

Geography of Modern Agriculture

Human Geography
November 2005

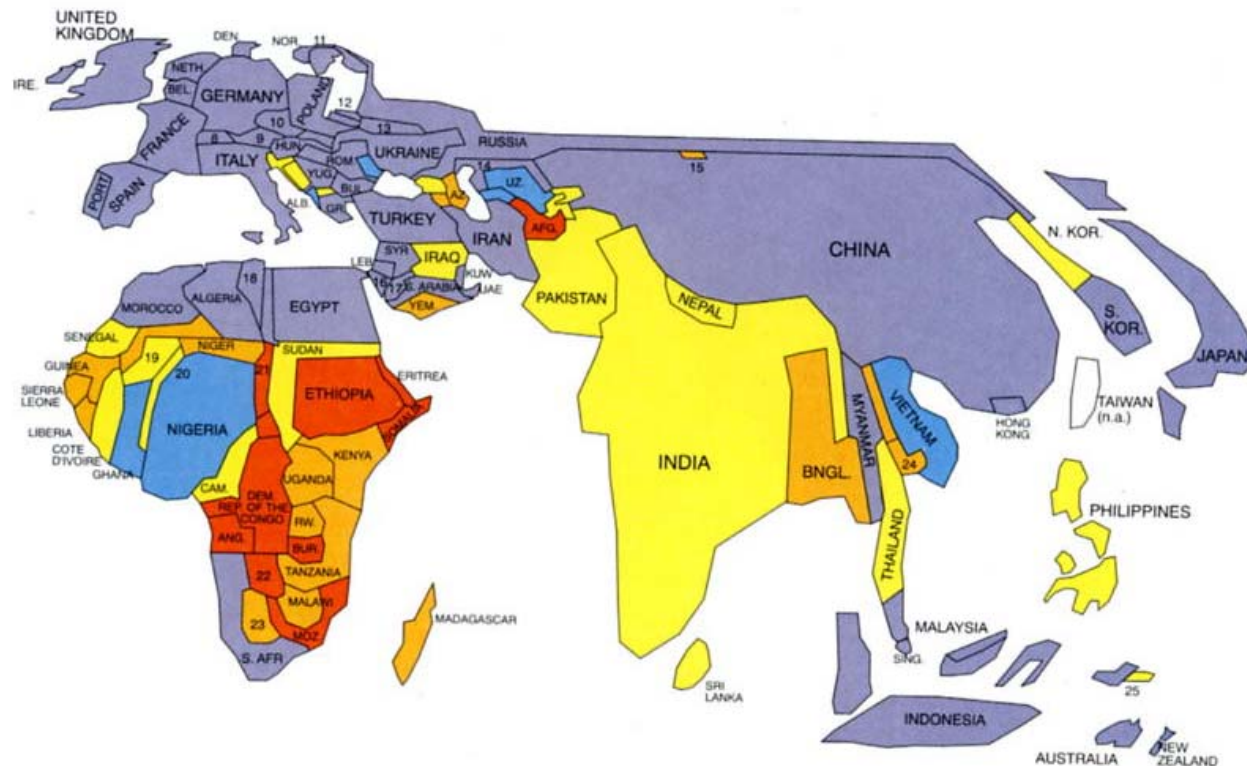
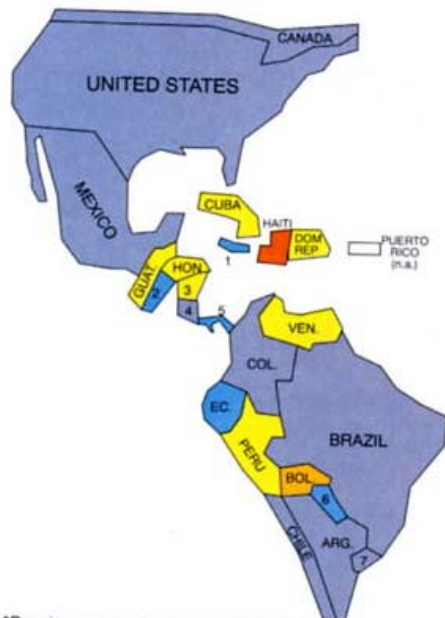
Caloric intake

- most of world's people have an adequate supply of calories
- the five concentrations have a calorie supply called well above adequate -120%
- outside of Africa only Haiti and Afghanistan show serious malnutrition
- many states in central and east Africa show malnutrition

CALORIE SUPPLY

Note: Size of each country is proportional to population.

Calorie supply per capita
(percentage of requirements*)



*Requirements estimated on the basis of physiological needs for normal activity with consideration of environmental temperature, body weight, and age and sex distribution of the population in various countries. Estimates are for 1994-6.

- | | | | | |
|----------------|--------------------|----------------|------------------|----------------------|
| 1. JAMAICA | 6. PARAGUAY | 11. SWEDEN | 16. ISRAEL | 21. CHAD |
| 2. EL SALVADOR | 7. URUGUAY | 12. LATVIA | 17. JORDAN | 22. ZAMBIA |
| 3. NICARAGUA | 8. SWITZERLAND | 13. BELARUS | 18. TUNISIA | 23. ZIMBABWE |
| 4. COSTA RICA | 9. AUSTRIA | 14. KAZAKHSTAN | 19. BURKINA FASO | 24. CAMBODIA |
| 5. PANAMA | 10. CZECH REPUBLIC | 15. MONGOLIA | 20. BENIN | 25. PAPUA NEW GUINEA |

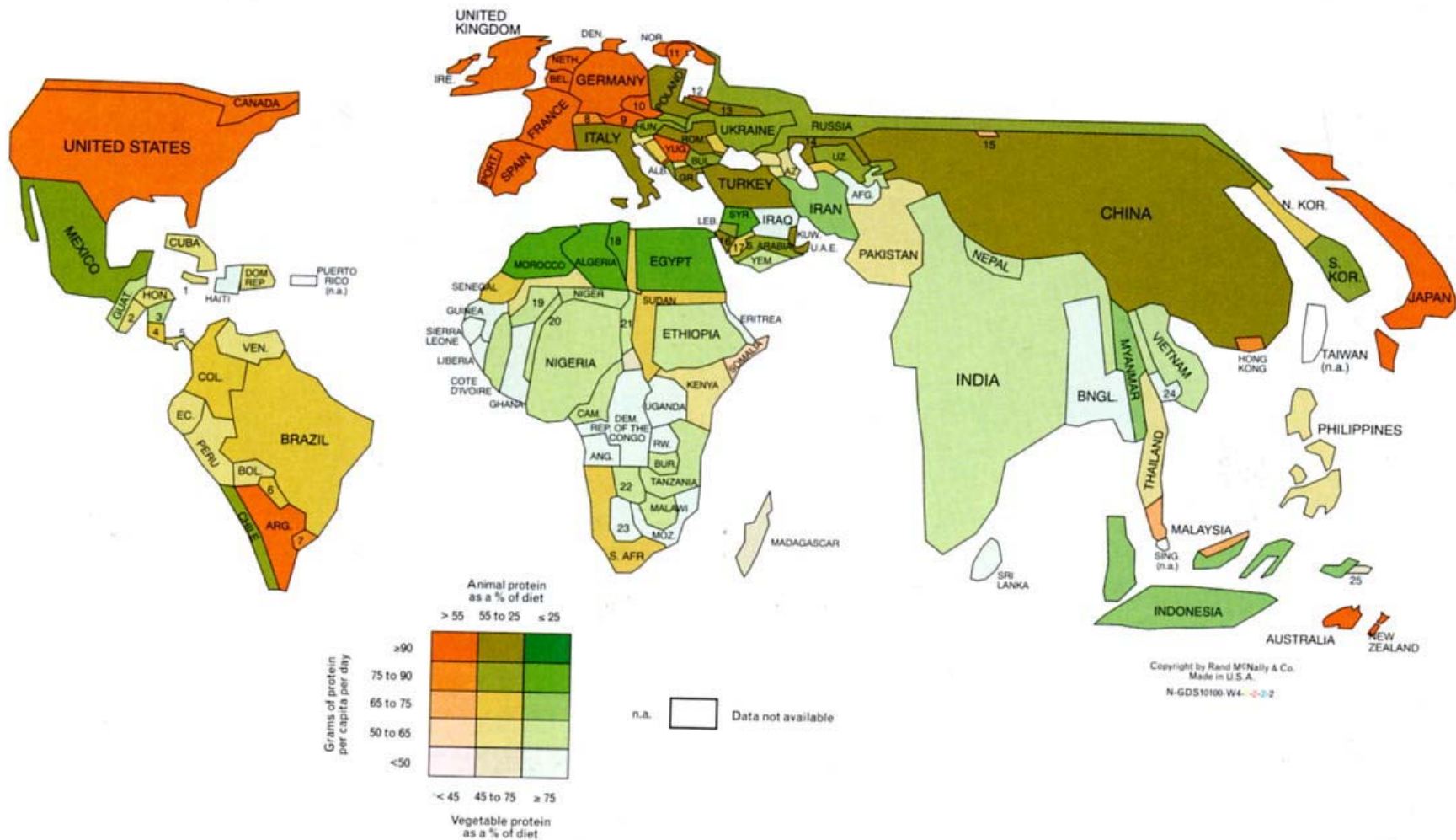
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map of protein

- Can not map areas of inadequate protein because we do not have concept of daily requirements
- difference in patterns of meat vs. vegetable protein

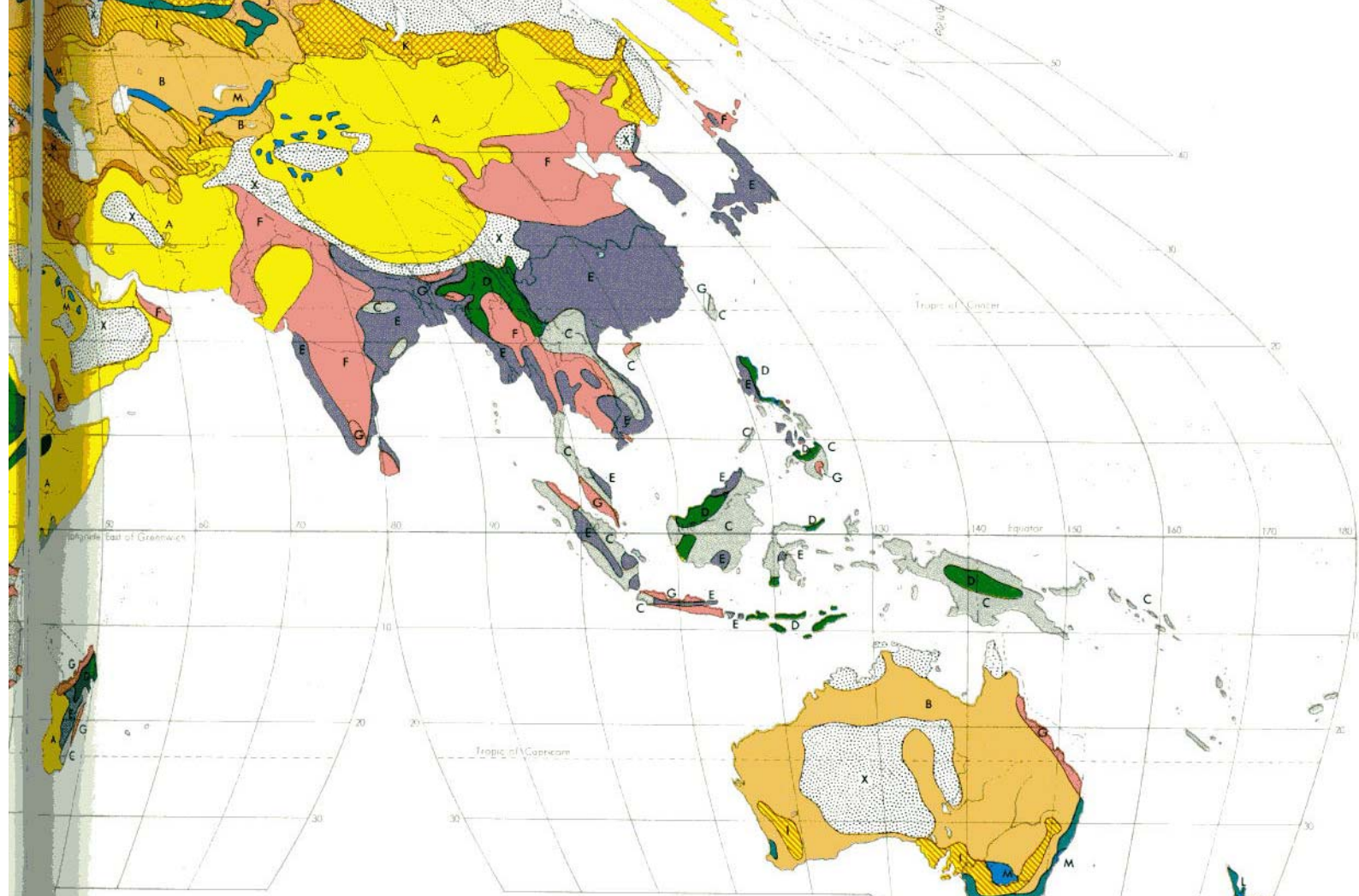
PROTEIN CONSUMPTION, 1996

Note: Size of each country is proportional to population.

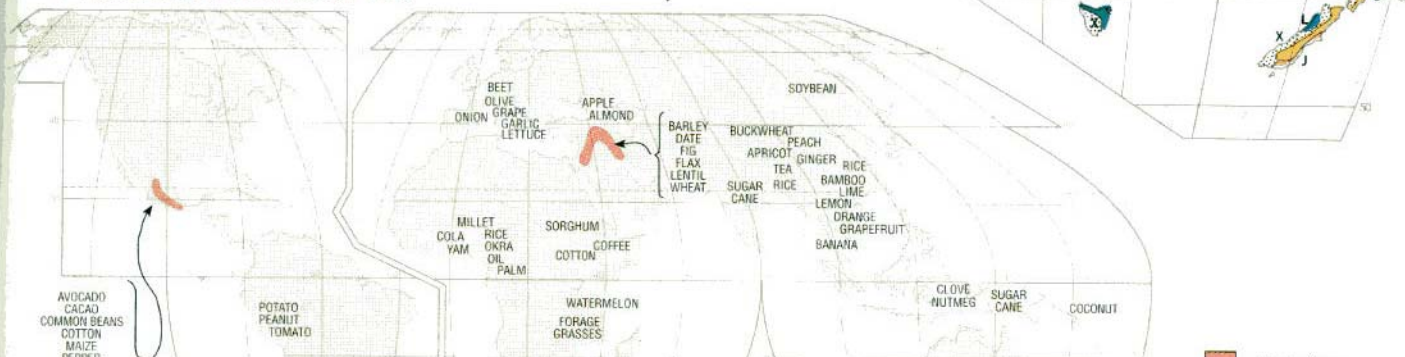


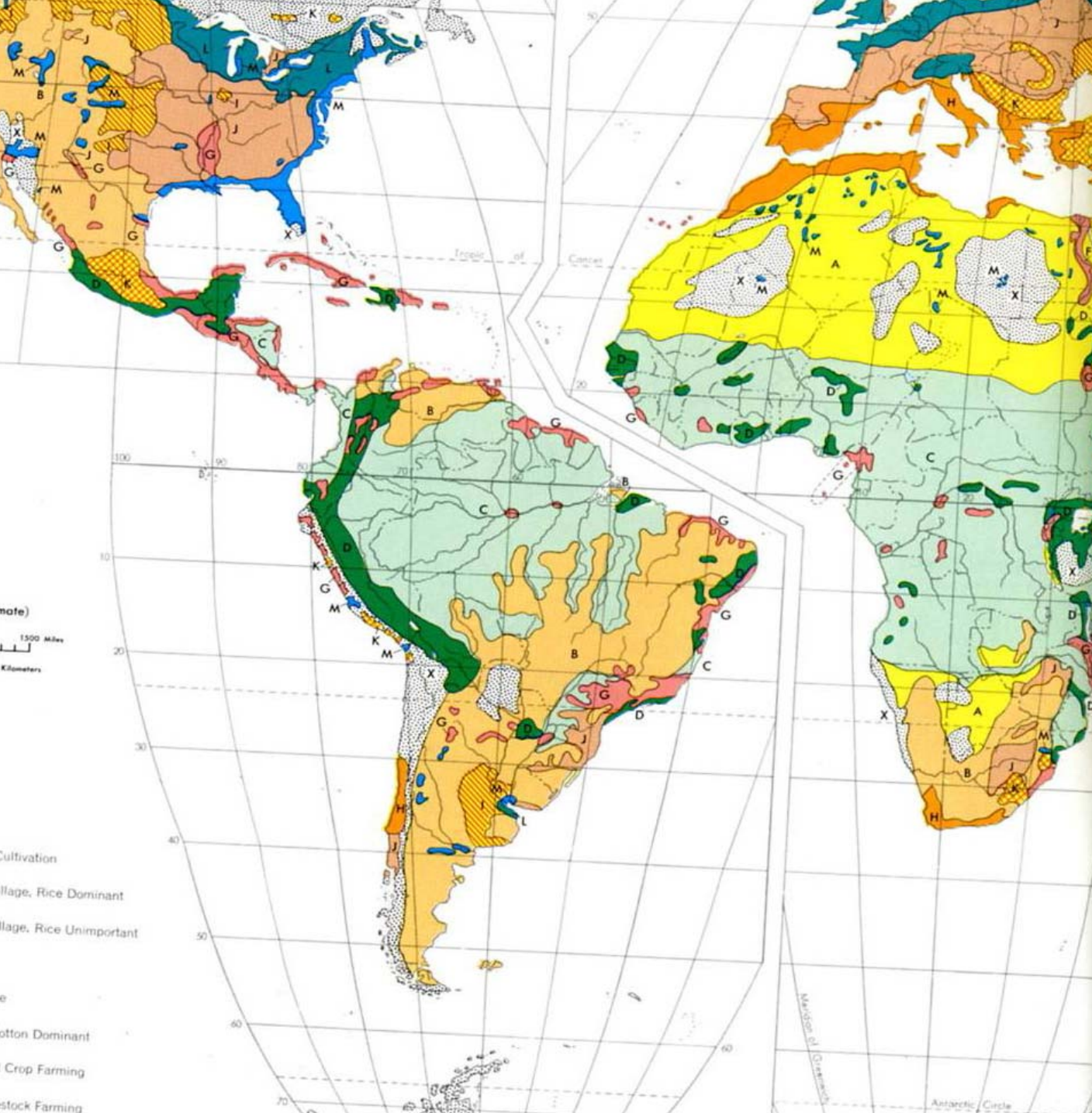
Production factors

- Agriculture types lie behind consumption patterns
- Major components of agriculture
 - Ecology of agriculture – impact of climate, soils and landforms
 - Set of linkages among primary production and consumption regions
 - Cultural taste



Probable Origins of Cultivated Plants





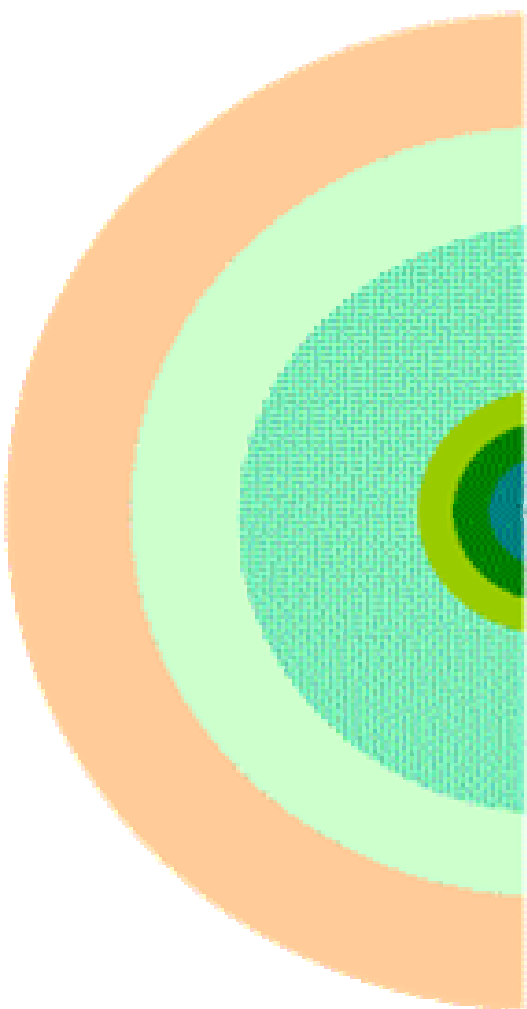
General patterns

- 13 varieties reflective of environment
 - Nomadic herders in arid regions
 - Shifting cultivation in tropical rainforest and savanna margins
 - Livestock ranching on dry margins of crop farming
- Farmers have cleared and tilled many environments and made new systems

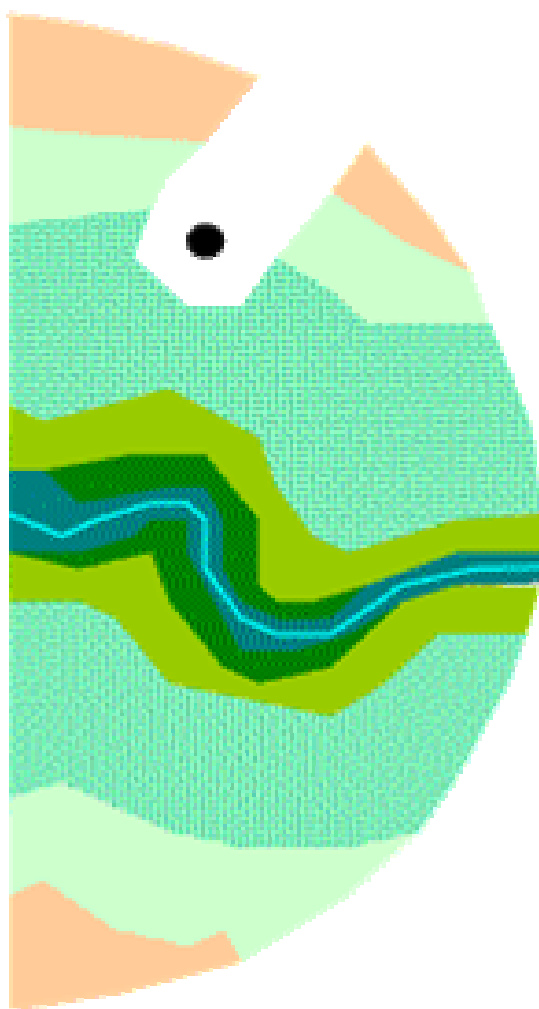
Market impact within Zones

- Von Thunen model useful in discussions of land use
- The model is Important because it opens up discussions of contemporary agricultural patterns.

