Food Production and Our Environmental Responsibility

Future of Food Webinar

December 2014
Future of Food Archived Webinars

• Hungry and Overweight: How is it Possible?
• Contributors and Effects of Food Insecurity: Nutrition and Beyond
• School Meals and Community Partnerships: Creative Solutions against Food Insecurity
• Point A to Point B: Improving Access to Healthy Foods in Food Banks
• A Flavorful Pairing: Nutrition Education in Food Banks
• Ready, Set, Go: Preparing and Delivering Effective Nutrition Education for Audiences Facing Food Insecurity
• Making an Impact with Food Insecure Populations
• Successful Synergies
• U.S. Farming 101: Part 1
• US. Farming 101: Part 2
• Food Security & Nutrition: Challenges & Opportunities for World Health

www.eatright.org/foundation/kidseatright
Learning Objectives

• Describe at least one common misperception of animal agriculture and the environment

• Identify at least one current innovations in agriculture and explain how it can affect food costs and our economy

• Describe the nutrition professional’s role in educating consumers about food production and the environment
Today’s Speakers

Jude L. Capper, PhD
Livestock Sustainability Consultant

Carlos Saviani
Vice President, Animal Protein
World Wildlife Foundation

Lisa Dierks, RD, LD
Nutrition Program Manager
Mayo Clinic Healthy Living Program
Instructor in Nutrition
Mayo Clinic College of Medicine
What is Sustainability?

Sustainable adjective

“Unable to last or continue for a long time.”

Resilient
Strong
Adaptable
Continuous

Source: Slide created by Dr. Jude L. Capper, 2014
Don’t Believe Everything You Hear

Source: Created by Dr. Jude L. Capper, 2014; Photo credit:
Meat Production Contributes a Small Proportion of the U.S. Carbon Footprint

According to the U.S. EPA (2012), meat production accounts for 2.1% of total greenhouse gas emissions.

If Everybody in the U.S. Went Meatless Every Monday for a Whole Year...

The national carbon footprint would only be reduced by 1/3 of one percent

All Consumers Deserve a Choice

Reuben
- Corned beef, gruyere, sauerkraut, Russian dressing on rye bread with mango-fennel slaw and pickles

Smoked Trout Po'boy
- Butter, papitas, peppadews, marinated onions and smoked trout on herbed roll with Tim's potato chip and black eyed pea, mango and papaya chutney

Caprèse Baguette
- Basil, tomato, fresh mozzarella, olive oil, salt and pepper on baguette with caesar salad and kalamata olives

Mediterranean Pita (Vegan)
- Roasted tomatoes, garbanzoes, artichoke hearts, Kalamatas and arugula on herbed pita with corn chips and Muhummara

Source: Created by Dr. Jude L. Capper, 2014
Without Animal Agriculture, What Would be the Cost of Sourcing Product Ingredients?
What Do These Industries Have in Common? They All Provide By-Products Fed to Animals

Source: Created by Dr. Jude L. Capper, 2014
If We All Became Vegan…

In 10 years we would have 612 million cattle in the U.S. In 20 years time, 3.7 billion a 41x increase.

Source: Created by Dr. Jude L. Capper, 2014. Based on 85% of cows having a live calf, cows living for 20 years and 95% of calves surviving. More information available at http://bayleesa.com
We Can Replace Meat and Dairy with Plant-Based Proteins

Source: Created by Dr. Jude L. Capper, 2014
We Can Replace Meat and Dairy with Plant-Based Proteins

But humans make methane too!

Source: Created by Dr. Jude L. Capper, 2014
Public Perception of U.S. Beef Production

Source: Created by Dr. Jude L. Capper 2014; Photo from: http://politicsoftheplate.com/?p=1112
U.S. Beef Industry Summary – Stocker/Backgrounder
Opportunities to Further Improve Beef Yield per Animal May Be Limited

Beef/Animal:
1977 = 603 lb
2007 = 773 lb
2027 = 892 lb?

Source: Created by Dr. Jude L. Capper, 2014; Data from USDA-NASS (2009) [http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats/]
In 1977, it took five animals to produce the same amount of beef as four animals in 2007.

