

# Can improved wellness reduce farm injuries?

## Info From The Certified Safe Farm Program

Donham, Meppelink, Rohlman, Kelly, 2018 J Agromed.

Kelley J. Donham MS, DVM, DACVPM

Professor Emeritus, College of Public Health, University of Iowa

Presented at N Carolina Agromedicine Symposium, March 27, 2019

# Questions?

- Are Farmers more healthy than the general population?
- Does wellness status of farmers effect injury risk?
- Does the CSF intervention help improve farmer health?
- So what?

# What we know about basic health of farmers



- Occupational Health & Safety
  - Most Hazardous industry
    - NIOSH Agricultural Safety - <https://www.cdc.gov/niosh/topics/aginjury/default.html>
  - High Suicide risk
    - Ringgenberg, Ramirez, Peek-Asa, Donham.
      - J Rural Health, 2017
  - Lower risk for CVD and Cancer
    - Blair, 2005
- Basic Wellness? – Not much

# Are Farmers more healthy than the general population?

- Reduced CVD and Cancer
  - Blair 2005
- Little Data on U.S. farmer health conditions
- Australia results
  - High obesity, CVD risks
    - Brumby 2011

# Relationship of general health of workers and occupational illnesses and injuries

- For workers generally: **poor health = occupational Injury Risk**
  - Donham, Meppelink et. al. 2018
- Total Worker Health (TWH) CDC - NIOSH
  - “---integrate --- work-related safety and health hazards (control) with promotion of injury and illness prevention efforts to advance worker well-being”.
  - <https://www.cdc.gov/niosh/twh/default.html>
- Only a few programs dealing with Health
  - Scandinavian countries
  - Certified Safe Farm – Research phase from 1996 – 2006 – IA, NC (Only integrated program in N. America)
  - Sustainable Farm Families – Australia
  - Rural Health Initiative – Shawano, Wisconsin (Theda care)

