CHILDREN AND AGRICULTURE:

OPPORTUNITIES FOR SAFETY AND HEALTH

A National Action Plan
CHILDREN AND AGRICULTURE: OPPORTUNITIES FOR SAFETY AND HEALTH

A NATIONAL ACTION PLAN
A report from the National Committee for Childhood Agricultural Injury Prevention.
Prepared by the National Farm Medicine Center, Marshfield, WI

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Rochester, Minn. (AP) A 5-year-old Preston girl was in fair condition after her arm was torn off by a piece of machinery on her family’s farm. The girl was taken to St. Mary’s hospital by helicopter after her hand got caught in a feed auger Sunday afternoon, July 10. Hospital officials said Monday they did not have the family’s consent to comment further on her condition or to say whether the arm was reattached.

The father was operating the auger and the girl was playing nearby when she apparently put her hand inside the machine, said Fillmore County Sheriff. He said authorities used an acetylene torch to cut the arm out of a metal feed shoot, then transported it to the hospital packed in ice.

One in five farm families experience a serious work-related injury each year, according to John Shutske, farm safety and health specialist with the state agricultural extension service.

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STAKEHOLDERS

Protecting children from injury requires the involvement of many adults. Stakeholders are individuals who have something to gain and a role to play in protecting children from agricultural injuries. Eight general categories of stakeholders are identified for implementing this national agenda. It is likely that many individuals fall into more than one category. In most instances, only the primary stakeholder groups were designated, but other groups may also have an important role to play. Specific recommended actions for each group are noted by a dot (•) in the margin adjacent to the recommendations. Stakeholder groups include:

FARM/RANCH OPERATORS AND FARM ORGANIZATIONS
Farm/ranch owners and operators, farm workers, farm worker representative organizations, and farm trade advocacy or commodity organizations

YOUTH AND COMMUNITY GROUPS
Not-for-profit organizations involved in service at local levels such as 4-H, FFA, Farm Safety 4 Just Kids, and National SAFE KIDS Campaign

RESEARCHERS AND ENGINEERS
Scientists and others with expertise in injury control, human factors, behavioral science, social science, industrial hygiene, ergonomics, and related fields

AGRICULTURAL BUSINESS
Commercial enterprises, including insurance providers, manufacturers, suppliers, and others

HEALTH CARE PROVIDERS
Physicians, nurses, public health professionals, and others providing health care services

POLICY MAKERS
Legislators and others at a local, state, and federal level who develop and implement a course of action

EDUCATORS
Persons trained in teaching, including classroom, patient, and community instruction

MEDIA
Journalists, public relations specialists, and others in both agricultural and general media who use print, audio, and visual communication systems to disseminate information
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NATIONAL COMMITTEE FOR CHILDHOOD AGRICULTURAL INJURY PREVENTION

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Health Resources and Services Administration, Maternal and
Child Health Bureau
National Farm Medicine Center
National Institute for Occupational Safety
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SUPPORT FOR
CHILDHOOD
AGRICULTURAL
INJURY PREVENTION

Many individuals and groups from both the public and private sector have offered encouragement for the development and implementation of this action plan to protect children from unnecessary harm. Their support does not represent agreement with each specific recommendation, but rather their encouragement for an overall national strategy.

We are very grateful for the support of:

American Academy of Family Physicians
American Academy of Pediatrics
American College of Preventive Medicine
American Farm Bureau Federation
American Medical Association
American Nurses Association
American Public Health Association
American School Health Association
American Soybean Association
Association of Farmworker Opportunity Programs (AFOP)
Bureau of Primary Health Care Migrant Health Program
C. Everett Koop Institute–Dartmouth
California Center for Childhood Injury Prevention
Cal Poly University (WK. Kellogg Arabian Horse Center)
Cargill
Cenex
Children’s Safety Network:
Adolescent Violence Prevention Resource Center
Economics and Insurance Resource Center
Injury Data Technical Assistance Center
National Injury and Violence Prevention Resource Center – EDC
National Injury and Violence Prevention Resource Center – NCEMCH
Rural Injury Prevention Resource Center
Colorado State University (Department of Environmental Health; High Plains and Intermountain Center for Agricultural Health and Safety)
Consumer Product Safety Commission
Deere & Company
Defense for Children International-USA
Emergency Nurses Association
Equipment Manufacturers Institute
Farm Labor Organizing Committee
Farm Safety 4 Just Kids
Harborview Injury Prevention and Research Center
Harvest States Cooperatives
Health Resources and Service Administration, Maternal and Child Health Bureau
Indian Health Service
Johns Hopkins School of Hygiene and Public Health (Center for Injury Research and Policy)
Louisiana Farm Bureau Federation
Marshfield Clinic
Mayo Clinic (Department of Pediatrics)
Migrant Clinicians Network, Inc.
National Association of County and City Health Officials
National Association of Wheat Growers
National Center for Injury Prevention and Disease Control (Division for Unintentional Injuries)
National Consumers League
National Easter Seal Society
National Farm Medicine Center
National Farmers Union
National FFA
National FFA Alumni Association
National Grange
National Highway Traffic Safety Administration
National Institute for Farm Safety
National Institute for Occupational Safety and Health
National Public Service Research Institute (Safety and Risk Policy Program)
National Rural Health Association
National SAFE KIDS Campaign
National Safety Council
National School Health Education Coalition
National Young Farmers Educational Association
New York Center for Agricultural Medicine and Health
Office of Rural Health Policy
Progressive Farmer Magazine
Salt Lake Community Health Centers, Inc.
Society of Pediatric Nurses
Stephen M. Yoder Foundation
Successful Farming Magazine
The Society for Adolescent Medicine
United States Department of Agriculture Cooperative State Research, Education, and Extension Service
University of California Agricultural Health and Safety Center at Davis
University of California—Los Angeles (Injury Prevention Research Center)
University of Illinois (Institute for Rural and Environmental Health; Great Plains Center for Agricultural Health)
University of Kentucky (Southeast Center for Agricultural Health and Injury Prevention, Department of Pediatrics)
University of Minnesota (Agricultural Engineering Department)
University of New Mexico (Center for Injury Prevention, Research, and Education)
University of Texas Health Center at Tyler (Southwest Center for Agricultural Health, Injury Prevention, and Education)
WK. Kellogg Foundation
Women Involved in Farm Economics
Yakima Valley Farm Workers’ Clinic
Zenith Insurance Company
Four-year-old fatally injured