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In 1977, it took five animals to produce the same amount of beef as four animals in 2007.

Environmental Impact of U.S. Beef Production has been Reduced by Improved Productivity

The Herbivore’s Dilemma: Is Grass-Fed Beef Better for the Planet?

So Grass-Fed A Caveman Would Eat It.

100% NATURAL GRASS FED GOURMET BEEF. We’re shattering the myth about red meat.
No hormones, no steroids, antibiotics or chemicals.
Our exclusive Piedmontese bred beef are hand-raised with grass feed to ensure a natural healthy meat.

“We have succeeded in industrializing the beef calf, transforming what was once a solar-powered ruminant into the very last thing we need: another fossil-fuel machine.”  Michael Pollan, NY Times

Converting to a More Extensive System Increases Animal Numbers and Resource Use

- Conventional: 800 lb HCW, 444 d to slaughter
- Grass-fed: 615 lb HCW, 679 d to slaughter

If the Entire U.S. Beef Industry Converted to Grass-Finished Beef, We’d Need…

<table>
<thead>
<tr>
<th>Land</th>
<th>Water</th>
<th>Carbon</th>
</tr>
</thead>
<tbody>
<tr>
<td>131 mil ac.</td>
<td>468 bil gal.</td>
<td>135 mil t.</td>
</tr>
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</table>

*Extra Resources to Produce 26.1 billion lbs beef*

Shouldn’t Livestock be Afforded the Same Veterinary Care As Our Pets?

Source: Created by Dr. Jude L. Capper, 2014. Photo from: http://thekitchensgarden.files.wordpress.com/2014/05/cat-and-cow.jpg
Withdrawing Effective Parasite Control Increases Environmental and Economic Impact

Source: Created by Dr. Jude L. Capper, 2014. Data from Capper, J. L. 2013. The environmental and economic sustainability impact of withdrawing parasite control (Fenbendazole) from traditional U.S. beef production systems. ADSA/ASAS Annual Meeting, 2013, Indianapolis, IN.
Effective Parasite Control Has a Positive Impact on Social Sustainability

Extra beef produced via effective parasite control in a 40-cow herd supplies 19 families with their annual beef demand.

Source: Created by Dr. Jude L. Capper, 2014. Data from Capper, J. L. 2013. The environmental and economic sustainability impact of withdrawing parasite control (Fenbendazole) from traditional U.S. beef production systems. ADSA/ASAS Annual Meeting, 2013, Indianapolis, IN.
The beef industry has taken steps to improve sustainability over time – and will continue to do so.
Rethinking Food

Carlos M. Saviani
VP Animal Protein
WWF US
WWF History

WWF came into existence on 29 April 1961, when a small group of passionate and committed individuals signed a declaration that came to be known as the Morges Manifesto.

From its origins as a small group of committed wildlife enthusiasts, WWF has grown into one of the world's largest and most respected independent conservation organizations – supported by 5 million people and active in over 100 countries on five continents.
WWF Vision

To build a future in which people live in harmony with nature.
WWF Mission

To conserve nature and reduce the most pressing threats to the diversity of life on Earth.
WWF Network
Income
2013

$870 Million

Figures adjusted for 2013 Euro-US dollar exchange rates

- **56%** individuals
- **17%** public sector
- **10%** corporations
- **6%** trusts and foundations
- **9%** earned income
- **2%** other
WWF Network Expenditures 2013

$817 Million

52% program
17% fundraising
12% awareness
3% education
6% conservation policy
9% administration
1% traffic

Figures adjusted for 2013 Euro-US dollar exchange rates
Our Priority Places

WWF GLOBAL
- 5 million supporters
- 5,900 employees
- 100 countries WWF works in
- 1,300+ on-the-ground projects

WWF-US
- 1.1 million members
- 18 priority places
WWF Network total: 5900 staff

Europe: 1856 staff

Asia and Oceania: 2122 staff

Africa: 1005 staff

Latin America: 409 staff

WWF Canada: 120 staff

WWF US: 350 staff
Our quest to feed a growing global population is having a HUGE impact.
Each year **7.2 BILLION PEOPLE CONSUME 1.5 TIMES** what the Earth’s natural resources can continue to provide.

