



Special Populations in Agriculture

Young and Aging Workers

Ellen Duysen, MPH

Assistant Research Professor

Central States Center for Agricultural Safety and
Health (CS-CASH)

University of Nebraska Medical Center, College
of Public Health



Presentation Objectives

- Describe the burden of agricultural injuries and fatalities in young and aging populations.
- Examine safety hazards and health risks for youth and aging populations in agricultural settings and recommendations for prevention.
- Assess and validate youth safety programs as important resources for health care providers.

A little about me...

- Researcher – TB, leprosy, periodontal disease, cancer, pesticide and nerve agent mitigation, now prevention of farm injuries and fatalities
- Ag safety and health outreach
- Admirer of giant horses
- Hog farmer
- Cattle wrangler
- Chicken Whisperer



CENTRAL STATES CENTER FOR AGRICULTURAL SAFETY AND HEALTH (CS-CASH)

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NIOSH Funded - Ag, Forestry and Fishing Safety and Health Center

- 12 US Ag Health and Safety Centers including a Child Safety Center
- 7 States in CS-CASH Region
- Prevention
- Education
- Outreach
- Research

**With a mission to help improve the health
and safety of agricultural workers and
communities**





1910



2023

FCS MONSANTO Regional Area Hospital Fam Bureau





Agricultural Fatalities

Agricultural Worker Fatality Rate - **20.0 per 100,000**

All other industries combined- 3.6 per 100,000¹

¹NIOSH 2023



Agricultural Injuries

In 2021 the annual injury rate of self-employed farmers and ranchers in the CS-CASH 7-states region was **15 injuries/100 operators**¹.

¹Rautiainen 2022.



Youth on the Farm

- There are approximately 2.02 million farms in the United States.¹
- An estimated 893,000 youth under 20 years of age live on farms, with just over half (51%) also performing work on the farm.¹
- More than half of these youth worked on the farm, with the highest proportion of them between the ages of 10 to 15 years.²
- 265,000 young people are hired to work on non-family farms each year.²

1. USDA, NASS publications: Farms and Land, 2021 summary, February 2021.

2. NIOSH (2016). Analysis of the 2014 Childhood Agricultural Injury Survey (CAIS). Morgantown WV: U.S Department of Health and Human Services, Division of Safety Research..

Children Living on the Farm

A child dies in an agriculture-related incident about every 3 days.

33 children are treated for ag-related injuries each day.

National Children's Center for Rural and Agricultural Health and Safety (2022). 2022 Fact Sheet – Childhood Agricultural Injuries. Marshfield Clinic Health System, Marshfield WI. doi.org/10.21636/nfmc.nccrahs.injuryfactsheet.r.2022.





Youth Working in Agriculture

Young workers are **7.8 times more likely to be fatally injured in agriculture** when compared to all other industries combined

14.57 per 100,000 FTE vs
1.87 per 100,000 FTE

National Children's Center for Rural and Agricultural Health and Safety (2022). 2022 Fact Sheet – Childhood Agricultural Injuries. Marshfield Clinic Health System, Marshfield WI.

doi.org/10.21636/nfmc.nccrahs.injuryfactsheet.r.2022.



Youth Working in Agriculture

- From 2015 to 2020, 48% of all fatal injuries to young workers occurred in agriculture.
- Transportation incidents were the most common fatal event, with tractors and ATVs as the primary vehicle sources. Machinery (25%), motor vehicles (17%) and drowning (16%)
- Males accounted for 80% of youth ag related fatalities



Equipment is #1 Killer of Youth on the Farm

Run-Over Fatality

Iowa toddler who loved animals killed in a farm accident



Noelle Alviz-Gransee

Des Moines Register

Published 6:01 a.m. CT May 30, 2023

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Walker Reid Maassen was an energetic, animal-loving toddler. His big brown eyes and smile lit up any room he entered.

The nearly 2-year-old died May 6 after he was struck by a truck his father was driving on the family farm in Sioux Center.

"Walker was full of energy and was on the go from morning till night," [his obituary reads.](#) " People often commented that he should have been named 'Runner' as he rarely walked anywhere."

It was a typical Saturday, his mother Amy Maassen told the Des Moines Register, with the family outside all day working around the farm. They had brought new goats home that day.

Walker's father, 30-year-old Christopher Maassen, was driving a pickup truck on the farm when stopped to unhook a trailer, according to a news release from



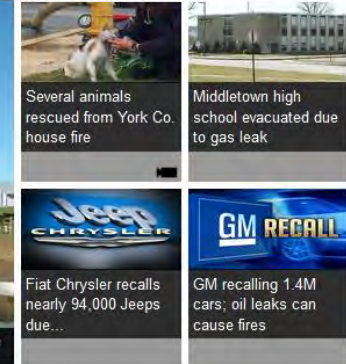
Tractor Fatality

News » [Top Stories](#) » Three-year-old girl dies after falling from tra...



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Three-year-old girl dies after falling from tractor text size A A A



Updated:

By: Lara Greenberg

LITTLE BRITAIN TOWNSHIP, Pa. -- Another deadly farm accident has happened in central Pennsylvania.

A child is dead and a family is mourning her loss. This is the latest in a number of deadly farm accidents in less than two weeks in Lancaster County.

Struck-By Fatality

Child killed in accident on upstate N.Y. dairy farm

Associated Press 11:10 a.m. EDT July 6, 2015



(Photo: Getty Images / iStockphoto)

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GALEN, N.Y. – State police are investigating the death of a 5-year-old child on an upstate New York dairy farm.

Troopers say the child was riding a motorized scooter Sunday evening on a farm in the Town of Galen when he was struck by a tractor that was backing up and towing a large feeder trailer.

The child was pronounced dead at the scene by the Wayne County Coroner's office.

The case remains under investigation.

Galen is located just north of Cayuga Lake about 50 miles east of Rochester.

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Grain Entrapment

Alberta girls killed in canola seed prompt warning

Essex-grown soybeans, wheat and corn present similar dangers, safety expert says

CBC News | Posted: Oct 15, 2015 7:50 AM ET | Last Updated: Oct 15, 2015 7:50 AM ET



The Bott family in a recent photo. (Facebook)



Facebook

The death of three young farm girls, suffocated while playing in a grain truck, has prompted a local farm safety advocate to remind parents to talk to their kids about the dangers of grain.

