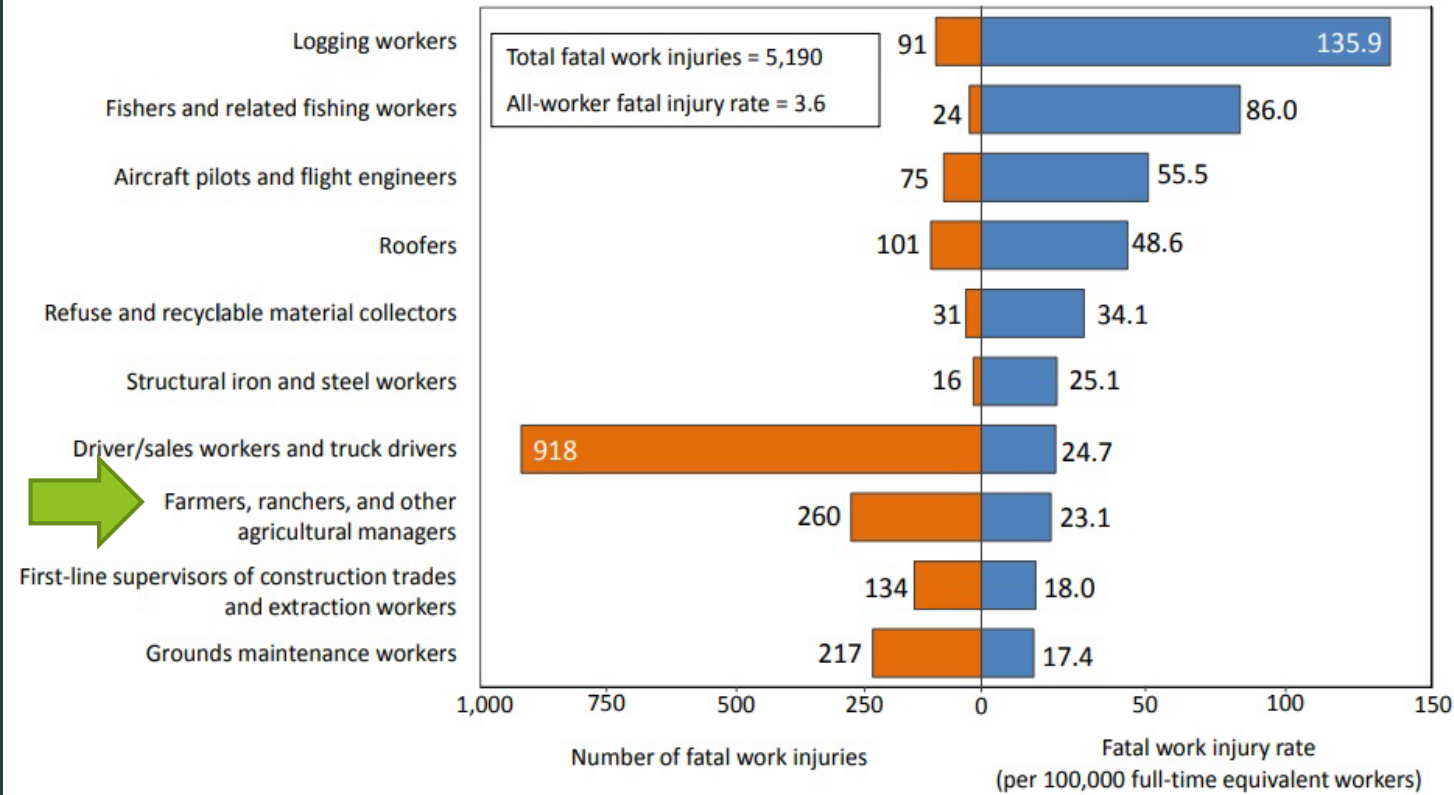
### ❑ National Safety Council

- 2015 had an fatal work injury rate of 3.0 for all workers (National safety council, 2017)
- 22.6 for farmers (National safety council, 2017)

## ➤ Important note

- ❑ Farming has been combined with fishing and forestry profession for reporting fatalities

