

Tips and Tricks to Developing Dairy Cows



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Purpose of this packet.

The purpose of this packet is to provide basic information to 4-H members and other interested parties about dairy cattle. Many members, especially those just beginning, are unsure of where to start or what to learn in regards to a dairy cattle 4-H project. This packet discusses different breeds, diseases, and specific issues related to the project. While this packet is by no means all-inclusive of what is required to raise dairy cattle, it is a good starting point.

This packet will encompass topics such as disease and treatment, types, and other related information that will work to better the reader's understanding of their project. The primary goal is to help facilitate a more confident and prepared member that will continue to develop skills and greater personal and project growth in their desired project area.

This packet was developed in 2020 for families beginning in the dairy cattle project area.

Common Terminology

1. Bottle calf/Bummer: Calf raised on a bottle
2. Bulk tank: Large tank preventing bacterial growth in milk by storing it at less than 40 degrees Fahrenheit but above freezing
3. Bull: Uncastrated male bovine
4. Buttermilk: Leftover liquid after cream has been churned into butter
5. Calving: The process of birthing for cows
6. Colostrum: First milk consumed by calves after birth
7. Cow: Female bovine over a year old; General term for cattle
8. Cross-bred: An animal with two or more breeds present in its bloodline
9. Cull: Removal an animal from your herd due to lack of need for that animal in program
10. Dry cow: A non-lactating cow that has had at least one prior lactation
11. Flash pasteurization: Sometimes referred to as high-temperature, short-time pasteurization; Milk heated to 160 degrees Fahrenheit for 15 seconds before rapid cool down.
12. Grade: Cattle with given characteristics of a certain breed or are crossbred. Not purebred, but may be eligible for registration depending on breed association.
13. Heifer: Female cow under the age of one and has not calved
14. Pulsation ration: Milking cycle proportion in the milk phase vs rest (dry) phase
15. Purebred: An animal that only has one breed present in its bloodline
16. Waste milk: Milk that isn't suitable for the bulk tank but could be used to feed calves
17. Weaning: Removing the calf from the cow to keep it from nursing
18. Yearling: Cow over 1 year old but under 2 years old and has not calved

Parts of a Dairy Cow

Knowing the parts of your animal is very important inside and outside the show ring. In the show ring, it is common to be asked to locate certain physiological features on the animal to showcase your knowledge. Outside the show ring it can help with animal husbandry, injury and disease identification, and much more.

