

Impact of Agriculture in Iowa

Grade: Kindergarten through Twelfth Grade

Subject: Social Studies, Science

Objectives: To show the farm-to-table story of food products raised in Iowa. Agriculture is a complex “system” with many different segments from producer to consumer.

Standards:

Grade: K-2

- Knows the physical and human characteristics of the local community.
- Knows areas that can be classified as regions according to physical criteria and human criteria.
- Understands why people choose to settle in different places.
- Knows how people affect the environment in negative and positive ways.

Grade 3-5

- Knows how the characteristics of places are shaped by physical and human processes (e.g., effects of agriculture on changing land use and vegetation; effects of settlement on the building of roads).
- Knows the characteristics of a variety of regions (e.g., land form, climate, vegetation, housing).
- Knows areas of dense human settlement and why they are densely populated (e.g., fertile soil).
- Knows reasons for similarities and differences in the population size and density of different regions.
- Knows the characteristics and locations of cities and how cities have changed over time.
- Knows how human activities increase the ability of the physical environment to support human life.

Grade 6-8

- Knows factors that contribute to changing regional characteristics.
- Knows the causes and consequences of urbanization (e.g., industrial development, cultural activities)
- Knows ways in which both the landscape and society change as a consequence of shifting from a dispersed to a concentrated settlement form.
- Understands the environmental consequences of people changing the physical environment.
- Understands the ways in which technology influences the human capacity to modify the physical environment.

Grade 9-12

- Understands why places in different parts of the world have specific physical and human characteristics.
- Knows the local and national advantages/disadvantages of using places for different activities based on their physical characteristics (e.g., flood plain, forest, tundra, river crossing, coastal flood zone).
- Understands how regional boundaries change.
- Understands connections within and among the parts of a regional system.
- Knows the consequences of factors such as population changes or the arrival/departure of a major industry or business on the settlement patterns of an area.
- Knows how people's changing attitudes toward the environment have led to landscape changes.



AG IN THE CLASSROOM

Introduction:

Iowa is known as an agriculture state; agriculture has supported our economy for more than 150 years. Agriculture is more than farming. Agriculture is a complex system with many different segments from producer to farmer to consumer.

Today, the agriculture sector of our economy provides 22 percent of the state's economic activity. The business of agriculture creates jobs, supports rural communities, funds schools, fills churches and enhances the standard of living for all Iowans. Iowa agriculture not only feeds Iowa farm families, but feeds your family and people all over the world. Families earn their living from some aspect of agriculture in all 99 Iowa counties.

Activity – Food Production Cycle:

Divide the class into small groups. Each group is a different animal – pig, lamb, turkey, beef cattle, dairy cattle, chicken.

Each group should have: Farm to Fork...Steps Along the Way (handout A), Food Production Cycle Graphics (handout B). Cut apart the food production cycle graphics. Place group's animal in the center ring of the Food Production Cycle.

Have each group discuss the order of their animal in the food cycle. Place the Food Production Cycle graphics in order in the Food Production Cycle ring of the Farm to Fork handout (A). Some of the groups may place the pictures in different order. Have them defend their answers. One logical order may be:

1. Soil (land, sun, water - the basic natural resources)
2. Plants (corn, soybeans, hay, grass in pasture)
3. Animals (eat the plants we grow in the soil)
4. Process plant (animals are processed into meat, milk, eggs)
5. Distribution (could occur at multiple times during the cycle)
6. Marketing (sales or advertising products; could also be marketing farm commodities if used earlier in the cycle)
7. Consuming (someone finally eats the products)
8. Recycling (could fit several places - recycle crop residue like cornstalks back into the soil, recycle organic nutrients from animal waste back into the soil, recycle parts of animals not eaten, recycle at home)

Next, along the careers ring of the Farm to Fork handout, have students write jobs that are connection to the Food Production Cycle.

Discussion questions:

1. Where does food production start?
2. Why do you think it is called the food cycle?
3. What is recycled in the food system? Where does it go and why?
4. What would happen to your community if one of the jobs left the area?