Civilian occupations with high fatal work injury rates, 2016



Census of Fatal Occupational Injuries, 2016

# How does this relate to AgrAbility?

- The Vision of AgrAbility is *“ to enhance quality of life for farmers, ranchers, and other agricultural workers with disabilities.”*
  - ❑ Aging is included in the scope of AgrAbility’s mission
- 41.8% of AgrAbility clients during the 2016-2017 period were 60 years or older

# Methodology

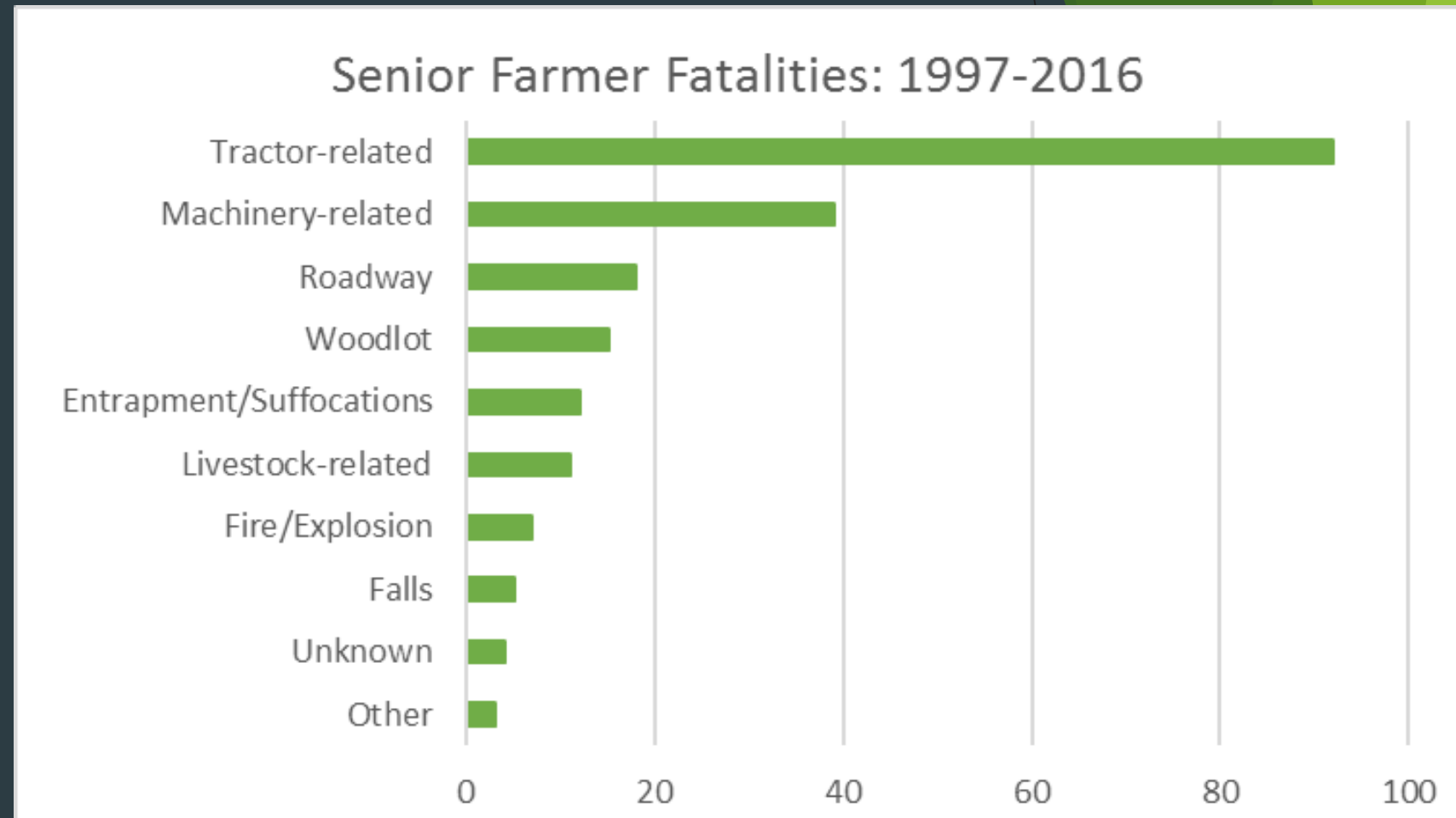
- Conducted a literature review
  - ❑ AgrAbility Plowshare - Potential Health and Safety Risks of Farming/Ranching with a Disability
  - ❑ Address the lack of literature on woodlot accidents
    - Occasional woodcutters are three times the risk of injuries compared to professional loggers (Fischer et al, 2005)
- Analyzed the Indiana farm fatality data for people 60 years or older from 1997 to 2016
  - ❑ Identify most frequent injury types
  - ❑ Explore contribution that aging has to injury type
  - ❑ Develop possible strategies to reduce the frequency and severity of injuries to older farmers

