

National Academies' Review of the NIOSH Agriculture, Forestry and Fishing Program: Introduction

George A. Conway, MD, MPH

Director, Agriculture, Forestry and Fishing Program
National Institute for Occupational Safety and Health
US Centers for Disease Control and Prevention

gconway@cdc.gov



WORKPLACE SAFETY AND HEALTH



Objectives

- Overview of AFF Program
(Introductory materials page 33-82 of EP)
- Summary of Important Accomplishments
- Introduction of NIOSH Presentations

Overview

- Framing the Industry and Hazards
- External Factors
- Our Approach
- Our Outputs
- Outputs with Intermediate Outcomes
- End Outcomes
- Future Directions

Production Agriculture



FORESTRY & LOGGING



Commercial Fishing



Significance of AgFF Sector

- 3.1 Million workers employed (2001)
- Farm tractors accounted for 2,165 deaths (92-01)
 - ◆ Leading source of fatalities in AgFF
- Other circumstances (92-01) :
 - ◆ Trucks, 795 deaths
 - ◆ Fishing boats, 434 deaths



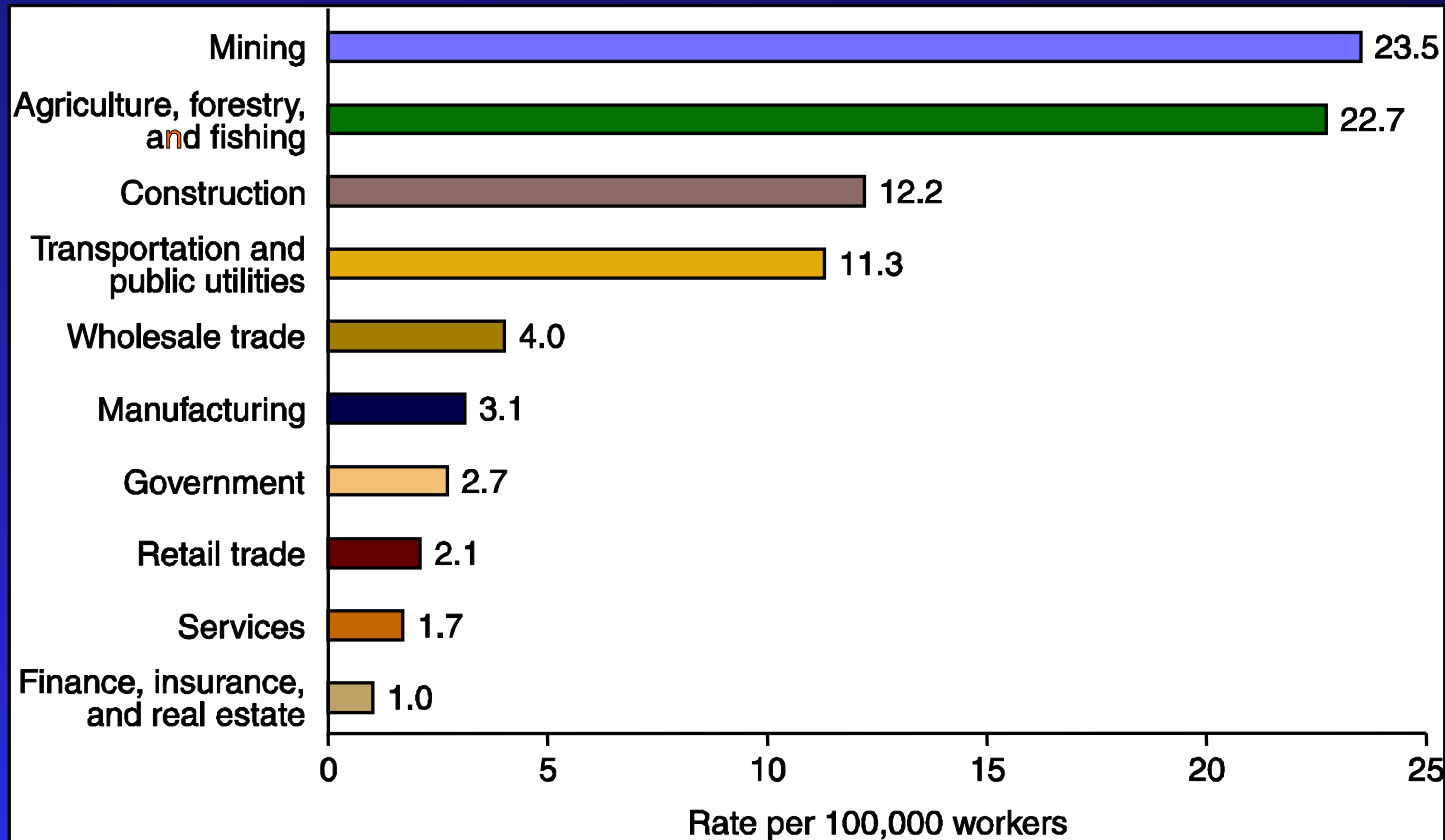
Firefighters stand by an overturned tractor at a farm in south Fort Collins on Monday. The tractor trapped the farmer underneath, killing him.
(Ft. Collins Coloradan via AP, 1/16/07)