Isolated State

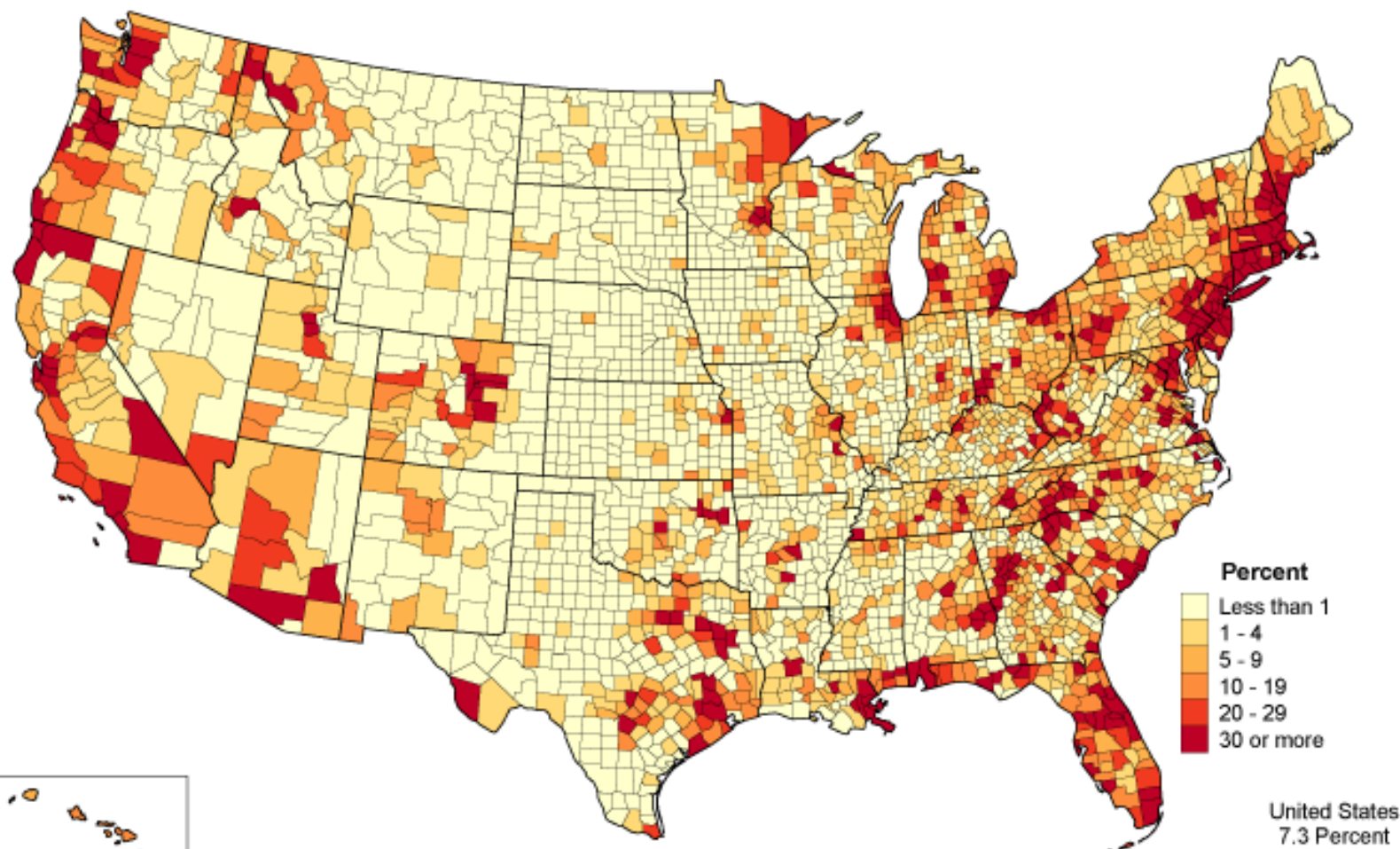


Modified Conditions

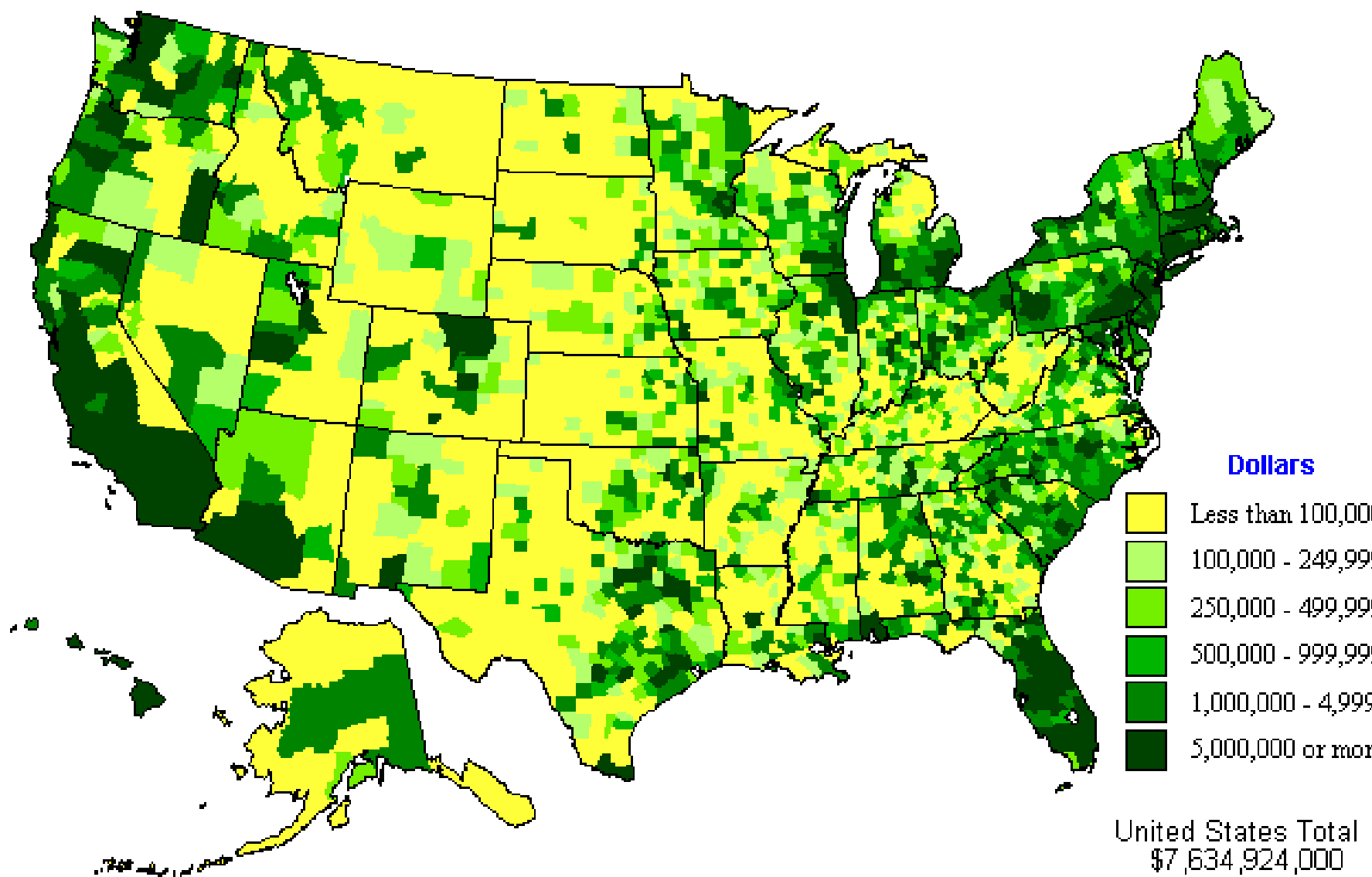


- Central city
- Navigable river
- Market gardening and milk production
- Firewood and lumber production
- Crop farming without fallow
- Crop farming, fallow and pasture
- Three-field system
- Livestock farming

**Value of Nursery, Greenhouse, Floriculture, and Sod
as Percent of Total Market Value
of Agricultural Products Sold: 2002**

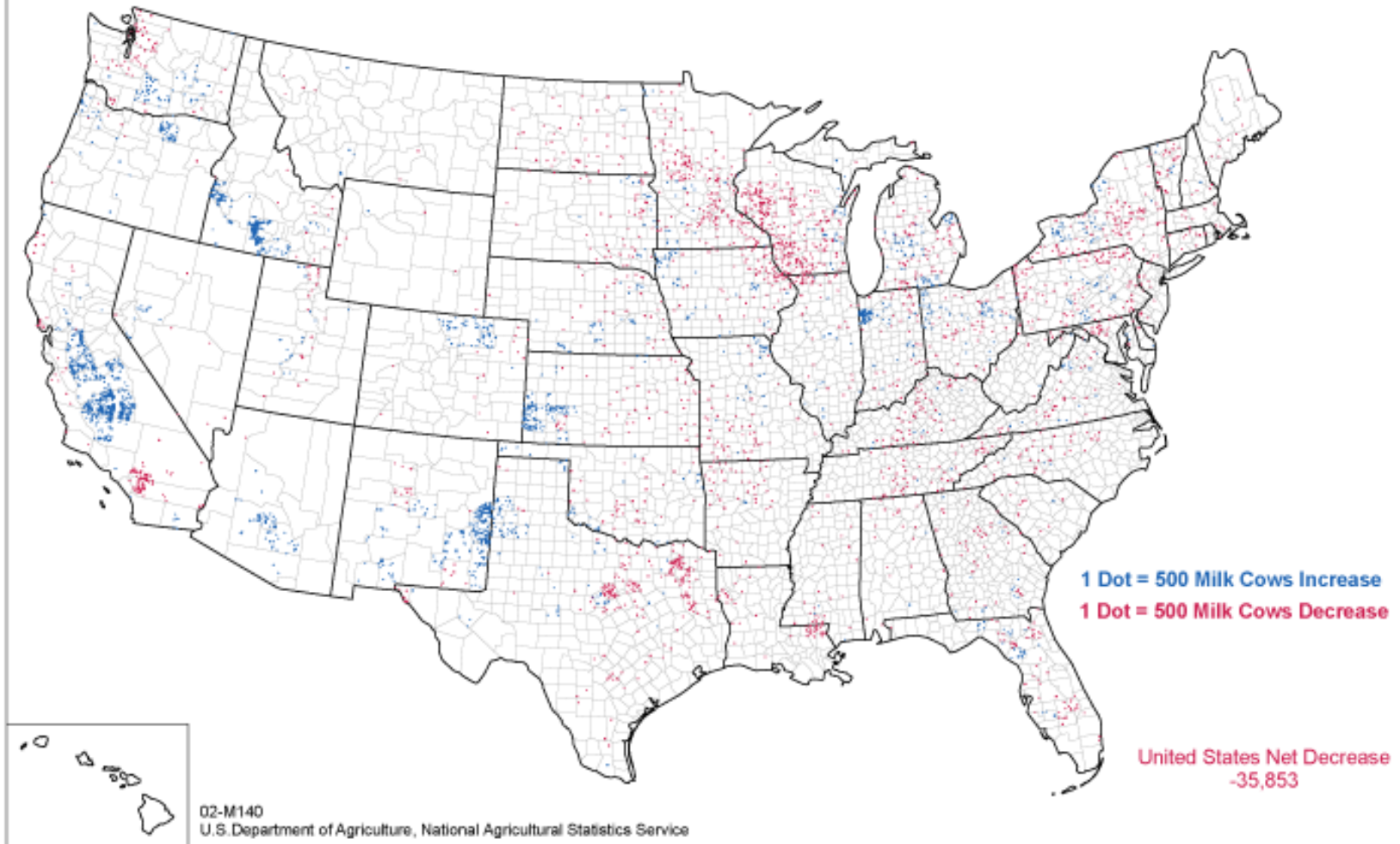


Value of Nursery and Greenhouse Crops, Mushrooms and Sod Grown for Sale: 1992



Source: 1992 Census of Agriculture

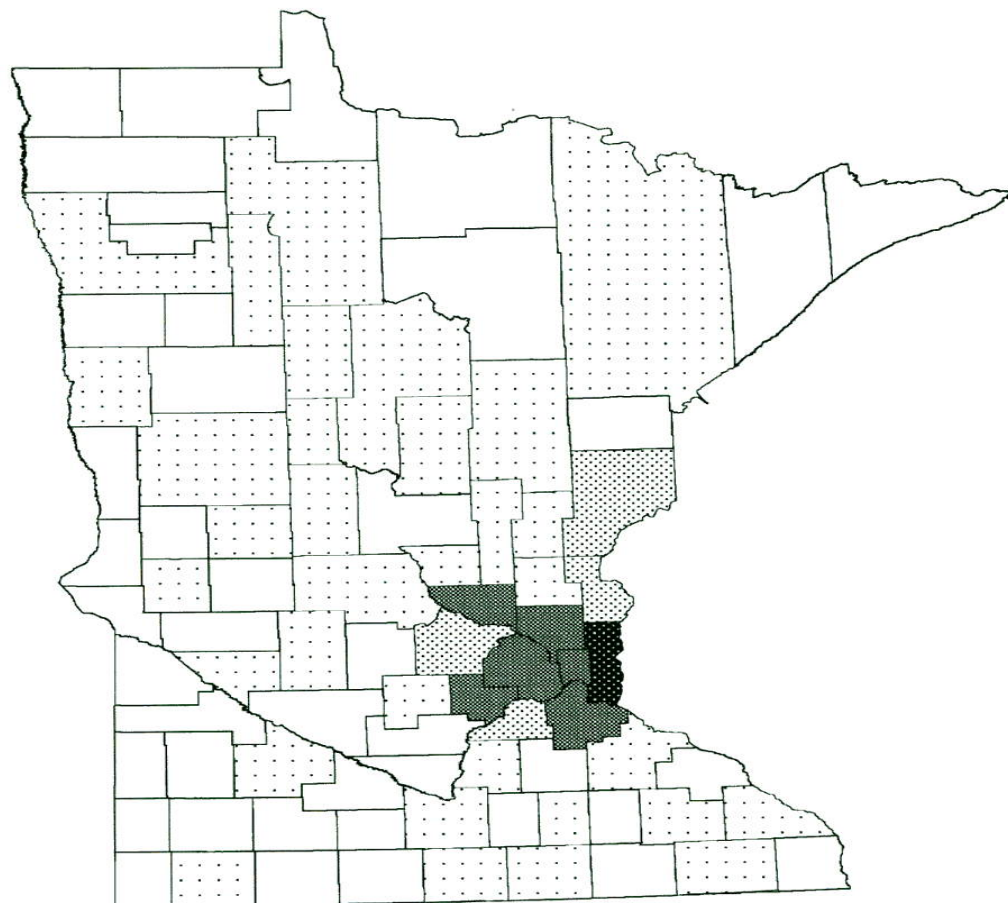
Milk Cows - Change in Inventory: 1997 to 2002



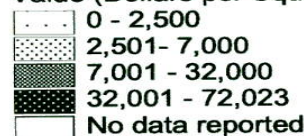
Impact of market in Minnesota

Nursery and Greenhouse Crops

Map 9



Value (Dollars per Square Mile)



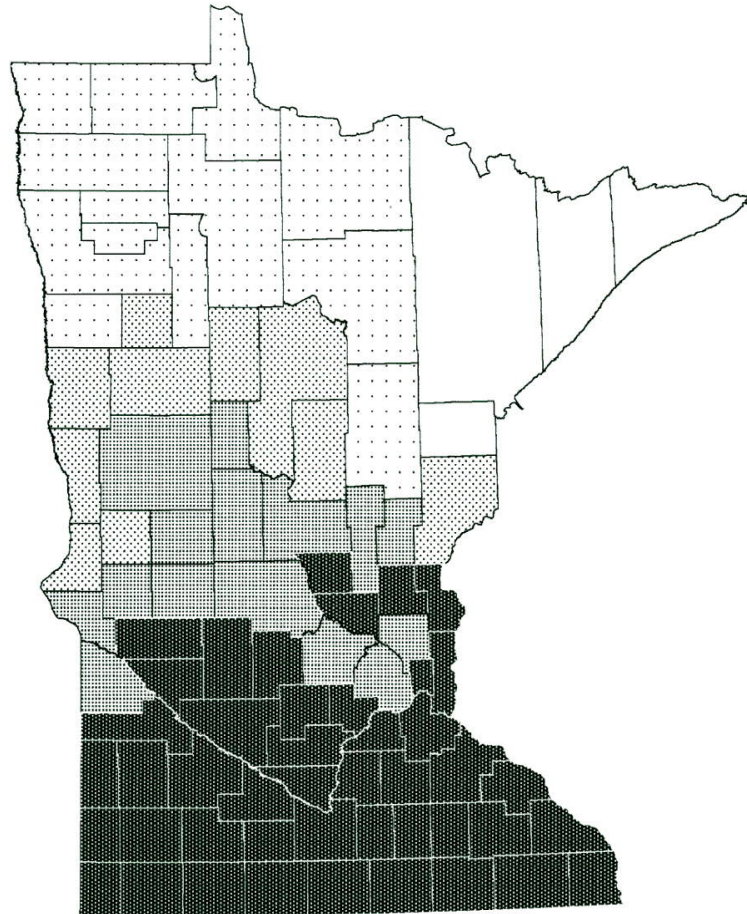
*Market value divided by
square miles in county

Data Source: 1992 Census of Agriculture

Note: Bailey Nurseries, Inc., in southern Washington County is the nation's fourth largest wholesale nursery grower.

Corn in MN Counties

Map 3



Corn as percentage
less than 5
5 - 19.9
20 - 39.9
40 or more
No data reported

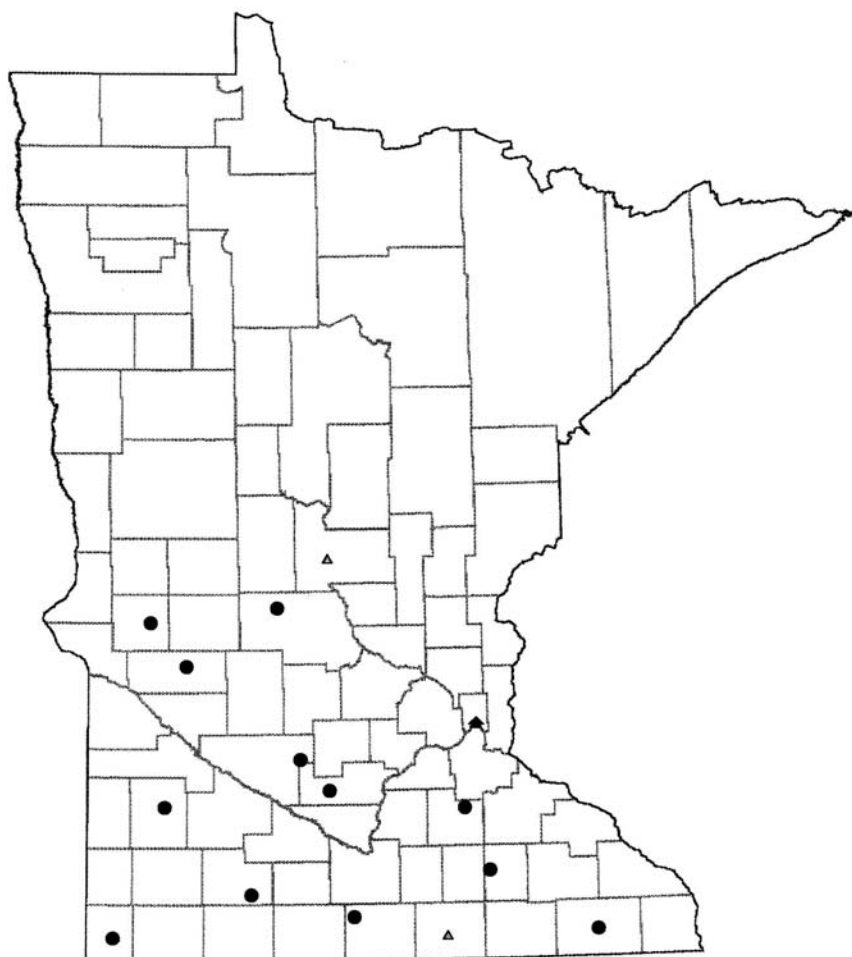
* Corn acres harvested for grain
divided by acres of harvested cropland

Data Source: 1992 Census of Agriculture

0 50 100 150 200 Miles

Ethanol Plants (processing corn)

Map 18



- △ Under construction
- Operating in 1998
- ◆ Being considered (Minnesota Brewing facility in St. Paul)

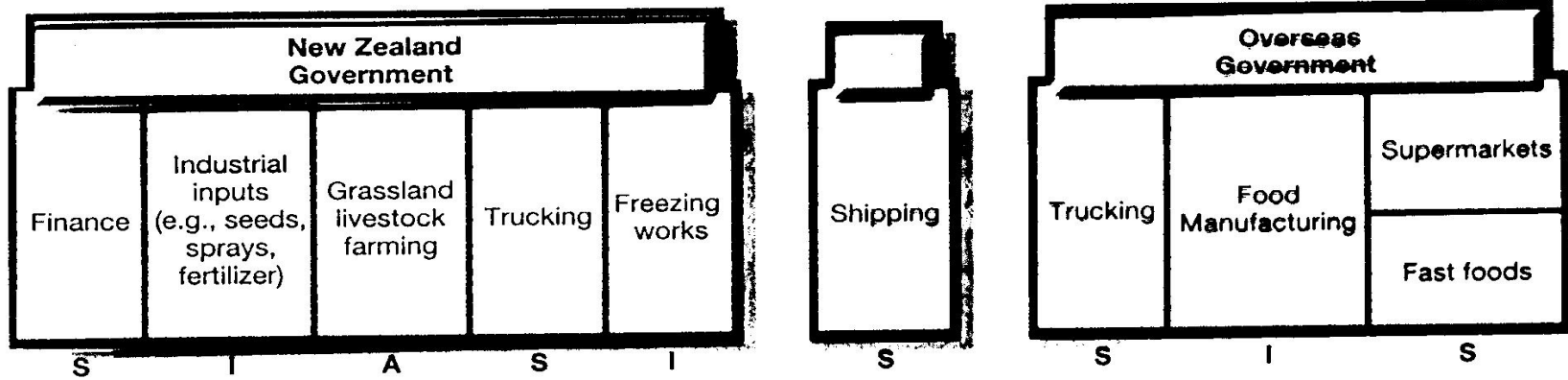
Note: 18 percent of Minnesota's corn is now milled as ethanol and related by-products. 8,000 Minnesota farmers own over 90 percent of the state's corn-milling industry.