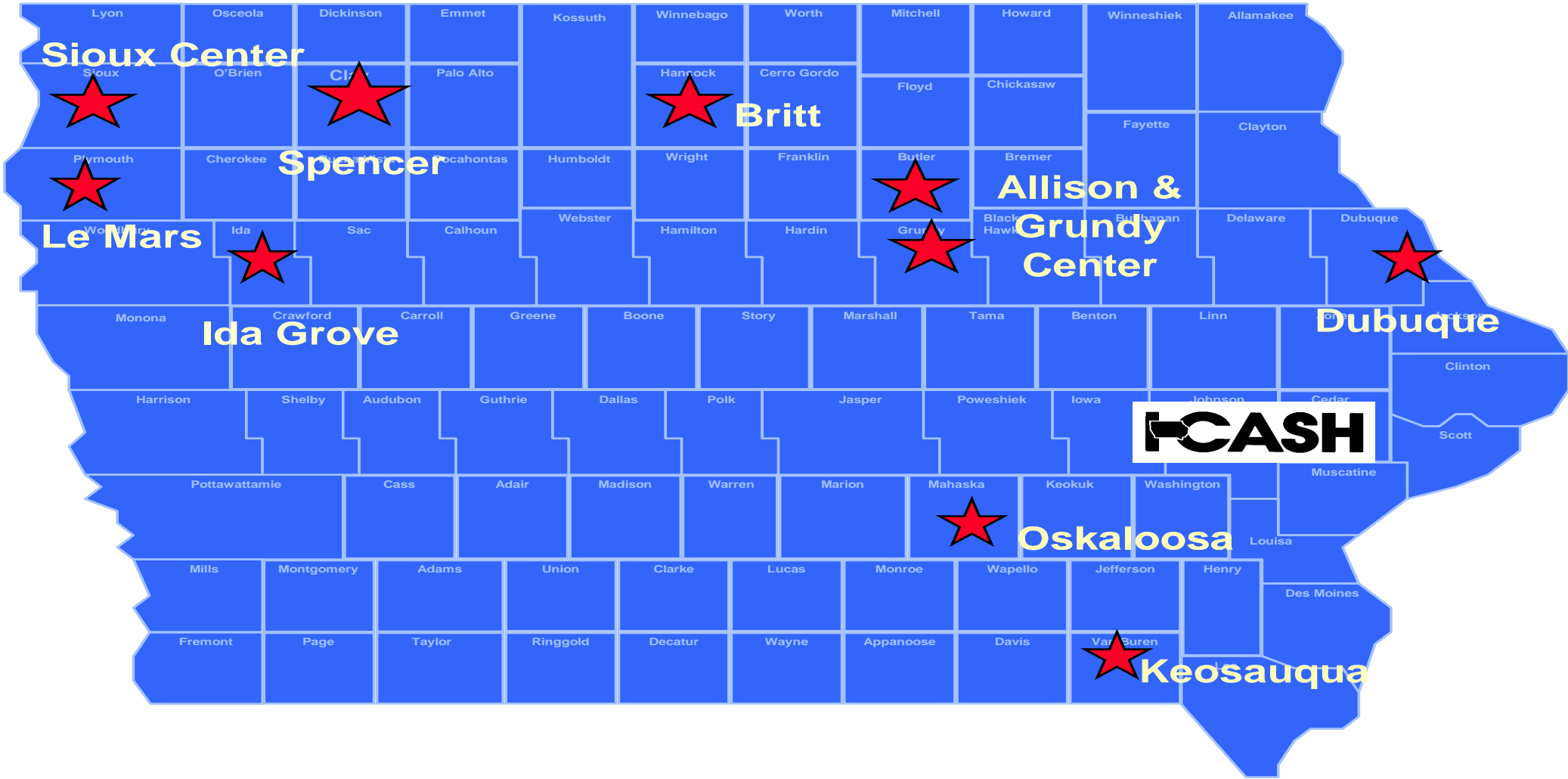
# Certified Safe Farm



- A five-year prospective study – IA
  - Donham et. al. 2007
- Operates in IA,
- Operates in NC from 2000 – present
- Some activity in NE, NY, WI
- A Comprehensive TWH concept
  - Health Screening with Education
  - Health coaching
  - On farm Safety Audit with education and goals
  - General Occupational Health and Safety Education
- Incentives



# CSF IN IOWA



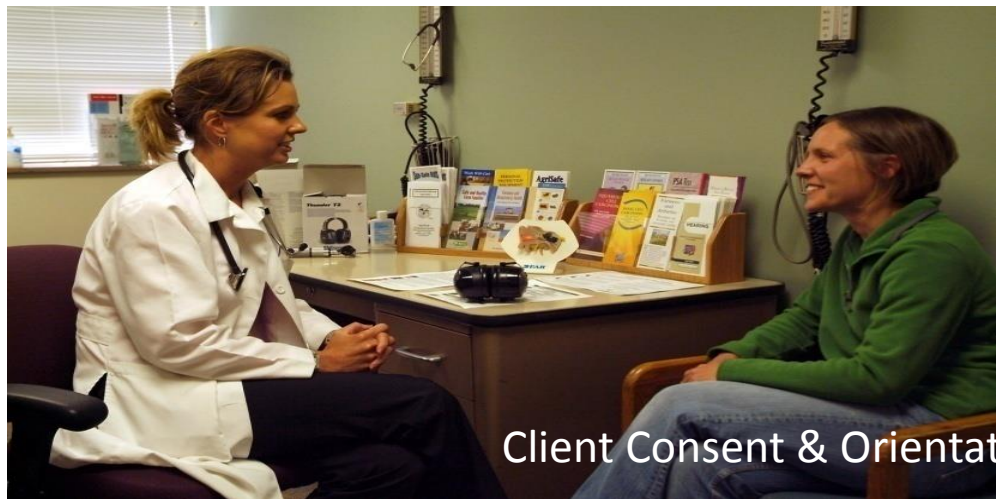
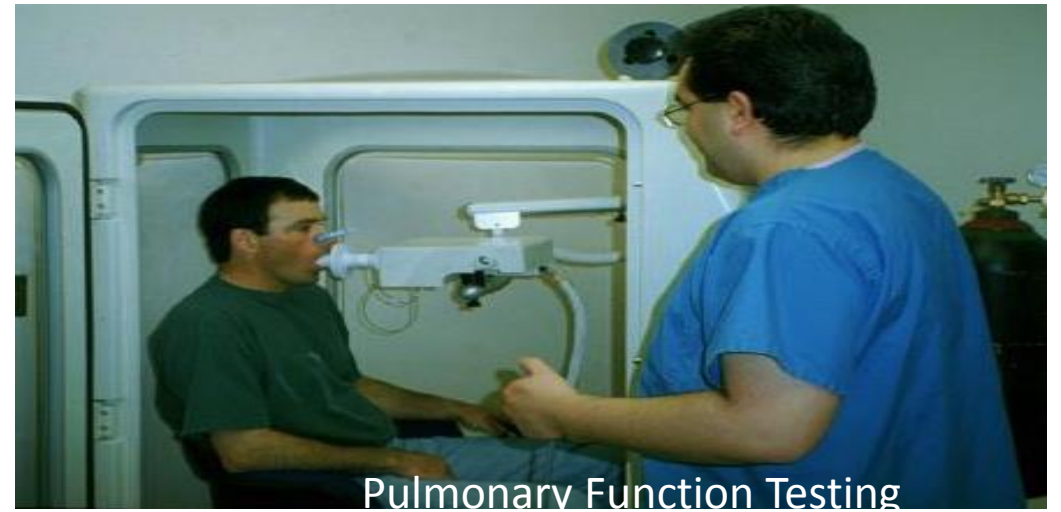
# The Cohort