A four-year-old Barren County child was fatally injured Sunday afternoon when he fell from a farm tractor.
The boy was pronounced dead at the scene of the accident, which occurred just east of Cave City.
The Barren County Coroner said the accident occurred around 8 p.m. Swift said the child was riding on the fender of the farm tractor when he fell and was run over by the tractor.
The tractor was being driven by the child’s 10-year-old uncle at the time of the accident.

Boy dies in farm accident

A 9-year-old Eagle Bend boy was fatally injured when he was caught in a power takeoff shaft on a silage wagon, the Todd County sheriff’s office said.
The accident happened about 6:30 p.m. Tuesday. The boy was pronounced dead at the Tri-County Hospital in Wadena.
WHAT WOULD THE CHILDREN EXPECT FROM THOSE OF US WITH THE POWER TO MAKE THEM SAFER?

They would expect that...

We would cherish with them the beauty of the American countryside –
the joy they feel on a long walk in the woods or under an open field.
But they would expect us to note that the same open spaces that inspire can also isolate –
so that sometimes their voices are not heard.

They would expect that...

We would work to ensure the conveniences and abilities that they feel
when they are asked to work too hard, too soon.
But they would also want us to rejoice with them as they experience
the sense of mastery, accomplishment, and contribution that can come
from working alongside an adult whom they respect.

They would expect that...

We would be their voice with policymakers when they don’t have one –
when their numbers are too small, their homes are too remote,
their voice is too soft, their protection too controversial.

They would expect that...

We would honor the traditions of rural families and communities,
but that we would call them into question when they are incompatible
with the safety and well-being of children. Then they would expect that we would work
with their families and communities to build better, stronger, safer traditions –
traditions that build at the first priority, the preservation of children, not the preservation of history.

Nancy B. Young
INTRODUCTION

This report is about children, many of whom will enjoy the benefits of visiting or living on one of the two million farms across the United States. This report is also about the estimated 100,000 children each year who suffer a preventable injury associated with production agriculture. How do we safeguard their future? Across our nation, we are witnessing a rapid industrialization process in production agriculture. The 1992 Census of Agriculture reports a significant shift in patterns of farm ownership, size, and production. While some agricultural settings undergo rapid changes influenced by factors such as the global economy and new technologies, other settings will maintain traditional farm practices. Regardless of the geographic region or type of agricultural enterprise, our top priority must be to ensure that children are not the forgotten victims of preventable injuries.

Agriculture has been ranked by several sources as having one of the highest occupational death rates in the United States. It is one of the few occupational settings where children may actively participate in work typically performed by adults. Previous efforts to minimize the toll of agricultural injuries have had limited success. We must develop, implement, and evaluate strategies that incorporate education, engineering, and public policy, if we hope to make a significant impact on childhood agricultural injury prevention. These strategies should be guided by the principle that all children, regardless of their parents' ethnicity, socioeconomic status, and relationship to farm ownership, deserve equal protection from agricultural injuries.

CHILDREN AT RISK

In 1991, there were 923,000 children under 15 years of age and 346,000 children 15–19 years of age residing on United States farms and ranches. Another 800,000 children lived in households of hired farm workers and may work on farms with their parents. Additionally, many children, whose parents are not farmers or farm workers, will visit and work on farms. Committee recommendations were designed to protect these nearly two million children regardless of their parents' relationship to the farm.

STATUS OF PROBLEM

Children experience fatal and nonfatal unintentional injuries associated with production agriculture in the United States. While children account for about 20 percent of all farm fatalities, studies have reported that they comprise a higher proportion of the total number of nonfatal farm injuries. An estimated 27,000 children under the age of 20 years who live on farms and ranches are injured each year. This figure does not include children who visit or work on nonfamily farms. The total injury toll has been estimated at greater than 100,000 annually.

The primary agents of fatal and nonfatal injuries to children on farms include tractors, farm machinery, livestock, building structures, and falls. Children are also exposed to many of the same environmental hazards as those experienced by adult workers, including pesticides, volatile organic compounds (fuel), noxious gases, airborne irritants, noise, vibration, zoonoses, and stress. Only about 5 percent of farms in this country are covered by safety regulations of the Occupational Safety and Health Act (OSHA). On the remaining 95 percent of farms, the owner/operator is responsible for assessing acceptable levels of risk for adults and children on that farm. Unfortunately, little scientific evidence is available to determine acceptable levels of hazardous exposure to children.
Therefore, neither OSHA standards nor farm operators are prepared to provide children the same level of protection from occupational hazards in production agriculture as they receive in other occupations.