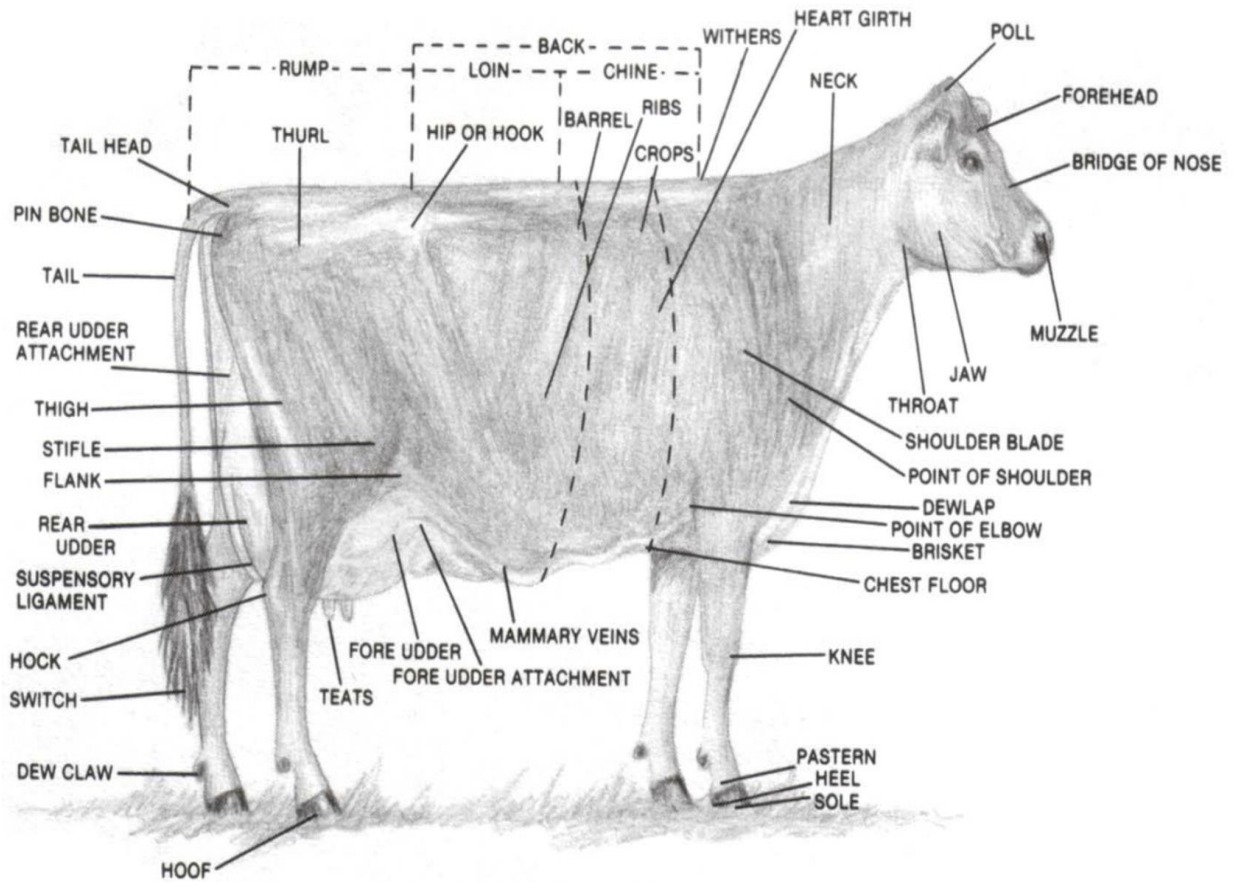


Image courtesy of PennState Extension

Common Diseases and Treatments

In the table below are some listed common diseases and ailments found in cattle as well as a handful of pertinent details in each column. This list is far from all-inclusive. The details related to that disease/ailment are listed after it. Please note that for dairy animals when using medications such as antibiotics or steroids the milk should be dumped out after milking and not used for human consumption.

Disease/Ailment	Symptoms	Treatment	Prevention	Other Details
Foot Rot	<ul style="list-style-type: none"> -Limping -Bad smell and Gray scum between toes -Inflammation, redness, and moisture present between toes. 	<ul style="list-style-type: none"> -Trim and/or clean the foot/feet -Antibiotics at the discretion of a veterinarian -Ensure animal is in a clean, dry area while they heal 	<ul style="list-style-type: none"> -Keep living and congregation areas clean from feces and free of standing water -Keep out of mud -Quarantine infected cattle 	<ul style="list-style-type: none"> -More common in winter and fall -Placing Hoof-N-Heel or iodine (but not both) on foot rot can help heal it
Strongyle worms	<ul style="list-style-type: none"> -Anemia -Lethargy -Weight loss -Paleness in gums and inside of eyelids 	<ul style="list-style-type: none"> -Deworm according to dewormed instructions 	<ul style="list-style-type: none"> -Feed animals in feeders, not directly on the ground -Rotate cattle between pastures 	<ul style="list-style-type: none"> -Internal parasite -It may be beneficial to increase animal's protein intake to help get weight back up
Scours (Severe diarrhea)	<ul style="list-style-type: none"> -Refusal to eat -Diarrhea present on legs -Watery diarrhea white-ish or gray-ish in color 	<ul style="list-style-type: none"> -Anti-diarrheal -Electrolytes and water -Antibiotic if applicable at the discretion of veterinarian 	<ul style="list-style-type: none"> -Wash bottles of bottle calves regularly -Slowly introduce new feed 	<ul style="list-style-type: none"> -Occurs easily in calves raised on bottles if bottles go unwashed -Can occur in calves not used to creep feed, ate too much at one time, or switched too quickly to new feed
Brucellosis	<ul style="list-style-type: none"> -Testicular swelling in bulls -Abortion and stillborn calves 	<ul style="list-style-type: none"> -There is no treatment 	<ul style="list-style-type: none"> -Vaccination -Keeping up with good biosecurity and sanitation 	<ul style="list-style-type: none"> -Testing can be done on samples of milk or blood. -It can spread to