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Mobile Facebook Post

Latest Windsor I



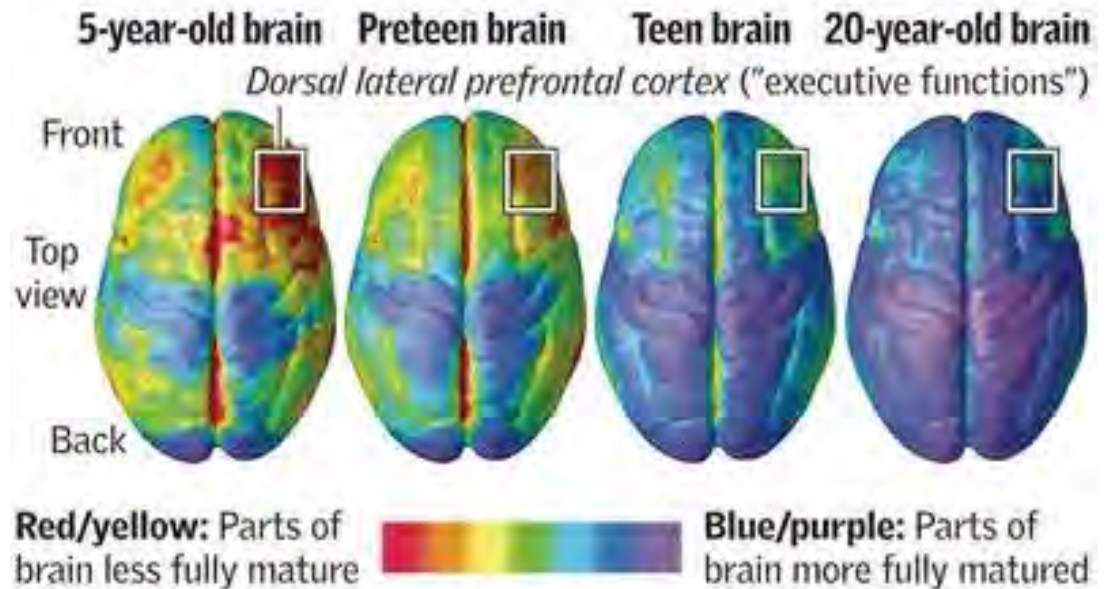
Neuro-imaging of Young Brains

The executive functions of the brain are the last to develop.

- Decision making
- Time management
- Memory and recall
- Attention control
- Organization
- Prioritization
- Self Control

Judgment last to develop

The area of the brain that controls "executive functions" — including weighing long-term consequences and controlling impulses — is among the last to fully mature. Brain development from childhood to adulthood:



Sources: National Institute of Mental Health;
Paul Thompson, Ph.D., UCLA Laboratory of
Neuro Imaging

Thomas McKay | The Denver Post

Generational Risk Factors

Young Children

- Curiosity and Inexperience
- Lack of knowledge, size and strength
- Lack of proper training
- Greater sensitivity to chemical and toxins



Young Children in the Ag Workplace

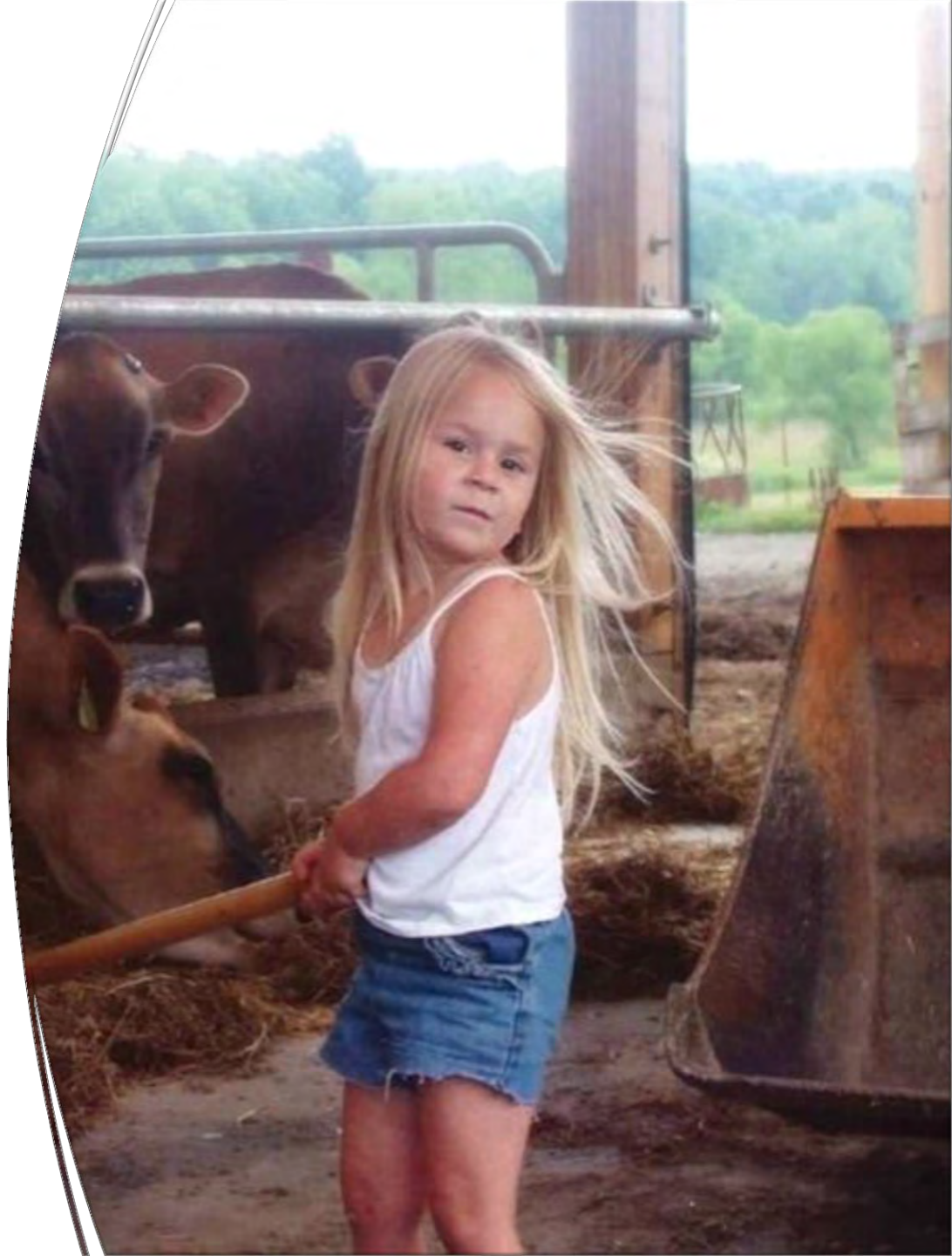
In a retrospective case study of fatal, hospitalized, and restricted activity farm injuries from the U.S. and Canada, nearly 50% of the fatal and 40% of the hospitalized injury cases were children 1–6 years of age.¹