PURPOSE

NATIONAL COMMITTEE FOR CHILDHOOD AGRICULTURAL INJURY PREVENTION is a public and private sector initiative. Committee members strived to generate specific, targeted recommendations for research, education, policy, and evaluation, with the goal of reducing unintentional agricultural injuries to children younger than 18 years. These recommendations were based upon epidemiologic evidence of the current injury problem, as well as recommendations disseminated through several reports, including: Healthy People 2000: National Health Promotion and Disease Prevention Objectives; Injury Control in the 1990s: A National Plan for Action; Childhood Agricultural Injury Prevention: Issues and Interventions from Multiple Perspectives; Agriculture at Risk: A Report to the Nation, and Child Labor in the 90s, How Far Have We Come.

METHODS

The complexity of the problem of childhood agricultural injuries warranted an interdisciplinary approach as well as a multiphased process. Over a 16-month period, the 42 members of the National Committee for Childhood Agricultural Injury Prevention reviewed relevant recommendations from previous reports, developed new recommendations based on current injury data and other scientific evidence, and refined and prioritized recommendations to be clearly understood and acted upon by relevant individuals and agencies. The method used to generate consensus on recommendations involved: (1) teleconference meetings; (2) individual reviews of draft documents; (3) synthesis of reviewers’ comments; (4) refinement of recommendations through six categorical working groups; and (5) formal committee meetings. Thirteen prominent farm organizations were personally visited and another 14 were contacted by telephone by representatives of the committee. Farm organizations and members of other groups were encouraged to review proposed recommendations and provide feedback regarding their merits and problems. More than 150 copies of proposed recommendations were disseminated among their members. This feedback served as the basis for content and priority setting of the final report.

In order to move committee recommendations beyond the status of words without actions, committee members have joined forces with many individuals and agencies. Together, they have made a commitment to ensure this report is received and understood by parents, agricultural businesses, educators, farm and ranch operators, farm organizations, farm workers, health care providers, media, policy makers, researchers, engineers, youth groups, community groups, and others who share responsibility for actively protecting children from agricultural injuries.

This report contains the goal, 13 objectives, and 43 recommended action steps proposed by committee members. The sidebar adjacent to each objective provides information that explains issues presented by committee members and reviewers. Readers are encouraged to refer to the glossary for an explanation of terms used in this report.
Farm accident kills 9-year-old girl. Families, teachers, classmates cope with tragedy

The Western Daily Herald

Teachers at Grant Elementary School struggled this morning to help students cope with the Wednesday evening death of a 9-year-old classmate. The girl died Wednesday night while helping her grandfather harvest corn at her family farm in Hewitt. She was crushed to death in what the Marathon County Leader called an “unusual and tragic accident.” The girl was helping her grandfather unload corn at her home. He had parked a wagon full of corn next to the family silo and was blowing corn from the wagon into the silo when the silo shifted very close to the wagon when the load shifted and the box tipped off its frame, crushing her. She died of suffocation. The Marathon County sheriff’s deputies said the accident happened at a farm near Dorn, Texas.

The Grand Rapids Press

Front-end loader accident leaves 12-year-old dead

Relatives of a 12-year-old killed Saturday while riding on a farm vehicle were hesitant to talk about the incident because of the suffering of not only his family but also of the young driver whom police say made a fatal mistake. The boy was crushed shortly before 3 p.m. Saturday while riding on a front-end loader on a dairy farm near Dorn. He was caught between the cab and hydraulic arms of the vehicle when a friend, who had been driving, lowered the basket of the front-end loader to pass beneath tree limbs, according to Allegan County deputies. The boy alternated home locations between Leighton Township and San Benito, Texas.

Photo by Jennifer Simonson
With the goal of maximizing the safety and health of all children and adolescents who may be exposed to agricultural hazards, the following objectives and recommended actions were developed.

3-year-old dies in farm accident

A River Falls Township 3-year-old boy died from head injuries sustained when he fell from the cabin of a tractor driven by his father. The accident occurred shortly before 6:30 p.m. Thursday, Nov. 9.

The boy was pronounced dead at the River Falls Area Hospital. He fell from an Allis Chalmers tractor in a field near a farm in River Falls, according to Pierce County Sheriff’s Department according to Pierce County Sheriff’s Department.

The boy was the youngest of a two-row corn picker and green box. It was not known whether the boy accidentally unatched the door handle before the fall, but it is believed he was pushed along by the right rear tire of the tractor.

Sorenson said the child’s father brought the boy into a farm building before the River Falls Ambulance Service arrived. A Life Link helicopter crew was dispatched, but did not transport the youngster.

Authorities wouldn’t say if blood alcohol tests were administered to the child’s father, but it is routine procedure to do these tests as part of the investigation of a death.

No charges had been filed at the Pierce County District Attorney’s Office, and the matter remained under investigation.

7-year-old boy killed by cow on dairy farm

A 7-year-old grandson was killed by a cow said Wednesday the incident happened so fast he couldn’t react.

