



# The Role of Veganism in Reversing Climate Change

100 Grannies Meeting  
January 28, 2020

By Carol Throckmorton, RD/LD (retired)





## Agenda:

- Definitions of dietary choices
- What do vegans eat?
  - Protein
- How to handle people's resistance to dietary changes (answers to basic nutrition questions)
- Why it's important to environmentalists
- Q&A



# Why do people choose to be vegan?

- **Health**

- Decreased risk of diseases/disabilities (heart disease, cancer, Type 2 Diabetes, high blood pressure, osteoporosis, impaired kidney function, allergies, digestive disorders, obesity, etc.)
- Reversal of diseases
- Decreased risk of premature death (lifespan extension of approximately 10 years)

- **Animal welfare**

- Believe it is:
  - Morally wrong to harm, abuse, cause suffering, and kill sentient beings for food
  - Wrong to exploit living beings (ex. caging animals)

- **Environment**

- Animal agriculture accelerates global warming (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (C<sub>2</sub>O)
- Pollution of the planet (ex: air, soil, ground water, streams, oceans)
- Climate change

- **Spirituality**

- “Ahimsa” - respect for all living beings and the avoidance of violence
- Desire to extend compassion to all living beings
- Sense of responsibility for preserving the planet for future generations



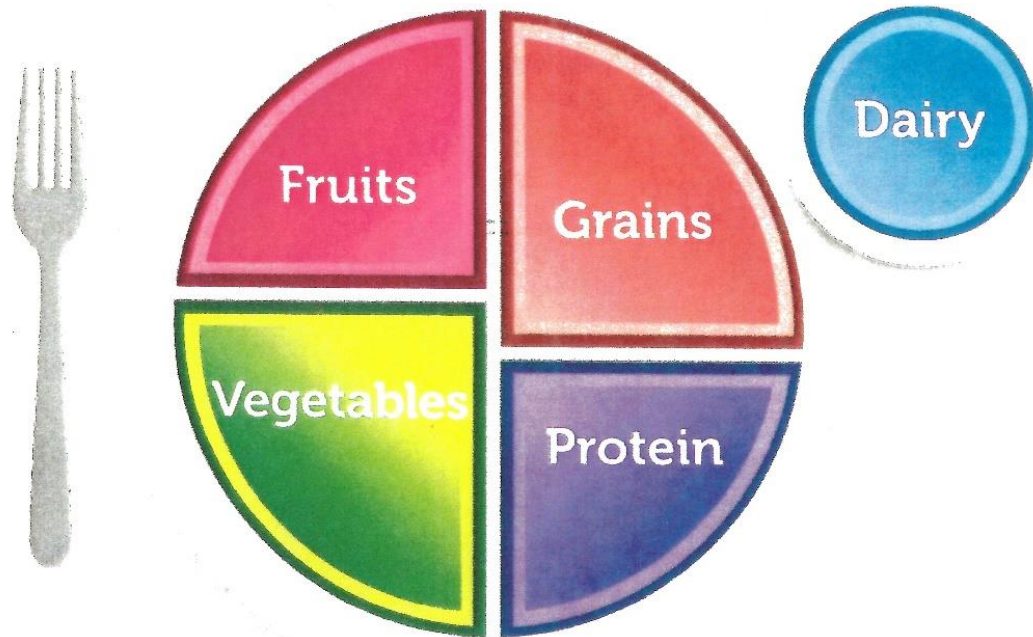
# Dietary Choices

- **Omnivores** consume foods of both plants and animals.
- **Vegetarians** abstain from the consumption products of animal slaughter (but do consume animal by-products such as eggs and/or dairy)
- **Vegans** eat plants only (no products of animal slaughter or animal by-products such as eggs or dairy)
  - **Ethical vegans** eat plants only and do not use any products that are derived from animals (examples: leather, honey, gelatin, etc.)

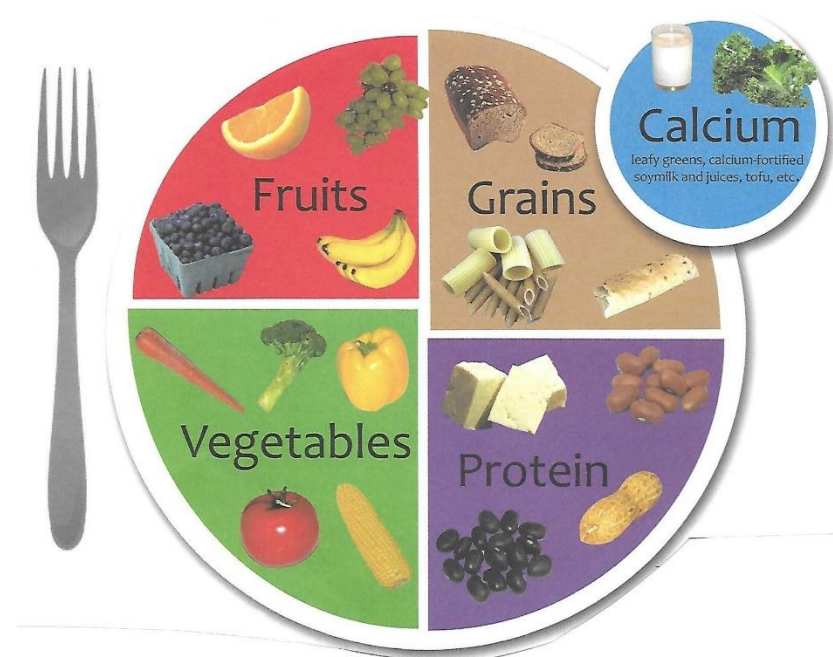
	Omnivores	Vegetarians	Vegans
<b>Plants:</b>			
Vegetables	✓	✓	✓
Fruit	✓	✓	✓
Grains	✓	✓	✓
Legumes (beans, peas, lentils)	✓	✓	✓
Nuts/seeds	✓	✓	✓
Oils	✓	✓	✓
<b>Animal products:</b>			
Eggs	✓	✓ ?	
Dairy	✓	✓ ?	
Meat (beef,* pork, lamb,* goat*, game*)	✓		
Poultry	✓		
Sea animals	✓		

