Blueprint for Protecting Children in Agriculture

The 2012 National Action Plan

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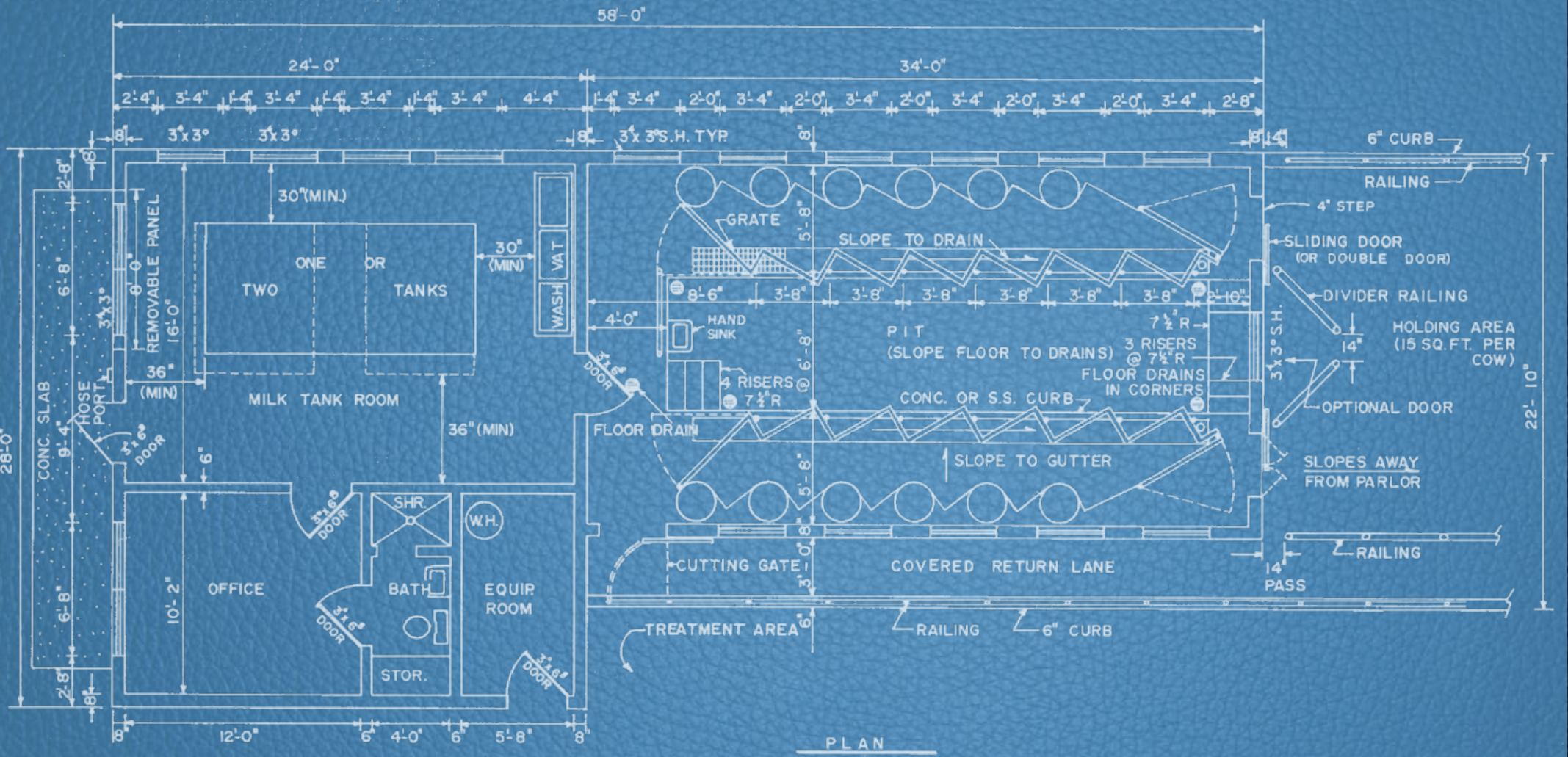
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3'x3'
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3'x3' S.H. TYP.
6" CURB
RAILING
4" STEP
SLIDING DOOR
(OR DOUBLE DOOR)
DIVIDER RAILING
HOLDING AREA
(15 SQ.FT. PER COW)
OPTIONAL DOOR
SLOPES AWAY
FROM PARLOR
22'-10"
28'-0"
CONC. SLAB
HOSE PORT
REMOVABLE PANEL
16'-0"
8'-0"
30"(MIN.)
ONE OR TWO TANKS
30" (MIN)
VAT
WASH
36" (MIN)
MILK TANK ROOM
3'x6' DOOR
GRATE
SLOPE TO DRAIN
5'-8"
8'-6"
3'-8"
4'-0"
HAND SINK
4 RISERS @ 7½"R
PIT
(SLOPE FLOOR TO DRAINS)
3 RISERS @ 7½"R
FLOOR DRAINS IN CORNERS
CONC. OR S.S. CURB
FLOOR DRAIN
SLOPE TO GUTTER
3'x3' S.H.
14"
14" PASS
OFFICE
10'-2"
SHR.
W.H.
BATH
EQUIP. ROOM
STOR.
CUTTING GATE
COVERED RETURN LANE
TREATMENT AREA
RAILING
6" CURB
12'-0"
4'-0"
5'-8"
PLAN

NOTES:

Acknowledgment & Support

Creating and updating national plans for action require the commitment and dedication of many individuals, agencies, businesses and organizations. The editors of this document express sincere gratitude to all those who provided guidance and input. Their time and valuable insights improved the process and enhanced the outcome. Through this collective effort, we hope to continue a progressive path toward eliminating preventable childhood disease, injuries and death on our nation's farms and ranches.

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Foreword

Few workers toil harder than the men, women and children who reap America's harvest. Our farmers keep our sacred covenant with the land, and their expertise in producing food for people here at home and across the world is a critical national asset.

As a native Californian, I know many families and communities that trace their histories to the farming fields. One of those families is my own. My father came to this country under the Bracero program that sponsored Mexican guest workers to offset agricultural labor shortages occasioned by World War II military enlistments. We wouldn't be in this country today if not for the incredible opportunities that agricultural work has offered immigrant populations striving to realize the American Dream.

Long before my mother began her magic in the kitchen, the seven children of the Solis household understood how much painstaking labor went into producing the food on our table. My parents taught us to respect the people who pull weeds, muck stalls, pick fruit and herd cattle. Farm work, my father would say, teaches lifelong lessons about responsibility and promotes a sense of stewardship for the nation's land and animals.

While I revere my family's agricultural heritage, I also received an early education into the potential dangers and safety hazards of farm work. As a young girl, Cesar Chavez helped so many of us understand that farm workers were sometimes forced to put their health and safety on the line to meet the arduous demands of the production cycle. Most famously, Chavez went on a 25-day hunger strike to expose the ways in which grape pickers were forced to breathe in cancer-causing pesticides. The famous rallying cry "Si se puede" (translation: "Yes, it can be done") originated from the long struggle to organize immigrant farm workers to demand more humane working conditions. Chavez and Dolores Huerta, my hero and mentor, awakened an entire nation to our responsibility to do right by those who work long days in the fields to feed our nation.

Today, as the U.S. Secretary of Labor, I have both a statutory and moral obligation to promote the health and safety of America's workforce. The data is clear: Agriculture is one of our nation's most dangerous industries, averaging 28.6 deaths per 100,000 adult workers, according to a 2009 National Safety Council report. While the agriculture/forestry/fishing sector employed less than two percent of the American workforce between 1996 and 2001, these jobs accounted for 13 percent of all workplace deaths.

The data demonstrate that the hazards to youth working in agricultural employment are significant. Teenage agricultural workers between the ages of 15 and 17 are four times more likely to die on the job than teenagers working in all other industries, according to the U.S. Bureau of Labor Statistics. While only about four percent of all working youth were employed in agriculture in the 1990s, they experienced more than 40 percent of the youth occupational fatalities, according to the Government Accountability Office.

Preventable deaths and injuries can seem like isolated incidents to a casual newspaper reader: two teenagers electrocuted while detassling corn in Illinois; a 14-year-old worker at a livestock auction stampeded by a calf; two teenagers killed after being engulfed in a grain bin. Other tragedies involving youth in agriculture never even make the morning paper, but we know they devastate families and irreparably change the lives of survivors and their loved ones.

America can do better. Young people employed on farms have the same right to work in a safe environment as their classmates who work in a shopping mall. As the U.S. population grows, we know the demand for farm work is growing with it. There are steps we can and should take to make this work safer for young people.

Since 1938, the Fair Labor Standards Act (FLSA) has applied different standards for child workers in agriculture employment than nonagricultural employment. Most significantly, while children working in nonagricultural employment are prohibited from performing hazardous work until the age of 18, the FLSA only provides such protections for youth in agriculture up to the age of 16. Many Americans are unaware that children working on farms have fewer employment protections than those in other industries. It has been four decades since America updated its agricultural child labor regulations. Few employers would ask a teenager to drive a car whose last safety inspection was conducted 40 years ago. Yet thousands of young Americans go to work every year under regulations that have not kept pace with rapid advances in agricultural technology.

Last fall, the Department of Labor proposed to amend existing rules that restrict especially hazardous work for youth under 16 doing agricultural jobs. The Department is not seeking to disrupt the proud intergenerational tradition of passing the agrarian work ethic down from one generation to the next. Instead, we are proposing some reasonable parameters on especially dangerous tasks that data show have killed or injured a disproportionate number of young workers. The most common cause of agricultural deaths among youth agricultural workers involves accidents with farm machinery, especially tractors. Therefore, we have proposed to limit children from operating tractors in many instances until their 16th birthday. Under the proposed rule, 14- and 15-year-old student learners would be allowed to operate certain power-driven machinery if, among other things, they complete training and drive tractors with seatbelts and rollover protection structures.