Data Source: Minnesota Department of Agriculture, 1998

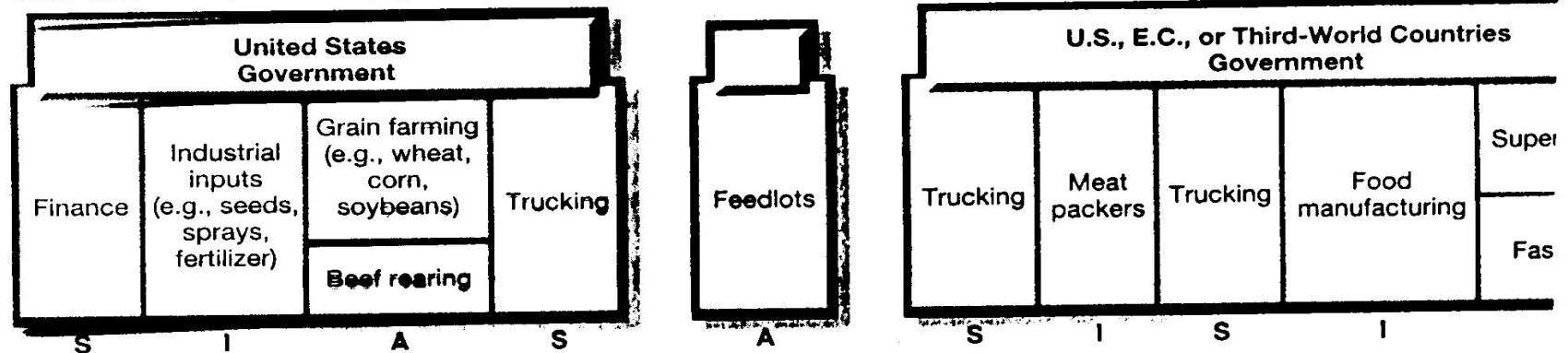
Commodity chains

346 Chapter 8 Agriculture and Food Production

Grassland-based beef production (e.g., New Zealand)



Grain-based beef production (e.g., U.S., E.C.)

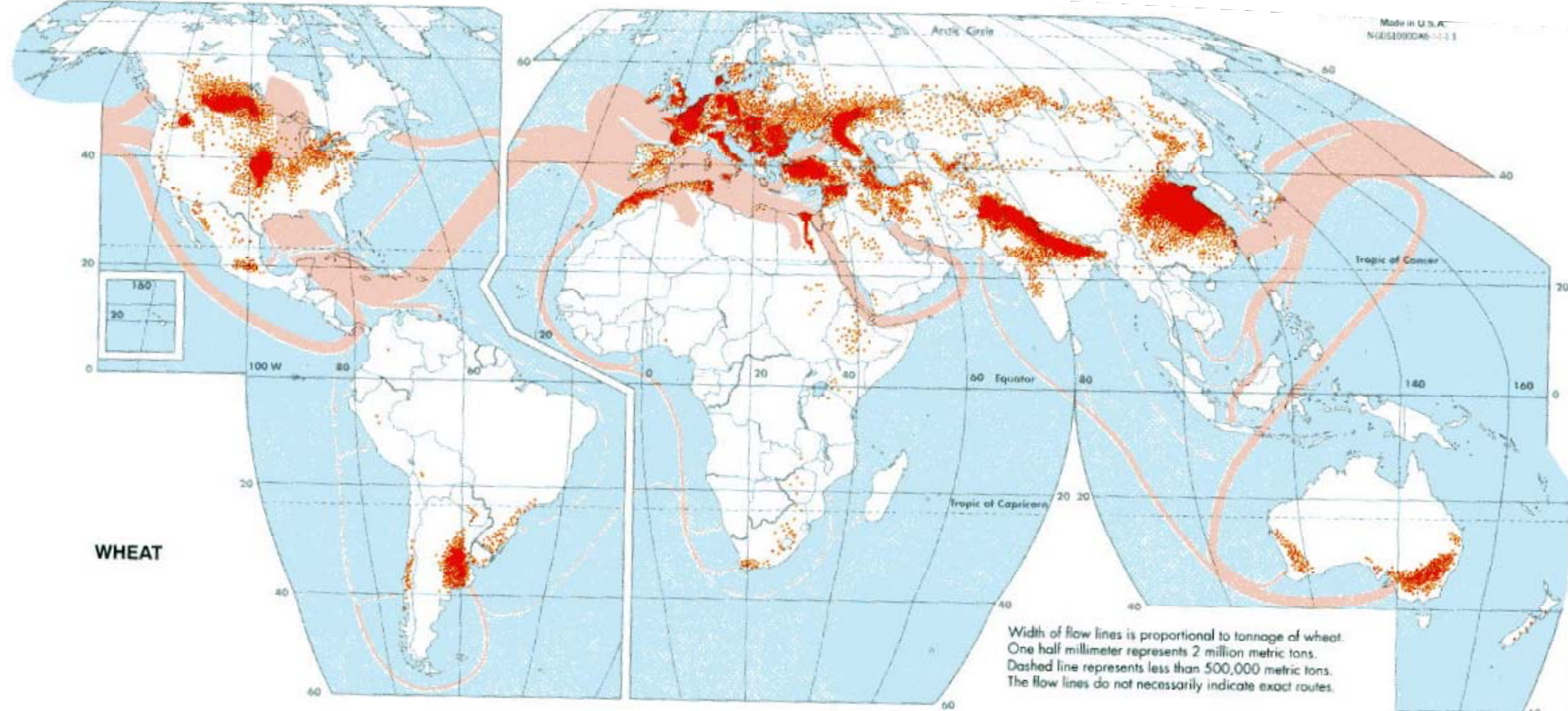


The word system is used to denote the intersection of a range of processes, embracing production to consumption. Designating different spheres of the economy connected with generating "agricultural" outputs are:

A - Agriculture I - Industry S - Services

Trade in Wheat

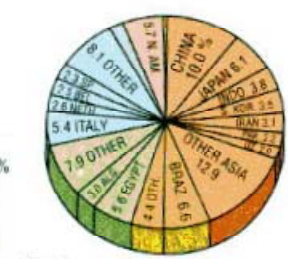
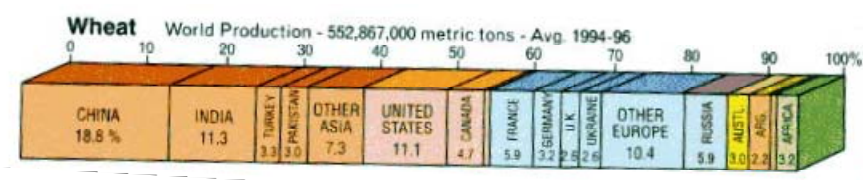
- Wheat is the major food commodity in international trade
- There are many production areas for wheat
- The demand for wheat is great and because local supplies are not adequate
- production area have become specialized
- Wheat is the ideal frontier crop.



Width of flow lines is proportional to tonnage of wheat.
One half millimeter represents 2 million metric tons.
Dashed line represents less than 500,000 metric tons.
The flow lines do not necessarily indicate exact routes.

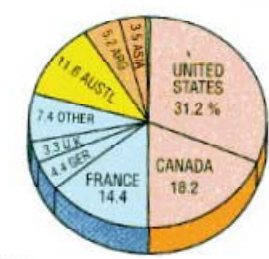
WHEAT

WHEAT Each dot represents 2,000,000 bushels (54,400 metric tons) per year



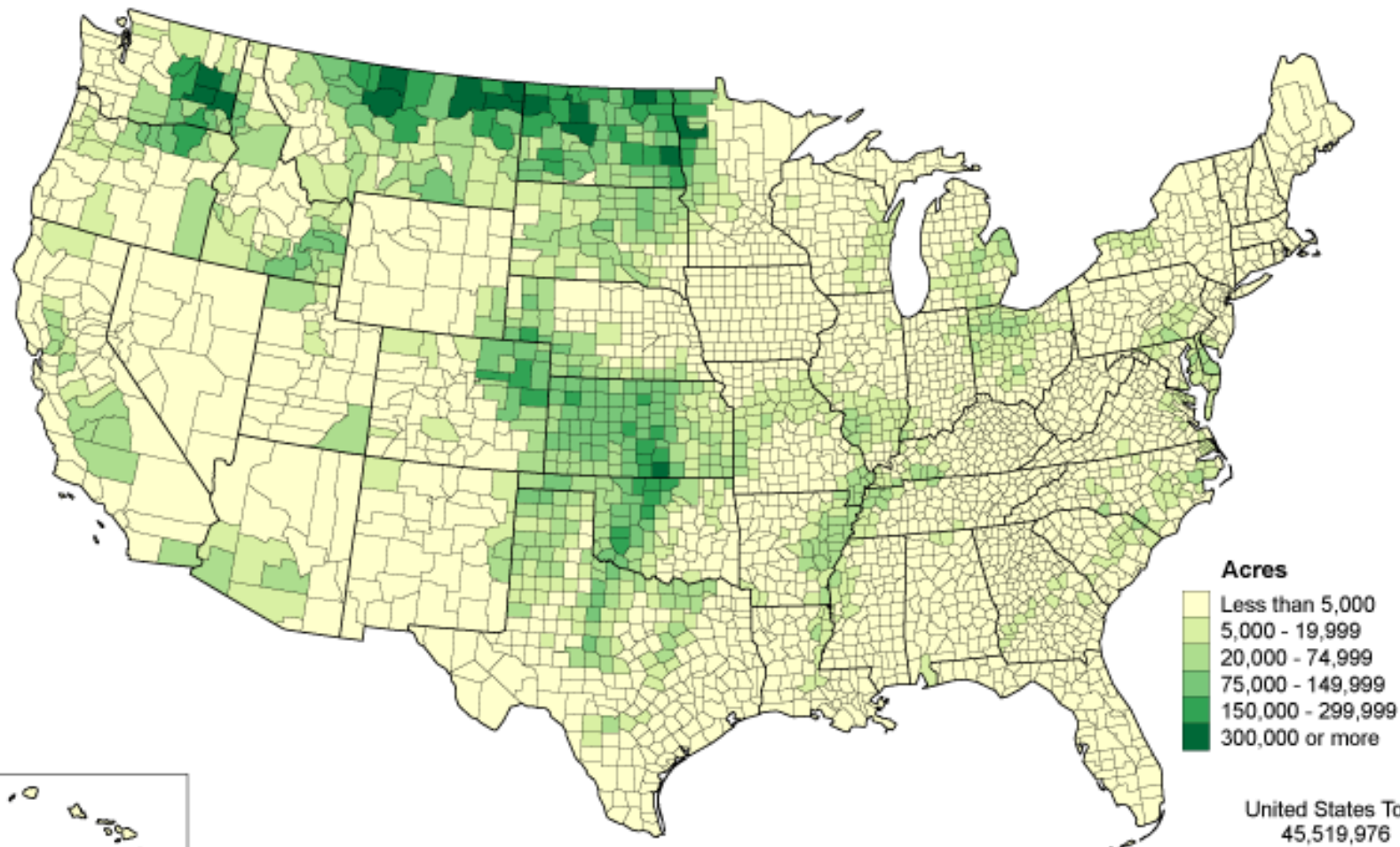
World Imports - 100,170,500 metric tons - Avg. 1994-96

Wheat Trade



World Exports - 100,523,000 metric tons - Avg. 1994-96

All Wheat for Grain, Harvested Acres: 2002

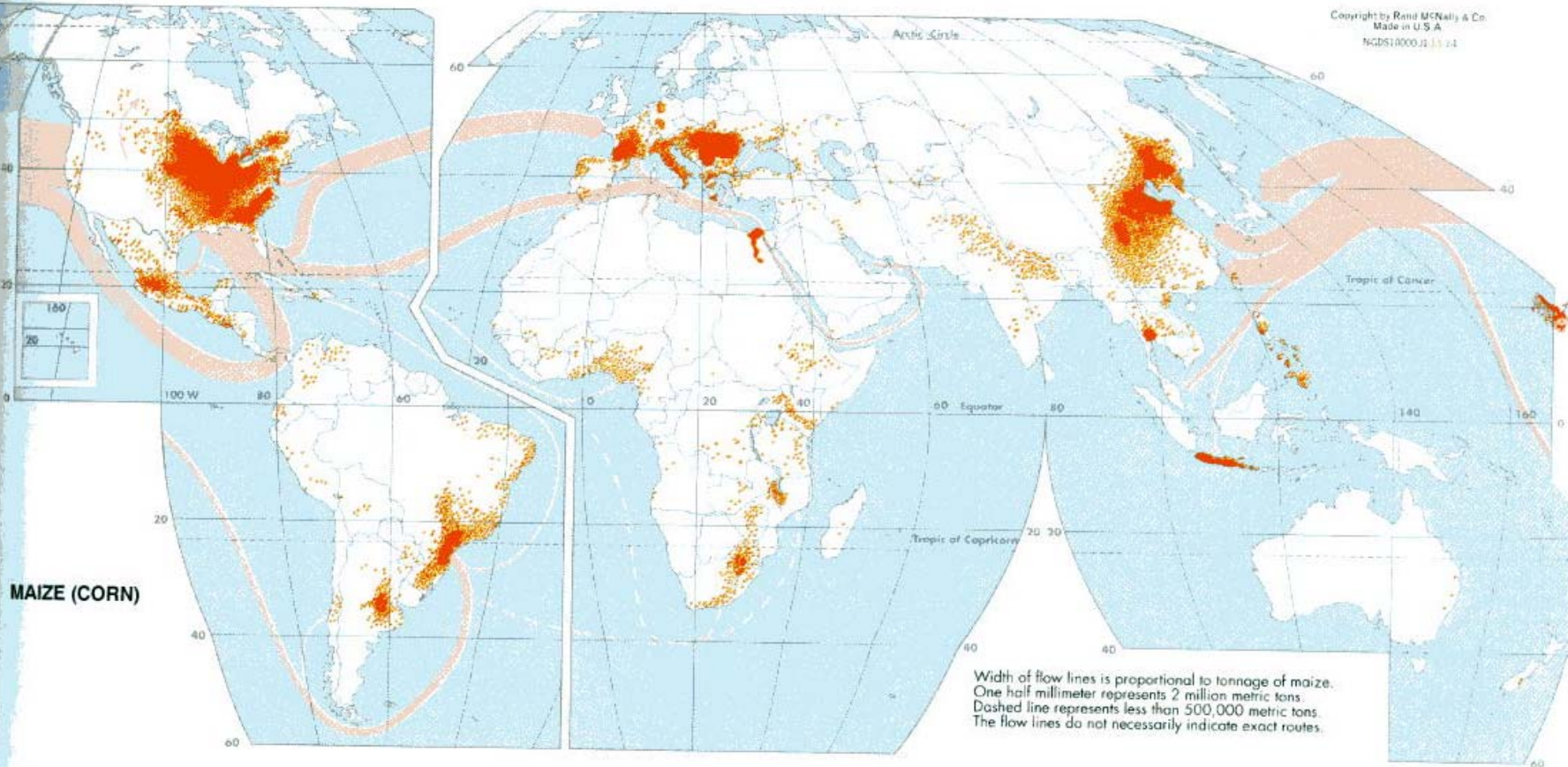






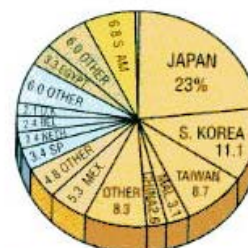
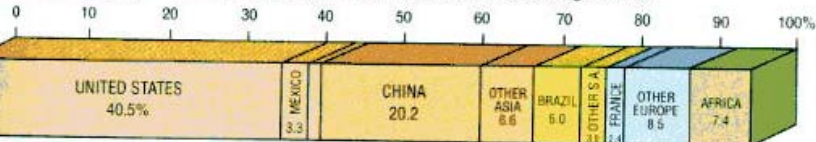
Maize or Corn

- Like wheat corn moves from a few production areas to a small number of consumption zones
- Corn differs from wheat in that most of it is not consumed directly by humans
- Many industrial uses of corn oil and sweeteners.



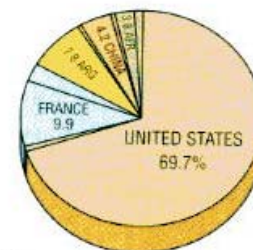
MAIZE Each dot represents 3,000,000 bushels (76,200 metric tons) per year

Maize (Corn) World Production - 559,077,000 metric tons - Avg. 1994-96



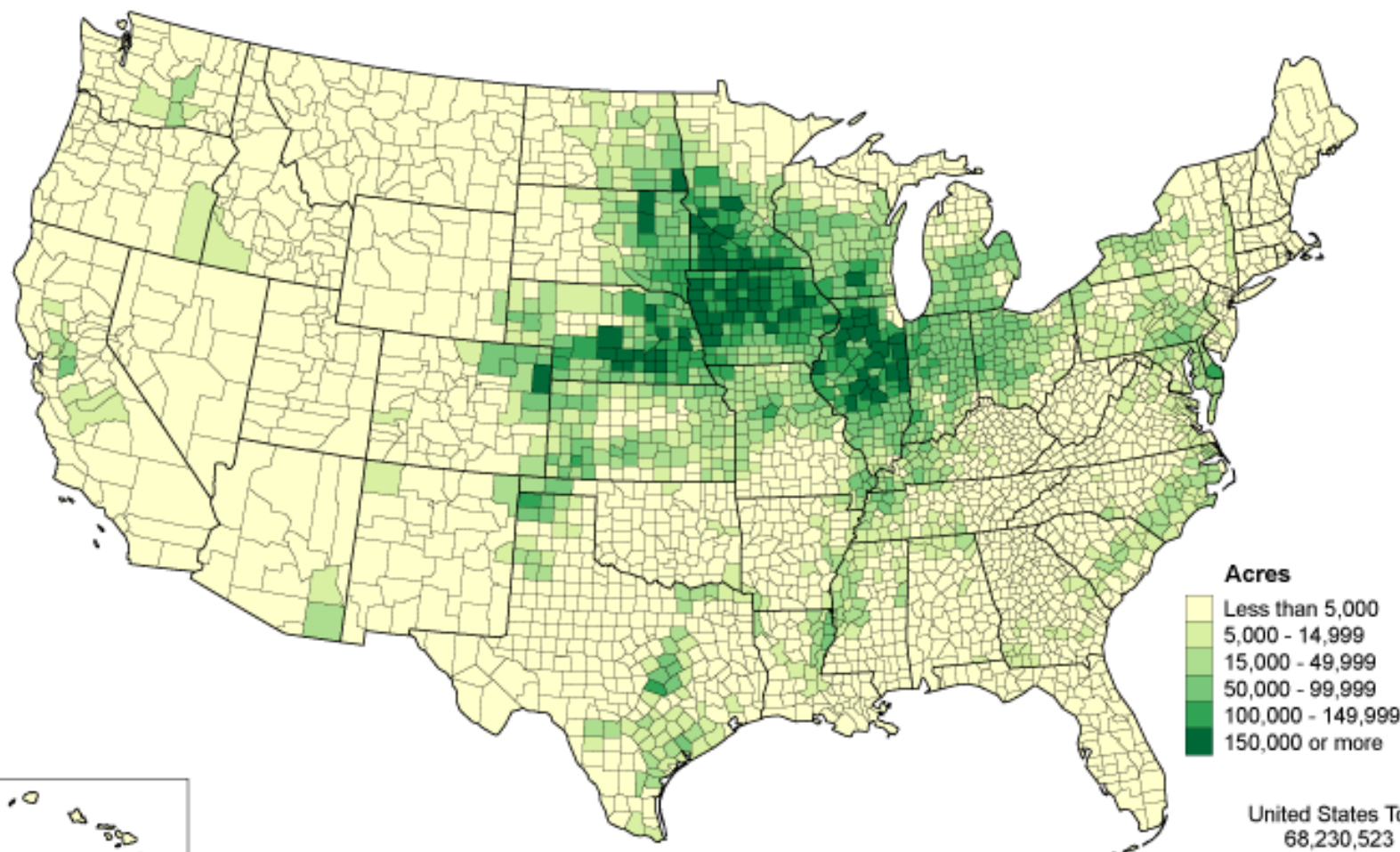
World Imports - 70,417,500 metric tons - Avg. 1994-96