In short, our planet simply can’t replenish itself fast enough to meet expanding human needs.

Source: Living Planet Report 2014. WWF in collaboration with Global Footprint Network, Water Footprint Network and ZSL Living Conservation
2050

We must **FREEZE** the footprint of **FOOD** now!

Source: Living Planet Report 2014, WWF in collaboration with Global Footprint Network, Water Footprint Network and ZSL Living Conservation
A planet under pressure

Over the next 40 years, we'll need to produce as much food as we have in the last 8,000 years of agriculture.

Source: Living Planet Report 2014. WWF in collaboration with Global Footprint Network, Water Footprint Network and ZSL Living Conservation
A planet under pressure

By 2025, at least 3.5 billion people will live in water-stressed river basins.

Source: Living Planet Report 2014. WWF in collaboration with Global Footprint Network, Water Footprint Network and ZSL Living Conservation
## Water footprint

<table>
<thead>
<tr>
<th>Raw material input</th>
<th>Water to produce input</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 cotton t-shirt</td>
<td>500 to 2,000 liters of water</td>
</tr>
<tr>
<td>1 liter of soda</td>
<td>175-250 liters of water</td>
</tr>
<tr>
<td>1 oz slice of cheese</td>
<td>40 liters of water</td>
</tr>
<tr>
<td>1 double hamburger</td>
<td>3,000 to 15,000 liters of water</td>
</tr>
<tr>
<td>4 oz ginned</td>
<td></td>
</tr>
<tr>
<td>6 T sugar</td>
<td></td>
</tr>
<tr>
<td>6 oz milk</td>
<td></td>
</tr>
<tr>
<td>8 oz beef</td>
<td></td>
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</table>

Total greenhouse gas emissions by supply chain tier associated with household food consumption in the U.S.

Climate impact (metric tons CO₂e/household-yr)

- red meat
- dairy products
- cereals/carbs
- fruits/vegetables
- chicken/fish/eggs
- other misc.
- beverages
- oils/sweets/condiments

