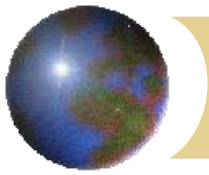


# *Unit #1 – Introduction to Agriculture*

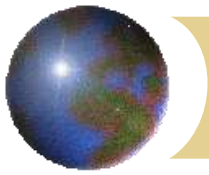
Mrs. Arlee Blaker  
Agriculture Instructor/FFA Advisor  
AAEC – Paradise Valley  
2013-2014

<http://prezi.com/oyijq4t-cmgx/what-is-agriculture/>



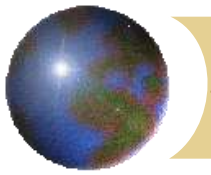
## *I Can...*

1. Define Science
2. Define Agriculture
3. Explain how agriculture is the most important of all the sciences because it meets the most basic needs of humans.
4. List various examples of good produced by agriculture.
5. Explain how agriculture helped to develop civilized cultures.
6. Discuss fundamental advances in agriculture that revolutionized food production & quality.
7. List various examples of good produced by agriculture.
8. Analyze the impact of American agriculture on the world's agricultural demand.
9. Identify the basis for the strength and efficiency of American agriculture.



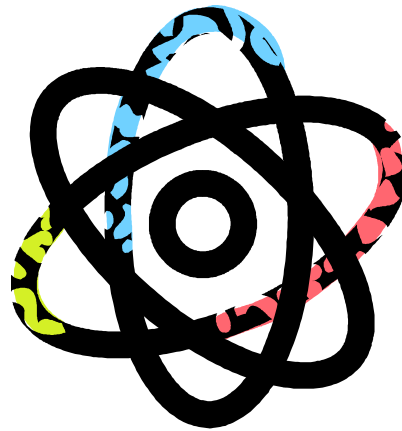
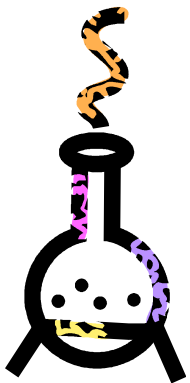
# *Table of Contents*

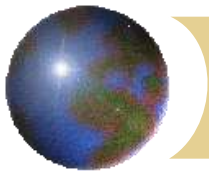
1. I Can Statements
2. Bell Ringers
3. Class Notes
4. Picture This – Areas of Agriculture
5. History of Agriculture – Timeline
6. Video Fun Sheet #1 – America's Heartland
7. U.S. Agriculture Production Regions
8. Test Review



# *What is Science?*

N : a branch of knowledge or study dealing with a body of facts or truths systematically arranged and showing the operation of general laws

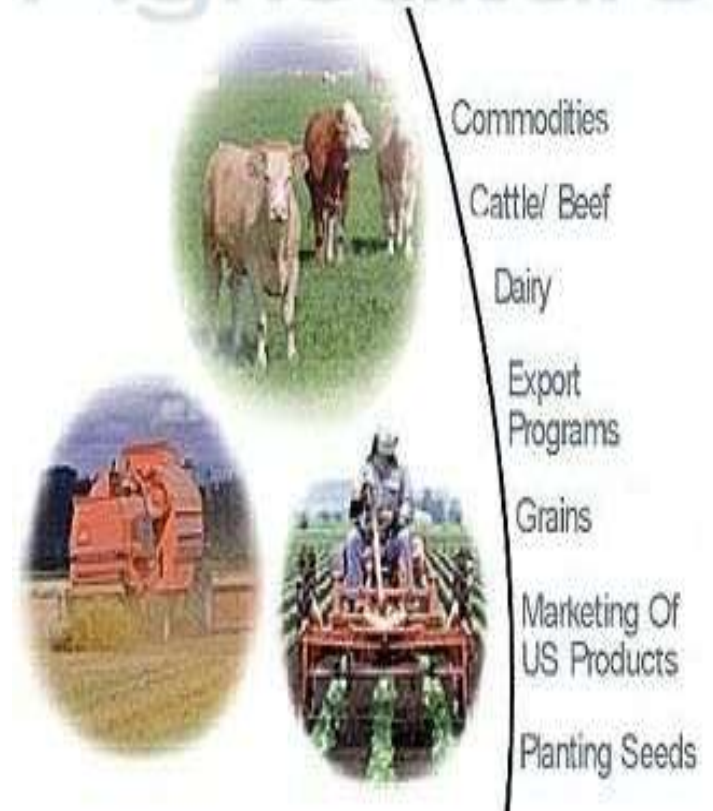


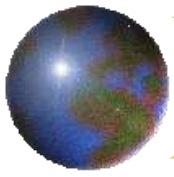


# *What is Agriculture?*

- Activities concerned with the **production** of plants and animals, and related supplies, services, mechanics, products, **processing**, **distribution**, and **marketing**.

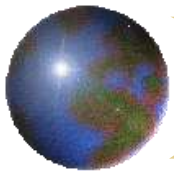
## Agriculture





*What are your basic needs???*



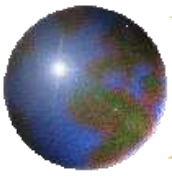


*What are your basic needs???*



AGRICULTURE  
MEETS THOSE  
NEEDS!!!



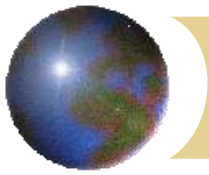


# *Divisions of Agriculture*

- ✦ Agriscience
- ✦ Agribusiness
- ✦ Agriscience  
Mechanics
- ✦ Agronomy
- ✦ Animal Science
- ✦ Biotechnology
- ✦ Horticulture
- ✦ Natural Resources



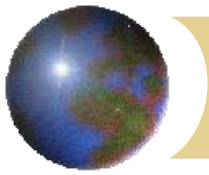




# *What is Agriscience?*

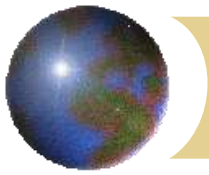
- ✦ The application of scientific principles and new technologies to agriculture.





## *Agriscience is.....*

- ✿ An applied science because it uses principles learned in biology, chemistry, and physics (the basic sciences) in a practical way.



# *Examples of Agriscience*

## ✚ Agronomy

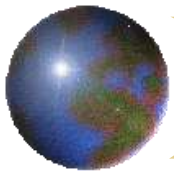
- ▣ Uses biology and chemistry to discover new ways to control weeds in crops.

## ✚ Entomology

- ▣ Uses biology and chemistry to study insect life.

