

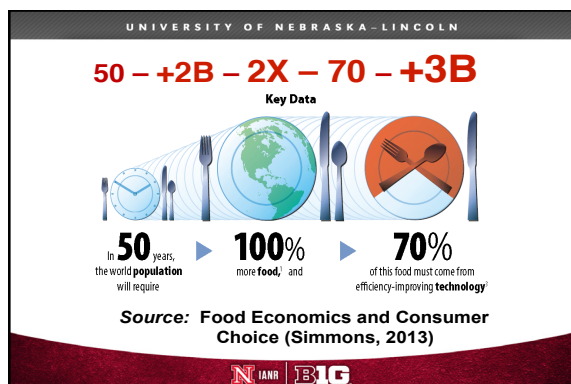
WHY DOES CONSUMER OPINION TRUMP SCIENCE (ANIMAL WELFARE, GMOS, FOOD ANIMALS VS PETS)?

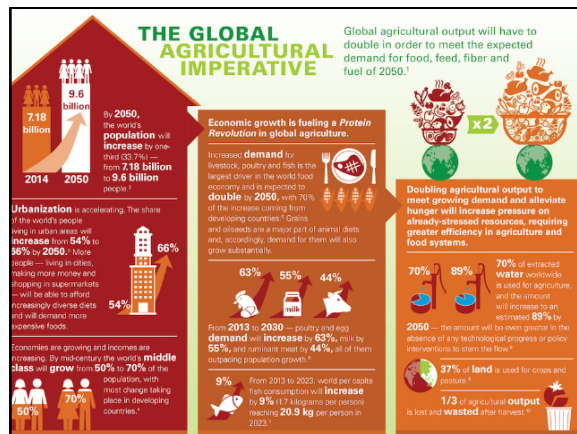
Dr. Ronnie Green

Harlan Vice Chancellor of the Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln

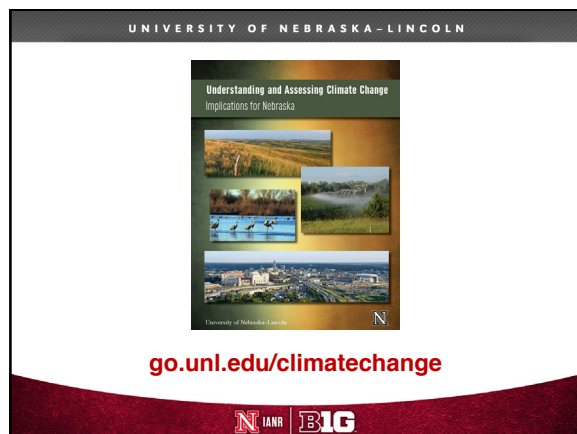




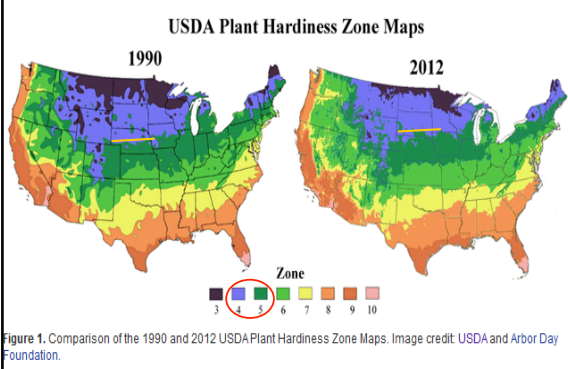


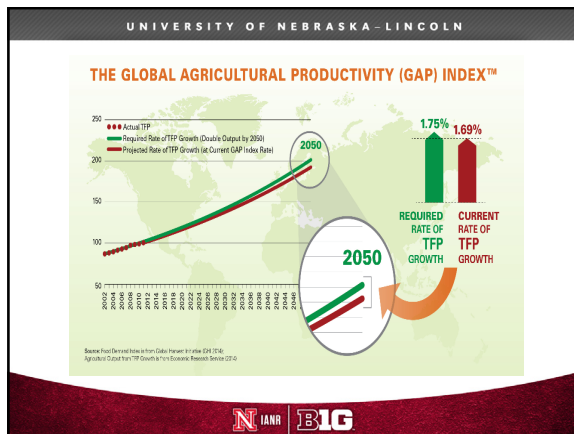


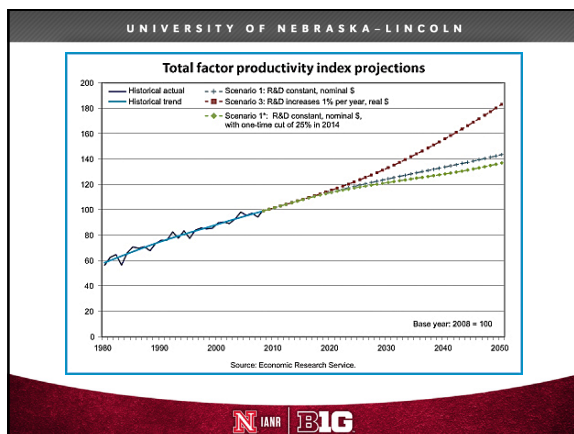




Plant hardiness zones are shifting toward the poles as the climate changes









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FOOD • FUEL • WATER • LANDSCAPES • PEOPLE

- PCAST (Ag Research, Antibiotics)
- AGree
- Chicago Council on Global Affairs
- STEM Ag and Food Council
- Council on Competitiveness
- Foundation for Food and Ag Research
- NAAAS (Animal Ag / Science)
- NNMI (Food Factory of the Future)

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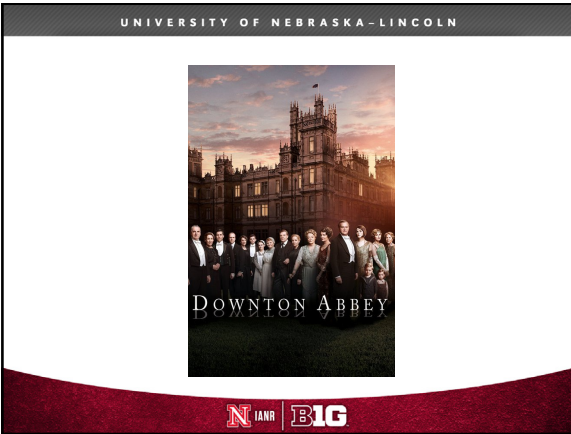
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Feeding the World
By 2050 we'll need to feed two billion more people. How can we do that without overwhelming the planet?
PHOTOGRAPHS BY GEORGE STEINMETZ

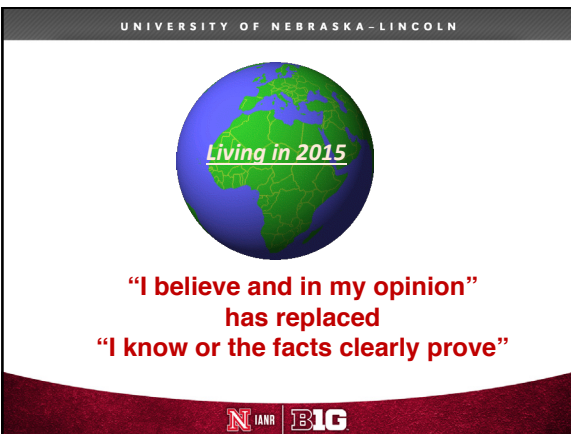
Building agricultural research

N ...

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Unlike *know*, *believe* covers a wide range of credulity. *Know* is more constrained; its verity must be demonstrable. *Believe* needs no more than the statement “I believe” something to be true, leaving it to the listener to supply the factual base — no matter how slim or wobbly — for where to place the belief on the continuum that ranges from pure speculation to pure fact.