Significance of AgFF Sector

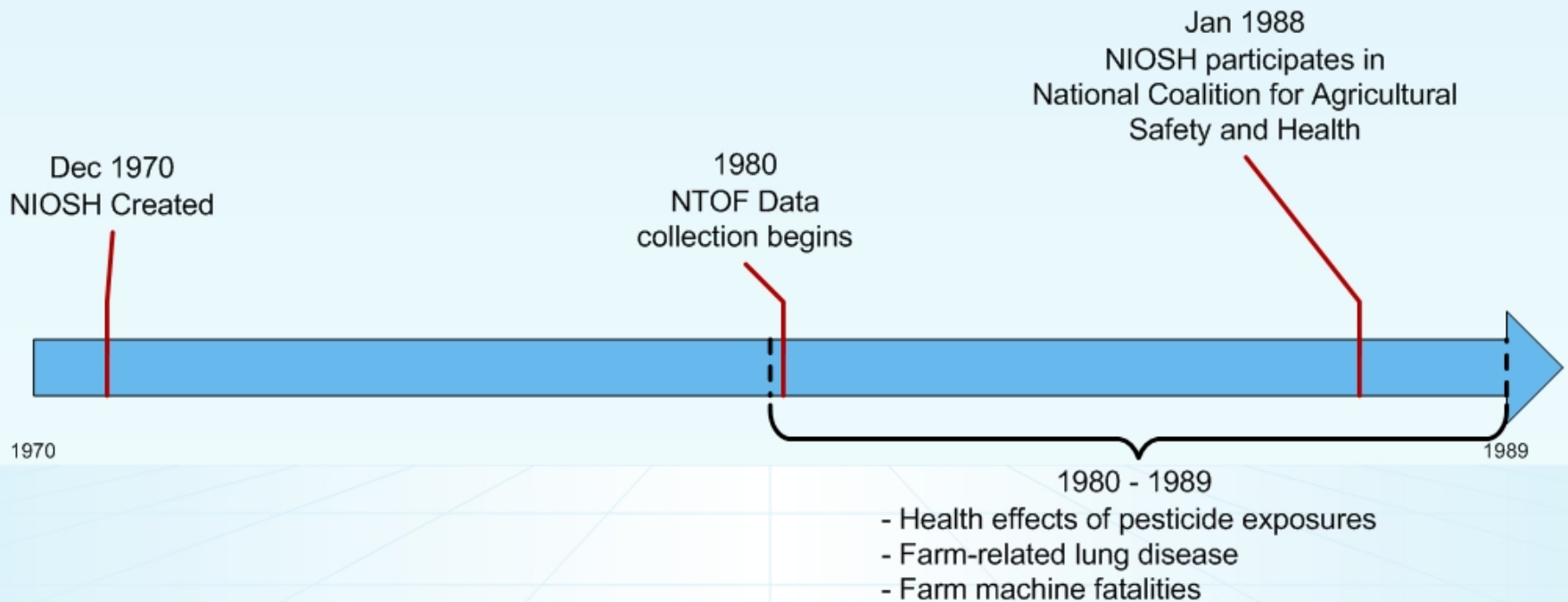
- Despite many safety advances, this Sector is one of the most hazardous in the United States.
- Acute traumatic injury and death are among the most significant in the agricultural sector [production/forestry/fishing].
- Special concern: > 100 children killed each year while involved in farming.

