

AGRICULTURAL MEDICINE: THE CORE COURSE NEBRASKA JULY 18 – 21, 2023

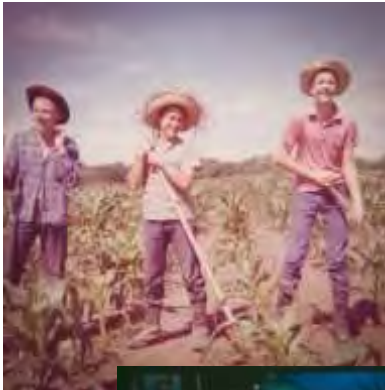
Introduction to the core course:

- **Street Cred**
- **History and Importance of Agriculture**
- **Background to the field of Agricultural Health and safety**
- **Role of Extension**
- **History of Education in the field of Ag Med**
- **The Institute of Ag Med.**
- **Definition & Principles of Agricultural Medicine**
- **Agricultural Medicine in the world**
- **General Health of the Agricultural Population**
- **Occupational Health of the Agricultural Population**

My Field Cred My Blood Runs Green



June 1955



Present –

Professor /Farmer



March 1958



**1971 – 1973 – Practicing
Veterinarian**



**1955 – The Institute of Agricultural
Medicine (IAM)
1964 – 1971 – Grad Student/Researcher
1973 – 2013 – Professor**



Circa 1960



- **Loading out Manure**

The History of Agriculture – from ancient to present times.



Before Agriculture - Hunter Gatherers

70,000 BC – 13,000 BC

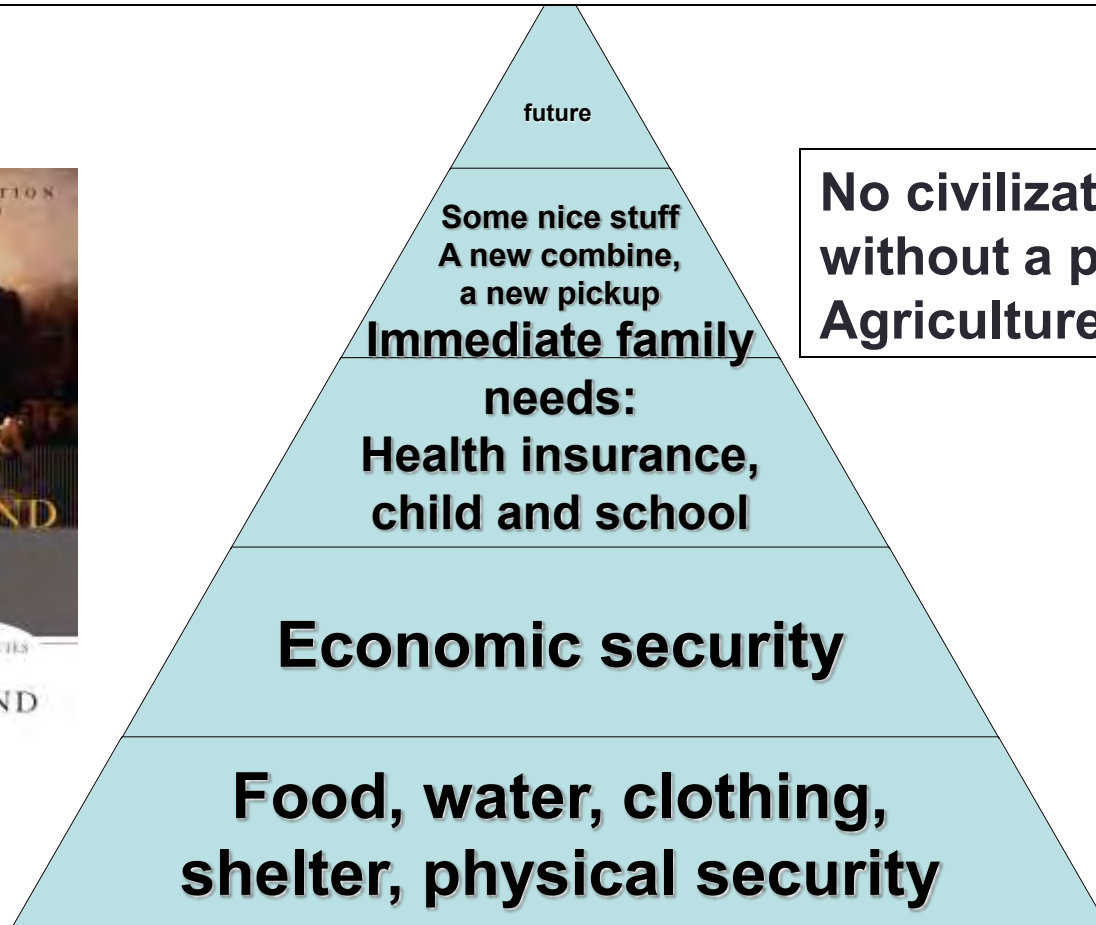
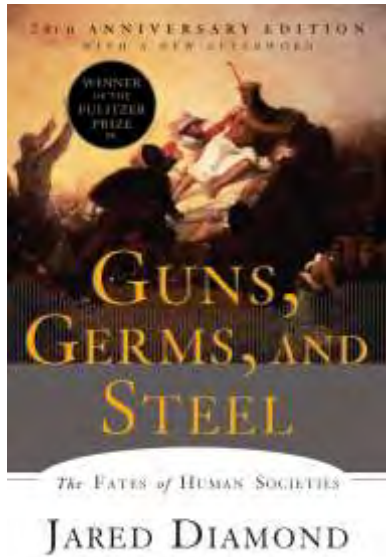