Rank of different foods by GHG emissions per Kg versus per 1,000 calories

<table>
<thead>
<tr>
<th></th>
<th>LOOKING BETTER</th>
<th></th>
<th>LOOKING WORSE</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RANKED BY EMISSIONS PER KILOGRAM</td>
<td>RANKED BY EMISSIONS PER 1,000 CALORIES</td>
<td>RANK CHANGE</td>
<td></td>
</tr>
<tr>
<td>1. Lamb</td>
<td>39.2</td>
<td>Lamb</td>
<td>13.9</td>
<td>–</td>
</tr>
<tr>
<td>2. Beef</td>
<td>27.0</td>
<td>Beef</td>
<td>11.8</td>
<td>–</td>
</tr>
<tr>
<td>3. Cheese</td>
<td>13.5</td>
<td>Turkey</td>
<td>7.4</td>
<td>▲ 3</td>
</tr>
<tr>
<td>4. Pork</td>
<td>12.1</td>
<td>Tomatoes</td>
<td>6.1</td>
<td>▲ 15</td>
</tr>
<tr>
<td>5. Farmed salmon</td>
<td>11.9</td>
<td>Broccoli</td>
<td>5.9</td>
<td>▲ 10</td>
</tr>
<tr>
<td>6. Turkey</td>
<td>10.9</td>
<td>Farmed salmon</td>
<td>5.7</td>
<td>▼ 10</td>
</tr>
<tr>
<td>7. Chicken</td>
<td>6.9</td>
<td>Pork</td>
<td>5.5</td>
<td>▼ 1</td>
</tr>
<tr>
<td>8. Canned tuna</td>
<td>6.1</td>
<td>Chicken</td>
<td>4.8</td>
<td>▼ 1</td>
</tr>
<tr>
<td>9. Eggs</td>
<td>4.8</td>
<td>Canned tuna</td>
<td>4.8</td>
<td>▼ 1</td>
</tr>
<tr>
<td>10. Potatoes</td>
<td>2.9</td>
<td>2% milk</td>
<td>3.8</td>
<td>▲ 10</td>
</tr>
<tr>
<td>11. Rice</td>
<td>2.7</td>
<td>Potatoes</td>
<td>3.8</td>
<td>▼ 1</td>
</tr>
<tr>
<td>12. Peanut butter</td>
<td>2.5</td>
<td>Yogurt</td>
<td>3.6</td>
<td>▲ 2</td>
</tr>
<tr>
<td>13. Nuts</td>
<td>2.3</td>
<td>Cheese</td>
<td>3.6</td>
<td>▼ 10</td>
</tr>
<tr>
<td>14. Yogurt</td>
<td>2.2</td>
<td>Eggs</td>
<td>3.4</td>
<td>▼ 5</td>
</tr>
<tr>
<td>15. Broccoli</td>
<td>2.0</td>
<td>Tofu</td>
<td>2.9</td>
<td>▲ 1</td>
</tr>
<tr>
<td>16. Tofu</td>
<td>2.0</td>
<td>Rice</td>
<td>0.7</td>
<td>▼ 5</td>
</tr>
<tr>
<td>17. Dry beans</td>
<td>2.0</td>
<td>Dry beans</td>
<td>0.6</td>
<td>–</td>
</tr>
<tr>
<td>18. 2% milk</td>
<td>1.9</td>
<td>Peanut butter</td>
<td>0.4</td>
<td>▼ 6</td>
</tr>
<tr>
<td>19. Tomatoes</td>
<td>1.1</td>
<td>Nuts</td>
<td>0.4</td>
<td>▼ 6</td>
</tr>
<tr>
<td>20. Lentils</td>
<td>0.9</td>
<td>Lentils</td>
<td>0.3</td>
<td>–</td>
</tr>
</tbody>
</table>

Sources: University of Michigan, University of California, U.S. Department of Agriculture, U.S. Environmental Protection Agency.
Food became a key component of the WWF Goals for 2020 and beyond

By 2020, populations of the most ecologically, economically and culturally important species are restored and thriving in the wild.

By 2020, conserve the world’s most important forests to sustain nature’s diversity, benefit our climate and support human well-being.

By 2020, the world’s major river basins have measurably improved the sustainability of their freshwater systems in order to maintain nature’s diversity, strengthen climate resiliency and support human well-being.

By 2020, healthy and resilient marine ecosystems support abundant biodiversity, sustainable livelihoods and thriving economies.

Freeze the Footprint of Food – Protect the natural resource base while sustainably producing enough food to meet the needs of all.

Build a climate-resilient and zero-carbon world, powered by renewable energy.
Food Goal – 15 Key Commodities
Food Goal – 2 focuses
Shifting the Curve: Reward the best or move the rest?
Shifting the Curve: Reward the best or move the rest?
Food Goal – Modus operandi

Doing

Influencing

• Awareness
• Consensus
• Opportunities
• Knowhow
Working with business, government and communities to find and influence the adoption of solutions that will improve efficiency in the use of natural resources, reduce waste, and eliminate illegality.

We have to do more with less. Much less.

“Supply risk from unsustainable sourcing can destroy reputations, brands, biodiversity, communities and generate expensive legal disputes to companies and government”.

How?
Some WWF initiatives and partners in animal protein

“They stand for more than just a bottom line”
YOU can make a difference!

www.worldwildlife.org
www.facebook.com/worldwildlifefund
twitter.com/world_wildlife
THANK YOU!

carlos.saviani@wwfus.org
What are Standards of Professional Performance?
Imagine a World Where...

All eaters have equitable and optimal access to food and water now and in the future

All RDNs are experts in Sustainable, Resilient, and Healthy Food and Water Systems

RDNs are in high demand for Sustainable, Resilient, and Healthy Food and Water Systems work
Why Should RDNs be Involved?

