



Effective Reviews – Child Deaths on Farms

Facts

- In 2012, more than 900,000 children lived on farms, and almost half of them worked on their farms. Another 250,000+ non-resident youth were hired in agriculture.¹ Unlike most occupational settings, there is an intermingling of the home and worksite on farms, and children are exposed to agricultural hazards at work *and* at play.
- Labor laws restrict what work youth of different ages may and may not do in agriculture.² But ninety-five percent of the 2.2 million farms in the US are exempt from most safety regulations and child labor laws. Thus the farm is the only industrial worksite that allows children of all ages to be in the worksite, and it is also the only worksite that allows children of all ages to perform work typically performed by adults.
- Every 3 days a child dies on a farm, and every day 38 children are injured.¹
 - Fifty percent of fatal child farm injuries are to children ages 0-6. While overall rates of injuries to children on farms are declining, farm injuries among children under 10 are increasing.³
 - Teenage agricultural workers ages 15-17 are four times more likely to die on the job than teenagers working in all other industries.⁴
 - Male youths have higher farm injury rates than female youths, but the gap is closing.
- Child farm death while child is supervised by working parent: Parents may allow children onto the farm worksite so they can spend time together, supervise a child while getting work done, or help

¹ 2014 Fact Sheet, Childhood Agricultural Injuries in the U.S., National Children’s Center for Rural and Agricultural Health and Safety, http://www3.marshfieldclinic.org/proxy/MCRF-Centers-NFMC-NCCRAHS-2014_Child_Ag_Injury_FactSheet.1.pdf

² Prohibited Occupations for Agricultural Employees. United States Department of Labor. <http://www.dol.gov/elaws/esa/flsa/docs/hazag.asp>

³ NIOSH (2013). Analyses of the 2012 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 Unpublished.

⁴ U.S. Bureau of Labor Statistics.

a child gain a strong work ethic. Studies that have analyzed the effect of supervision on childhood agricultural injuries noted that approximately half of all injured children were being “supervised” by an adult who was actively conducting farm work at the same time. This highlights the fact that parents cannot simultaneously work and provide the level of supervision that children need in the high hazard work environment.

- **Most common farm deaths:** The four most common deaths to children on farms are from machinery, particularly tractors; motor vehicles including ATVs; drowning in water hazards; and falls.
- **Chemicals:** Farm chemicals and pesticides are dangerous to children if safety procedures are not followed, and some chemicals are not covered by regulations designed to require childproof poisons.
- **Electrocution** is a commonly overlooked hazard on farms.
- **Livestock:** Farm animals can be dangerous, particularly if they feel blocked from their offspring or food. Animals can also carry dangerous micro-organisms.
- **Confined spaces:** Since 2007, 14 teenage boys have died in silo incidents,⁵ either from “drowning” in the grain, breathing toxic dust, or from silo gases formed by fermentation of the silage. Safety procedures, protocols, and equipment exist for work inside silos, but are all too often not followed.⁶

The review

Records Needed at Review

- If child was a hired worker, relevant child labor laws
- Autopsy reports
- Scene investigation reports and photos
- Interviews with witnesses
- EMS run reports
- Emergency Department reports
- Name, ages and gender of other children in the home
- Death certificate

⁵ New York Times, October 28, 2012

⁶ Youth in Agriculture, Confined Spaces, US Department of Labor.

<https://www.osha.gov/SLTC/youth/agriculture/confinedspaces.html>

- Any information on prior deaths of children in family
- Information on code or zoning inspection and violations at farm
- If dairy, information about storage of chemicals
- News clipping about event
- Information on supervision of child

Expert Attendance

- Invite expert on farm safety. Your county extension office or the extension services at your state's land grant university are good sources for experts. If outside experts are not permitted to attend reviews in your state or community, invite the expert to give an educational presentation before the review, and tell the expert ahead of time the issues you expect the members will need to learn about.

Questions/topics for CDR team discussion

- **If the child died on or around a tractor:**
 - Was child riding? Was there a separate seat for the child? Was the child using a seatbelt?
 - Was the tractor being driven safely?
 - Did the tractor have safety items installed? [Ask farm expert what they could or should have been.]
 - If the child was older, had he/she received tractor safety training? Was he/she driving with or without permission? If without, was the key left in the tractor or otherwise easily available?
 - If child wasn't riding but was killed by the tractor in other ways, the issue is supervision of the child: was there a fenced play area or other barrier to keep the child away from the tractor?
 - If a young child died, was the driver also a child?
- If child died on ATV or other vehicle, the questions are similar to those surrounding death while riding a tractor.
- If child was crushed or died from injuries from dangerous machinery, was equipment/machinery safely stored and/or safely used?
- If child drowned, did water hazard have fence, top or other barrier, and, if so, how was the barrier breached?
- If child ingested farm chemicals, were the chemicals stored behind locks? If so, were the keys readily available?
- If child died in a silo/grain bin, did the farm have safety procedures in place for the silo/grain bin; had the workers been trained on those procedures; and was safety equipment present as advisable? [Ask farm expert for description of safety training and available/recommended safety

equipment.] If procedures and equipment were in place, were they readily available and utilized properly?