Maize Trade



World Exports - 71,025,000 metric tons - Avg. 1994-96

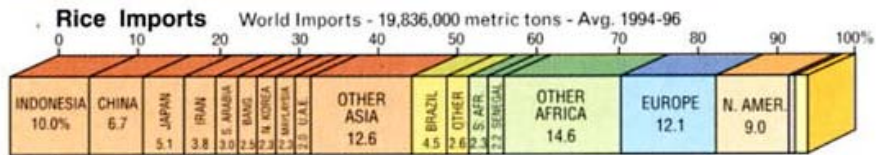
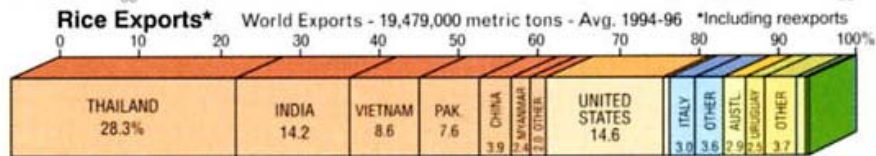
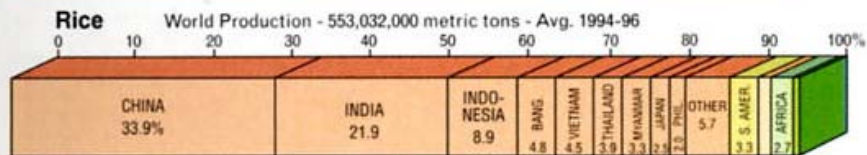
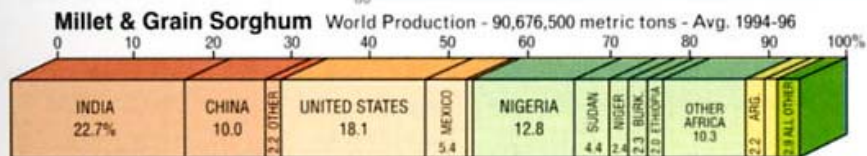
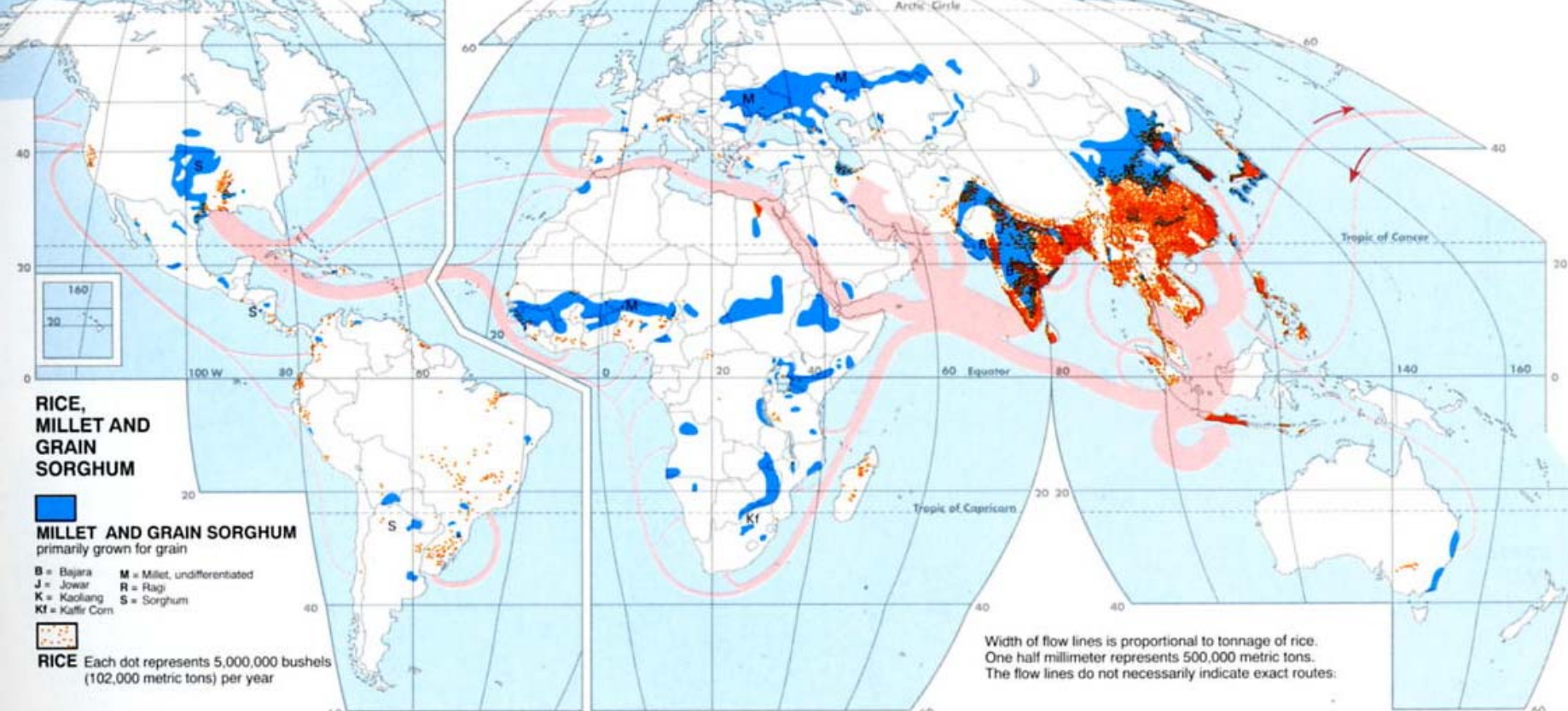
Corn for Grain, Harvested Acres: 2002





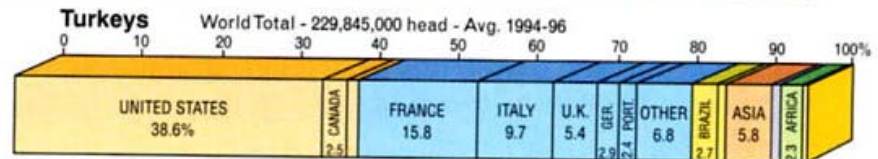
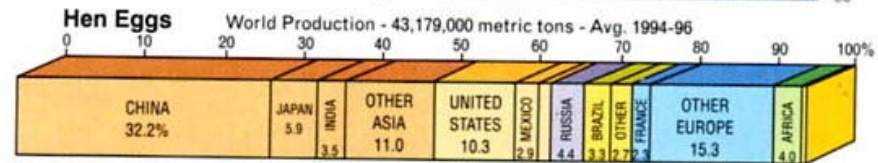
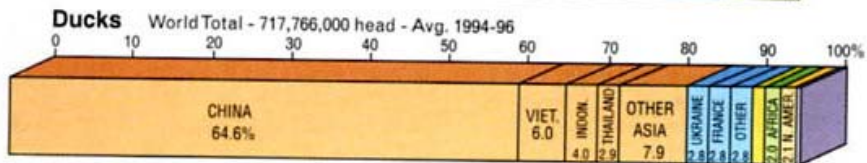
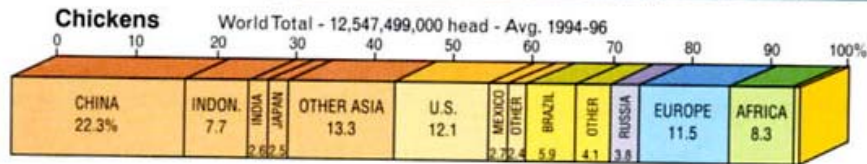
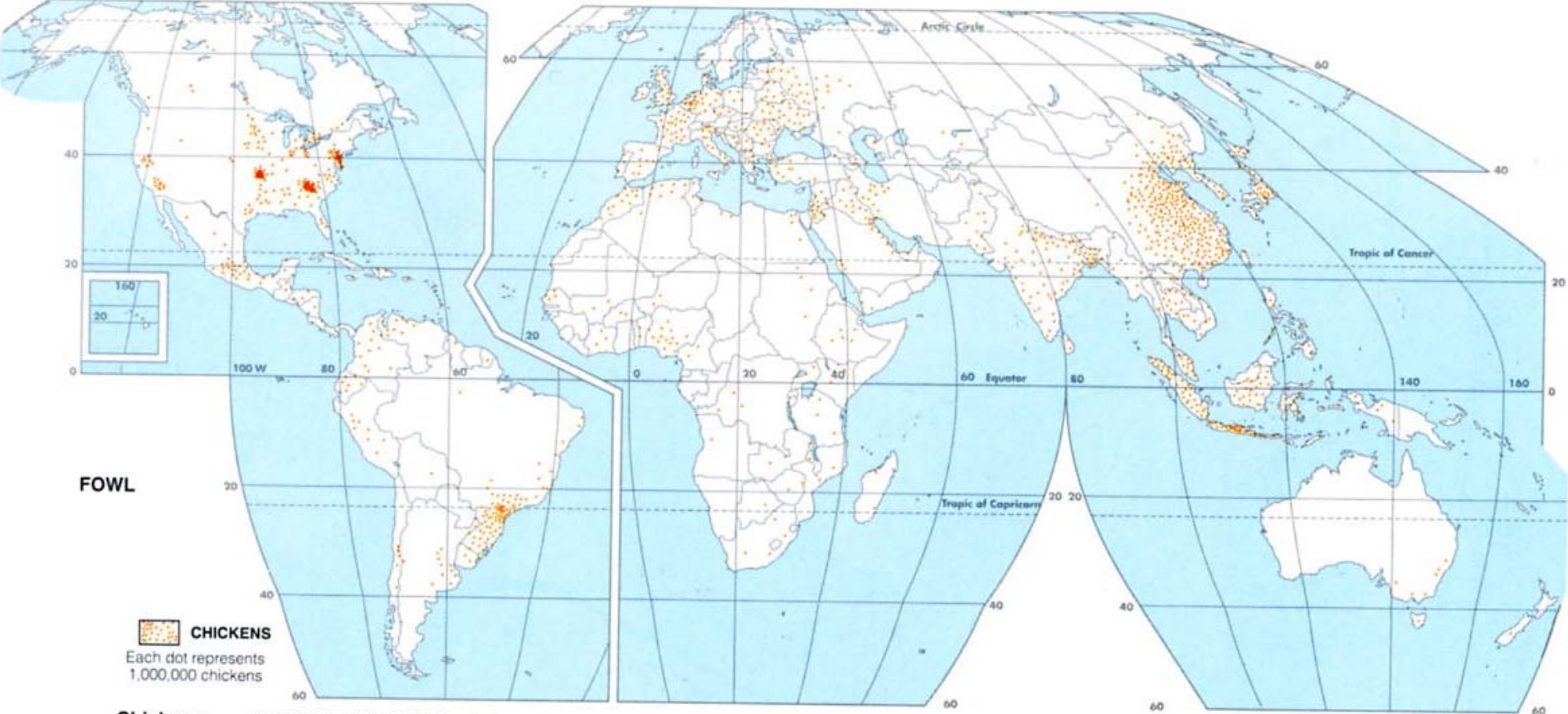
Rice

- Third major crop in international trade
- Major surpluses produced in East and Southeast Asia
- Middle East a consumer of both wheat and rice.

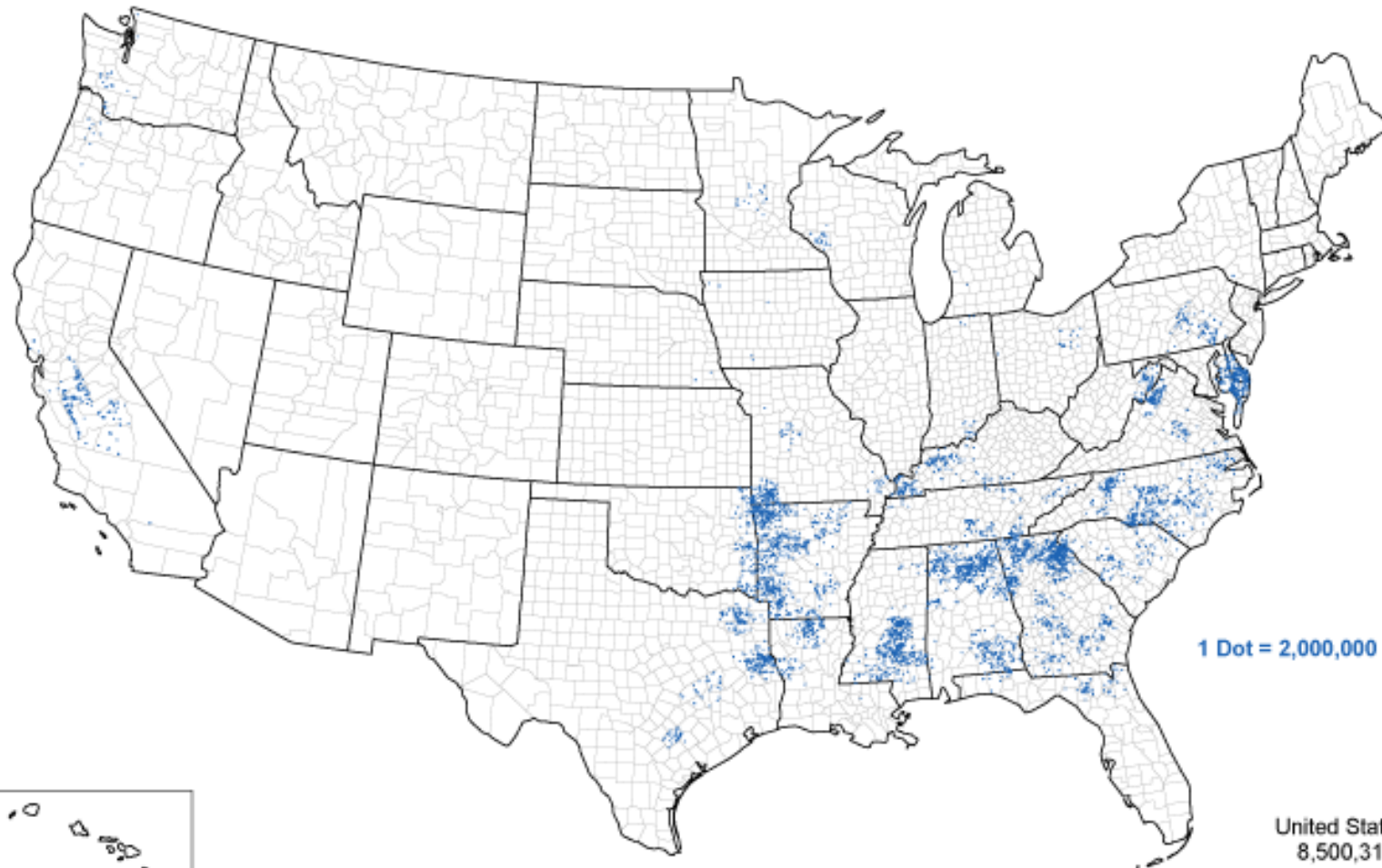


Geography of fowl

- There are a huge number of birds raised for human consumption
- Nearly all parts of the world produce poultry
- The production of poultry in the United States is highly industrialized
- The production in the United States is highly concentrated



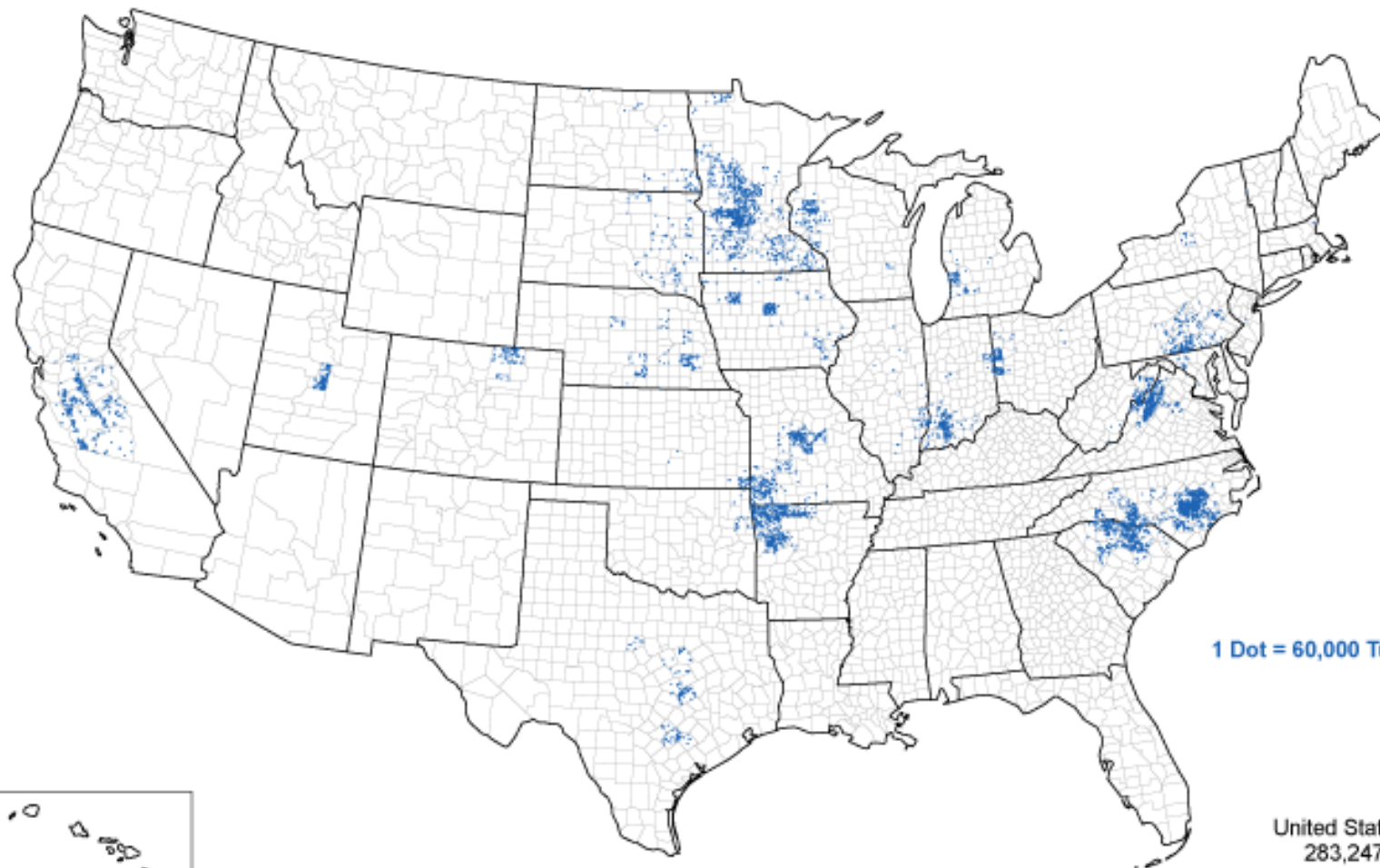
Number of Broilers and Other Meat-Type Chickens Sold: 2002



1 Dot = 2,000,000 Broilers

United States Total
8,500,313,357

Number of Turkeys Sold: 2002



United States Total
283,247,649





Geography of swine

- The production of hogs is highly regionalized
- There are great concentrations in Asia
- Essentially no hog production in Islamic world
- New centers of factory farms developing in United States in North Carolina and High Plains

