

# Animal feed

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**Animal feed** is food given to domestic animals in the course of animal husbandry. There are two basic types, *fodder* and *forage*. Used alone, the word "feed" more often refers to fodder.

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A photo of a feedlot in Texas, USA, where cattle are "finished" (fattened on grains) prior to slaughter.

## Fodder

"Fodder" refers particularly to foods or forages given to the animals (including plants cut and carried to them), rather than that which they forage for themselves. It includes hay, straw, silage, compressed and pelleted feeds, oils and mixed rations, and sprouted grains and legumes. Feed grains are the most important source of animal feed globally. The amount of grain used to produce the same unit of meat varies substantially. According to an estimate reported by the BBC in 2008, "Cows and sheep need 8kg of grain for every 1kg of meat they produce, pigs about 4kg. The most efficient poultry units need a mere 1.6kg of feed to produce 1kg of chicken."<sup>[2]</sup> Farmed fish can also be fed on grain, and use even less than poultry. The two most important feed grains are maize and soyabean, and the United States is by far the largest exporter of both, averaging about half of the global maize trade and 40% of the global soya trade in the years leading up to the 2012 drought.<sup>[3]</sup> Other feed grains include wheat, oats, barley, and rice, among many others.

Traditional sources of animal feed include household food scraps and the byproducts of food processing industries such as milling and brewing. Material remaining from milling oil crops like peanuts, soy, and corn are important sources of fodder. Scraps fed to pigs are called slop, and those fed to chicken are called chicken scratch. Brewer's spent grain is a byproduct of beer making that is widely used as animal feed.

Compound feed is fodder that is blended from various raw materials and additives. These blends are formulated according to the specific requirements of the target animal. They are manufactured by feed compounders as *meal type*, *pellets* or *crumbles*. The main ingredients used in commercially prepared feed are the feed grains, which include corn, soybeans, sorghum, oats, and barley.



Equine nutritionists recommend that 50% or more of a horse's diet by weight should be forages, such as hay <sup>[1]</sup>

Compound feed may also include premixes, which may also be sold separately. Premixes are composed of microingredients such as vitamins, minerals, chemical preservatives, antibiotics, fermentation products, and other essential ingredients that are purchased from premix companies, usually in sacked form, for blending into commercial rations. Because of the availability of these products, a farmer who uses his own grain can formulate his own rations and be assured his animals are getting the recommended levels of minerals and vitamins.<sup>[4]</sup>

According to the American Feed Industry Association, as much as \$20 billion worth of feed ingredients are purchased each year. These products range from grain mixes to orange rinds to beet pulps. The feed industry is one of the most competitive businesses in the agricultural sector, and is by far the largest purchaser of U.S. corn, feed grains, and soybean meal. Tens of thousands of farmers with feed mills on their own farms are able to compete with huge conglomerates with national distribution. Feed crops generated \$23.2 billion in cash receipts on U.S. farms in 2001. At the same time, farmers spent a total of \$24.5 billion on feed that year.

In 2011, around 734.5 million tons of feed were produced annually around the world.<sup>[5]</sup>

## History

The beginning of industrial-scale production of animal feeds can be traced back to the late 19th century, around the time advances in human and animal nutrition were able to identify the benefits of a balanced diet, and the importance of the role processing of certain raw materials played. Corn gluten feed was first manufactured in 1882, while leading world feed producer Purina Feeds was established in 1894 by William Hollington Danforth. Cargill, which was mainly dealing in grains from its beginnings in 1865, started to deal in feed at about 1884.

The feed industry expanded rapidly in the first quarter of the 20th century, with Purina expanding its operations into Canada, and opened its first feed mill in 1927 (which is still in operation). In 1928, the feed industry was revolutionized by the introduction of the first pelleted feeds - Purina Checkers.

## Manufacturers

The job of the feed manufacturer is to buy the commodities and blend them in the feed mill according to the specifications outlined by the animal nutritionist. There is little room for error because, if the ration is not apportioned correctly, lowered animal production and diminished outward appearance can occur.

### Asia

One of the largest Asian feed producers is Charoen Pokphand (the CP Group), a Thai company producing 18 million tonnes of compound feed at various locations across East Asia.

### Europe

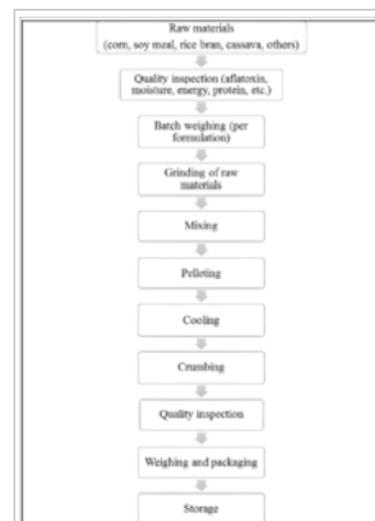
The merge of the Hamburg-based traditional commodity trade firm, Cremer, and the Düsseldorf based Deuka (Deutsche Kraftfutterwerke), led to one of the largest feed companies in Europe. The new Cremer Group produces around 3.5 million tons. BOCM Pauls in the UK produces around the same amount if not more.

### United States

Leading U.S. companies involved in prepared feeds production in the early first decade of the 21st century included ConAgra Inc., an Omaha, Nebraska-based firm; and Cargill, Incorporated, a diversified company that was the nation's top exporter of grain. In 1998, Ralston Purina Company, based in St. Louis, Missouri, formed Agribands International, Inc. to control its international animal feed and agricultural products division. Agribands produced feed and other products for livestock in markets outside of the United States, and had about 75 facilities operating in 16 countries. In 2001, it was acquired by Cargill.