High Risk Industry Fatality Rates

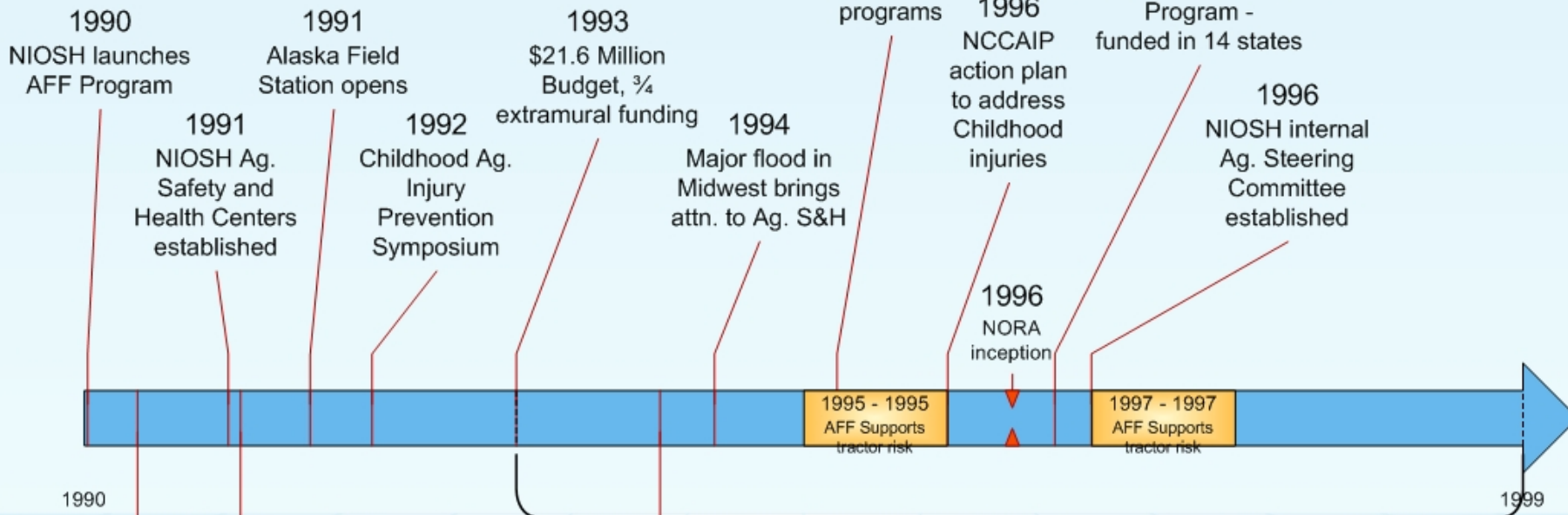


Fatal occupational injury rates by industry division, 2002. Source: Department of Health & Human Services, 2004, Worker Health Chartbook, 2004, Figure 4-1.

NIOSH AFF Program
1970 through 1989



NIOSH AFF Program 1990 - 1999



1990 1999

1993 - 1999

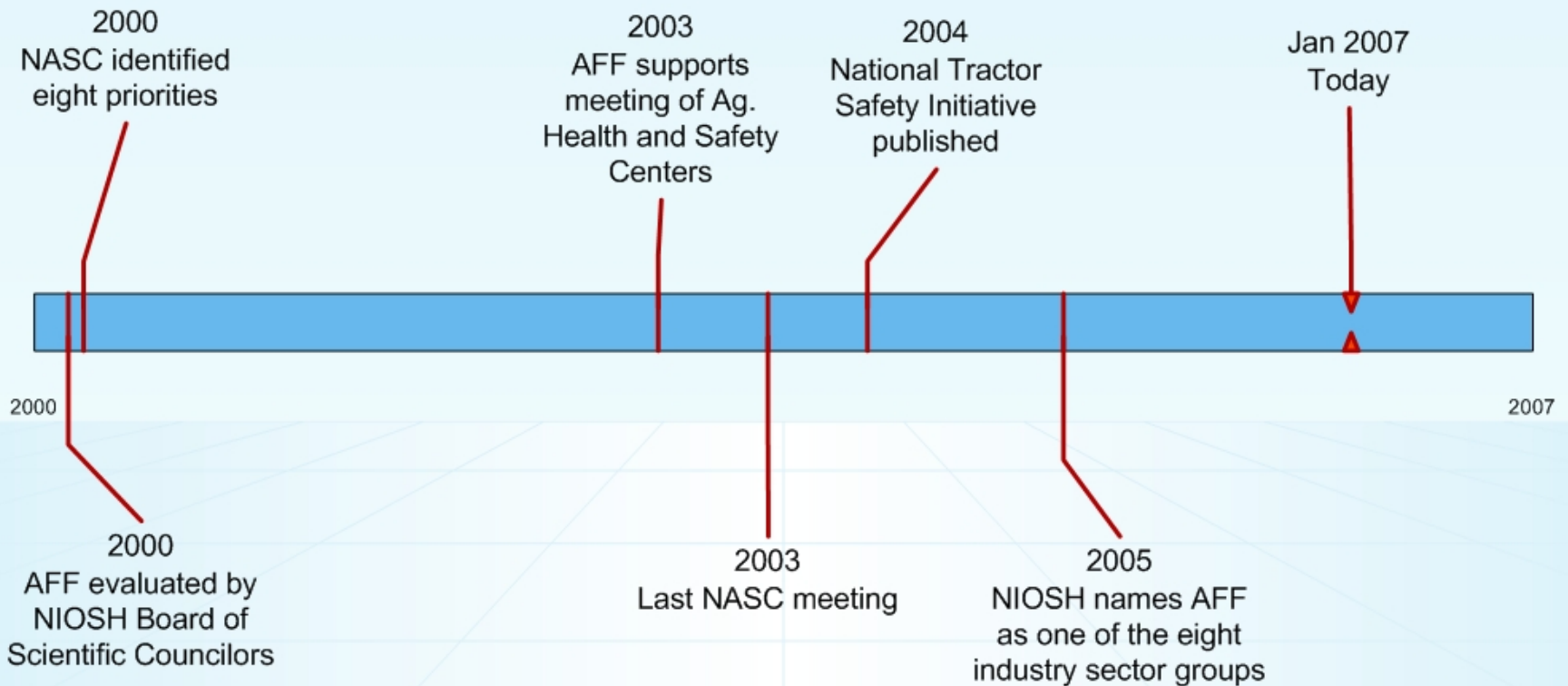
- Survey of farm family health and hazards
- Surveillance intervention program
- Extension agent intervention program
- Cancer prevention program
- Agriculture research and intervention centers