The longstanding mission of the Department's Wage and Hour Division (WHD) is to achieve compliance with labor standards to protect and enhance the welfare of the nation's workforce. An important WHD priority is to reduce the number of youth injuries and fatalities in agriculture. Over the last several years, the division has established a targeted enforcement program to achieve compliance with agricultural child labor laws. Since 2009, WHD has hired more than 300 new investigators, bringing the agency's total to more than 1,000 investigators. More than 628 of those investigators speak a second language, so language barriers do not encumber their work.

One successful WHD initiative took place in 2010 in the blueberry fields of New Jersey, North Carolina and Michigan. When the harvest began, WHD investigators were physically in the fields and saw young children performing grueling labor. Our investigators went to blueberry farms at different times — including in the early morning hours and on weekends—to ensure compliance with child labor laws. We worked hand in hand with the Blueberry Growers Associations and other groups to ensure that children were not working in violation of the law. Our efforts had a huge impact on curbing this exploitation, and we anticipate that our actions will help sustain compliance in the future.

We are proud of our ongoing efforts to make farming a safer job for young people, but the Department of Labor cannot do it alone. We need the continued engagement of the public and private sector to bring greater awareness to this issue. We are proudly joining forces with more of our rural stakeholders to hone a strategy that strengthens protections for young agricultural workers while ensuring that they have the enriching opportunity to benefit from the advantages that farm work provides.

The 2012 Blueprint for Protecting Children adds to this ongoing discussion. The Department of Labor continues to take great interest in strategies to make agricultural work safe, productive and enjoyable for America's youngest workers for generations to come.

Hilda L. Solis
U.S. Secretary of Labor

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Purpose

The goal of this initiative is to move state-of-the-art knowledge on childhood agricultural injury prevention into practice. Since 1996 when the U.S. launched a formal program to prevent childhood agricultural injuries and deaths, notable progress has been made. Several early objectives have been achieved and periodic acknowledgment of successes has been rewarding. At the same time, it is important to take a fresh look at agricultural and social conditions, combined with injury and fatality data. It is critical to review and update priorities to ensure progress continues. The process of involving many stakeholders in updating the national action plan for protecting children in agriculture has raised public awareness and engaged new stakeholders with a united vision. Moving forward, child advocates, farm organizations, safety practitioners, researchers, policy makers, funding agencies and corporate sponsors are encouraged to set their own priorities consistent with the goals and recommended strategies proposed in this 2012 plan.

2012 National Action Plan **Goals**

I. Leadership

Develop and sustain a strong public/private infrastructure at national, regional, and state levels to provide the vision, leadership, and commitment necessary to ensure safety and health for all children living, visiting, and working in agricultural settings.

II. Injury, Disease and Exposure Data

Support and improve childhood agricultural injury and disease data collection and reporting systems to better address causation, gaps in knowledge, and the development and evaluation of prevention strategies.

III. Research

Conduct basic and applied research to guide optimal childhood agricultural safety and health interventions (policies and programs) at national, regional, state, and local levels.

IV. Public Policy

Work cooperatively with stakeholders to ensure that laws, regulations and policies keep pace with ongoing changes in the agricultural work environment with the goal of protecting all children effectively and equally.

V. Organization Policy

Accelerate the agricultural industry and associated organizations' adoption of safety and health standards that protect children and young workers.

VI. Interventions

Identify and actively endorse effective childhood safety and health interventions that address the spectrum of populations associated with agriculture.

VII. Knowledge Mobilization and Dissemination

Mobilize and disseminate evidence-based practices to stakeholders via proactive collaborations.

Background

Action Plans: 1996 – 2010

The first U.S. National Action Plan for Childhood Agricultural Injury Prevention was developed over an 18-month period, then published in April, 1996.[1] Under the leadership of the National Institute for Occupational Safety and Health (NIOSH), our nation officially launched a National Childhood Agricultural Injury Prevention Initiative, with an annual allocation of federal funding that was augmented by financial support from the private sector. The public attention, combined with expanded public and private funding during the late 1990s, sparked an outpouring of energy, concern and commitment to protect children from the acute and chronic consequences of agricultural trauma and disease.

In a subsequent, related effort a National Adolescent Farmworker Occupational Health and Safety Advisory Committee, representing employers and hired farmworkers, generated three goals and 12 recommendations with the aim of encouraging constructive opportunities for young agricultural workers, many of whom were immigrants hired for seasonal jobs such as harvesting fruits and vegetables. Its report, *Migrant and Seasonal Hired Adolescent Farmworkers: A Plan to Improve Working Conditions*, was released in November, 2001.[2]

To build on this momentum, a multi-staged process was undertaken to evaluate the impact of the 1996 plan, integrate topics from the migrant/seasonal farmworker plan, and then employ consensus development methods to generate new strategies and realign priorities. By this time, data had revealed that more than half of injured children on farms were not working at the time of injury, thus, several new recommendations were warranted. The 2001 Summit on Childhood Agricultural Injury Prevention involved a core team that conducted an array of assessment activities, then convened a two-day Summit with 100 individuals, assigned into seven topical working groups. Group recommendations were synthesized and clustered into three themes: leadership, non-working children, and working youth. The Progress Report and Updated National Action Plan from the 2001 Summit was released in April 2002.[3]

Nearly a decade had passed since the 2001 plan was released and it was time to review current strategies for continuation, modification or deletion, including allocation of funds for this initiative. Conditions in agriculture as well as general injury prevention were evolving. Increasingly, the public had become aware that traumatic injuries and deaths of children younger than 18 years are preventable. Once again, with support from NIOSH, an assessment of progress to date and a review of priorities were undertaken.

Methods for Developing the 2012 National Action Plan

The process for developing this 2012 action plan took advantage of lessons learned from previous efforts and relied heavily on a core group of individuals (Appendix A) with extensive experience in national-level endeavors. Over an 18-month period an assessment of published research was conducted, childhood agricultural injury data were analyzed, and changing patterns of agricultural production and demographics of workers were reviewed. In late 2010, 12 advisors to the National Children's Center for Rural and Agricultural Safety and Health (Appendix B) reviewed preliminary assessments and suggested methods for ensuring the 2012 national action plan was comprehensive and scientifically sound.

Scholars in various disciplines generated recommendations for research, programs, policy, dissemination and other topics based upon their areas of expertise. Topics addressed by these experts expanded into formal manuscripts with specific recommendations that were then subjected to review by their peers for further refinement. The result of this process was a dedicated issue of the Journal of Agromedicine: Practice, Policy & Research (Appendix C). The core team met in-person and via teleconference often to propose and refine goals and their respective strategies. The initial draft was reviewed by Advisors to the National Children's Center in April 2011. A revised version was reviewed by additional stakeholders and discussed during a meeting of the Childhood Agricultural Safety Network (Appendix D) in June 2011. By September of that year, a further revision of the plan was posted on the Internet, requesting public feedback. Over a six-week period, 56 substantive and detailed suggestions for the plan were received, many from farm organizations and farm parents. Perspectives of the farming community regarding traditions and rights were acknowledged. By January 2012, the Goals and Strategies of this plan were finalized.

Definition of Children:

For this document the term "children" and "childhood" refers to any person younger than 18 years of age.

- **Young children:** 0–6 years
- **Young workers on family farms:** 7–17 years
- **Young hired workers:** 12–17 years

Definition of Childhood Agricultural Injury:

Broadly speaking, an agricultural injury is bodily harm caused by physical trauma from, or exposures to, hazards such as machinery, bodies of water, pesticides, dusts, noise or repetitive motion. Events typically occur in or near an agricultural worksite, but could be associated with agricultural equipment beyond the work area. The term "accidents" is not used because it implies an event beyond one's control. Most injury events are predictable and, therefore, preventable.

Topics addressed in Journal of Agromedicine 17(2) include:

- data
- characteristics of funded studies
- environmental health, agricultural work guidelines
- supervision of children on farms
- agricultural child labor regulations
- worldwide trends in protecting working children
- child care services
- partnering strategies
- role of child development principles
- role of social media
- barriers and motivators to best practices
- special populations including migrant, Anabaptist & Native American youth

Key Points
for a national plan to protect children in agriculture

- All children deserve effective protection from harm.
- Child development principles are a key consideration for prevention efforts.
- As in all industrialized countries, the government plays a role in financing, organizing, and overseeing provisions that address the most pressing needs of the population; this includes agricultural safety and health.
- Despite progress since the national Childhood Agricultural Injury Prevention Initiative was launched in 1996, special populations remain under-represented in efforts addressing agricultural risks and hazards.
- Agricultural practices are undergoing major changes and the environment in which children are involved in agriculture is evolving, thus recommendations in this 2012 plan will require assessment and modifications on a regular basis.
- While many aspects of agriculture are changing, certain conditions remain relatively constant, such as tractors continue to be the most common source of death for all agricultural workers, including children.
- Supervision is not a sufficient strategy for protecting young children on farms because of unpredictable behaviors of children, inherent dangers in agricultural environments, and the potential for parents/caregivers to switch their attention from supervision to the work at hand.
- Multi-faceted strategies, of which education is only one component, are needed over a period of time to adequately reduce the toll of injuries.
- Not all strategies in this plan are data-based since there is a shortage of injury/health agricultural data; yet the plan represents the best efforts from the scholarly discourse by academicians and practitioners along with input from many stakeholders.

Evidence of the Problem

According to the Department of Agriculture, there are 2.2 million farms in the United States,[4] with an estimated 1.1 million children living on these farms.[5] More than half of these family farm children worked on the farm, with the highest proportion of them between the ages of 10 to 15 years.[5] In addition to family farm youth, estimates suggest more than 300,000 young people are hired to work on non-family farms each year. The National Institute for Occupational Safety and Health (NIOSH) is the primary source for national data on farm-related injuries and deaths. Because of the time required to secure data from various sources as well as resource constraints, there is often a 3-5 year delay in acquiring reliable statistics, analyzing data and generating reports.