- 438 Male Iowa producers/  
Owner operators
- Participants in the Certified Safe  
Farm Program
- Stratified Random Selected -  
Representative of the farmers  
and farms of Iowa





# Prevention by Occupational Wellness and Education

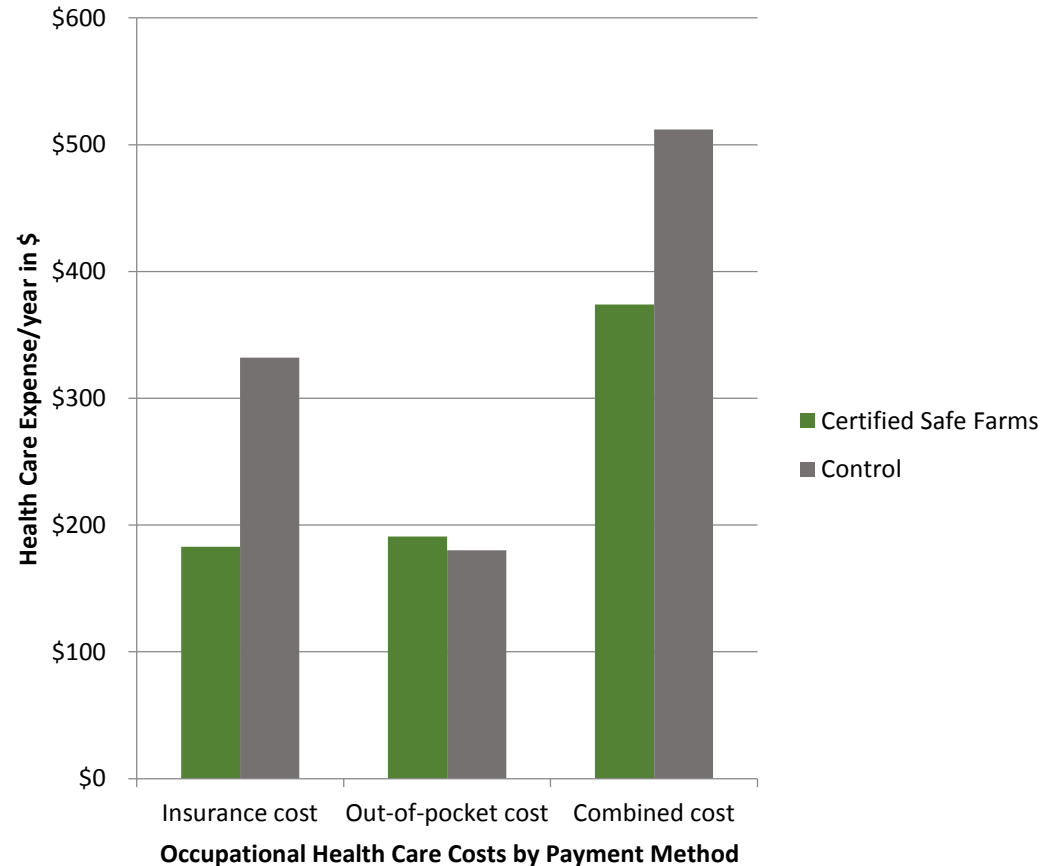


# On farm Safety Audit + Education



# CSF Results

Donham Rautiainen et. al. 2007



- Reduced serious injuries
- Lowered Respiratory illnesses
- Increased PPE use
- 47% Lowered health care costs
- General Health??