- Live in the workplace
- Curiosity
- Lack of strength
- Lack of size
- Lack of knowledge
- Unaware of dangers
- Uncoordinated
- Hand to mouth behaviors

¹Brison RJ, Pickett W, Berg RL, Linneman J, Zentner J, Marlenga B. Fatal agricultural injuries in preschool children: risks, injury patterns and strategies for prevention. CMAJ. 2006 Jun 6;174(12):1723-6.

Recipe for Injury on the Farm:

- Risk takers
- Peer pressure
- Impulsive
- Experimenters
- Authority resistant
- Lack training
- Lack knowledge
- Feeling of invincibility



Risk



Girls are assigned more of the animal related tasks. One out of five youth injuries is livestock related.¹



Most of the youth Ag related injuries and deaths occur in the Midwestern region,² in the summer (44%) and most occur on the weekend (56%)³



Common injuries requiring hospitalization were for orthopedic, neurological, thoracic and abdominal injuries.⁴



¹Marlenga B, Pickett W, Berg R. 2001; ²Hendricks K, Adekoya N, 2001; ³Little D, et al 2003 ; ⁴MeiersS,Baerg J, 2001

Trauma

Proximity to hazards- living in the workplace

- Equipment
 - Tractors, Skid loaders, Forklifts, ATVs
 - Roll-over
 - Crushing
 - Entanglements – PTO
 - Pinch Points
 - Run-overs
- Falls
 - Slips and trips
 - farm shops and dairy floors
 - Grain Bins and Trucks



Ergonomic Concerns

Adolescents undergo growth spurts, which may decrease flexibility and increase their susceptibility to a variety of musculoskeletal injuries, such as bursitis, tendonitis, sprains, and carpal tunnel syndrome.¹

- Hand Weeding
- Hand Harvesting
- Pruning
- Heavy lifting
- Vibration injuries
 - Tractors
 - Mowers



¹ M.S. Vela, B. Lee (eds) Migrant and Seasonal Hired Adolescent Farmworkers: A Plan to Improve Working Conditions (Marshfield, WI: Marshfield Clinic, 2001) p. 11.

Heat Exposure

Children are more vulnerable to heat stress than adults.

- High skin to body weight ratio

Overexposure to hot and sunny conditions may result in:

- Sunstroke
- Skin cancer
- Heat exhaustion
- Dehydration
- Death



ATVS

The Burden of Injuries and Fatalities

ATVs are a leading source for injuries and fatalities in agriculture.

HEADLINES IN 2023 – Do You See a Trend?

12-year-old girl killed when ATV slams into tree, St. Tammany Parish ATV crash leaves 12-year-old dead, 13-year-old injured

6 year old Nebraska boy passes away from ATV

Another Missouri child dies in Pike County ATV crash

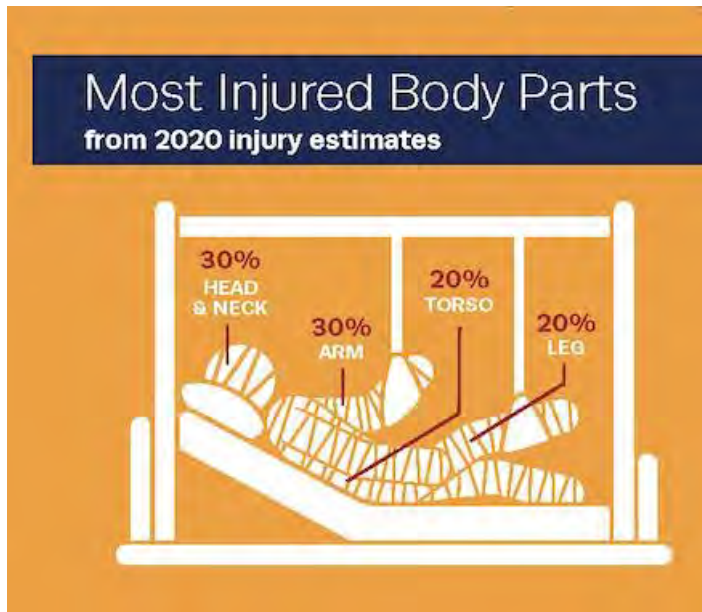
**10-year-old dies in ATV accident
11-year-old boy killed in freak ATV crash**

16-year-old boy killed, 3 injured in southern Iowa UTV, ATV crash

All Terrain Vehicle Rollovers

Agriculture accounts for 59% of ATV-related injuries

Approx. **90%** of ATV-related injuries to youth under 16 occur on adult-sized machines



Inform



National Statistics ATV Injuries and Fatalities

In 2022, there were an estimated 100,000 emergency room visits related to ATV injuries and 700 deaths (U.S. Consumer Product Safety Commission)

30% of these ER visits involved youth younger than 16 years of age





ed, son injured in ATV crash

Recommend 554       12

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Injured

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UPDATE: Grandmother and two grandchildren drown in ATV accident

Posted: Apr 21, 2014 12:32 PM CDT
Updated: Apr 21, 2014 9:16 PM CDT
By WRCB Staff - email

CATOOSA COUNTY, GA (WRCB) - **UPDATE:** Just before 11:30 Monday morning the Catoosa County 911 Center received a call of CPR being performed on three individuals at 316 London Lane in Catoosa County.

Upon the arrival of emergency personnel, lifesaving measures were attempted and the three individuals were transported to a local hospital where they were later pronounced dead.



Officials with the Catoosa County Sheriff's Office tell Channel 3 during their investigation, they found that 60-year-old Renee Monroe was riding with her two grandchildren 3-year-old Reagan Cohen and 18-month-old Jason Cohen in an ATV when Monroe lost control of the ATV and drove into a pond on the property.

Investigators tell Channel 3 the ATV's cab was enclosed, on its side and the three individuals were trapped.