The boy was helping his grandfather with chores Tuesday evening on his family’s northwestern Wisconsin farm when a cow head-butted the boy and killed him.

The boy was thrown from a wall and landed on the frozen concrete floor of a feed barn about 5:45 p.m. He was taken to Flambeau Medical Center in Park Falls, where he died a short time later.
Establish and Maintain a National System for Childhood Agricultural Injury Prevention

A. Congress should designate the National Institute for Occupational Safety and Health (NIOSH) to provide leadership for childhood agricultural injury prevention in the United States. This will include leadership in the coordination of national, regional, and state policies and programs.

B. NIOSH should develop, implement, monitor, and evaluate a comprehensive childhood agricultural injury prevention program involving injury data collection, education, policy, research, and other initiatives that involve linkages across federal, regional, and state levels.

C. NIOSH should enhance current and foster new childhood agricultural safety and health promotion activities among relevant existing public agencies and private sector organizations.

Ensure That Childhood Agricultural Injury Prevention Programs are Supported With Sufficient Funding and Cooperation From the Public and Private Sectors

A. Congress should allocate $5 million to NIOSH for implementing a national plan for childhood agricultural injury prevention initiatives including research, public education, professional training, community and family services, and policy enforcement.

B. Foundations, corporations, and other private sector groups and individuals should allocate funds for innovative childhood agricultural injury prevention initiatives.

C. Public agencies and private sector foundations, corporations, associations, and other groups should be partners in efforts to plan, implement, and evaluate childhood agricultural injury prevention initiatives.
Establish Guidelines for Children’s and Adolescents’ Work in the Industry of Agriculture

A. Develop, test, and modify developmentally-appropriate (see glossary) guidelines for children’s participation in agricultural work, based on research results as well as psychological and physical development theory and principles. This effort should be conducted through a consensus-building process involving federal agencies and private sector representatives.

B. Develop and evaluate age-appropriate (see glossary) guidelines for work practice standards of adolescents employed in agricultural work. This effort should be conducted through a consensus-building process and should serve to guide relevant public policy.

Ensure That the Public is Aware of General Childhood Agricultural Safety and Health Issues

A. Use collaborative efforts of multiple agencies and organizations to develop, implement, and evaluate a national public education strategy directed at influencing knowledge, attitudes, and practices of individuals and groups to protect children and adolescents from agricultural injury.

B. Use culturally-sensitive strategies to maximize the impact of National Farm Safety and Health week on the knowledge, attitudes, and practices of parents whose children and adolescents may be exposed to agricultural hazards.
Establish and Maintain a Comprehensive National Database of Fatal and Nonfatal Childhood Agricultural Injuries

A. Achieve consensus on terms, models, and methods, including a minimum data set (see glossary) for securing data on childhood agricultural injuries.

B. Address deficiencies in E codes (see glossary) that depict childhood agricultural injuries and implement systems for continued refinement.

C. Continually improve and evaluate data collection and analysis of fatal and nonfatal childhood agricultural injuries, including underlying conditions and preventable risk factors.

Conduct Research on Costs, Risk Factors, and Consequences Associated With Children and Adolescents Who Participate in Agricultural Work

A. Conduct studies to estimate the societal and economic costs and consequences associated with childhood agricultural injury.

B. Conduct studies of factors affecting protection of children and adolescents from agricultural injury. These should include identification of barriers (see glossary), innovative methods for removing barriers, and effective methods to influence positive safety behaviors of farm and ranch owners/operators, farm workers, parents, caregivers, and manufacturers, as well as children and adolescents.

C. Conduct assessments of short- and long-term physical and psychological outcomes related to children's and adolescents’ participation in different types of agricultural work.

D. Conduct physical assessments of children and adolescents who have been exposed to agricultural hazards such as agricultural chemicals, organic dusts, toxic gases, nitrates, volatile organic compounds, oils, and solvents.

E. Conduct studies of the impact of noise, vibration, cumulative trauma (see glossary), and other work-induced health hazards on children and adolescents participating in agricultural work.

F. Conduct studies to determine the relative effectiveness of education, engineering, voluntary incentives, and mandatory standards on childhood agricultural injury reduction.
7. Use Systematic Evaluation to Ensure That Educational Materials and Methods Targeted Toward Childhood Agricultural Safety and Health Have Demonstrated Positive Results

A. Establish guidelines and criteria to evaluate childhood agricultural safety and health training materials and methods.

B. Conduct rigorous evaluations to determine the effectiveness of education and training intended to influence agricultural safety and health behaviors among children and adolescents.

8. Ensure That Farm and Ranch Owners/Operators, Farm Workers, Parents, and Caregivers Understand Relevant Agricultural Safety and Health Issues That Pertain to Children and Adolescents

A. Encourage state agencies and delivery systems to use region-specific and culturally-sensitive agricultural safety and health curricula in kindergarten through high school. Empower youth organizations to enhance and expand learning opportunities related to agricultural safety and health.

B. Provide public education for parents and employers as well as vocational training to adolescents regarding developmentally- and age-appropriate agricultural work tasks as well as human safety and health risks associated with agricultural hazards.

C. Facilitate the provision of “first on the scene” (see glossary) training for owners/operators, farm workers, family members, and caregivers. Include training that is specific to childhood agricultural trauma.