\*ruminant (produce methane)

*Resistance statement #1: "I can't be vegan, because I'll have to change everything I eat."*



**MyPlate.gov**



**My Vegan Plate**



## Resistance Statement #2:

*“I won’t get enough protein (or other nutrients) on a vegan diet.”*

A whole-foods, plant-exclusive diet can meet all nutrient needs for:

### Macronutrients

#### 1. Carbohydrates

1. Provide glucose, the body’s essential fuel source
2. Fiber (only found in plants)

#### 2. Protein

#### 3. Fat

### Micronutrients

#### 1. Vitamins/minerals

- Exception: Vitamin B12
  - Fortified foods
  - Supplementation

#### 2. Phytonutrients and Antioxidants

- Naturally occurring only in plants (none in animal products)



## Protein...

- All foods contain protein except for fats and oils
  - Oils are extracted from foods that contain protein
- Humans and most animals\* do not need to consume animal protein to be healthy
  - Consuming a whole-food, plant-exclusive diet at an individual's appropriate calorie level for their needs will provide adequate amounts of all nutrients.
- Protein deficiency is extremely rare in the US.

\*Exception:

- True carnivores (lions, tigers, wolves, alligators, orcas, etc.)
- Most animals are herbivores (plants only)



## Where Do Vegans Get Their Protein?

### VEGETABLES:

- Alfalfa sprouts
- Artichoke
- Asparagus
- Bamboo shoots
- Beans, green
- Beans, yellow
- Beets
- Beet greens
- Broccoli
- Brussels sprouts
- Burdock
- Cabbage
- Carrots
- Cauliflower
- Celeriac
- Celery
- Celery root
- Chilies
- Com
- Cucumber
- Eggplant
- Escarole
- Fennel
- Garlic
- Garden cress
- Garlic
- Greens (all)
- Kale
- Kohlrabi
- Leeks
- Lettuce
- Mung bean sprouts
- Mushrooms
- Okra
- Onions
- Parsley
- Parsnips
- Peas
- Peppers
- Potatoes
- Pumpkin
- Purslane
- Radishes
- Rhubarb
- Rutabaga

- Salsify
- Scallions
- Shallots
- Snow peas
- Sorrel
- Spinach
- Squash (all)
- Succotash
- Sweet potato
- Swiss chard
- Tomatoes
- Turnips
- Turnip greens
- Water chestnuts
- Watercress
- Yams
- Zucchini

### LEGUMES:

#### Beans:

- Anasazi
- Adzuki
- Black (turtle)
- Butter beans
- Cannellini
- Cranberry
- Fava
- Flageolet
- Great northern
- Kidney
- Lima
- Navy
- Pinto
- Runner
- Soy:
- Soy milk
- Soy cheese
- Tofu
- Tempeh
- Edamame

#### Dried peas:

- Black-eyed
- Green
- Yellow
- Chick (garbanzos)
- Crowder

### Lentils:

- Brown
- French
- Green
- Red

### GRAINS:

- Barley
- Buckwheat
- Bulgur
- Quinoa
- Millet
- Oats
- Pasta
- Popcorn
- Quinoa
- Rice, brown
- Rice, wild
- Rye
- Sorghum
- Triticale
- Whole wheat products
- Breakfast cereal
- Seitan (wheat meat)

### NUTS & SEEDS:

- Almonds/butter
- Peanuts/butter
- Brazil nuts
- Cashews
- Hazelnuts
- Macadamia
- Pecans
- Pine nuts
- Pistachios
- Walnuts
- Chia seeds
- Flax seeds
- Hemp seeds
- Pumpkin seeds
- Sunflower seeds

- ...and pretty much any other foods made from plants. (Protein is found in all foods except for oils.)  
People who consume a whole-foods, plant-based diet need not be concerned about getting adequate protein.