1990 Congress funds NIOSH for Ag. surveillance, research, and intervention

1991 Surgeon General's Conference on Ag. Safety and Health

1994 NIOSH extends Ag. Program into other existing programs:
SENSOR
FACE
Training grants

NIOSH AFF Program
2000 - Present



AFF Program Goals

Congressional appropriations language that provided for the initiative in agricultural safety and health stated five major goal areas:

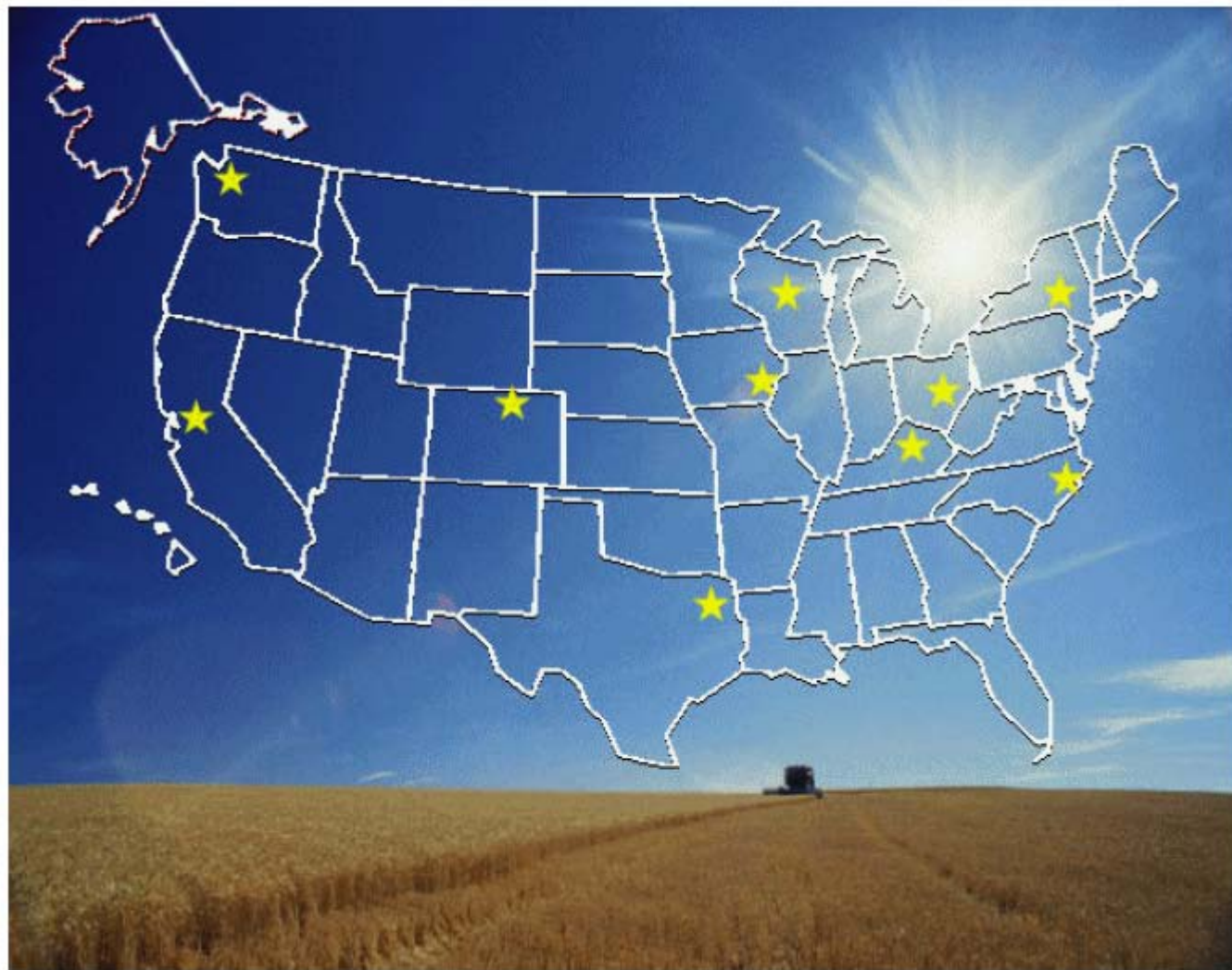
- **Surveillance**
- **Special & Priority Populations at Risk**
- **Health Effects of Agricultural Agent Exposures**
- **Control Systems**
- **Outreach**

Structural Differences of AFF vs. many other NIOSH programs

- Extramural and Intramural components both large
- Intramural program distributed across multiple NIOSH divisions
- Historically quite limited coordination across Institute or between intramural and extramural components, although...
- Common goals of understanding and preventing agricultural injuries and illnesses always shared

