



AGRICULTURAL SCIENCE STUDY GUIDE

Week 15



Horse physiology, feeding and management

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The science of horses

This article examines the physiology, feeding needs and care of horses

Ireland has a long history of breeding successful sport horses and has two native breeds, the Connemara pony and the Irish Draught horse. Horse Sport Ireland (HSI) is the governing body for the sport horse industry and all equines must be microchipped and have a passport.

Irish breeders have a well-earned reputation for producing horses that go on to perform at the highest level all over the world and the equine industry is of large economic importance.

Horses are seasonally polyoestrous. Seasonally, breeders such as sheep and horses have the start of their oestrous cycle controlled by the amount of daylight they receive. In both animals, the daylight affects the production of melatonin from the pineal gland which in turn affects the production of FSH and the oestrous cycle. Sheep are short day breeders as their cycle is triggered by the shortening day length. Horses are the opposite with their cycle started by the increase in daylight hours.

Artificial lighting has proven beneficial in bringing mares into season earlier than normal, especially with thoroughbred mares. An early foal is beneficial for thoroughbred racing as all foals in their studbook are given the universal birth date of 1 January. The earlier the foal is born, the greater the advantage in terms of size and strength.

Physiology

Horses and ponies range in height from less than 10hh (hands) to over 18hh. A "hand" is four inches and is measured to the highest point of the wither at the top of the shoulder blades. Ponies are 14.2hh and under, with horses higher than 14.2hh.

Feeding and diet

Horses are herbivores. They have a small stomach in comparison to other grazing animals and it is best to feed them little and often. In nature, a horse will spend most of the day – up to 16 or 18 hours – grazing. The horse's digestive system has adapted to allow it to digest fibre without a rumen and instead rely on hind gut digestion with a long caecum and colon which contain the bacteria that digest fibre.

It is important to introduce any dietary changes slowly as sudden changes can affect the balance of microbes in the intes-



The Connemara Pony is one of Ireland's native breeds. They are hardy with good jumping ability.

Key terms

- ➔ Noxious weed: a plant whose growth must be prevented on the land as it limits agricultural output. Noxious weeds include wild oats, ragwort, docks and thistle.
- ➔ Seasonal breeders: animals who only come into heat certain times during the year
- ➔ Polyoestrus breeders: animals who come into heat more than once during a breeding season.
- ➔ Vaccination: giving an animal a non-lethal, dead or weakened form of the pathogen which stimulates the production of antibodies.

Ragwort – common noxious weed

Owners need to check paddocks for ragwort as horses are more susceptible to the toxic alkaloids in ragwort than cattle or sheep. The more ragwort that is eaten the greater the damage. The greatest risk is to animals fed ragwort either in silage or hay, because ragwort has lost its bitter taste but has lost none of its toxicity. Sheep need far higher levels of the toxin before it affects their body in comparison to horses and cattle and are often used to control ragwort as they will remove the rosette stage of the plant.



Symptoms of ragwort poisoning

- ➔ Diarrhoea, yellowing of the whites of the eye.
- ➔ Some animals will develop staggering.

Ragwort can be removed by pulling or spraying with herbicide, but all measures need to be repeated for a minimum of two years as it is a biennial.

Treating worms in horses

Due to parasites becoming increasingly resistant to the active ingredients used in worming products (anthelmintics), it is recommended to test for the presence of worms using a faecal worm egg count before worming.

This will decide whether your horse needs worming and help you pick the most effective wormer.

Owners should work out the horse's weight prior to worming so that you give the correct dose. Under dosing risks, the worms develop a resistance to the active ingredients making it more difficult to treat them in the future.

Indirect methods of controlling worms include removal of droppings from paddocks and mixed grazing. Tapeworm treatment is done twice a year, in spring and autumn.

Horses require vaccinations for equine influenza and tetanus. Vaccinations allow the horse to develop its own antibodies to fight future infections.

Tetanus is also known as "lock jaw" and is caused by the bacterium *Clostridium tetani* that is found in soil and dung.

It enters the body by an open wound or via the digestive system and causes paralysis.

tines leading to colic. Colic is a very serious condition in horses where the horse is in severe abdominal pain and can lead to the hind gut twisting and death.

Diet

A typical horse's diet consists of roughage from grass, hay or haylage. Horses should consume 2kg dry matter per 100kg of bodyweight or 2% to 3% of their bodyweight per day. The horse's diet can be supplemented to meet increased nutritional demands with concentrates. One common ingredient in horse ration is oats.

Oats: family gramineae

Oats have the highest fibre content and lowest energy of all the cereal grains. Oats were traditionally the feed of choice for horses.

Oats as with other cereals when fed alone are an unbalanced feed as they are very low in calcium, zinc and copper. Oats are often rolled or steamed before feeding to increase digestibility.

Horse care

Horses require similar care to other grazing animals. Common endoparasites include roundworms, tapeworm and bot maggots.

*In short

- ➔ Scientific name: *Equus caballus*.
- ➔ Gestation period: 11 months (340 days).
- ➔ Oestrous cycle: 21 days.
- ➔ Chromosome number: 64 chromosomes
- ➔ Dentition: (3133/ 3133) x2