	<ul style="list-style-type: none"> -Calves weak at birth -Infection in placenta 			<p>humans, dogs, goats, and pigs</p> <ul style="list-style-type: none"> -You can get it from infected meat, unpasteurized products, and/or from coming into contact with an infected placenta
Mastitis	<ul style="list-style-type: none"> -Reduced milk production -Flakes, clots, or puss in milk paired with watery milk -Hardness, redness, heat, and swelling on udder in clinical mastitis -Pain when udder is touched in clinical mastitis 	<ul style="list-style-type: none"> -NSAIDs may help but consult with a veterinarian since treatment varies with type of mastitis 	<ul style="list-style-type: none"> -Regular mastitis testing -Proper preparation and disinfection of teats before and after milking -Good barn hygiene 	<ul style="list-style-type: none"> -Many things cause mastitis, including bacterial infection or injury to udder

***DISCLAIMER:** Authors are not veterinarians and only provide this information as a personal reference. They are not responsible for outcomes. Consult a veterinarian for veterinary advice and treatment.*

Breeds

In the dairy cattle world, there are only a handful of recognized breeds, all with a wide variety of purposes and uses. Their capabilities vary equally as widely. Below are six breeds of dairy cattle selected to show the reader a variety of cattle that have different uses or combination of uses. Listed after each breed are some characteristics to the breed that make it unique, characteristics, or are strong suits of that breed.

Holstein



Image courtesy of Heart and Soul Holsteins and Cybil Fisher Photography
<https://www.facebook.com/heartandsoulholsteins/photos/a.1845115162373577/1845115122373581/?type=3&theater>

- The world record holder for producing milk, held by Selz-Pralle Aftershock 3918, is a Holstein who produced an astonishing 78,170 lbs. of milk in one lactation period in 2017.
- Of the roughly 9,000,000 American dairy cattle, about 8,460,000 (94%) of them have Holstein in them or are Holstein.
- They are the largest of the dairy cattle breeds, coming in at about 58 inches at the shoulder.
- When averaged, producing Holstein cows will milk out 22,540 lbs. of milk and 819 lbs. butterfat in one lactation period.

Jersey



Image courtesy of Avi-Lanche Jerseys and D & E Jerseys

- The Jersey breed, which weighs between 800 lbs. and 1,200 lbs. fully grown, is the smallest of the dairy cattle breeds.
- Jersey cattle have a butterfat percentage of 4.81%, putting them above the Holstein and Brown Swiss for butterfat percentage.
- On average, a Jersey cow will produce over 17 times her weight in milk in a single lactation period.
- In a single lactation cycle a Jersey will produce on average 18,040 lbs. milk, 868 lbs. fat, and 659 lbs. protein.

Brown Swiss



Photo courtesy of Elite Dairy and Cybil Fisher
Photography

- This breed is among the oldest in the world for dairy breeds.
- In America, there are about 55,000 registered Brown Swiss and 30,000 Brown Swiss grades.
- 10,274 Brown Swiss were registered in 2014 while 2,886 were transferred to other owners.
- The 2014 Brown Swiss average for a lactation period was 22,452 lbs. milk, 919 lbs. butterfat, and 749 lbs. protein.