NIOSH Centers for Agricultural Disease and Injury

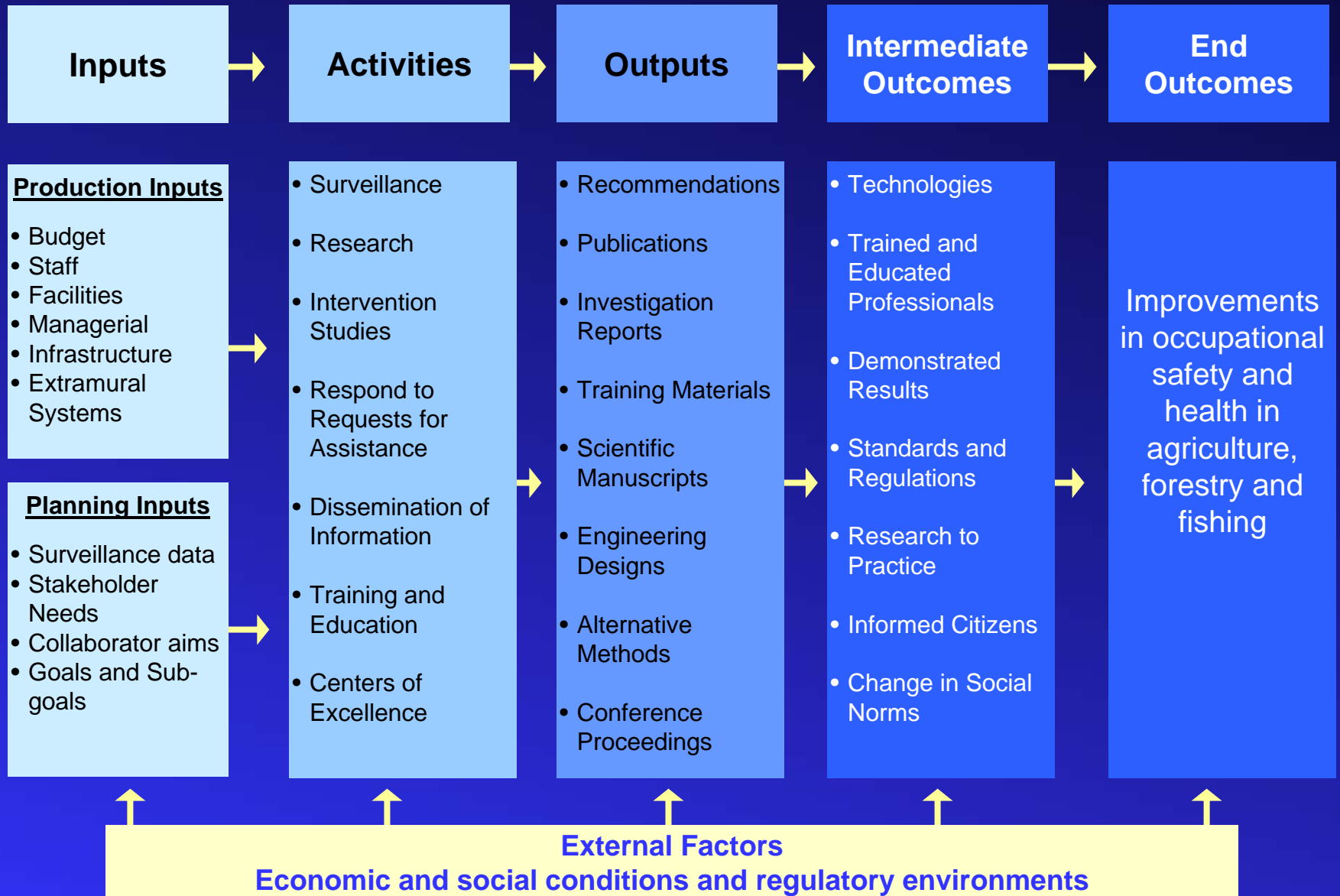
Research, Education, and Prevention



NIOSH Divisions/Labs/Offices Involved in AFF (alphabetical order...)

- Alaska Field Station (AFS)
- Division of Applied Research and Technology (DART)
- Division of Respiratory Disease Studies (DRDS)
- Division of Surveillance, Hazard Evaluation and Field Studies (DSHEFS)
- Division of Safety Research (DSR)
- Education and Information Division (EID)
- Office of Extramural Programs (OEP)

NIOSH AFF Program Logic Model (pg 43)