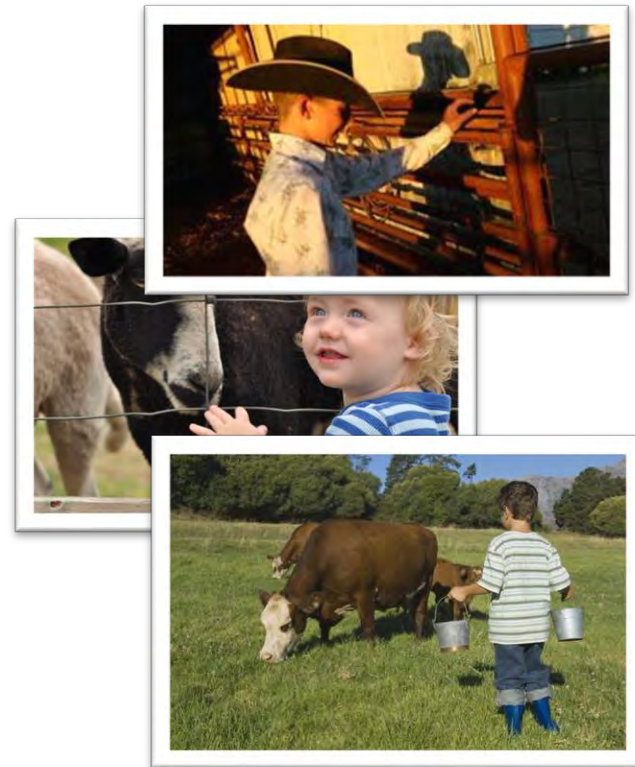
When they did not return from their ride a search began and the ATV was located in the pond. Family members removed them from the ATV and began CPR.

This investigation is ongoing; however, all indications are that it is an accident.


Livestock Hazards

Youth living on livestock operations have a higher rate of injury (8.1 injuries/1,000 youth) compared to their counterparts on crop operations (6.6 injuries/1,000 youth)¹

- Size and weight differences
- Lack strength
- Lack reasoning abilities
- Lack speed
- Inability to read cues from animals
- Resulting in trauma
 - Lower back injuries
 - Trampling
 - Kicks and Bites



¹ NIOSH (2012). Analyses of the 2009 Childhood Agricultural Injury Survey (CAIS). Morgantown WV: U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, Division of Safety Research. Unpublished.



Pesticide Exposure

More vulnerable than adults
- children have a high skin to body weight ratio and are in a more rapid stage of development.

Toxicity rating laws are based on adult exposures not youth.

Most vulnerable groups:

- Children of migrant laborers
 - Household contamination
 - Field work
- Detasslers
 - Errant spraying or drift
- Root Crop Harvesters
 - Soil Residue



Agricultural Related Infections

- Children under the age of 10 are at increased risk for acquiring infections from animal fecal associated organisms.¹
 - Campylobacter
 - Salmonella
 - And infections of antibiotic resistant organisms connected to the Ag use of antimicrobials.²

¹FSIS/CDC/FDA 1997; USDA 1998

²Shea K, 2003. Antibiotic resistance: What is the impact of agricultural uses of antibiotics on children's health? Pediatrics 112:253-258



Hearing Loss

25% of the male farmers incur hearing handicaps by age 30 and 50% by age 50.¹

- Farm Machinery,
Equipment and Animals

Tractors (no cab)

Augers

Fans

Grinders

Chainsaws

Guns

Squealing Hogs

Loud Music

¹Karlovich RS, Wiley TL, Tweed T, Jensen DV. Public Health Rep. 1988 Jan-Feb;103(1):61-71.

Break Time!

- Turn off the video.
- Rest your eyes and ears
- Stretch
- Drink some water
- Meditate
- Walk in Place
- Try some Pilates.

<https://www.unmc.edu/publichealth/cscas/h/documents/resources/resources-agrisafe-pilates.pdf>

- Relax!

But don't forget to come back for part 2.

AGRISAFE PILATES

BEGINNING BASIC INSTRUCTIONS
 These exercises are designed to improve balance, core strength and flexibility. At all times, the core is engaged with the rib cage drawn together and the navel pulled towards the spine. Remember to breathe with each exercise focusing on exhaling on the exertion and drawing the navel even deeper into the spine. All exercises can be repeated 8-12 times.

AgriSafe
 Protecting the People Who Feed the World
www.agrisafe.org

Back "Shoulder" Core
 Anchor resistance band to a stable post about waist height. (Handheld weights can be substituted.) Soften the knees, brace the core and extend arms forward and eliminate any slack in the band. Keeping the shoulders relaxed, pull elbows back squeezing the shoulder blades together. Spine remains in the neutral position.

Standing Resistance Band Row

Back "Abdominals" "Hips" "Legs" "Glutes"
 Begin on the hands and knees and engage abdominals to find a neutral spine position. Without moving the center of the body, extend the right arm and left leg squeezing through the glutes and hips. Repeat on the other side.

TABLETOP EXTENSION

"Diapers" "Back" "Shoulders"
 Stand with knees soft, feet hip distance apart, feet hip distance apart. Raise resistance band directly over shoulders. Maintain the distance between the hands and bend towards the right. Gently pull down with the right arm then return to shoulder width and stand back up. Repeat on the left side. Avoid any twisting in the hips or spine.

SIDE BEND WITH RESISTANCE BAND

"Abdominals" "Shoulders" "Back"
 Begin in plank position with hands directly under the shoulders feet no wider than the hips. Draw the right knee into the chest and then the left. Spine should remain in neutral position with the neck extending straight out of the spine. The goal is that the hips do not lift or lower throughout the exercise.

MOUNTAIN CLIMBERS

"Hemitriceps" "Glutes" "Hips"
 Lie on the back with hands by the side. Bend knees and parallel feet no more than hip distance apart. Lift the hips and squeeze through the glutes. Avoid arching the back or allowing the knees to turn in or out.

BRIDGE

"Shoulders" "Chest" "Upper Arms"
 Find a stable surface such as wall or round hay bale, and place hands shoulder width apart. Move feet away 3-4 ft and lower chest towards the surface and then push up. Body should remain in a straight line. Add a challenge by lifting one foot at a time.

STANDING PUSH UPS

"Legs" "Glutes" "Hips"
 Begin standing with knees slightly wider than hip width, holding onto the tractor wheel tips and keep chest flat. Return to standing position squeezing the hips at the top.