Agriculture in the Beginning – Circa 11,000 BC – The Fertile Crescent



THE IMPORTANCE OF AGRICULTURE TO CIVILIZATION

Hierarchy of Peoples' Needs (A modification of Maslow 1968)

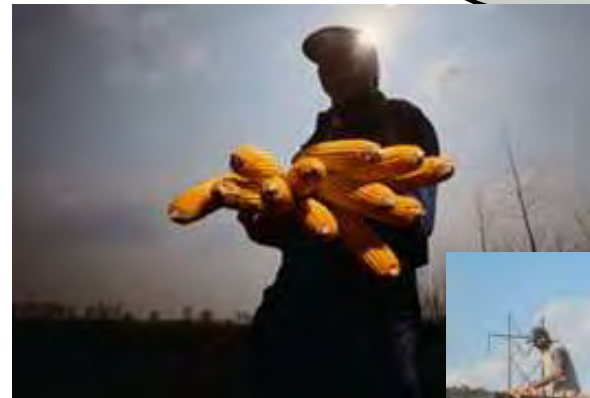
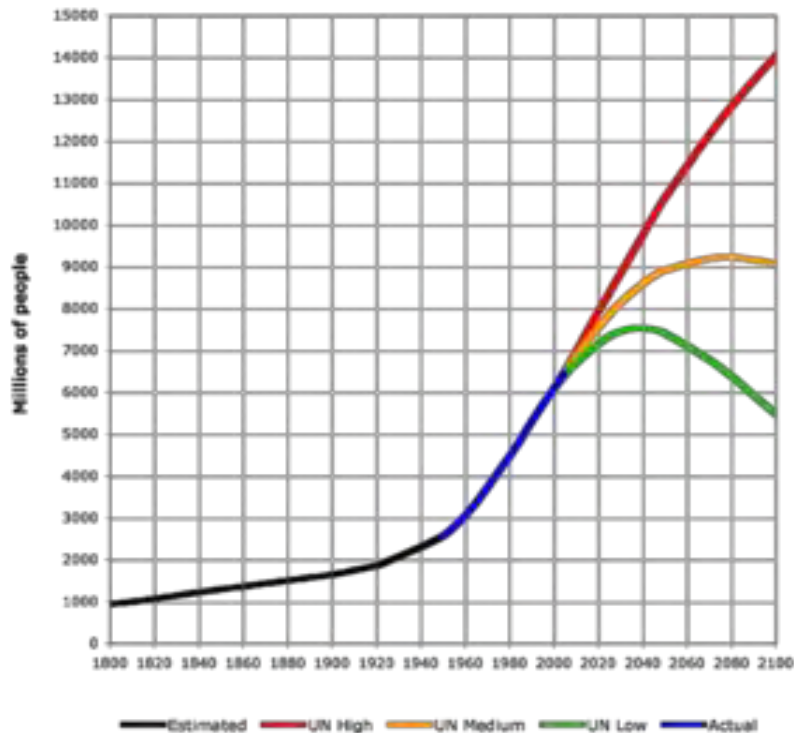


**No civilization has thrived
without a productive
Agriculture**

We must strive for balance between the Ag economy, its people, and the environment.

