

Fodder

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Fodder, a type of animal feed, is any agricultural foodstuff used specifically to feed domesticated livestock, such as cattle, goats, sheep, horses, chickens and pigs. "Fodder" refers particularly to food given to the animals (including plants cut and carried to them), rather than that which they forage for themselves (called forage). Fodder (/ˈfɒdər/) is also called **provender** (/ˈprɒvəndər/) and includes hay, straw, silage, compressed and pelleted feeds, oils and mixed rations, and sprouted grains and legumes (such as bean sprouts, fresh malt, or spent malt). Most animal feed is from plants, but some manufacturers add ingredients to processed feeds that are of animal origin.



A fodder factory set up by an individual farmer to produce customised cattle feed

The worldwide animal feed industry produced 873 million tons of feed (compound feed equivalent) in 2011,^[1] fast approaching 1 billion tonnes according to the International Feed Industry Federation,^[2] with an annual growth rate of about 2%. The use of agricultural land to grow feed rather than human food can be controversial; some types of feed, such as corn (maize), can also serve as human food; those that cannot, such as grassland grass, may be grown on land that can be used for crops consumed by humans. Some agricultural byproducts fed to animals may be considered unsavory by human consumers.

Contents

- 1 Common plants specifically grown for fodder
- 2 Types of fodder
- 3 Health concerns
- 4 Production of sprouted grains as fodder
- 5 See also
- 6 References
- 7 Further reading
- 8 External links

Common plants specifically grown for fodder

- Alfalfa (lucerne)
- Barley
- Birdsfoot trefoil
- *Brassica* spp.
 - Kale
 - Rapeseed (canola)

- Rutabaga (swede)
- Turnip
- Clover
 - Alsike clover
 - Red clover
 - Subterranean clover
 - White clover
- Grass
 - Bermuda grass
 - Brome
 - False oat grass
 - Fescue
 - Heath grass
 - Meadow grasses (from naturally mixed grassland swards)
 - Orchard grass
 - Ryegrass
 - Timothy-grass
- Corn (maize)
- Millet
- Oats
- Sorghum
- Soybeans
- Trees (pollard tree shoots for "tree-hay")
- Wheat



Round hay bales



Newton of Cawdor stack of bales, sweet-smelling fodder stored for winter

Types of fodder

- Conserved forage plants: hay and silage
- Compound feed and premixes, often called pellets, nuts or (cattle) cake
- Crop residues: stover, copra, straw, chaff, sugar beet waste
- Fish meal
- Freshly cut grass and other forage plants
- Meat and bone meal (now illegal in cattle and sheep feeds in many areas due to risk of BSE)
- Molasses
- Oligosaccharides
- Seaweed
- Seeds and grains, either whole or prepared by crushing, milling, etc.
- Sprouted grains and legumes
- Yeast extract (brewer's yeast residue)
- Native green grass
- Bran



Cut green fodder being transported to cattle in Tanzania

- Concentrate mix
- Oilseed press cake (cottonseed, safflower, sunflower, soybean, peanut or groundnut)
- Green maize
- Green sorghum
- Horse gram
- Leaves from certain species of trees^[3]
- Grass/lawn clipping waste^[4]

Health concerns

In the past, bovine spongiform encephalopathy (BSE or "mad cow disease") spread through the inclusion of ruminant meat and bone meal in cattle feed due to prion contamination. This practice is now banned in most countries where it has occurred. Some animals have a lower tolerance for spoiled or moldy fodder than others, and certain types of molds, toxins, or poisonous weeds inadvertently mixed into a feed source may cause economic losses due to sickness or death of the animals. The US Dept. of Health and Human Services regulates drugs of the Veterinary Feed Directive type that can be present within commercial livestock feed.



Barley is a crop sometimes grown for fodder

Production of sprouted grains as fodder

Fodder in the form of sprouted grains and legumes can be grown in small and large quantities. Systems have been developed recently that allow for many tons of sprouts to be produced each day, year round. Sprouted grains can greatly increase the nutritional value of the grain compared with feeding the ungerminated grain to stock. In addition, they use less water than traditional forage, making them ideal for drought conditions. Sprouted barley and other cereal grains can be grown hydroponically in a carefully controlled environment. Under hydroponic conditions, sprouted fodder at 150 mm tall with a 50 mm root mat is at its peak for animal feed. Although products such as barley are grain, when sprouted they are approved by the American Grassfed Association to be used as livestock feed.

See also

- Cannon fodder (metaphorical usage)
- Factory farming
- Feed manufacturing
- Forage
- Grain
- Pasture



On site system in the USA.

References

1. "allaboutfeed.net". *allaboutfeed.net*. allaboutfeed.net. Retrieved 6 October 2014.
2. "IFIF". *IFIF.org*. IFIF. Retrieved 8 October 2014.



A "grow deck" commercial sprouting system

3. http://r4d.dfid.gov.uk/PDF/Outputs/Forestry/DFID_impact_case_study_Fodder_trees_FINAL%5B1%5D.pdf
4. Logsdon, Gene (2004). *All Flesh Is Grass*. Ohio University: Swallow Press. Chapter 20. ISBN 0-8040-1069-2.
 - Karl Heinrich Ritthausen (1872) Die Eiweisskörper der Getreidearten, Hülsenfrüchte und Ölsamen. Beiträge zur Physiologie der Samen der Kulturgewachese, der Nahrungs- und Futtermittel, Bonn, 1872 (<https://books.google.com/books?id=M8U9AAAAYAAJ&printsec=frontcover>) from Google books.

Further reading

- Zhou, Yiqin. *Compar[ison off] Fresh or Ensiled Fodders (e.g., Grass, Legume, Corn) on the Production of Greenhouse Gases Following Enteric Fermentation in Beef Cattle*. Rouyn-Noranda, Qué.: Université du Québec en Abitibi-Témiscamingue, 2011. *N.B.*: Research report.

External links

- UK Food Standards Agency, Animal feed legislation and guidance



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

- FAO Feed Safety guidelines (<http://www.fao.org/ag/AGa/AGAP/FRG/Feedsafety/feedsafety.htm>)
- Fodder Plants at Agriculture Guide (<http://agricultureguide.org/fodder-plants-all-everything-you-want-to-need-know-a-featured-article/>) An article from Agriculture Guide

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