A review of death certificates from 1995 to 2000 identified 695 farm-related youth fatalities with an average rate of 9.3 deaths per 100,000 youth.[6] Males accounted for 80% of fatalities, with machinery, motor vehicles and drowning the major sources of death. Only 13% of these cases were found to be work-related, and 23% affected Hispanic and other minority youth.[7,8] Using a data set for crop and livestock operations, an 11-year analysis of work-related deaths among youth younger than 20 years revealed 310 fatalities.[9] This data set revealed a rate of young worker deaths in agriculture nearly four times greater than that for young workers in all industries combined and three times higher than that of adult workers in all industries. And the death rate for young workers in agriculture rose at the same time the death rate for non-agriculture young workers was declining.[9]

The NIOSH surveillance system for nonfatal injuries was launched in 1998 and has been repeated four times since then. With a definition of injury as restricted activity of at least four hours, telephone-based surveys have gathered information from a sample of farms across the nation. Special analyses reveal detailed characteristics of injuries not only by the cause and type of injury, but also by geographic region, type of farm operation, child's age and gender, and ethnic origin. Given that data are collected via telephone calls to farm owners, many limitations in these national estimates are acknowledged.

Injury Data Characteristics

The "cause" of an injury is typically depicted by the agent (e.g., animal or farm equipment), the host (e.g., active 4-year-old boy), and the environment (e.g., family working rapidly in stormy weather). Certain data collection systems capture the cause of injury, severity of injury, body part injured, nature of injury (e.g., laceration, contusion), hospitalization length, and cost of medical care or rehabilitation. Depending on the purpose for collecting data, different characteristics are recorded.

Key findings of NIOSH reports revealed that primary causes of nonfatal childhood agricultural injuries were falls (from heights or slippery conditions), livestock, and machinery. About three-fourths of injured children were not working when injured. Little is known about the "environmental" conditions at the time of injury.

In 2009, an estimated 15,000 nonfatal injuries occurred to children. Over the 11 years from 1998 to 2009 the rate of childhood agricultural injuries per 1,000 farms (includes youth who live on, visit, and are hired to work on farms) declined by 59% (from 16.6 to 6.8 injuries per 1,000 farms).[5,10] Among those children who live on family farms, the rate declined by 48% during that same period.[5,10] While most types of injuries declined, there was a reported increase in injuries associated with ATVs and horses.

In addition to NIOSH fatality and injury reports, other regional or state-based reports are sometimes provided through independent researchers, insurance providers or state agencies. Since there are no "official" national injury and fatality data, goals and strategies for the future are based on the best available evidence.

Limitations of Data

The recommendations made in this report rely upon data that are currently available. Complete data specifically focused on childhood agricultural injury is in short supply. Available data are not all inclusive. The U.S. Department of Agriculture's National Agricultural Statistics Service (USDA/NASS) data use farm operators as respondents so minority populations captured may not be representative of many of the minority agricultural workers. The National Agricultural Workers Survey (NAWS) is an employment-based, random survey of the demographic, employment, and health characteristics of the U.S. crop labor force, which is predominated by migrant and seasonal employees. Information is obtained directly from farm workers through face-to-face interviews but does not capture workers in non-crop enterprises such as livestock, nor does it capture workers younger than 14 years old. In some cases, news clippings are the only methods used to track fatal and serious childhood agricultural injuries.

Girl, 4, dies in farm accident

Thomasville, (NC) Tvilletimes (12-29-11)

A 4 year old girl died Monday night from injuries sustained when the farm tractor she was riding with her grandfather turned over and rolled into a creek at approximately 4:10 p.m.

The tractor drove off the left side of the road and down an embankment, then rolling down into a creek. Preliminary investigation shows that the grandfather may have been letting the 4 year old steer the tractor on a gravel road. Child and grandfather were trapped underneath the tractor when emergency personnel arrived.

"It appears the tractor may have just got away [illegible]," said 1st Sgt. Ben Stalvey with the St[illegible]

Teen died in Darke County farm accident

(OH) Dayton Daily News (12-30-10)

A 16 year old was killed in a farm machinery accident on Wednesday. The accident, which involved a manure spreader being used on a frozen corn field, occurred about 2:30 p.m. A preliminary investigation suggests the youth's outer clothing became entangled in the power take off shaft of a farm implement. The youth was pronounced dead at the scene.

Toddler killed in farm accident

Marshfield (WI) News Herald (9-10-11)

A 19 month old boy died Thursday when he was run over by a skid steer on a family farm.

At 5:05 p.m. Thursday, the department was dispatched to the farm. The initial investigation revealed a family relative was operating the skid steer moving round hay bales. The child was not seen and was run over by the skid steer. The operator was unaware the infant was run over. The child was pronounced dead at the scene.

Michigan farm workers die from inhaling fumes in silo.

Thornapple Twn (MI), wsws.org (07/17/10)

Two teenagers (17 and 18 year old males) died July 12 while working inside of a silo at a dairy farm. While the Barry County sheriff initially thought the pair had fallen to their deaths, he later told the families that they had died due to the inhalation of fumes.

The workers were power washing the 8-10' wide silo that had only an 18 inch [illegible]g at the top. The silo was [illegible]ed a "[illegible]ve

Child killed in Iowa farm accident

Linn County, (IA) (08/22/08)

A 7 year old died recently of injuries he received when he was hit Tuesday afternoon (Aug. 12) by a farm vehicle. Authorities say the John Deere gator was being driven by his 11 year old sister. The boy was flown to University Hospitals in Iowa City, where he later died.

Dayton farm accident claim 15 year old

(VA) The Daily News Record (09-06-07)

A 15 year old boy was fatally injured shortly before 4 p.m. at a farm after he was hit in the torso by a piece of farm equipment that became detached from a tractor. Authorities say he suffered internal injuries.

Witnesses say that he and other farm workers were lining up a tractor and a wagon to unload chopped corn into a silo. That's when a 4 foot long power shaft connecting the tractor to an auger came detached and hit the boy. The shaft was still spinning when it broke off and hit the boy.

He was taken to the local hospital and then transported to the University of Virginia Medical Center where he died from internal injuries.

Midwest Teenage Rite Ends in Tragedy

Tampico (IL) U.S. News (07-29-11)

Two 14 year old girls were killed Monday after they came in contact with irrigation equipment or a nearby puddle conducting high voltage while detasseling corn. Authorities said the incident was under investigation, but local farmers blamed irrigation system damage caused by a weekend lightning strike.

Eight other people were also shocked, two seriously.

Child dies after falling into mower blades

WWLTV.com Raceland/Houma Carrier (LA) (7-22-11)

A 4 year old boy died Thursday night when he fell off the family tractor and into the mower blades as his step-father tended the grass. His 7 year old brother was also aboard the tractor when it hit a bump, but was able to "hold on".

The 4 year old was pronounced dead at the scene. The Coroner's Office later determined the cause of death to be multiple traumatic injuries.

NOTE: The names of children were removed from these actual news clippings that appeared in print and online. Articles reprinted with permission.

3 year old boy killed in tractor accident

(WI) The Capital Times (04-08-11)

A 3 year old boy was killed Thursday night on a farm in Rock County when he fell out of his father's tractor cab and was run over by the tractor. His 5 year old brother was also riding in the cab of the tractor driven by their father, who was plowing a field on rough terrain, traveling across a hill.

"The small boy sat next to the left door of the cab, which was on the downside of the slope of the hill," reported Sher Spoden. "The tractor hit a bum grabbed the door handle, the d he fell out of the cab onto the father was unable to stop the t and the left rear tractor tire ro

The father carried his son a wood line behind the reside was met by emergency perso was transported to the hospi pronounced dead at 8:11 p.

Southeast Kansa toddler dies

Cherryvale (KS) (10/08/09)

A 2 year old girl died from injuries suffered when a pasture gate fell on her Sunday.

When emergency personnel arrived, they found the girl in severe medical distress. She was transferred by helicopter to the hospital, where she was pronounced dead shortly after her arrival.

An investigation by the Sedgwick County Coroner's Office and Montgomery Sherriff showed that the injuries were the result of a 6 foot heavy farm gate that had fallen on top her, causing severe internal

Accident kills 16 year old boy

Pendleton(OR), Beaverton Valley Times (04/16/07)

A 16 year old boy was working for the summer on a wheat ranch. He was leaving the field at about 5 p.m. with a loaded wheat truck when the truck's brakes apparently failed.

The truck rolled down a hill, crossed the road and came to rest against a ditch on the other side of the road. Witnesses said the Weston Fire Department had to use the Jaws of Life hydraulic tool to remove the boy's body from the truck.

The boy was apparently working for his great-uncle and his c

4 year old ki in farm acci

Chickasha, (OK) (06-22-09)

A 4 year old boy was killed Tues on a Grady County farm after be by a brush hog. The accident ha the boy fell from the back fende that was pulling the mower. Th being driven by his stepfather.

"He stated that he turned to m on the brush hog," Grady Cou nd heard a th nd realized h hore." Weir s th massive h

Child run over, killed by tract

Flaggstaff, (AZ) Arizona Daily Sun (07-

A 5 year old boy died Wednesday night aft his father backed over him with a tractor. T father was pulling out of his driveway when he saw a vehicle approach and decided to back into the eway to allow the vehicle to pass. nan's children had been several ehind him playing with family

believe the boy ran behind the ther did not see him until it

3 year old girl loses foot to farm accident

Cedar Rapids (IA) (12-06-06)

A 3 year old girl's left foot was severed in a farm accident in southeast Iowa. The girl's mother was working near a tractor when the mother's shirt became entangled in the power takeoff, according to the Iowa County sheriff's office. The girl became caught in the same machinery as she tried to help her mother.

Teen killed in ATV crash while working on family farm.

Salem (OR), Salem.katu.com (AP), (08/23/11)

A 17 year old boy was working Saturday on the family farm when his ATV hit a hole and threw him over the handlebars. He was flown to a Portland hospital, where he died Sunday from his injuries.