AG IN THE CLASSROOM

Activity – What Grows Where in Iowa:

In groups, students will work to determine where Iowa's crops and livestock are raised. Each group should have an Iowa map with the counties clearly labeled (handout C or have the students label a blank map) and a list of the Top Ten Producing Counties (handout D). *Note: Students could do their own research of the top producing counties by using the Internet (www.nass.usda.gov/ia).*

Using a different colored marker for each group, students should color the top ten counties (from handout D) for their commodity.

With the enlarged Iowa map on a wall, have students bring up their map and commodity cutouts (handout E). Have each group place one of their commodity cutouts within each county listed as top ten producer of that commodity.

Notes:

Students may not be able to find an accurate listing for chicken/layers or turkeys. Statistics are not available for each county because there are so few poultry producers that the government does not list the county data due to competition issues (if there are fewer than three producers in a county, or if one producer has more than 60% of the animals in one county they are not required to report to the government).

Ag statistics are gathered every year for corn and soybeans and every five years for livestock; this is the Ag Census. Yearly estimates are made in other years by the other organizations.

Up until the 1950's most farms were diversified and produced several different crops and animals.

Today, farmers tend to specialize in producing one kind of animal; most produce both corn and soybeans in a crop rotation program.

Discussion Questions:

1. **Why are corn and soybeans grown where they are?** Row crops (corn & soybeans) need relatively flat land, good soil, and good climate to grow. Counties with this type of land grow a lot of corn and soybeans, generally central and north central Iowa. Raising forage (hay) and pasture on rolling and hilly land is a method of practicing soil conservation. These crops protect the topsoil from wind and surface water erosion. Central Iowa has traditionally had less livestock production because the land was better quality and more suited to row crops. Corn and soybean production requires less labor while livestock production is more labor intensive.
2. **In general, where are dairy cattle raised?** For most of our history, northeast Iowa has been a region for raising dairy cattle because the land is hilly. Hilly land is often planted to pasture and forage to protect against soil erosion. Cattle and sheep are ruminants and can convert the grass and hay to milk and meat. Dairy enterprises are more labor intensive but require less land to produce income for a family. There was also a cultural influence from Wisconsin in raising dairy cattle. Northeast Iowa has good access to markets to sell milk for cheese production in Wisconsin.
3. **Where are sheep and beef cows/calves raised?** Beef feedlot Cattle and Beef Cows/Calves are separated for government data collection. In Iowa, some farmers raise beef cows to produce calves. Others buy calves and feed them to market weight in feedlots. Because of the difference in Iowa land, cows and calves are often raised in different parts of state than beef feedlot cattle. You will find sheep and beef cows/calves in eastern, southern and western Iowa. The parts of Iowa having rolling hills and southern Iowa have lots of pasture for cattle and sheep to graze. Beef cows and sheep spend most of their lives grazing in pastures which protects our soil from washing away. Cattle and sheep are ruminants, have a four-part stomach that allows them to digest grass, hay and forage that humans cannot. Ruminants convert inedible products grown on our land into meat and milk that humans eat.