## ✚ Agricultural Engineering

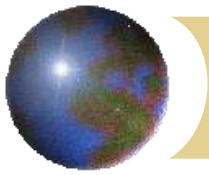
- ▣ Uses physics to develop new machinery.



# *What is Agribusiness?*

- ❖ Commercial firms that have developed with or stem out of agriculture.





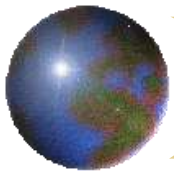
# *Agribusiness includes....*

## ✚ Farming

- ✚ Chemical company
- ✚ Fertilizer dealer
- ✚ Seed store
- ✚ Tractor dealer

## ✚ Horticulture

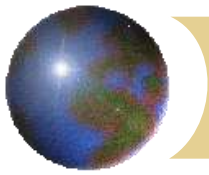
- ✚ Landscape nursery
- ✚ Greenhouse dealer
- ✚ Horticulture supply company



# *What is Agriscience Mechanics?*

- ✦ The application of engineering principles in agricultural settings.

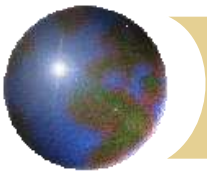




## *Agriscience Mechanics includes ....*

- ❖ The design, operation, maintenance, service, selling, and use of power units, machinery, equipment, structures, and utilities in agriscience.



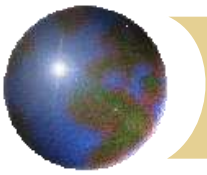


# *What is Agronomy?*

- The application of soil and plant sciences to land management and crop production.



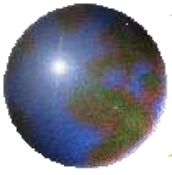




# *Agronomy includes ....*

- ✦ Crop Science
- ✦ Soil Science
- ✦ Turfgrass Management
- ✦ Weed Science
- ✦ Range Management

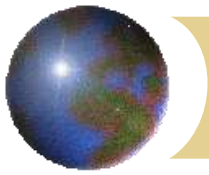




# *What is Animal Science?*

- ❖ The care, management, and production of domestic animals.

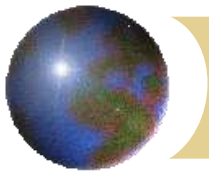




# *Animal Science includes ....*

- ✚ Livestock
- ✚ Companion Animals
- ✚ Specialty Animals

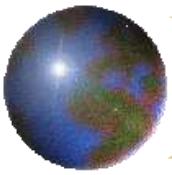




# *What is Biotechnology?*

- ✦ The application of living processes to technology.
- ✦ The use of microorganisms, animal cells, plant cells, or components of cells to produce products or carry out processes.

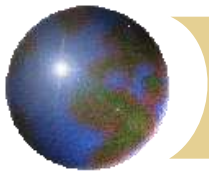




# *Biotechnology includes ....*

- ⊕ Genetics
- ⊕ Biochemistry
- ⊕ Microbiology
- ⊕ Toxicology
- ⊕ Plant Pathology

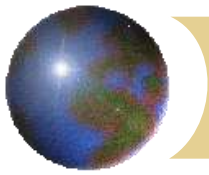




# *What is Horticulture?*

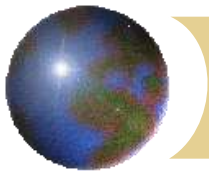
- ✦ Involves the producing, marketing fruits, vegetables, and ornamental plants. (Green Industry)
- ✦ Continues to expand as the standard of living is raised.





## *Horticulture includes ....*

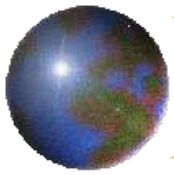
- ✦ Greenhouse Management
- ✦ Nursery Management
- ✦ Landscape Architecture
- ✦ Plant Physiology
- ✦ Integrated Pest Management



## *What are Renewable Natural Resources?*

- ⊕ Resources provided by nature that can replace or renew themselves.
- ⊕ Important both economically and for posterity's sake to maintain life.
- ⊕ Agriculture & resources management will include pollution control.

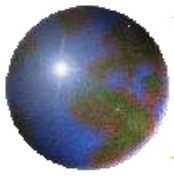




# *Natural Resources - Forestry*

- ✦ Timber management for lumber, poles, post, plywood, and etc. is another part of the agricultural industry.

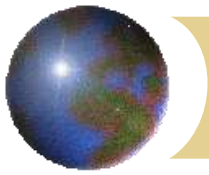




## *Other Examples include:*

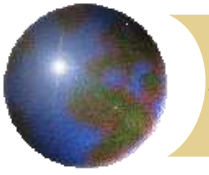
- ✦ Wildlife
- ✦ Water
- ✦ Fish
- ✦ Soils
- ✦ Air



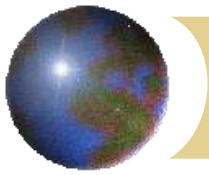


*At the bottom of your notes....*

- ✚ Select one area we have discussed that interests you the most, and explain why.



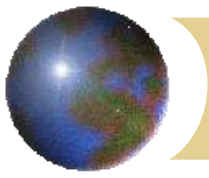
*How did agriculture  
begin???*



## *150,000-11,000 BC: Pre-Agriculture*

- ✦ Early humans acquired food by hunting wild animals & gathering from wild plants (hunter-gathers)
- ✦ Diets were high in fruits, vegetables, lean protein & healthy fats

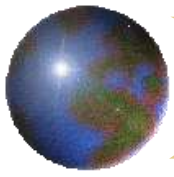




# *11,000-5,000 BC: Global Transition to Agriculture*

- ✚ 11,000 BC – Agriculture appeared in the Fertile Crescent (Mesopotamia – now known as the Middle East)
- ✚ 6,000 BC – Most farm animals had become domesticated



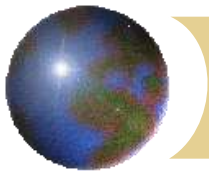


*6,000-3,000 BC:*

## *Dawn of Early Civilizations*

- ✚ Agriculture tied people to places – developed villages which evolved into towns, then cities
- ✚ People become free to pursue interests other than farming



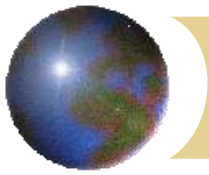


# *6,000 BC – Present: Cycles of Boom & Bust*

- ✦ Increases in food production competed against population growth, changing climate, droughts, and other factors that impact food supply for the human race





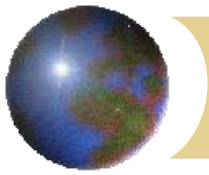


*1600s-1800s:*

## *Global Agricultural Evolution*

- ✦ Refrigerated transport, improved processing and preservation techniques and growing distribution networks allowed farmers to ship their surplus goods over greater distances.