Farmers Health and Safety are Critical to Sustainability of Agriculture

- Food security
- By 2050 - the world of 6 billion – going to 9 billion



Development of the Field of Agricultural Health and Safety

<https://pressbooks.uiowa.edu/agriculturalmedicinehistory/>

- **1940's** – Agricultural Safety in Extension, Safety Council, Farm Bureau
- **1955:** The Entre' of Public Health, Medicine, and Nursing into Ag Health and Safety.
 - The Institute of Ag Medicine.
 - First in the world
- **1974:** Beginning of Agricultural Medicine Education
 - Training of Medical Students, 1987 – Nurses, 2006 Consensus process,
 - Certificate, MS, and PhD at Iowa
- **1987:** Founding of the AgriSafe Network and this course we have today
- **1990:** Iowa's Center for Agricultural Health and Safety (I-CASH)
- **1985 – 1990: Agriculture at Risk Policy Process.**
- **1990: Surgeon Generals Conference on Ag Health**
- **1990:** NIOSH Ag Centers (10 centers today)
- **1990:** Great Plains Center for Agricultural Health
- **2010 – Central States Center for Ag Safety and Health**



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The Institute of Agricultural Medicine: An Iowa Idea – Worldwide Impact

<https://pressbooks.uiowa.edu/agriculturalmedicinehistory/>



Kelley J. Donham and William McCulloch

A memoir and history of the Institute of Agricultural Medicine at the University of Iowa, emphasizing its role in the development of the study and practice of occupational and environmental health and medicine for farmers their families and workers.

The Iowa – Nebraska Connection



Iowa
City



Institute of Agriculture Medicine 1955



The
University of
Iowa



College of Public Health

DEFINITIONS

What is Agricultural Medicine?

Rural Health
Development of
accessible and
appropriate health
care services for
all rural residents

Agricultural Medicine
A multidiscipline field of study
focused on occupational and
environmental health and
safety of agricultural
populations

Agromedicine
A delivery process
combining Extension
and Family medicine

**Agricultural Safety
and Health (ASH)**
• **A more generic term**
Combining the above.

● 1) The Federal Funded (NIOSH) Ag Centers (2020)

★ 2) State Funded (Iowa, Vermont, N. Carolina)

NIOSH Centers for Agricultural Safety and Health



- | | |
|------------------------------------|--|
| 1. Bassett Healthcare | 6. University of Iowa |
| 2. Colorado State University | 7. University of Kentucky |
| 3. National Farm Medicine Center | 8. University of Minnesota |
| 4. University of California, Davis | 9. University of Nebraska Medical Center |
| 5. University of Florida | 10. University of Texas Health Science Center, Tyler |
| | 11. University of Washington |

3) Cooperative Extension

Ag Safety and Health
AG SAFETY AND HEALTH

<https://ag-safety.extension.org/>



United States Department of Agriculture
National Institute of Food and Agriculture



Non-profit & Professional organizations For Ag Health and Safety

International Society for Agricultural Safety and Health
<https://isash.org/>

Agricultural Safety and Health Council of America
(<http://ashca.org/>)