D. Encourage qualified rural health care providers, educators, and safety professionals to provide training for youth-serving agencies. Training should include childhood agricultural injury prevention and health promotion within the scope of their program activities.
9. Ensure that Rural Safety and Health Professionals Understand the Issues Relevant to Children and Adolescents Exposed to Agricultural Hazards

A. Enhance professional activities addressing childhood agricultural injury prevention issues through networking among injury control and health promotion professionals.

B. Encourage the inclusion of childhood agricultural safety issues and agricultural operating procedures within agricultural safety and health courses offered in colleges and universities.

C. Promote and support childhood agricultural safety and health inservice training for educators, injury control professionals, and health care providers dealing with agricultural populations.

10. Influence Adult Behaviors Which Affect Protection of Children and Adolescents Through the Use of Incentives and Adoption of Voluntary Safety Guidelines

A. Encourage insurers, manufacturers, cooperatives, and others to develop and evaluate innovative programs for farm and ranch owners/operators, farm workers, parents, and caregivers that enhance protection of children and adolescents through the use of incentives (see glossary).

B. Establish safety and environmental guidelines to protect bystander children from agricultural hazards.

C. Encourage parents, supervisors, and employers to avoid involvement of children in tasks that are not developmentally- or age-appropriate.

D. Encourage manufacturers and suppliers to provide appropriate personal protective equipment (see glossary) for children and adolescents involved in developmentally- or age-appropriate work as permitted by law.

E. Encourage parents, supervisors, and employers to require children and adolescents who are involved in developmentally- and age-appropriate work to adhere to safety guidelines, including use of personal protective equipment.
11. All children deserve equal access to agricultural safety information. 4-H, FFA, and other organizations should reach out to include children of migrant and seasonal farm workers into their groups.

Rural community-based child care options are needed, especially during periods of peak agricultural production when children are most likely to be injured.

Provide a Protective and Supportive Environment for Children Exposed as Bystanders to Agricultural Hazards

A. Design, implement, and evaluate community-based programs to enhance the safety and well-being of children who may be exposed as bystanders to agricultural hazards.

B. Plan, implement, and evaluate structural and machinery design options to provide a protective environment for children at the farm work site.

C. Facilitate systems and resources for migrant and seasonal farm workers to resolve safety and health practice barriers involving children.

12. Research has shown the use of rollover protective structures (ROPS) and seat belts can significantly reduce agricultural fatalities. At a minimum, ROPS and seat belts should be mandated for operators until they reach adulthood. There is no evidence to suggest that children younger than 16 years of age have the decision-making skills needed to operate a tractor. Since there is no other industry that allows children younger than 16 years to operate motor vehicles, the standard used for automobile licensure and operating privileges should be applied to tractor operation.

Many family farmers expressed concern that, if implemented, these recommendations would cause an economic burden and might disrupt current work practices on family farms. They indicated that retrofitting old tractors to meet safety standards may be unaffordable and sometimes impossible. Some farmers believe that children raised on farms can safely operate tractors on low-traffic public roads prior to age 16 years.

Establish Uniform Standards That Address Protection of Children and Adolescents From Agricultural Occupational Hazards

A. Establish and monitor age-appropriate child labor standards to reflect current agricultural technology, production practices, and safety and health information.

B. Mandate the restriction of individuals under 18 years of age from operating tractors without seat belts and rollover protective structures (ROPS). A one-year grace period should be established (from the effective date of this standard) during which time tractor operators should be informed of this new standard and be encouraged to retrofit tractors.

C. Mandate the restriction of individuals under 18 years of age from operating farm vehicles on public roads unless such minor is at least 16 years of age, has a valid motor vehicle license, and is a certified graduate of a state-approved tractor and farm vehicle safety training program.

D. Restrict children and adolescents from riding on or in non-approved passenger areas of motorized vehicles and machinery/implements.
13. **Increase Adherence to Child Labor Laws Through Active and Funded Enforcement Including the Use of Penalties**

A. Increase the funding level and number of personnel for enforcement of child labor laws for agriculture and the collection of penalties for illegally employing children and adolescents in production agriculture. Monies collected from fines should be used to enforce laws and improve voluntary compliance through public education, outreach, and other safety interventions.

B. Promote the application and enforcement of all federal and state child labor laws and related farm safety and health standards, without group or industry-wide waivers or exceptions. Such waivers or exceptions should be considered only on an individualized, case-by-case basis.

C. Promote the welfare of children involved in farm labor within each state’s workers compensation system. Within these systems, ensure that those children injured during their performance of legal farm labor are compensated by a wage replacement award that adequately considers potential future earnings. For cases where covered children are injured while working in violation of federal or state law, the wage replacement benefit should be increased to twice the statutory level, the additional cost to be paid by the employer/insured.

**Conclusion**

This report represents a summation of strategies for reducing the frequency and severity of childhood agricultural injuries. The proposed national agenda provides an opportunity for us to systematically ensure health and safety for children across our country. So let us imagine that the precious voices of children are calling to us – to exercise wisdom, moral principles, and determination to protect each of them from harm. The children would expect that much of us.
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ADDITIONAL READINGS* 

INJURY PREVENTION 


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*Not previously cited in reference list
BIOGRAPHICAL SKETCHES OF COMMITTEE MEMBERS

Marilyn Adams
is president and founder of Farm Safety 4 Just Kids in Earlham, Iowa. She grew up on a farm and has over 25 years of experience as a farm partner and as raising a family on a grain farm.