# Purdue Farm Fatality Summaries

- Purdue Agricultural Safety and Health Program has compiled farm fatality data since 1960
- Cases are collected from published news reports, web searches, voluntary reporting, and personal interviews
  - ❑ Not comprehensive
  - ❑ Nonfatal injuries are not often reported
- Used to measure trends in farm fatalities over time
- Recent summaries have reported the frequency of fatalities of senior farmers on the rise in Indiana
  - ❑ Half of reported fatality cases since 2012 were farmers 60 years or older (Cheng, 2017)

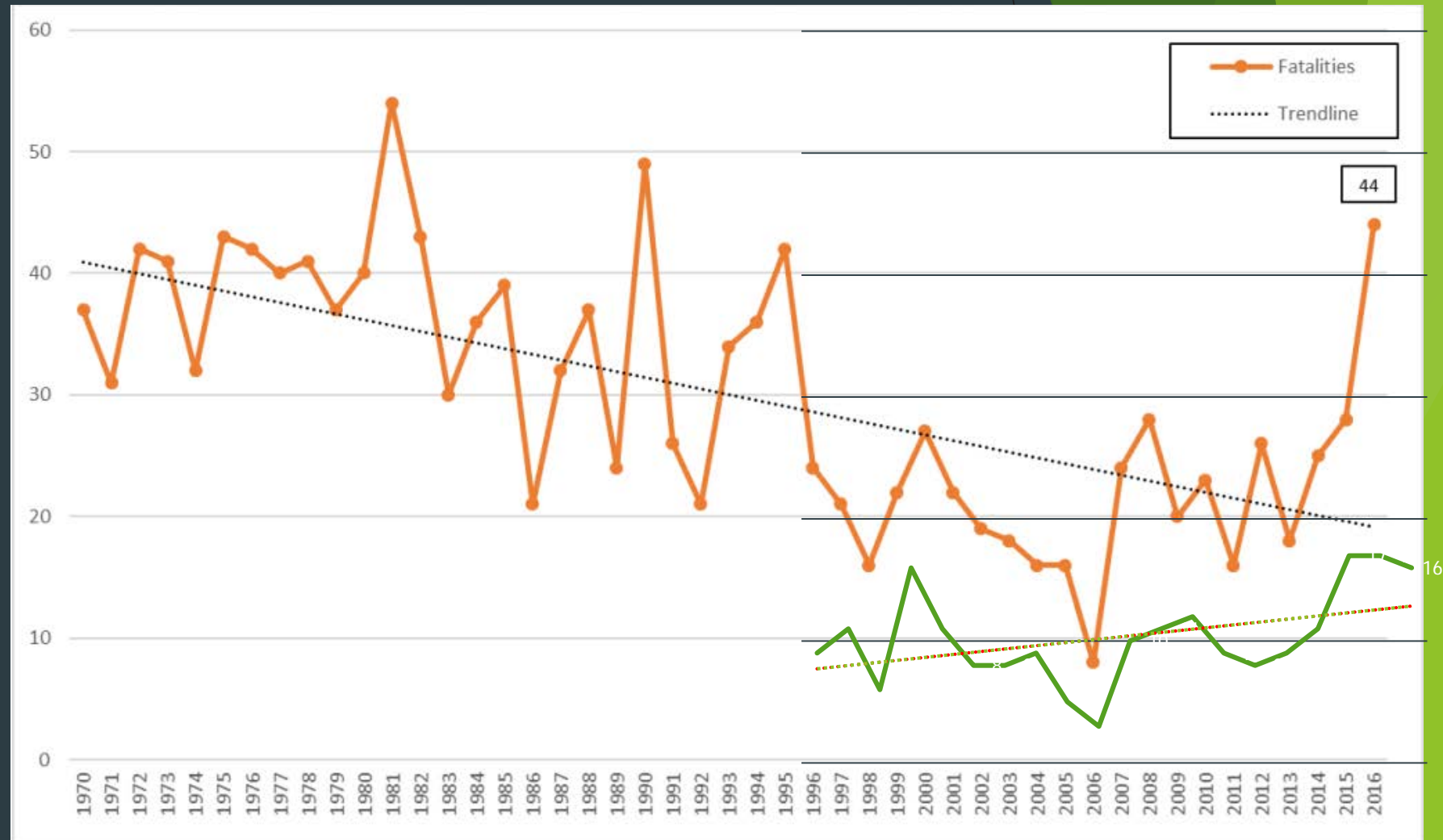
# Breakdown of Senior Farmer Fatalities

- 206 fatality cases
- 198 males versus 8 females
  - ❑ Majority of female fatalities were roadway incidents