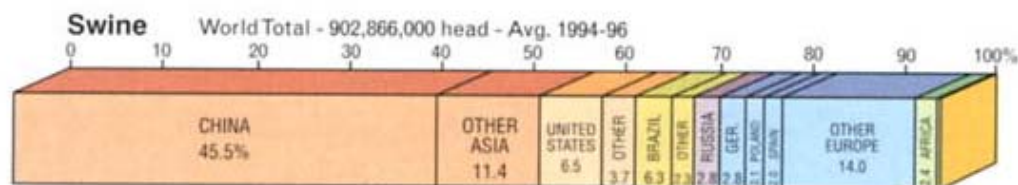


SWINE

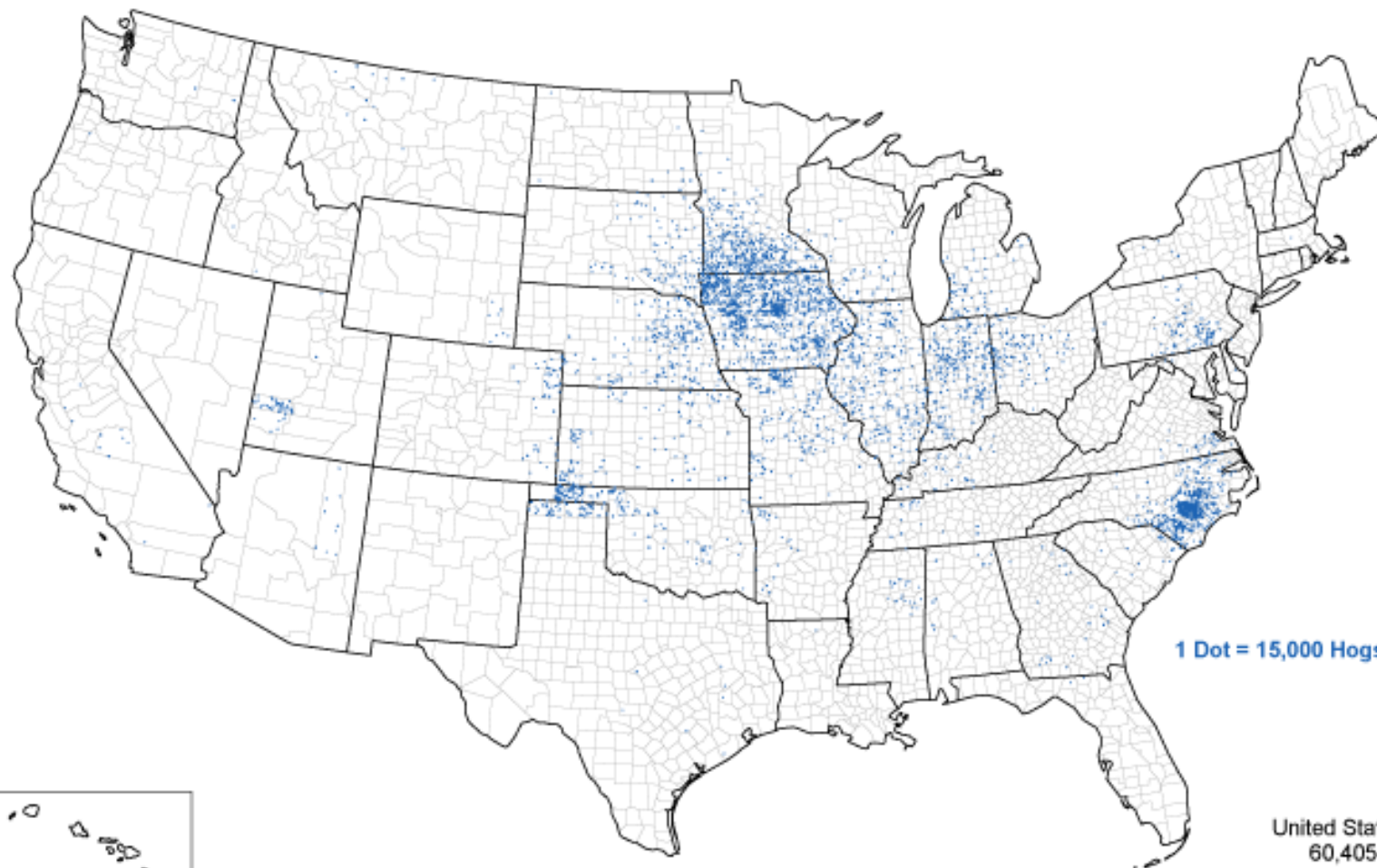


SWINE* Each dot represents 500,000 head

*Data for Libya, Mauritania, and S



Hogs and Pigs - Inventory: 2002



United States Total
60,405,103







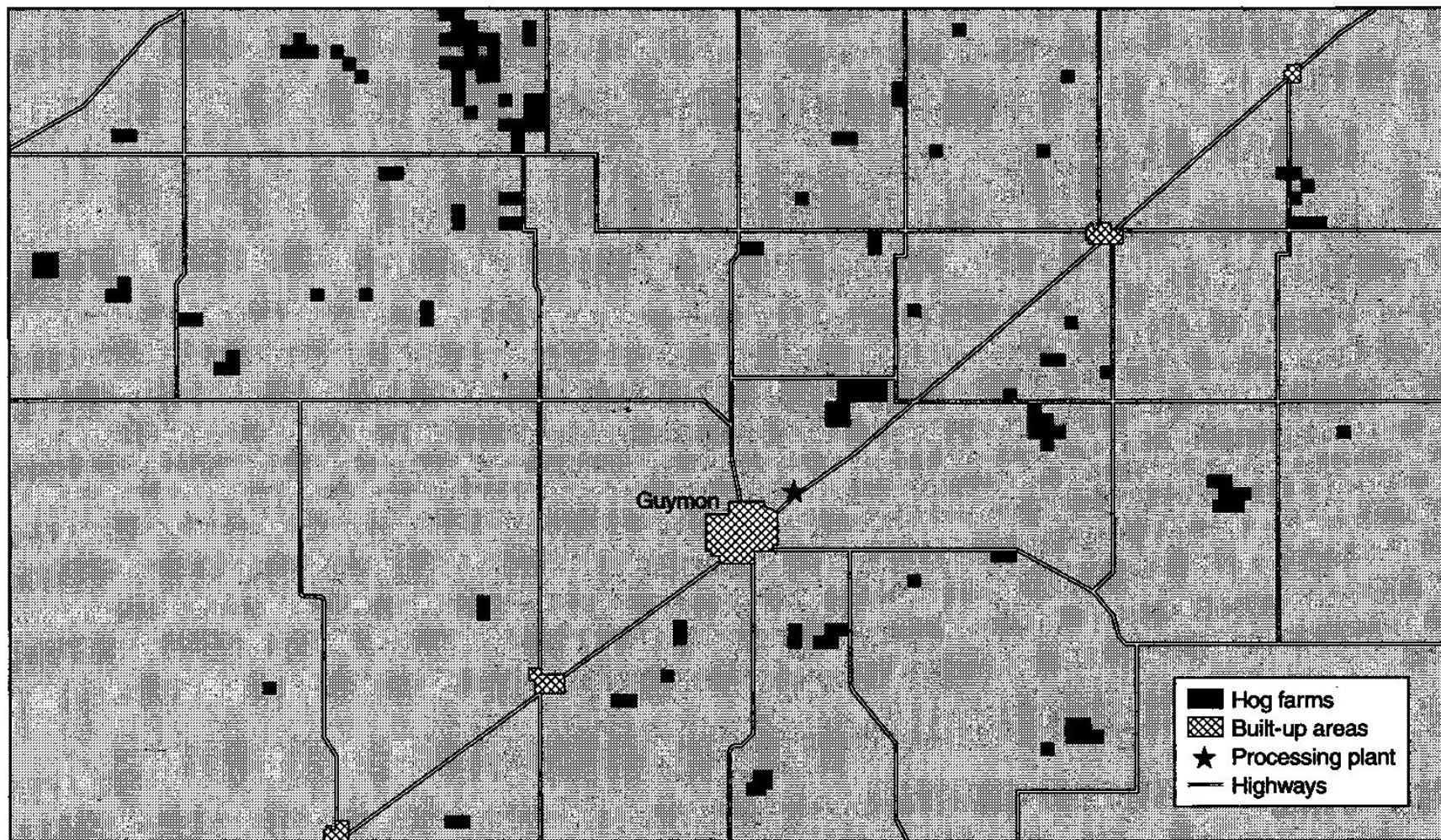


FIG. 1—Hog farms and built-up areas in Texas County, Oklahoma, in 1997. Each small, square quarter-section has one or more hog farms, which are clusters of two to ten buildings. The Seaboard Corporation processing plant is just northeast of Guymon, the county seat, which is close to the center of the county. *Source:* Campbell 1997.

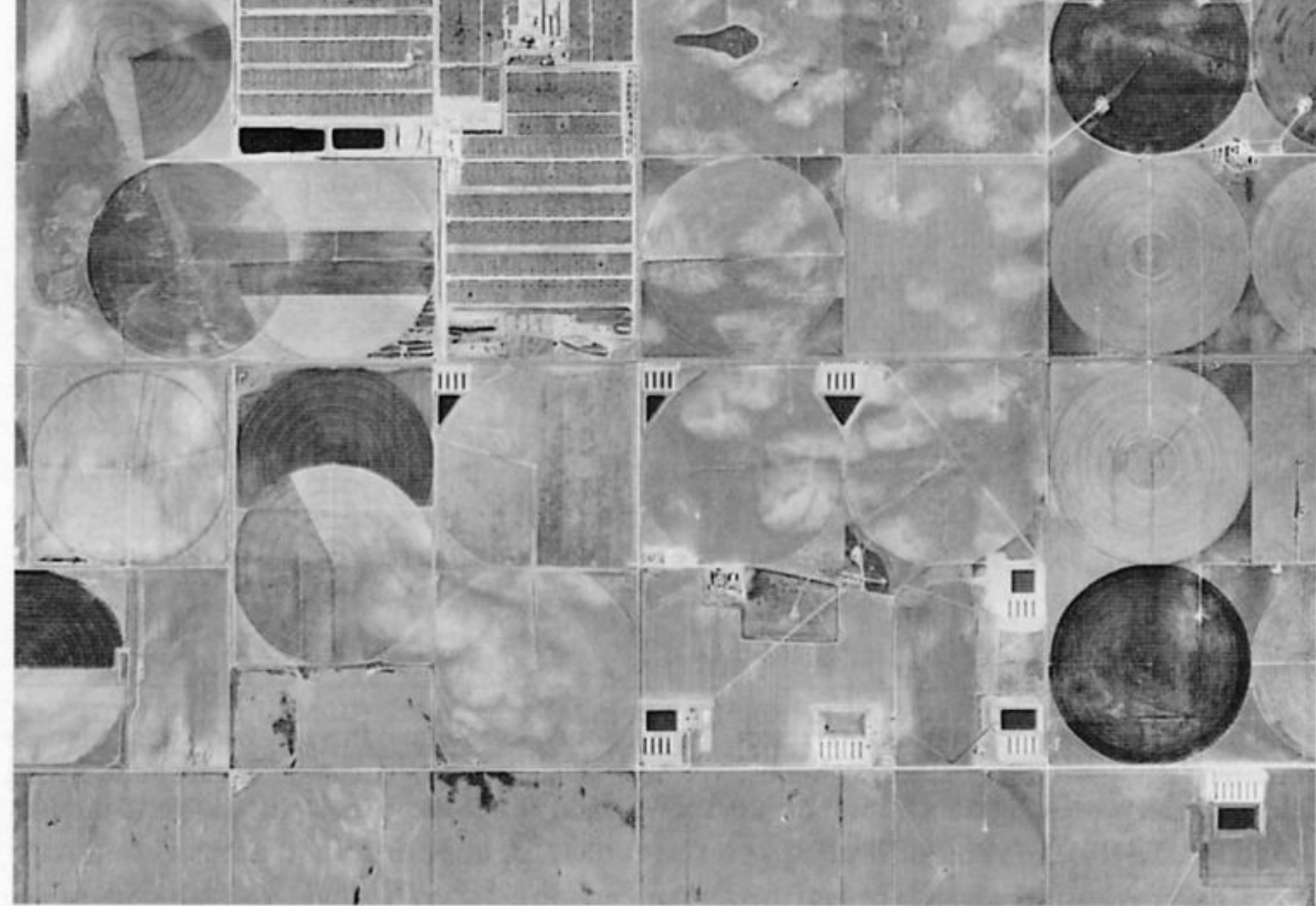
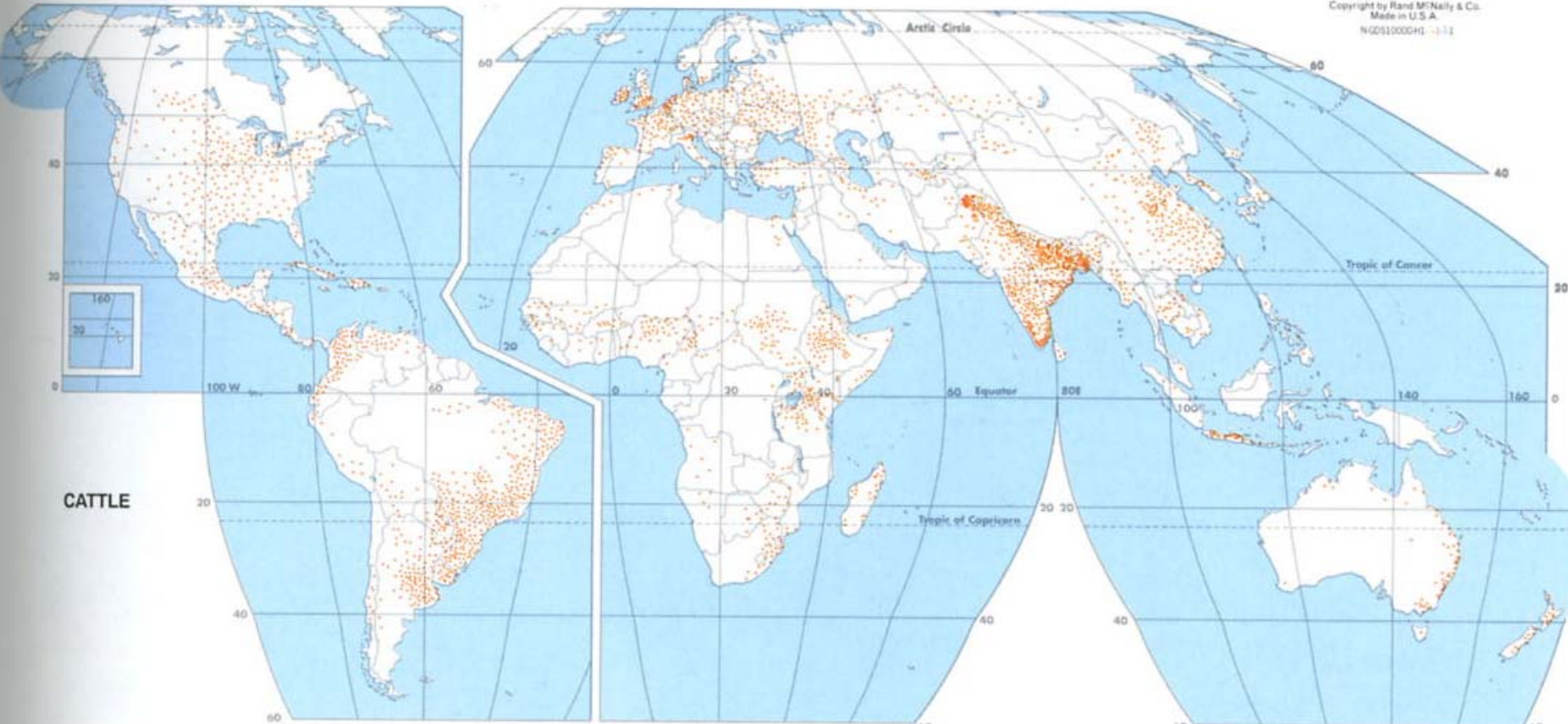


FIG. 2—By sheer good fortune, the U.S. Department of Agriculture happened to schedule aerial photography of Texas County, Oklahoma, in February 1995, when the first few hog farms were being developed. Hog farms are most easily identifiable by the small black rectangular buildings.

Geography of Cattle

- Distribution of cattle highly regionalized
- Concentration in India results from cultural patterns
- Nomadic herding patterns still visible in the geography of cattle.
- Ranching areas in colonial zones still visible



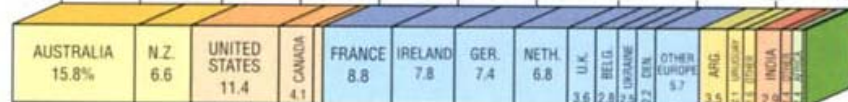
CATTLE



CATTLE Each dot represents 500,000 head

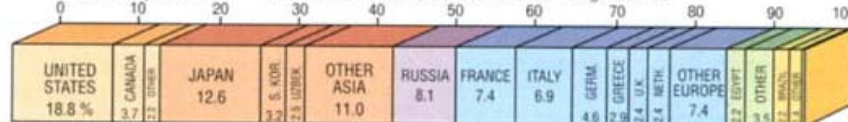
Beef Exports*

World Total - 4,978,000 metric tons - Avg. 1994-96 *Including reexports



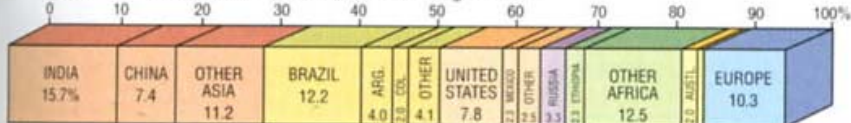
Beef Imports

World Total - 4,938,000 metric tons - Avg. 1994-96

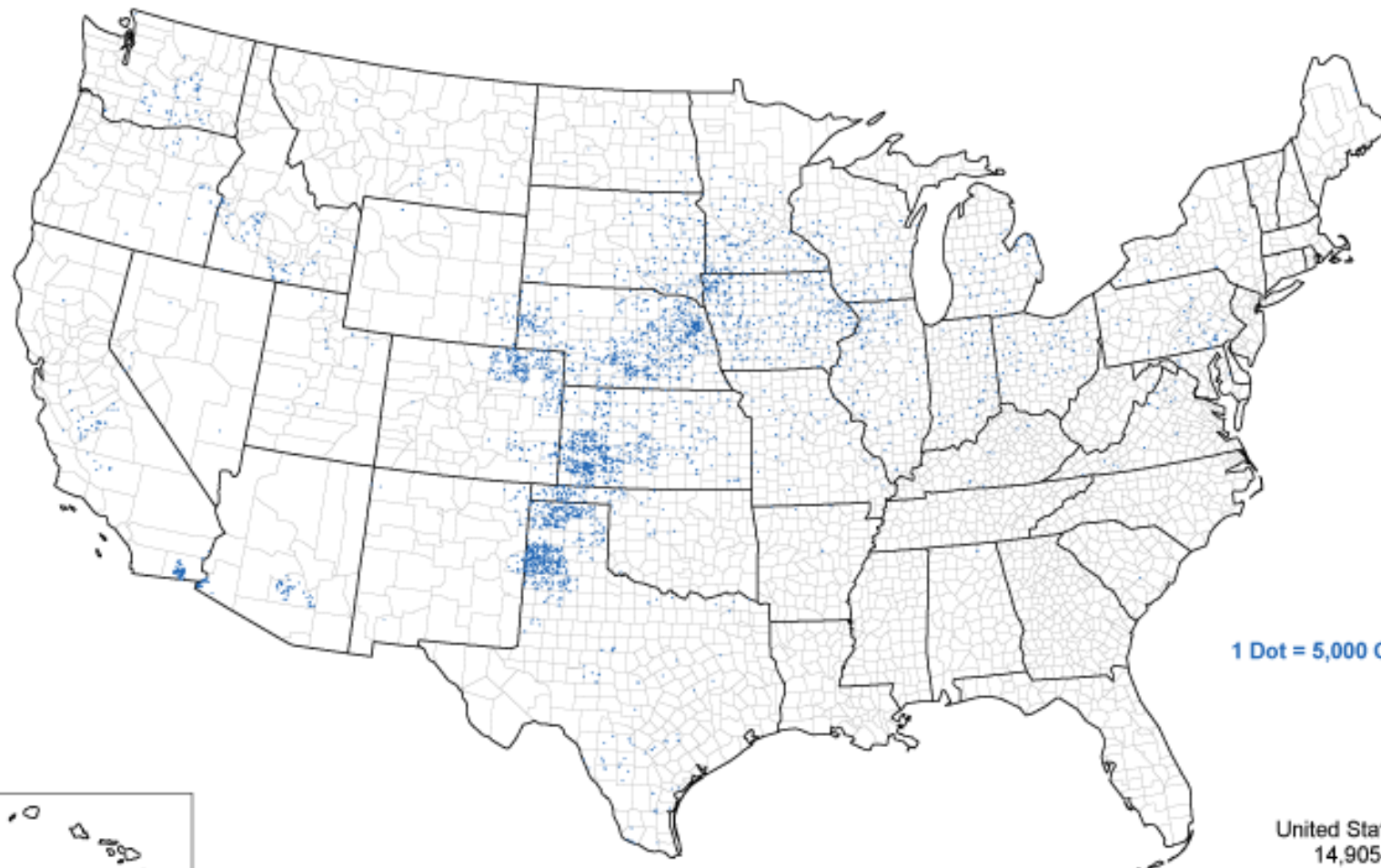


Cattle

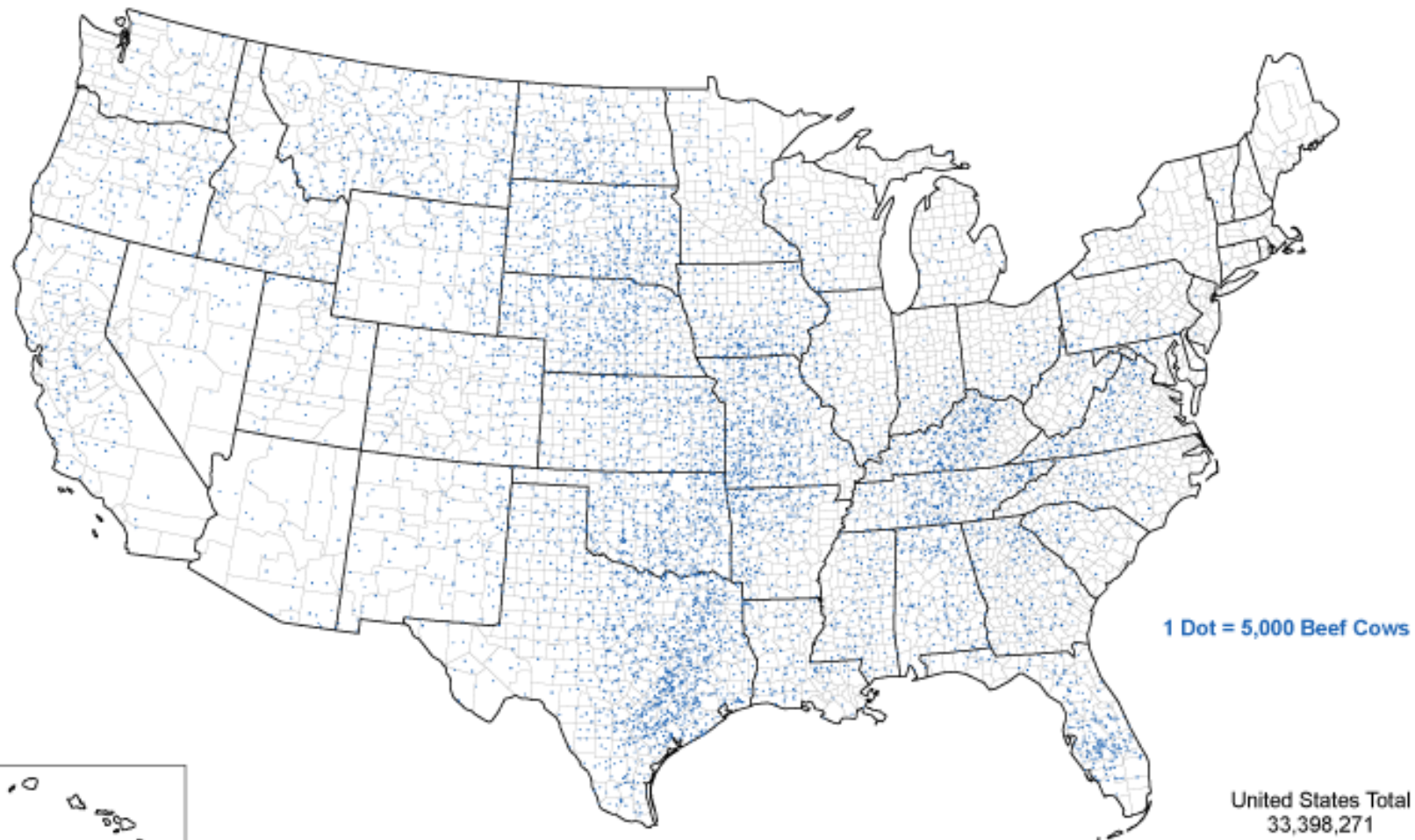
World Total - 1,318,408,000 head - Avg. 1994-96



