

HISTORY OF AGRICULTURAL TECHNOLOGY: FROM DOMESTICATION THROUGH TODAY

WHAT HAVE YOU EATEN TODAY?

- × Fruit
- × Coffee/Tea
- × Grains



CENTER OF ORIGINS

North America

- × Seeds

- + 1. Sunflower
- 2. Acorns

- × Fruits

- + 1. Blueberries
- 2. Strawberries

CENTER OF ORIGINS

South America

- × Root Tubers
 - + 1. Andean potato, *Solanum andigenum* (96 chromosomes)
 - 2. Other endemic cultivated potato species.
- × Grains and Legumes
 - + 1. Starchy maize, *Zea mays amylacea*
 - 2. Lima bean, *Phaseolus lunatus* (secondary center)
 - 3. Common bean, *Phaseolus vulgaris* (secondary center)
- × Vegetable Crops
 - + 1. Pepino, *Solanum muricatum*
 - 2. Tomato, *Lycopersicon esculentum*
 - 3. Pumpkin, *Cucurbita maxima*
 - 4. Pepper, *Capsicum frutescens*

CENTER OF ORIGINS

India

× Cereals and Legumes

- + 1. Rice, *Oryza sativa*
- 2. Chickpea or gram, *Cicer arietinum*
- 3. Pigeon pea, *Cajanus indicus*
- 4. Urd bean, *Phaseolus mungo*
- 5. Mung bean, *Phaseolus aureus*
- 6. Rice bean, *Phaseolus calcaratus*
- 7. Cowpea, *Vigna sinensis*

× Vegetables and Tubers

- + 1. Eggplant, *Solanum melongena*
- 2. Cucumber, *Cucumis sativus*
- 3. Radish, *Raphanus caudatus* (pods eaten)
- 4. Taro, *Colocasia antiquorum*
- 5. Yam, *Dioscorea alata*

× Fruits

- + 1. Mango, *Mangifera indica*
- 2. Orange, *Citrus sinensis*
- 3. Tangerine, *Citrus nobilis*
- 4. Citron, *Citrus medica*
- 5. Tamarind, *Tamarindus indica*

× Sugar, Oil, and Fiber Plants

- + 1. Sugar cane, *Saccharum officinarum*
- 2. Coconut palm, *Cocos nucifera*
- 3. Sesame, *Sesamum indicum*
- 4. Safflower, *Carthamus tinctorius*
- 5. Tree cotton, *Gossypium arboreum*
- 6. Oriental cotton, *Gossypium nanking*
- 7. Jute, *Corchorus capsularis*
- 8. Crotalaria, *Crotalaria juncea*
- 9. Kenaf, *Hibiscus cannabinus*

× Spices, Stimulants, Dyes, and Miscellaneous

- + 1. Hemp, *Cannabis indica*
- 2. Black pepper, *Piper nigrum*
- 3. Gum arabic, *Acacia arabica*
- 4. Sandalwood, *Santalum album*
- 5. Indigo, *Indigofera tinctoria*
- 6. Cinnamon tree, *Cinnamomum zeylanticum*
- 7. Croton, *Croton tiglium*
- 8. Bamboo, *Bambusa tulda*

CENTER OF ORIGINS

Middle-East:

× Grains and Legumes

- + 1. Einkorn wheat, *Triticum monococcum* (14 chromosomes)
- 2. Durum wheat, *Triticum durum* (28 chromosomes)
- 3. Poulard wheat, *Triticum turgidum* (28 chromosomes)
- 4. Common wheat, *Triticum vulgare* (42 chromosomes)
- 5. Oriental wheat, *Triticum orientale*
- 6. Persian wheat, *Triticum persicum* (28 chromosomes)
- 7. *Triticum timopheevi* (28 chromosomes)
- 8. *Triticum macha* (42 chromosomes)
- 9. *Triticum vavilovianum*, branched (42 chromosomes)
- 10. Two-row barley, *Hordeum distichum*, *H. nutans*
- 11. Rye, *Secale cereale*
- 12. Mediterranean oats, *Avena byzantina*
- 13. Common oats, *Avena sativa*
- 14. Lentil, *Lens esculenta*
- 15. Lupine, *Lupinus pilosus*, *L. albus*

