

# Agricultural Medicine and Environmental Health: *Linking the Land to Lives*

*National Center for Farmer Health, Hamilton Australia, Oct. 11-13, 2010*

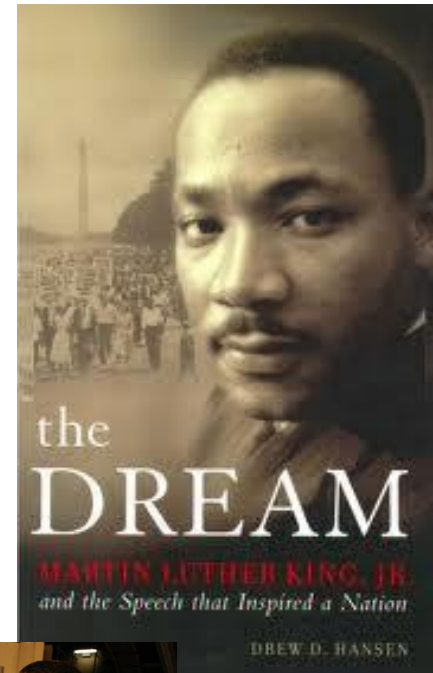
Kelley J Donham DVM, DACVPM

Professor and Director Iowa's Center for Agricultural  
Safety and Health

College of Public Health, University of Iowa

# Martin Luther King Jr. Had a Dream!

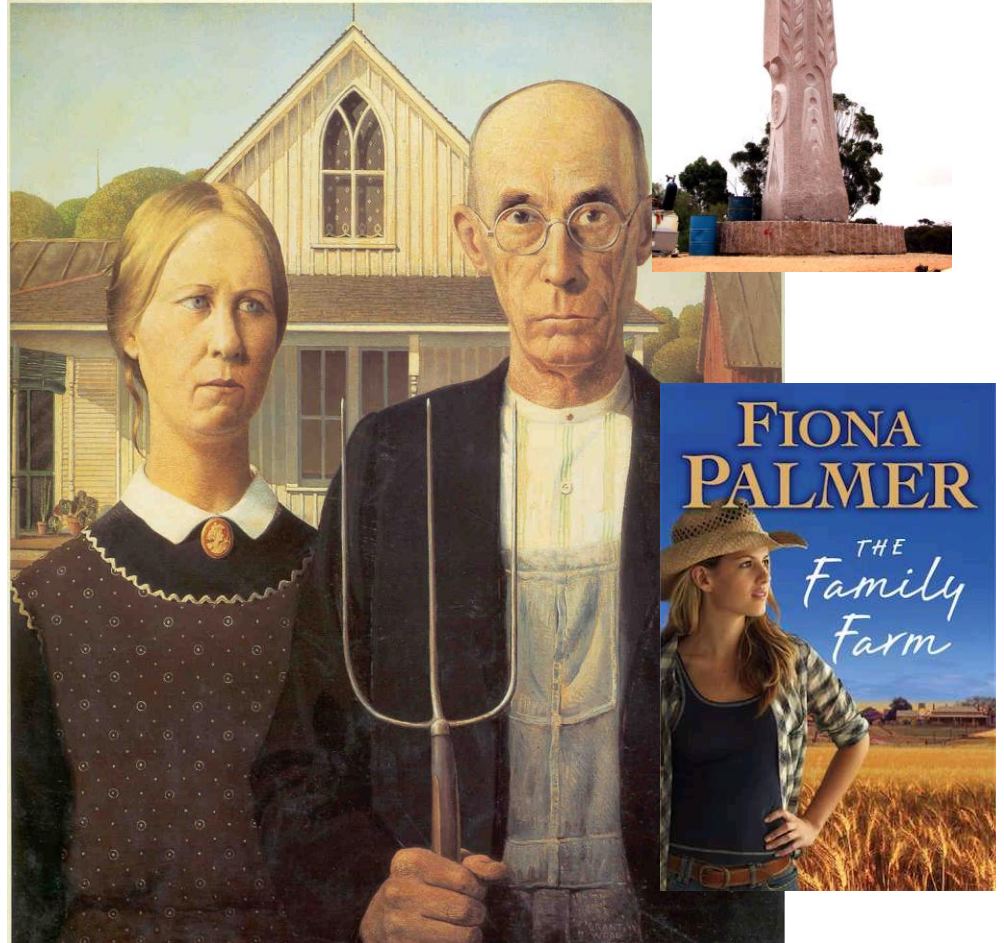
*"I have a dream that one day this nation will rise up and live out the true meaning of its creed: We hold these truths to be self-evident, that all men are created equal."*



# I also have a dream!

## That one day:

- Agriculture will be one of the most healthful industries
- Farmer Health will be fundamental to sustainability
- Health will be a value-added farm product
- Health professionals will be knowledgeable in and practice agricultural medicine
- Health professionals will work collaboratively to “keep farmers, their families and workers alive and well in agriculture”



# Objectives

- 5 Key Ideas of how to “open the gate” to this dream
- Who I am and where I am from
- Agriculture and Australia connections
- History and overview of Agricultural Medicine in Iowa
- Sustainability of Agriculture in our Global Economy
- A 2040 vision for sustaining the human (health) capital in agriculture
  - Focus on Sustainability of Human resources in Agriculture
  - Agricultural Medicine Training



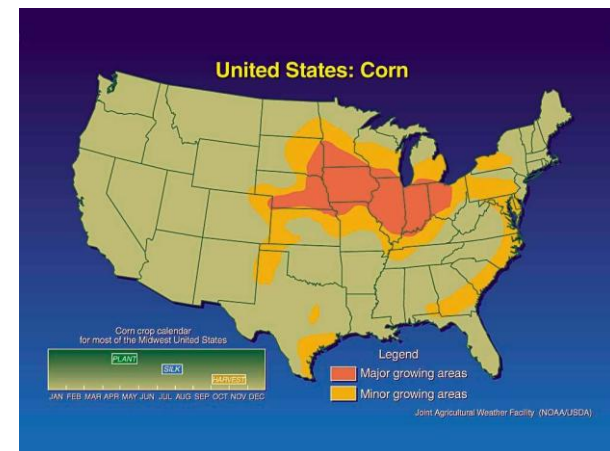
# Iowa: Where I am from

Kelley Donham DVM, DACVPM

Professor and Director Iowa's Center for Agricultural Safety and Health

College of Public Health University of Iowa

- Iowa is: “Beautiful Land in Sac-Fox language”
- 3 million people
- 92,000 farms , 276,000 farmers/family and farm workers
- 2/3 land size of Victoria
- # 1 Pig production
- #1 Corn
- # 1 Soy beans
- # 1 Eggs
- # 8 Beef
- # 12 Dairy
- # 3 Wind energy
- #1 Want-to-be in Biofuels