- Average age was 72.6 years of age
- Tractors are the biggest cause of fatalities
  - ❑ Nearly 50% of all deaths
  - ❑ Average age was 72.56 years of age



# Comparison to all ages

- Comparison of fatalities of all ages vs senior farmers
  - Orange = All ages
  - Green = Senior farmers
- There is an increasing trend in the frequency of fatalities for those 60 and over



# Strategies to Reducing Senior Farmer Fatalities

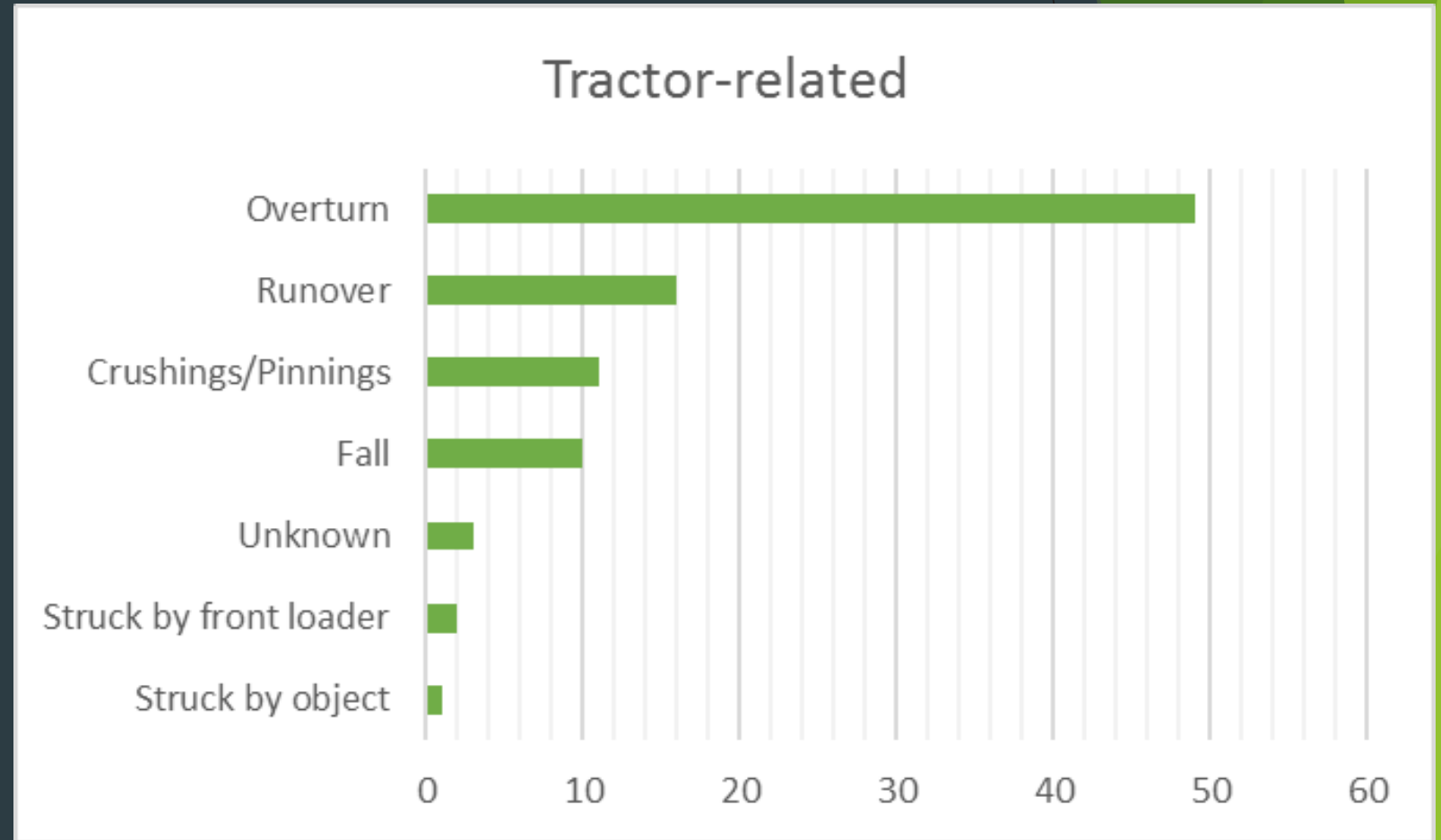
- How to help senior clients at risk
  - ❑ Understand safety risks and practices
  - ❑ Communicate it with the client
- Focus on two groups
  - ❑ Tractors
    - Largest agent of death
  - ❑ Woodlots
    - Increasing number of reported cases
    - Lack of literature