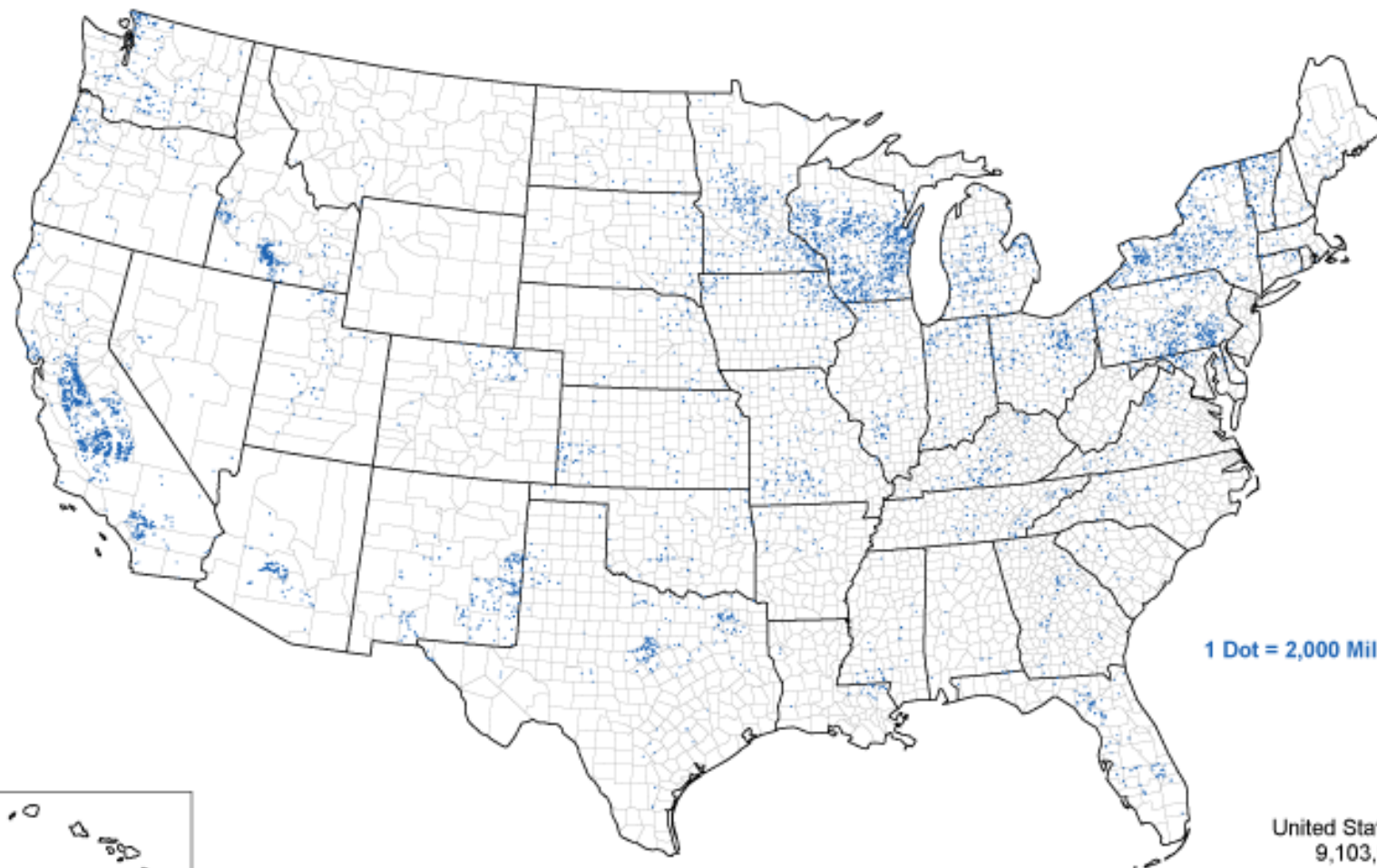
Cattle on Feed - Inventory: 2002



Beef Cows - Inventory: 2002



Milk Cows - Inventory: 2002



STOP
NO ADMITTANCE

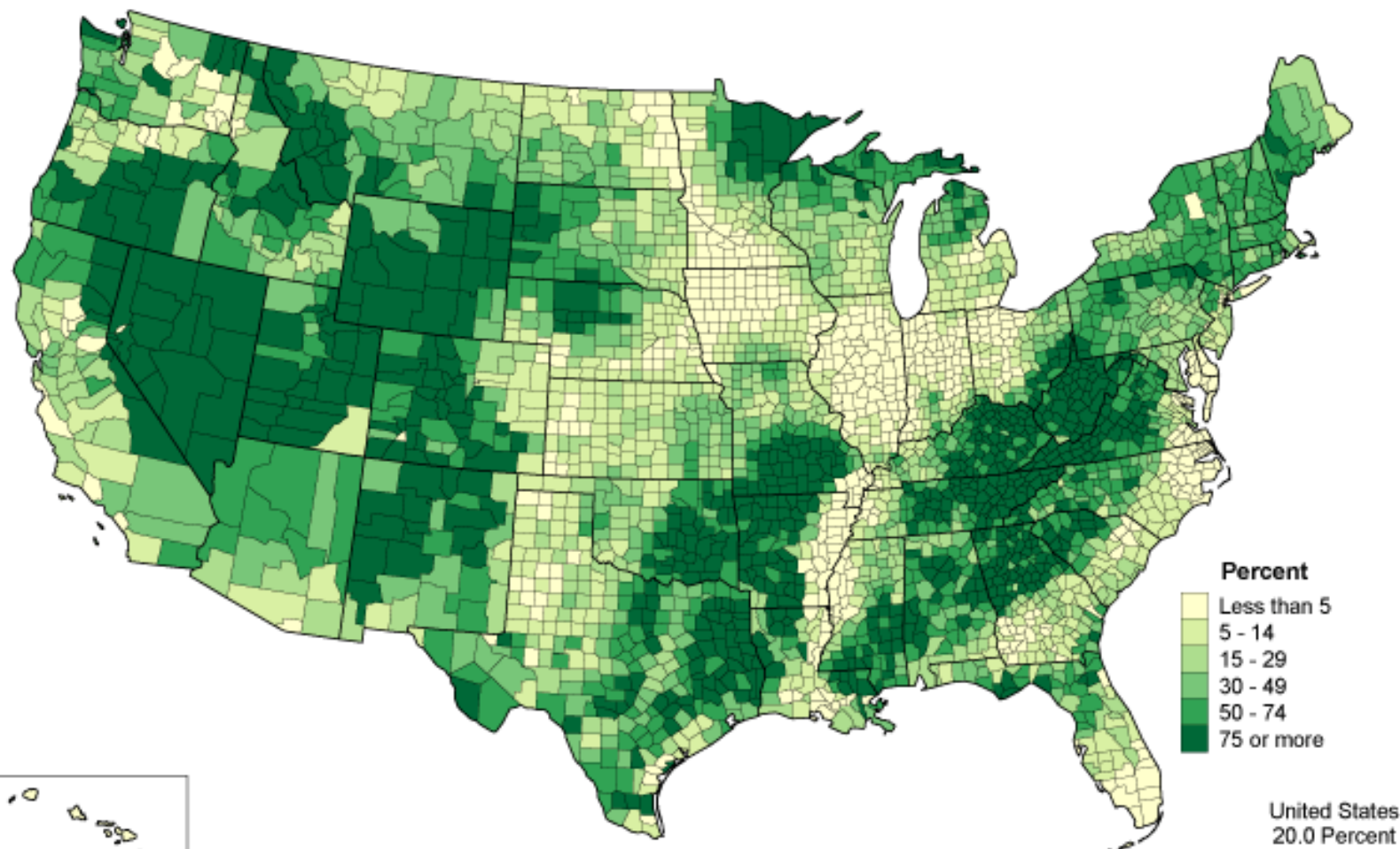
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PERSONNEL ONLY
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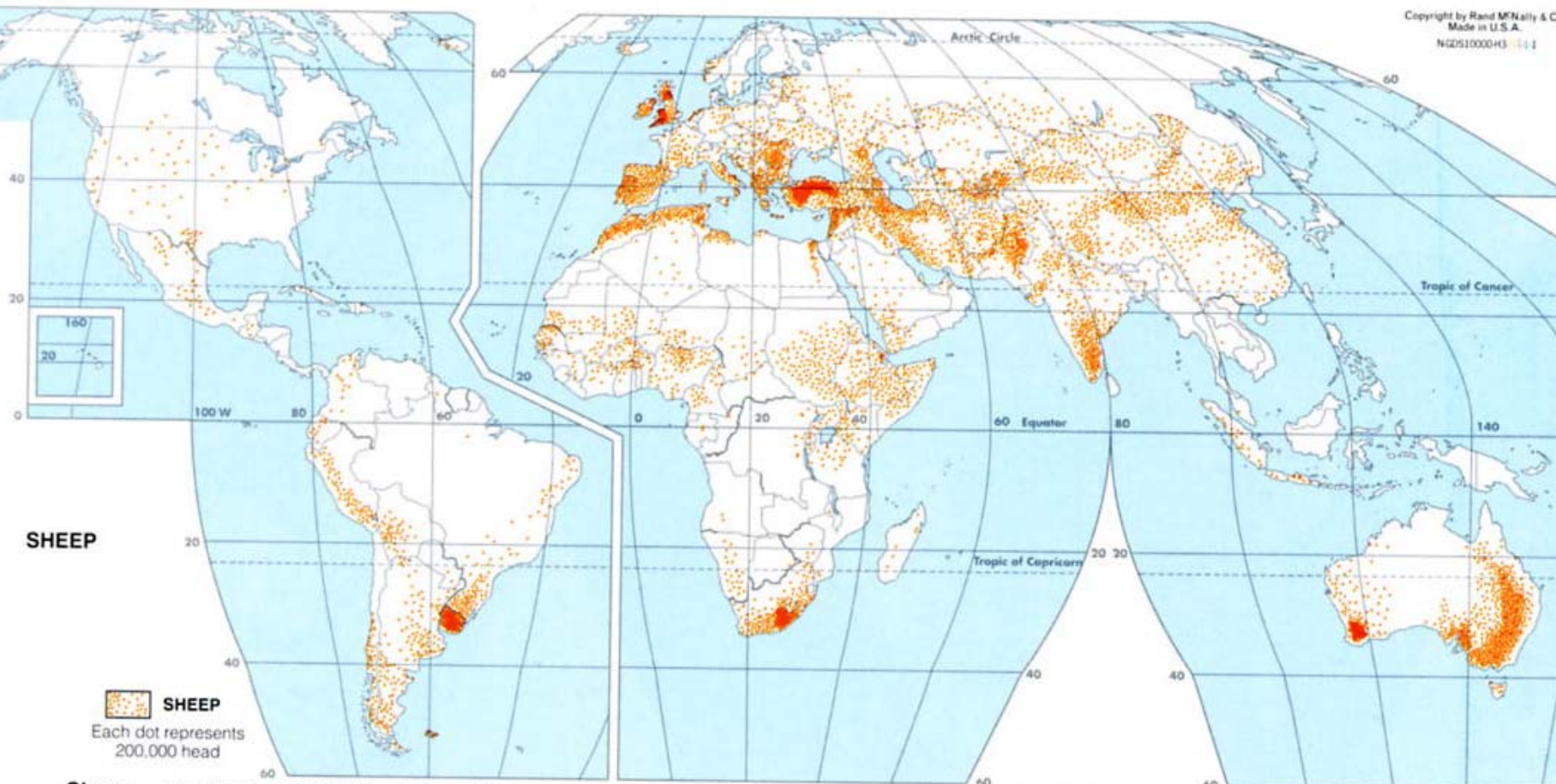


**Acres of All Hay Harvested, Including Alfalfa,
Other Tame, Small Grain, and Wild,
as Percent of Harvested Cropland Acreage: 2002**



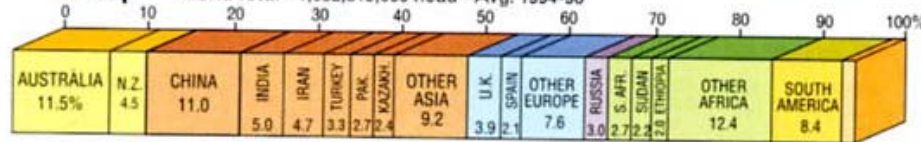
Geography of sheep

- Distribution of sheep reflects two types of agriculture, Mediterranean and the ranching patterns produced by colonial endeavors



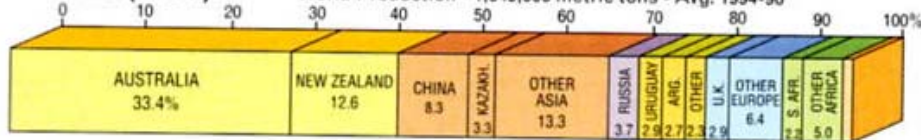
Sheep

World Total - 1,082,819,000 head - Avg. 1994-96



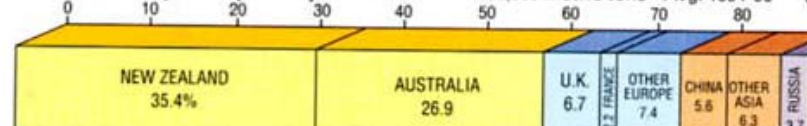
Wool (Clean)

World Production - 1,649,000 metric tons - Avg. 1994-96



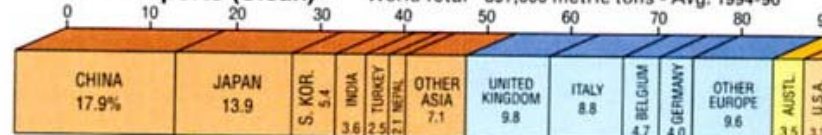
Wool Exports (Clean)*

World Total - 466,000 metric tons - Avg. 1994-96



Wool Imports (Clean)

World Total - 397,000 metric tons - Avg. 1994-96

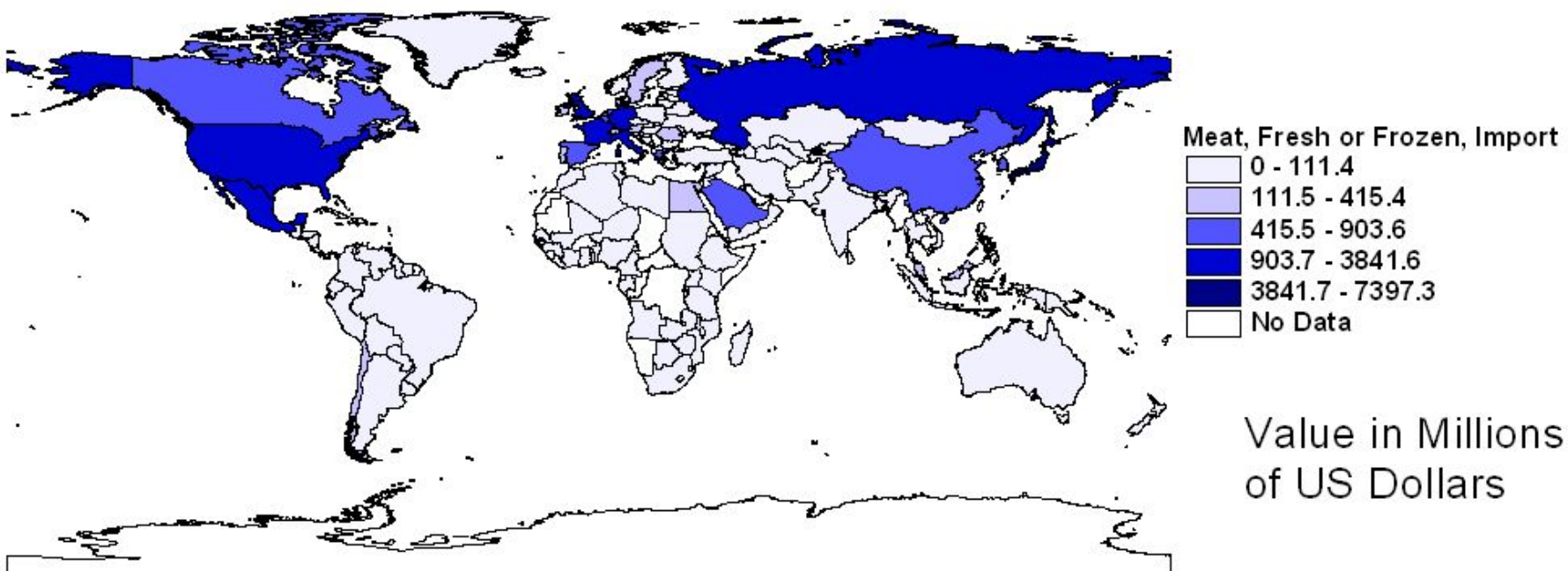


	0 - 134
	134.1 - 852.9
	853.0 - 2067.4
	2067.5 - 3236.5
	3236.6 - 6679.9
	No Data

Mapmaker:
Roxanne Clark
April 2004

Source:
UN Statistics Division
2001

World Fresh and Frozen Meat, Import, 2001



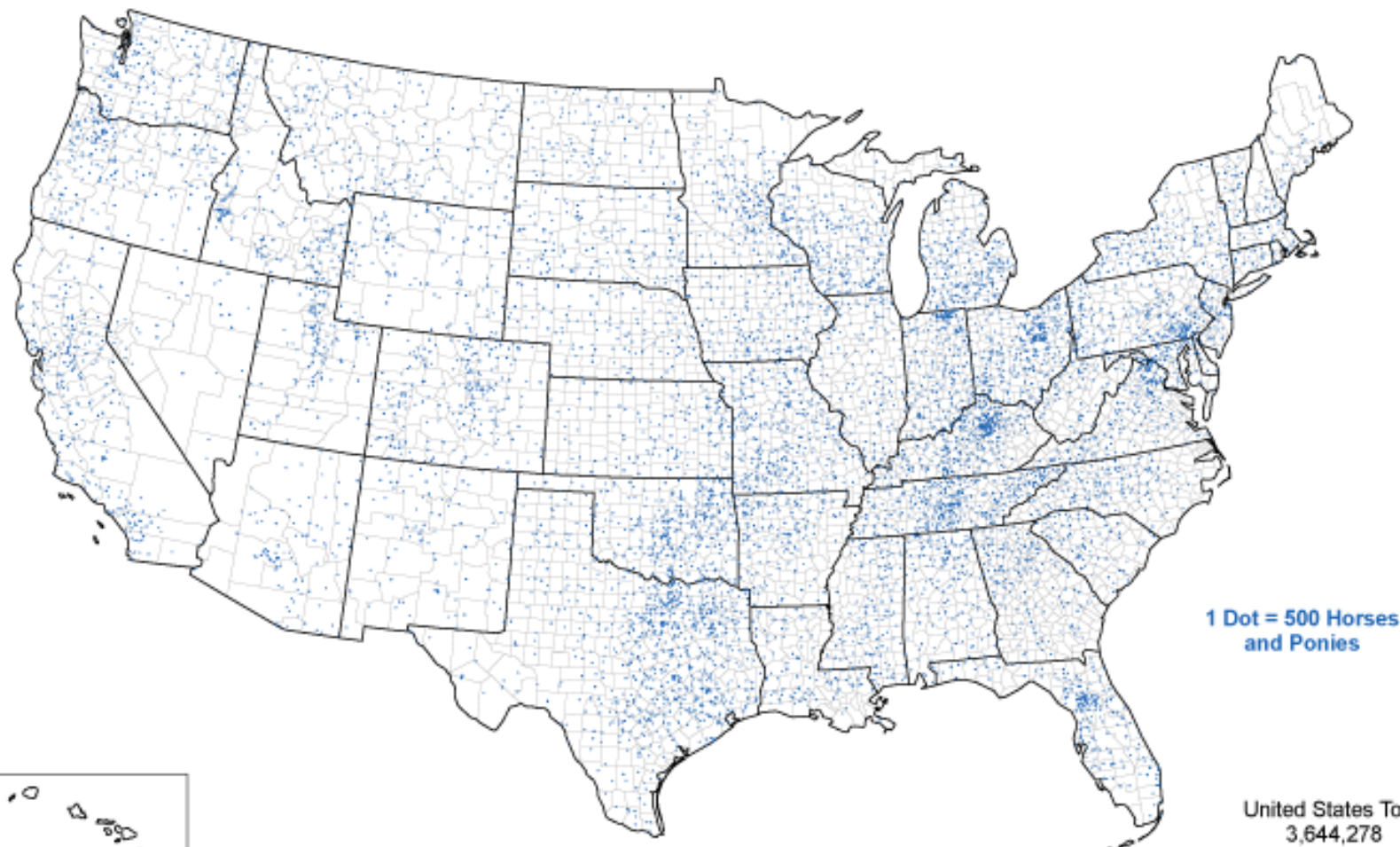
Mapmaker:
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April 2004

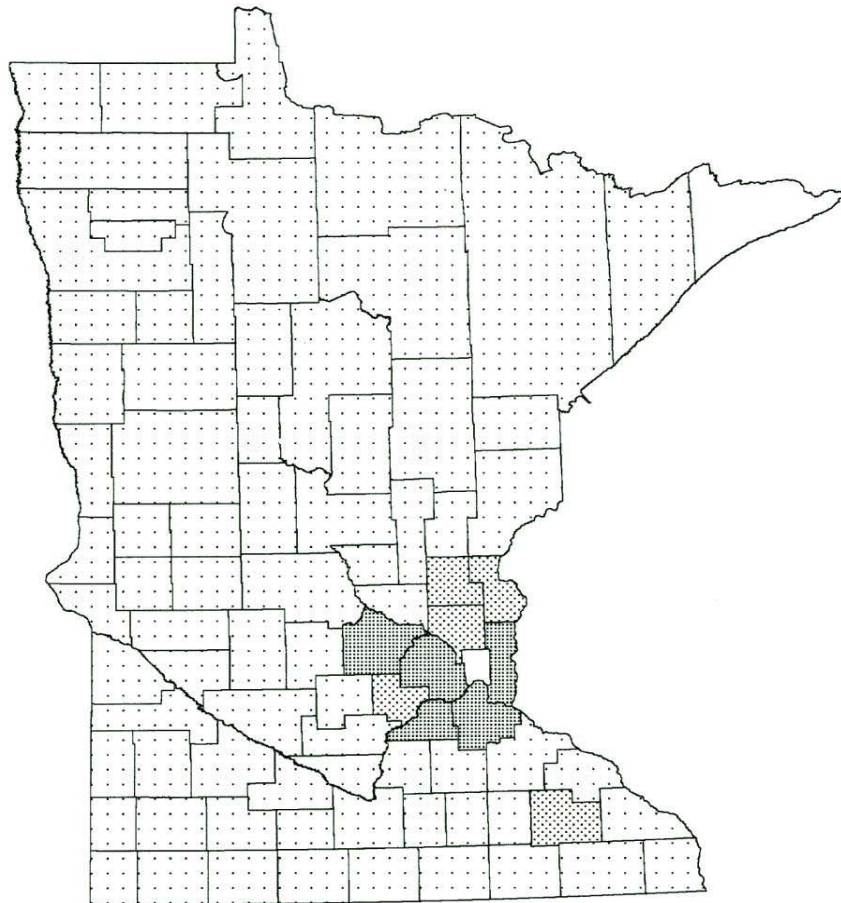
Source:
UN Statistics Division
2001

Geography of Horses

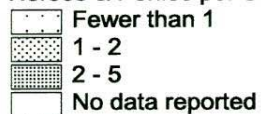
- Pattern of horses in United States shows the change in role of horse in diet and agriculture.
- Horses are now urban pets