# Health Measures of Farmers Compared to National Norms

Clinical Variables	CSF %	National Norms %
Injuries	<b>9.6%</b>	<b>2.9% (BLS)</b> <a href="https://www.bls.gov/news.release/archives/osh_11092017.pdf">https://www.bls.gov/news.release/archives/osh_11092017.pdf</a>
BMI > 25	<b>80.1%</b>	<b>66%</b>
Cholesterol > 200	<b>38.6%</b>	<b>44.3%</b>
High Blood Pressure	<b>15.9%</b>	<b>33.6%</b>
Combo of High BMI + BP + CHL	<b>3.1%</b>	<b>40%</b> (metabolic syndrome, rural) High BP, waist, CHL, glucose



# Physical and Behavioral Health Measures Related to Farm Injuries

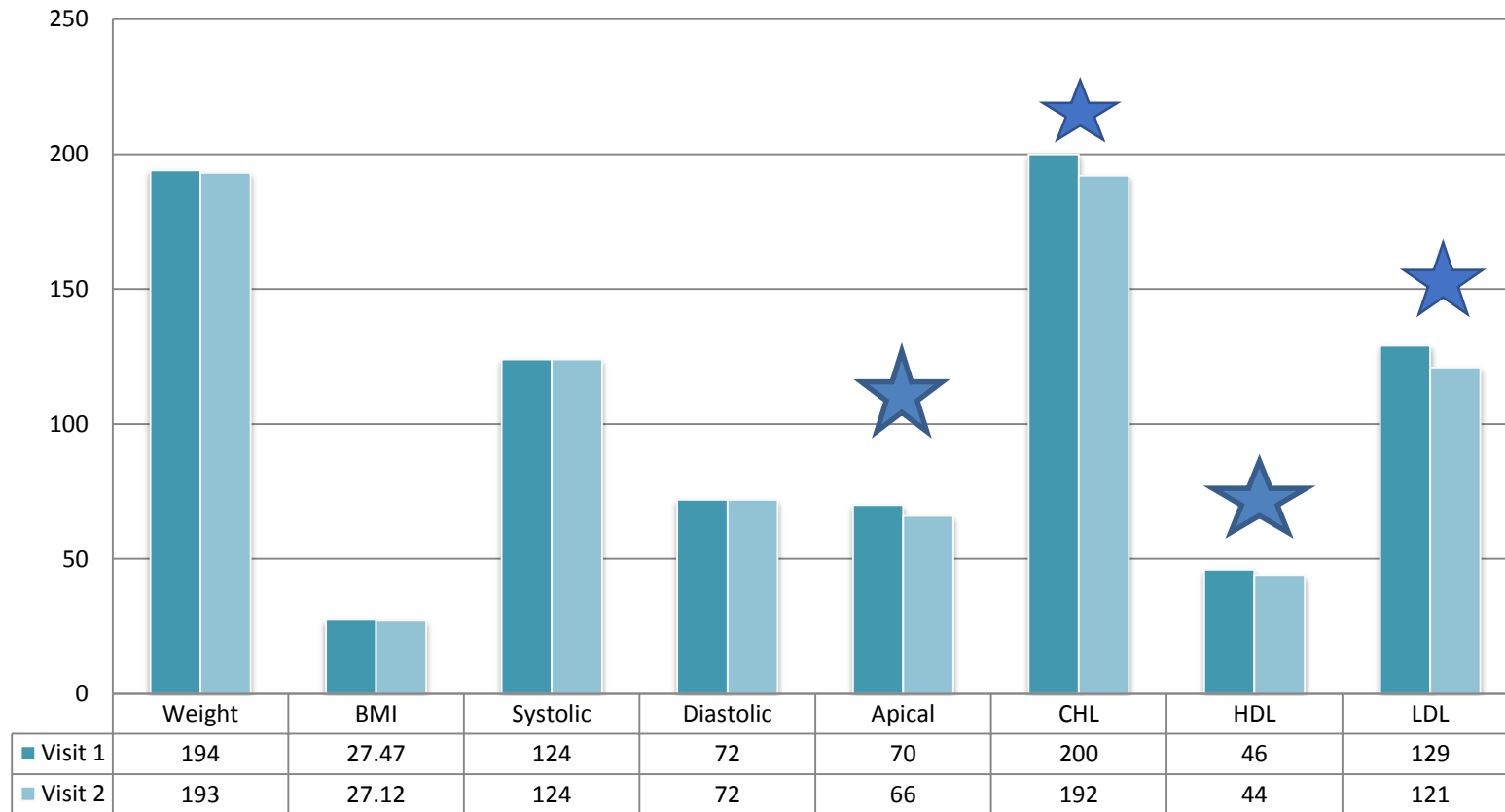
- High combined BMI+BP+CHL – Related to increased risk of injuries
- Low perceived health – Related to increase injuries
- No other health measures related to injury risk