Guernsey



Photo courtesy of Guernsey Grove Farm
<http://www.guernseyshowcalves.com/all-americans->

- Guernsey milk was nicknamed “Golden Guernsey” because of the natural yellow coloring in the milk.
- Their milk contains a gene called the Kappa Casein B gene, which makes it better for making cheese.
- This breed has a heat resistant coat making them less prone to complications from heat, such as stroke.
- This breed milks out about 14,700 lbs. of milk on average with a butterfat percentage of 4.5% and a protein percentage of 3.5% per lactation period.

Ayrshire

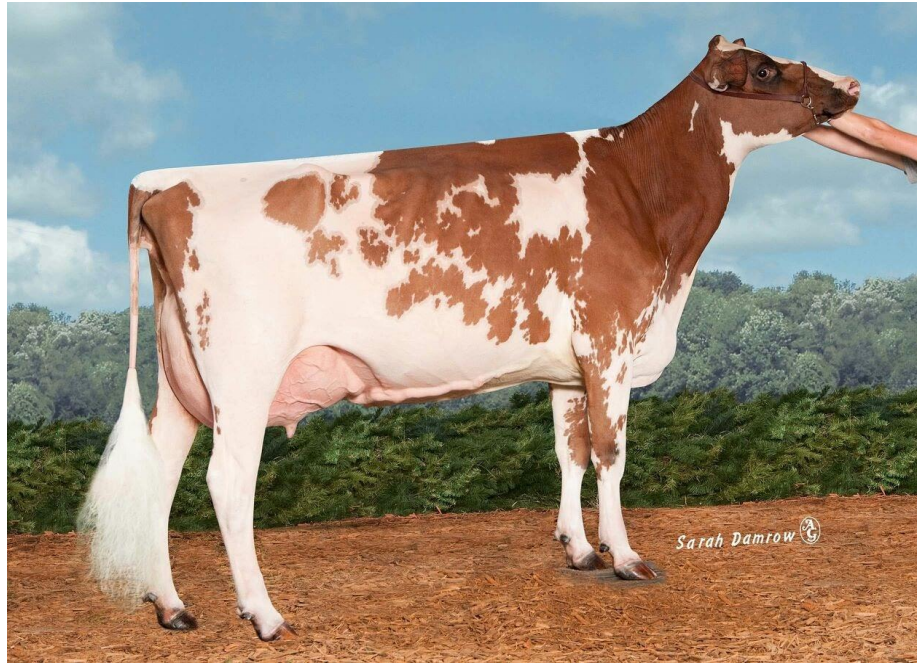


Image courtesy of Old Bankston Ayrshires

<https://www.facebook.com/OldBankstonAyrshires/photos/a.161492867328115/334371563373577/?type=3&theater>

Photo is cropped

- They are on the Livestock Conservancy's "*Watch List*", meaning annually there is less than 2,500 registrations of the breed and they have an approximated global population under 10,000.
- They are rather thrifty in their food conversion, being able to produce plenty of milk on just foraging, unlike some other breeds who require lots of feed in addition to foraging.
- The breed has a rather low somatic cell count in their milk.
- The Ayrshire produces 17,000 lbs. of milk per lactation cycle with a butterfat percentage of 3.9% and protein percentage of 3.3% on average.

Milking Shorthorn



Photo courtesy of Rock N G's Milking Shorthorns
https://www.facebook.com/pg/RockNGsFarm/photos/?ref=page_internal
Photo is cropped

- Milking Shorthorns come in red, red and white, or roan and can be horned or polled.
- There are actually two kinds of Shorthorns, there is the beef type and the dairy type. They split off from one another in the early 1900's.
- This breed has a calving interval (time of having one calf to the next) of 12.8 months which is the shortest in the dairy industry.
- When mature, milking shorthorns will produce an average of 15,000 lbs. of milk, 500 lbs. of fat, and 465 lbs. of protein in one lactation cycle.