4. Where are hogs raised? About everywhere in Iowa! Counties in northwest and southeast raise many hogs. Hog buildings are built where grain was inexpensive and there was flat land to apply manure.
5. Where are cattle feedlots? About 2/3 of Iowa feedlots are in the western third of Iowa. Cattle have been fed where the grain is lower prices and there is better access to markets; there are more harvesting facilities in western Iowa and eastern Nebraska than in the eastern half of the state. There is also a cultural aspect as cattle feeding is often a general business, being passed on within families.
6. Where are chickens raised? During the 60s, 70s, and 80s, there were few chickens and eggs produced in Iowa. Today, Iowa is the number one egg producing state because of the inexpensive grain to feed chickens. An increased part of egg production is processed egg products. Instead of having to ship whole eggs to consumers, a company like Pillsbury may want a tanker load of egg yolks or whites. The egg processing plants are located near where eggs are produced. The processing plants may clean and package eggs by carton, or break the eggs for further use in making food products. Transportation of these egg products in quantity becomes more efficient. The county ag census data does not list egg production. There must be at least three operations in a county to list the number of animals to product market information for competition.
7. What do you notice about several of the counties in northwest Iowa? Sioux County usually ranks first in cattle, hogs and sheep and second in corn and soybeans. Western Iowa became an important area to raise livestock because when farmers sold their grain, it would be transported across the state and on barges down the Mississippi River. Farmers in eastern Iowa received higher prices for their grain than farmers in western Iowa. So farmers in western Iowa began to feed their grain to livestock. They could make more money feeding their grain to livestock and selling the livestock than just selling grain. So western Iowa became a major livestock growing region of the state.
8. What about all the manure produced from this livestock? Manure from livestock is actually a resource for farmers and is an important part of sustainable agriculture. Applying the manure to crops provides nutrients for the crops to grow and reduces the amount of fertilizer that farmers must buy.

Additional Resources:

Ag Careers – www.farms.com/agcareers

Iowa Ag Statistics and Census Data – www.nass.usda.gov/ia

County Profile Data – www.extension.iastate.edu/pubs/D4D.html

Source:

Iowa Beef Industry Council

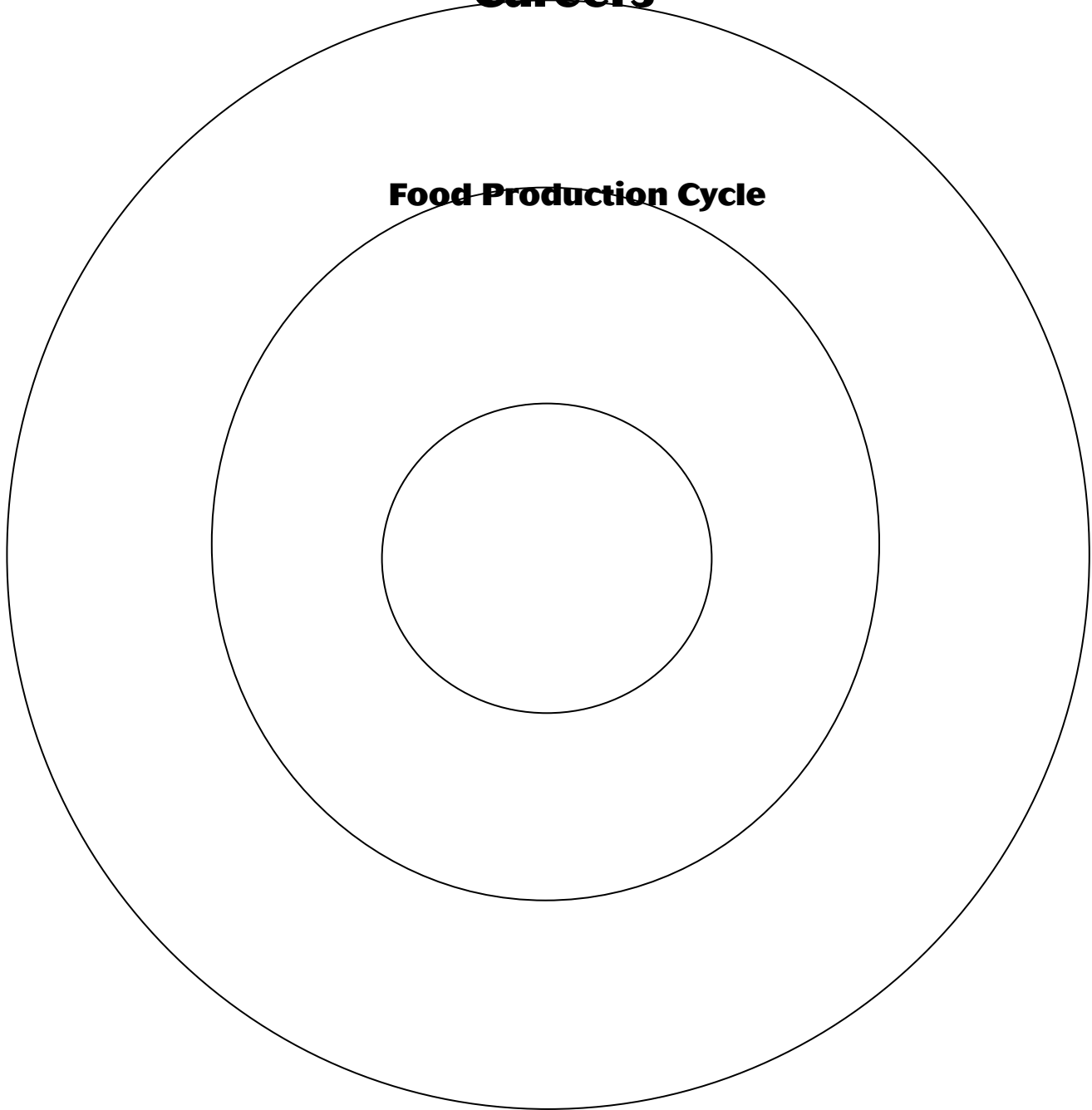


AG IN THE CLASSROOM

Handout A:
Farm to Fork... Steps Along the Way

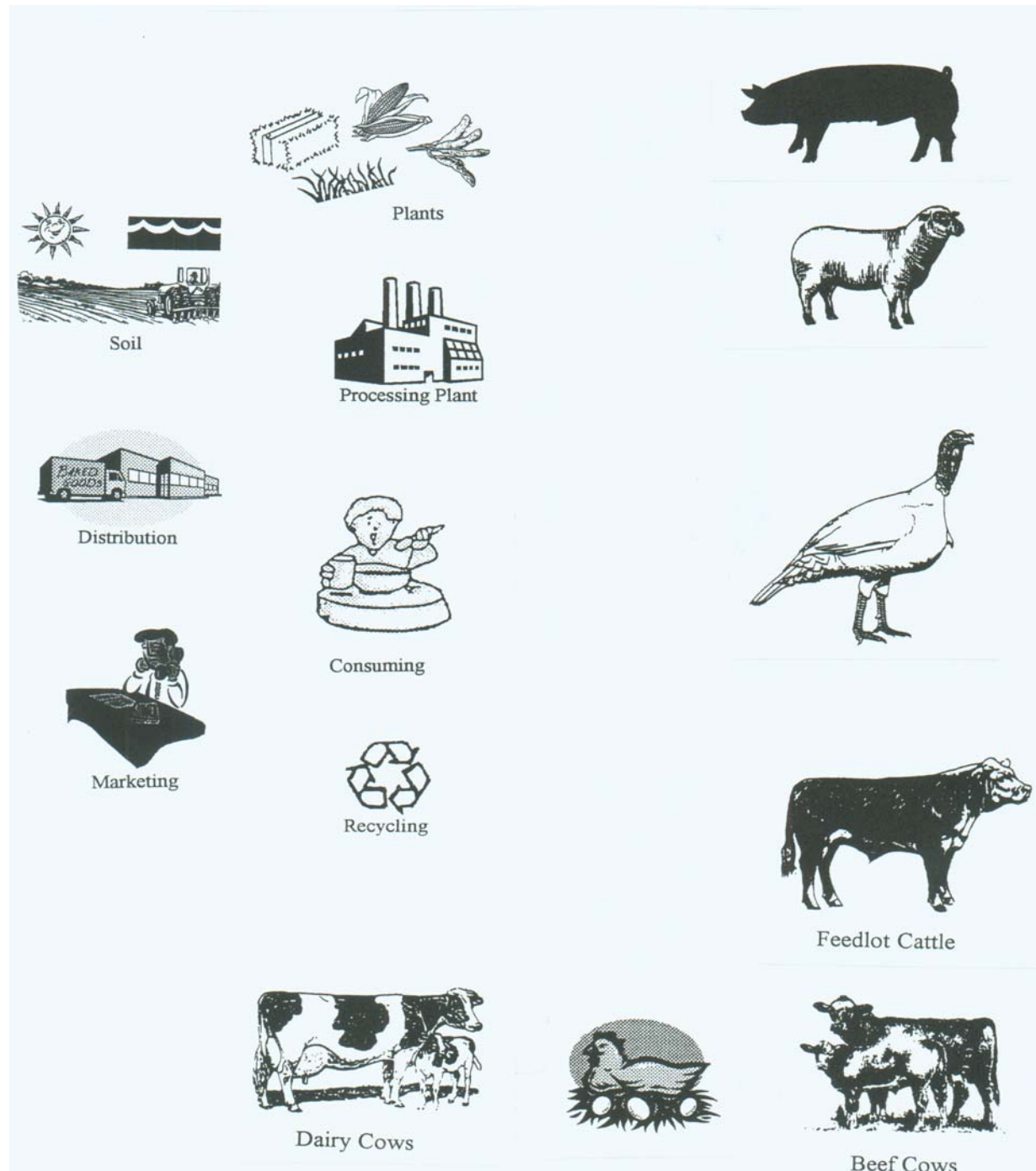
Careers

Food Production Cycle



Handout B:

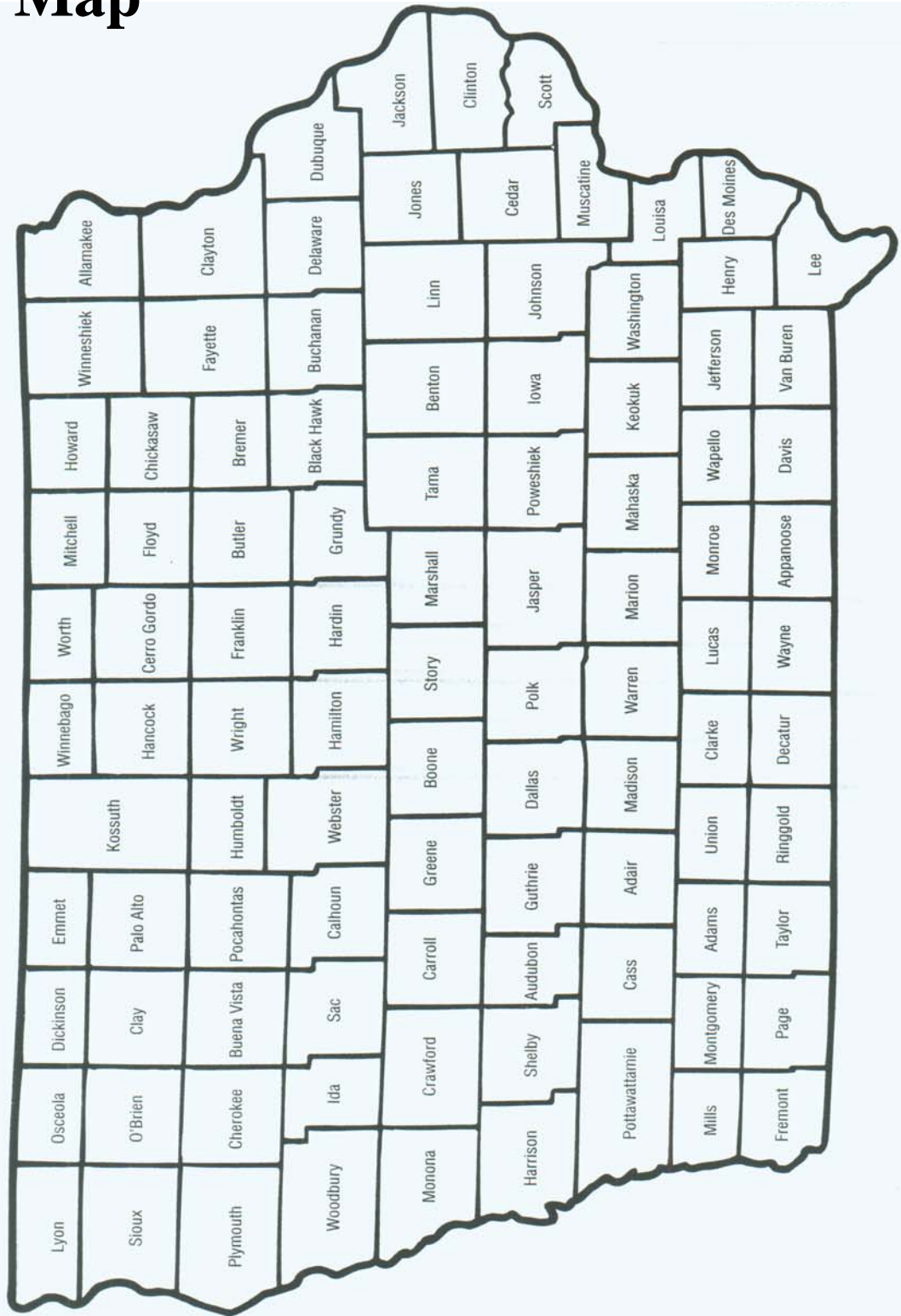
Food Production Cycle Graphics



Handout C

Iowa Map

Iowa



1998 Iowa Beef Industry Council
Teachers may reproduce this page for use with their students.



AG IN THE CLASSROOM

Handout D

Top Ten Producing Counties

Top 10 Beef Cow	
County	Number
Jackson	26,674
Ringgold	25,745
Decatur	24,852
Davis	22,907
Adair	22,289
Appanoose	22,139
Madison	20,926
Wayne	20,725
Union	19,771
Lucas	19,312

Top 10 Corn	
County	Production/Bu
Kossuth	54,950
Sioux	43,150
Pottawattamie	42,300
Plymouth	39,710
Webster	37,110
Pocahontas	34,010
Hardin	33,950
Franklin	33,810
Woodbury	32,640
Clinton	32,370

Top 10 Fed Cattle	
County	Number
Sioux	239,382
Carroll	89,552
Lyon	66,243
Dubuque	48,180
Woodbury	47,420
Pottawattamie	46,133
Jackson	39,543
Delaware	39,305
Plymouth	39,159
Jones	37,197

Top 10 Soybean	
County	Production/Bu
Pottawattamie	10,555
Kossuth	10,266
Sioux	9,304
Plymouth	9,298
Webster	9,090
Benton	8,027
Jasper	7,706
Crawford	7,662
Grundy	7,459
Tama	7,401

Top 10 Milk Cow	
County	Number
Dubuque	20,844
Sioux	20,152
Winneshiek	18,874
Clayton	18,671
Delaware	15,004
Allamakee	12,235
Fayette	10,853
Jackson	5,797
Lyon	5,384
Benton	5,302

Top 10 Layers	
County	Number
Sioux	2,287,648
Palo Alto	1,631,815
O'Brien	463,427
Clayton	407,381
Dallas	287,668
Winneshiek	241,226
Johnson	226,535
Washington	166,782
Buchanan	10,118
Floyd	3,395



Handout D

Top Ten Producing Counties

Top 10 Fed Sheep	
County	Number
Sioux	45,674
Jefferson	15,286
Plymouth	11,617
Union	7,360
Butler	6,963
Davis	6,723
Fayette	5,926
Johnson	5,275
Sac	5,069
Chickasaw	4,745

Top 10 Hogs	
County	Number
Hardin	887,938
Sioux	869,086
Plymouth	570,201
Carroll	531,966
Hamilton	467,250
Lyon	428,010
Washington	427,266
Sac	423,912
Kossuth	423,442
Palo Alto	378,515

Top 10 Turkey*		*Source: Iowa Turkey Federation
County	Number	
Hamilton	3,119,327	
Buena Vista	2,543,409	
Allamakee	1,114,314	
Henry	653,100	
Washington	597,119	
Muscatine	236,261	
Story	235,315	
Black Hawk	199,431	
Bremer	184,922	
Worth	137,777	



