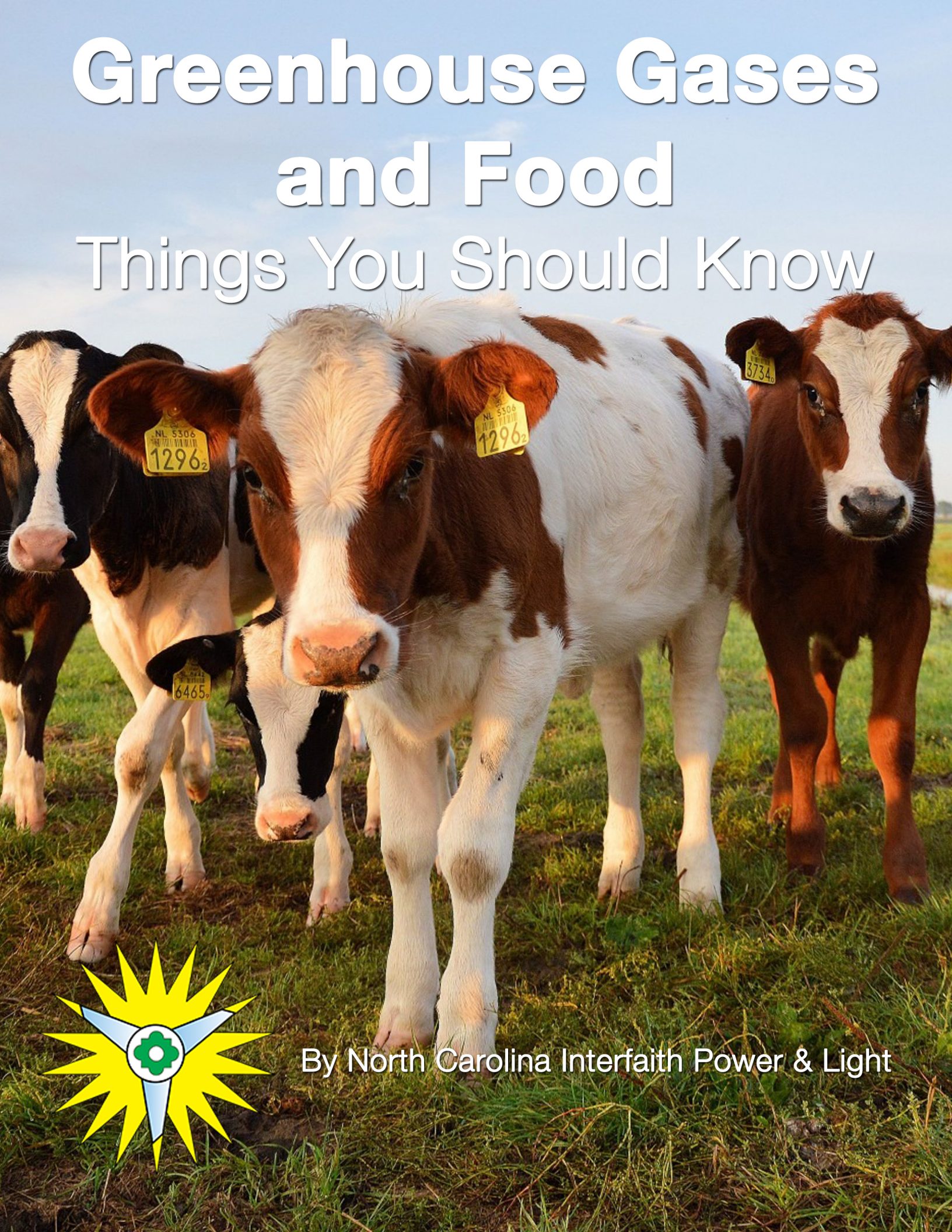
Greenhouse Gases and Food

Things You Should Know



By North Carolina Interfaith Power & Light

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GREENHOUSE GASES AND FOOD – THINGS YOU SHOULD KNOW

- On average, each calorie of food on your plate requires 7-10 calories of energy from fossil fuel to get there[2]
- Until 1840, US food production depended almost entirely on renewable energy sources including labor[2]
- El Nino is a natural model for climate change and explains 15-35% of crop yield variability – climate change will affect crop yields negatively at the global level[8]
- Agriculture and forestry are responsible for 1/3 of all greenhouse gas (GHG) emissions globally[4]
- GHG emissions from agriculture include carbon dioxide (CO_2), methane, and nitrous oxide with CO_2 being the lowest component and least potent GHG[1]
- GHG emissions from food come from production (including animal feed), farm machinery, transportation, synthetic fertilizer, pesticides, processing, storage and preparation
- Total food production in the USA uses 50% of US land, 80% of US fresh water and 17% of US fossil fuels[11]
- Globally, animal agriculture uses 1/3 of the planet surface (the single largest land use) and 2/3 of agricultural land[10]
- 18% of global food related GHG emissions come from animal agriculture; more than transportation[1]
- Animal agriculture consumes 70% of fresh water globally[1]
- Animal agriculture produces 27% of the methane, 65% of the nitrous oxide and 64% of the ammonia globally[1] but only 9% of the CO_2[10]
- Methane is 23 times more warming than CO_2[9] and is produced by anaerobic decomposition in ruminant guts, manure piles and flooded conditions[3]
- High methane-producing foods are meats (particularly beef and other ruminants), dairy and rice[3]
- Nitrous oxide is 296 times more warming than CO_2[9] and comes from synthetic fertilizers and microbial transformation in soil and manure[3]
- 80% of soybeans and 50% of corn globally are fed to livestock[10]
- Annually, the grain fed to livestock in the USA could feed 840 million people[11]
- 70% of deforested land in Latin America is used for grazing and most of the rest is used to grow feed crops for animals[1]
- In the US 45 million tons of plant protein are used to produce 7.5 million tons of animal protein annually[1]
- Animal agriculture in the US uses 37% of the pesticides, 32% of the nitrogen and 33% of the phosphorus[1]