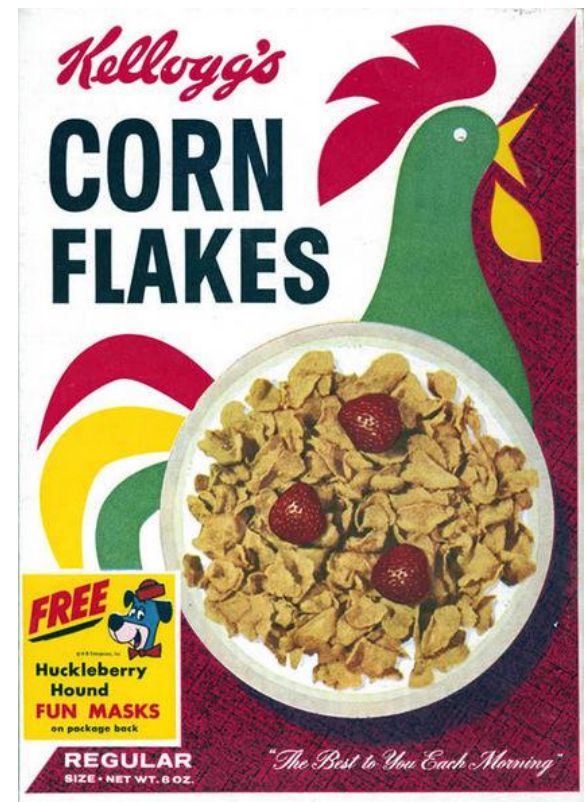
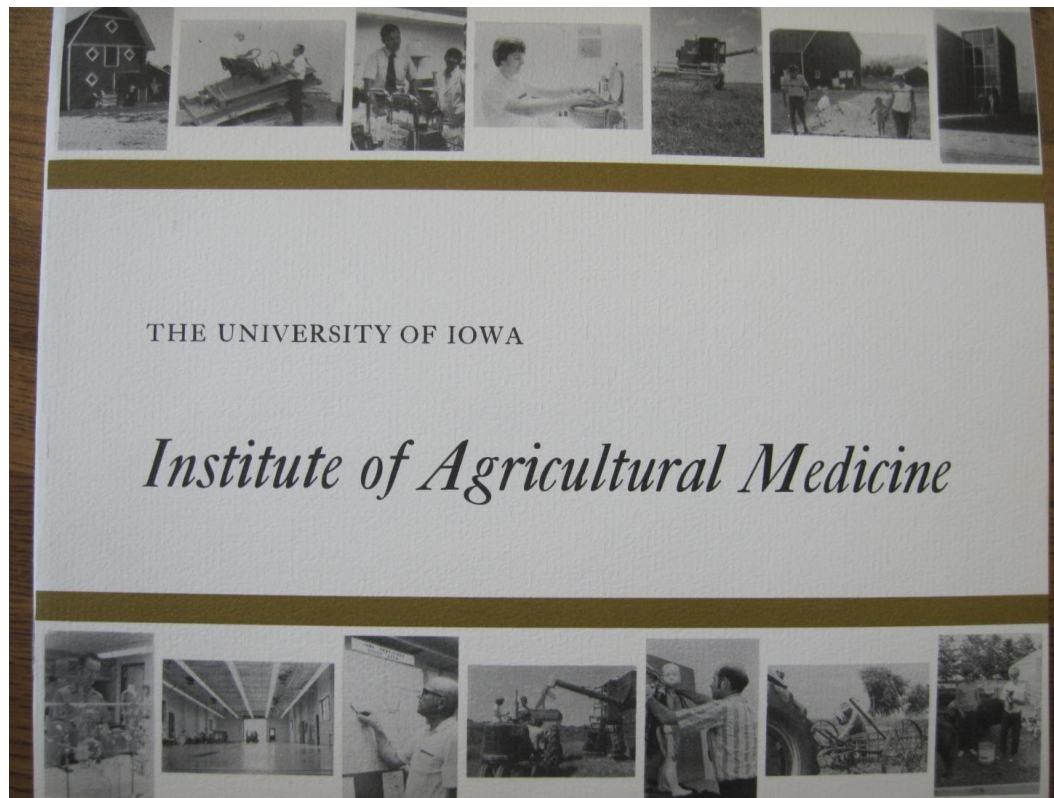
# Combining Agricultural Medicine, Farming, veterinary medicine, conservation, and bird dogs



**1955:** The Beginnings of Agricultural Medicine at the University of Iowa

**1974:** Beginning of Agricultural Medicine Education

**1990:** Iowa's Center for Agricultural Safety and Health



# Australian-U.S. Connections



The University of Iowa ■ Iowa State University  
Iowa Department of Agriculture and Land Stewardship  
Iowa Department of Health ■ Non-profits for Farm Health



# We Both Have Agriculture and its People in our hearts



# Back to the Dream: The Keys to Opening the Gate

- That one day agriculture will be one of the most healthful industries
- Farmer Health is a key to sustainability
- Education and Practice of Agricultural Medicine
- Health professions working collaborative in the community
- Health and Safety a value added product



Farmer and Farm Worker Health be will be  
a fundamental to sustainable agriculture



# Key # 1: Farmer and Farm Worker Health be will be a fundamental to sustainable agriculture

- Managing agricultural and economic policy to assist farmer health at the global and plant level
- There should be farmer health impact studies of farm and economic policies by Farm Health Experts