Boy critical after farm accident

Lancaster (PA) (05-31-09)

A 12 year old boy was injured Saturday afternoon in a farming accident. He was caught under a harrow hay baler around 4:15 p.m.

The boy was airlifted to Penn state Milton S. Hershey medical Center with a broken leg and an open wound, his mother reported, but was conscious. A spokesperson at Hershey said the boy was listed in critical condition Saturday night.

Child killed by tractor in Rochester

(WA) The Olympian (05-31-11)

A 3 year old boy died Thursday night when he was run over by a tractor being driven by year old brother. He was riding on the 's running board on the opposite side sod cutter at the family's Rochester m shortly after 8 p.m. when he fell or off and was run over by one of the wheels, Sheriff's Lt. Greg Elwin said.

year old cousin who was driving a arby suffered a broken arm and hand ove the tire after the accident.

Deadly grain bin accident

Mount Carroll (IL), Illinois News (7/29/10)

Two people have died and a third was injured in northwestern Illinois after becoming trapped in a grain bin.

Authorities were first called to the scene around 10 a.m. Wednesday. Rescue workers cut holes in the sides of the bin and drained out thousands of pounds of corn as they tried to get one of the people out of the bin.

Carroll county sheriff's Department said that two teenage boys (14 and 19 years old) were removed from the grain bin after 10 and pronounced dead. A third person, a 20 year old man, was taken to a hospital and flown to another hospital. He was listed in serious condition on Thursday morning.

Twine leaves gi 2, asphyxiated barn

(WI) Browntown (AP – 04-10-04)

A 2 year old girl was asphyxiated after pla her head in a looped piece of baler twine dangling in a barn, authorities say.

She was in the barn playing while her father was milking when the incident occur Thursday evening, Green County Sheriff Randy Roderick said. The child was taken t The Monroe Clinic and was later pronounce dead by Green County Coroner Jan Perry.

Medford area boy killed in farm accident

Marshfield, (WI) Marshfield News Herald (2-14-05)

A 9 year old boy died Saturday afternoon when he was buried in a family's farm grain bin. He jumped in the bin after som mix became clogged. Once inside, a feed came down on top of him, and suffocated. Emergency services were revive the boy.

Moscow boy died from being run over by grain wagon

Moscow (IA) Wisconsin State Farmer,

Iowa, a 3 year old Moscow boy die Sept23) after he was run over by an ain wagon.

hild was playing on the front of the agon according to the sheriff's offi agon, which wasn't attached to a tr to roll. The boy tried to run, but h gravel and was run over by one o n wheels.

he child was taken to Muscatine U spital, where he was pronounced d

Teenager killed after barn wall collapses

(MA) Marlborough, Mass. (07/05/07)

A 17 year old was aiding two others in renovating a barn when a 4 by 6 foot section of cement fell on him. Authorities gave conflicting reports on the cause of the collapse.

Detective Steve LaMears said the fall could have been caused by the youth sawing of pipe that connected to the wall, or the vibrations of the tool he was working with. "All of the walls of the barn are free-standing, only connecting to the roof," LaMears said. "It is possible that with Mother Nature and time, the cement became loose with the vibration inside."

The youth was working alone at the time and was discovered by his two partners. When the fire officials arrived at the scene, one of the coworkers and a bystander were trying to lift the wall off the youth with automobile jacks.

"When we got there…there wasn't much we could do about it," said John Manning, fire chief of Marlborough.

Boy, 7, killed in farm accident

Great Bend, (KS) (AP – 01-31-11)

A 7 year old central Kansas boy has died after being run over by a tractor while helping his family feed cattle.

Barton County Undersheriff Larry Holliday says the accident happened around 4 p.m. Saturday on a farm in northwest Barton County. Holliday says the family was feeding cattle when the boy opened a gate to a cattle feeding area and ran toward the tractor as it moved between pens.

th was pronounced dead at the scene.

8 year old dies in feed grinder

Lancaster County, (PA) (10-24-06)

An 8 year old boy was killed in a farming accident at the family farm. His father asked him to climb into a tractor-powered feed grinder and help close a small window that had opened. The father stopped the machine. The boy climbed inside the machine to close the window. The father then forgot the boy was in ere and turned on the machine, killing him.

Six year old boy killed in farm accident

Hillsboro (WI) Sentry Enterprise (07-23-09)

Shortly after 5:30 p.m. on Saturday, a farming accident claimed the life of a 6 year old child in Bloom Township. The six year old boy was struck by a skid steer as it was backing up. The operator of the equipment could not see the child, who had moved behind the skid steer as the operator was going forward. When the operator backed up, the child was struck.

Rural Cresco boy dies in farm accident

Cresco (WI) Wisconsin State Fa... 03-08)

Authorities say an 8 year old boy di... was hit by a tractor driven by his fat... family's farm on Sunday (June 29).

Officials say the child was trying t... the tractor when he fell and was run o... sheriff's office says the boy's father di... him fall.

Emergency crews were called to the ... around 4 p.m. The child was pronounce... at the scene.

Boy, 4, drowns in manure pit

Earl Twp (PA), Sunday News (01-02-11)

A 4 year old boy died late Saturday morning of accidental drowning after falling into an 8-foot-deep manure pit, New Holland police reported. The liquid in the pit was partially frozen.

The boy was playing on the farm with two siblings and a neighbor child when he apparently wandered off, Officer Troy Deshong said. "After a period of time, the mother was informed that [the boy] was missing," he said. "She began investigating, walked around the farm and discovered [him] in the liquid manure pit."

Police do not know how long the boy was in the pit before his mother found him there, face-down. She removed the boy from the pit and called 911.

The manure pit is about 42 feet in diameter, Deshong said. Temperatures Saturday approached 50 degrees, partially thawing liquids in the pit. It is unclear how the child gained access to the pit, which is surrounded by a chain link f... "The mother speculated that th... attempting to retrieve a dog t... the ice," Deshong said.

Battalion Chief Darryl Keis... emergency personnel arrived o... less than two minutes after dispa... unresponsive there in the farmho... said. "We tried to revive him. We ... CPR until medical personnel were ... scene."

Lancaster County Deputy Corone... ...g pronounced the boy dead at 11...

Rural Athens boy dies in fa... ccident

...ens, (WI) Agri-View (9-13-07)

...year old boy died after being pinned by ...ce of machinery he was operating on his ...y's dairy farm in Athens, WI.

...cording to the Marathon County Sheriff's ...ment, he was filling the bucket of a ...er loader with feed and became trapped ...the arm of the machine and the bucket. ...ies believe the boy may have leaned ...ut of the cab and accidently got caught ...chine.

...witnessed the accident, which ...Tuesday afternoon while the boy's ...milking cows in the barn. The boy's ...brother discovered the mishap, the ...said.

...as airlifted to a local hospital ...r died.

ATV accident claims life of 16 year old boy

Puyallup (WA), OregonLive.com (08/23/10)

A 16 year old boy died after the ATV he was riding overturned and landed on top of him.

He was pronounced dead when rescue crews found him Saturday afternoon. He had used a cell phone to call for help just after 3 p.m., but the phone lost connection after he told the dispatcher he was "injured all over", Washington County Sherriff's officials said.

After a short search, authorities found ... dead under the Yamaha Rhino ATV. He h... been riding in a field when he hit large t... ruts hidden by tall grass which cause th... to overturn. The 16 year old had been ... ...r the last few weeks. Saturd...

Amish child dies in farm accident

Ringgold County, (IA) Wisconsin State Farmer (3-10-06)

A 3 ½ year old Amish boy died over the weekend when a horse-drawn wagon ran over him, police said. He was killed on Saturday afternoon near the southwest Iowa city of Diagonal, according ... the Ringgold County sheriff's office.

...port said his father was cutting down ...hich landed on a nearby tin shed and ...the horses pulling the wagon. The ...s thrown in front of the wagon and ...severe head trauma when one of its ...eels ran over him. He was pronounced ...he scene.

Boy, 7, killed in farm accident

Great Bend, (KS) (AP – 01-31-11)

A 7 year old central Kansas boy has died after being run over by a tractor while helping his family feed cattle.

Barton County Undersheriff Larry Holliday says the accident happened around 4 p.m. Saturday on a farm in northwest Barton County. Holliday says the family was feeding cattle when the boy opened a gate to a cattle feeding area and ran toward the tractor as it moved between pens.

...outh was pronounced dead at the scene.

Child falls to his death from farm tractor

(AP) Trenton, (TN) (04-21-11)

A 4 year old boy died in a fall from a farm Tractor in West Tennessee on Tuesday afternoon. The boy was riding in a large, dual-wheel, four wheel drive tractor. As the machine was being turned around, the cab door flew open and the boy was thrown out. Strong winds that preceded damaging thunderstorms may have played a part in the door coming open.

10 year old boy nearly killed by 800 pound bales

(WI) The Country Today (2-22-06)

On Dec 27 three 800 pound hay bales toppled over and nearly killed a 10 year old boy. His father said he heard a "thud" from upstairs in the barn. He was unaware that his son had gone upstairs to get hay. When he first went upstairs, he couldn't see his son because the bales were in the way. One bale was over his body and the other over his feet.

He spent 17 days in the UW children's Hospital in Madison, and it will take many ...broken ribs, ...neck and ...ting his ...s difficulty ...aged in ...

Toddler recovering from farm acciden...

Careywood (ID) (05-16-09)

A toddler severely injured when he wa... accidentally run over by a rototiller a w... go. He was injured when he fell off a s... tractor his father was driving while tillin... old near their home and was run over by ... ary cultivator trailing behind the tracto...

The toddler suffered several skull fracture... ...ured humerus bone and a broken fibula bo...

Tremont students mourn death of teen in farm tragedy.