- Growing interest among public, institutions, industry
- RDNs play unique & pivotal role
- RDNs are being called upon
- RDNs have opportunity and responsibility
- RDNs can make a difference!
What are SOP and SOPPs?

Figure 2. Standards of Professional Performance for Registered Dietitian Nutritionists (Competent, Proficient, and Expert) in Sustainable, Resilient, and Healthy Food and Water Systems.

Academy of Nutrition and Dietetics: Standards of Professional Performance for Registered Dietitian Nutritionists (Competent, Proficient, and Expert) in Sustainable, Resilient, and Healthy Food and Water Systems

Angie Tagtow, MS, RD, LD; Kim Robien, PhD, RD, CSO, FAND; Erin Bergquist, MPH, RD, LD, CNSC; Meg Bruening, PhD, MPH, RD; Lisa Dierks, RD, LD; Barbara E. Hartman, MS, RD, LD; Ramona Robinson-O’Brien, PhD, RD; Tamara Steinitz, MS, RD; Bettina Tahsin, RD, LDN, CDE; Teri Underwood, MS, RD, CD; Jennifer Wilkins, PhD, RD

ABSTRACT
Sustainability is the ability of a system to be maintained over the long term. Resilience is the ability of a system to withstand disturbances and continue to function in a sustainable manner. Issues of sustainability and resilience apply to all aspects of nutrition and dietetics practice, can be practiced at both the program and systems level, and are broader than any one specific practice setting or individual intervention. Given an increasing need to apply principles of sustainability and resilience to nutrition and dietetics practice, as well as growing interest among the public and by Registered Dietitian Nutritionists of health issues related to food and water systems, the Hunger and Environmental Nutrition Dietetic Practice Group, with guidance from the Academy of Nutrition and Dietetics Quality Management Committee, has developed the Standards of Professional Performance as a tool for Registered Dietitian Nutritionists working in sustainable, resilient, and healthy food and water systems to assess their current skill levels and to identify areas for further professional development in this emerging practice area. This Standards of Professional Performance document covers six standards of professional performance: quality in practice, competence and accountability, provision of services, application of research, communication and application of knowledge, and utilization and management of resources. Within each standard, specific indicators provide measurable action statements that illustrate how sustainable, resilient, and healthy food and water systems principles can be applied to practice. The indicators describe three skill levels (competent, proficient, and expert) for Registered Dietitian Nutritionists working in sustainable, resilient, and healthy food and water systems.

What are SOPPS in Sustainable, Resilient and Healthy Food and Water Systems?

- Key resource for all RDNs
- Can be integrated into all practice areas
- Six Standards of Performance
- Specific indicators to apply to practice
- Describe skill levels
Standard 2. Competence & Accountability

<table>
<thead>
<tr>
<th>Indicators for Standard 2: Competence and Accountability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bold Font Indicators are Academy Core RDN Standards of Professional Performance Indicators</td>
</tr>
<tr>
<td>The “X” signifies the indicators for the level of practice</td>
</tr>
<tr>
<td>Each RDN:</td>
</tr>
<tr>
<td>2.7 Engages in evidence-based practice and utilizes best practices</td>
</tr>
<tr>
<td>2.7A Critically analyzes and incorporates SRH food and water systems best practices and evidence-based research from multiple disciplines into decision making</td>
</tr>
<tr>
<td>2.7B Participates in committees, councils or task forces that shape evidence-based practice and/or best practices in SRH food and water systems</td>
</tr>
<tr>
<td>2.7C Presents SRH food and water systems topics at professional workshops, conferences, and meetings</td>
</tr>
<tr>
<td>2.7D Develops, directs, and manages SRH food and water systems professional workshops, conferences, and meetings</td>
</tr>
</tbody>
</table>

How Can I Use the SOPPs?

- Assist in understanding
- Evaluate and demonstrate current knowledge
- Identify areas for further development
- Expand practice
- Foundation for accountability
- Strategic planning
- Guide continuing education
- Assist educators
- Create new practice areas
- Guide future development of subject matter
- Expand positive impacts of RDNs
Q & A

View recorded webinars at www.eatright.org/foundation/kidseatright

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References

References