www.agrisafe.org



Aghealthandsafety.com



wirurahealth.org



<https://www.progressiveag.org/>

Foreign Ag Health and Safety professional organizations

Foreign Activities

Canadian Center for Environmental and Agricultural Health

Australia

Victoria -- National Center for Farmers Health -

New South Wales – Ag Health Australia

Queensland – Work Safe – Agriculture

Norway

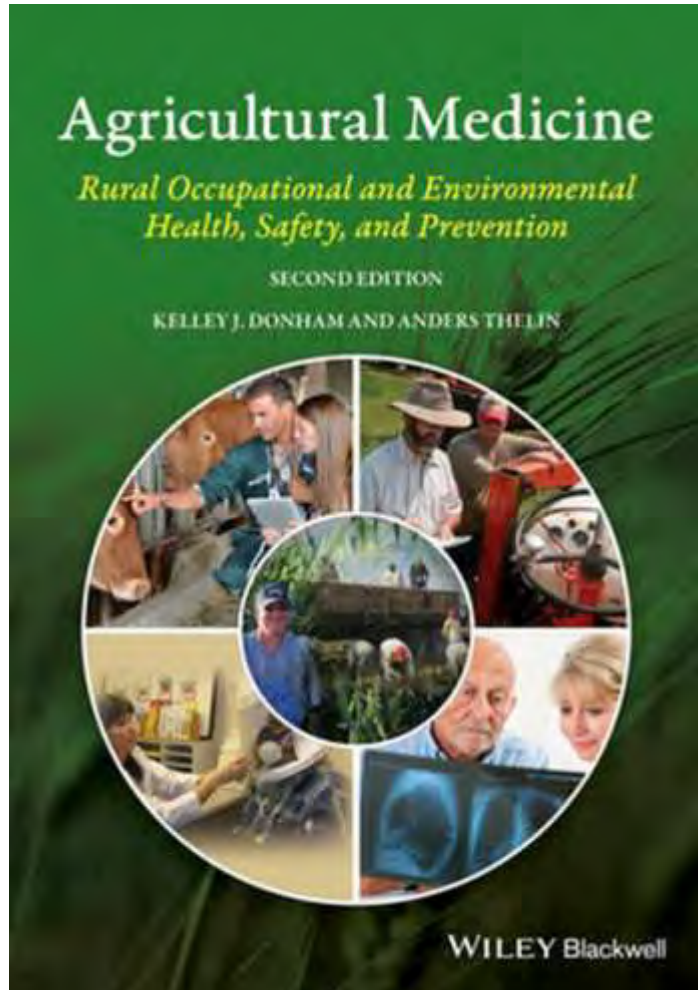
Sweden

Finland

Norway

Argentine: Federation of Farmers. Marcos Grigioni.

Educating Health and Safety Professionals Agricultural Medicine – The Core Course



1974: beginning training of medical Students
1988: Beginning training nurses.
2006: Beginning the One Health Core Course

References:

Donham and Thelin, Agricultural Medicine, 2006 1st ed.,
2016, 2nd ed.

Murphy 1993, Safety and Health for Production
Agriculture

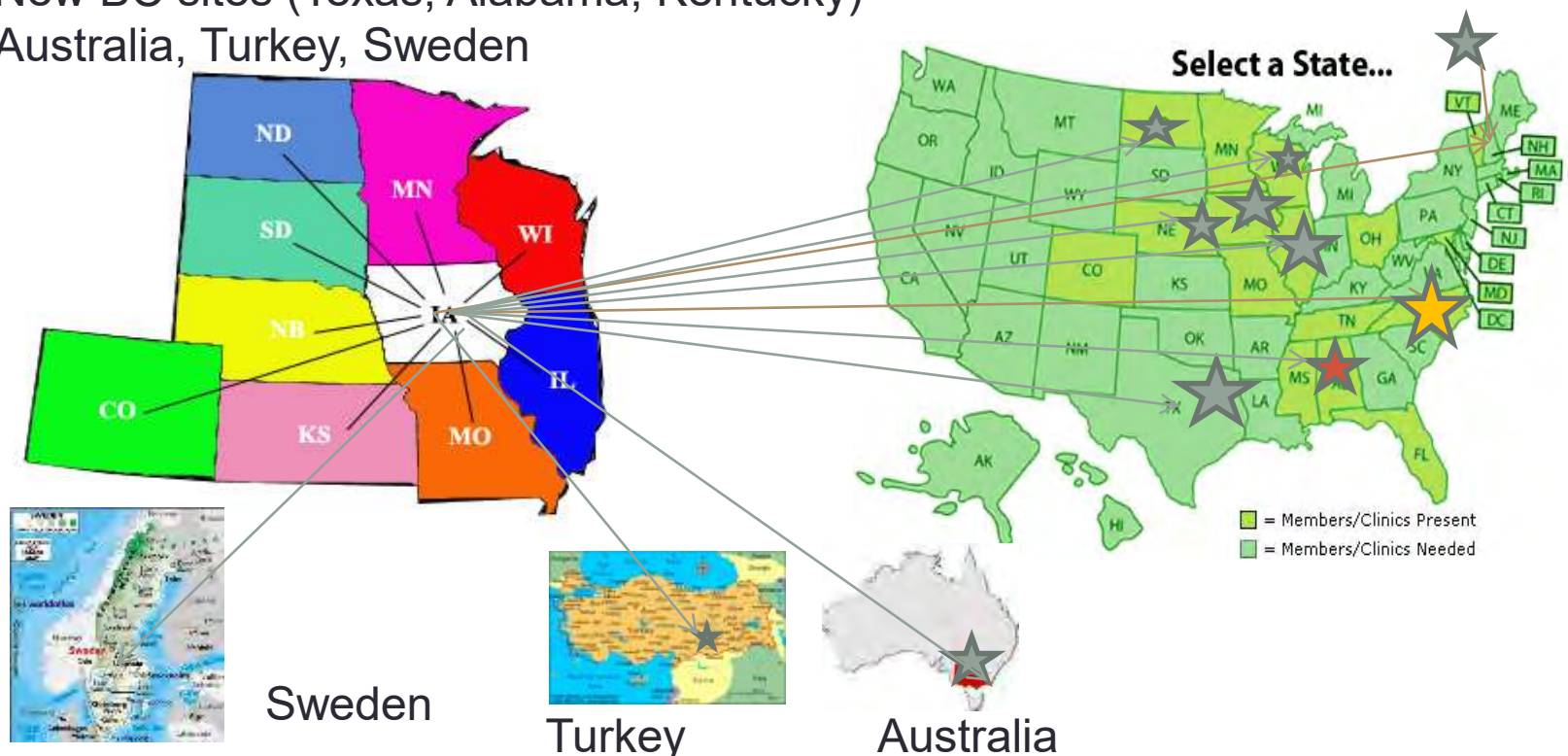
Murphy, 2003, Looking beneath the surface of
Agricultural Safety and Health