Tremont, (IL) Journal Star (05-17-05)

A 15 year old boy was killed while driving a small tractor pulling a sprayer. He got too close to a small ditch and the tractor overturned. He was trapped under the tractor. He was pronounced dead at 4:15 p.m. at the farm. His uncle died in a similar accident in

Kremlin boys still critical

Enid, (OK) Enid News and Eagle

Two 17 year old boys remain in critical condition after being caught in a grain auger. The two were caught by their legs while working in the auger, and rescue w... had to cut the auger before the boys ... removed. The incident is under inv... by OSHA.

Boy dies in fall from grain bin

(IA) The Tribune (07-28-03)

An 11 year old boy and his 15 year old brother snuck out of the house to meet up with two 14 year old friends at about 2 a.m. early Sunday morning.

Together, the four boys walked two blocks to the Heartland Coop. They climbed up the spiral staircase on the east side of an empty bin. As they reached the top, they walked across. The bin had recently been emptied in anticipation of the fall harvest, but there was one open hatch. The 11 year old fell through the open hatch and landed on the floor 56 feet below.

Hi brother ran two blocks to his mother's home to wake her and tell her his little brother had fallen. She had no idea the boys had been out. She rushed to the grain bin and found her younger son lying on the concrete floor. He had hit his head. She immediately sent her older son to a house to call 911.

His mother attempted to resuscitate her son while waiting for first responders to arrive, but there was nothing anyone could have done. He was transported to Mary Greeley Medical Center in Ames and pronounced dead on the way.

Teen on farm vehicle dies in... collision

Portland (OR), KATU.com (AP), (07/28/...)

A 16 year old boy died Monday afternoon when the hay wagon he was driving collide... with a log truck.

According to the Linn County Sherriff's Office, he was driving the hay wagon which was loaded with bailed hay south and an empty log truck was following him. The two vehicles collided when the log truck tried to pass the hay wagon as it was turning left.

The 16 year old was ejected from the vehicle ...nd died at the scene.

Toddler killed after falling from tractor

Damascus Twp (PA), The Citizens Voice (09-01-10)

A man was cutting hay with a tractor on ... in Damascus Township when his girlfrie... son, 23 months old, apparently leaned ag... an enclosed cab door and fell to the grou... state police Trooper Bill Satkowski said.

The toddler was fatally crushed by o... the tractor's rear tires in the 5 p.m. inci... The boy was pronounced dead at the sc... Wayne County Coroner Carol Lienert.

2 year old killed in forklift accident

Lancaster (PA), Intelligencer Journal (05/20/09)

A 2 year old girl was killed Tuesday in what investigators are calling an accident on an Amish farm.

The girl was riding on a forklift with a relative when the machine toppled over, according to state police. The girl became pinned under the forklift and died on her family's farm.

The girl had been pulled out from under the lift when deputy coroner Dave Schmitt arrived at the scene. The impact likely killed the girl immediately, officials said.

She had been riding on the lap of a 16 year old boy. The lift traveled over an embankment and toppled, according to police. Police said the girl was "crushed" after she was ejected from the forklift's seat.


Burn Prevention Teaching Board
for Amish Schools

Successes to date

Several successes were noted within a few years of launching the 1996 national action plan and many of these continue today. Major achievements are attributable to NIOSH leadership, federal and state funding, non-government organizations, agribusiness support, and the dedication and commitment of thousands of people.

NIOSH has maintained its role as the lead federal agency for this initiative. This consistent approach, with federally-sponsored research projects, has been critical to ensuring interventions are proposed, tested, and published in the interest of "research to practice." Research studies have identified risk factors for injury, provided an empirical basis for safe work activities, identified gaps in public policy, tested potential solutions, and assessed the value of many different interventions.

NIOSH leadership and support has allowed funding for a National Children's Center for Rural and Agricultural Health and Safety in Marshfield, WI, that serves as the link between federal agencies and the farming community, primarily by working with intermediaries such as youth-serving organizations, educators, and safety professionals. The National Children's Center has mobilized groups of people to develop "guidelines" for parents and farm owners to use as they protect children in various agricultural activities. Through a consensus-development process, voluntary work guidelines for children on family farms, known as the North American Guidelines for Children's Agricultural Tasks (NAGCAT), were created.[11] Since their release in 1999, many intervention studies were conducted to identify the strengths and limitations of these reference guidelines.[12] Other accomplishments included development of work guidelines for supervisors of hired youth,[13] guidelines for developing safe play areas on farms,[14] and health and safety guidelines for agritourism operations where children often visit.[15] By offering "mini-grants" many small-scale, innovative projects have reached underserved populations, such as the development and dissemination of a Spanish language "comic" book to guide field workers in minimizing "take-home" contaminants, thus protecting children from pesticide exposures.[16] In addition to educational material development, providing technical assistance, and working with the media through various communication channels, this Center is a resource to international organizations addressing rural and agricultural safety and health. Further, the National Children's Center facilitates networking among more than 20 state and national-level agencies and non-government organizations.

Another hallmark of success was the development and refinement of the Childhood Agricultural Injury Survey (CAIS) system by NIOSH and the USDA National Agricultural Statistics Service. Although no source of data is perfect, analyses and reports from the CAIS data have provided valuable insights, leading to more focused interventions.

Educational programs and outreach activities have increased tremendously over the past 25 years. In the private sector, two organizations have annually secured substantial corporate support to bring agricultural safety messages directly into communities and homes. Programs developed and promulgated by Farm Safety 4 Just Kids© and the Progressive Agriculture Foundation's Safety Days® have also benefited from federal funding, with formal evaluations guiding program refinement.

This national initiative has forged partnerships and a united front among the key players. An example is the highly visible 2008 public awareness campaign to "Keep Kids Away from Tractors." Collaboration, rather than competition, has been a trademark of success among the many individuals and organizations involved in protecting children from agricultural hazards.

Goals & Recommended Strategies

I. Leadership

Goal

Develop and sustain a strong public/private infrastructure at national, regional, and state levels to provide the vision, leadership, and commitment necessary to ensure safety and health for all children living, visiting, and working in agricultural settings.

Strategies

1. **Provide continuity of leadership for the updated National Action Plan through the National Institute for Occupational Safety and Health (NIOSH), which has guided the plan since its launch in 1996. Federal agencies, including U.S. departments of Agriculture, Education, Labor, Health and Human Services, and the Environmental Protection Agency, should maintain involvement (and funding) to ensure issues related to working and non-working children are addressed. Federal agency leadership should be augmented by regional and state leadership of, and involvement in, programs relevant to their identified needs.**

> Federal Agencies
>
> Many federal agencies have missions that touch upon selected aspects of agriculture, children and worker safety (see Footnote 1, pg. 29). Although NIOSH serves as the lead agency for many activities associated with this initiative, its mission does not address non-working children who live on or visit farms. Actions to protect all children from agricultural disease and injury cross over the missions of different agencies. **Thus, systematic coordination is warranted to maximize the impact of initiatives and avoid gaps in programs and/or opportunities.**

> Opportunities for Synergy
>
> History has proven that joint efforts across federal agencies have yielded benefits (see Footnote 2, pg. 29). More could be accomplished through inter-agency and federal-state collaborations. Currently many agricultural safety programs are independent of general child/youth programs. Likewise, many states lack a mechanism to focus on childhood safety for family farms. Federal funding to all states supports a variety of prevention and treatment services and clinics. Future attention should be given to integrating agricultural disease and injury prevention activities into other, more general outreach programs. **Ideally, states with a substantial agricultural base would have incentives for adding farm safety issues, including rural childcare programs, into their existing programs.**

2. **Support a national coordinating Center of Excellence for Childhood Agricultural Safety and Health via funding from the public and private sector. The Center should collaborate with entities dealing with children and youth, high-risk and underserved populations, agriculture, public health including injury prevention, occupational safety and health, the environment, and health care services. The Center should also work closely with agricultural employers, farm organizations, and farmworker advocates. In all cases, collaborations should facilitate achievement of the goals of this national action plan.**

   Key responsibilities of the national coordinating Center should include:

   a) reviewing and updating the national childhood agricultural injury prevention agenda every five years based upon injury, fatality, exposure, and illness data; research findings; and intervention effectiveness;

   b) promoting meritorious scientific research aimed at reduction of agricultural hazards and exposures, and promotion of desirable behaviors;

   c) facilitating knowledge mobilization, information dissemination, and evaluation across public and private sector stakeholders;

d) identifying, cultivating, and involving "champions" to raise visibility, open new opportunities for enhanced collaborations, and to inspire the diffusion of national efforts to regional, state and local levels; and

e) serving as a liaison with the international community of child safety advocates to identify promising strategies and share lessons learned from proven interventions.

Vulnerable Populations

Children, by their very nature, are vulnerable and merit protection and attention to ensure their safety in agricultural settings. The diverse agricultural workforce in the U.S. includes special and underserved populations, including immigrants, migrants, Native Americans, Old Order Anabaptists and other minority groups that are distinct from the majority of farm owners. Limited English language and low literacy, migration, socioeconomic status, race, ethnicity, culture, and immigration status compound the physical and cognitive concerns that make all children in agricultural settings vulnerable, placing them at increased risk for injury and illness. Furthermore, barriers to accessing childcare, health care and other services influence this population's overall well-being and risk of adverse health outcomes.

Definition of Knowledge Mobilization:

Knowledge Mobilization is a proactive process of applying available knowledge from systematic study plus experience into active service to benefit society. It is sometimes explained as "Giving the right information, to the right people, at the right time, to do the right thing." Many agricultural injury research studies have been conducted and their results published in journals, yet the study implications and how to put them into practice have not always reached the end-user.

3. **Facilitate investment in evidence-based agricultural safety and health programs by agricultural businesses, service organizations, and non-governmental entities such as foundations, based upon identified needs as well as principles of corporate social responsibility and shared values.**

Definition of Corporate Social Responsibility and Shared Values:

Corporate Social Responsibility (CSR) is also known as corporate conscience, corporate citizenship, sustainable, responsible business. The CSR movement began in the early 1970s among multinational companies. Shared Values (SV) involves linking business strategies with CSR principles to ensure that customers and employees benefit from use of corporate funds. The goal is to achieve business success in ways that honor ethical values and respect people, communities, and natural environments.