- In the US between 1995 and 2005, 73% of the $60 billion in federal commodities payments went to meat, eggs and dairy versus <0.5% to fruits and vegetables[1]
- Meals (Sweden) with similar calorie content can vary by a factor of up to 9 in GHG emissions[3]
- Meals (Sweden) with similar nutrient value can vary by a factor of up to 4 in GHG emissions[3]
- The most energy intensive foods (animal-based, fats, oils, sweets, snacks, drinks) are most health damaging[5]
- Food miles are less important that transport type (1% of foods in the UK arrive by air but represent 11% of food transport CO_2) [5]
- The 20 million Victory Gardens in the US during WWII produced 40% of the fresh vegetables consumed domestically[5]
- A population with 40% obesity requires 19% more food energy and generates more GHG[6]
- 25% of the food in the USA each year goes to waste[4]
- For the average American diet, 83% of the GHG come from production, 11% from total transport and 5% from wholesale/retail; this does not count emissions from consumer purchase/transport/preparation[12]
- GHG from food production in the USA are 44% CO_2, 23% methane and 32% nitrous oxide[12]
- Shifting American diet away from red meat/dairy 1 day per week is the equivalent of eating 100% locally[12]
- Shifting diet from meat/dairy to chicken/fish/eggs one day a week is equivalent to driving 760 fewer miles per year; shifting to all vegan one day a week is equivalent to driving 1160 fewer miles per year[12]
- Shifting totally away from red meat/diary to chicken/fish/eggs is equivalent to driving 5340 fewer miles per year; shifting to all vegan is equivalent to driving 8100 fewer miles per year[12]
- It requires 7 kg of grain to produce 1 kg of meat, 4 kg of grain to produce 1 kg of pork and 2 kg of grain to produce 1 kg of chicken[7]
- In the US on average it takes 13 kcals of fossil fuel inputs to produce every kcal we eat, for meat it takes 25 kcals[4]
- In general plant based foods produced locally have a lower carbon footprint but intensive greenhouse technology can make even locally produced, out-of-season fruit as GHG intensive as red meat [2]
- 2 pounds of bananas picked up from the store 2 miles from home in the family SUV uses the same amount of energy that it takes to carry those same bananas around the world 8 times on a full container ship. The energy from Prius doing the same errand would only allow the ship to circle the world twice.[2]
- "…most of the power to wean the food system from fossil fuels rests with the eaters, not the farmers."[2]

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