TRACTOR SQUAT

"Hemitriceps" "Glutes" "Balance" "Core"
 Step the left foot forward and extend arms shoulder height. Keeping a flat back, lower the hands towards the ground without letting the hips. Once the upper body is parallel to the ground, return to standing position. Repeat on the other side.

WEIGHTLESS SINGLE LEG DEADLIFT

DISCLAIMER OF LIABILITY Injuries of all types can occur when participating in exercise, physical fitness and training programs. Hence AgriSafe strongly encourages you to obtain a comprehensive physical examination by a licensed health professional (PH) on undertaking any exercise demonstrated on this guide. You fully assume the risk of any resulting injury.

Funding for this project is provided by the Central States Center for Agricultural Safety and Health, NIOSH AFF Grant U54OH011012

Regulations for Youth Working in Agriculture

United States Dept. of Labor (1969) Hazardous Occupations Order in Agriculture (HOOA)

- Declared many agricultural tasks to be hazardous to youth younger than 16.
- Exemption for youth working on parents' farm
- Exemption for youth 14 & 15 with training
- Penalty is the employer's

Healthcare Providers and Safety Professional Role in Prevention

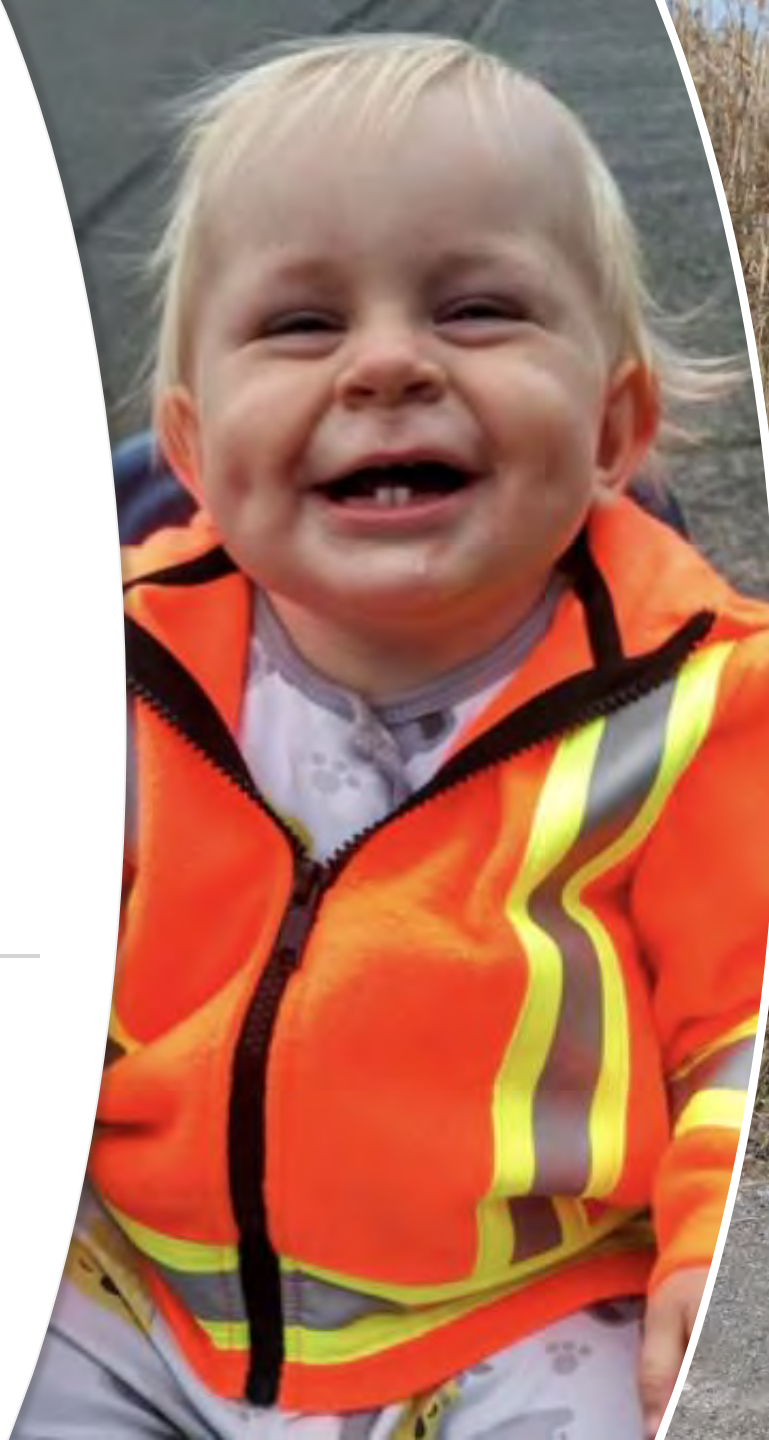




Discuss keeping children out of work areas

<http://www3.marshfieldclinic.org/proxy/MCRF-Centers-NFMC-NCCRAHS-resources-SafePlayBooklet2012.1.pdf>

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1,419,208

children and adults impacted

Training Young Farmers

Tractor and Equipment Safety
Training.

US DOL Certification course
allows 14-15 y.o. to work on
farms.

Share your expertise!

Contact me for information.





Talk to your patients and stakeholders.
No one rides without a helmet. Size matters, youth sized ATVs are available!
These are not toys advise to keep children off adult size machines.



Hearing Protection Messages

Promote the use of hearing protection in all noisy environments

Samples of PPE

Discuss new technologies – Bluetooth noise reducing earmuffs and plugs

Educational literature

Ask what is loud in your world?

Central States Center for Agricultural Safety

Hearing Safety: How Loud is too Loud

Tips for Your Health and Safety

How Loud is Too Loud on the Farm?

General information is provided by the Centers for Disease Control and Prevention (CDC) and the National Institute for Occupational Safety and Health (NIOSH). The content of this document is for informational purposes only and does not constitute a medical or health recommendation.