- **If deceased child was working on the farm:**
 - Was child doing age-appropriate work? [Consult North American Guidelines for Children’s Agricultural Tasks (NAGCAT), <http://www.nagcat.org> or YouTube video: “Can my child do this job safely?”]
 - Had child been trained in safety procedures on the farm?
 - Know your state’s labor laws/regulations with respect to children in agricultural settings. [Ask farm expert what the laws/regulations are.]

- If the child’s death was caused by an animal: Was the animal penned adequately to keep out children? If so, how did the child breach the barrier? Was hygiene for animal adequate? [Ask farm expert for standards.] Did human caretakers practice adequate hygiene after leaving animal? If death occurred from horse riding, did child have helmet? Did child know how to ride?

Recommendations

Services to the Family to Consider

- Extension services safe planning programs.
- Safety assessment for surviving children.

Potential Improvements to Agency Practices

- Enforcement of state and federal labor laws regarding child agricultural workers.
- Enforcement of state and federal laws regarding children driving farm equipment/machinery.
- Passage of or enforcement of ordinances/regulations requiring fencing or other barriers for water hazards.
- Passage of or enforcement of codes/regulations regarding safety of silos/grain bins.

Effective Prevention Actions

Remember the Three E’s of injury prevention, which are very applicable to farm deaths.

- Education (persuade and motivate behavior change)
- Engineering (remove the hazard)
- Enforcement (of laws and regulations)

No single strategy is completely effective; a multi-strategy approach is required, and must be reinforced and sustained over time. The [Cultivate Safety website](#) is a good source for any team reviewing a farm

death. It contains many prevention tips for parents about what a child should and should not do at different ages, as well as information about what parents should and should not do around children of different ages. There are also “prevention briefs” on different farm-related topics that might also be helpful to teams. <http://cultivatesafety.org/prevention-briefs.php>

Interventions

- The **North American Guidelines for Children’s Agricultural Tasks (NAGCAT)** set out developmentally appropriate work for children, matching their age, physical, mental and psychosocial abilities with the requirements of agricultural jobs. One study showed a 50% reduction in injuries among a group of farm parents using NAGCAT compared to parents not using the Guidelines. Another study showed that compliance with the Guidelines by parents is more likely if their exposure to the Guidelines is accompanied by a farm visit or provision of additional child development information.
- **Media:** There has been no evaluation of the effectiveness of encouraging media to include safe practices and prevention messages in stories, but it is good to work to develop journalists’ knowledge about farm safety.
- **Social marketing campaigns:** There has been no evaluation of social marketing campaigns, but numerous posters and digital materials are available for digital and hard-copy publication.
- **Child-focused safety education:**
 - Evaluation of Farm Safety Day Camps has shown short-term knowledge gain and some decrease in risky behaviors, but there is no definitive research to demonstrate that they reduce the toll of childhood farm injuries.
 - Evaluations of tractor safety courses have shown some knowledge gain and slight improvement in self-reported safe behaviors, but there is no definitive research to demonstrate that they reduce the toll of childhood farm injuries.
 - Most safety programs are directed to children who are the potential victims of injury and not to the responsible parent/adult who controls the worksite and the engagement of children in that worksite. Changes will probably not occur on farms unless the responsible adult is fully engaged in the process, so prevention strategies needed to be directed toward adults and farm owners rather than the children.
- **Family farms:**
 - Educate parents about farm safety and which farm jobs are safe for children.
 - Have off-site child care.
 - Create separate play areas⁷
- **Enforce safety and labor regulations,** including the USDA requirements that youth under age 16 not be employed in the identified Hazardous Occupations in Agriculture.⁸

⁷ Creating Safe Play Areas on Farms.

⁸ The prohibited occupations can be found at <http://www.dol.gov/elaws/esa/flsa/docs/hazag.asp>.