Lessinger, 2006, Agricultural Medicine; a practical
approach

Building Capacity in Agricultural Medicine

2007 – 2020 \ University of Iowa

1. States receiving training (includes Vermont and North Carolina)
- New State-Based AgriSafe Networks resulting from the Program
3. Number of health and safety professionals trained = 850
4. Number of new AgriSafe Providers = 26
5. New BC sites (Texas, Alabama, Kentucky)
6. Australia, Turkey, Sweden



Connecting the environment to the patient

- “see through” the patient to his/her environment.
- Know their Occupational environment
- Misdiagnosis on lack of environment



Agricultural medicine teaches cultural sensitivity and competency

- Attachment to the land and the work
“To farmers, the land is everything.”
(Mike Rosmann Agriwellness)
- **Work is first, their purpose in life**
“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, accept risk**
- **Acceptance** by them is by being **humble,** and having **knowledge & respect of farm work**



What is the Relative Health Status of the Agricultural Population?

< Mortality

- Heart attack
- Stroke
- Overall cancers
- Reasons?



But --- is the health of farmers slipping?

Health Indicators of a Cohort of Midwest Farmers

(J. AgroMedicine. Donham, Meppelink, Rohlman and Kelly)

Iowa Farmers N = 438	National Average
BMI > 30 = 80.1%	66%
Hypertension = 15.9%	33.6%
High Cholesterol = 38.6%	37.1%

But -- The 900 lb gorilla in farmers' health is their occupational health

SUCCESSFUL
FARMING...

Farmlife can be hazardous
to your health...



The Occupational Safety Risks of Farming

- Farming the most hazardous occupations in the U.S.
 - **416 deaths/yr**
 - U.S., (2017 cdc data)
 - **20.4 / 100,000**
 - **> 6 x all workers**
 - **U.S. 2 – 3 times EU and Canada**
 - **70,000 injuries, 3000 permanent**
 - U.S. (2012 cdc data)
 - **10% - 40% of farmers injured/year**
 - **Illnesses 3.1/1000**
 - **US cost \$ Billions/yr.**
 - (Leigh et. al. 2002)
- ❖ Children, elderly, farm workers, anabaptists are special risk groups



Occupational Health Hazards

2023 = Topics in the course



Special Risk Populations (women, children, elderly, immigrant farm workers)

- **Respiratory diseases (13%)**
- **Ag Chemicals & Pesticides ,**
- **Zoonotic infections,**
- **Veterinary Pharmaceuticals,**
- **Mental Health**
- **Acute and Chronic Trauma**
- **Musculoskeletal diseases (14%)**
- **Noise, vibration, heat, cold injuries**
- **Ag Skin diseases (56%)**
- **Cancer in ag populations**
- **Prevention**

What are we here for?

Sustainable Farm Families = Sustainable Agriculture

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



References

1. **The Institute of Agricultural Medicine: An Iowa Idea – World-Wide Impact, Donham and McCulloch 2021.**

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2. **1955: The Entree of Medicine and Public Health into the Field of Agricultural Occupational Safety and Health, Journal of Agromedicine Donham, K (2022), 27:4, 409-418,**

3. **Agricultural Medicine: Rural Occupational and Environmental Health, Safety, and Prevention, Donham and Thelin, 2016**