140-170 dBA	Shooting sports or fireworks
77-115 dBA	Chainsaw
85-107 dBA	Pig squeals
82-100 dBA	Grain dryer, grain auger, or tractor with no cab
87-98 dBA	Woodshop
76-87 dBA	Tractor with a closed cab
60-70 dBA	Normal conversation, or items clucking
30 dBA	Whisper

Protect Your Hearing On and Off the Farm

- There are thousands of tiny hair cells that send hearing signals to the brain
- These hair cells can be damaged by exposure to loud noises
- Noises over **85 decibels** are too loud
- Earplugs and earmuffs can be worn
- If someone is standing next to you playing music from your earbud, **turn down the volume**
- If you can't hear the person next to you, **turn down the volume**
- If your ears are ringing or feel numb, **stop listening to the noise, turn down the volume, move away from the noise, and use hearing protection**

Protect Your Hearing in Noisy Places

E

Earplugs/Earmuffs

A

Avoid loud noises

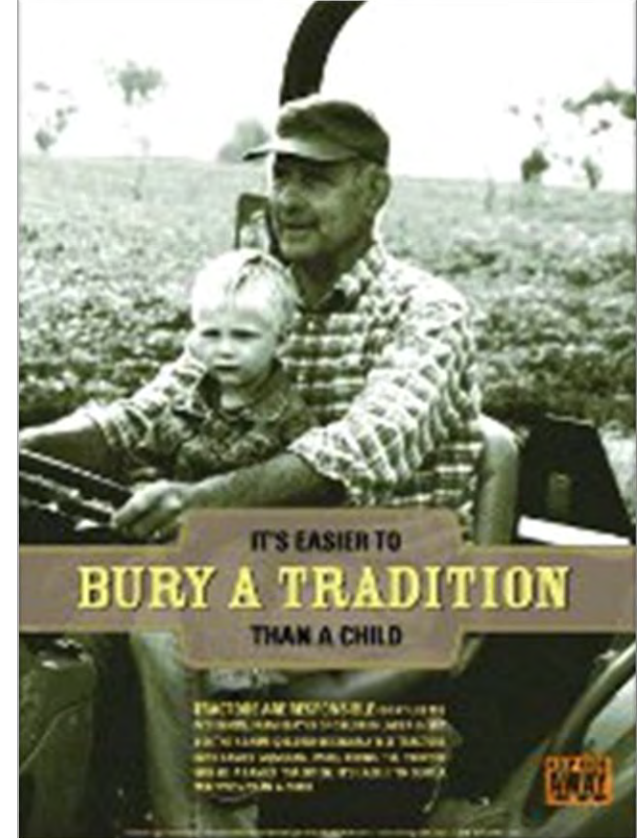
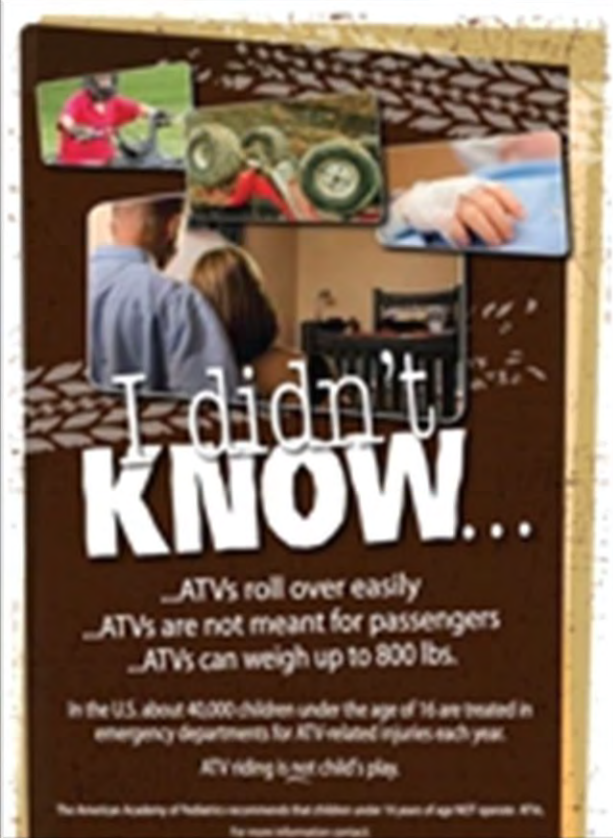
R

Reduce the volume

Check out the back of the flyer for more resources!



Funding provided to Central States Center for Agricultural Safety and Health by NIOSH AFF Grant



National
Campaigns-
Resources

Childhood Agricultural Safety Network
<http://www3.marshfieldclinic.org/NCCRAHS/>

Ag Youth Work Guidelines



Are you wondering what activities are appropriate for youth working in agriculture? Or would you like

<https://www.marshfieldresearch.org/nccrahs/agricultural-youth-work-guidelines>

Health Care and Safety Professionals

Please ask rural
youth about
their work!





LET'S TALK
ABOUT THIS
PHOTO

How many hazards can you recognize?



Aging farmers

The average age of U.S. farm producers in 2022 was 58.1 years, a 0.6 year increase from 2017.

- Strength
- Balance
- Eyesight
- Hearing
- Mental acuity
- Others?



Aging farmers

What type of injury and illness would you expect to see in patients who are farming after age 60?



CS-CASH Research Project

Aging Farmers Ingress and Egress from Farm Equipment

Aging Farmer Fatalities

Farmers >55 years of age accounted for over half of all farming deaths between 1992 and 2004.¹

Farmers >55 had a fatality rate of 45.8 deaths/100,000 workers/year compared to the overall farming death rate of 25.4 deaths/100,000/year¹

Most common mechanisms of fatal injury to older farmers were tractors (46%), trucks (7%) and livestock (5%)¹

¹Myers, Layne and Marsh American Journal of Industrial Medicine 52:185-194 (2009)



Tractor Rollover

One in nine farmers aged 55 and older have been involved in a tractor rollover.

(Farm Family Health and Hazard Survey)



Missouri Agricultural Fatalities & Injuries

2012-2023



Agricultural related fatalities and injuries in this document were collected by the Central States Center for Agricultural Safety and Health, a NIOSH funded Ag Center, via a newsclip service. This document should not be considered as a complete listing of all agricultural incidents occurring in Missouri.