4. **Maintain current, and add new, comprehensive state-based injury prevention systems with the goal of implementing coherent, cohesive and achievable strategies associated with agriculture.**

Programs at Regional and State Level

Reaching end-users requires involvement of safety advocates at the grass-roots level. Several examples of federal and corporate-sponsored state and local efforts are described in Footnote 2 (pg. 29). Currently, most safety programs do not incorporate agricultural injury prevention issues. However, this strategy should be considered in the future given success in reducing injuries associated with transportation and recreation, such as increased use of child passenger seats and bicycle helmets.

II. Injury, Disease and Exposure Data

Goal

Support and improve childhood agricultural injury and disease data collection and reporting systems to better address causation, gaps in knowledge, and the development and evaluation of prevention strategies.

Strategies

1. Enhance data collection systems and data quality at national, regional, and state levels to:

a) better understand the most prevalent types of injuries and their causes;

b) adopt uniform categories and variables for reporting data, such as age groups, residency status, and agent of injury;

c) expand and include unique, vulnerable populations currently under-represented (e.g., immigrant and migrant populations); and

d) integrate relevant variables (e.g., employment and residency status) into existing, non-agricultural data.

> **Enhancing Value of Injury and Disease Data**
>
> Reliable data are critical to guiding effective interventions. It may be helpful to tap into current public health datasets like hospital discharge data or state-level Emergency Medical Systems (EMS) data. Other options may include adding relevant questions to the Behavioral Risk Factor Surveillance System and/or exploring use of the National EMS Information system. The National Center for Injury Prevention and Control established the Web-based Injury Statistics Query and Reporting System (WISQARS) as an interactive tool to generate customized reports of injury-related data at state and national levels from a variety of sources. It includes modules for fatal, nonfatal and the cost of injuries, but only includes minimum agriculture-related data. **A multidisciplinary advisory group should be convened to propose options for building childhood agricultural injury data into existing surveillance systems.**

2. Improve timeliness and public access to childhood agricultural injury data by:

a) informing the public how and where to secure data with key variables;

b) developing an interactive database system that provides customized online reports;

c) exploring options to link information across pertinent data sets; and

d) promoting the mandatory inclusion of relevant terms (e.g. farm residency, occupation, hazardous exposures) and searchable fields within Electronic Health Records (EHR).

> **Timely, Public Access**
>
> Several models of public access to data exist outside of agriculture. For example, the Crash Outcomes Data Evaluation System (CODES) was established by the National Highway Traffic Safety Administration (NHTSA) to link crash report data with health outcomes data. CODES is now available online in several states and helps identify traffic safety problems, develop and implement vehicle and driver countermeasures, and evaluate motor vehicle regulations. In another example, 18 states use the National Violent Death Reporting System (NVDRS) to pool data from various sources into a comprehensive, useable, anonymous database to guide prevention programs, policies and practices. With respect to agricultural data, the National Agricultural Workers Survey (NAWS) is a publicly accessible database with applications relevant to seasonal laborers in crop production. **Having reliable data online would be useful not only to public health providers, but also for any organization or foundation wanting to set program and funding priorities based on regional, timely issues.**

Consistent, Valid Terminology

Understanding the cause of injuries, such as equipment failure, is needed to introduce better safety features. External cause coding (E-Codes) for nonfatal injury is mandated for hospitalizations in only 26 states. E-Codes are required for fatalities in all states and could supplement current agriculture-related data. Presently there are limited external cause codes for agriculture and these could be improved through dialog with representatives revising the International Classification of Disease (ICDS) coding system which occurs every 10 years. **Agriculture needs a "champion" to integrate clear, consistent E-Codes to mandatory reporting systems.**

Electronic Health Records

The 2009 Health Information Technology for Economic and Clinical Health (HITECH) Act, will force the adoption of electronic health records (EHRs) throughout the U.S. Compulsory data fields will be required to meet the test of "meaningful use." Including fields that identify age, farm residency, and work-related injuries and/or exposures will facilitate access to data that enhances our knowledge to guide childhood agricultural health and safety. Further, such data meet the meaningful use criteria to reduce health disparities, engage patients and families in their health care, improve care coordination, and improve public health. EHR is bolstered by the use of decision support tools that assist clinicians in optimizing the use of patient information, and increase the "meaningfulness" of these data. Information gathered through EHR has the potential to inform public health. **Furthermore, it will enhance health care providers' ability to improve health outcomes for their patients.**

III. Research

Goal

Conduct basic and applied research to guide optimal childhood agricultural safety and health interventions (policies and programs) at national, regional, state, and local levels.

Research Approaches

Conducting research based upon proven theories extends and validates the usefulness of results. Several theoretical frameworks are relevant for conducting intervention research on children and agricultural injury prevention. Examples include the Transtheoretical Model of Stages of Change, Theory of Planned Behavior, principles of social marketing, Experiential Learning, and Apprenticeship of Observation Theory. Other important frameworks include the Haddon Matrix used by epidemiologists, job hazard analysis process, and principles of child development. **For agricultural injury prevention research it is critical that investigators start with formative research to understand the audience and improve the intervention.**

Strategies

1. **Using multiple research methods, identify major facilitators and barriers to broad scale adoption of the most effective agricultural safety and health promotion strategies, targeted to specific populations, including at-risk immigrant populations.**

Facilitators and Barriers to using Work Guidelines

Dissemination evaluation research has shown that even with NAGCAT in hand, a high level of knowledge about child development,[18] and a perception of farming as a dangerous occupation,[19] many farm parents will continue to assign developmentally inappropriate and unsafe work to their children.[20] **We need to understand why this occurs and what can be done to facilitate the use of NAGCAT and other effective interventions by parents and farm owners.**

NORTH AMERICAN GUIDELINES FOR children's AGRICULTURAL TASKS

Definition of NAGCAT: *The North American Guidelines for Children's Agricultural Tasks (NAGCAT) were developed by a multidisciplinary team to assist parents in assigning developmentally appropriate farm work to their children 7-16 years.[11] Sixty-two agricultural tasks are described in terms of steps to accomplish the job, developmental skills required, and major hazards that put a child at risk for disease or injury. Suggestions are provided for adult supervision, personal protective equipment and other factors influencing job assignments. NAGCAT have been translated into several languages and adopted for culturally relevant use in different countries with application to regional agriculture.[17]*

2. Identify interventions and effective implementation strategies that remove young children (0–6 years) from agricultural work settings.

Young Children and the Agricultural Worksite

In a retrospective case series 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.[21] Although preschool-aged farm children rarely participate in agricultural work and theoretically should be protected from worksite injury, they experience serious trauma because they are present in the worksite while their parents are performing agricultural work.[22] Evidence supports the fact that farm parents cannot simultaneously be engaged in farm work and provide adequate supervision to young children whose actions can be unpredictable.[23] Thus, the best strategy to minimize young children's risk of injury is the keep them out of the agricultural worksite altogether.[24]

3. Conduct engineering and ergonomic studies to determine effective strategies to minimize and/or eliminate hazardous work conditions that lead to musculoskeletal and traumatic injuries, as well as adverse environmental exposures, among young workers.

Impact on Children's Future Health

Sometimes agricultural injuries and exposures may not be worrisome because we do not see an immediate effect. The impact may not be evident until adulthood. For example, musculoskeletal injuries from work that involves repetitive motion or heavy lifting, over time may contribute to chronic disability and pain. Noise exposures that happen early in life and over a prolonged period may accelerate hearing loss and other health impacts. Also, children from agricultural families and those living in close proximity to farms are exposed to higher levels of pesticides than other children. These exposures result from direct contact with persons doing farm work, such as parents or household members and from pesticide drift from applications, particularly in areas close to schools or and homes. The long-term consequences of these early injuries and exposures have rarely been studied or evaluated. **Given the future lifespan of children it is important to anticipate and avoid situations that could have long-term consequences.**

4. Conduct research that guides application of social marketing, social networking, and social media to influence adoption of agricultural safety principles.

Social Media Influencing Behaviors

The rapid adoption of social networking and multi-faceted communication strategies has changed the way the younger generation "talks" and "learns." For example, from 2002-2006 the CDC conducted a nation-wide VERB™ campaign ("It's what you do") targeting voluntary behaviors of youth ages 9–13 years to be physically active. The campaign's evaluation showed clear evidence that application of commercial marketing techniques (product, price, place and promotion), including branding a behavior instead of a product, can affect the attitude and behavior of children. **Health promotion and injury prevention messages need to keep pace with technology used by the target population.**

5. Evaluate the impact of this childhood agricultural injury prevention initiative to determine the most cost-effective strategies to guide future investments in childhood agricultural safety and health.

IV. Public Policy

Goal

Work cooperatively with stakeholders to ensure that laws, regulations and policies keep pace with ongoing changes in the agricultural work environment with the goal of protecting all children effectively and equally.

Accountability

While developing this national action plan many individuals stressed that parents always strive to provide optimal environments and opportunities for their children. Agriculture remains a highly dangerous occupation for adults and children alike. Research has shown that work sites are not conducive to caring for and supervising young children. **The "bottom line" is that parental responsibility should be comparable across all settings, regardless of residency, occupation, ethnicity and socioeconomic status because all children deserve equal and effective protection from harm.**

Role for Public Policy

Interventions that employ multiple strategies and actions across various levels are much more successful and cost-effective than single strategies alone. The three E's: Education, Engineering and Enforcement (includes policy) must be utilized in injury prevention strategies to achieve maximum impact. Most emphasis has been placed on educational programs for childhood agricultural safety. **This is not to say that education is not needed, but it must be a component of an overall strategy and not a sole strategy.**[25]

Strategies

1. Develop strategies to eliminate gaps and to strengthen protections for youth under age 18 working in agriculture, using legislative and regulatory mechanisms that focus on:

a) appropriate age limits for tasks deemed hazardous;

b) limits on work hours; and

c) removing exemptions that leave categories of children without regulatory or legal protection.