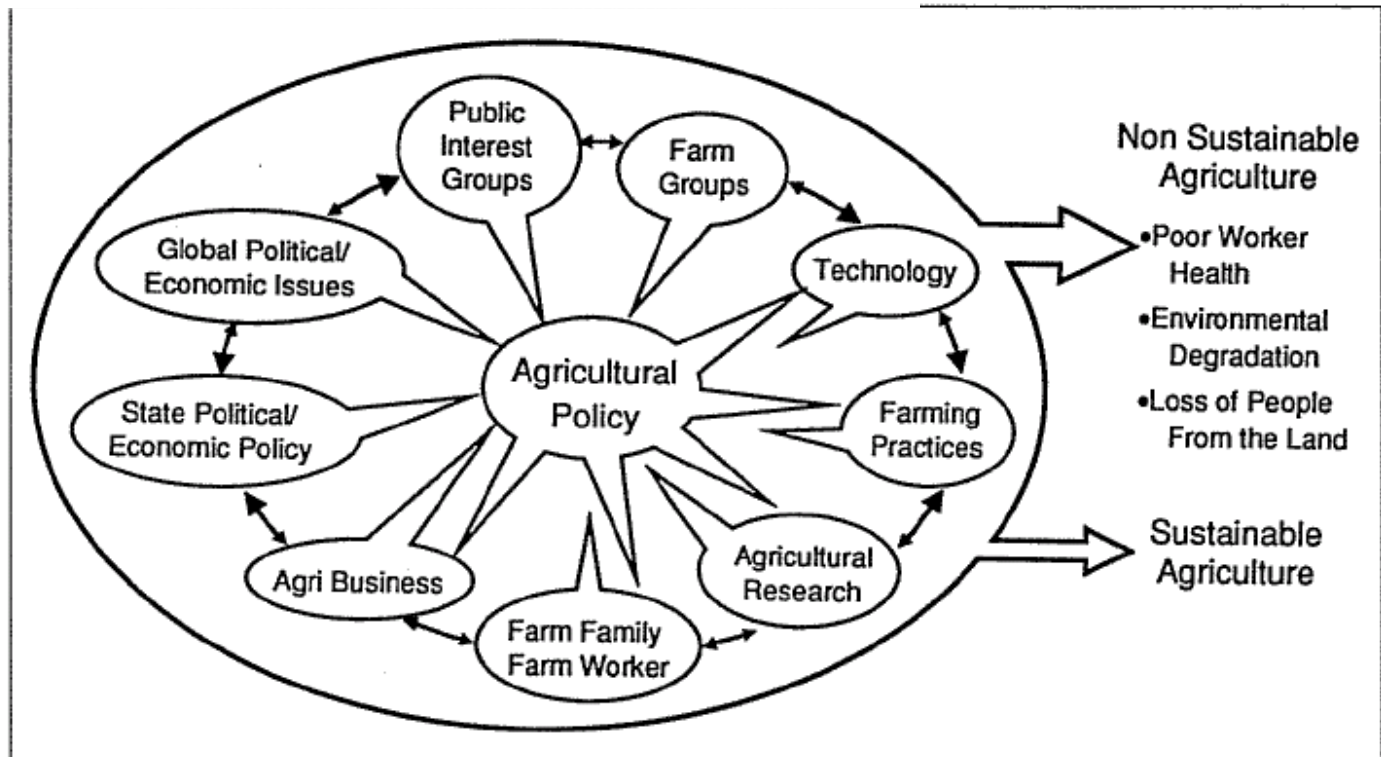


JAVMA 1993

Globalization has effected  
sustainability of Agriculture

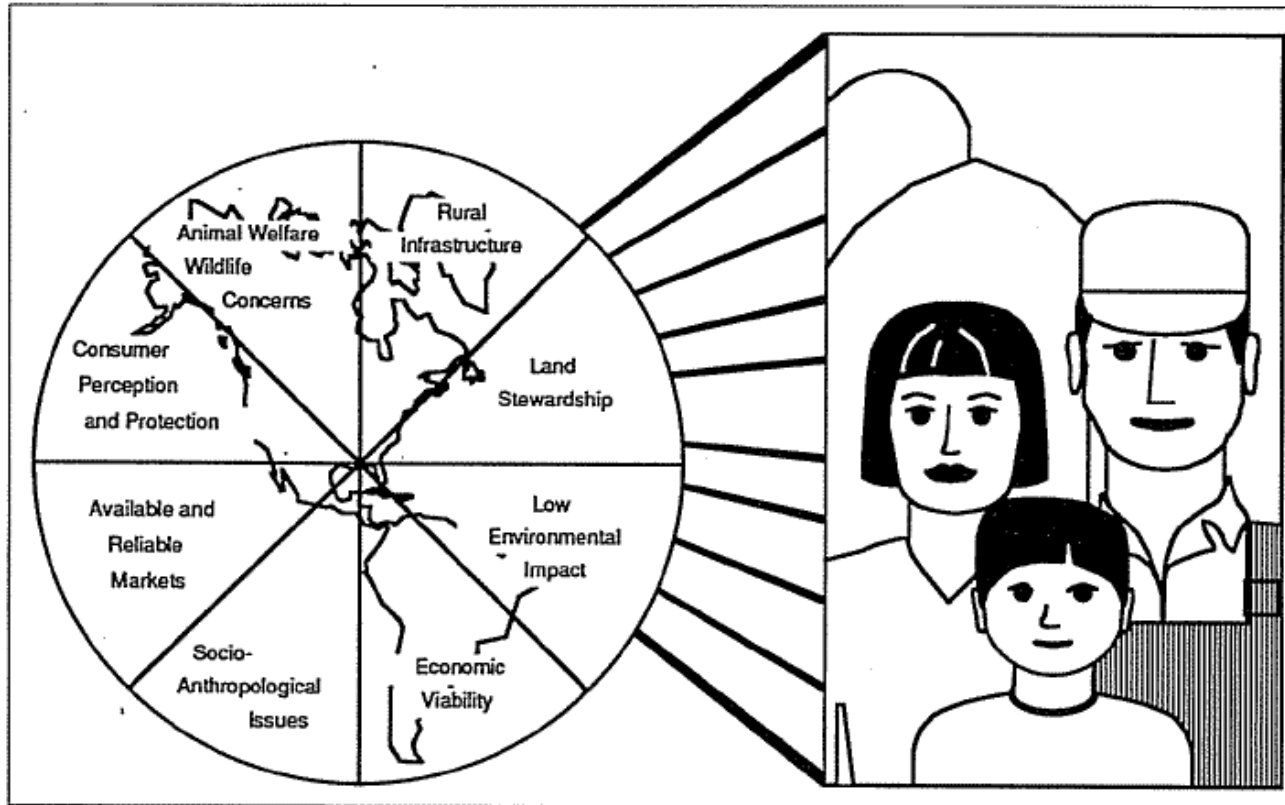
## **Relationships of agricultural and economic policy to the health of farm families, livestock, and the environment**

Kelley J. Donham, DVM, and Kendall M. Thu, PhD



*Figure 3—Diagram of the macrosystem driving production agriculture.*

The Health of the producer and his/her family is the most important element, but left out of the global formula for sustainability



*Figure 1—Illustration of important elements of a sustainable agriculture in 2040.*

# Farmers are more and more a precious resource

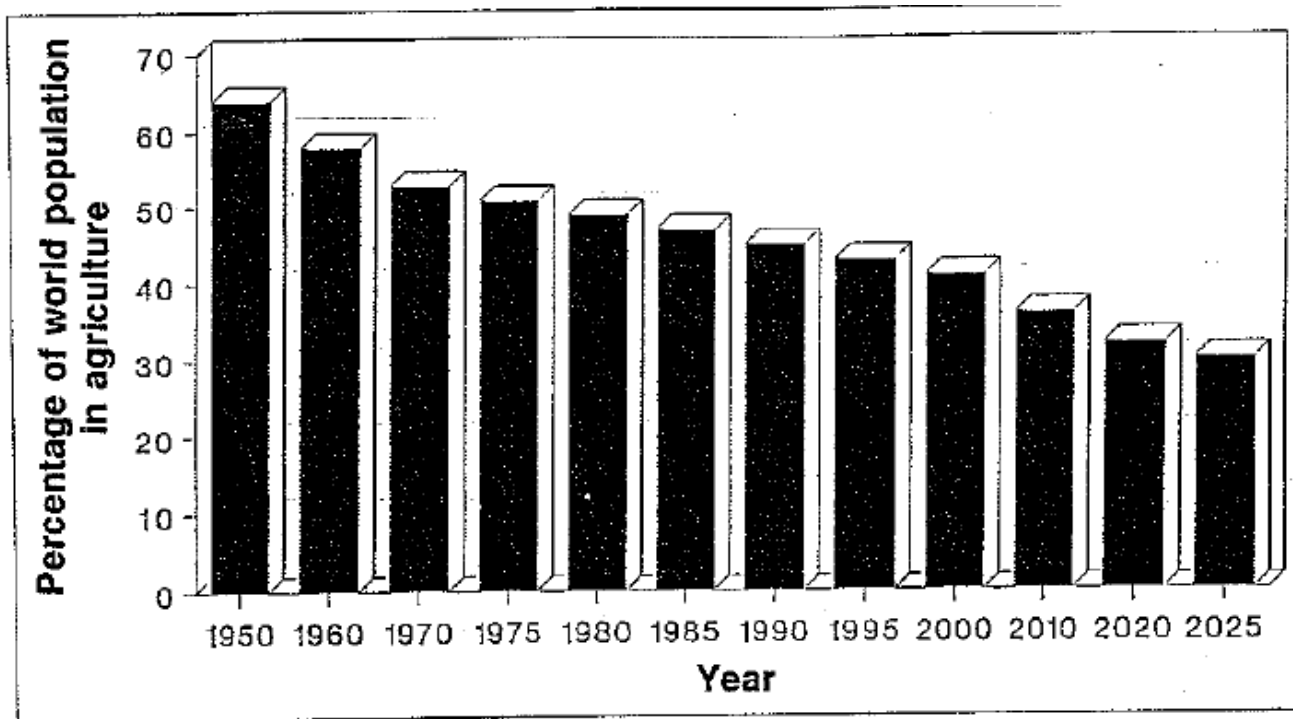


Figure 2—Percentage of world population engaged in agriculture from 1950 to 2025. Source: UN, ILO, and FAO report, 1988. Note: 1990 through 2025 are projections.