A pelleted ration designed for horses



Workflow for general feed manufacturing process

Other significant industry players included Conti Group Companies, Inc., the world's leading cattle feeder; CHS, Inc. (previously known as Cenex Harvest States Cooperative), which was primarily involved in grain trading; and Farmland Industries, Inc., the leading agricultural cooperative in the United States. Farmland was a worldwide exporter of products, such as grain. In May 2002, the firm declared bankruptcy, and in the following year, Smithfield Foods acquired most of Farmland's assets.

## Forage

"Forage" is plant material (mainly plant leaves and stems) eaten by grazing livestock.<sup>[6]</sup> Historically, the term *forage* has meant only plants eaten by the animals directly as pasture, crop residue, or immature cereal crops, but it is also used more loosely to include similar plants cut for fodder and carried to the animals, especially as hay or silage.<sup>[7]</sup>

## Manufacture

## Nutrition

In agriculture today, the nutritional needs of farm animals are well understood and may be satisfied through natural forage and fodder alone, or augmented by direct supplementation of nutrients in concentrated, controlled form. The nutritional quality of feed is influenced not only by the nutrient content, but also by many other factors such as feed presentation, hygiene, digestibility, and effect on intestinal health.<sup>[8]</sup>

Feed additives provide a mechanism through which these nutrient deficiencies can be resolved effect the rate of growth of such animals and also their health and well-being. Even with all the benefits of higher quality feed,

most of a farm animal's diet still consists of grain-based ingredients because of the higher costs of quality feed.<sup>[8][9][10]</sup>

## By animal

- Bird food
- Cat food
- Cattle feeding
- Dog food
- Equine nutrition
- Pet food
- Pig farming
- Poultry feed
- Sheep husbandry

## See also

- Chelates in animal nutrition
- Factory farming
- FEFANA
- Predation
- Food safety



Cattle eating a total mixed ration



Feed production facility in Oneonta, New York



In this photo a herdsman from the Masaai people watches as his cattle graze in the Ngorongoro crater, Tanzania.

- Hammermill
- Pellet mill

## References

1. "Horse Nutrition - Feeding factors." Bulletin 762-00, Ohio State University. ([http://ohioline.osu.edu/b762/b762\\_12.html](http://ohioline.osu.edu/b762/b762_12.html)) Web site accessed February 9, 2007.
2. <http://news.bbc.co.uk/2/hi/science/nature/7389678.stm?wwparam=1349466442>
3. <http://www.economist.com/blogs/feastandfamine/2012/08/food-prices>
4. R. A. Zinn University of California, Davis A Guide to Feed Mixing (<http://animalscience.ucdavis.edu/faculty/zinn/pdf/04.pdf>)
5. "World Feed Panorama: Once again, industry increases its volume" ([http://www.wattagnet.com/World\\_Feed\\_Panorama\\_\\_Once\\_again,\\_industry\\_increases\\_its\\_volume.html](http://www.wattagnet.com/World_Feed_Panorama__Once_again,_industry_increases_its_volume.html)), 31-1-2012, www.wattagnet.com
6. Fageria, N.K. (1997). *Growth and Mineral Nutrition of Field Crops*. NY,NY: Marcel Dekker. p. 595.
7. Fageria, N.K. (1997). *Growth and Mineral Nutrition of Field Crops*. NY,NY: Marcel Dekker. p. 583.
8. Merck Manual October 2014 Nutritional Requirements of Beef Cattle ([http://www.merckmanuals.com/vet/management\\_and\\_nutrition/nutrition\\_cattle/nutritional\\_requirements\\_of\\_beef\\_cattle.html](http://www.merckmanuals.com/vet/management_and_nutrition/nutrition_cattle/nutritional_requirements_of_beef_cattle.html)) Page accessed March 18, 2015
9. Merck Manual October 2014 Nutritional Requirements of Beef Cattle ([http://www.merckmanuals.com/vet/management\\_and\\_nutrition/nutrition\\_cattle/nutritional\\_requirements\\_of\\_beef\\_cattle.html](http://www.merckmanuals.com/vet/management_and_nutrition/nutrition_cattle/nutritional_requirements_of_beef_cattle.html)) Page accessed March 18, 2015
10. Merck Manual March 2012 Requirements of Beef Cattle ([http://www.merckmanuals.com/vet/poultry/nutrition\\_and\\_management\\_poultry/nutritional\\_requirements\\_of\\_poultry.html](http://www.merckmanuals.com/vet/poultry/nutrition_and_management_poultry/nutritional_requirements_of_poultry.html)Nutritional) Page accessed March 18, 2015

## External links

- Animal feed legislation and guidance



Look up ***animal feed*** in Wiktionary, the free dictionary.

(<http://www.food.gov.uk/foodindustry/farmingfood/animalfeed/animalfeedlegislation>)

- Animal Feed and Ingredients Glossary (<http://feed.feedmachinery.com/>)
- FAO Feed Safety guidelines (<http://www.fao.org/ag/AGa/AGAP/FRG/Feedsafety/feedsafety.htm>)
- Feed - Biosecurity Guide ([http://www.afia.org/Biosecurity\\_Guide.html](http://www.afia.org/Biosecurity_Guide.html))
- Infographic: A look at the global feed production 2012 ([http://www.feedmachinery.com/articles/feed\\_related/feed-industry-infographic/](http://www.feedmachinery.com/articles/feed_related/feed-industry-infographic/))

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