# Effects of eating animals and their products

## **An Animal-based Diet**

- Flesh: beef/pork, poultry, fish
- Dairy
- Eggs



## **Causes/promotes:**

- Heart disease
- High blood pressure
- Type 2 diabetes
- Obesity
- Most types of cancer
- Digestive disorders
- Disabilities
- Premature death



## **Animal agriculture and environment:**

- Greenhouse gases
- Water and air pollution
- Soil erosion
- Excessive water usage
- Deforestation
- Loss of biodiversity
- Nutrient inefficiency
- Global hunger and starvation
- Unjust distribution of resources

# Climate Change Conference



Can anyone else think of what we can do  
besides getting eco light bulbs?



# What we can do about climate change

- Use less heat and air conditioning energy; install smart thermostats
- Add insulation, caulking, weather stripping around your home
- Change light bulbs to LEDs
- Turn off lights
- Buy energy efficient appliances and use energy saving options, when available
- Reduce temp on water heater, take shorter showers and use low-flow shower heads
- Use cold water in washing machine, line-dry clothes, wash full loads
- Install solar panels and geothermal system
- Get energy score from your utility company
- Plant trees
- Composting
- Chemical-free lawn
- Drive less, drive smart
- Switch to an electric car
- The 7 'Rs' (rethink-refuse-reduce-repurpose-reuse-recycle-rot)
- Reduce waste
- Avoid products with excessive packaging
- Reduce water use
- Use reusable containers (ex. water bottles, straws, bags)
- **Plant-exclusive diet**

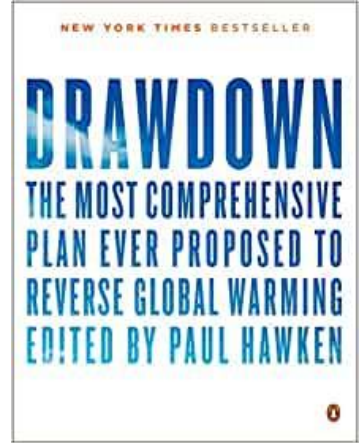
*“If everyone became vegan, food-related greenhouse gases could be reduced by **75 percent.**”*

--Dr. Marco Springmann, senior researcher,  
Department of Public Health, Univ. of Oxford, UK



# Drawdown

The Most Comprehensive Plan Ever Proposed  
to Reverse Global Warming *edited by Paul Hawken*



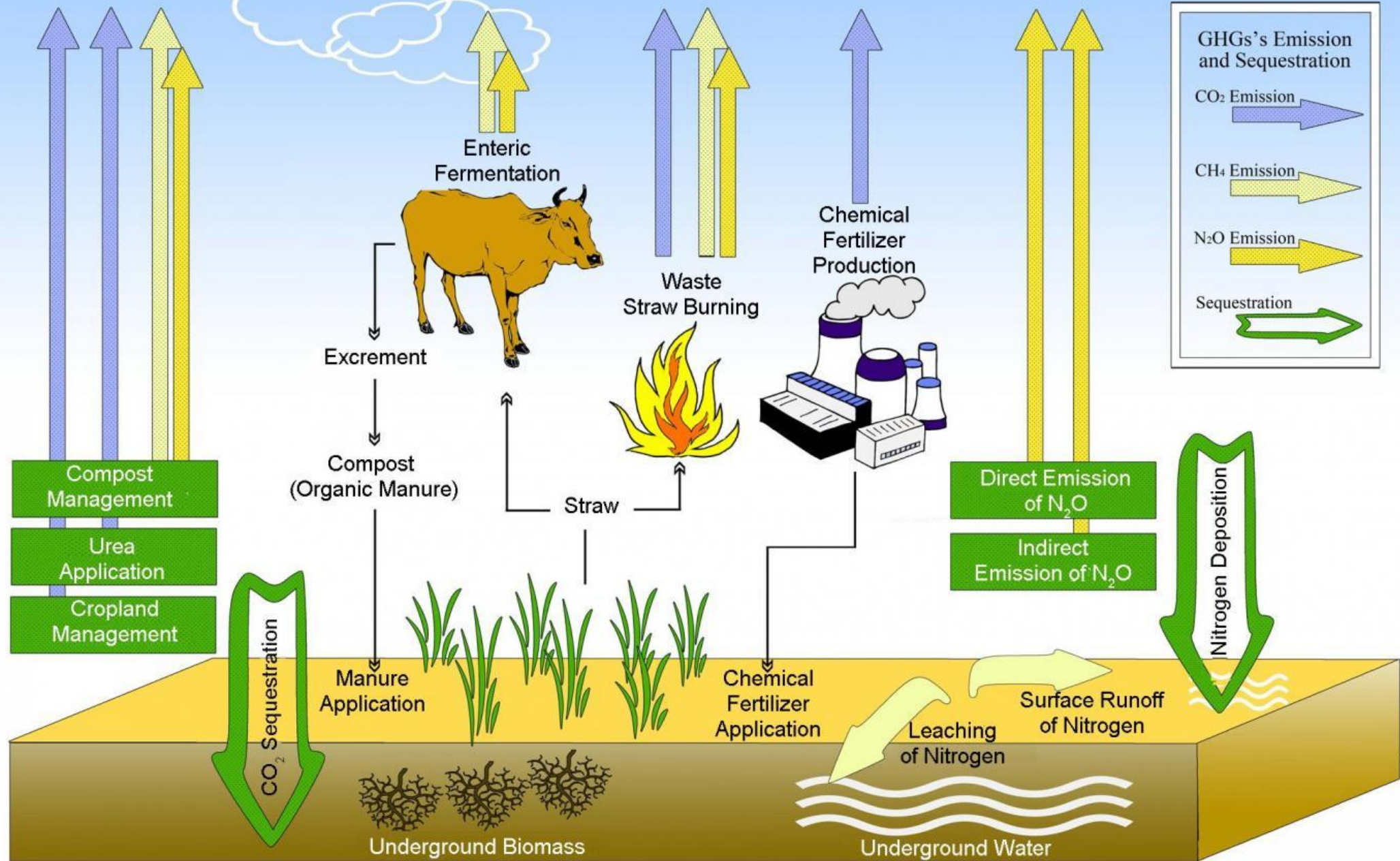
Page 37:

*“Our passion for meat involves over **60 billion land animals** that require nearly half of all agricultural land for food and pasture. **Livestock emissions, including carbon dioxide, nitrous oxide, and methane, are responsible for an estimated 18-20% of greenhouse gases annually, a source second only to fossil fuels.***

*“When you add to livestock all other food-related emissions—  
from farming to deforestation to food waste—*

*“What we eat turns out to be **#1** of the greatest causes  
of global warming along with the energy sector.”*

# Animal agriculture and climate change



# Livestock's' role in climate change: CAFOs (Concentrated Animal Feeding Operation)



Then...







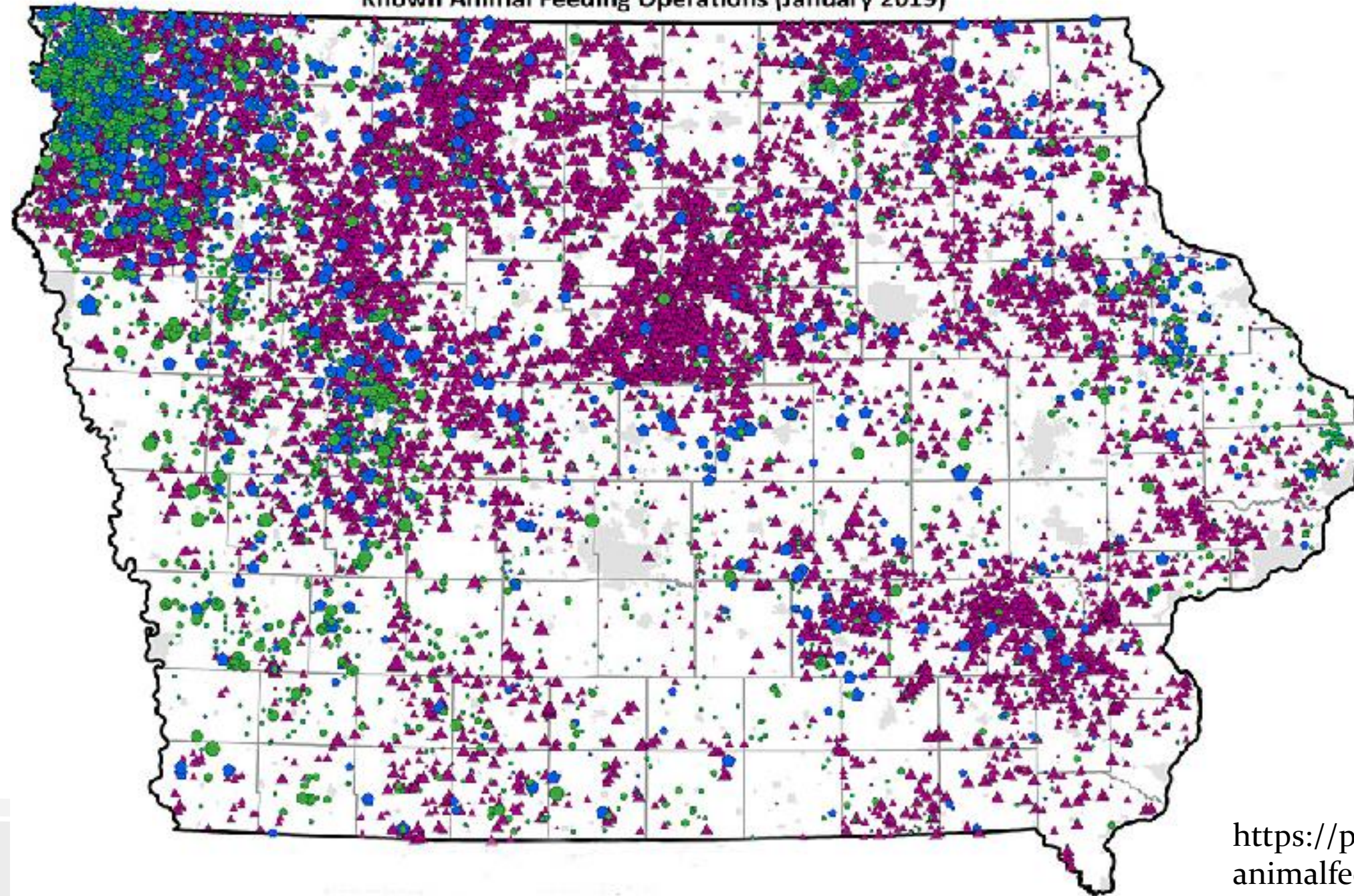
# Then and now...