Robert Aherin, PhD
is the Illinois agricultural safety specialist and associate professor at the University of Illinois Urbana–Champaign where he conducts research on safety behaviors. He has more than 20 years of professional experience in agricultural safety and has been active in agricultural safety professional groups at a regional and national level.

Dorianne Beyer, LLM, JD
is the executive director of Defense for Children International–USA in New York, a children’s rights, advocacy, and policy development agency. She has been a leading lawyer, advocate, researcher, trainer, and consultant in children’s rights and protection, particularly as pertains to working children, for almost 20 years.

Richard Beyer
is the safety director for the Louisiana Farm Bureau Federation in Baton Rouge and has held this position since 1973. He has been a leader of farm safety activities at both a local and national level.

Christine Branche-Dorsey, PhD
is an epidemiologist and leader of the Home and Leisure Team, within the Division of Unintentional Injury Prevention, National Center for Injury Prevention and Control at the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia. She has conducted injury control research in drowning, water recreation–related spinal cord injuries, and falls in working populations.

Vicky Bucan, PhD
is an associate professor at Colorado State University and a member of the administrative team of its High Plains Intermountain Center for Agricultural Health and Safety. One of her current research projects involves a prospective study on the social and economic impacts of fatalities in agriculture.

Sandi Cihlar
and her husband are involved in a third generation dairy farm in central Wisconsin where they are raising three sons. She grew up on a Wisconsin farm and has personal knowledge of the challenges associated with farm safety.

Silvia Corral, MD, MPH
is a pediatrician with a practice in Salt Lake City, Utah, where she cares for children of migrant and seasonal farm workers.

Carol Delany, MSS
is the co-director of the federal Maternal and Child Health Bureau’s Injury and Violence prevention program. She provides oversight to the Children’s Safety Network, a unique group of expert organizations that provide technical assistance and information nationwide to facilitate the development and expansion of childhood injury prevention programs.

Kelley Donham, DVM
is a professor and program director at the Institute for Rural Environmental Health at the University of Iowa. He has been very active in promoting national leadership in agricultural safety and health.

Donald Gargas, MD, FAAP
has been a full-time staff pediatrician at the Migrant Health Clinic in Toppenish, Washington since 1973, where he has advocated for the health and safety of children of migrant and seasonal farm workers.

Linda Goldner, BA
is president of the National Consumers League, which, since its founding in 1899, has been concerned about workplace and marketplace safety, with a special focus on families and children. She is co–chair of the Child Labor Coalition, a group of more than 50 international and domestic organizations concerned with the exploitation of children in the workplace, and she chaired the US Department of Labor Child Labor Advisory Committee.

Gene Graham, PhD
is the interim director of Equine Science Programs at the W.K. Kellogg Arabian Horse Center at Cal Poly, Pomona, California, and previously managed the W.K. Kellogg Agricultural Safety and Health initiative. He was raised on a livestock and cash crop farm in south–central Michigan.
BRAD GURLEY is a full-time grain farmer in southern Illinois and works part-time as a police officer in a nearby town. Brad and his wife are raising their two small children on the farm and have been involved in Illinois farm safety programs.

DAN HAIR, MSS, CSP is the regional manager for Zenith Insurance Company in Salt Lake City, Utah. The Zenith is a specialty Worker’s Compensation insurance carrier with extensive dealings in the agribusiness sector. He has been a leader in having insurance companies promote farm safety education.

DAVID HARD, PhD is a project officer for NIOSH and served as director of the Agricultural Health Promotion Systems (AHPS), which was the intervention component of the NIOSH national agriculture initiative. He was raised on a beef cow/calf operation in southern Missouri.

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MURRAY KATCHER, MD, PhD is professor of Pediatrics and Family Medicine and director of Community Health Programs at the University of Wisconsin Medical School. He chairs the Committee on Injury and Poison Prevention of the American Academy of Pediatrics. He has conducted research in childhood injury prevention, especially the prevention of tap water scald burns.

TIM KELSEY, PhD is an assistant professor of Agricultural Economics at Pennsylvania State University. His research program includes the economic aspects of agricultural safety and the impact of economics, land use, and population change in rural areas.

JESS KRAUS, MPH, PhD is a professor of epidemiology at the University of California–Los Angeles and director of the Southern California Injury Prevention Research Center. He has been involved in injury research since the mid-1960s and has carried on an active research program at the University of California since 1969.

BARBARA LEE, PhD, RN is a behavioral scientist with the National Farm Medicine Center in Marshfield, Wisconsin. She is director of the Children’s Safety Network Rural Injury Prevention Resource Center, and is the 1996 president of the National Institute for Farm Safety.

MURRAY MADSEN, BSAGE, MBA is the product safety engineer for Deere & Company and has specialized in agricultural equipment safety. He grew up on a grain and livestock farm in southwestern Minnesota and has been very active in the major agricultural safety organizations.

ROBERT MCKNIGHT, MPH, SCD is director of the Southeast Center for Agricultural Health and Injury Prevention at the University of Kentucky College of Medicine. He directs several prevention projects aimed at reducing job-related injuries and illnesses associated with farming.

ANGELA MICKALIDE, PhD, CHES is program director of the National SAFE KIDS Campaign, comprised of nearly 200 state and local SAFE KIDS Coalitions in 50 states, the District of Columbia, and Puerto Rico. She develops injury prevention programs and educational materials for implementation at the community level.