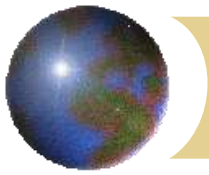


## *1800s-Present:*

### *Industrialization of the U.S. Food System*

- ⊕ Farmers became more dependent on chemical & fossil fuel inputs
- ⊕ Diversity was abandoned in favor of specialized, simplified, routine, mechanized, standardized & consolidated operations

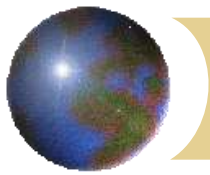




# *Effects of Agriculture*

- ✚ How did agriculture affect lifestyles, population?
  - ✚ Allowed humans to develop villages & end continuous movement to find food
  - ✚ Provided more stable & abundant food supply
  - ✚ Spurred population growth





# Effects of Agriculture

## THE AGRICULTURAL REVOLUTION

Plow pulled by animals

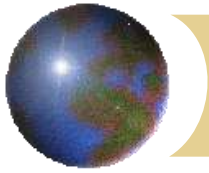
The invention of the plow drawn by animals made agricultural production vastly more efficient than before, permitting far more land to be farmed by fewer people.

Even larger food surplus

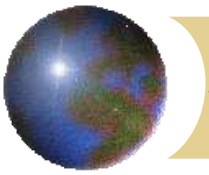
This resulted in an even greater food surplus.

Even greater division of labor

It also freed far more people for other types of work, further

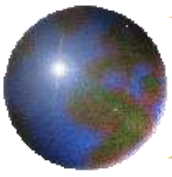


*What advances helped  
make agriculture what it  
is today???*



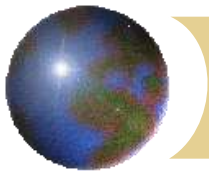
## *Instructions:*

- ✚ Using the encyclopedia materials provided to each group, answer the following questions for each inventor:
  - ✚ In what time period did this inventor live?
  - ✚ Where is this inventor/revolutionary from?
  - ✚ What is this inventor's most notable invention(s)/discovery(s)?
  - ✚ How did his invention(s)/discovery(s) impact the agriculture industry?



# *George Washington Carver*

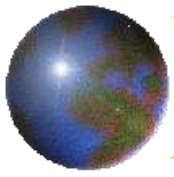




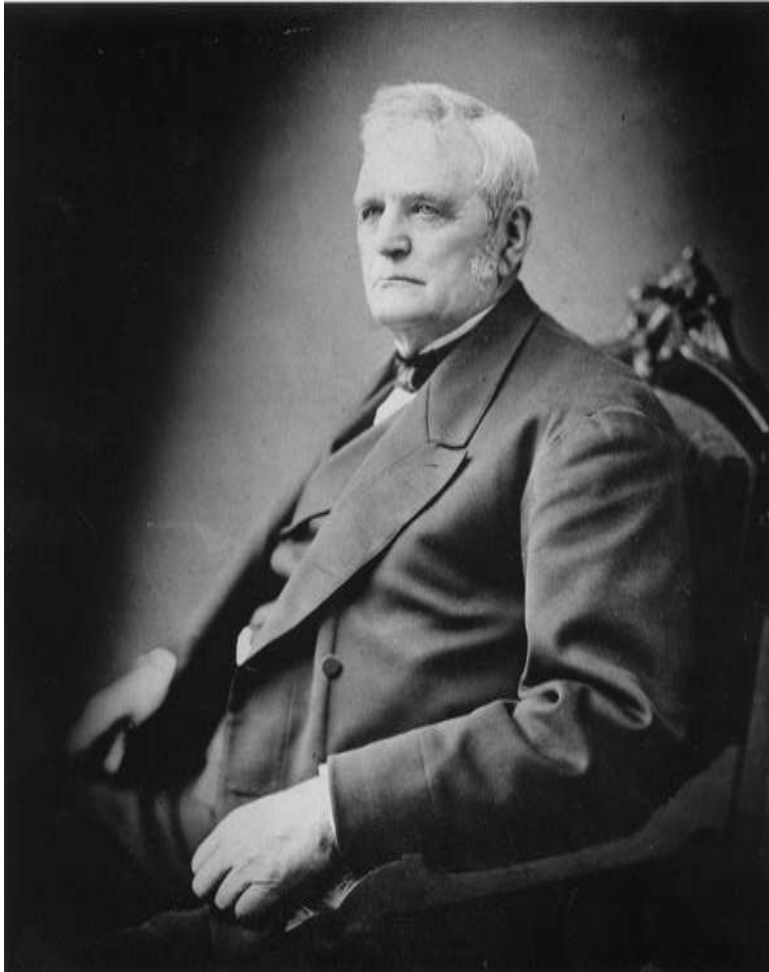
# *George Washington Carver*

- ✿ Early 1864 - January 5, 1943
- ✿ Was an emancipated slave who worked at the agricultural extension of the Tuskegee Institute in Tuskegee, Alabama.
  - ✦ Director of agricultural research at Tuskegee Institute in early 1900's.
- ✿ Found new uses for soybeans, peanuts, and sweet potatoes.
- ✿ Diversified southern agriculture

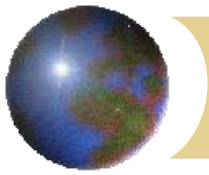




# *John Deere*

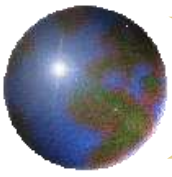


[www.toywonders.com](http://www.toywonders.com)