*“The principle of confinement in so-called animal science is derived from the industrial version of efficiency. The designers of animal factories appear to have had in mind the example of concentration camps or prisons, the aim of which is to house and feed the greatest numbers in the smallest space at the least expense of money, labor, and attention. To subject innocent creatures to such treatment has long been recognized as heartless. Animal factories make an economic virtue of heartlessness toward domestic animals, to which we humans owe instead a large debt of respect and gratitude.”*

—Wendell Berry, *Stupidity in Concentration*, June, 2012

**Known Animal Feeding Operations (January 2019)**



**As of 12/31/19:**

**Number of  
Iowa CAFOs:**

**10,257**

**“Iowa’s  
capacity”:  
45,700?!**

**Number of  
animals in Iowa  
confinements**

**12,698,723**

[https://programs.iowadnr.gov/  
animalfeedingoperations](https://programs.iowadnr.gov/animalfeedingoperations)

# How many animals die in the United States every year?

## Land animals only:

(USDA 2018: slaughter + imports - exports + pre-slaughter deaths)

- **Every year: 8,380,450,000**
- Every day: 22,960,000
- Every hour: 956,700
- Every minute: 15,950
- Every second: 266

- All produce CO<sub>2</sub>, N<sub>2</sub>O
- Additionally, ruminant animals produce CH<sub>4</sub>
- All produce waste (urine, manure):
  - 2,000,000,000 tons/year/US

## Inclusive of land and aquatic animals:

- **Every year: 55,286,450,000**
- Every day: 151,470,000
- Every hour: 6,311,000
- Every minute: 105,190
- Every second: 1,753



“Free-range” chickens/“cage-free” eggs

## CAFO Production:

- 99.9% of all chickens
- 99% of all turkeys
- 97% of all eggs
- 95% of pork
- 78% of beef



“Free-range” chickens





When people buy meat, poultry, eggs, and dairy products,

*they support/promote the CAFO industry.  
(more demand, more CAFOs)*

CAFO products are sold by:

- Supermarkets
- Farmers markets
- Wholesale food suppliers
- Restaurants/cafeterias
- Vending machines



# Resistance statement #3:

## “But I want to support Iowa farmers...”

- Is it worth sacrificing years of your life?
  - People who observe a plant-based diet live an average of 10 years longer than omnivores due to reduced risk of disease.\*
- Farmers need to transition to growing food for humans instead of animals.
  - *“If all the grain currently fed to livestock in the US was consumed directly by people, the number who could be fed would be nearly 800 million.”*
    - David Pimentel, professor of ecology  
Cornell University College of Agriculture and Life Sciences
- Farmers are innovative and can respond to the need for change
  - CAFOs can be (and are being) transformed into greenhouses

\*<https://adventisthealthstudy.org/researchers/scientific-publications/adventist-health-study-2-publication-database>

From this...



← ...to this... →







## Resistance statement #4:

“ I eat only grass-fed beef.”

- Digesting grass produces more methane than digesting grains/legumes (soybeans)
- Time to slaughter (depending on breed):
  - Grass-fed cow: 24-30 months
  - Grain-fed cow: 18-20 months
- Continued air and ground water quality impacts from feed lots
- Greater water consumption:
  - A single cow drink 25-40 gallons of water/day
  - 1,800 gallons of water is required to produce 16 oz. of beef
    - Equivalent to 7 years of drinking water for the average person

# Resistance statement #5:

“But I love eating meat (cheese, milk, eggs, butter, etc.)”

- Which is more important?
  - (a) The transient taste of animal foods or
  - (b) Having a livable planet for future generations?
- There are many excellent substitutes:
  - Meat: Analogs (look-alike, taste-alike options)
  - Eggs: “Just Egg”
  - Milk:
    - Plant milks: soy, oat, almond, cashew, etc.
    - Cheese substitutes: (Violife, Follow Your Heart, Daiya, etc.)
    - Cream cheese, sour cream (Tofutti)
  - Butter:
    - Margarines (Earth Balance, I Can’t Believe It’s Not Butter [vegan], etc.)