Horses and Ponies - Inventory: 2002





Horses & Ponies per Square Mile*



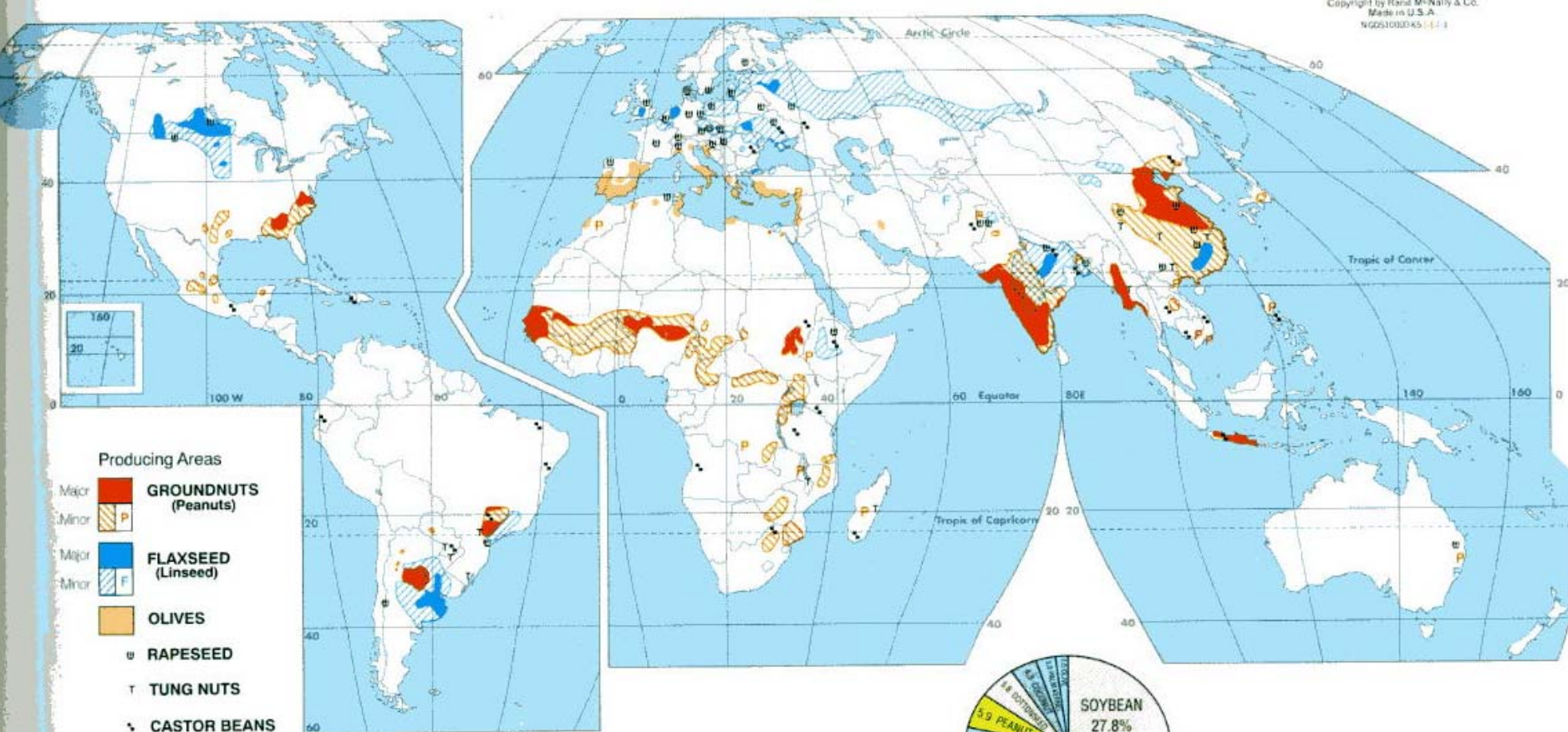
*Number of horses and ponies in each county divided by square miles in each county

Data Source: 1992 Census of Agriculture



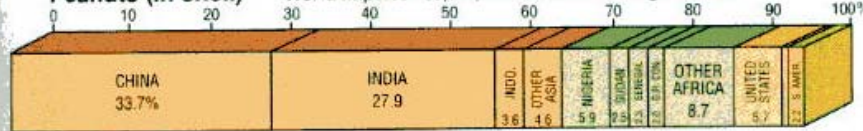
Geography of Vegetable Oil

- Growing item in international trade
- Increasing demand for oil in wealthy countries produced colonial trade patterns
- Major shift in United States to soy bean production away from traditional crop rotation



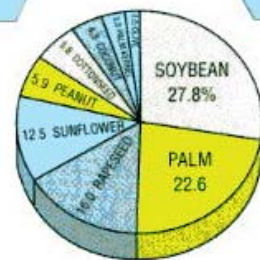
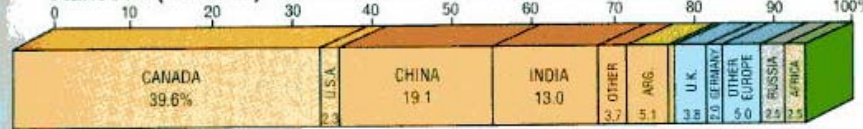
Peanuts (in shell)

World Imports - 29,934,000 metric tons - Avg. 1994-96



Flaxseed (Linseed)

World Production - 2,461,000 metric tons - Avg. 1994-96

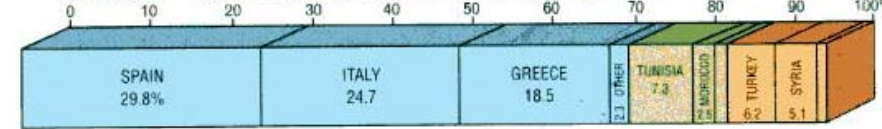


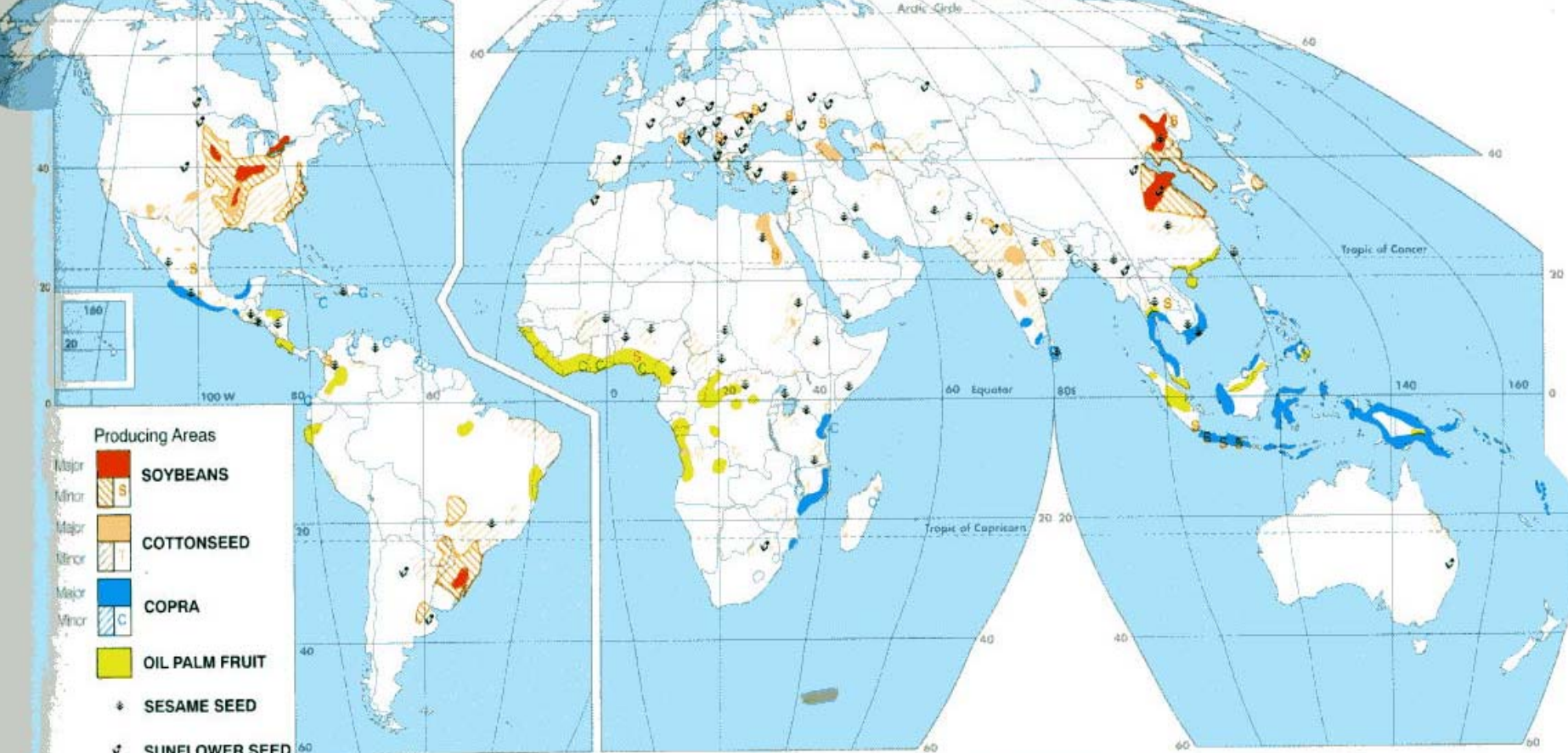
Vegetable Oils

World Production - 71,238,000 metric tons (oil equivalent) - Avg. 1995/96 crop year

Olive Oil

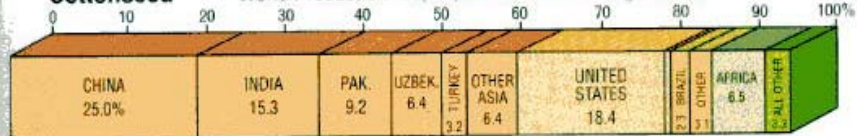
World Production - 2,044,000 metric tons - Avg. 1994-96





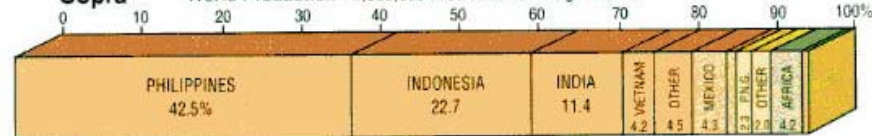
Cottonseed

World Production - 35,491,000 metric tons - Avg. 1994-96



Copra

World Production - 4,989,000 metric tons - Avg. 1994-96



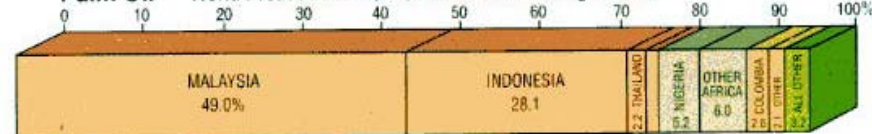
Soybeans

World Production - 131,291,000 metric tons - Avg. 1994-96

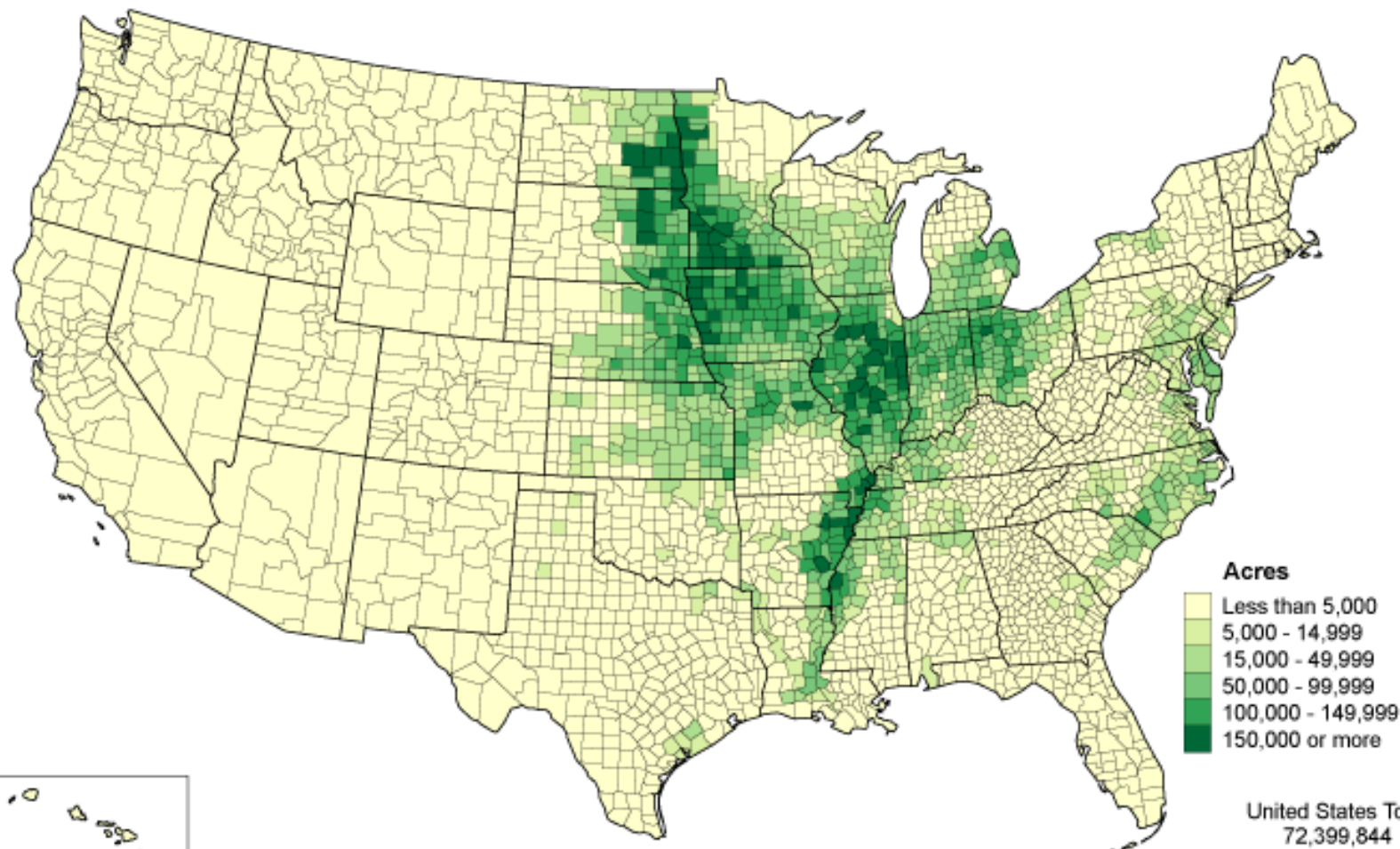


Palm Oil

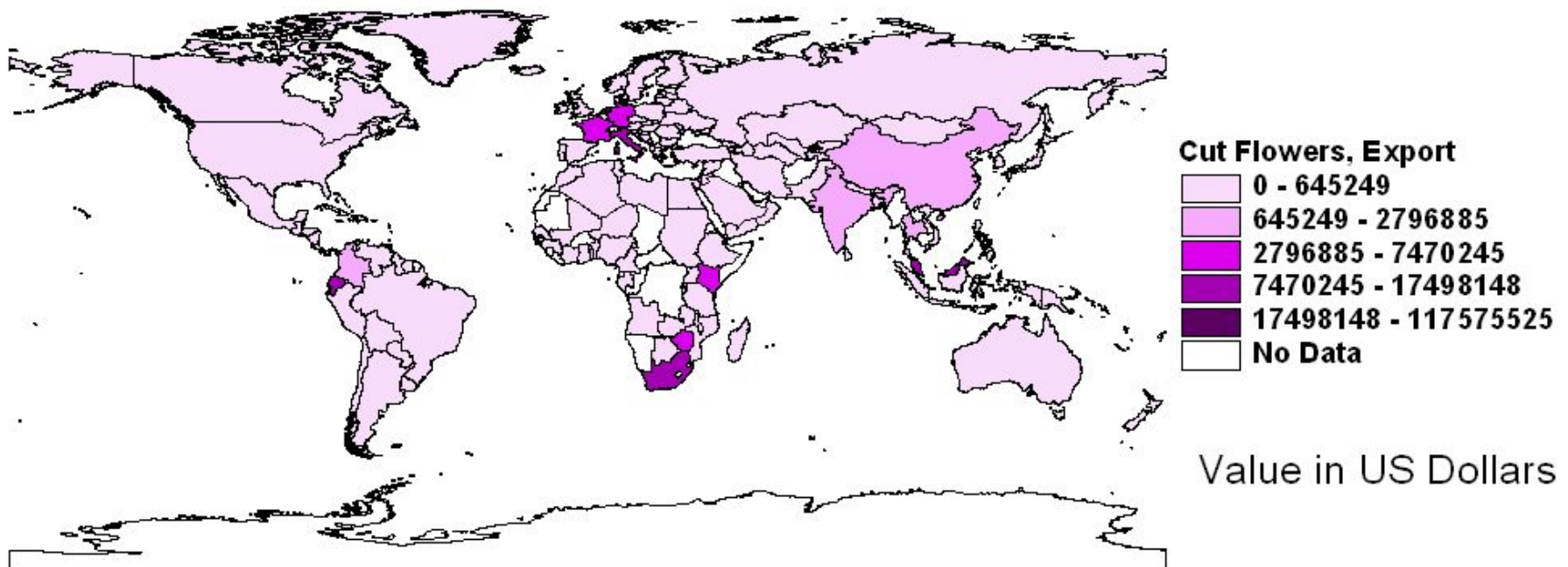
World Production - 15,932,870 metric tons - Avg. 1994-96