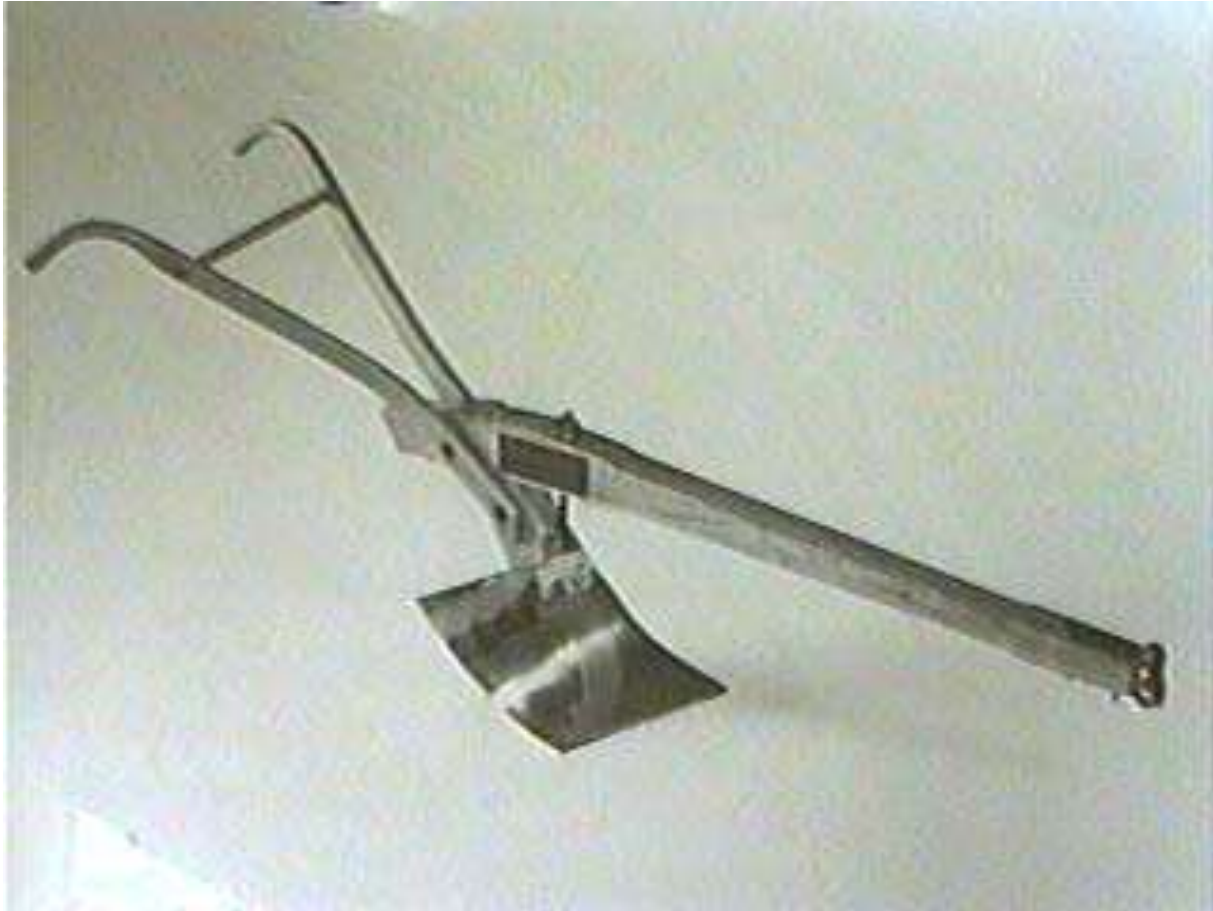


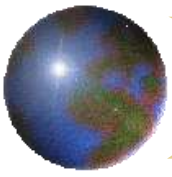
## *John Deere*

- ✦ January 7, 1804 – May 17, 1886
- ✦ American blacksmith and manufacturer who founded “Deere and Company (one of the largest agricultural equipment manufacturers in the World).”
- ✦ In 1837, improved the iron plow by inventing the steel moldboard plow.
  - ✦ Need caused by tough prairie soils.



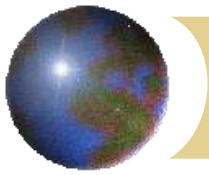
# *John Deere's Plow*





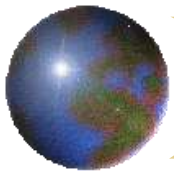
# *Eli Whitney*





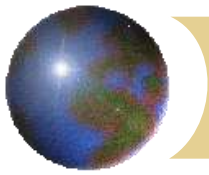
## *Eli Whitney*

- ⊕ December 8, 1765 – January 8, 1825
- ⊕ American inventor and manufacturer
- ⊕ Invented the cotton gin in 1793.
  - ⊕ Turned cotton into an usable product by removing cottonseed from the cotton fiber.