# “Meat” without slaughtering an animal

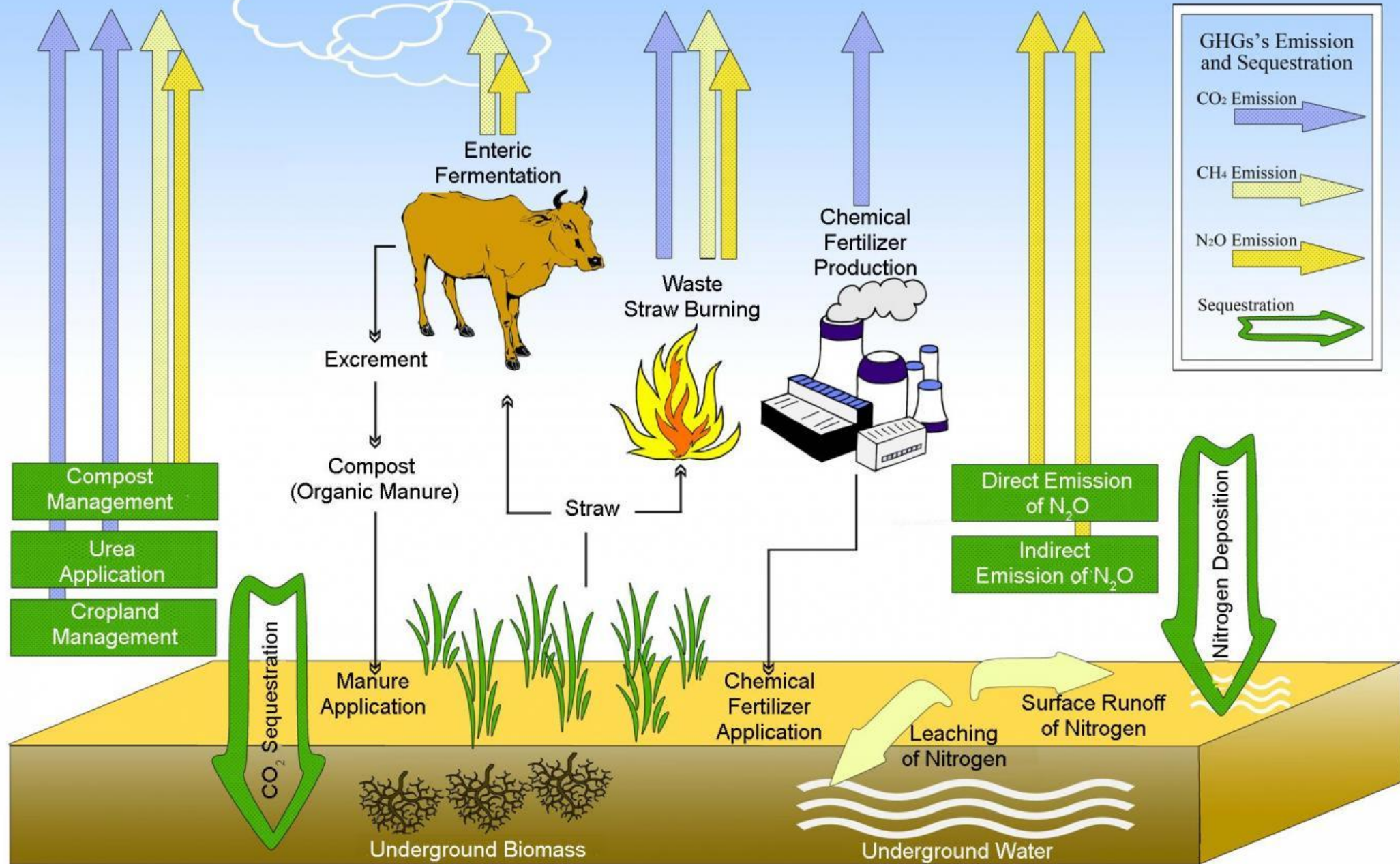



87% less water  
96% less land  
89% less GHGe  
92% less aquatic pollutants



99% less water  
93% less land  
90% less GHGe  
46% less energy than beef

If we're going to change this...





...we need to go back to  
the source of the problem,  
which is eating animals  
and their products.



# Take-home messages

- A whole-food, plant exclusive (vegan) diet is nutritionally adequate --including protein.
  - Humans do not have a physiological need to eat animals or their by-products.
- Eating animal products **promotes**:
  - The proliferation of CAFOs
  - Production of greenhouse gases
  - Pollution of water, air and soil
- It is not enough to eat less meat--or eat it 'in moderation'.
  - Doing anything 'in moderation' yields 'moderate' results
  - To save this planet, we need a full-on commitment to markedly decrease the consumption of animal products.
- We must do everything we can to reverse climate change to:
  - Improve health, experience less disability
  - Decrease suffering (human and animal)
  - Provide a livable planet for future generations

# The difference between eating animal products and plants:

## An Animal-based Diet

- Flesh: beef/pork, poultry, fish
- Dairy
- Eggs



Harms, abuses,  
causes suffering,  
and kills sentient  
creatures



## Animal agriculture and environment:

- Water Usage
- Water Pollution
- Soil erosion
- Greenhouse gas production
- Deforestation
- Loss of biodiversity
- Nutrient inefficiency
- Global hunger and starvation
- Unjust distribution of resources
- **Climate change**



## Causes/promotes:

- Heart disease
- High blood pressure
- Type 2 Diabetes
- Obesity
- Some types of cancer
- Digestive disorders
- Disabilities
- Premature death

## A Whole-foods, Plant-exclusive Diet:



Supports optimal health  
and prevents/reverses  
disease/disability, adding  
an avg. of ten years



Honors the  
sanctity of  
all living  
beings



Preserves the  
planet for  
future  
generations

# Vegan MY ^ PLATE

**Healthy Swaps**

**Fruits**

**Grains**

**Vegetables**

**Protein**

**Calcium**  
leafy greens, calcium-fortified soy milk and juices, tofu, etc.

Text by Reed Mangels, PhD, RD  
Design by Lindsey Silvert

### Vitamin B12:

Vegans need a reliable source of vitamin B12. Eat daily a couple of servings of fortified foods such as B12-fortified soy milk, breakfast cereal, meat analog, or Vegetarian Support Formula nutritional yeast. Check the label for fortification, if fortified foods are not eaten daily.

