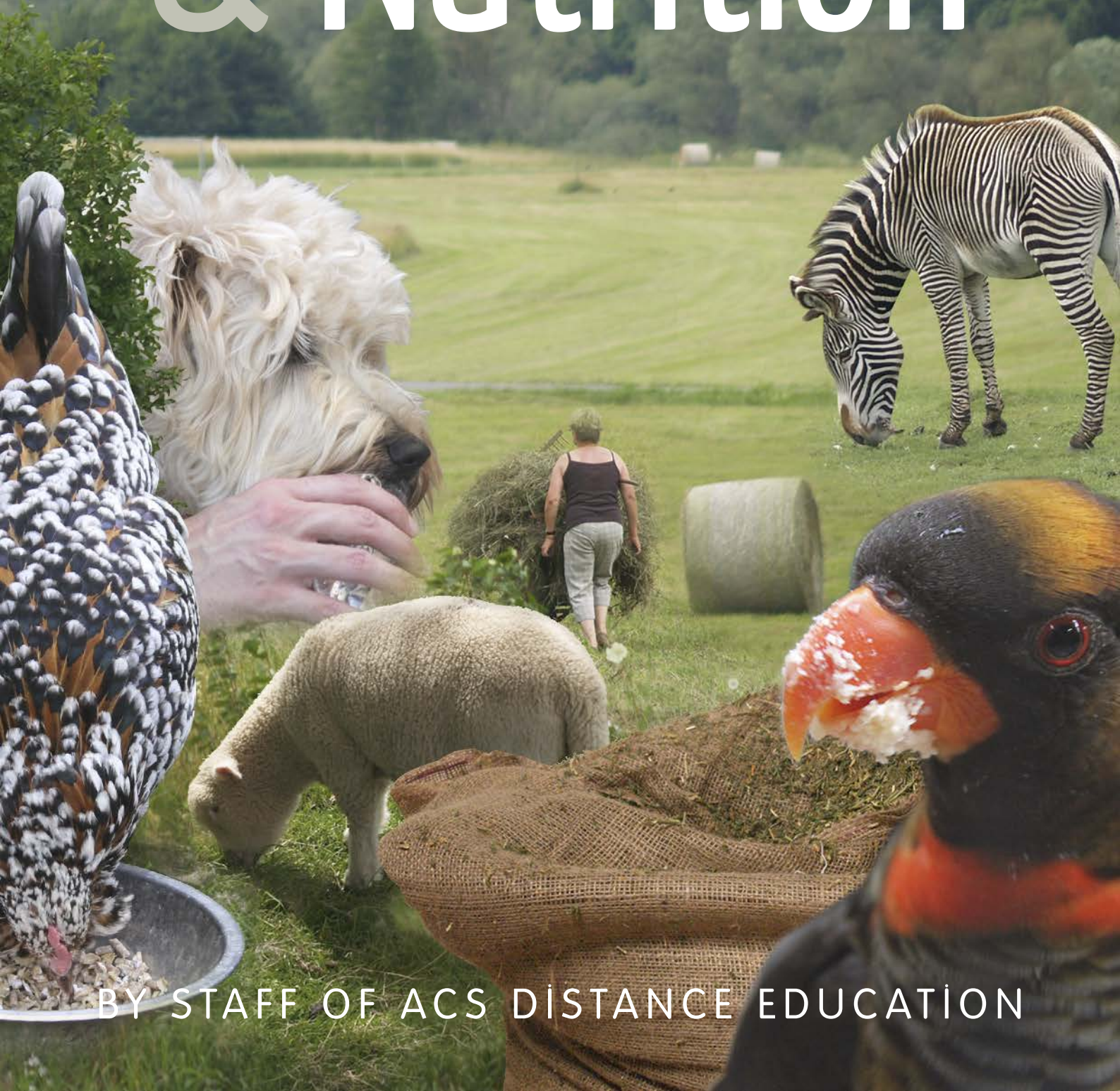


Animal Feed & Nutrition



BY STAFF OF ACS DISTANCE EDUCATION

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CHAPTER 1 INTRODUCTION TO FEEDING ANIMALS AND INDUSTRY OPPORTUNITIES

Some animal's primary source of feed is plant-based, such animals are referred to as herbivores. Animals whose diet consists primarily of other animals are referred to as carnivores and animals whose diet consists of both plant and animal based sources are known as omnivores.

Animal feeds, much like human food, is composed mainly of protein, carbohydrates, lipids (fats), minerals, vitamins and water. All feeds are different in their composition. Some have more protein than others, for example legumes or animal muscle tissue, whereas others may contain relatively high levels of carbohydrate and lower levels of protein, for example, barley.

Naturally some feed types which are suitable for feeding one animal species, may be totally inappropriate for a different animal. Learning about feed composition and animal nutrition requirements is fundamental in any aspect of animal care.

This ebook is designed to provide the reader with knowledge of animal function relating to diet. It will give a comprehensive guide to the composition of feed with a detailed exploration of types of feeds and how humans work to manage and improve feed supply and production for animal health or, as we see most often in the case of livestock, for financial gain. This book offers the reader insight into how to effectively and appropriately feed

animals in their care with three chapters dedicated to feeding pets, livestock and wildlife. The final chapter is designed to provide information on both eating and nutritional disorders – vital for providing adequate nutrition when feeding animals.

EATING AND DRINKING ANATOMICAL ADAPTATIONS

Different feeding behaviours have developed through evolution. For example, the earliest forms of land-based vertebrates were piscivores - large amphibians. These amphibians continued to feed on fish and insects, but some began to eat alternative feed types such as other vertebrates. In other words they became carnivorous. Later we know they also consumed plant sources and so also became herbivorous. As such we see the appearance of the omnivore. The way that an animal adapts towards a specific feed source is one of the main reasons underlying evolution in terms of their form and function.

It is widely understood and accepted that all animals must feed in order to replenish stores of sugars and fats which are converted into energy, even though some can hibernate for long periods of time their body utilises energy stores to survive during periods of hibernation. Naturally some animals can survive longer than others between meals, some animals are considered grazers and tend to eat relatively small quantities over long periods of time. Some animals gorge and binge – perhaps on a recent and, in some cases, infrequent kill – in the case of predator animals. Larger animals need to consume greater amounts of feed whereas smaller animals need to eat more frequently. Smaller body masses are simply not able to store as much energy.

Example of evolutionary adaptations:

Beaks – the development of the beak in specific species such as hawks, woodpeckers, pelicans and humming birds has become specialised for specific feeding tasks like tearing flesh, tunnelling for insects in (dead) trees, scooping up fish and probing flowers for nectar.

Mouth components and teeth - in animals these have also evolved differently to match different types of feeding behaviour, for example in vampire bats, whales, leeches, cats and fish.

Claws - these have developed in some animals as a way to catch and kill prey, such as the retractable claws of cats.

Camouflage - this allows some animals to change colour in order to

surreptitiously snare prey, for example the blue ringed octopus or chameleon. Others use camouflage to avoid becoming a feed source, for example certain moth species.

Digestive system - some animals have developed specialised digestive systems to enable them to consume certain feeds. Ruminants, including sheep, goats, cattle, giraffes, llamas and yaks are an example of this. They are mammals which have a specialised digestive system. Feed is softened by bacterial action within their stomach's first compartment. They then regurgitate the semi-digested mass (known as the cud) this is then chewed again, which is known as 'ruminating', and swallowed.



Beak adaptation of birds.