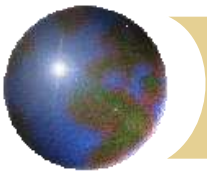
# *Henry Ford*



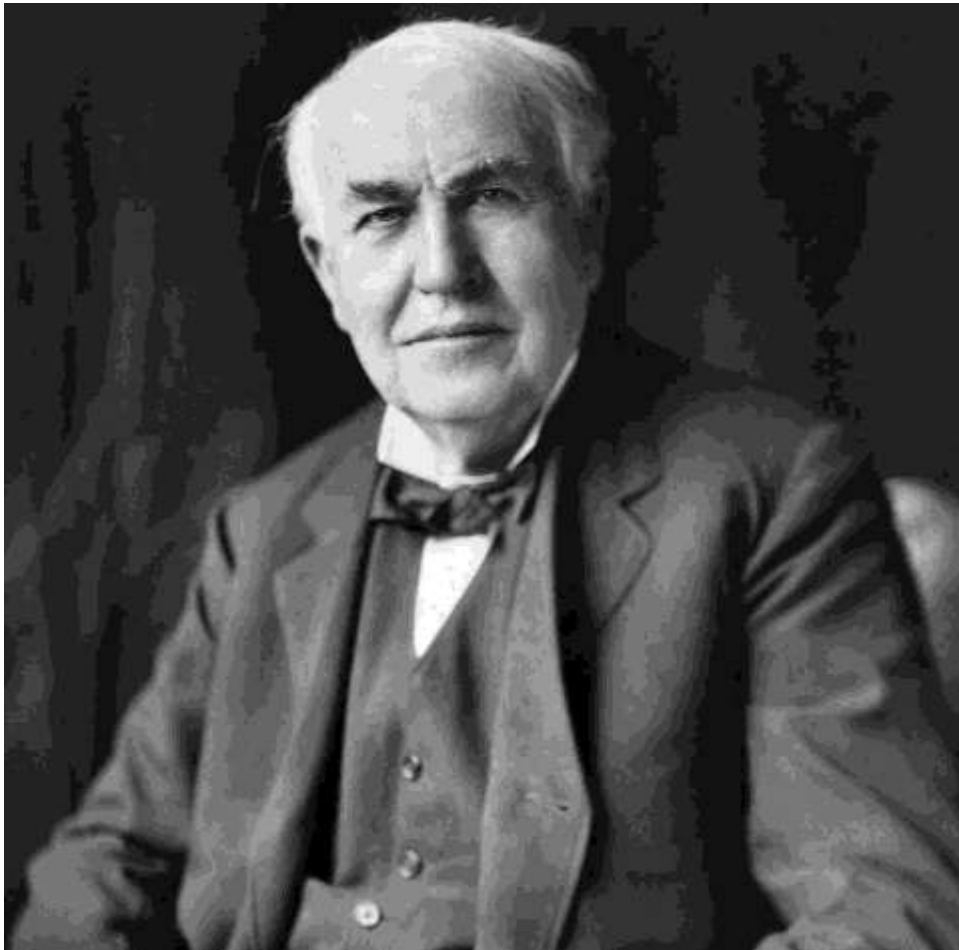


# *Henry Ford*

- ✦ July 30, 1863 – April 7, 1947
- ✦ Founder of the Ford Motor Company and the father of the modern assembly line used in mass production.
- ✦ His introduction of the Model T automobile revolutionized transportation and American industry.



# *Thomas Alva Edison*



electric light bulb

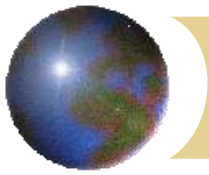


phonograph



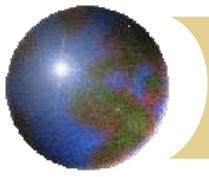
kinesiograph





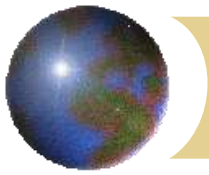
# *Thomas Alva Edison*

- ✿ February 11, 1847 – October 18, 1931
- ✿ American inventor and businessman
- ✿ Was one of the 1<sup>st</sup> inventors to apply the principles of mass production to the process of invention.
  - ✿ Can therefore be credited with the invention of the 1<sup>st</sup> industrial research laboratory.
- ✿ Accredited with the invention of the light bulb – prolonged the typical work day
- ✿ Considered one of the most prolific inventors in history
  - ✿ **Holds 1,097 U.S. patents in his name**, as well as many others in the United Kingdom, France, and Germany.



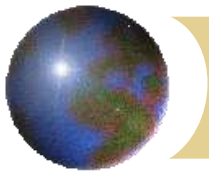
# *Jethro Tull*





# *Jethro Tull*

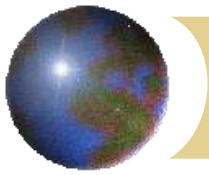
- ✿ 1674 – February 21, 1741
- ✿ Was an English agricultural pioneer during the Industrial Revolution (in Great Britain) and the Agricultural Revolution.
- ✿ Helped transform agricultural practices by inventing or improving numerous agricultural implements
  - ❑ Most notable: Seed drill – Invented in 1701
    - Increase germination and improved crop yield (how many seeds grow and produce a crop)



# *Jethro Tull*

## ✦ Before the Seed Drill –

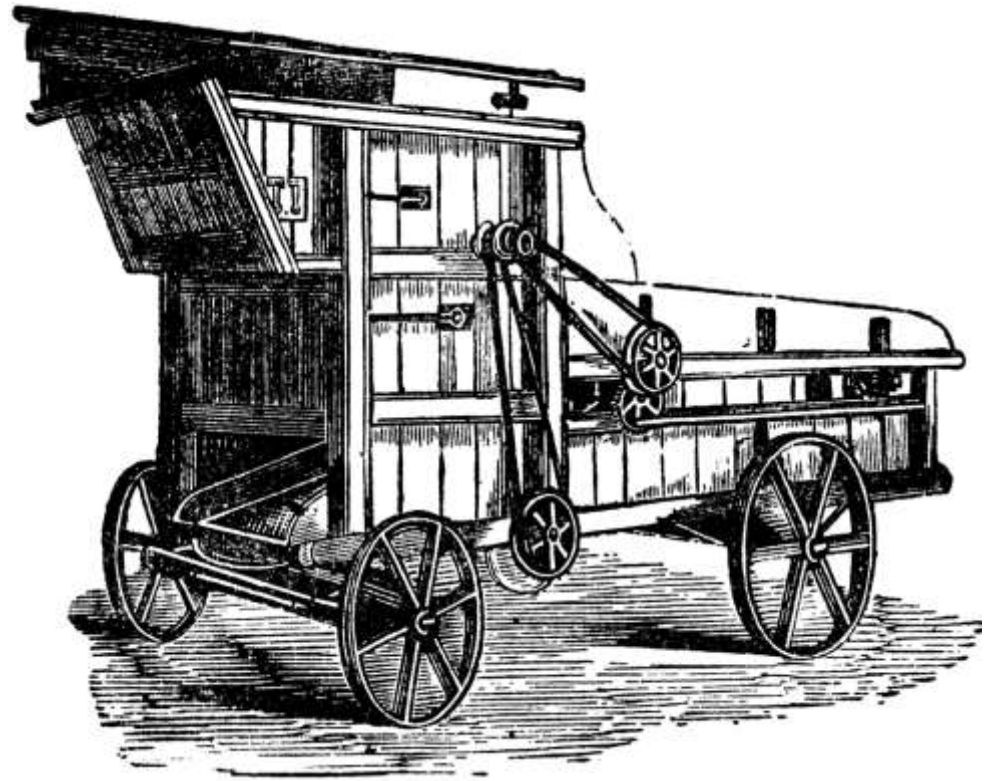
- ✦ Seeds were sewn simply by being cast upon the ground.
  - They either germinated (or failed to germinate) where they landed.
- ✦ Seed drill created a hole of a specific depth, dropped in a seed, and covered it over – Three (3) rows at a time.
- ✦ Resulted in an increased rate of germination and much improved crop yield
  - Up to 8 time more!

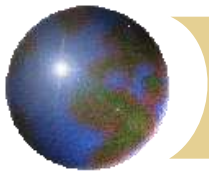


# *Andrew Meikle*



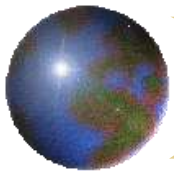
Andrew Meikle. [By T. D. Scott, after Kildock.]