Missouri Tractor Related Fatalities*

March 28, 2012	Holden , 71 year old male died after losing control of tractor, falling off and being crushed.
July 17, 2012	Cooter , 22 year old male died after becoming pinned under a tractor while mowing a ditch.
August 18, 2012	Rolla , 16 year old female died after falling from and being pinned under a tractor.
September 24, 2012	Garden City , 52 year old male died after being pinned underneath an overturned tractor.
September 30, 2012	Bowling Green , 80 year old male died after being pinned under a tractor that overturned.
February 23, 2013	Maysville , 73 year old male died after being pinned under a tractor that overturned.
June 13, 2013	Cuba , 70 year old male died after being pinned when tractor and rotary cutter overturned.
July 13, 2013	Frankford , 15 year old male died after falling from the cab of a tractor and being run-over.
September 22, 2013	St. Genevieve , 17 year old male died after being pinned under a tractor towing an implement.
October 1, 2013	Odessa , 53 year old male died after being pinned under overturned tractor on bank.
November 8, 2013	Fordland , 68 year old male died after being pinned under a tractor when it overturned.
November 26, 2013	Unknown , 43 year old male died after being pinned under a tractor that overturned.
January 9, 2014	Rocky Mount , 87 year old male died after being ejected when his tractor overturned.

Missouri Tractor Related Fatalities (continued)

February 14, 2014	Cora , Male died after being pinned by an overturned tractor while feeding livestock.
July 4, 2014	Olympian Village , 84 year old male died after being pinned under an overturned tractor.
July 25, 2014	Hermitage , 45 year old male died after being pinned under tractor.
August 3, 2014	Pineville , 76 year old male died when he was struck by a tractor backing up.
August 9, 2014	Alhambra , 75 year old male died when he fell from the bucket on his tractor.
September 6, 2014	Marshall , 74 year old male died when he backed his tractor over a 15 foot embankment.
November 15, 2014	Mound City , 45 year old male died when pinned under tractor that went off a bridge.
March 28, 2015	Mount Vernon , 59 year old male died in an unspecified tractor incident.
June 7, 2015	Elsberry , 56 year old male died after being run over by mower when ejected from tractor.
July 6, 2015	Harrisburg , 34 year old male died after being struck by cutter when he fell from his tractor.
July 25, 2015	Brighton , 17 year old male died after being struck with a loose piece of his tractor.
August 4, 2015	East Prairie , 58 year old male died after being pinned underneath tractor that overturned.
August 16, 2015	Memphis , 62 year old male died after being ejected from tractor that overturned.
September 3, 2015	Bethany , 51 year old male died after ejection from overturned tractor towing implement.
September 3, 2015	Seymour , 69 year old male died after being struck by tree limb and knocked off tractor.
September 5, 2015	Florence , 11 year old male died after being ejected and run-over by tractor.
October 25, 2015	Elsberry , 66 year old male died when tractor hit tree & overturned.
October 10, 2015	Defiance , 47 year old male died after being ejected when applicator overturned.
March 13, 2016	Madison , 24 year old male died after being pinned by a tractor's arm.
June 5, 2016	Camdenton , 64 year old male died after being pinned underneath tractor.
July 12, 2016	Cabool , 80 year old man died after being pinned by tractor after rollover.
August 3, 2016	Marshall , 72 year old male died after being pinned underneath tractor.
September 1, 2016	Willow Springs , 70 year old female died after unspecified tractor accident.
October 9, 2016	Labadie , 77 year old male died after being trapped underneath farm tractor when it shifted.
October 13, 2016	Patton , 39 year old male died after being ejected when tractor struck bale and overturned.
November 11, 2016	Perryville , 79 year old male died in tractor rollover accident.
January 17, 2017	Miller County , 9 year old male died after being pinned when tractor overturned.
April 7, 2017	Warrensburg , 72 year old male died after being pinned when tractor overturned.
May 28, 2017	Dittmer , 57 year old male died after unspecified tractor related incident.
June 7, 2017	Summersville , 44 year old female died after being pinned when tractor overturned.

Missouri Tractor Related Fatalities (continued)

June 8, 2017	Houstonia , 74 year old male died in a tractor-related incident.
July 7, 2017	Centralia , 80 year old male died after being pinned by tractor that overturned.
July 15, 2017	Dittmer , 25 year old male died after being pinned after tractor overturned going downhill.
July 19, 2017	Cabool , 31 year old male died after being pinned by tractor that went off side of roadway.
August 9, 2017	Heartland , 64 year old male died after being pinned underneath tractor that overturned.
October 24, 2017	Mount Sterling , 76 year old male died after being pinned underneath tractor.
November 8, 2017	Elmo , 67 year old male died after being run over by a tractor.
November 9, 2017	Houston , 82 year old male died after unspecified tractor incident.
February 14, 2018	Tedieville , 36 year old died after being pinned under tractor.
February 26, 2018	McFall , 64 year old male died after being pinned under tractor.
April 24, 2018	Bethany , 77 year old male died after being pinned under overturned tractor.
June 17, 2018	Taylor , 58 year old female died after being pinned under tractor that overturned in ditch.
June 20, 2018	Freeburg , 77 year old male died after being ejected from tractor while driving on roadway.
July 18, 2018	Spring Fork , 62 and 70 year old died after being thrown from tractor and struck by auto.
August 31, 2018	Milan , 89 year old male died after being pinned by overturned tractor.
October 14, 2018	Mammoth Springs , 69 year old male died after being pinned under tractor loader.
October 18, 2018	Doniphan , 78 year old male died after being pinned under tractor after striking tree.
October 27, 2018	Chillicothe , 43 year old male died after being pinned underneath tractor in ditch.
November 2, 2018	Nove , 43 year old male died after being pinned underneath tractor.
December 3, 2018	Aurora , 25 year old male died after being pinned when tractor struck embankment.
December 5, 2018	Willard , 73 year old male died after being pinned under tractor that ran up wall in barn.
June 5, 2019	Gentry , 17 year old male operator died after tractor steered off road and struck a truck.
September 3, 2019	Perryville , female operator died after falling from tractor and being struck by tractor.
October 15, 2019	St. Thomas , 83 year old male died after tractor hit a stump and overturned.
November 25, 2019	Mt Sterling , 62 year old male died after tractor overturned on an embankment.
December 2, 2020	Buckner , male died after the tractor he was driving was hit by a train.
May 22, 2021	Elkland , 58 year old male died after falling from tractor and being run over.
June 24, 2021	Holt , 3 year old killed when struck with equipment being pulled by tractor.
July 14, 2021	Lafayette County , 60 year old male killed after being pinned underneath tractor.
Unknown	Columbia , female killed in unspecified tractor incident.
October 30, 2021	Lees Summit , 7 year old male killed when runover by trailer towed by tractor.
December 1, 2021	Reed's Spring , 73 year old male killed when tractor overturned.
February 12, 2022	Barnett , 34 year old male died after his tractor went off the roadway and overturned.