Grooming and Clipping

It is important to keep your cow or heifer clean, especially at fair. Cleanliness in the dairy industry is of the utmost importance. A wide variety of soaps may be used on your animal to clean her and it is up to you to decide which one to use. Your tools and equipment should also be kept very clean, especially if you have a milking machine.

For show, dairy cattle have all of their hair clipped off. Refer to your breed standard for verification to see if there is anything specific that must be done when preparing your cow or heifer for show for their specific breed. Dairy cattle are clipped with clipper blades. To help locate people who can assist you in learning how to properly clip you cow contact your extension agent, superintendent, leader, or a local breeder who may assist you. Below is a diagram to help guide members towards a general sense of how to properly clip their animal. Please note that the small “k” found in two places on each leg indicates you should keep the hair found there.

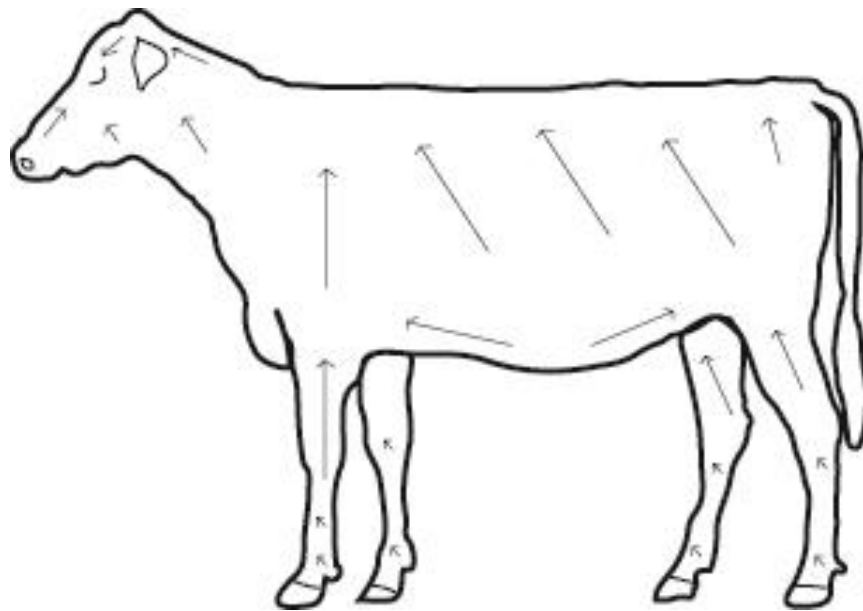


Photo courtesy of University of Georgia Extension. Link: <https://extension.uga.edu/publications/detail.html?number=B1427&title=Is%20Your%20Heifer%20Fit%20to%20Show?%20A%20Guide%20to%20Fitting%20and%20Showing%20Dairy%20Animals>

Hoof Trimming

When it comes to trimming the hooves of your animal it is ***highly encouraged*** that a professional performs the hoof trimming as special squeeze shoots and trimmers are required to trim their hooves. These are very large animals with a lot of strength behind their kick and even friendly ones that were raised on bottles can kick out with a back leg and hurt you. It's advisable to speak with an extension agent, superintendent, leader, or a local breeder to locate a professional to trim your animal's hooves.

Fast Facts

- One pound of butter requires 21.2 lbs. of whole milk while a gallon of ice cream requires 12 lbs.
- The yellow color of butter is derived from the beta-carotene cows take in when they graze.
- American cows produce about 6.2 gallons (53 lbs.) of milk per day.
- While the milk bottle was introduced in 1884, the plastic containers we know today did not come onto the scene until 1964.
- Casein is a protein and is what helps cool your mouth after eating something hot.
- There are about 340 to 350 squirts of milk in one gallon of milk.
- A dairy cow can generate 125 lbs. of saliva in one day.
- The first cow came to America in 1611 with the Jamestown Colony settlers.
- When it comes to milking machines, they can milk a cow out in five minutes.
- A cow in milk consumes about 100 lbs. of feed a day.
- Cows in milk will drink between 30 gallons and 50 gallons of water a day.
- No two cows have the same spot patterns.