TED MILLER, PhD is associate director of the National Public Services Research Institute, and director of the Children’s Safety Network Economics and Insurance Resource Center. With 14 years of experience in safety economics, his research has probed the incidence and cost of both childhood and occupational injury, including child injury in agriculture.

KAREN MOUNTAIN, RN, MBA is the executive director for the Migrant Clinicians Network, a national nonprofit, multidisciplinary grassroots organization of primary care providers who are dedicated to improving the health status of America’s migrant and seasonal farm workers. She is translating her experience in rural migrant health care issues into the creation of broader national primary care policy.
L. DIANE MULL, BSB
is executive director of the Association of Farm Workers Opportunity Programs, the national federation of farm worker employment, training, and support service organizations. She has testified on numerous occasions before the US House and Senate, and has submitted hundreds of position statements and testimonies on behalf of farm workers and farm worker organizations.

DENNIS MURPHY, PHD
is a professor of Agriculture and Biological Engineering and a cooperative extension safety specialist at Pennsylvania State University. He grew up in a central Illinois farming community and is considered a leading authority on farm safety.

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is a highway safety specialist in the National Highway Traffic Safety Administration’s Office of Occupant Protection in Washington, DC. She serves as an advisor to numerous child safety initiatives.

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is the director of the Center for Injury Prevention Research and Education at the University of New Mexico Department of Emergency Medicine. She has been involved with childhood injury research, especially in the area of emergency medical services for children.

TERI PALERMO, RN, MS
is a public health advisor at NIOSH, an active member of the NIOSH child labor working team, and works with the NIOSH supported agricultural health research groups. She grew up on a hobby farm in the Greenbrier Valley region of West Virginia.

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BRADLEY REIN, PE
is a national program leader in the US Department of Agriculture Cooperative State Research, Education, and Extension System and was 1995 president of the National Institute for Farm Safety. He provides national leadership in determining education and research needs along with program design related to agricultural safety, health, and engineering.

FREDERICK P. RIVARA, MD, MPH
is a professor of pediatrics and epidemiology at the University of Washington and director of the Harborview Injury Prevention Research Center in Seattle, Washington. He has conducted several landmark studies related to unintentional childhood injuries, and more recently has focused on prevention of youth violence.

SUSAN SCAVO–GALLAGHER, MPH
is a senior scientist at the Education Development Center in Newton, MA and director of the Children’s Safety Network Injury and Violence Prevention Resource Center. She has been involved in child injury prevention research, programs, and policy at the local, state, and national levels since 1979.

JOHN SHUTSKE, PHD
is the extension agricultural safety and health specialist at the University of Minnesota in the Department of Biosystems and Agricultural Engineering. He has promoted the use of age– and developmentally–appropriate educational materials and methods for youth training in Minnesota and other states and has been active in agricultural safety organizations.

BERNIE STALLER
is the chief operating officer of the National FFA Organization and the National FFA Foundation in Alexandria, Virginia. He grew up on farms in Indiana and Wisconsin and was a vocational agriculture instructor for 11 years.

LORANN STALLONES, MPH, PHD
is an associate professor at Colorado State University and the director of the CDC–funded Colorado Injury Control Research Center. She has been involved in research related to agriculture safety and health since 1982.

SAM STEEL, EDD
is program manager of the National Safety Council’s newly established Center for Agricultural Rescue and Emergencies at Northeast Iowa Community College.
JILL SWANSON, MD, FAAP
is a staff pediatrician, Mayo Clinic, Department of Pediatric and Adolescent Medicine, Section of Community Pediatric and Adolescent Medicine. Her clinical practice and research studies involve the medical impact of agricultural injuries to children and adolescents.

CHERYL TEVIS
is senior farm issues editor at Successful Farming, a national farm magazine based in Des Moines, Iowa. She grew up on a 320-acre grain and livestock farm in northwestern Iowa and with her husband is raising two daughters on their Iowa farm.

NANCY YOUNG, BSN
is the manager of the National Farm Medicine Center, Marshfield, Wisconsin, and has a strong background in public health. She grew up on a dairy and beef farm in central Wisconsin.

EX–OFFICIO MEMBERS

SUSAN BAKER, MPH
is a world renowned injury control researcher, lecturer, author, and public policy advocate. She is a professor of Health Policy and Management and of Environmental Health Sciences at Johns Hopkins School of Public Health in Baltimore, Maryland. She has fought for laws requiring use of seatbelts and child restraints and for regulations that would make automatic protection such as air bags available to everyone.

PAUL GUNDERSON, PHD
is the director of the National Farm Medicine Center in Marshfield, Wisconsin. He was raised on a cattle and grain farm in Minnesota and for most of his life has been involved in part-time farming. He has been involved in numerous agricultural injury research projects.

STEVEN GUNDERSON
is a Republican US Congressman from Wisconsin and has served in that capacity since 1980. He serves as Chairman on the House Agriculture Committee’s Livestock, Dairy, and Poultry Subcommittee, and also serves on the Early Childhood, Youth, and Families Subcommittee. Congressman Gunderson has been a strong voice for farmers.

TOM HARKIN
is a Democratic US Senator from Iowa and has served in congress since 1974. He currently sits on the Senate Agriculture Committee and co–chairs the Senate Rural Health Caucus. Senator Harkin is known as a fierce advocate for family farmers.