Regulatory Parity

Currently, the child labor protections for working youth are deemed as either "Agriculture" or "Non-Agriculture." Youth working on a farm owned or operated by parents are exempt from hazardous occupations orders (which restrict certain high risk tasks for hired youth). However, youth working in their family's business such as a restaurant or construction are not exempt. Ideally, all regulations, regardless of industry setting, will account for most hazardous working conditions based on the risk for injury and the unique characteristics of young workers, with the goal of minimizing occupational disease and injury. **Raising parents' awareness of child labor regulations may help them acknowledge high-risk situations and, thus, influence their decision to assign children to tasks with lower risk of adverse exposures.**

2. **Strengthen enforcement of regulations and provide funding and support to facilitate employers' and supervisors' adoption of procedures that protect hired youth workers.**

> **Outreach to Employers**
> In addition to enforcing regulations, federal agencies and state departments of labor provide outreach and education to help employers comply with regulations. This outreach often focuses on employers with more than 10 employees and, thus, excludes many farms. Ideally, federal and state labor departments would allocate funding to facilitate age-appropriate employment of adolescent workers. An example of this occurred in Washington state where labor department staff worked with tree fruit and berry growers and their field supervisors to understand the child labor and other employment requirements, and adopt practices endorsed in the Safety Guidelines for Hired Adolescent Farmworkers.[26] **Employers are encouraged to request assistance from state agencies to facilitate regulatory compliance and provide valuable work opportunities for youth.**

3. **Ensure that workers' compensation systems cover employed youth who are injured while working in agriculture; and provide higher compensation benefits to youth who suffer severe, disabling injuries that compromise future career opportunities and earnings.**

4. **Support public policies that stabilize family units and foster community involvement, including:**
   - **a) access to educational opportunities;**
   - **b) access to health care;**
   - **c) immigration reform;**
   - **d) minimum wage; and**
   - **e) access to child care that is affordable, high quality and available.**

> **Improving Family Conditions**
> Family living conditions have an impact on our society as a whole, not to mention the stability of the agricultural workforce. Programs such as Migrant Head Start, family health centers, and low-cost dental clinics all contribute to the wellbeing of families. A "minimum" wage rarely equates to a "living" wage. **Community leaders, including agricultural businesses and employers, are encouraged to facilitate public policies and local programs aimed toward family unity, security, and health.**

V. Organization Policy

Goal

Accelerate the agricultural industry and associated organizations' adoption of safety and health standards that protect children and young workers.

Strategies

1. **Encourage agricultural businesses and farm organizations to adopt and monitor evidence-based policies and practices that set high standards for protecting both working youth and non-working children.**

2. **Encourage and facilitate organizational policies and guidelines for professionals in health care, social welfare, and health and safety to assist in the recognition, management, and prevention of childhood agricultural injuries and disease.**

> **Professional Societies**
> Many health and safety groups adopt formal positions on issues and provide professional development opportunities to ensure their members promote best practices including clinical services. An example is the American Academy of Pediatrics which has a formal position paper on Prevention of Agricultural Injuries Among Children and Adolescents[27] and the American Public Health Association's position on Protection of Child and Adolescent Workers.[28] **These position statements are taken into consideration when organizations make decisions and set priorities for advocacy at the national and state levels.**

3. **Guide agricultural employers in strategies for hiring youth to work in developmentally-appropriate jobs with supervision, training, and opportunities for career advancement within the agriculture industry.**

> **Agricultural Employers**
> In 2007 a survey of 151 U.S. agricultural employers that hire adolescents, primarily to work in the tree fruit industry, revealed a desire for strategies to be compliant with regulations, for information to help them understand adolescent physical and mental growth characteristics, and more injury prevention resources. The majority of respondents had positive perceptions of teen workers in terms of dependability, helpfulness, and work ethic. At the same time, employers felt ill-equipped to sufficiently train and supervise their young workers.[29] Many multinational companies have adopted programs that "certify" employers that implement labor policies ensuring workers are of legal age and that working conditions and wages would be deemed acceptable to consumers of their agricultural products.[30] **Ideally, mechanisms would exist to help all employers identify and adopt existing safety resources.**

4. **Facilitate communications and strategies by which major agricultural corporations and national-level farm organizations can influence the "culture of family farming" to replace unsafe traditions with practices known to decrease childhood exposures and injury.**

> **Safety Campaign Expanded by Agribusiness**
> In 2008, several national organizations collaborated on a public awareness campaign to Keep Kids Away from Tractors. Together, they developed unified messages, and a media campaign including posters, radio and TV messages with the aim of changing social norms so "kids on tractors" would be deemed unacceptable. A major tractor manufacturer supported this campaign, then modified the message with its own tractor brand and expanded the campaign via its dealerships across North America.

VI. Interventions

Goal

Identify and actively endorse effective childhood safety and health interventions that address the spectrum of populations associated with agriculture.

Strategies

1. Improve the effectiveness of all interventions by:

a) applying formative research and theory-based approaches;

b) involving non-traditional partners as well as health care providers in the program design, implementation and evaluation; and

c) developing a continuum of strategies to ensure sustainability of safe practices.

2. Promote the adoption of strategies that physically separate young children from the work site, including off-farm, high quality, affordable and accessible childcare programs.

Model Childcare Program

In order for off-farm childcare services to be of value to families, they must be perceived as trustworthy, accessible, and affordable.[31] An example of a successful model is the Redlands Christian Migrant Association (RCMA) in Florida. Established in 1965, RCMA now provides childcare and family services to more than 8,000 children (6 weeks to 12 years) of migrant and seasonal workers at 75 different sites. RCMA also facilitates elementary school programs for 350 children. RCMA's achievements are credited to strong partnerships at the local, state and national levels as well as linkages with the Mexican Consulates. RCMA has effectively included the agribusiness community in its efforts as growers and producers participate in the organization by providing funds as well a serving on the RCMA Board of Directors. RCMA provides education and services to parents and regularly offers health and safety trainings such as workshops on how to minimize children's exposure to pesticides. **Factors contributing to the success of this model childcare program should be considered by farm families, rural communities and agricultural employers striving to meet local needs.**

3. **Develop, disseminate, and assess the effectiveness of voluntary safety guidelines aimed at youth to be adopted by farm/ranch owners, parents, agricultural employers, agribusinesses and farm organizations.**

> **Guidelines for Youth Work**
> Upon request from agricultural employers who hire young workers, seven NAGCAT guidelines were modified to address the most common situations under which teenagers are employed in agriculture. Where relevant, these modified guidelines include the U.S. Child Labor in Agriculture Laws. These illustrated Safety Guidelines for Hired Adolescent Farm Workers (SaGHAF)[26], along with supervisor training materials, were released in 2009. While there is evidence that NAGCAT are effective in reducing injuries on family farms[32,33] research is now needed to test the efficacy of the SaGHAF resources in modifying behaviors of agricultural work supervisors or reducing work-related injuries of hired youth.

4. **Promote interventions that address specific risk factors for the leading causes of nonfatal childhood agricultural injuries such as handling livestock and operating ATVs, with special attention to eliminating traumatic brain injury.**

> **Traumatic Brain Injuries**
> Although many types of nonfatal injuries are declining, it is concerning that the 2006 Childhood Agricultural Injury Survey revealed two types of injuries on the rise – those associated with All-Terrain Vehicles (ATVs) and horses. ATVs, horses, and other activities such as working with livestock are associated with traumatic brain injuries, leading to long-term, sometimes permanent damage to a young person, impacting their career choices and long-term earnings potential.

5. **Integrate social marketing principles, social networking, and social media strategies in the development of culturally and linguistically appropriate safety information and training for key stakeholders as part of a comprehensive intervention strategy.**

VII. Knowledge Mobilization and Dissemination

Goal

Mobilize and disseminate evidence-based practices to stakeholders via proactive collaborations.

Strategies

1. **Facilitate knowledge mobilization on major issues and model programs through a Center of Excellence for Childhood Agricultural Safety and Health (Strategy A.2) and multidisciplinary working groups. Priorities for focus of this strategy include:**
    - **a) emerging health and safety issues;**
    - **b) disease and injury data applications to guide interventions;**
    - **c) high-quality, affordable, accessible child care options that address the unique needs and work hours of agricultural workers;**
    - **d) interventions for, and outreach to, high-risk and underserved populations such as immigrants, migrants, Anabaptists, and Native Americans;**
    - **e) strategies to inform parents about hazardous work and provide guidance about age-based restrictions; and**
    - **f) injuries associated with the cross-over of work and recreational activities such as ATVs & horses.**

Reaching High Risk and Underserved Populations

A culturally and linguistically effective model in reaching Hispanic/Latino populations is known as "Promotores de Salud." Promotores de Salud/Community Health Workers (CHWs) are volunteer community members and frontline workers who are trusted members of and/or have an unusually close understanding of a unique population. CHWs generally share the ethnicity, language, socioeconomic status, and life experiences of the community members they serve. These social attributes and trusting relationships enable CHWs to be a liaison between health and social services and the community to facilitate access to and enrollment in services and improve the quality and cultural competence of service. Additionally CHWs build individual and community capacity by increasing health knowledge and self-sufficiency through a range of activities such as outreach, community education, informal counseling, social support, and advocacy.[34] The use of CHWs for reduction of occupational and environmental health problems in agriculture is less common, but has been applied to reduce pesticide exposure, promote eye safety, assist poultry workers, empower worker self-management, and improve sanitation and hygiene. **This model is highly recommended for promoting agricultural safety and health practices among Hispanic/Latino populations.**[35]

2. **Encourage expanded professional training opportunities for people in a position to influence parents of young children (e.g., health care practitioners, teachers, childcare providers).**

3. **Promote widespread integration of childhood agricultural safety and health issues into existing mechanisms that currently reach parents, youth, teachers, and farm owners (e.g., social media networks, trade journals, farm organizations).**

> **Reaching the End-Users**
> It is important to avoid duplication or "re-inventing the wheel." Federally- and state-sponsored entities such as the MCHB-funded Children's Safety Network (with links to state public health agencies) and the NIOSH-funded Agricultural Safety and Health Centers can partner with youth serving organizations (e.g., FFA, 4-H) and grass-roots groups (e.g., local churches) to reach parents and employers with strategies for protecting children on farms. Increasingly, social media options have been effective in reaching people with news of emerging issues, including health and safety recommendations. The role of NIOSH's regional Agricultural Centers in providing outreach to farming communities and collaborating with other regional and state-based programs should be expanded.