# Tractor-related Incidents

- Overturns were the most common fatality risk
  - accounted for nearly 25% of all deaths in senior farmers



# Reducing Tractor-related Incidents

## ➤ Overturns

- ❑ Factors that contribute to overturns
  - Lack of rollover protection structure (ROPS) – became standard on new tractors in 1986 (ASABE, 1985)
  - High center of gravity
  - Rear-wheel drive
  - Improper hitching of tow chain to points above the draw bar
  - Driving on uneven ground
- ❑ Most frequent cases are side and rear overturns (Great Plains Center for Agricultural Health, 2014)
- ❑ Older farmers tend to keep older tractors



[http://salesmanual.deere.com/sales/salesmanual/images/NA/tractors/cuts/3\\_series/r4d098786\\_roll\\_gard.jpg](http://salesmanual.deere.com/sales/salesmanual/images/NA/tractors/cuts/3_series/r4d098786_roll_gard.jpg)

## ➤ Solutions

- ❑ Install ROPS
  - Protects farmers from getting crushed
  - Only 59% of tractors had ROPS in 2011 (NASS, 2013)
- ❑ Reduce the social acceptance for using antique tractors for production purposes



# Reducing Tractor-related Incidents

## ➤ Runovers

- ❑ Types of runovers
  - Operators
  - Bystanders
- ❑ Factors that contribute to operator runover incidents
  - Starting the tractor from the ground (Bypass starting)
  - Failure to shutting off the tractor and using the parking brake when getting down
  - Mounting or dismounting a moving tractor
- ❑ Factors that contribute to bystander runover incidents
  - Extra riders on tractor
  - Reduced driver visibility because of attachments (front loaders, bale spears, etc.)

## ➤ Solutions

- Always start the tractor while sitting in the seat
- Make sure the parking brake is engaged whenever dismounting while the machine is running
- Never dismount a moving tractor
- Do not have additional riders on the tractors
- Installing cameras to the tractor or attachments (i.e. Backup cameras)

