Oldways Common Ground

Environmental Issues

Malden Nesheim, Cornell University
The food system as a supply chain
Health outcomes related to food system

Obesity
Chronic disease
  Hypertension
  Coronary Vascular Disease
  Type 2 Diabetes
Malnutrition-micronutrient deficiency
Foodborne Illness
Chemical pollutants
Environmental Effects

Soil and water use

Nitrogen pollution—ammonia, nitrates

Pesticide pollution

Ecological balance

Greenhouse gasses, climate change
Social and Economic Effects

Food insecurity

Health Care access to farm workers

Farm labor issues
  Immigration
  safety
  wages

Independent decision making

Rural Development
Farm Labor

2 million self employed operators and family members

1 million non family farm workers

60-80 percent of hired farm workers are employed on crop farms

Most are foreign born

More than half unauthorized to work in the US.
Policies intended to affect one part of food system have implications beyond the original intent

- Biofuels - 40% of US corn crop
- Fertilizers - pollution of water supplies
- Dietary recommendations
  - Fish Consumption
  - Vegetable consumption
- Antibiotic Use - resistant organisms
- Hen Housing Practices
Some issues with fish consumption

- 2010 Dietary Guidelines recommend 8 ounces per week
- 69% of population are fish consumers
- Consumption of seafood per capita is a bit more than half the recommendation
- Current levels of wild capture are at maximum levels for sustainability for most species and many are overexploited
- Farmed seafood brings other environmental issues
Fruit and vegetable consumption

Current Consumption is about half of current recommendation

Population consumption closer to guidelines has implications for:

- Water use (75% current production is on irrigated land)
- Labor Markets and immigration
- Imports
Sources of Greenhouse gas emissions in US in 2013 (EPA)
Animal Agriculture GHG Emissions

Bar chart showing GHG emissions from different livestock types:
- Beef cattle: [Graph showing emissions]
- Dairy cattle: [Graph showing emissions]
- Swine: [Graph showing emissions]
- Horses: [Graph showing emissions]
- Poultry: [Graph showing emissions]
- Sheep: [Graph showing emissions]
- Goats: [Graph showing emissions]

Pie chart showing distribution of livestock GHG emissions:
- N₂O: 7%
- Manure CH₄: 22%
- Enteric CH₄: 70%

Total GHG emissions: 200 Tg CO₂ eq.

USDA 2011
Concern about long term sustainability of Agriculture with increased population

www.teebweb.org
Concept of Natural Capital

“the stock of natural ecosystems on earth including air, land, soil, biodiversity and geological resources”

greenhouse gas emissions, air pollutants, water consumption, water pollutants, soil pollutants and land use change

Livestock, Palm oil, Rice, Inland fisheries, Corn studies Are underway
Total natural capital cost of beef, dairy and poultry production worldwide (in million US$) and production quantities (in tonnes)

From: Valuation of livestock eco-agri-food systems: poultry, beef and dairy- Wageningen University and Research Center 2015
Average natural capital intensity of beef, poultry meat and dairy milk production (in US$/kg protein)

From: Valuation of livestock eco-agri-food systems: poultry, beef and dairy- Wageningen University and Research Center 2015
Yes it is legitimate to consider environmental issues in making dietary recommendations.

Are there other social and economic issues and tradeoffs that should also be considered?
2015 Dietary Guidelines committee report
Comment on Sustainability

Consistent evidence indicates that, in general, a dietary pattern---

that is higher in plant-based foods, such as vegetables, fruits, whole grains, legumes, nuts, and seeds, and lower in animal-based foods is more health promoting and is associated with lesser environmental impact (GHG, energy, land, water use)
We are concerned about this committee’s suggestion to decrease consumption of red and processed meats. Additionally, we have strong concerns with the Dietary Guidelines Advisory Committee going beyond its purview of nutrition and health research to include topics such as sustainability.

Letter signed by 29 additional Senators

“We are concerned about this committee’s suggestion to decrease consumption of red and processed meats.

Additionally, we have strong concerns with the Dietary Guidelines Advisory Committee going beyond its purview of nutrition and health research to include topics such as sustainability”