4. **Facilitate agricultural employers' dissemination of culturally, linguistically, and developmentally-appropriate safety information and programs to their young workers.**

> **Agricultural Businesses can Influence a Culture of Safety**
> Consumer expectations, global trade and agricultural business are exerting pressures on farm owners to adopt practices that meet certain standards, including responsible management of working conditions. An example of an agribusiness influencing safety and health is CHS (formerly Cenex Harvest States), the largest agricultural cooperative in the U.S. CHS has adopted principles of corporate social responsibility and shared values with a strong company program in safety that reaches local Cooperatives. The CHS Foundation annually distributes funds to regional and national programs addressing childhood farm safety and agricultural medicine. Further, to promote the "next generation" of agricultural safety specialists, CHS sponsors a Safety Award to a County Extension Agent at their annual convention.
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Summary

While attempts were made to ensure that this plan reflects current state-of-the-art research along with priorities based upon the most common types of agricultural injuries and fatalities experienced by children, no plan can be absolute. We propose this plan be revisited at least every five years in order to redirect priorities and, hopefully, celebrate successes. Until all children and young adults are protected effectively from preventable agriculture-related disease and injuries, our work must continue.

Footnotes

Footnote 1

Federal Agency Roles

The National Institute for Occupational Safety and Health (NIOSH), within the Centers for Disease Control and Prevention (CDC), is responsible for research to minimize injury and disease among agricultural workers, as well as the training of professional to conduct research, education and occupational health services. NIOSH funding supports 10 regional agricultural centers and one national center that are focused on children. The U.S. Department of Agriculture (USDA) has a small program addressing youth safety with a current focus on underserved youth populations and minority youth projects. The U.S. Department of Labor (USDOL) includes the Occupational Safety and Health Administration (OSHA) which sets and enforces regulations as well as provides outreach to inform employers of how to comply with safety recommendations. The USDOL also includes the Wage and Hour Division (WHD) which oversees wage payment issues, child labor regulations, farm labor contractors and farm labor camps. The Environmental Protection Agency (EPA) is charged with enforcing the Worker Protection Standards (WPS) with a focus on minimizing workers' risk of exposures to pesticides. The Health Resources and Services Administration (HRSA) lies within the U.S. Department of Health and Human Services (HHS). It includes several initiatives focused on children through its Maternal and Child Health Bureau (MCHB). The National Center of Injury Prevention and Control (within CDC) provides funds to regional injury centers, some of which address general childhood injury and violence prevention issues

Footnote 2

Examples of Cross-Agency Programs and Federal-State Collaborations

History has proven that joint efforts across federal agencies have yielded benefits. For example, on a non-agricultural topic, the HRSA/MCHB teamed up with the National Highway Traffic Safety Administration (NHTSA) to prevent child traffic injuries through grants to states. An example of federal-state collaboration is reflected in the Safe States Alliance which is the "national voice of state and local injury and violence prevention professionals engaged in building a safety, healthier America." Its membership includes but is not limited to, all state injury prevention programs that strive to improve data collection and analysis; design, implement and evaluate programs; effect public policy; and provide technical support and training.

The Centers for Disease Control and Prevention (CDC) funds 30 "Core Violence and Injury Prevention Programs (VIPP)", within state health agencies. CDC supports grantee partners to build capacity related to injury prevention and to develop or strengthen their injury surveillance programs. Currently, these programs do not incorporate agricultural injury prevention issues but should be considered in the future. For example, the North East Network to Prevent Childhood Injuries has a 20-year history committed to regional collaboration that brings together its members to address various childhood problems, build capacity, share data, provide training and promote best practices across its member states.

Footnote 3

Examples of Vulnerable, High-Risk, Underserved Populations in Agriculture

Most migrant and seasonal farmworker families are designated as Hispanic ethnicity. Households are typically comprised of Mexican-born adults with limited English abilities, low literacy skills, and limited formal education. Incomes are well below poverty thresholds. An estimated 50% of farmworkers lack authorization to legally work in the United States and the immigration status of farmworker households is often mixed, including many households with US citizen children. Increasing numbers of migrants come from indigenous Mexican and Central American populations, speaking neither Spanish nor English as their primary language. Additionally there are a growing number of immigrants from Asia, Africa and Eastern Europe.

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Appendices

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Appendix C

Journal of Agromedicine: Vol 17 (2) Dedicated Issue: *Table Of Contents*

Protecting Children in Agriculture

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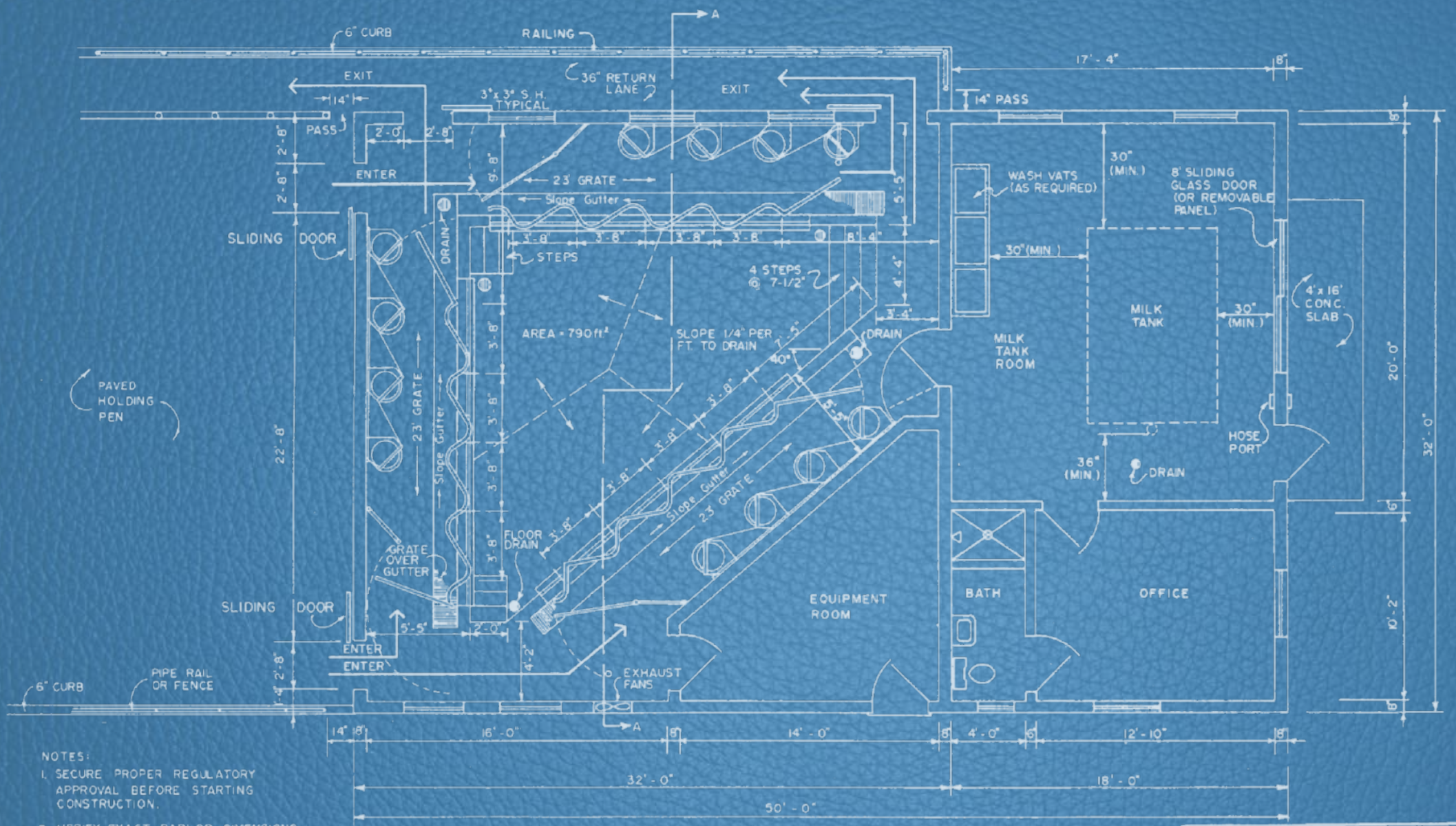

PLAN

NOTES:

1. SECURE PROPER REGULATORY APPROVAL BEFORE STARTING CONSTRUCTION.
2. VERIFY EXACT PARLOR DIMENSIONS (COW PLATFORM WIDTH AND STALL LENGTH) WITH STALL AND/OR FEEDER MANUFACTURER BEFORE STARTING CONSTRUCTION.
3. FAN(S) & ARTIFICIAL LIGHT MUST BE INSTALLED IN MILKING AREA. (WINDOW AREA IS LESS THAN 15% OF FLOOR AREA.)
4. ALL SWINGING DOORS ARE 3' WIDE.

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UNIVERSITY OF TENNESSEE
AGRICULTURAL ENGINEERING DEPARTMENT
AND
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

TWELVE STALL TRIGON MILK PARLOR

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