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- Disconnect from nature and nurture
- Radical lack of understanding of real biology and science
- Lack of understanding of cause and effect
- Fiercely held anti-belief systems against:
 - BIG
 - CORPORATE
 - INDUSTRIAL / “BIG-AG”
 - CAPITALISM/PROFIT

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- Selective belief in science
 - e.g. climate science vs biotechnology
- Willingness to sacrifice human life for “beliefs”
 - Anti-vaxxers
 - Food Safety
 - Anti-technology
- Lack of understanding of animal well-being and health (particularly relative to human health)
- Social elitism in place of freedom of choice

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Has the Food Movement's Moment Finally Arrived?

What happens when you put Mark Bittman and Michael Pollan in a room with a couple of hundred well-heeled foodies—and a few dozen conventional farmers.

By Andrew Levler



Mark Bittman, Sam Kass, and Michael Pollan face the omnivore's dilemma.

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15,400
litres of water
1 kilo of beef

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Giving up beef will reduce carbon footprint more than cars, says expert

Study shows red meat dwarfs offsets for environmental impact, saving 28 times more land and 11 times more for pork or chicken



Beef's environmental impact dwarfs that of other meat including chicken and pork, new research reveals, with one aspect saying that eating less red meat would be a better way for people to cut carbon emissions than giving up their cars.

The heavy impact on the environment of meat production was known but the research shows a new scale and scope of damage, particularly for beef. The popular red meat requires 28 times more land to produce than pork or chicken, 11 times more water and results in five times more climate-warming emissions. When compared to grains like potatoes, wheat, and rice, the impact of beef per calorie is even more extreme, requiring 180 times more land and producing 11 times more greenhouse gases.

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Cattle

Every year in the United States, approximately 35 million cattle are raised for beef,¹⁰⁵ 9 million cows for milk,¹⁰⁶ and 450,000 calves for veal.¹⁰⁷

Most cattle raised for beef are castrated, de-horned, and branded,¹⁰⁸ painful procedures often performed without any anesthesia.^{109,110} For seven months, calves graze on the range¹¹¹ before they are transported to feedlots,^{112,113} where they are fattened on unnatural diets.¹¹⁴ Within six months, they reach market weight of 544 kg (1,200 lb)¹¹⁵ and are trucked to slaughter. As with other animals to be killed for food, cattle are not given any food, water, or protection from the elements during the journey.¹¹⁶

Cows in the dairy industry endure annual cycles of artificial insemination, mechanized milking for 10 out of 12 months¹¹⁷ (including 7 months of their 9-month pregnancies), and giving birth. Many are routinely given hormones to increase milk yield.¹¹⁸ According to John Webster, "[t]he amount of work done by the [dairy] cow in peak lactation is immense. To achieve a comparable high work rate a human would have to jog for about six hours a day, every day."¹¹⁹ In the U.S. industry, cows, overwhelmingly Holsteins,¹²⁰ produce an average of 729 days of milk,¹²¹ which corresponds to 2.4 lactations, before they are considered "spent" and are sent for slaughter at an average of less than 5 years of age.¹²² Cows can naturally live more than 20 years.¹²³

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A PUBLIC VOICE

ASSOCIATION OF PUBLIC AND LAND-GRANT UNIVERSITIES

HOME

A PUBLIC VOICE

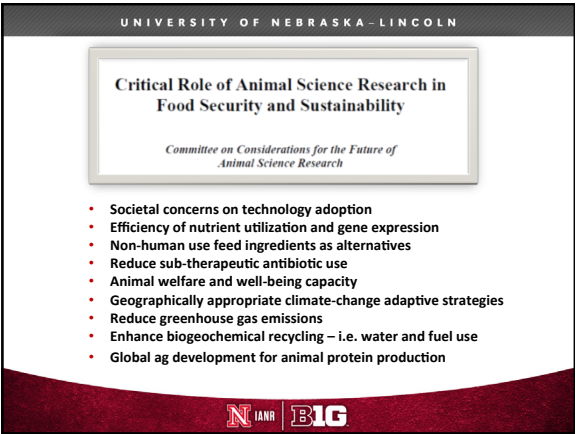
Public Universities & Veterinary Medical Colleges Groups Announce Creation of Task Force on Antibiotic Resistance in Production Agriculture

November 5, 2014--APLU and the Association of American Veterinary Medical Colleges (AAVMC) today announced the creation of the Task Force on Antibiotic Resistance in Production Agriculture.