Handout E

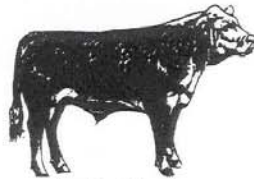
Commodity Cutouts

DAIRY COW



Dairy Cows

BEEF CATTLE

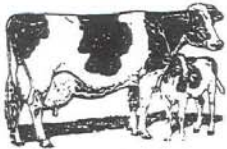
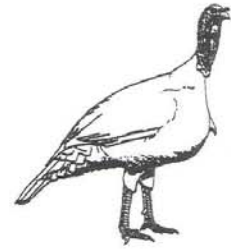


Feedlot Cattle

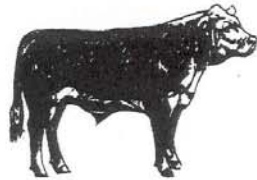
HOGS



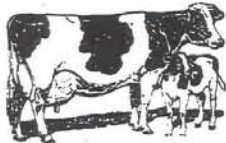
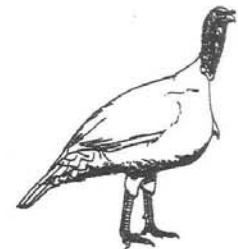
TURKEYS



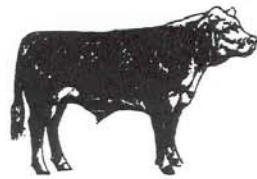
Dairy Cows



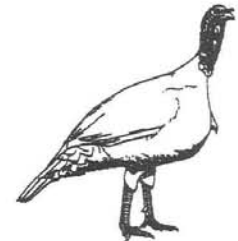
Feedlot Cattle



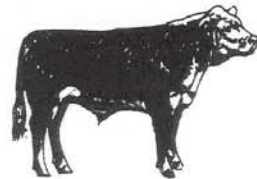
Dairy Cows



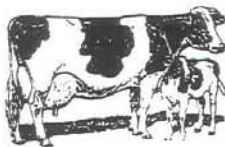
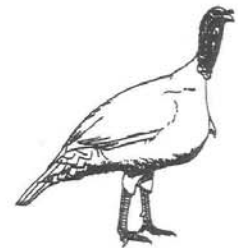
Feedlot Cattle



Dairy Cows



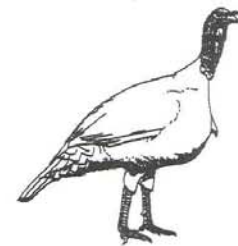
Feedlot Cattle



Dairy Cows



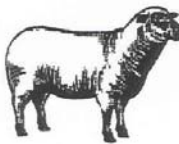
Feedlot Cattle



Handout E

Commodity Cutouts

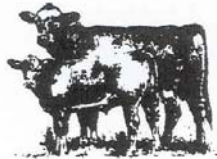
SHEEP



BEEF
COW/CALF



Beef Cows



Beef Cows



Beef Cows



Beef Cows

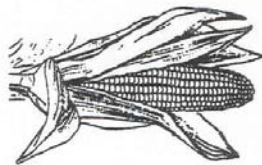
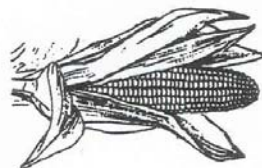
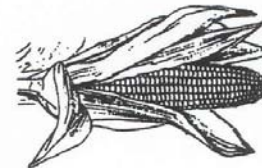
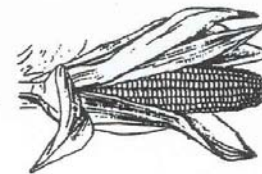
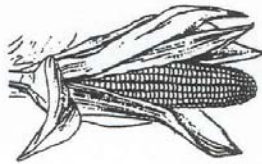


Beef Cows

Chicken/Layers



CORN



SOYBEANS