# Policy at the Plant level: Worker (Human) Capital

- **The Triple Bottom Line**
  - **Andrew Savitz – Sustainable businesses**
- Profit –People-Planet
- People & Profit Linked
- <http://getsustainable.net/triple-bottom-line.html>
- Susan Brumby – Sustainable Farm Families
  - **Need to reduce:**
    - Health insurance cost
    - Workers' comp cost
    - Disability cost
    - Sick leave
    - OSHA Concerns
    - Liability risks
  - **Need to Maintain:**
    - Employee retention
    - Worker morale



## Key # 2: Education in Agricultural Medicine for a broad range of Health Professions/systems

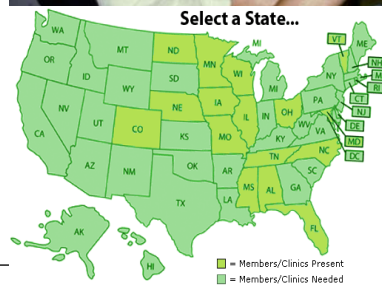
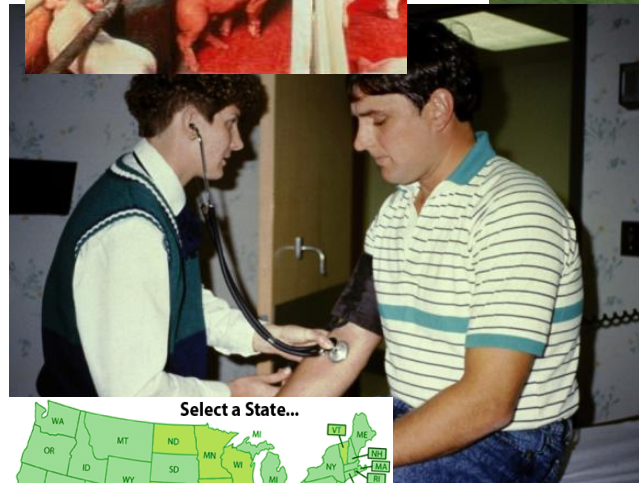


- Connecting the Environment to the Producer
  - Understanding production agriculture
  - Understanding the Culture
  - Having the heart and passion for agriculture
- Understanding what it takes to create safety on farms
- Developing a system to Deliver the services

# Agricultural Medicine Education: History at Iowa

## Connecting the Environment to Health

- **1974: Agricultural Medicine Training**
- **1986: Agricultural Medicine Core course**
- **1987: AgriSafe**
- **2006 – MS, PhD, and Certificate Programs**
- **Continuing Education**
- **2006 Building Capacity**



# Principles of Agricultural Medicine Education

- Definition of Agricultural Medicine: “*A specialty of occupational and environmental health that includes an understanding of production agriculture, hazard recognition, diagnosis, treatment, and prevention*”
- Connecting the Environment to the Patient
- Multidisciplinary
- Cultural sensitivity and competency
- Interventions theory and practice for Agriculture

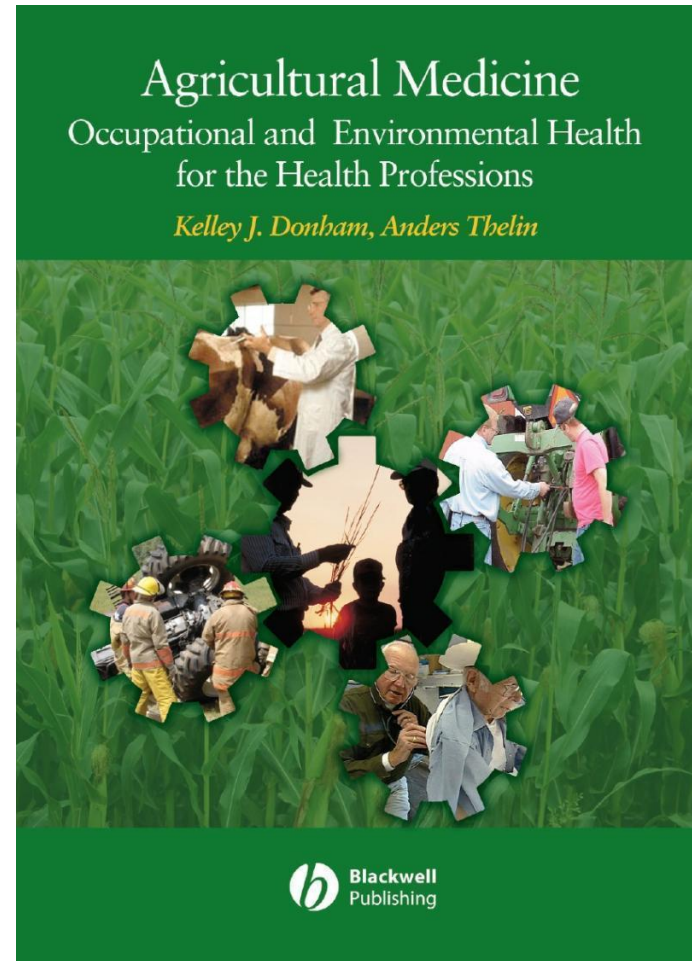
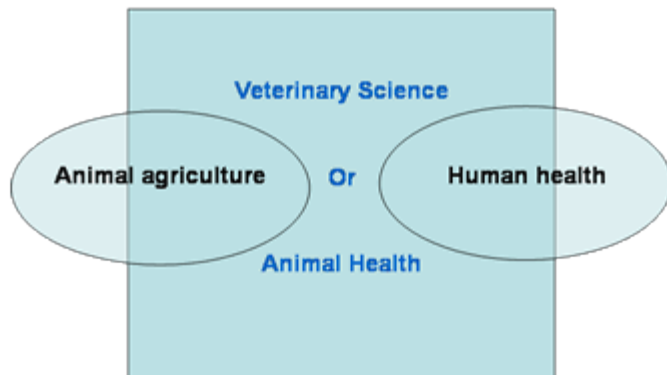
# Connecting the environment to the patient

- The agricultural medicine professional must “see through” the patient to his/her environment that brought him/her to you
- Scott was misdiagnosed 3 times before a provider connected his illness to his environment



# Agricultural Medicine is Multidisciplinary

## One Medicine Collaboration



# Agricultural medicine teaches cultural sensitivity and competency

- Attachment to the land and the work

**The Agrarian Imperative:** *“To farmers, the land is everything.”*

(Mike Rosmann Agriwellness)

- Work is first, their purpose in life

**A fraternity of hard work**

*“Farmers live to work, not work to live”*

(Sydney, AU cab driver )

- Feeling of a Special Calling – Produce Food and Fiber for the rest of us
- Proud, Independent,
- Acceptance by them is by being humble, and having knowledge of farm work “been there, done that”

*“If someone is going to tell me how to be safe on my farm, they better first come and walk 10 miles in my shoes”.*

(Myron Zumbach, Coggen, IA)

