FEEDING HORSES IN AUSTRALIA AND NEW ZEALAND

Australia and New Zealand are great horse-producing countries. Australia has the second largest horse population in the Western world, and New Zealand horses have long plundered Australia's richest races. Over 18,000 Thoroughbred foals are born each year and about 36,000 race annually at one or more of Australia's 400 racetracks. The Standardbred industry also thrives in Australia where approximately 9,000 foals are born yearly. Other popular, breeds include Arabians, Quarter Horses, warmbloods, and various pony breeds. Equestrian sports are very popular, and Australia has taken the gold medal in the team three-day event competition at the last three Olympics.

Horses are bred and trained in a variety of conditions and climates in New Zealand. On the North Island of the country, which is about the size of Japan or California, pastures remain green and high-quality throughout the year, and breeding of Thoroughbreds and Standardbreds is a widespread hobby and business. In addition to racing, New Zealanders have excelled at three-day eventing in recent years, and New Zealand-bred horses are renowned for versatility and toughness.

While horses in Australia and New Zealand still require top-notch nutrition to achieve performance goals, they are fed somewhat differently than horses in North America and other parts of the world.

Pastures

Snow falls only rarely in areas where horses are kept throughout Australia, so horses can graze pastures during most of the year. Grazing horses are typically not stabled at night and have carte blanche access to pasture. Overstocking, understocking, and poor pasture management practices are common, so great variation in pasture quality and quantity is apparent. In recent years research and extension activities have been directed at maximizing pasture growth and reducing the costs of supplementary feeding. In southern temperate areas, heat and lack of rain cause pastures to dry off over summer and autumn, creating a need for supplementary feeding of horses during this time of year. Irrigation is used in some areas to maintain growth of pasture during dry periods. In northern parts of the country, subtropical or tropical conditions prevail so the growing season occurs during summer. In northern Australia, tropical grasses such as kikuyu, buffel, and setaria are common. These grasses have high oxalate levels that interfere with calcium digestibility and can lead to the development of nutritional secondary hyperparathyroidism (big head) and various bone disorders.

The North Island of New Zealand is warm and receives more than adequate rainfall. This area is home to the main Thoroughbred breeding studs. The South Island of New Zealand has traditionally been the primary breeding region for Standardbreds. Pastures are mainly ryegrass and clover on both islands. South Island pastures may experience isolated snowfalls from May through September. Poisonous plants in horse pastures are not a concern in New Zealand. Pastures rarely dry off over summer in the North Island, but they do become barren in the South Island. Mares are often managed without supplementary grain as high-quality pastures supply enough energy and protein; however, pastures do not meet all mineral needs.

Hay and Chaff

Australian horses are fed forage in the form of hay, chaff, pellets, and cubes. Lucerne (alfalfa) is the most common hay fed to horses, followed by grass (meadow) and oaten hay. Lucerne hay is grown in all Australian


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states and is widely available, whereas grass hay is harvested in southern areas. Lucerne and grass hay is usually packed in small bales and the unit of feeding is a biscuit, which is similar to a flake. In northern Australia the only hay available is lucerne. While this hay is acceptable for various classes of horses, lucerne can be problematic for some performance horses because of the excessive amount of protein it provides.

The nutrient value of grass hay can vary widely according to the composition of the grasses, time of haymaking, and other factors. Clover is often intermingled with grasses. A high clover content will increase the nutrient content of the hay, with good-quality clover hay approaching lucerne hay in nutrient density and palatability. However, it may be difficult to purchase clover hay year-round.

The climatic conditions at the time of haymaking are usually favorable, so hay grown in Australia is generally free of dust, molds, and other contaminants. Oaten hay is fed less commonly because production is lower and storage is more difficult. It is fed in sheaves or bales. Because hay quality is generally acceptable, horses are not usually fed haylage (fermented forage).

Australian horses are fed large quantities of chaff or chopped hay. Chaff is made in commercial chaff mills and marketed in large (88-pound) bags. Chaff can also be produced on the farm using a small-scale chaff cutter. Many horses are fed a mix of oaten or wheaten chaff and lucerne chaff with their grain. Most commercial chaff is steam-cleaned to remove dust and allow easier cutting. Some chaff is rough cut and includes some longer fiber. Good-quality chaff should not contain any formed grain, but grain kernels are often found in chaff. Some manufacturers add oat-laden chaff to their products because the grain is cheaper than pure chaff.

The principal advantage of chaff is that it can be mixed with the concentrate portion of the feed so that the horse consumes forage with the concentrate. This can slow the intake of concentrate and prevent starch overload in the large intestine. There is considerable debate as to the merits of oaten chaff over wheaten chaff and vice versa. In some parts of the country it is easier to get good-quality wheaten chaff, while in other areas high-quality oaten chaff is more readily available. If you have a horse that cannot tolerate any oats, it may be best to use wheaten chaff, but in other cases chaff is chosen on quality and price.

Because chaff is so popular, use of forage cubes or pellets is not as common as in other countries. The use of lucerne pellets instead of chaff has increased recently on studs and spelling operations, where pellets can be stored in silos. This can reduce the cost and handling required compared to bagged chaff. Forage cubes have been developed only in recent times and have not made any significant impact on feeding practices. Unlike countries in the Northern Hemisphere, beet pulp and soy hulls have only recently become available as alternative forms of digestible forage. Alkali-treated sugarcane bagasse (plant residue) is used as a cheap fiber source in some commercial feeds made in North Queensland.

