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Climate Change Extension: Presenting the Science is Necessary But Insufficient

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Key foundations

- Affirm phenomenal success of American agriculture
- Show producers they did not cause climate change
- Does climate change relate to shared values?
- Show climate trends they relate to
- Gently share mainstream climate science
- Show how this relates to agriculture

This is my agenda.

Thank you for
feeding my family!

Affirm our producers as often
as possible. They deserve it.

An example of (deserved) affirmation of American Agriculture

Misconception: American
agriculture needs to go “back in
time”.

Agricultural intensification and greenhouse gases

U.S. corn yield since 1900

Per bushel, 36% reduction
in greenhouse gas emissions
since 1980

Climate change in terms
producers may relate to...

Heat waves in USA

HEAT WAVES—

of which nighttime lows are one indicator—are striking a growing portion of the U.S.

<http://ngm.nationalgeographic.com/2012/09/extreme-weather/data-charts>

Intense rainfall events are increasing

EXTREME RAINFALLS
are now affecting larger
areas of the U.S. as well.

Changes in USDA Plant Hardiness Zones

1990 Map

After USDA Plant Hardiness Zone Map, USDA Miscellaneous
Publication No. 1475, Issued January 1990

2006 Map

National Arbor Day Foundation Plant Hardiness Zone Map
published in 2006.

Zone

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Length of growing season

When is frost more likely?

Clear night

<http://jenklee.com/index.php?/clear-night/>

Cloudy night

<http://arambhusal.sulekha.com/albums/bydate/2008-05-15/slideshow/149496.htm>

Climate change creates a “headwind” on global agriculture

Investments in agriculture are more important than ever.

Addressing climate change is
something we can and will do

Breeding crops for tolerance to heat and drought

Irrigation

Soil conservation

Building soil organic matter

Conservation tillage

Increased attention to soil erosion

Improving internal drainage

Figure 6.8

More diversified cropping systems

USDA image

Univ. of Montana image

“Win-win” ways that producers reduce climate change

- More efficient use of nitrogen fertilizer
- Increasing soil organic matter
- Conservation tillage
- Capturing methane (biogas)
- Energy efficiency and energy conservation
- Minimizing unnecessary pesticide usage

New crop/market opportunities?

Does climate change relate to shared values?

What is the only cost-effective way to capture atmospheric CO₂?

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- Paul Vincelli – phone: 859-218-0722 pvincell@uky.edu
 - *Climate Change: Values, National Security, and Free Enterprise.*
 - Details: <http://www2.ca.uky.edu/environment-files/ccflyervincelli.pdf>
 - Live-streaming at <http://ustream.tv/kyclimateforum>