AFF Challenges – NIOSH approach

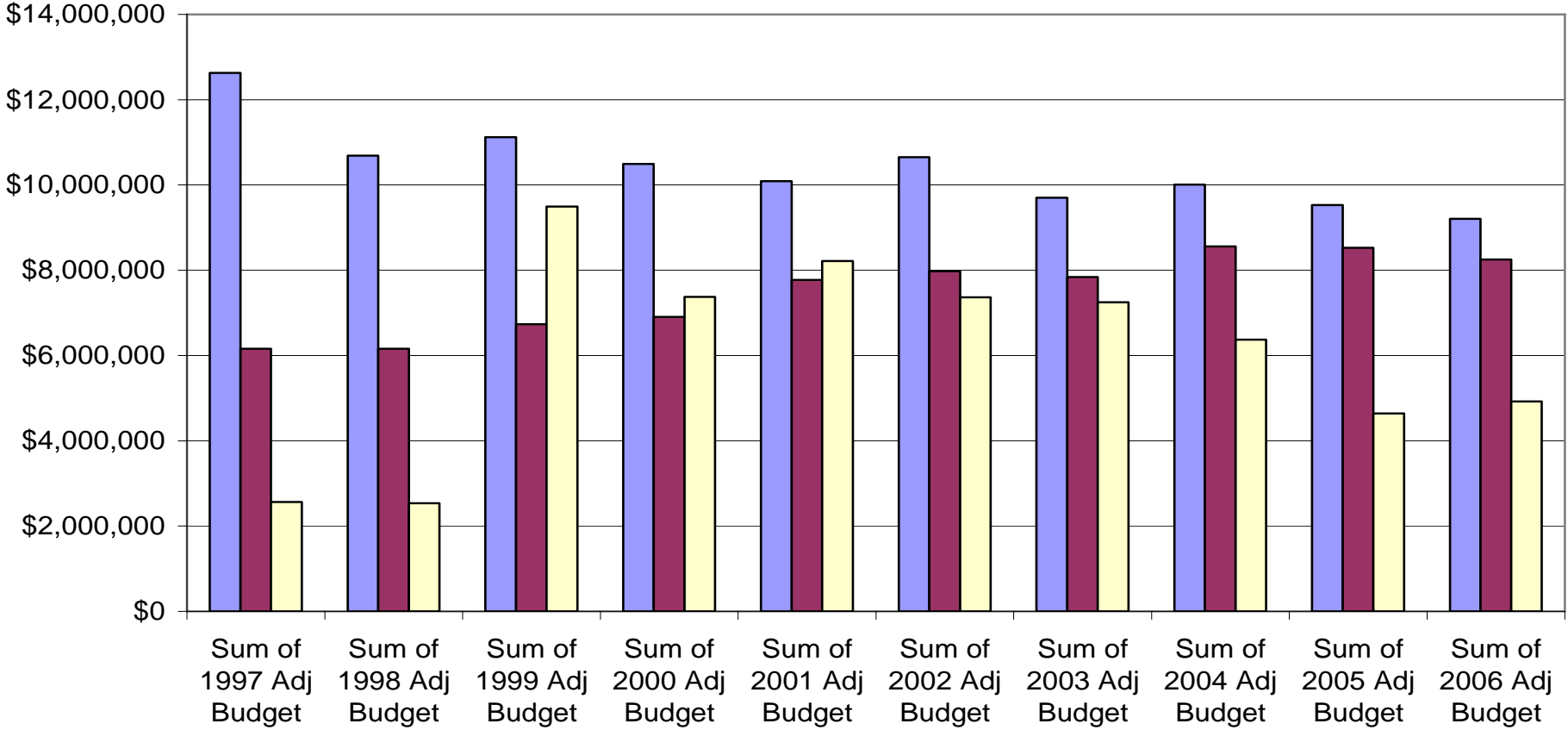
- *Surveillance* – understanding AFF injuries and illnesses in today's workforce and providing better data for risk assessment
- *Hazard characterization* – filling knowledge gaps for hazards that are not well understood
- *Intervention* – developing solutions to prevent injury from known hazards

Inputs

NIOSH AFF Program Resources

- Intramural research FY06 funding = ~\$ 9 M
- Extramural research FY06 funding = ~\$ 13 M
- Staffing FY06: ~ 65 FTEs (intramural only, including 105 project officers; extramural involves hundreds of individuals)
- Interdisciplinary: epidemiologists, statisticians, engineers, physicians, chemists, toxicologists, communications experts
- Multiple divisions bring their own strengths

AFF Program Funding: Intramural and Extramural, 1997-2006



■ Intramural
 ■ Ag Centers
 ■ Other Extramural

Planning Inputs

- Surveillance data – derived internally and externally
- Stakeholder input – workshops, NORA team, partnership activities
- Risk assessment – criteria documents, consensus committees
- Scientific knowledge gap assessment

Partnerships and r2p for AFF

- Open doors to work sites, equipment, interaction with workers and employers, and stakeholder investment
- Provide collaborative research
- Create opportunities for transfer of NIOSH AFF Program outputs

External Factors

- Limited resources
- Legislative directives or earmarks
- Environment:
 - ◆ Physical – weather, terrain, distance
 - ◆ Regulatory
- Lack of definitive exposure surveillance data, especially for chemical hazards and chronic illnesses
- Economic pressures, business climate for potential customers and partners

Agriculture, Forestry and Fishing Often Take Place In...

