Identifying Fatality and Injury Risks for Senior Farmers

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- 4 quick survey questions + opportunity to share comments
- Session recorded and archived with PowerPoint files at www.agrability.org/Online-Training
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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)
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
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

- 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)

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?
References

- https://engineering.purdue.edu/~agsafety/IRSHC/fatalitySummary.html (Indiana Farm Fatality Summaries)
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- http://usda.mannlib.cornell.edu/usda/current/FarmSafe/FarmSafe-05-30-2013.pdf (NASS Survey)
- http://nasdonline.org/static_content/documents/1672/d001572.pdf (falling off tractors)
- https://www.cdc.gov/niosh/face/pdfs/15Ky041.pdf (Lawnmower rollover recommendations)
- https://extension.psu.edu/power-take-off-pto-safety (PTO safety)
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