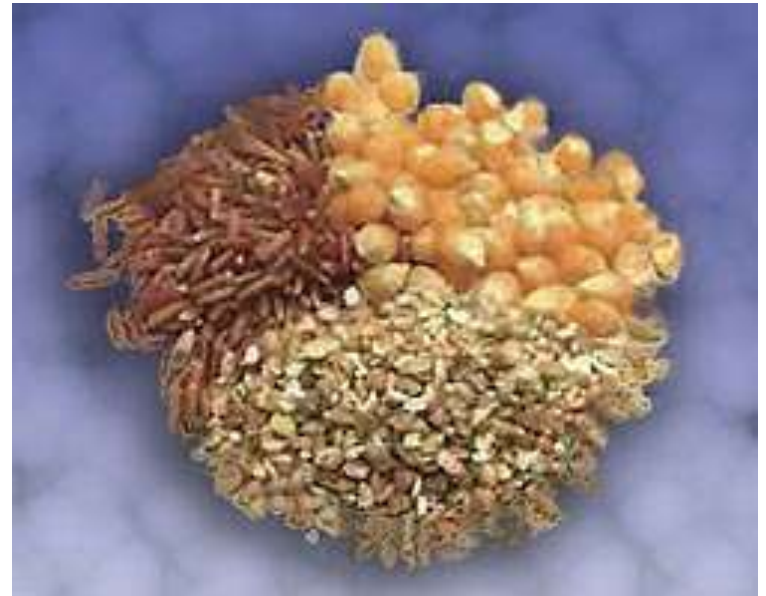
# *Andrew Meikle*

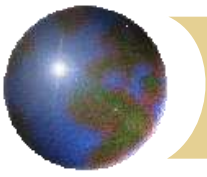
- ⊕ 1719 – November 27, 1811
- ⊕ Early mechanical engineer
- ⊕ Credited with inventing the threshing machine (~1786)
  - ⊞ Used for removing the outer husks from grains of wheat, etc... Occasionally known as a “thrashing machine”.
  - ⊞ Led to the modern day combine harvester



# *What are Commodities?*

- ⊕ Agricultural products which are sold.
- ⊕ Examples:
  - ⊠ Milk
  - ⊠ Corn
  - ⊠ Wheat
  - ⊠ Beef
  - ⊠ Cotton





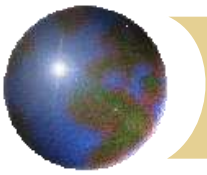
# *U.S. Agricultural Commodities*

## *#1 State Rankings*

⊕ Beef	→	⊕ Texas
⊕ Dairy	→	⊕ California
⊕ Broilers	→	⊕ Georgia
⊕ Eggs	→	⊕ Iowa
⊕ Turkeys	→	⊕ Minnesota

\*As of 2004



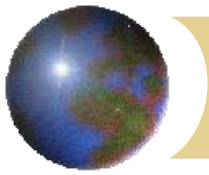


# *U.S. Agricultural Commodities*

## *#1 State Rankings*

⊕ Swine	→	⊕ Iowa
⊕ Horses	→	⊕ Texas
⊕ Sheep	→	⊕ Texas
⊕ Fruit	→	⊕ California
⊕ Vegetables	→	⊕ California

\*As of 2004



# *U.S. Agricultural Commodities*

## *#1 State Rankings*

⊕ Cotton	→	⊕ Texas
⊕ Wheat	→	⊕ Kansas
⊕ Corn	→	⊕ Iowa
⊕ Soybeans	→	⊕ Illinois
⊕ Peanuts	→	⊕ Georgia

\*As of 2004

# Farm Resource Regions

## Basin and Range

- Largest share of nonfamily farms, smallest share of U.S. cropland.
- 4% of farms, 4% of value of production, 4% of cropland.
- Cattle, wheat, and sorghum farms.

## Northern Great Plains

- Largest farms and smallest population.
- 5% of farms, 6% of production value, 17% of cropland.
- Wheat, cattle, sheep farms.

## Heartland

- Most farms (22%), highest value of production (23%), and most cropland (27%).
- Cash grain and cattle farms.

## Northern Crescent

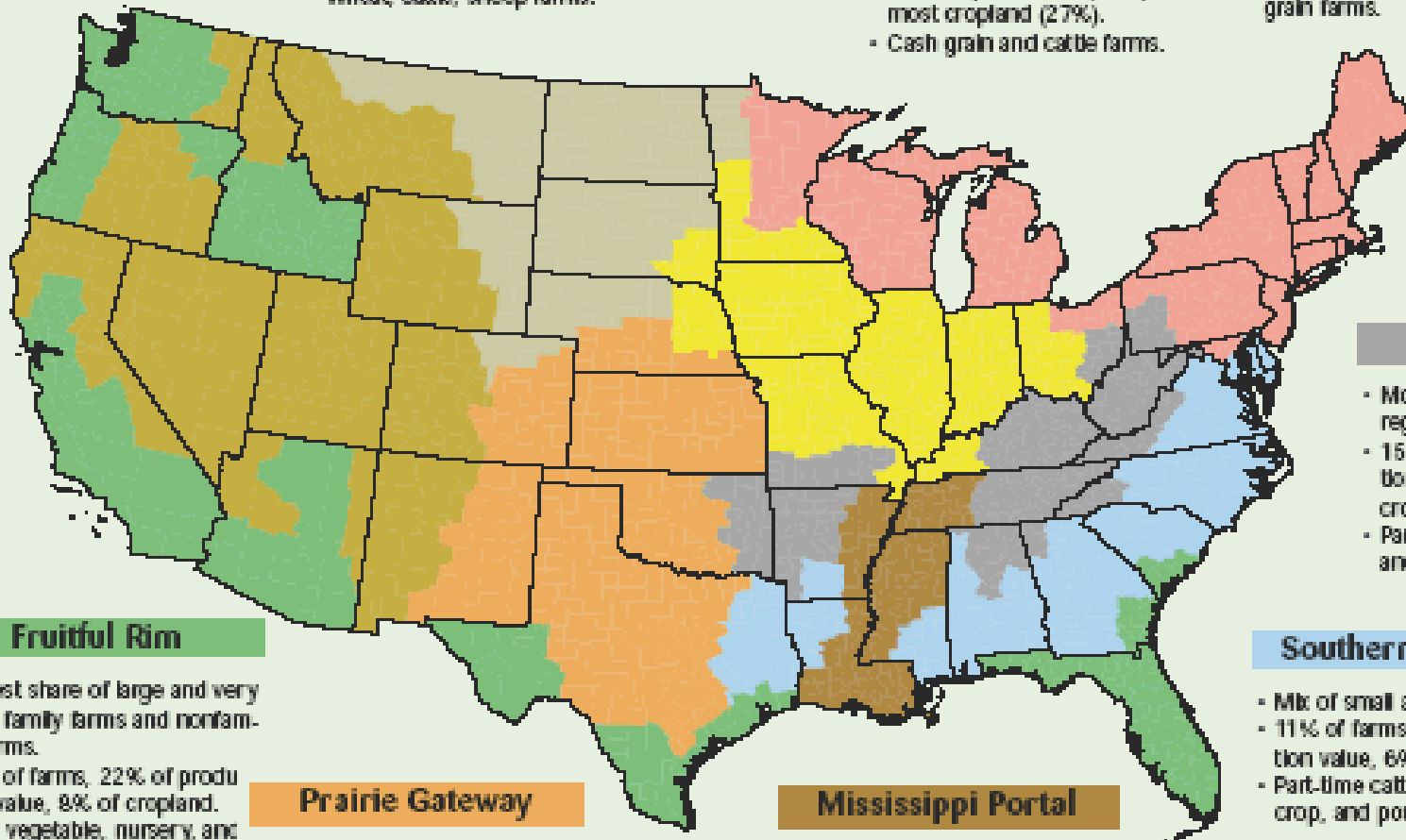
- Most populous region.
- 15% of farms, 15% of value of production, 9% of cropland.
- Dairy, general crop, and cash grain farms.