Getting Ready for Clackamas County Fair

The Clackamas County Fair is held in August. Information pertaining to the show can be found in the Clackamas County Fair book. Rules are subject to change and should be checked in the fair book. It is the responsibility of the member to stay up-to-date on these rules. Below is information pertaining to fair:

General Information

- Members are expected to set-up, paint, and decorate their pen areas.
- Member **MUST** participate in showmanship.
- Good sportsmanship and herdsmanship are strongly emphasized.
- Members are expected to care for animals themselves, including clipping, feeding, and caring for the animal, both at home and at fair.
 - Club members or members from another club enrolled in 4-H may help with these tasks but the sole responsibility falls on the member.

Breeding Cows and Heifers

- Clean up after your animal(s) after using the milking parlor.

Resources

1. <https://avilanche.usjerseyjournal.com/violet/>
2. https://extension.psu.edu/programs/4-h/counties/erie/members/dairy-program/parts-of-a-dairy-cow/extension_publication_file
3. <http://www.thecattlesite.com/diseaseinfo/202/brucellosis/>
4. <http://www.thecattlesite.com/diseaseinfo/179/mastitis/>
5. <https://www.facebook.com/heartandsoulholsteins/photos/a.1845115162373577/1845115122373581/?type=3&theater>
6. <http://www.purebreddairycattle.com/pages/Breeds.php>
7. <https://avilanche.usjerseyjournal.com/violet/>
8. http://www.holsteinusa.com/pdf/fact_sheet_cattle.pdf
9. https://www.usjersey.com/Portals/0/AJCA/2_Docs/WhyJerseys2016.pdf
10. <https://www.elitedairy.com/ladies>
11. <http://www.guernseyshowcalves.com/all-americans-index-1>
12. <https://www.thatsfarming.com/news/guernsey-cattle-breed>
13. <https://www.brownswissusa.com/Breed/BrownSwissBreed/BreedTrivia/tabid/82/Default.aspx>
14. <https://www.facebook.com/OldBankstonAyrshires/photos/a.161492867328115/334371563373577/?type=3&theater>
15. Http://www.milkingshorthorn.com/uploads/7/8/7/9/78798376/grazing_efficiency.docx
16. <https://animalsake.com/information-about-guernsey-cow>
17. http://www.raw-milk-facts.com/dairy_cow_breeds.html
18. <https://livestockconservancy.org/index.php/heritage/internal/parameters-cpl>
19. <https://livestockconservancy.org/index.php/heritage/internal/ayrshire>
20. https://www.facebook.com/pg/RockNGsFarm/photos/?ref=page_internal
21. <http://www.thecattlesite.com/breeds/dairy/19/ayrshire/>
22. <https://extension.uga.edu/publications/detail.html?number=B1427&title=Is%20Your%20Heifer%20Fit%20to%20Show?%20A%20Guide%20to%20Fitting%20and%20Showing%20Dairy%20Animals>
23. <https://extension.oregonstate.edu/sites/default/files/documents/11866/2019-cc4-h-fairbook.pdf>
24. <https://www.umpquadairy.com/recipes-more/cool-cow-facts/>
25. <https://www.umpquadairy.com/recipes-more/cool-cow-facts/>
26. <https://www.americandairy.com/dairy-farms/dairy-facts/>
27. <https://thedairyalliance.com/seven-surprising-dairy-cow-facts/>

4-H Reference Books:

1. Dairy Resource Handbook by The Ohio State University Extension

Note: These books are available to check-out or purchase from the Clackamas County 4-H Extension Office in Oregon City.