- Extreme environments
- Heavy weather
- Drought or flood
- Darkness
- Remote and/or Isolated locales



NIOSH Inception

- OS&H Act, 1970
- Consultative and expert role
- Good science, thoughtful weighing of criteria and evidence, “being right” most important

Government Performance and Results Act (1993)

- Requires Federal Agencies develop:
 - ◆ Multiyear strategic plans
 - ◆ Annual performance plans
 - ◆ Annual performance reports

OMB Program Assessment Rating Tool (PART) 2002

- Used to assess federal agency performance:
 - ◆ Appropriateness of planning
 - ◆ Program management
 - ◆ Program results

Leitmotif/ metaphor:

Then:

and

Now:



Tower Silo:
being right

Silage bag:
doing right, ground level

(photos courtesy Dr. Larry Chapman, from his talk later today)

GPRA + PART -> Federal Agencies:

- Must now “do right”
- While continuing to “be right”
- Must measure and demonstrate their impact
- New/additional resources not generally provided for this

External Factors: Federal Constraints

- While GPRA, then PART, dictated more results-based evaluation:
 - ◆ Federal budget and personnel law largely preclude major changes in workforce, layoffs, massive new hires, absent budget-driven budget emergency-> RIF or “moonshot” scale new funding
 - ◆ Epidemiologists, statisticians, engineers not necessarily best skill mix for intervention

External Factors: Partnerships

- NIOSH has historically worked closely with other governmental organizations, industry, and organized labor.
- During the last decade, through NORA and the emerging prominence of NGOs in the US, we have greatly strengthened our partnerships.
- Virtually all of the outcomes we will describe today result from collaborations with our many partners.

Program Outputs



Types of Outputs

- **Scientific research reports:** journal articles, technical reports, presentations, proceedings
- **Technology and Control Products:** engineering designs, patents, prototypes
- **Recommendations:** criteria documents, best-practices workshop proceedings, HHE reports, NIOSH alerts
- **Information dissemination:** web-based information, pamphlets, videos, partner briefings

Balancing the Focus on Product Development

- Scientific publications are essential to
 - ◆ advancing scientific knowledge
 - ◆ maintaining professional credibility
 - ◆ supporting evidence for recommendations
- Worker-friendly products are essential to meet customer needs
 - ◆ translate technical material into information workers and employers can use
 - ◆ transfer knowledge to those who can implement it

Outcomes: Intermediate and End (and points in between)

- Reducing Exposures
- Strengthened Legislation
- New Regulations and Practices
- Improved Control Technology
- Increased Use of Protective Clothing and Equipment (PPE)
- Effective Communication/Education

Reducing Exposures

- Important impacts of the AFF Program have resulted from reduced exposure to hazards in farming, logging and commercial fishing.
- Reduced exposure often correlates directly with reduced injuries, disease and death.
- We have made such impacts via
 - ◆ Strengthened legislation & new regulations
 - ◆ Improved technology
 - ◆ PPE use
 - ◆ Effective communication & education for prevention
- Examples of each of these outcomes follow.

Strengthened Legislation

- Pesticide drift exposure- CA, 2004
- 2003 and 2005: Youth Worker Protection Act prop -> U.S. Congress, Rep. Tom Lantos
- 1996: Wisconsin Act 455 prohibits <16 years old from driving farm tractors on public roads without training.

New Regulations and Practices:

- 1999: AFF ->non-toxic medfly control:
- 1989- 1990: NIOSH recommendations --> OSHA --> 1994 logging standard
- 1998: USCG task force for fishing safety, adopted 8 of 11 NIOSH recommendations.
- 1999: NIOSH findings →USCG ->Dockside Enforcement Program for Bering Sea crab

More New Regulations and Practices:

- AFF recs -> residential chlorpyrifos ban by EPA
- AFF recs -> monitoring program for pesticide handlers WA, 2004
- ASABE 1985 standard for ROPS -> new farm tractors -> >95% of all new tractors since voluntary adoption

Improved Technology

- KY: retrofitted ROPS use increased
- Very high prevention rates of human injuries by ROPS/seat belt installation and use
- AFF designed 6 Cost-Effective Rollover Protective Structures (CROPS) shared with manufacturer (FEMCO).

Improved Technology (Cont.)

- Emergency shutoff switch prevents fisherman winch entanglement: “e-stop” 2005, AK - industry response huge
- Hay bailer “scalping” prevented by NIOSH-promoted retro-fitted machine guards

Increased Use of Protective Clothing and Equipment (PPE):

- 1998: AFF findings that PFDs save lives-> USCG adopts “safety at sea” checklist
- 30% fishing deaths from falls overboard. AFF dev electro-luminescent PFD
- AFF -> smaller, lighter grape harvest picking tubs CA
- 1993 – 2006: AFF work leads to adoption of long-handled blueberry rakes.

Effective Communication/Education:

- 2006: “Progressive Agriculture Safety Days” reach ~ 59,000 children
- AFF recs on preventing logging deaths – distributed nationally by the American Pulpwood Association

End outcomes

- AFF SENSOR-Pesticides Program: acute ag pesticide poisonings: 13.1% (1998) -> 8.9% (2004)
- Childhood Agricultural Injury Prevention Initiative began 1997 -> injuries 37,800 (1998) -> 27,600 (2004)
- Farm work-related youth injuries decreased 51%, 16,695 -> 8,130.

AFF End Outcomes (cont.)

- Since North American Guidelines for Childhood Agricultural Tasks: 1998-2004: 14.1 -> 9.1 injuries/1,000 working youth .
- Since release of proposed OSHA Logging Standard 19.5/100FTE (1989) -> to 6.4 (2003).

More significant AFF End Outcome examples:

- Helicopter logging: since AFF intervention in 1993, mortality all but disappeared in this emerging industry.
- Commercial fishing fatalities: due in part to AFF efforts -> 74% decrease in deaths since 1990.