## Eastern Uplands

- Most small farms of any region.
- 15% of farms, 5% of production value, and 6% of cropland.
- Part-time cattle, tobacco, and poultry farms.

## Southern Seaboard

- Mix of small and larger farms.
- 11% of farms, 9% of production value, 6% of cropland.
- Part-time cattle, general field crop, and poultry farms.



## Fruitful Rim

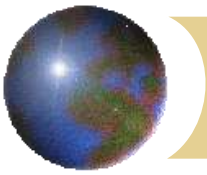
- Largest share of large and very large family farms and nonfamily farms.
- 10% of farms, 22% of production value, 8% of cropland.
- Fruit, vegetable, nursery, and cotton farms.

## Prairie Gateway

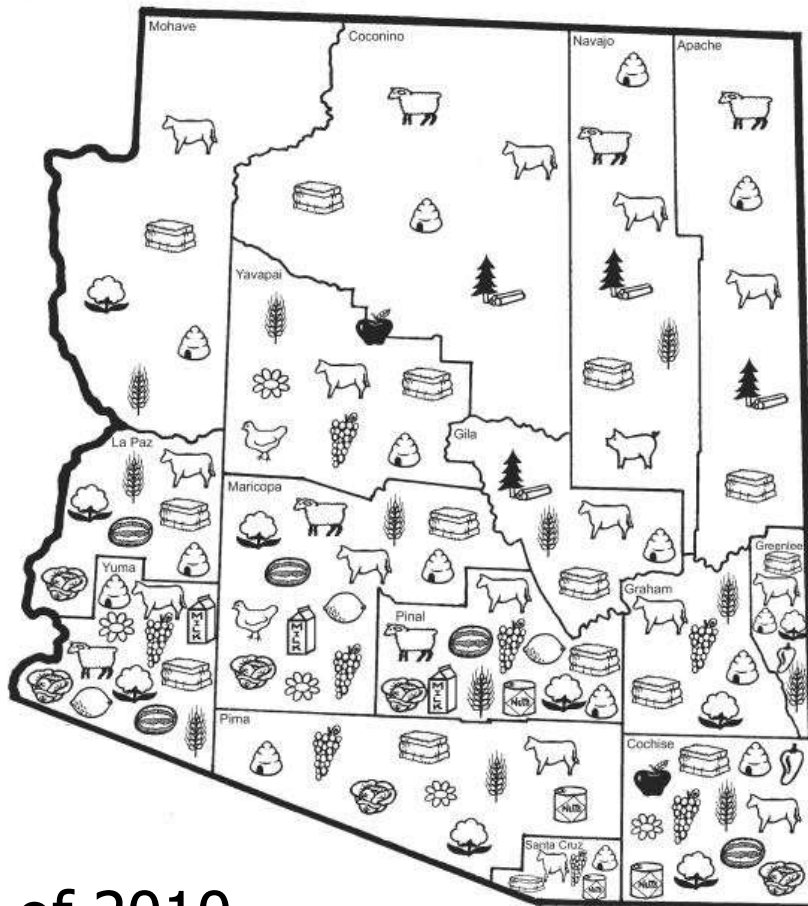
- Second in wheat, oat, barley, rice, and cotton production.
- 13% of farms, 12% of production value, 17% of cropland.
- Cattle, wheat, sorghum, cotton, and rice farms.

## Mississippi Portal

- Higher proportions of both small and larger farms than elsewhere.
- 5% of farms, 4% of value, 5% of cropland.
- Cotton, rice, poultry, and hog farms.



# Arizona Agriculture

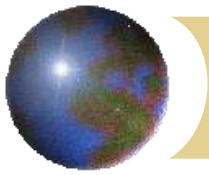


## Top Commodities:

- ❑ Dairy
- ❑ Cattle & Calves (Beef)
- ❑ Lettuce
- ❑ Cotton
- ❑ Hay

\*As of 2010

<http://www.youtube.com/watch?v=YD1xsNBxjB8>



# *Arizona Agriculture*

✿ Arizona ranks #4 in the nation for all of the following commodities:

- ✿ Cantaloupe & honeydew melons
- ✿ Head & leaf lettuce
- ✿ Spinach
- ✿ Broccoli
- ✿ Cauliflower
- ✿ Lemons