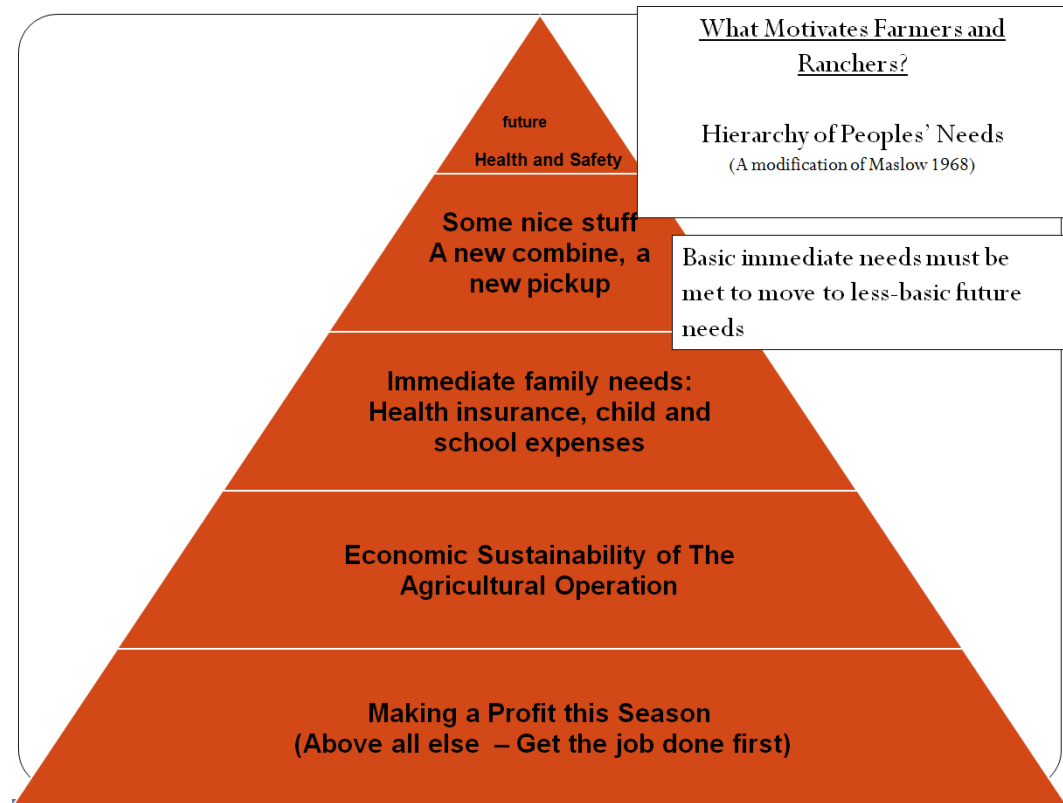


# Key # 3



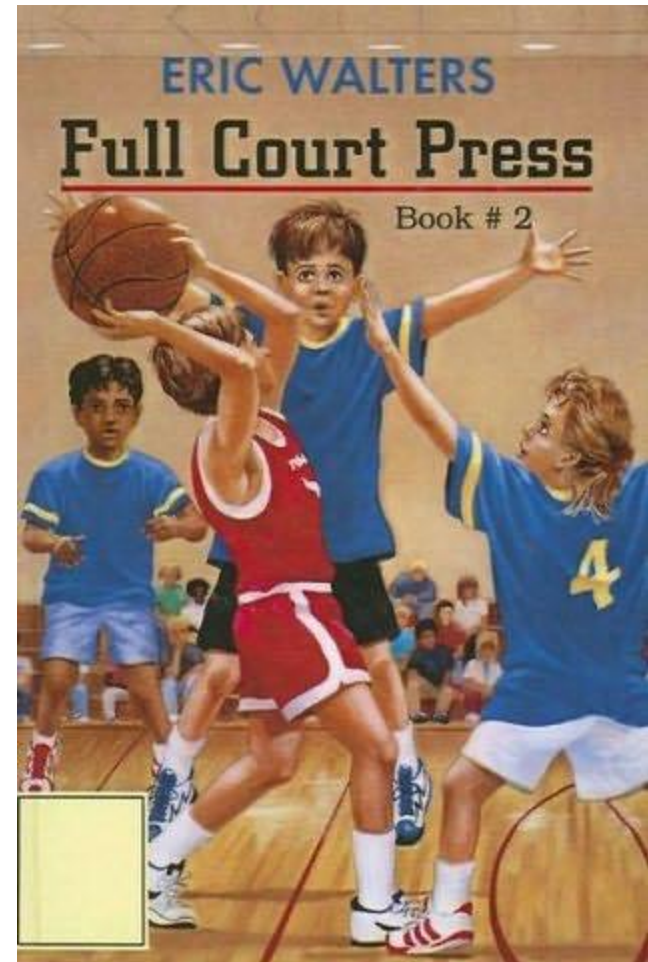
## Effective Intervention Theory and practice for agriculture

- Most successful
  - Engineering
  - Regulation
  - Moving Health to the base of “their pyramid”
- Least Successful — Awareness level Education
- Multiple Modalities most successful



# Multimodalities of intervention are most effective

- It takes dedication to a full court press to make a difference



# Example of Successful Interventions

- Research and theory based
- Practical
- Critical Evaluation
- A sustainable Delivery system
- The I-CASH Iowa Model of Multiple Interventions

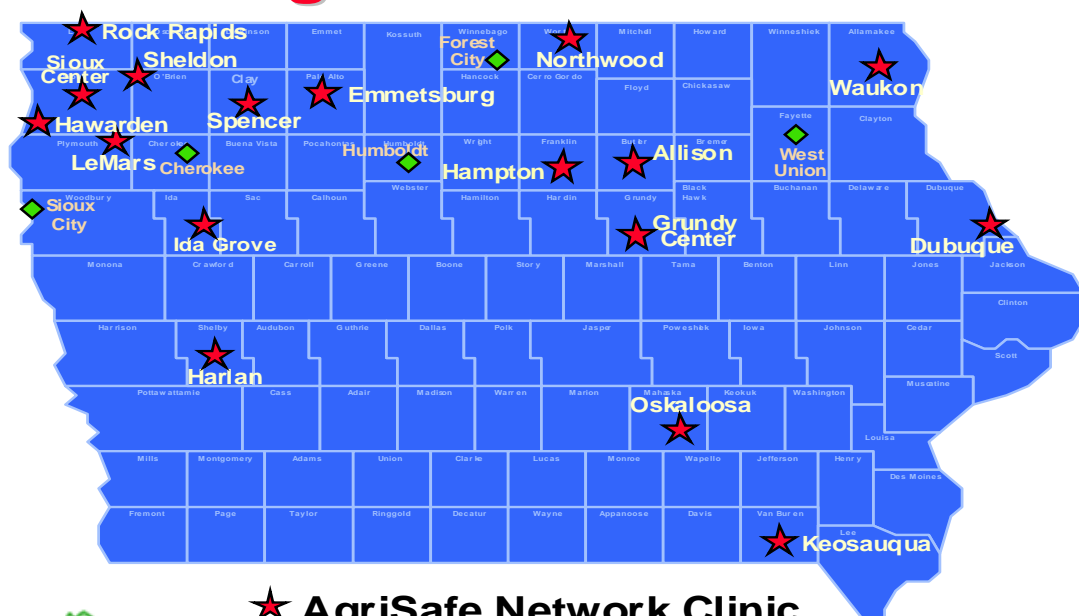
<http://www.public-health.uiowa.edu/icash/>