The task force is comprised of representatives from U.S., agriculture colleges/land grant universities and veterinary colleges as well as key representatives from the production animal agriculture community and the pharmaceutical industry. The goal of the task force is to help advise the federal government on a research agenda and also help publicly disseminate information on the use of antibiotics in production agriculture. Officials from key federal agencies are expected to serve as observers to the task force and leaders from public universities in Mexico and Canada will serve as ex officio members.

Scientists and the public have grown increasingly concerned about the evolution of antibiotic resistant bacteria in veterinary and human medicine. The World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) have expressed serious concerns as well. Some bacteria have







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GUT

function initiative



Translating discovery
Into Innovation

Focus on Fundamental Discovery
How does the gut ecosystem
develop and function in individuals?

→ Host factors

→ Microbial factors

→ Dietary factors

Translation

→ novel anti/pro-microbials

→ prebiotics and functional foods

→ animal breeding (markers)



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Nebraska
Center for
VIROLOGY






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Center for Plant Science Innovation

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Innovation Campus
Phase 1 Building – 380,000 sq. feet



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Innovation Campus
Phase 1 Building – 380,000 sq. feet



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NEBRASKA INNOVATION CAMPUS



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NEBRASKA ALLIANCE FOR ADVANCED FOOD SANITATION



ConAgra Foods

Nestle

Kellogg's

HERSHEY'S
The Hershey Company

NEOGEN

ECOLAB

Cargill

commercial food sanitation

Nebraska

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NIC Partners



Nebraska

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QUANTIFIEDAG

- Specializes in improving animal health, focusing on radio frequency ear tag technology and data collection platforms for the BEEF and PORK industries.
- 2014 graduate of the NMotion Accelerator, a 13-week, mentor-driven startup accelerator.




Nebraska

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METAGENOME ANALYTICS



- A start-up bioinformatics company led by Andy Benson, W.W. Marshall Distinguished Professor
- MGA partners:
 - Khalid Sayood, professor of electrical and computer engineering
 - Rohita Sinha, postdoctoral researcher
 - Ufuk Nalbantoglu, Erciyes Univ in Turkey
 - UNL graduate The “Ty” Nguyen of Professional Computer Solutions

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PHENO-Summit
October 2015

NEBRASKA INNOVATION CAMPUS

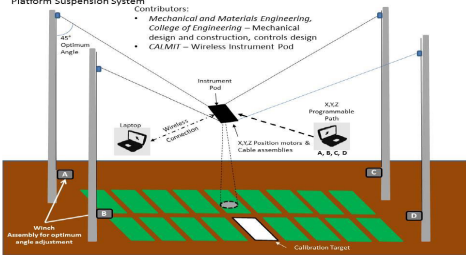
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Platform Suspension System

Contributors:

- Mechanical and Materials Engineering, College of Engineering – Mechanical design and construction, controls design
- CAIMIT – Wireless Instrument Pod



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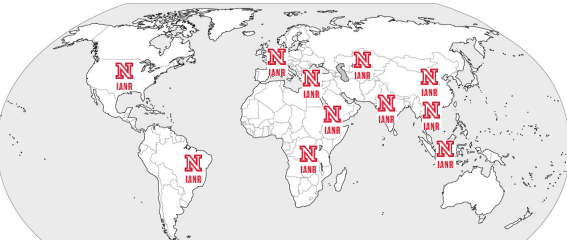
And We Need to Work Globally!