\*As of 2010

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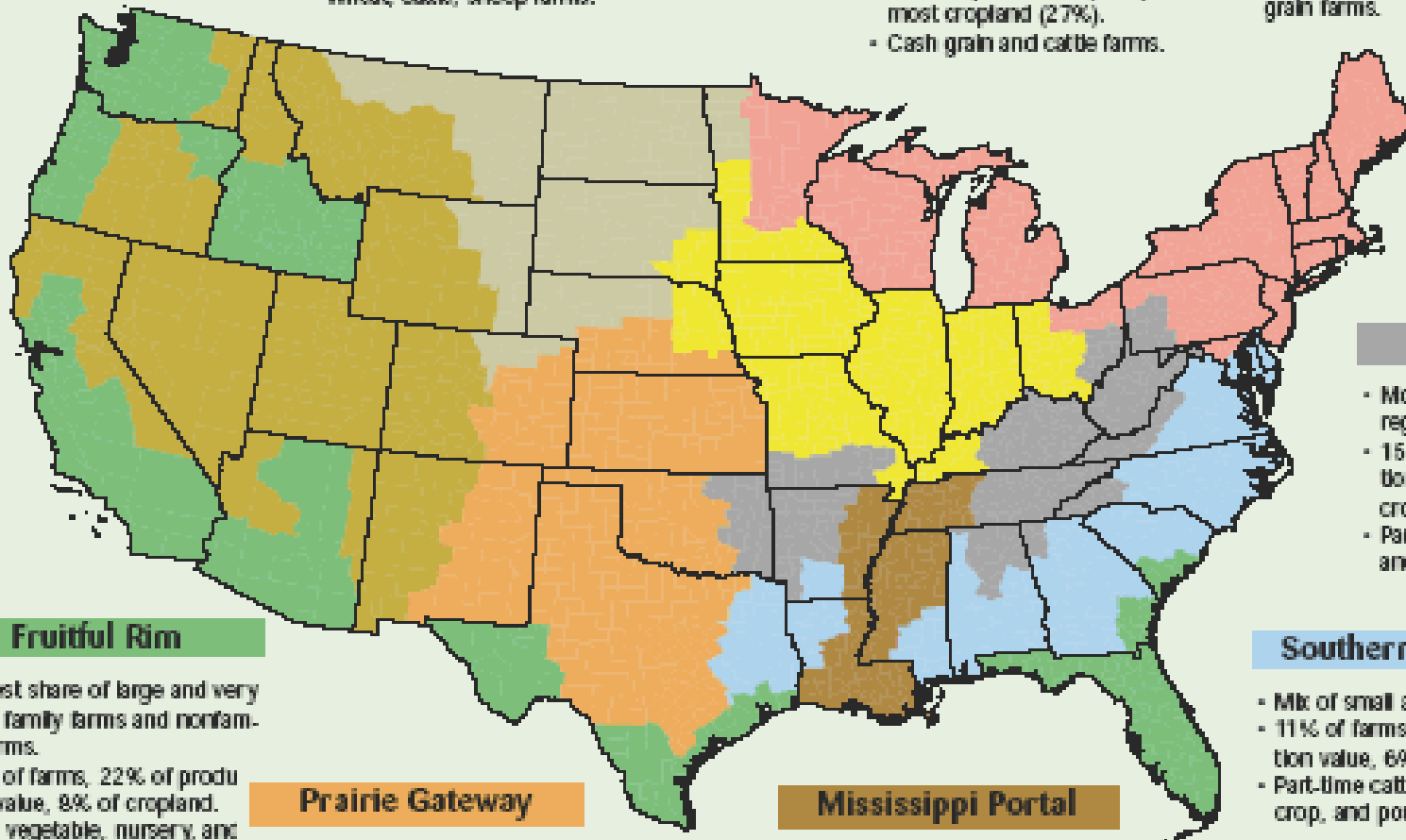
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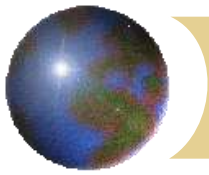
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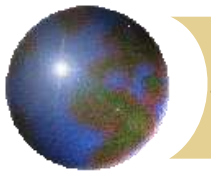
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*How significant is  
American Agriculture,  
as a whole?????*

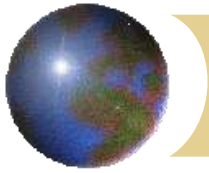
<http://www.youtube.com/watch?v=ZPXM1tmpjWs>



## *The Job Market*

- ✚ 24 Million people are employed by the agriculture industry within the US
- ✚ Only 4.6 million of those people actually live on farms
  - less than 2% of the total US population

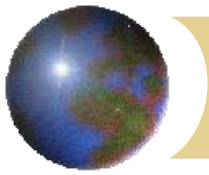




# *The Job Market*

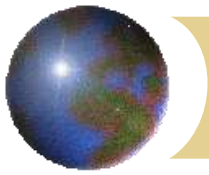
## ✦ Examples of Jobs in Agriculture:

- ✦ Farmer
- ✦ Extension Agent
- ✦ Environmental Analyst
- ✦ Packaging Engineer
- ✦ Laboratory Manager
- ✦ Florist
- ✦ Forest Ranger
- ✦ Food Chemist
- ✦ Fish Hatchery



## *How important is agricultural trade to the U.S. economy?*

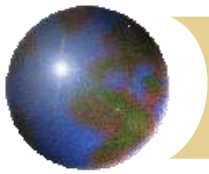
- ✚ The United States is now the world's largest agricultural exporter. The value of agricultural exports equals nearly one-fourth of farm cash receipts, about twice the level of the overall U.S. economy, and 1 out of 3 acres are planted for export.



## *How much of its agricultural products does the United States export?*

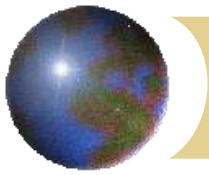
### ✚ American farmers **export:**

- ✚ **45 percent** of their wheat
- ✚ **34 percent** of their soybeans
- ✚ **71 percent** of their almonds
- ✚ More than **60 percent** of their sunflower oil.



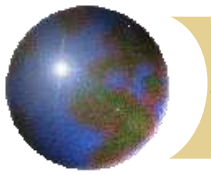
# *What would happen if US Agricultural Production stopped today?*

- ✦ In 3-5 days: The American economy would begin to collapse.
  - ✦ *Most American homes do not have enough food to last more than 3 days and not enough water on hand for more than 1 day.*
    - Economic Example: Stock markets crashed after 9/11, driven by “the mood” (fears and confidences) of the public.
    - Emergency Example: Hurricane Katrina- Riots, looting, grocery stores bare in a matter of hours.



## *What would happen... Continued.*

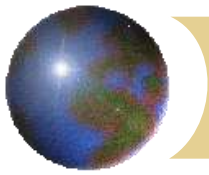
- ✪ In 5 -7 days: The entire World would begin to suffer the same economic collapse.
  - ✪ Humanitarian aid to 3<sup>rd</sup> World or war torn countries would have stopped completely.
  - ✪ Northern European countries that rely on imports from America would begin to suffer a food shortage.
    - Finland, Sweden, Norway:
      - No fruit? No meat? No veggies?



*Where would we be without  
Agriculture?*

**Naked + Hungry =**





## *Designed By:*

✦ Johnny M. Jessup, FFA Advisor

▣ Hobpton High School

▣ Edited Aug. 2013 by Mrs. Arlee Blaker