# Reducing Tractor-related Incidents

## ➤ Falls

### ❑ Common Causes

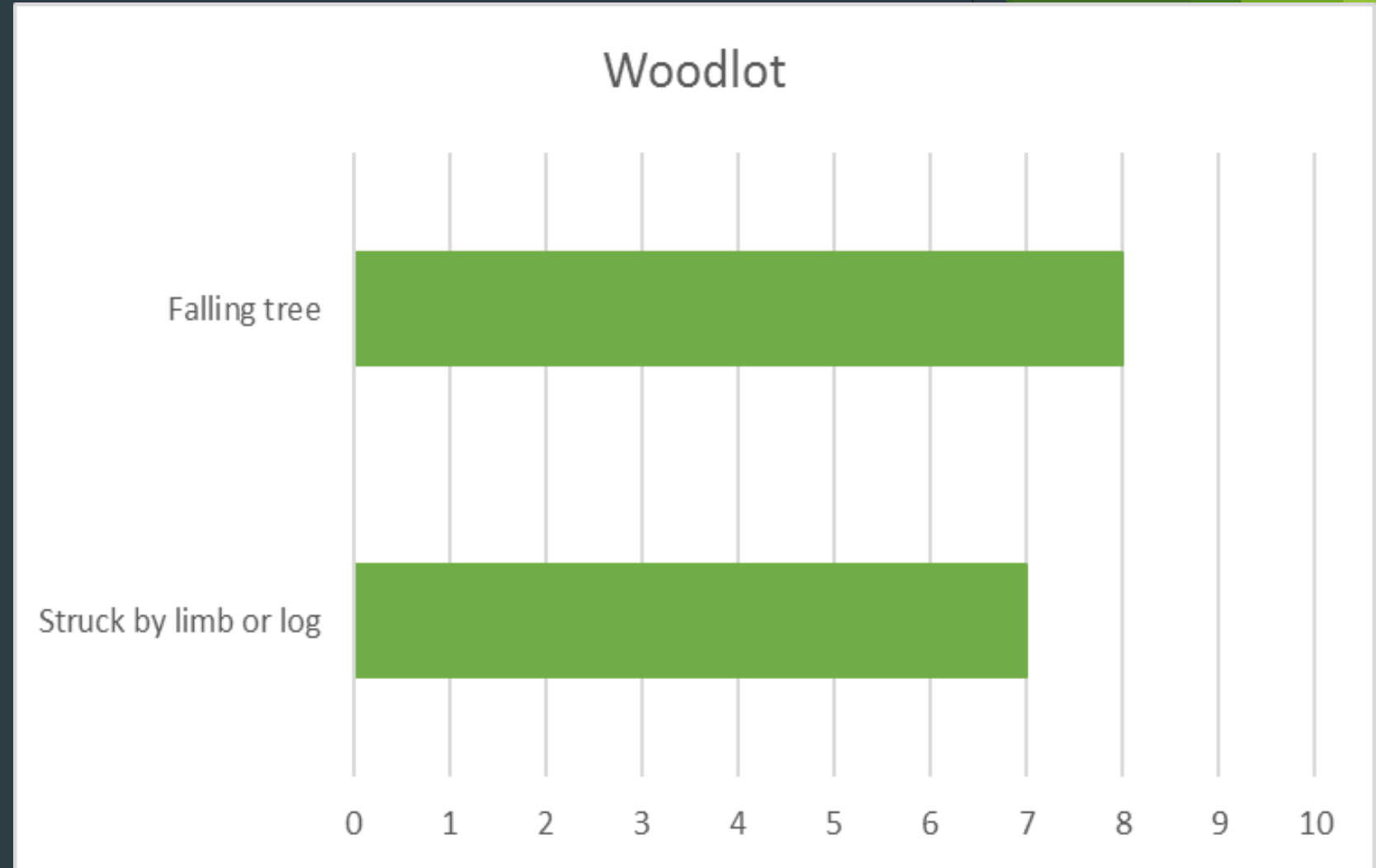
- Slipping on steps because of moisture, mud or grease
- Tripping on objects in the cab or on the deck

### ❑ Solutions

- Wear slip resistant footwear
- Maintain a clean work area

# Woodlot Incidents

- Felling trees were the most common fatality risk
- Chainsaw related incidents were not reported as causes of fatalities
  - ❑ Similar to a summary of non occupational logging fatalities in Vermont (CDC, 2008)