Safe practices

- **Tractors:**
 - Install seatbelts and safety features on tractors (such as Roll-Over Protective Structures and guards/shields), and use them.
 - No tractor driving until at least age 14 for simple jobs; age 16 -18 for complex jobs.
 - Proper safety training before operating a tractor.
 - Only one passenger per seat on tractors.
- **Other machinery:**
 - Proper training in equipment and safety before operating any machinery.
 - Install barriers around machines and vehicles and take keys out of vehicles not in use.
 - Keep all equipment in good working order
- **ATVs:**
 - No ATV driving until age 16
 - ATV safety training for all drivers, and always wear helmets.
 - No passengers on ATVs.
- **Drowning**
 - Fence water hazards; cover water containers such as tanks; cover manure tanks.
- **Falls**
 - Install fall protection in haylofts.
 - Only use ladders in good condition and use them safely.
- **Livestock:**
 - Fence animal enclosures to prevent child entry and keep dairy bulls separate.
 - Keep children away from animals that are breeding, calving, mothers with newborn young, and hurt or sick.
 - Practice good hygiene after working with animals before entering home or close contact with children.
 - Train children how to be safe around animals.
 - Lock away all animal medicines, dosing guns and syringes, and chemicals containers.
- **Confined spaces:**
 - Have safety procedures and equipment in place for all silo/grain bin work, including harnesses and self-contained breathing apparatus.
 - No child under age 18 should be allowed in silos/grain bins and no one should enter silo alone.
 - Train farmers and farm workers about safety procedures for silos and silo rescue, including the need for immediate medical attention after exposure to gases.
 - Ventilate silos adequately.

- **Chemicals:**
 - Safe, locked storage of these chemicals
 - Protective clothing and washing after exposure should be employed
 - Emergency plans for spills or other emergencies should be in place and practiced.⁹
 - Use closed system for delivery of strong chemicals.
- **Electrocution:**
 - The US Department of Labor has safety recommendations regarding youth in agriculture and electrocution prevention.¹⁰
 - Know where power lines are and keep equipment away from them
 - Teach safety precautions to farmworkers and what to do if equipment comes into contact with overhead power line
 - Know where underground power lines are.

For more information:

- National Children's Center for Rural and Agricultural Health and Safety, <http://www3.marshfieldclinic.org/nccrahs/>
- Safety Guidelines for Hired Adolescent Farm Workers (SaGHAF), http://www3.marshfieldclinic.org/nccrahs/?page=nfmc_nccrahs_saghaf
- Childhood Agricultural Safety Network, <http://www.childagsafety.org>
- North American Guidelines for Children's Agricultural Tasks (NAGCAT), <http://www.nagcat.org>
- Dairy chemicals: <http://www3.marshfieldclinic.org/proxy/MCRF-Centers-NFMC-resources-ChildrenDairyChem2-10.1.pdf>
- Cultivatesafety.org: Can my child do this job safely? [YouTube]
- National Institute of Food and Agriculture, source to find Cooperative Extension offices, <http://www.csrees.usda.gov/Extension/index.html>
- American Farm Bureau Foundation for Agriculture, <http://www.agfoundation.org/index.php?action=farmsafety.home>
- Safe Play, http://www3.marshfieldclinic.org/nccrahs/default.aspx?page=nfmc_nccrahs_safe_play_welcome
- Blueprint for Protecting Children in Agriculture, the 2010 National Action Plan, http://www3.marshfieldclinic.org/proxy/MCRF-Centers-NFMC-NCCRAHS-2012_Blueprint_for_Child_Ag_Inj_Prev.1.pdf
- Child Labor Requirements in Agricultural Occupations Under the Fair Labor Standards Act (Child Labor Bulletin 102) June 2007. <http://www.dol.gov/whd/regs/compliance/childlabor102.pdf>

⁹ Youth in Agriculture, Chemicals, US Department of Labor, <https://www.osha.gov/SLTC/youth/agriculture/workers.html>

¹⁰ Youth in Agriculture, Electrocution, US Department of Labor, <https://www.osha.gov/SLTC/youth/agriculture/electrocution.html>

- Miller, M.E., & Lee, B.C. (2014) Developing a model policy on youth employment in agriculture. *Journal of Agromedicine*, 19,249-257.
- Pickett, W., Brison, R.J., Berg, R.L., Linneman, J., Zentner, J., & Marlenga, B. (2005). Pediatric farm injuries involving non-working children: Five opportunities for primary prevention. *Injury Prevention*, 11(1), 6-11.
- Silo Gases, National Ag Safety Database, <http://www.nasdonline.org/document/64/d001621/silo-gas-dangers.html>
- State labor laws, <http://www.dol.gov/whd/state/agriemp2.htm#Michigan>