× Forage Plants

- + 1. Alfalfa, *Medicago sativa*
- 2. Persian clover, *Trifolium resupinatum*
- 3. Fenugreek, *Trigonella foenum graecum*
- 4. Vetch, *Vicia sativa*
- 5. Hairy vetch, *Vicia villosa*

× Fruits

- + 1. Fig, *Ficus carica*
- 2. Pomegranate, *Punica granatum*
- 3. Apple, *Malus pumilo* (one of the centers)
- 4. Pear, *Pyrus communis* and others
- 5. Quince, *Cydonia oblonga*
- 6. Cherry, *Prunus cerasus*
- 7. Hawthorn, *Crataegus azarolus*

THE VALUE OF FOOD

✘ A ratio that links the number of calories per obtained per serving to the amount of energy required in the production.

+ Wheat

+ Rice

+ Corn

+ Potato

DISTRIBUTION OF THE GLOBAL POPULATION

- ✘ How does this influence the population density's?
 - + North vs. South America
 - + Middle East vs. Europe
 - + Western vs. Eastern Hemisphere

HISTORY OF FOOD

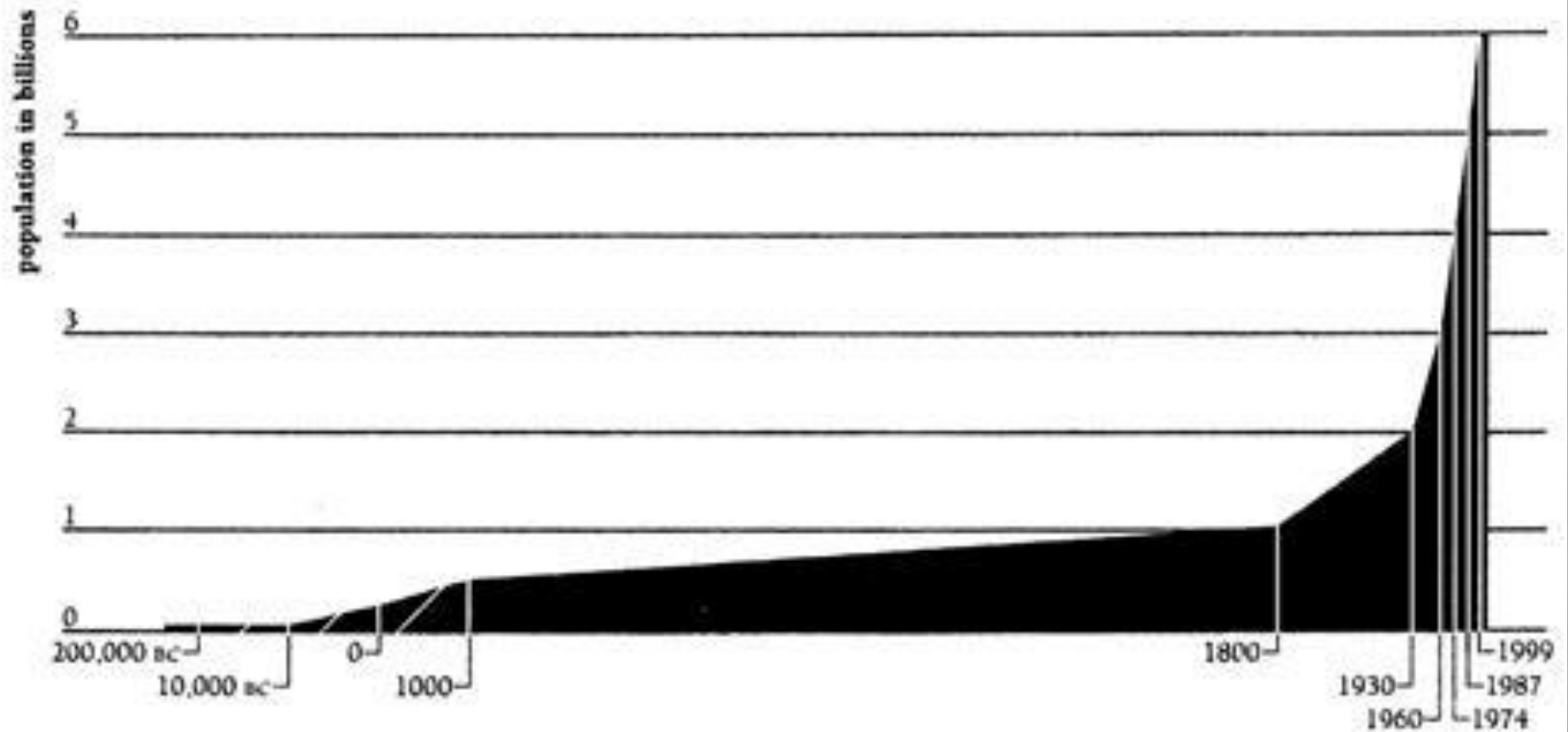
- ✘ Transition from Hunter-gatherer to Agriculture
specialization, population increases,
culture, etc....