C. EVERETT KOOP, MD
is a senior scholar of the C. Everett Koop Institute at Dartmouth and served as Surgeon General of the United States from 1981 to 1989. He is the recipient of numerous honors and awards, including 35 honorary doctorates.

RICHARD J. SMITH III, MS
is responsible for program policy and technical direction for injury control programs initiated by the Indian Health Service, an agency of the US Public Health Service. He manages a multi–tiered injury prevention training curricula for community–based practitioners to meet their primary mission of building the capacity of Indian nations in injury prevention.

BALDEMAR VELASQUEZ, BA
is the president of the Farm Labor Organizing Committee, a farm worker union founded in 1967. During 28 years of advocacy through the union, contracts have been signed covering over 5,000 workers and many reforms have been made through these agreements.
Glossary

Accident: [Note: The term accident is NOT used by injury specialists.] An unexpected and undesirable event that occurs by chance. Injuries are NOT accidents. “If injuries were indeed random, unpredictable acts of God, it would make little sense to talk about preventing them (other than through prayer). But injuries can be scientifically understood and societally controlled by modifying physical agents, environments, and behaviors. Rational countermeasures can be developed...injuries are preventable.” (Foege WH. Introduction: Injuries Are Not Accidents. Law, Medicine & Health Care 1989 Spring [17]:5.)

Adolescents: For purposes of this document, individuals from the age of 13 through 17 years.

Age-appropriate Work: Work activities that are suitable based upon physical and cognitive capabilities deemed to be typical by age demarcations. Age-appropriate work standards are required for purposes of labor law enforcement.

Agriculture: The industry that involves the production of crops and livestock (farming) plus agricultural services, forestry (excluding logging), and fishing.

Agricultural Hazard: An existing or potential condition on or off the agricultural work site, directly related to agricultural operations, that is associated with a high risk of physical or psychological harm. Examples of common agricultural hazards are rotating machinery parts, manure storage ponds, airborne contaminants in livestock confinement buildings, and pesticides.

Agricultural Injury: Injury occurring on the agricultural work site directly related to agricultural operations, including injury to bystanders; or an injury occurring off agricultural property that involves agricultural work, such as a tractor collision on a public road. For purposes of this document, this definition also encompasses harm caused by exposures to hazards such as pesticides, volatile organic compounds, dusts, noise, and repetitive motion.

Barrier: A real or perceived physical, psychological, or environmental factor that hinders or restricts a person’s actions. Examples include economic hardship, tradition, cultural beliefs, weather.

Bystander: A person who is present at or near an agricultural work site without participating in the work.

Childhood: The period of life from infancy to adulthood. For purposes of this document a broad definition is used to encompass ages 0 through 17.

Children: Individuals in the age range of 0 through 12 years.

Cumulative Trauma: Bodily injury from mechanical stress which develops gradually over weeks, months, or years from repeated stress on a particular body part.

Developmentally-appropriate Tasks: Tasks that are suitable based on demarcations noting achievement of physical and psychological maturity. Developmentally-appropriate task guidelines are applicable outside of enforceable work standards.

E codes: Codes for external cause of injury that provide a systematic way to classify information put into the medical records by hospital staff.

Exposure: An event in which a person may come in contact with an object, substance, or environment that may result in injury or disease.

Farm: Any place from which $1,000 or more of agricultural products were produced and sold, or normally would have been sold during the census year (standard United States Department of Agriculture definition).

Farm Vehicle: Any motorized vehicle used for agricultural operations either on or off the agricultural work site. This definition includes, but is not limited to, tractors, trucks, automobiles, and all-terrain vehicles.

Farm Worker: A person who is employed by a farm owner to conduct agricultural work. This term includes migrant and seasonal laborers.

First on the Scene: Training for farm families and workers that incorporates appropriate and safe decision-making when discovering a farm injury victim, reporting an emergency, attempting emergency first aid, and taking other actions while waiting for emergency services to arrive.

Hazard: Any existing or potential condition which, by itself or by interacting with other variables, can result in injury, illness, death, or other losses.

Health: A state of positive physical, mental, and social well-being to include the ability to lead a socially and economically productive life and not merely the absence of disease or infirmity.

Incentive: A reward or punishment that induces action.

Injury: Physical harm or damage to some part of the body resulting from an exchange of mechanical, chemical, thermal, electrical, or other environmental energy that exceeds the body’s tolerance.

Injury Control: Incorporates multiple activities to reduce severity of injury, including prevention, treatment, and rehabilitation.

Injury Prevention: Attempts to reduce the incidence of injury, usually by educational, engineering, environmental, and enforcement interventions.

Media Advocacy: A strategic use of multiple media outlets intended to influence a social change or public policy initiative.

Minimum Data Set: Pre-determined, basic types of information collected consistently on all injury cases.

Personal Protective Equipment (PPE): Clothing, devices, or solutions worn by or applied to an individual to serve as a barrier between the human body and potential hazards in the environment. Commonly used PPE in agriculture include steel-toed shoes, gloves, safety goggles, sunscreen, ear plugs, and masks.

Production Agriculture: A term used to replace “farming” since it has broader application to the wide range of complex machinery, sophisticated crop and livestock management practices, and relationships with associated agricultural businesses.

Risk: The possibility of suffering harm or loss.

Safety: Freedom from those conditions that can cause danger, risk, or injury.