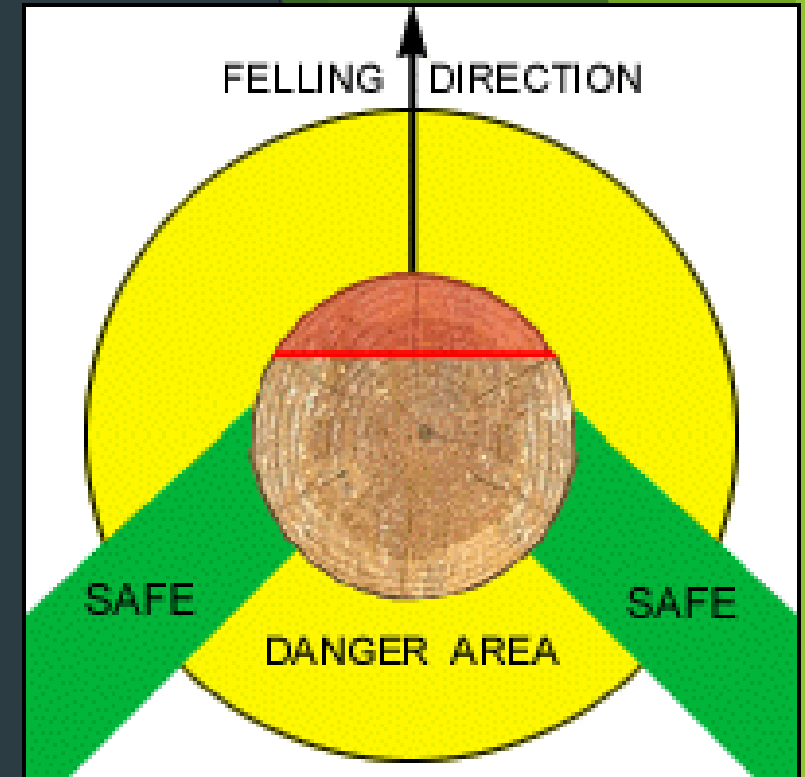
# Woodlot

## ➤ Risks

- ❑ Several factors can play into where a tree falls (Arbor Global, 2012)
  - Includes wind, lean of the tree, and any weak spots.
- ❑ Lack of experience
- ❑ No safety gear

## ➤ Solutions

- ❑ Take a chainsaw safety and felling course
  - Offered by universities and extension programs
- ❑ Wearing appropriate safety gear (University of Alaska Fairbanks, 2016)
  - Head protection
  - Chainsaw chaps
  - Protective footwear
  - Nonslip gloves
- ❑ Always work in pairs
- ❑ Have access to communication devices (radios, cellphones, and so on)



[https://www.osha.gov/SLTC/etools/logging/manual/felling/retreat\\_path.html](https://www.osha.gov/SLTC/etools/logging/manual/felling/retreat_path.html)

# Communicating with Clients

- How do you pass on safety practices to clients?
  - Remember that many farmers have strong feelings about farming
  - Have conversations with clients
    - Listing off numbers of fatalities is not always the best method
    - Talk about safety concerns with clients
  - Have conversations with client's family and friends
    - Interventions
    - Mediate compromises
  - Creating nontraditional safety material
    - Findings suggested nontraditional methods or formats such as a sign with a picture of a young kid telling their granddad to buckle-up to be effective (Whitman & Field, 1995)

# Case Study

- ❑ Real life example (Michigan FACE reports, 2003)
  - ❑ A 78-year-old farmer was gathering firewood for maple syrup production on his hilly property
  - ❑ He was driving his International Farmall Cub tractor with no ROPS system
  - ❑ Believed that he experienced a medical emergency and tried to drive home
  - ❑ He tried to change direction while driving on the hills and resulted in an overturn
- ❑ What could have been done differently?
  - ❑ No 2-way communication device
  - ❑ Avoid steep slopes



Michigan Face Reports



# Conclusion

- Farming is a profession that involves performing dangerous tasks
- Senior farmers are at a high risk for severe injuries and fatalities
- AgrAbility serves a large audience of older farmers
- Tractors incidents are the most prevalent agents of death
- Number of woodlots incidents are increasing
- Education, safety awareness and practice can reduce injuries and fatalities
- Only important if this can be related to clients in effective manner
- AgrAbility staff can play a role in preventing injuries to other clients

Questions?

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