More significant AFF End Outcome examples:

- AFF recs ->USCG: 96% of the commercial fishermen now surviving vessel sinkings, vs. 73% in 1991.
- AFF pilot eye injury prevention program FL - 2003 -> reducing eye injuries 75% in 500 workers. Safety glasses use 5% -> 65-75%.

Current and Future Efforts

- While much has been accomplished, much remains to be done.
- 2005, NIOSH named AFF as one of the eight industry sector groups to be addressed by the second ten years of NORA.
- AFF Program, in conjunction with its partners and stakeholders, will rededicate itself to:
 - ◆ explore new areas of research,
 - ◆ facilitate r2p,
 - ◆ evaluate the impact of our program on reducing injuries, disease and death among these workers.
 - ◆ undertake strategic and tactical planning.

Emerging/ Re-Emerging Issues

- Migrant workers
- Undocumented workers
- Globalization
- Climate change
- Shifting roles of government, business, and NGOs

Recent updates in the AgFF Sector

- New Agriculture Fishing and Forestry Program Coordinator
 - ◆ Brad Husberg
 - ◆ Starting 7/1/2006
- National Academies Evidence Package
 - ◆ Compiled and Reviewed
 - ◆ NA Review Presentations
 - January 2007
 - Washington DC

Recent updates in the AgFF Sector

- NIOSH AgFF Internal Steering Committee
 - ◆ Re-organized 10/ 2006; 1st monthly meeting 10/10/06
 - ◆ 12 members; NIOSH divisions/programs represented:
 - AFS
 - DRDS
 - DSHEFS
 - DSR
 - EID
 - HELD
 - NPPTL
 - OEP

Recent updates in the AgFF Sector

- NORA AgFF Sector Council: Prospective member pool (105)
 - Nominated by:
 - ◆ NIOSH 58%
 - ◆ Self 25%
 - ◆ As official rep for an organization 17%
 - Representing
 - ◆ Academia 49%
 - ◆ Federal 17%/ state government(s) 10%
 - ◆ Organizations (safety and health) 17%
 - ◆ Industry 5%
 - ◆ Farmers 2%

AgFF Sector Interim Goals

- Apply practical methods to quantify and reduce injuries, illness, and harmful exposures for each sub-sector of agriculture, fishing, and forestry.
- Develop a cooperative strategy in collaboration with partners in epidemiology, engineering, and health communications to decrease tractor-related fatalities in the United States by 50% by 2015.
- Reduce illness and injury in special populations (e.g. youth, minority, older, and migrant) through the development of programs to identify and implement priorities for the improvement of safety and health.

AgFF Selected External Research Topics

- Evaluation and comparison of existing tractor rollover protective structure (ROPS) retrofit programs
- Quantification of long-term health effects of agricultural pesticide exposure
- Heat stress quantification, risk factors, and mitigation/prevention in agricultural field workers
- Hearing loss prevention in logging

AgFF Sector External Web Pages

- NIOSH Agriculture Topic Page updated August 06
 - ◆ <http://www.cdc.gov/niosh/topics/agriculture/>
 - ◆ <http://www.cdc.gov/niosh/injury/traumafish.html>
- NIOSH Agriculture, Forestry, and Fishing Portfolio Page
 - <http://www.cdc.gov/niosh/programs/agff/sector.html>
 - Contact information updates
 - Content currently under revision



AgFF Sector Contacts

- **Program Manager:**

- ◆ George A. Conway, MD, MPH
Director, Agriculture, Forestry, and Fishing Program
Chief, Alaska Field Station
4230 University Drive, Suite 310
Anchorage, AK 99508
907-271-2382
gconway@cdc.gov

- **Assistant Program Manager:**

- ◆ Jennifer Lincoln, PhD, MS
4230 University Drive, Suite 310
Anchorage, AK 99508
(907) 271-2382
JLincoln@cdc.gov

- **Program Coordinator:**

- ◆ Brad Husberg, BSN, MSPH
4230 University Drive, Suite 310
Anchorage, AK 99508
(907) 271-5259
BHusberg@cdc.gov



Today's AFF Presentations:

- **Surveillance (Chapter 3)**
John P. Sestito, JD, MS
- **Children Working in Agriculture (Chapter 4.1)**
Dawn N. Castillo, MPH
- **National Children's Center Rural & Agric Health & Safety Program**
Barbara C. Lee, RN, PhD
- **Commercial Fishing Safety (Chapter 4.4)**
Jennifer M. Lincoln PhD
- **Chemical Exposures and Health Effects (Chapter 5)**
Theresa Schnorr, PhD, MS
- **Tractor safety (Chapter 6)**
John R. Myers, MSF
- **Health Communications /Outreach (Chapter 7)**
Larry Chapman, PhD

What we look forward to from the National Academies review:

- Your frank assessment of the relevance and impact of our work.
- Your advice for what we can do to improve the effectiveness of our program.
- Your continuing interest and possible collaboration after the completion of the review.

Questions?



Thanks!