Soybeans for Beans, Harvested Acres: 2002



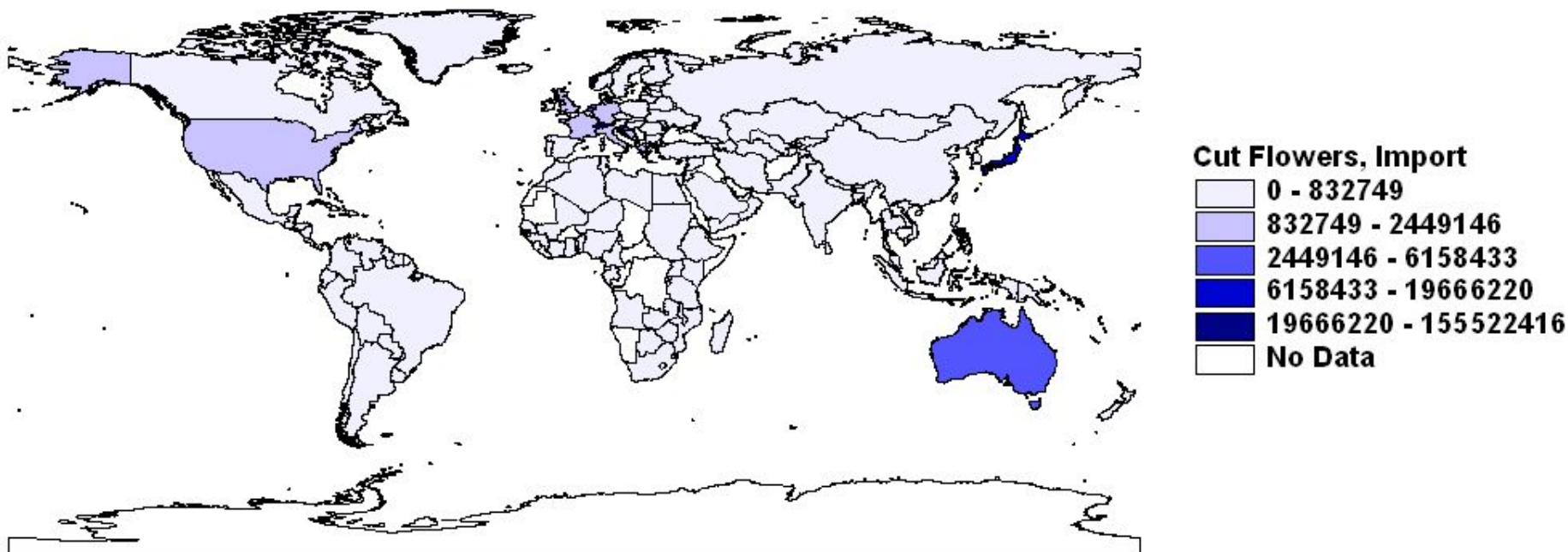
World Export of Cut Flowers, 2003



Mapmaker:
Roxanne Clark
April 2004

Source:
UN Statistics Division
2003

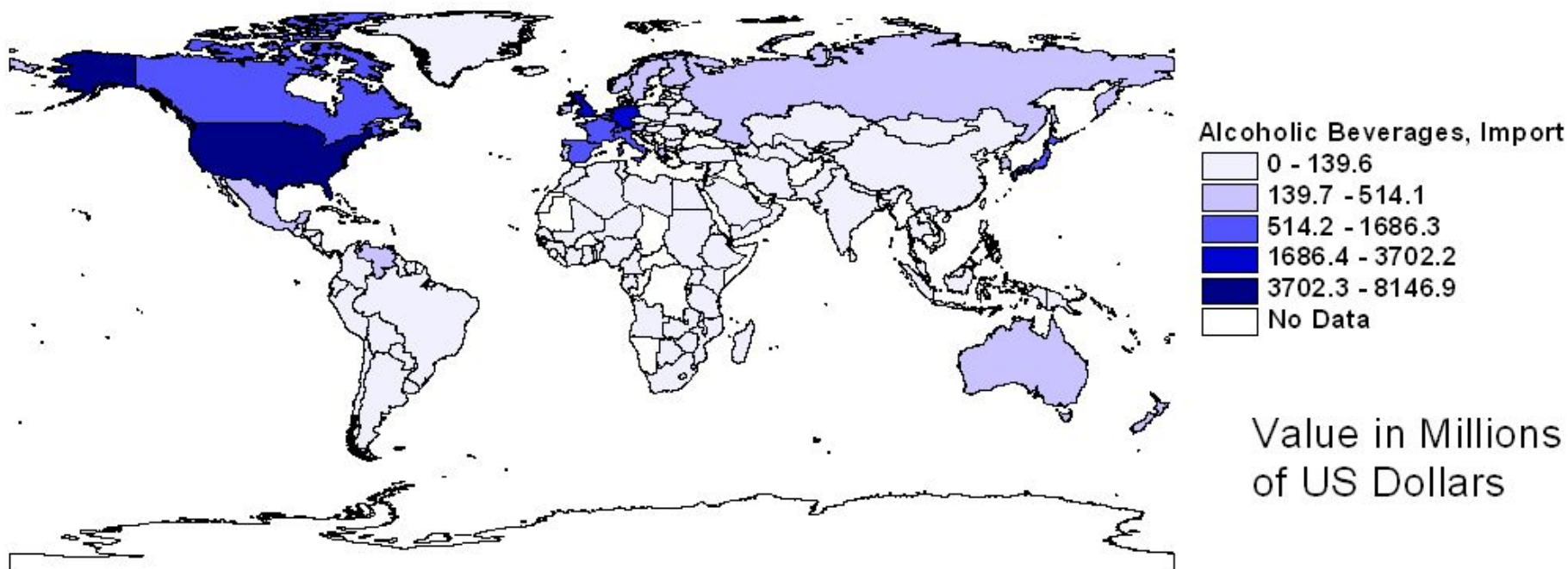
World Cut Flowers Import, 2003



Mapmaker:
Roxanne Clark
April 2004

Source:
UN Statistics Division
2003

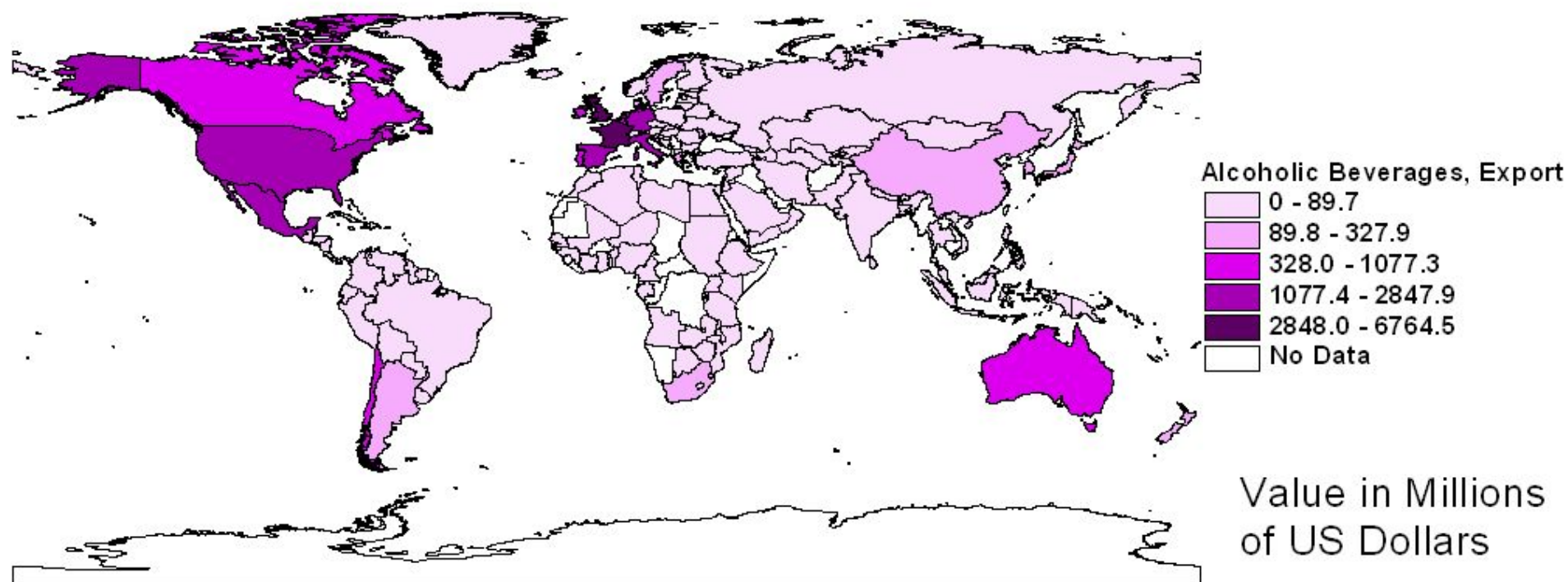
World Alcoholic Beverages Import, 2001



Mapmaker:
Roxanne Clark
April 2004

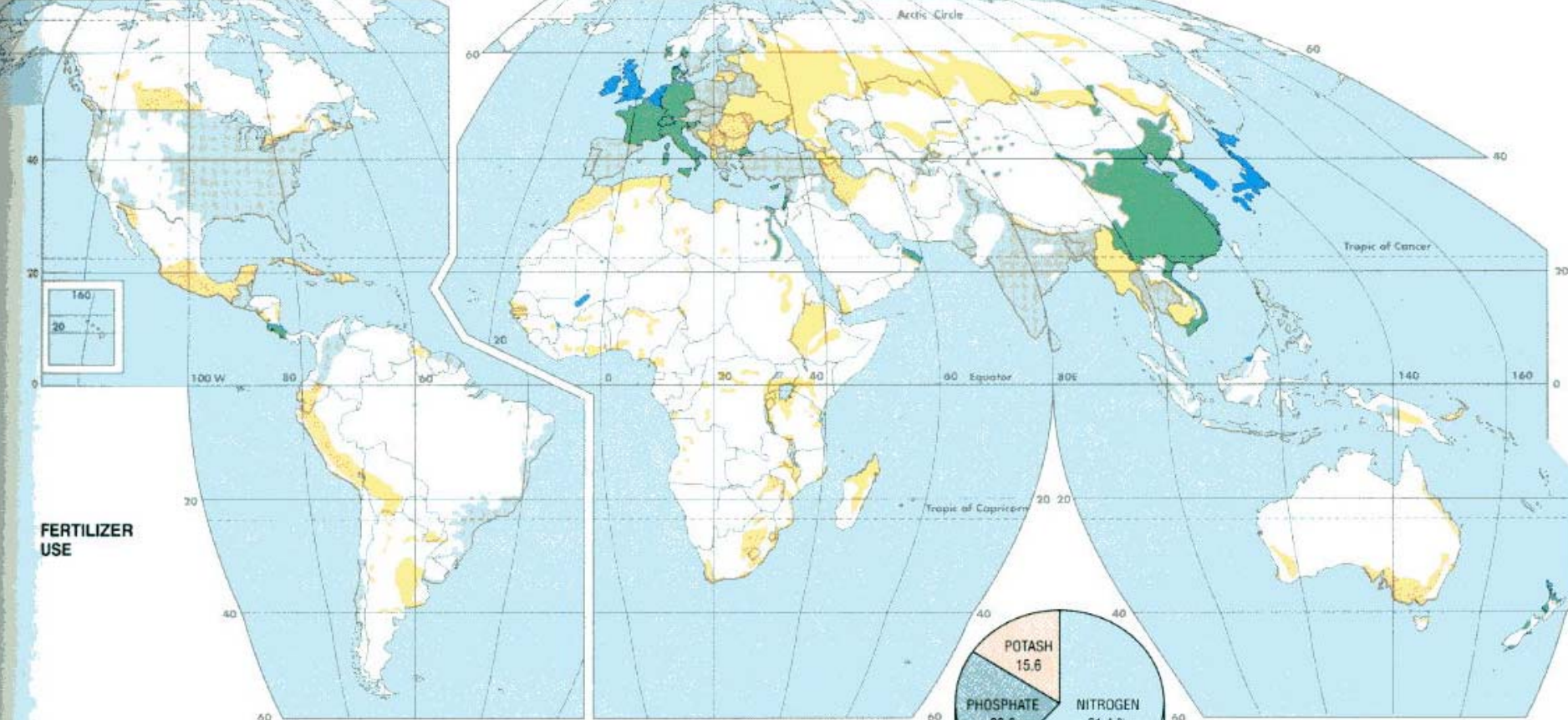
Source:
UN Statistics Division
2001

World Alcoholic Beverages Export, 2001



Mapmaker:
Roxanne Clark
April 2004

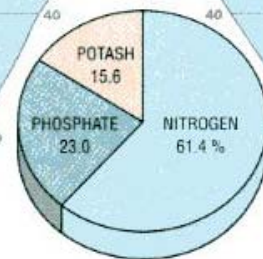
Source:
UN Statistics Division
2001



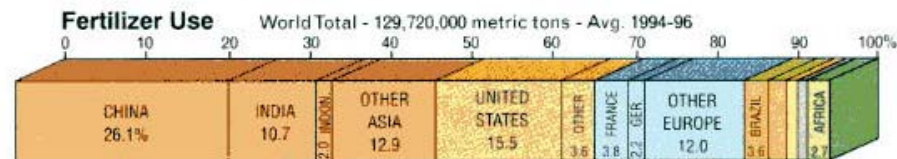
FERTILIZER USE

World Fertilizer Use Per Acre of Arable Land

pounds/acre	kilograms/hectare
above 300	above 337
150-300	168-337
50-150	56-168
25-50	28-56
0-25	0-28
	Data not available
	Uninhabited or sparsely populated

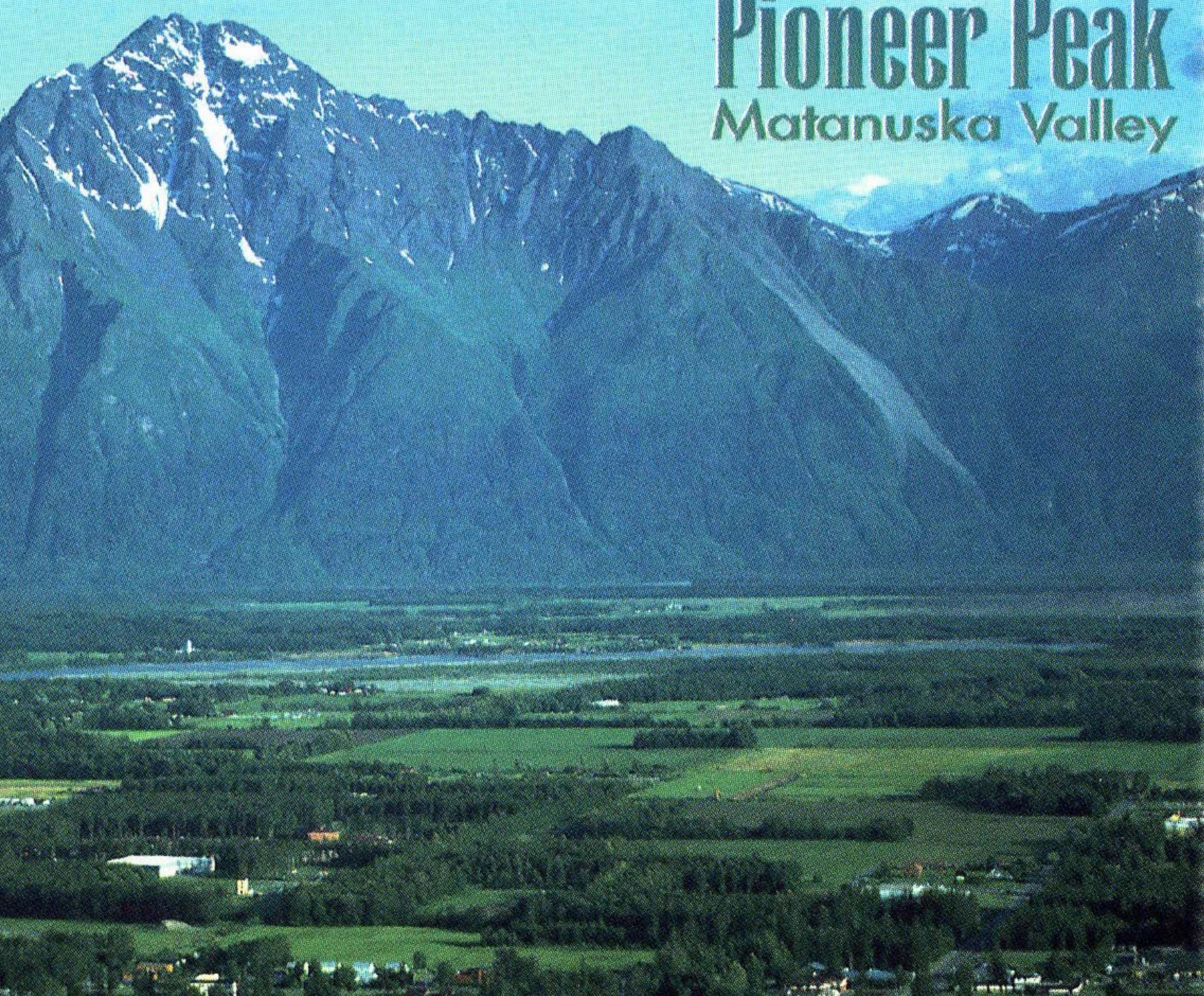


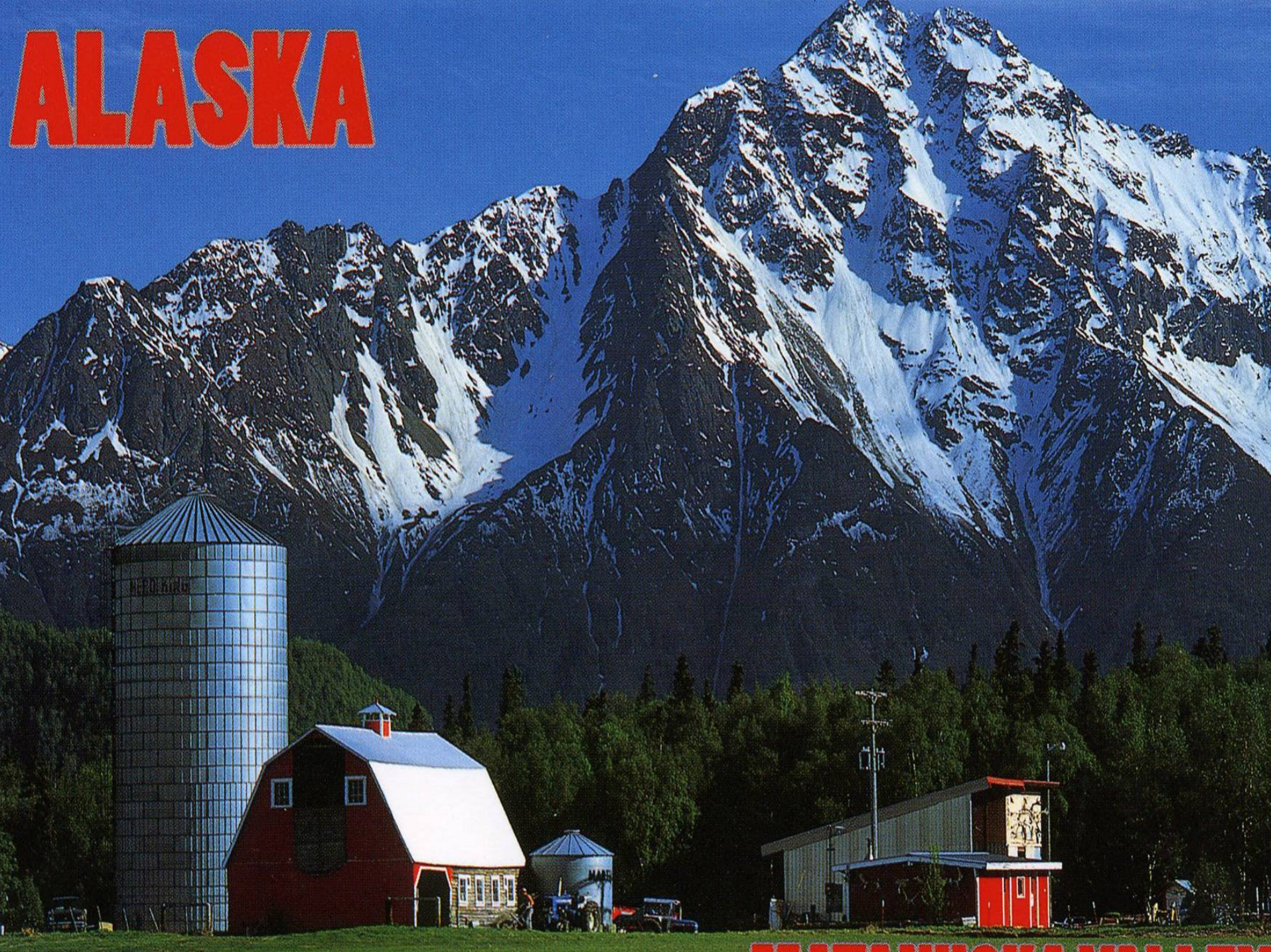
Fertilizer Use by Type



Pioneer Peak

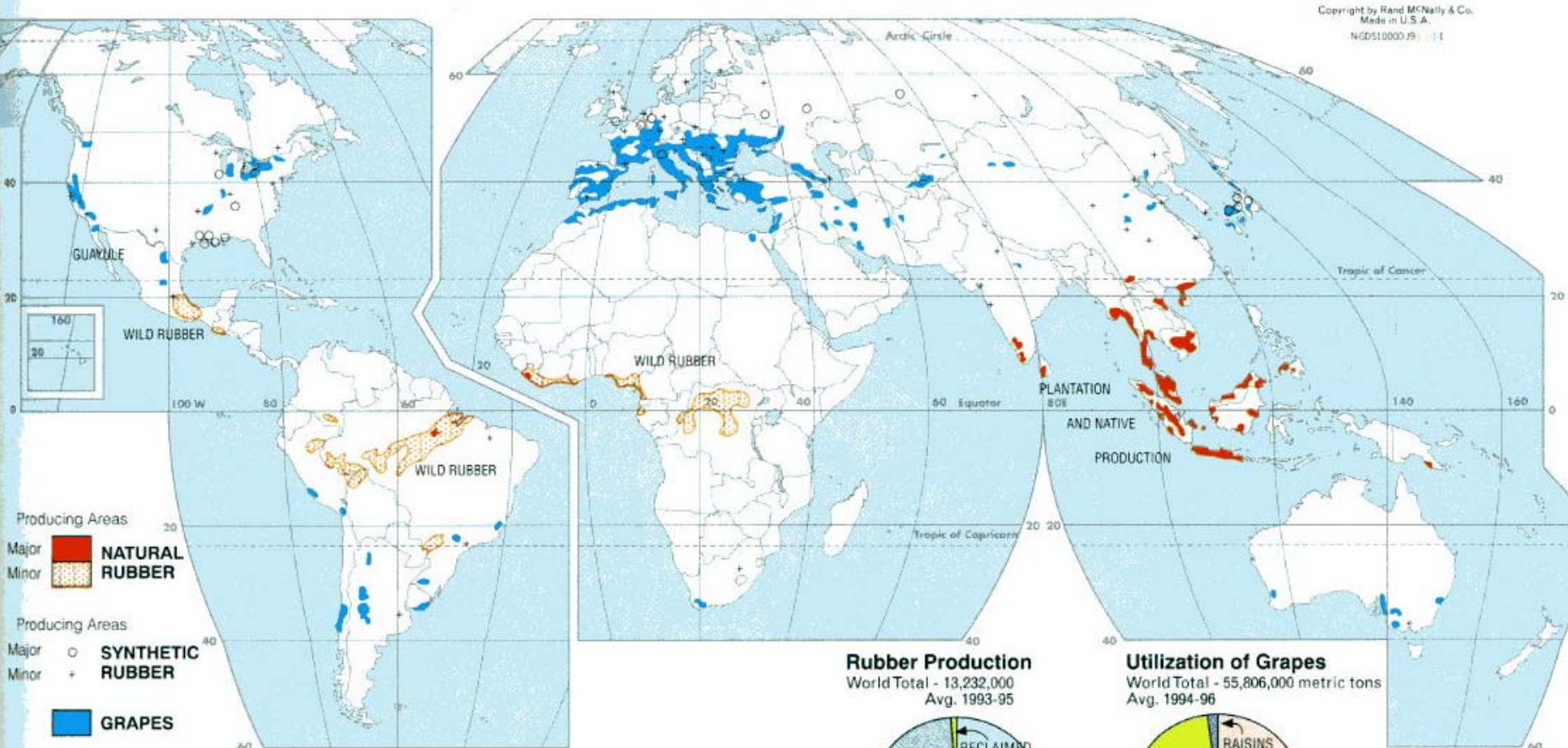
Matanuska Valley





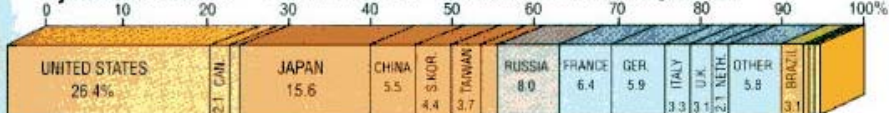
ALASKA

ALASKA



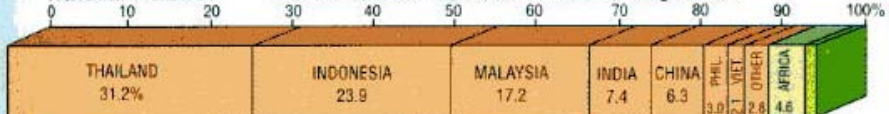
Synthetic Rubber

World Production - 9,387,000 metric tons - Avg. 1994-96



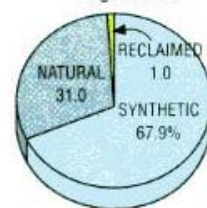
Natural Rubber

World Production - 6,348,000 metric tons - Avg. 1994-96



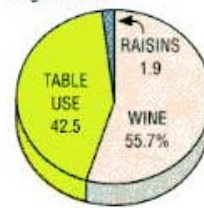
Rubber Production

World Total - 13,232,000
Avg. 1993-95



Utilization of Grapes

World Total - 55,806,000 metric tons
Avg. 1994-96



Wine

World Production - 26,000,000 metric tons - Avg. 1994-96