**Note:**  
Like any food plan, this should only serve as a general guide for adults. The plan can be modified according to your own personal needs. This is not personal medical advice. Individuals with special health needs should consult a registered dietitian or a medical doctor knowledgeable about vegan nutrition.

**VRg The Vegetarian Resource Group**  
P.O. Box 1463 Baltimore, MD 21203 www.vr.org (410) 366-8343

## 4 HEALTHY SWAPS

Eating plant-based foods is an easy way to boost your health in all stages of life.

Take better care of yourself by trying one of these plant-based swaps today!

Meat	Milk, Cheese, and Yogurt	Eggs	Fish and Poultry
<b>Often High in Fat, Cholesterol, and Calories. Void of Fiber.</b>			
<b>Low in Fat, Cholesterol, and Calories. Rich in Fiber.</b>			

**Beans and Lentils**  
Beans and Lentils make low-cost, protein-packed veggie burgers.

**Nondairy Options for Milk, Cheese, and Yogurt**  
Nondairy options are just as delicious and easy to use.

**Tofu**  
Tofu even has egg-like properties in baking and cooking.

**Whole Grains**  
Whole Grains are a great opportunity to add variety to your plate.

**PhysiciansCommittee** #plantbasedrx

## PCRM Ingredient Substitution Chart

MEAT SUBSTITUTES	EGG SUBSTITUTES
<b>Legumes, beans, peas, and lentils</b> are an all-natural, high-protein source that can easily be used as the main course or in place of meat in recipes.	<b>One egg is equal to:</b> 1/4 cup silken tofu blended 1/2 cup applesauce or pureed fruit 1/2 cup soy or rice yogurt
<b>Vegetarian burgers</b> , made from a variety of plant foods including vegetables, grains, and soy, provide a meat-like taste and texture and can substitute for ground meat.	1 1/2 tsp. of Ener-G Foods Egg Replacer + 2 tbsp.ulsevama water 1 1/2 cups ground flaxseed meal + 3 tbsp. water + 1 tbsp. oil + 1 tsp. baking powder + 1 tsp. potato or cornstarch
<b>Tempeh</b> , made from fermented soybeans, has a distinct flavor and meaty texture that can be used in place of ground meat and works well in curries, chilis, and stir-fries.	1/4 cup mashed white potatoes or sweet potatoes 2 tsp. potato starch, cornstarch, or arrowroot 2-3 tbsp. tomato paste 1/4 cup cooked oats 2-3 tbsp. bread crumbs 2-3 tbsp. flour 1 tsp. baking powder
<b>Seitan</b> , made from wheat gluten, is well-suited for shaping into meats or for replacing strips or chunks of meat in recipes such as fajitas, steaks, or stir-fries.	<b>DAIRY ALTERNATIVES</b> Milk: Equal portion of almond, oat, soy, hazelnut, or rice milk. Creams: Almond milk (or any nut milk), soy milk, coconut milk, mashed potato, pureed garbanzo beans, pureed tofu, soy sour cream, soy whipping cream, or soy cream. Parmesan cheese: Nutritional yeast, garlic powder, and/or chopped walnuts or almonds. Cheese: Soy, rice, nut-based cheese alternatives, or nutritional yeast. Butters: Dairy-free non-hydrogenated margarines for cooking, baking, or spreading. Some good brands include Earth Balance and Spectrum. Ricotta cheese: Himi tofu, drained, and crumbled.
<b>Portobello mushrooms</b> have a savory flavor for filling a meat layer in a dish or as "burgers" at your next barbecue, especially after marinating in low-fat dressing and then grilling or heating in a frying pan.	
<b>Tofu</b> , a curd made from soybeans, is mild in taste and easily absorbs the flavor of any recipe. Soft tofu works well in soups, sauces, and desserts, and firmer varieties work well in stir-fries and other recipes requiring tofu to hold its shape. For a denser texture, freeze tofu, thaw, and squeeze out excess water before using it in your recipe.	
<b>Textured vegetable protein (TVP)</b> , made of defatted soybeans, provides a substitute for ground meat.	
<b>OIL ALTERNATIVES</b> Sautéing: Water or vegetable broth. Baking: Applesauce, or low fat liquids such as plant milk or water.	

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## Power Up with Plant-Based Protein

Protein is an important nutrient required for the building, maintenance, and repair of body tissue. But many Americans get double the protein they need—often from animal products that are also packed with saturated fat and cholesterol. The good news is that eating a varied plant-based diet rich in vegetables, whole grains, legumes, nuts, and seeds will power you up with all the protein you need!