Aging Farmer Injuries

The Occupational Injury Surveillance of Production Agriculture (OISPA) survey estimates that farmers and farm workers over the age of 54 accounted for 26,600 lost-time injuries annually between 2001 and 2004, with an annual injury rate of 4.5 lost-time injuries per 100 workers.¹

"Contact with objects" (35%) and "falls" (30%) were the most common type of injury event; "structures and surfaces" (29%) and "animals" (22%) were the most common source of injury.¹



¹Myers, Layne and Marsh American Journal of Industrial Medicine 52:185-194 (2009)

Factors affecting injuries and fatality rates in aging farmers

- Older farmers are not as likely as younger counterparts to use protective equipment and are often unwilling to make changes to improve the safety of farm operations.¹
- Tend to operate older equipment- lacking roll over protective structures (ROPs)
- 83% of older farmers agreed that tractor related injuries are severe and 88% agreed that ROPs are effective in reducing fatalities, but only 74% said the cost of ROPs outweighed the safety benefits.²
- Belief that personal knowledge and experience compensate for age-related physical disabilities
- Discordance between the perceived risk of work tasks and or machines and the proportion of fatalities attributable to each.
- Operation of older equipment
- Tend to work alone

¹Hwang et.al 2000 Am J Ind Med 40 (1) 32-41

²Whitman and Field J Agric Saf and Health 1(3): 199-214

Factors affecting injuries and fatality rates in aging farmers (cont)

- Injury outcomes become more severe and the ability to recover from an injury is greatly reduced with age.¹
- Decreased vision
- Decreased hearing
- Decreased musculoskeletal functioning
- Slowed reaction time impacting dexterity
- Use of medications
- Decreased use of communication devices

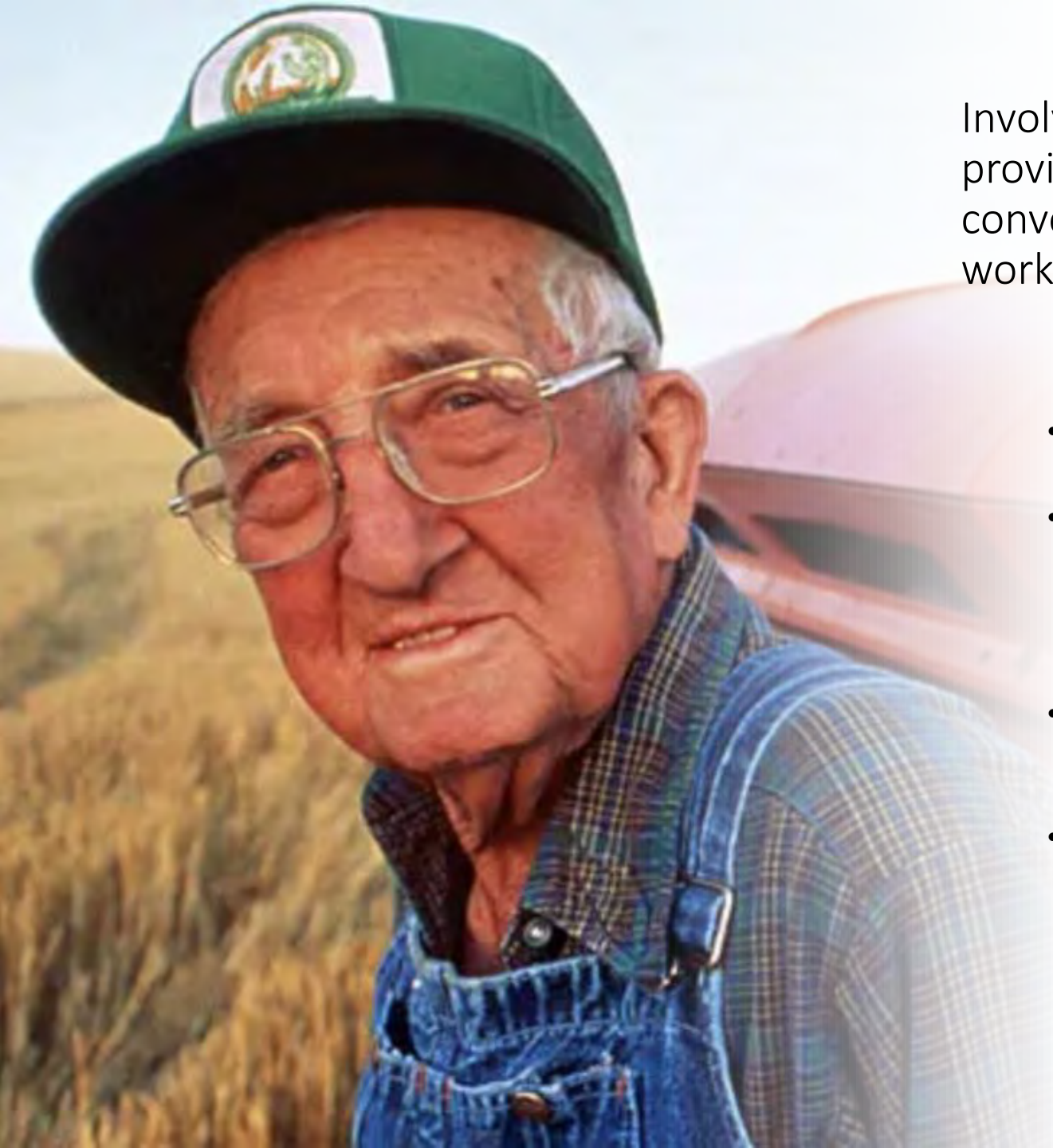


¹Pransky et.al. Am J Ind Med 47(2):104-112

Addressing the complex issues of aging farmers

- Reaching farmers to communicate and convey safety information – farm magazines and equipment dealers (trusted sources)
- Effective training programs that includes input from aging farmers, their families and those who serve them.
- Providing assistance with the cost of ROPs retrofitting





Involving health care providers into the conversation regarding work practices

- Effects of medications on work function
- Workplace assistance (disabilities, arthritis, loss of vision)
AgrAbility
www.agrability.org
- Hearing conservation or assistance finding care
- Discussing concerns regarding mobility and stability; suggesting alternative tasks and responsibilities



Health Care and Safety Professionals –
Please ask aging farmers about their work!



Contact:

Ellen Duysen

Ellen.duysen@unmc.edu

402-552-3394