# Effect of CSF Program on Health Measures

(two measures, 3 – 5 years apart)

**Figure 1. Paired Clinical Medians**



# Summary - Conclusions

- Are Farmers more healthy than the general population?
  - No – very similar
  - More Obese - Yes
  - Lower total & LDL cholesterol
  - Lower blood pressure
- Do health indicators of farmers relate to injury risk?
  - Yes
  - BMI+CHL+BP = Higher injuries
  - Poor self assessment of health = Increased injuries
    - But not related to individual health measures
    - Measure of negative behavioral health?
- Does the CSF intervention help improve farmer health?
  - Yes
  - Lower total CHL
  - Lower LDL
  - Lower HDL
  - Lower heart rate
  - Not BMI
- Does improved wellness prevent Injuries? -- yes – data suggests so.

# Discussion

## (So what?)

- How to explain Lowered CVD & Cancer. Is this advantage going away?
- Must Combine Occupational Safety & Health + Basic Wellness and Mental Health to affect “Total Worker Health”.
- Comprehensive Health Prevention Programs for farmers needs to aim at total worker health for best results.
  - E.G.: The Certified Safe Farm Program. Sustainable Farm Families. Farm Hat
- The CSF Program positive results on Health, may be due to the combination of the farm audit, health screening, and education.
- Insurance and other incentives are necessary to drive this Total worker health



# References

- Donham, K, Meppelink, S, Rohlman, D, Kelly, K. Health Indicators of a Cohort of Midwest Farmers: Investigating Health Outcomes of Participants in the Certified Safe Farm Program, and Relationships of Health and Injury Risk, 2018, J Agromedicine (in press).
- NIOSH Total Worker Health™ Program: An Overview. Schill, A., Choewood, A, Casey, L., J Occupational Environmental Medicine. 2013; 55:S8 – 11.
- NIOSH Agricultural Safety - <https://www.cdc.gov/niosh/topics/aginjury/default.html>
- Donham, K, R Rautiainen, J Lange, and S Schneiders. Injury and Illness Costs in the Certified Safe Farm Study. The Journal of Rural Health. 2007; 23:348-355.
- Blair A, Sandler DP, Tarone R, Lubin J, Thomas K, Hoppin JA, Samanic C, Coble J, Kamel F, Knott C, Dosemeci M, Zahm SH, Lynch CF, Rothman N, Alavanja MC. Mortality among participants in the Agricultural Health Study. Annals of Epidemiology, 2005; 15:279 – 285.
- Brumby, S, Chandrasekara, A, McCoombe, S, Torres, S, Kremer, P, Lewandowski, P. Reducing psychological distress and obesity in Australian farmers by promoting physical activity. BMC Public Health, 2011; 11:362.
- Ringgenberg, W, Peek-Asa, Donham, K, Ramirez, M. Trends and Characteristics of Occupational Suicide and Homicide in Farmers and Agricultural Workers, 1992 – 2010, J Rural Health, 2017, 34(3) pp 246 – 243.