**How much protein do you need?**  
Multiply your weight (in pounds) by 0.36 to calculate the grams of protein you need per day.  
Example: 140 pounds x 0.36 = 50.4 grams of protein

Oatmeal, Fruit, Almonds, and Chia Seeds 12.8 grams	Vegetable Hummus Sandwich 14.4 grams	Brown Rice, Almond, and Chickpea Bowl 23 grams	= 50.2 grams
Veggie Tofu Scramble with Toast 10.9 grams	Black Bean and Corn Salad 21 grams	Pasta Primavera with Lentils 19 grams	= 50.9 grams
Blueberry Pancakes 7.7 grams	Lentil Soup and Hummus Sandwich 25.2 grams	Black Bean Fajitas with Brown Rice 20.9 grams	= 53.8 grams

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## The Plant-based Model

**NUTRITION TIPS:**

- Eat a variety of foods from each food group daily, and preferably at each meal.
- All food groups should contain mostly unprocessed whole foods. Highly processed foods can be eaten in small amounts, but should not form the basis of your daily diet.
- Supplementation of iodine, Vitamin B12, Vitamin D and omega-3 fats may be required for most vegans. Contact Mark Rifkin, MS, RD, LDN to learn more.

**Fruits**

- berries
- kiwi
- mango
- apples
- apricots
- avocados
- cantaloupe
- citrus
- grapes
- pears
- plums
- raspberries
- watermelon

**Vegetables**

- broccoli
- kale
- spinach
- carrots
- tomatoes
- peppers
- cabbage
- zucchini
- cauliflower
- onions
- mushrooms
- squash
- cucumbers
- green beans
- collard greens
- celery
- eggplant
- asparagus
- bell peppers
- okra
- zucchini
- cauliflower
- onions
- mushrooms
- squash
- cucumbers
- green beans
- collard greens

**Fats & Oils**

- avocado
- nuts & seeds
- olive oil
- canola oil

**Whole Grains & Starches**

- barley
- oats
- quinoa
- whole wheat pasta
- brown rice
- sweet potatoes
- vegetable potatoes
- corn

**Protein**

- beans & split peas
- lentils
- veggie burger
- tempeh
- seitan
- nuts

**Calcium**

- almonds
- kale
- nuts
- eggs
- beans
- calcium-fortified non-dairy milk

**BALANCED NUTRITION SOLUTIONS**  
410-764-8343  
www.balancednutritiononline.com

## WAYS TO REPLACE AN EGG IN BAKING

Each portion equals one egg

- 1/4 cup of soft tofu or vegan yogurt
- 4 tbsp of chickpea flour + 4 tbsp. of water
- 3 tbsp of aquafaba
- 2 tsp of corn starch + 2 tsp. of water
- 1/4 cup applesauce
- 3 tbsp of peanut butter or any nut butter
- 1 tsp of vinegar + 1 tsp of baking soda
- 1/4 cup avocado or mashed banana

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- Brussels sprouts
- Burdock
- Cabbage
- Carrots
- Cauliflower
- Celeriac
- Celery
- Celery root
- Chiles
- Corn
- Cucumber
- Eggplant
- Escarole
- Fennel
- Garlic
- Garden cress
- Garlic
- Greens (all)
- Kale
- Kohlrabi
- Leeks
- Lettuce
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- Okra
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- Parsley
- Parsnips
- Peas
- Peppers
- Potatoes
- Pumpkin
- Purslane
- Radishes
- Rhubarb
- Rutabaga

**LEGUMES:**

- Beans: Anasazi, Azuki, Black (turtle), Butter beans, Cannellini, Cranberry, Fava, Flageolet, Great northern, Kidney, Lima, Navy, Pinto, Runner, Soy, Soy milk, Soy cheese, Tofu
- Lentils: Brown, French, Green, Red
- Peas: Black-eyed, Green, Yellow, Chick (garbanzo), Crowder

**GRAINS:**

- Barley
- Buckwheat
- Bulgur
- Quinoa
- Millet
- Oats
- Pasta
- Popcorn
- Quinoa
- Rice, brown
- Rice, wild
- Rye
- Sorghum
- Triticale
- Whole wheat products
- Breakfast cereal
- Seitan (wheat meat)

**NUTS & SEEDS:**

- Almonds/butter
- Peanut/butter
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- Hazelnuts
- Macadamia
- Pecans
- Pine nuts
- Pistachios
- Walnuts
- Chia seeds
- Flax seeds
- Hemp seeds
- Pumpkin seeds
- Sunflower seeds

**and pretty much any other foods made from plants. (Protein is found in all foods except for oils.)**  
People who consume a whole-foods, plant-based diet need not be concerned about getting adequate protein.

© Carol Provencher, Dietitian • www.balancednutrition.com

## 12 Plant Foods That Are High in Protein

10 Weeks TO VEGAN | VeganOutreach.org/10w-PRE

VEGAN OUTREACH





*You cannot get through a single day without having an impact on the world around you. What you do makes a difference and you have to decide what kind of a difference you want to make.*

*—Jane Goodall*



A **vegan world** is coming.

