Beef cattle come in many shapes, sizes, and colors. Those which are alike in their color patterns and body structure often belong to the same breed.

**Objectives**

After studying the materials and completing the suggested activities for this section, you should be able to:

1. Name examples of some of the major breeds of beef cattle raised in Pennsylvania.
2. Identify at least six major breeds by looking at photos or seeing live animals.
3. Identify and describe the important characteristics of your selected breed of beef cattle.
4. Name the breed of your project steer’s sire and dam, or describe the traits that each parent breed possesses if your project animal is crossbred.
5. List some advantages of crossbred steers compared to purebred steers.

**Major Breeds**

Many breeds of beef cattle are commonly raised in Pennsylvania. Each breed has characteristics that help to distinguish it from other breeds.

Beef producers raise a particular breed of cattle because that breed has a combination of qualities that the producers want in their herds. For example, some breeds make exceptionally fertile, good mothers that milk well and wean heavy calves. Other breeds are heavily muscled and produce high-quality, meaty carcasses.

Cattle with black hides have a reputation among packers for producing desirable carcasses. Many breeds that were red or white in their original “fullblood” status have been bred for black hides in order to capitalize on this perceived advantage. Only three breeds listed in this reference guide (Charolais, Hereford, and Short-horn) have not been bred black.

Some of the major breeds raised in Pennsylvania and their characteristics are listed below. There are over 100 recognized breeds of beef cattle. All breeds listed, with the exception of Angus, may be horned or polled (naturally hornless). Angus are always polled.

**Breed Characteristics**

**Angus:** English origin. Black or red, solid colored, always polled, known for maternal characteristics and producing high quality, well-marbled beef.

**Brahman:** Indian origin. Found in a variety of colors. Have distinctive long ears and loose skin. Tolerate heat and disease well.

**Charolais:** French origin. Solid white, fast growing, heavily muscled breed.

**Chianina:** Italian origin. Large framed, stylish cattle. Known for growth and leanness. Originally white in color with black pigmented skin but have been bred black.
Hereford: English origin. Red with white faces, feet, and often bellies and tails. Low-maintenance, hardy breed.

Limousin: French breed. Fullbloods are solid red, but black animals are popular. Known for producing heavily muscled carcasses.

Maine-Anjou: French origin. Originally red and white, but many are black. Large-framed, heavily muscled. Fast-growing and efficient in feedlot.

Shorthorn: English origin. Red, white, red and white, or roan. Good maternal breed. Known for producing high quality beef.

Simmental: Swiss origin. Large, heavily muscled, good maternal breed. Often have white faces.

Your Steer’s Pedigree
A written record of the names of a calf’s parents, grandparents, and other ancestors is called its pedigree. Here are some words you will see used on a pedigree, and their meanings:

Sire: The calf’s father.
Dam: The calf’s mother.
Grandsire: The father of the sire or dam (the calf’s grandfather).
Granddam: The mother of the sire or dam (the calf’s grandmother).

Registration of Purebred Cattle
Established breeds usually require that both parents be registered before their offspring can be registered. A registered animal’s name, herd and registration number, date of birth, pedigree, and name of owner and breeder are recorded with the breed registry association. A steer must meet all of the association’s requirements to be registered.

Breed registry associations issue registration certificates or papers to owners of registered beef cattle. When a registered animal is bought or sold, the seller must send the certificate back to the breed association so ownership can be transferred to the new owner. If you buy a registered animal, make sure the seller transfers the registration papers for you. If you plan to show the animal, make sure ownership is transferred to you before the show’s ownership deadline.

Some breeds of cattle issue registration papers for cattle that are not purebred. For instance, a calf from a crossbred cow, sired by a purebred Maine-Anjou bull may be registered as 50 percent Maine-Anjou. A registered 50 percent Maine-Anjou heifer can be mated to a purebred bull and the resulting offspring can be registered as 75 percent Maine-Anjou, and so on. Typically, animals are considered purebred after reaching 87.5 or 93.8 percent. This “breeding up” process takes several generations, but it is how most new breeds are developed in the United States.

Fullbloods differ from purebreds. Fullbloods contain 100 percent of the genes from that breed and are the same color as animals found in the part of the world where they originated.

If you would like to find out more about a breed, you may write to the breed registry association. More information about breeds of beef cattle can also be found on the internet at www.ansi.okstate.edu/breeds/cattle.

Advantages of Crossbreds
Crossbred cattle have some advantages over purebreds because of heterosis. Heterosis is the improvement of trait in a crossbred over the average of its parent purebreds in the same trait.

For example, if the average daily gain of Angus purebreds is 2.6 pounds per day and the average of Simmental purebreds is 3.0 pounds per day, we would expect the average daily gain of an Angus x Simmental crossbred to be 2.8 pounds per day. In reality, the average daily gain might be something like 2.95 pounds per day, which is higher than the average of the parent breeds. The improvement of the actual daily gain over the expected daily gain is a result of heterosis.

Heterosis affects several important traits in steers. In addition to an improved average daily gain, crossbred steers are usually more vigorous, have a bigger appetite, and resist disease better than purebreds.

Words You Should Know
Breed: A group of animals often having the same color patterns and body structure because they
American Maine-Anjou Association

This is to certify the pedigree of:

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      MISS K & A S434 95843
      SSF DRAFTPOWER U124 117664
      BGR DALTON 333G 67828
      POWER PLANT 84546
      JS SMITHBILTS ROXY 128687

DAM: MID-STATE RAINELLE 220530
     MID-STATE BANDITA 205693

A purebred pedigree

A purebred pedigree share common ancestors selected for those characteristics.

**Fullblood**: An animal possessing 100 percent of genes from a certain breed. Some breeds allow only fullbloods to be registered.

**Purebred**: An animal possessing a high percentage (usually 7/8 or 15/16) of genes from a certain breed.

**Crossbred**: An animal with parents from different breeds.

**Sire**: An animal’s father.

**Dam**: An animal’s mother.

**Heterosis**: The percentage improvement (usually) of a crossbred over the average of its purebred parents in certain traits.

**Polled**: Naturally hornless.

**Suggested Activities**
- Answer the roll call at a meeting with the name of a major beef breed.
• Look through beef magazines to find pictures of different breeds of beef cattle. Make a poster or display using the pictures. Describe the special uses and features of each breed pictured.
• Visit a fair or show and try to identify the different breeds there. For crossbred steers, try to identify the breeds used in the cross.
• Write to the breed association to find out more about the breed of your project steer. Be able to describe what is special about the breed of steer you have chosen.
• Make a poster to promote or advertise your favorite beef breed.
• List some advantages (or disadvantages) of crossbreds compared to purebreds.
• Visit three breed association Web sites.

Extra Activities to Try
• Start a collection of model steers from different breeds or your favorite breed.
• Discuss with a producer which breed traits are important in a breeding program, and why they are important for a herd.
• Ask the manager or owner of a purebred cow-calf operation why he or she raises a particular breed of purebred cattle.
• Examine the registration papers of a registered beef animal. Be able to name the sire and dam.
• Ask the manager of a commercial cow-calf operation why certain breeds are used for crossbreeding.

Ideas for Presentations and Talks
• Make a poster with photos or drawings of the major breeds of cattle, then use it to lead a discussion on the different characteristics of each breed.
• Describe the important characteristics of a certain breed of beef cattle and tell why these characteristics are desirable.

Things to Talk About
• What are the major breeds of beef cattle raised in Pennsylvania?
• What characteristics are associated with each breed of beef cattle?
• What is a crossbred steer?