In many southeast Asian countries, all horse feed is imported. This makes forage very expensive, and there is a tendency to feed less than is desirable for digestive health. Compressed hay is imported but bagged chaff is a more popular feed because it is easier to transport. In India fresh lucerne and very poor-quality grass hay are the popular forages.

In New Zealand, lucerne and oaten chaff are the primary forms of forage added to grain. Meadow and lucerne hay is fed in similar quantities to stabled performance horses and horses in the paddock. The haymaking season is shorter and more difficult in New Zealand, and therefore a great deal of care is needed to ensure hay is cured properly. Because it is harder to make good grass hay in New Zealand, haylage is becoming popular and is made commercially or on the farm. Most racing stables have access to pasture and will often cut about 13 pounds of wet pasture for each stabled horse.

Whole Grains

Australians have traditionally fed more straights or cereal grains than premixed feeds, although this pattern is changing with the development of better quality feeds and recognition of the performance, convenience, and value these products can offer. Oats are by far the most common grain fed to horses based on safety, price, and the fact that there is no need for further processing. Australian oats are usually lower in protein than many

Northern Hemisphere varieties, averaging less than 9% crude protein on an as-fed basis. Corn or maize is more expensive than oats and cannot compete on a cost per energy basis, but because it is often necessary to increase the energy density of the ration, corn is sometimes used. It is usually fed in amounts of less than five pounds and is most popular with racehorse trainers. Corn is fed cracked, steam flaked, or extruded.

Barley is perceived by many to be a cool feed (one that will not cause a shift in behavior) and is fed either steam rolled, micronized, extruded, or boiled, but again it is usually fed in small amounts. Barley is a popular feed in show-ring circles where it is often the grain of choice. Sorghum is an economical grain grown in Northern Australia but is not widely used. Triticale, a hybrid between wheat and rye, is a recent addition to the grain menu of some Australian horses. It is reported to be an effective and safe feedstuff, but there is no published information on its digestibility. Limited studies have shown that the cultivars of triticale that are closest to rye (Abacus and Madonna, for example) are well digested by horses, but cultivars closely related to wheat (Tahara) are not well digested in the small intestine.

Wheat bran and pollard are by-products of flour milling that are common ingredients in pelleted feeds and home-mixed diets. Wheat bran has been a popular ingredient, particularly for use in a wet feed (bran mash) with various supplements, but its use is declining and the quality of the bran available these days is dwindling. Wheat pollard (a finely milled blend of bran and wheat middlings) has been popular among show-ring enthusiasts that want to put condition on horses without feeding extra grain, but because pollard is low in fiber, there are better ways to feed horses and achieve the desired outcome. Stabilized rice bran is also used in many feeding programs for body and coat conditioning due to its high fat content. It is also commonly used in diets requiring energy from sources other than grain.

Commercial Feeds

The range and quality of commercial feeds available in Australia have increased dramatically in recent years. Feed mills produce pelleted, textured, and extruded feeds. Some popular feeds are designed to be used as concentrates fed at approximately five pounds per day, with horsemen adding straights according to the nutritional needs of the horse. Some low-energy textured feeds contain lucerne or oaten chaff as a source of fiber. These are ideal feeds for horses in light work.

Recently feeds for performance and growing horses have been produced containing high levels of fat. Specialized feeds also have been developed for horses prone to tying up or behavioral problems.

Protein Supplements

In racehorses, protein supplementation is usually provided by the feeding of lupins, tick beans, peas, and sunflower seeds. These supplements contain a higher energy content than traditional grains, but they are fed in smaller amounts. Linseed and cottonseed meals are traditional protein supplements, but the use of these additives has declined while canola meal use has increased. Lupins are legume seeds that are becoming an increasingly popular ingredient in the diets of horses. They are a palatable energy and protein source with a low-starch and high-fiber content. However, lupins have low levels of methionine and tryptophan. Because of their hard outer covering, lupins are usually fed cracked but can also be steam-flaked or micronized in modern mills.

Tick beans and peas are also fed as protein supplements; they are lower in protein than lupins and have moderate levels of limiting amino acids, but contain higher starch levels than lupins. Some varieties of beans and peas are unpalatable or contain toxic components. The contention that linseed meal or sunflower seeds make horses "look better" is likely to be due to the high oil content, as both provide relatively poor-quality protein.

On breeding farms, the value of soybeans is increasingly being recognized, and they are fed as soybean meal, which has had most of the oil content removed, or full-fat soybean meal. The full-fat version contains 20% fat but is only 35-38% protein. However, some breeders still use supplements replete with low-quality protein such as sunflower seeds and cottonseed meal. Copra (coconut) meal has become a popular supplement in recent years.

Protein content in high-quality New Zealand pastures varies from 16-28%, and where horses have access to this pasture, protein intake is not the major limiting factor to growth. Commercial feeds tend to be formulated with lower protein content in New Zealand than similar feeds in Australia, where pasture quality is not as good at all times of the year. Protein supplements given to racehorses are mainly full-fat soybean meal, peas, and sunflower seeds, despite their high price.

The components of a typical diet for horses in Australia and New Zealand may seem an unlikely lot. Lupins, tick beans, and copra meal are certainly not common in the vernacular of the horse community in North America. Nutritionists have adapted these native, though seemingly unusual, ingredients into well-balanced rations that support growth, performance, and reproduction.