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Where We Are

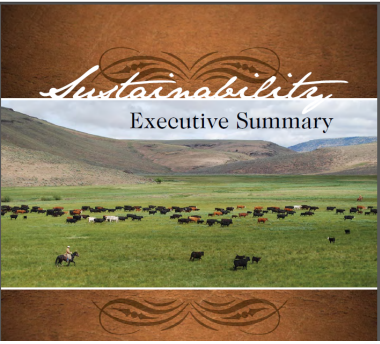


CHINA (Northwest A&F, China Ag, IWHR), **BRAZIL** (ESALQ, CAPES, BSMP, UFRGS), **INDIA** (IARI, MSSRF, JAIN, NIFTEM), **TURKEY** (Ataturk University), **NETHERLANDS** (UNESCO-IHE), **ETHIOPIA**, **MIDDLE EAST** (USAID/MENA, NASA Drought), **TANZANIA** (CIRCLES), **VIETNAM** (LMPPH-Harvard Kennedy School), **INDONESIA** (Bogor, USBI).

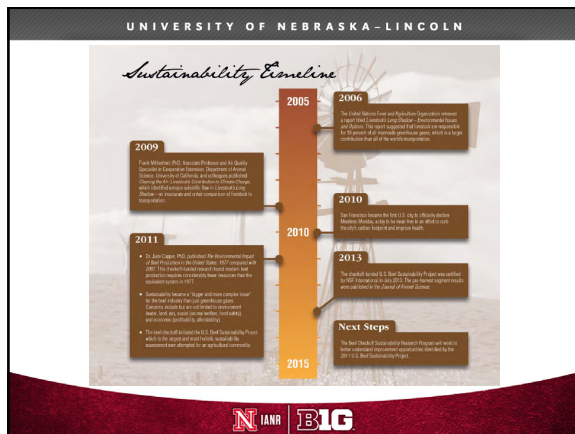
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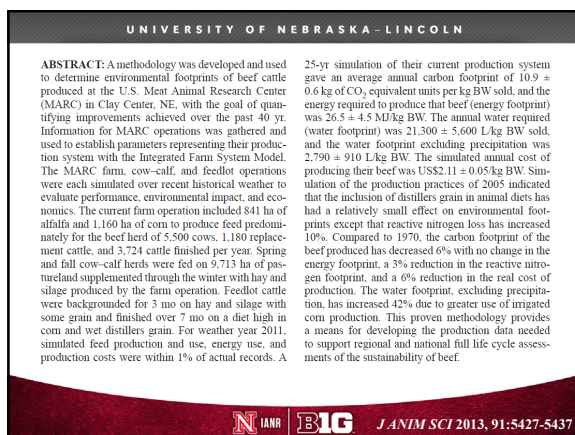
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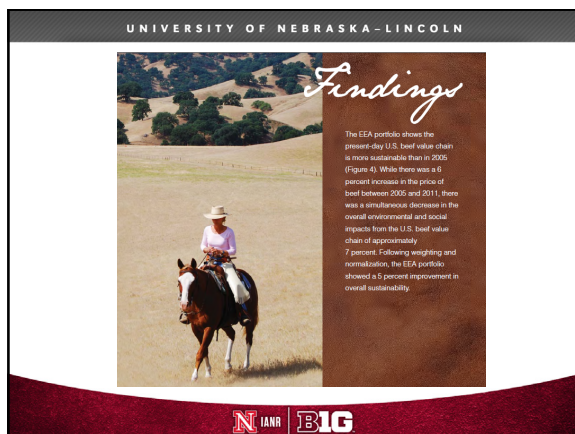
Sustainability
Executive Summary

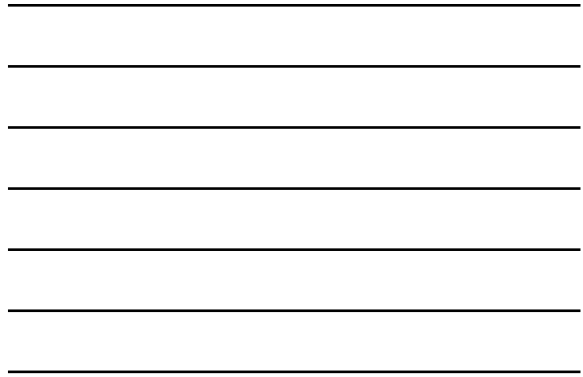


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