These early farmers unknowingly changed the plants they grew.

AGRICULTURAL IMPROVEMENTS

- × Irrigation
- × Domestication of animals.
- × Plows
- × Mechanization
- × Diesel engine
- × Fertilizer

HUMAN POPULATION GROWTH



Source: U.S. Census Bureau

UNINTENDED CONSEQUENCES

- × Irish Potato Famine
 - + 2 million starved
 - + 2 million emigrated to the US
- × Dust Bowl
 - + Deep soil tilling
 - + Residents migrated west

MODERN AGRICULTURE

- ✘ Organic vs. Conventional production
 - + Cost
 - + Environmental Concerns
 - + Regulation
 - + Popular

MODERN AGRICULTURE

- × Gene Revolution
 - GM foods
 - patent laws

MODERN AGRICULTURE

- × Current Agricultural Practices
 - big seed companies
 - global market



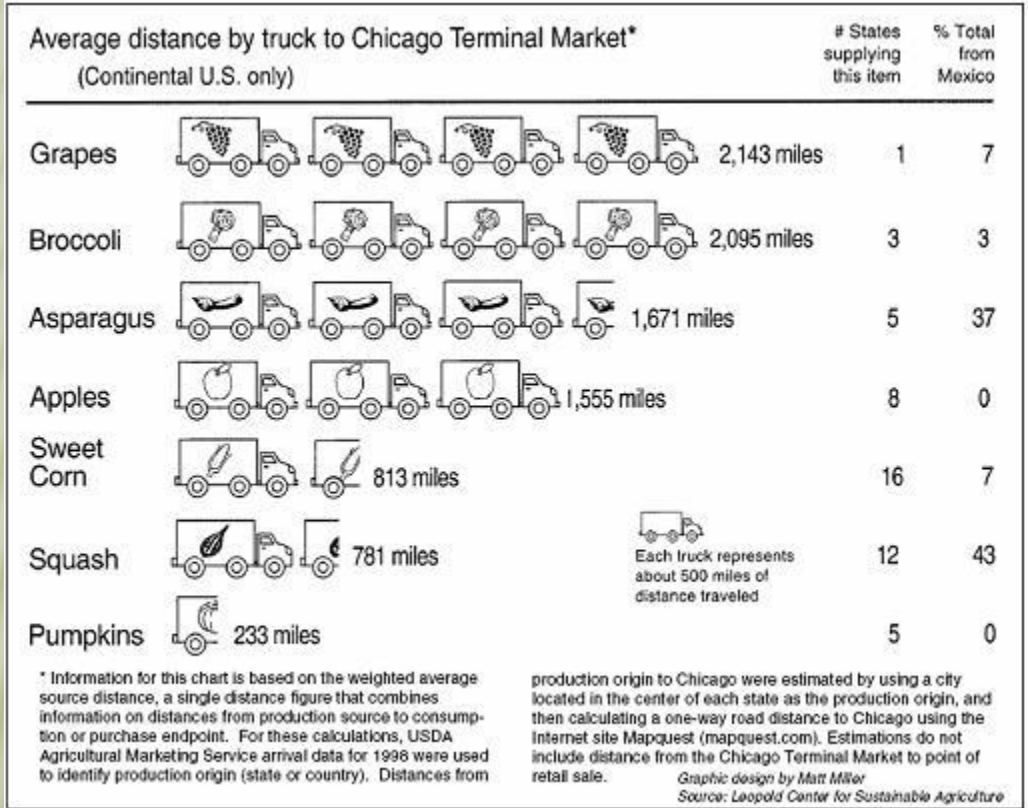


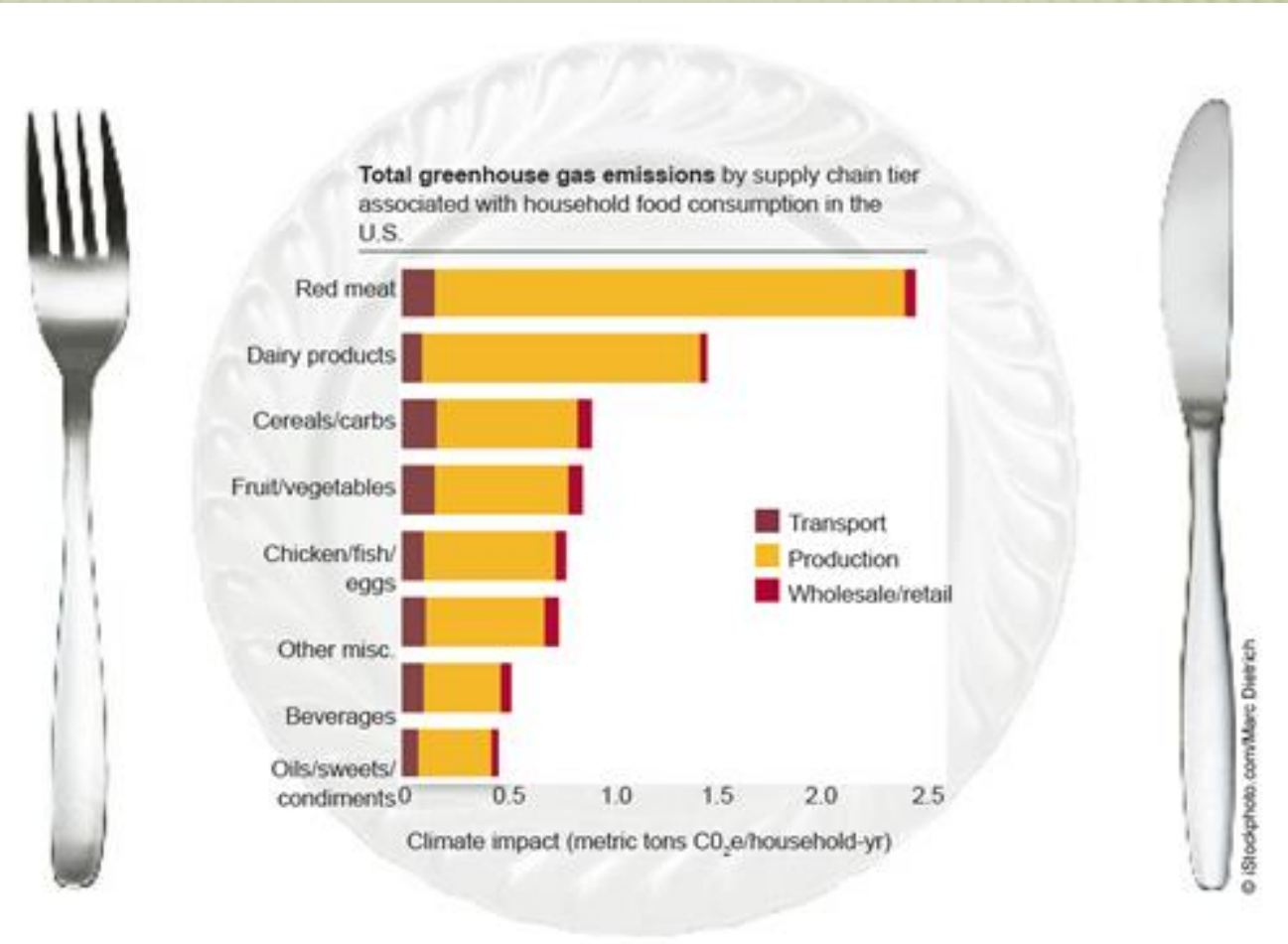




MODERN AGRICULTURE

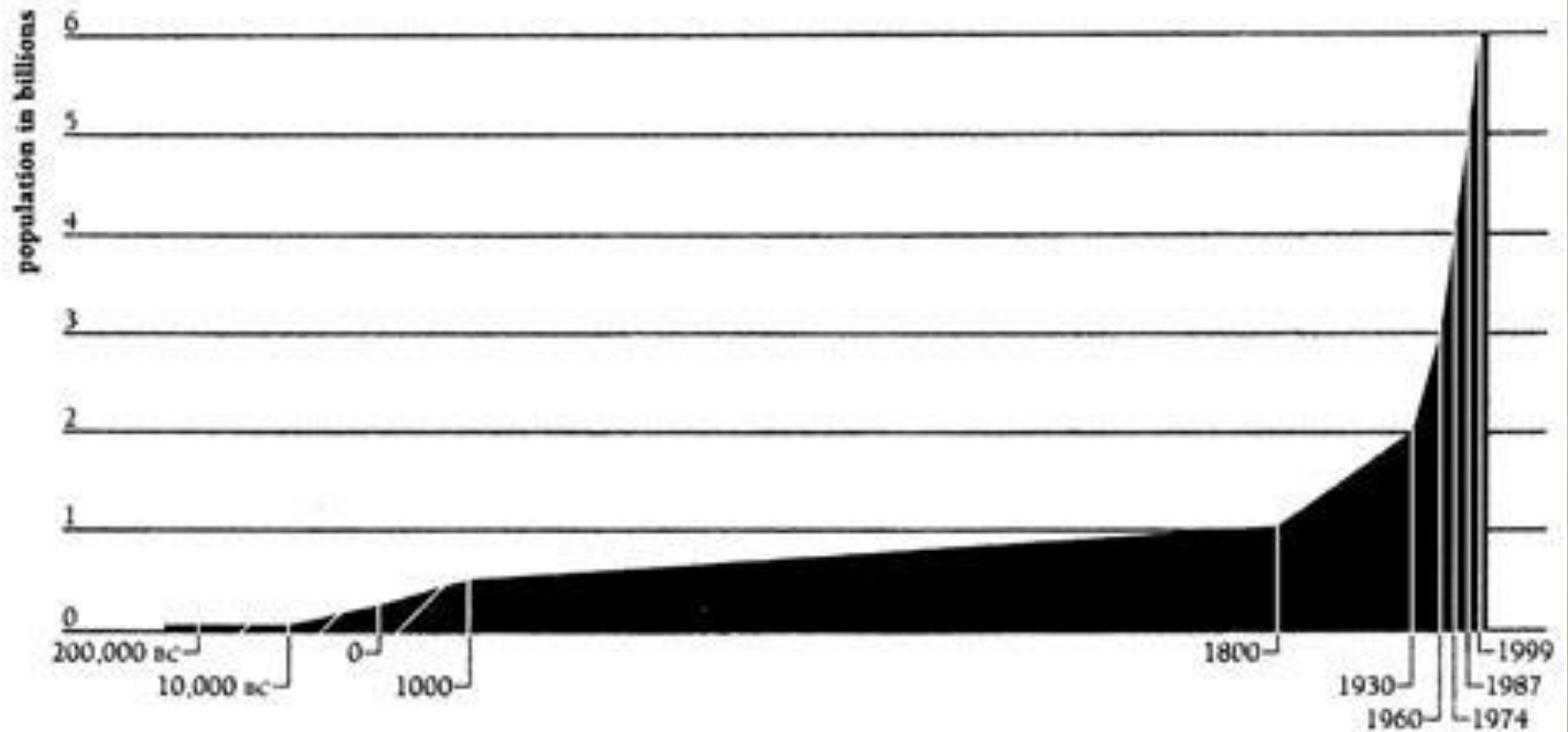
- × Food miles
- × Urbanization







HUMAN POPULATION GROWTH



Source: U.S. Census Bureau