- AgriSafe Network
- Certified Safe Farm

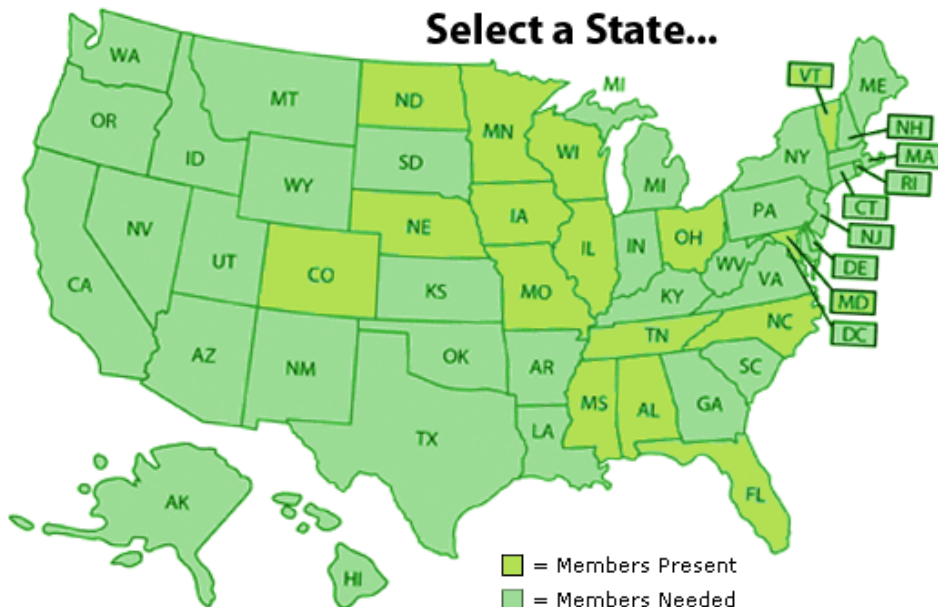
# AgriSafe Since 1986



## AgriSafe Network



Select a State...



★ AgriSafe Network Clinic

◆ Potential Network Clinic



# Certified Safe Farm ☒



# The Components of Certified Safe Farms

## Combines

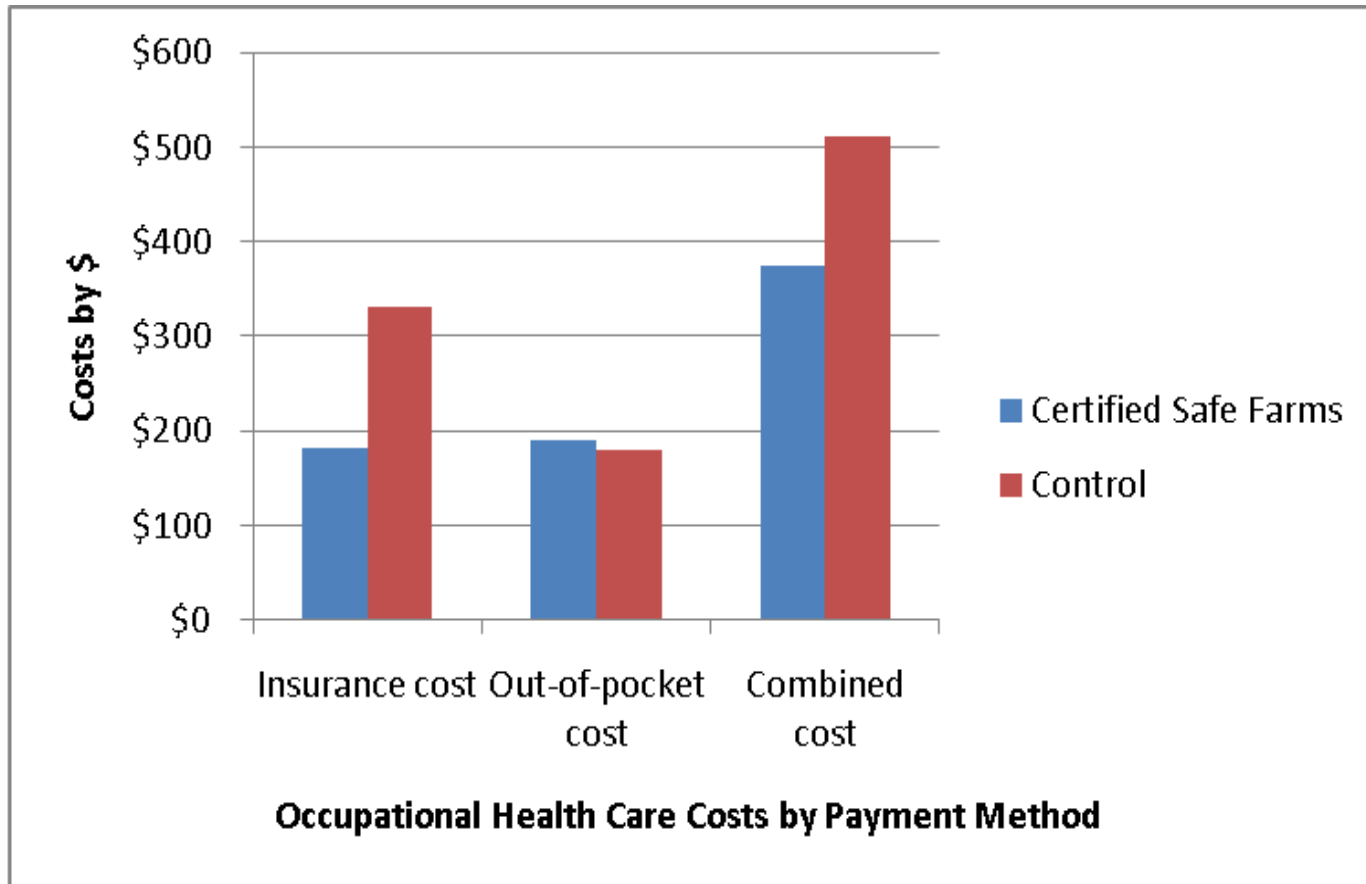
- Trained Providers
- Occupational Health

## Screening

- Wellness Screening
- On Farm Audits
- Set Standards
- Incentive Driven
- Checklist managed



# Savings in Health Care Costs



- **47%** (\$183/yr vs. \$332/yr) reduction in costs
- **Overall cost savings (insurance and out of pocket) = 27%** (\$374/yr vs. \$512/yr).

