



# 4-H Project Essentials - Livestock Feeding Glossary of Terms

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This resource is intended to give 4-H leaders, youth, and families an overview of key terminology involved in the feeding of livestock. Terms here apply to many different types of large and small livestock, however specific feeding strategies will differ between different species and individual animals. Feeding is one element of many that is important in the quality care of a healthy animal, so be sure to develop a broad understanding of these needs early in the life of your livestock project. For additional guidance, work with your county 4-H staff, and capitalize on the expertise of Arizona 4-H Leaders.

## Glossary of Livestock Feeding Terms

**Average Daily Gain (ADG)** – Average Daily Gain = weight gain since last weighing divided by number of days since last weighing.

**Basic dietary nutrients** – livestock nutrition requires 5 key elements - water, crude protein, carbohydrates, minerals, and vitamins.

**Beginning weight calculation** – to calculate the ideal beginning weight for your livestock project, subtract the pounds of gain needed before fair from the desired weight at fair. Written another way:

$$\text{Beginning Weight} = (\text{desired weight}) - (\text{pound of gain needed before fair})$$

**Biosecurity** – Biosecurity refers to the planning and implementation of measures that maintain healthy environments for livestock and prevent the spread of infectious disease. 4-H members participating in a livestock project should make a biosecurity plan specific to their livestock facilities.

**Carbohydrates** – High energy feeds that are higher in starches. Main source of energy for animals.

**Concentrates** – Refers to feeds that are rich in energy (carbohydrates) and/or protein but low in fiber.

**Conversion rate** – The ratio of pounds of feed given to the animal to pounds of weight gained. This rate is sometimes written as “feed to gain” or shortened to F:G. 4-H members



should pay careful attention to the conversion rate of their particular animal by weighing their feed and calculating ADG in comparison to daily ration weights.

**Crude Fiber** – Carbohydrates that are identified as indigestible. When crude fiber content is higher, the energy content of the feed is lower.

**Crude Protein (CP)** – CP is composed of both true protein and nonprotein nitrogen (NPN). Many NPN compounds can supply nitrogen to the rumen microbes that then build microbial protein in the rumen. Proper crude protein levels are important for your livestock project as they are essential for animal growth and muscle development.

**Daily weight gain needed before sale calculation** – To determine daily gain requirements before fair use the following calculation:

$$\text{Daily Gain Needed} = (\text{target sale weight} - \text{current animal weight}) / (\text{days until fair})$$

**Dietary Energy** – Dietary energy refers to the amount of carbohydrates included in a ration. Amounts of high energy feeds change over the lifespan of a livestock project and can significantly affect finish quality.

**Finishing ration** – A diet for animals in the last stage of feeding and is designed to promote fat deposition. Finishing rations tend to be high in energy and lower in protein than a growing ration.

**Forages** – Forage feeds include pasture feeding, hays, and silage. Forages generally are an excellent source of fiber, which is essential for keeping ruminants healthy, and legume forages such as alfalfa can serve as a quality protein source as well.

**Growing ration** – A diet for animals to grow muscle rather than fat. Typically consists of a higher percentage of protein and moderate fiber and energy.

**Holding** – Feeding to maintain weight, i.e. not gain or lose. This is a useful strategy when timing a pig's weight to your show or auction.

**Lysine** – Lysine is an essential amino acid. It contributes to calcium retention, energy production, muscle and bone development, and other key factors in your livestock project's development. Different amounts of lysine are required at different stages of an animal's life cycle, for more specific guidance see the other livestock references linked in this document.

**Minerals** – Inorganic feed elements essential for life.

**Nutrients** – An ingredient or substance that provides nourishment is needed for growth and energy.

**Protein** – Protein is a nutrient that animals need to grow and repair cells. It is needed to develop nearly all types of animal tissue and helps power key chemical reactions, such as muscle development and hemoglobin synthesis.

**Pushing** – Feeding higher calorie feeds or larger rations to pigs that are not gaining weight. A useful strategy when trying to meet minimum weights for a show or adapting feeding strategies to a slow gaining animal.

**Quality Assurance** – The knowledge and care of livestock implemented by producers to provides consumers with a safe and wholesome food product. This includes proper feeding, safe use of drugs, biosecurity, and other important topics. 4-Hers are required to complete a quality assurance program, such as Youth for the Quality Care of Animals, when participating in a livestock project.

**Rate of Gain** – to determine if your livestock is on track to reach your target weight before the date of sale, use the following calculation: (days until fair) x (Average Daily Gain). This will help you determine if feeding adjustments are required to maintain, push, or hold your animal's weight.

**Rations** – Ration refers to the feed allowance an animal has in 24 hours.





**YQCA** – Youth for the Quality Care of Animals. This is a quality assurance training that outlines proper care of livestock. For more info see <https://yqcaprogram.org/>.

## Additional Resources:

[4-H Project Essentials - Small Stock Fact Sheets](#)

[4-H Project Essentials - Large Stock Fact Sheets](#)

[4-H Project Essentials - Feeding Your Swine Project](#)

[4-H Project Essentials - Feeding your Beef Project](#)

[Feeding Management for Show Lambs](#)

[Feeding Management for Show Steers](#)

[Youth for the Quality Care of Animals Training  
\(Required for AZ 4-H Livestock Projects\)](#)

**Roughages** – Bulky and coarse feed that is high in fiber (greater than 18 percent crude fiber), but lower in energy than most concentrates. Examples include forage, hay, and silage.

**Rumen** – The largest stomach compartment of a ruminant animal. It consists of several sacs and acts as a storage area for feed. It also serves as the fermentation area, where microbes digest and ferment feed to make fatty acids.

**Ruminants** – A hoofed mammal that has a complex multi chambered stomach with digestion achieved primarily through fermentation. Includes cattle, sheep, and goats. These animals can better use energy from fibrous plants.

**Total Digestible Nutrients (TDN)** – Then energy value of feed. When growing, an animal's ration tends to be lower in TDN. When finishing animals feed tends to be higher in TDN.

**Total Mixed Ration (TMR)** – Mechanically mixed ration ingredients that meet nutrient needs of cattle.

**Withdrawal Period** – The time it takes for drugs and chemicals to be broken down and processed so there is no remaining residue.

**Vitamins** – Organic compounds that are essential for many metabolic functions.



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by University faculty.**

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