# Health care costs are related to on-farm safety review scores:

## Safer farms = lower health care costs

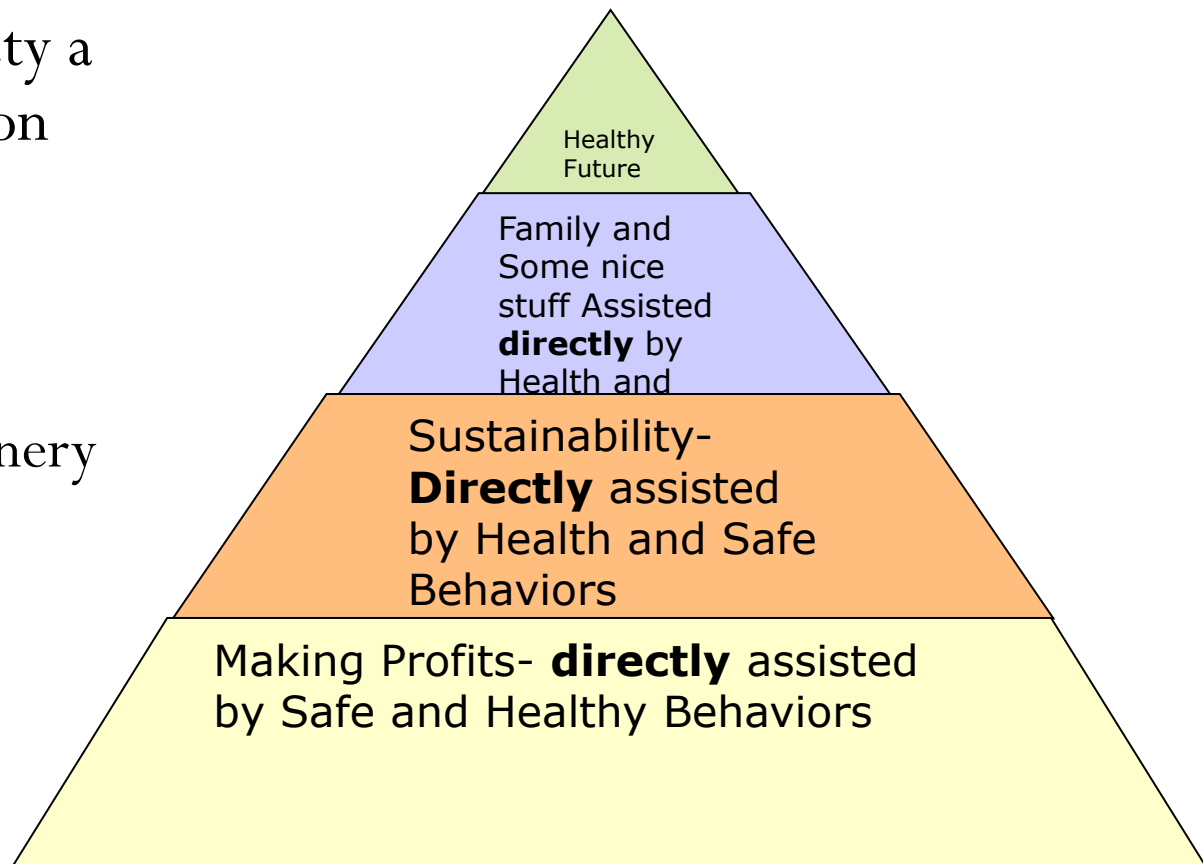


## Key # 4



# Making Health and Safety More Basic?

- Make Health and Safety a value added product on the farm
- **Incentives**
  - Insurances
  - Chemical and Machinery dealers
  - Lenders
  - Support from labor regulators



# AGRICULTURAL MEDICINE:

- Kelley Donham MS, DVM, DACVPM
- LaMar Grafft MS
- Kay Mohling MA
- Aaron Kline BA
- Eileen Fisher

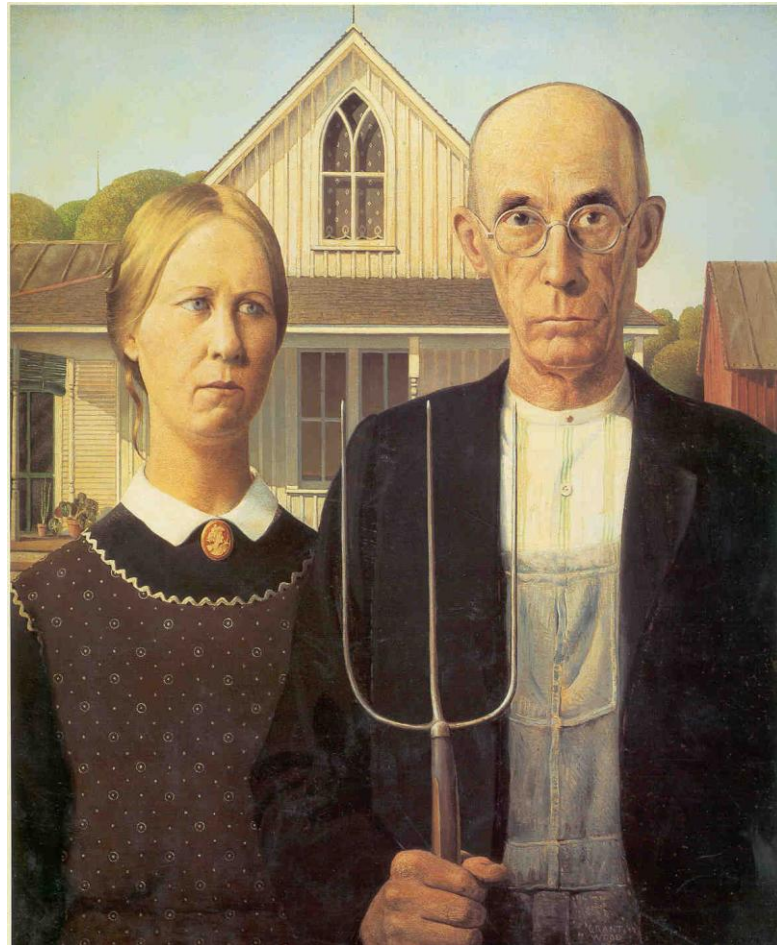
## Kelley J. Donham, Anders Thelin



# Back to the dream!

## That one day:

- Agriculture one of the most healthful industries
- Farmer and worker health fundamental to sustainability
- Health a value-added product
- Health professionals knowledgeable in agricultural medicine
- All Health professionals work collaboratively to “keep farmers, their families and workers alive and well in agriculture”





## A prescription to reach the dream of sustainable Health of the Agricultural Producer: Summing the 5 Keys

1. Goal: Injuries and illnesses no greater than that of all the average for all industries (eg.  $< 3/100,000$ )
2. Sustainable health of the producer is an integrated element of sustainable agricultural policy
  - Institute a process whereby producer health impacts agricultural policies
  - Institute strong international collaborations in Agricultural Medicine to affect policy
  - Include Environmental and worker Health standards in international trade agreements
3. Make Agricultural Health and Safety a value added product on the farm
  - Lower insurance rates for safe farms
  - Agribusiness incentives
  - Tax credits or other government incentives
  - Freedom from OSHA inspections if “Certified Safe”
4. Build a system of multi-disciplined Health and safety Professionals trained in agricultural medicine
  - Include agricultural medicine in the practice armament of rural health care delivery system.
  - Relationships between the environmental exposures for farming are well understood by producers, health care providers, and policy makers
5. Connect the Environmental exposures into research, teaching and outreach
6. Develop and evaluate multidiscipline intervention programs based on tested theory , cultural relevancy , and prior results

What are we here for again?

Sustainable Farm Families = Sustainable Agriculture

*“Helping to Keep Farm Families and workers Alive and Well”*



# Finally

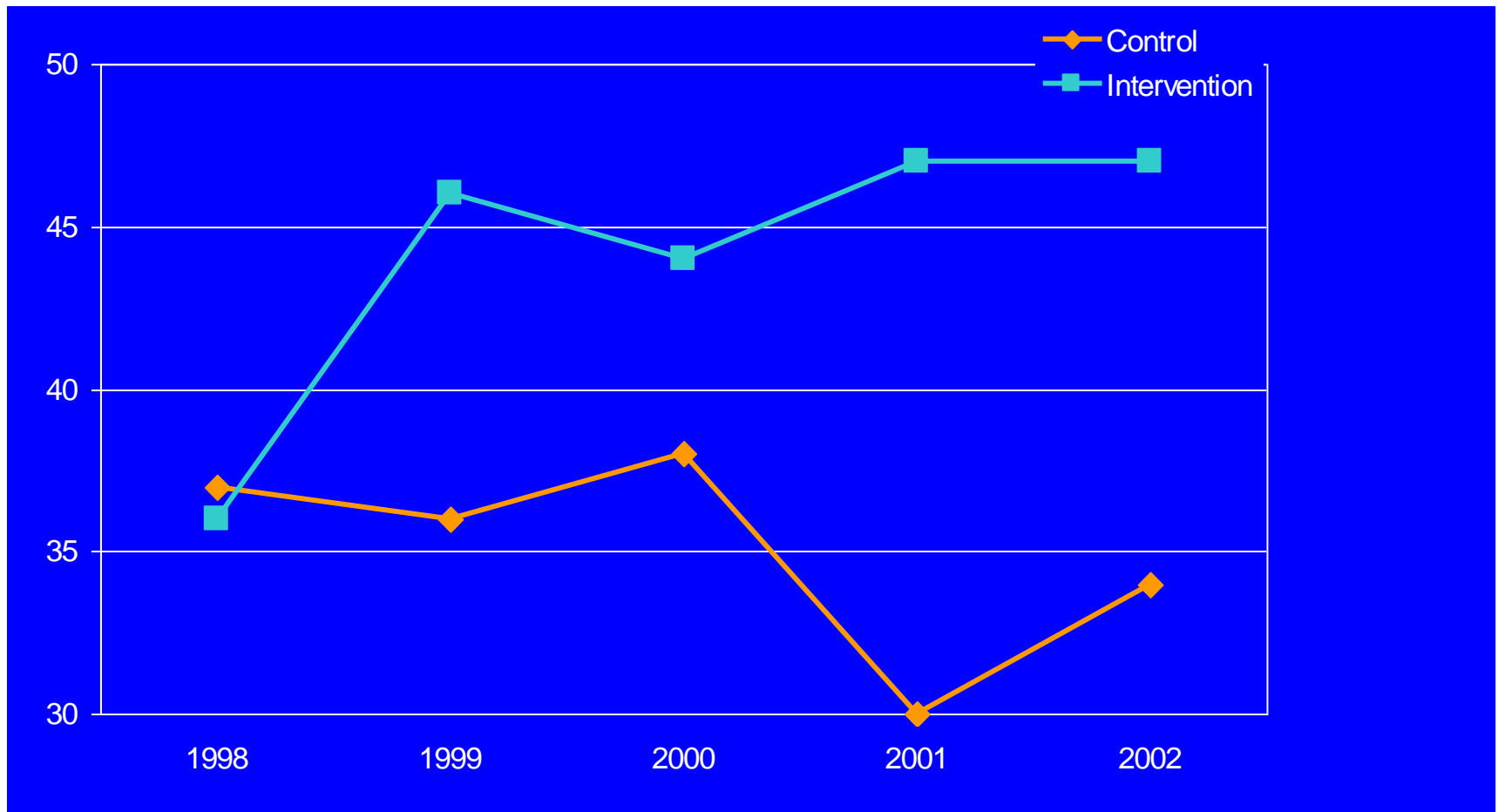
- “Achieving agricultural health is like driving a railroad spike with a tack hammer. If you just keep pounding, it will eventually move” (Sverker Hoglund)
- Thanks for having me, thanks for all you do and all you will do!!

Kelley



The End

# Percent of Farmers Who Wear PPE (>75% of time) when Working in Grain Dust



Overall difference in use of respiratory protection is greater in intervention farmers  $P < 0.003$

# The Iowa Model of Multiple Modes of Intervention

*“education alone is marginally effective. To work, it must include multiple modalities”*



*Promoting safe work behavior*

*Knowledge + Attitude = Behavior*

- ⊕ Personalization
  - ▣ Knowledge
  - ▣ Health
  - ▣ Environment

- ⊕ Ownership

- ⊕ Social Support

- ▣ Family
- ▣ Peers
- ▣ Community

- ⊕ Repetition

Evaluation  
Modification  
Dissemination

- ⊕ Technical Support

- ▣ IH Services
- ▣ Equipment
- ▣ Follow-up

- ⊕ Goals

- ⊕ Incentives

- ⊕ Regulation

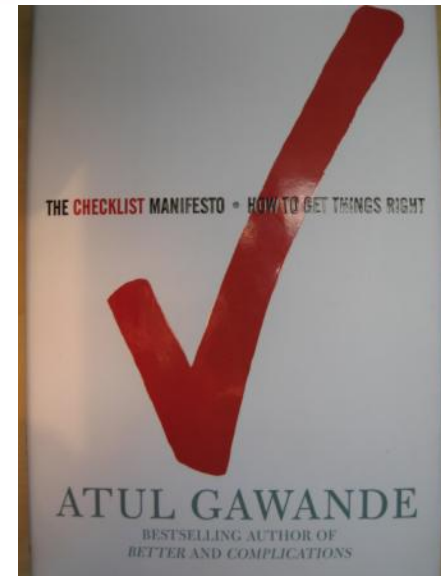
- ⊕ Practical

- ▣ Tasks
- ▣ Socio-economic

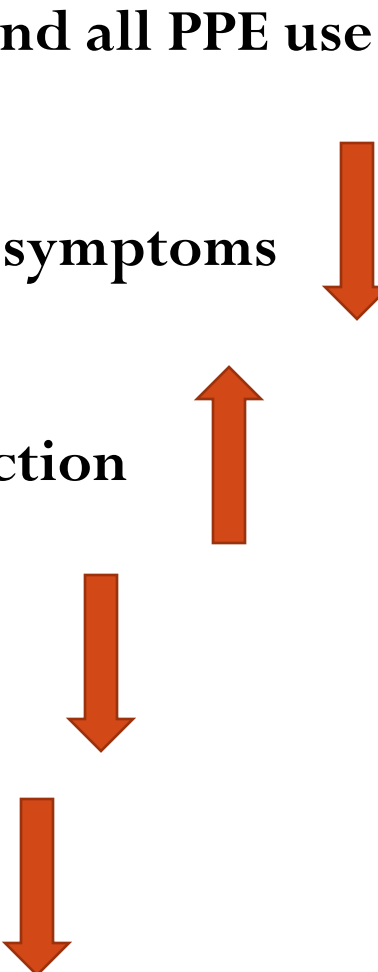
# The Checklist to Safety



- Has reduced air craft pilot error and mechanical error significantly
- Assumes that humans are imperfect and this helps to cover them.



# Summary of Health and Safety Changes

- CSF respirator and all PPE use
  - CSF respiratory symptoms
  - Pulmonary Function
  - Serious Injuries
  - Medical costs
- 
- ```
graph TD; A[• CSF respirator and all PPE use] --> B[• CSF respiratory symptoms]; B --> C[• Pulmonary Function]; C --> D[• Serious Injuries]; D --> E[• Medical costs]
```

# Sustainable Agriculture

*“Helping to Keep Farm Families Alive and Well”*



# Health Professions/systems Keystones to achieving sustainable health

- Connecting the Environment to the Producer
  - Understanding production agriculture
  - Understanding the Culture
  - Having the heart and passion for agriculture
- Understanding what it takes to create safety on farms
- Developing a system to Deliver the services

# The Culture of Agriculture

- Feeling of a Special Calling – Produce Food and Fiber for the rest of us
- Attachment to the land and the work
- Work is first, their purpose in life
- A fraternity of hard work
- Proud, Independent,
- Acceptance is by being humble, and having knowledge of farm work “*been there, done that*”

# The Agrarian Imperative

“Genetically programmed” drives farmers to:

- Hang onto their land at all costs.
- Instills farmers to work incredibly hard, to endure unusual pain and hardship and to take uncommon risks.
- **To farmers, “the land is everything.”**

Mike Rosmann PhD, Director, Agriwellness

