A Look Back at Equine Nutrition Over the Past 75 Years

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Looking back we can see that our knowledge and interest in equine nutrition has waxed and waned with the economic importance of the horse in our society due to the monumental shift in our use of, and dependence on, the horse. In the early 1900's, the horse dominated as the agricultural draught animal and was critical to the movement of people and goods in urban areas while also playing key roles in the military. Considerable changes have occurred in just the past 75 years. In 1939 there were 15 million horses in the US (which was a substantial decline from the 1920 peak of 26 million). It wasn't much later in 1945 that the use of tractor power actually exceeded that of horse power on the farm (1). Similar changes occurred in the urban areas with the adoption of the electric powered streetcar and in the military with the switch to mechanized warfare. The trend from 1939 onward was a long decline in the number of horses, reaching its lowest point of 3 million horses in 1960. Since then, the number of horses has been increasing slowly but steadily, primarily due to the increased popularity of equestrian sports. In 2005, in a survey conducted for the American Horse Council Foundation, it was estimated that there were a little over 9 million horses in the U.S. (2).

So, why the history lesson on the number of horses and the role they played and how that role has evolved over time? Because when the horse was so very economically important, a lot of research went into what to feed it and how to feed it. Much of what we know about feeding the horse that is based on empirical evidence had its origins in the formal research conducted at Agricultural Experiment Stations associated with land-grant institutions. Prior to the 1930's we knew that "...the production of pure-bred draft fillies....will be most satisfactory when good pastures and legume roughages form the basis of their rations." (3). We knew that horses should be "fed clean, fresh hay, ground oats and bran, and such green feed as the season affords", and that they should "have plenty of fresh water always accessible" (4). We knew that "the presence of moulds ...may even prove injurious or poisonous to the horses consuming it" (5) and that horses should be "kept in healthy condition, neither too fat nor too thin"(4) and hardworking horses needed extra calories but that you needed to be careful to not over feed too much grain at one feeding. It was known that "the capacity of the horse's stomach is small in comparison to his frame. He therefore requires to be fed frequently."(6) How and what to feed the horse was critically important in the past when the horse played a key role in the actual economic survival of so many people; today that is not the case.

During the early part of the past century most horses were draft horses used for work. More recently, most horses are light horses used for recreation or entertainment. In the past, most horses lived on farms with access (when not working) to pasture during the summer and feedstuffs from that same farm during the winter. More recently, most horses work less, live on much smaller acreage with either limited or no access to pasture and are meal-fed purchased feedstuffs, summer and winter. In the past, most people who owned horses had extensive agricultural experience and owned other livestock as well; today most horse owners do not.

These changes pose a challenge to today's horse owner. In response to that challenge, the current equine nutrition research focus has been on establishing a better understanding of the horse as it is used and managed today; taking into account the constraints of time, space and economics. We know more about the horse's anatomy, physiology and behavior. With advances

in scientific methodologies, we have an increased knowledge of the required nutrients, as well as the intricacies of nutrient digestion, absorption and metabolism. More and more research is being conducted on energy systems, nutrient interactions and individual amino acid requirements, especially as they relate to different types of horses at various physiological stages. Today we have adopted the routine use of feed analyses of vegetative pasture, harvested forages, alternative feedstuffs and cereal grains to help us formulate rations so that we are not relying on generalized nutrient profiles. We recognize the importance of supplementing minerals and fat soluble vitamins. We know that fat can be used efficiently and effectively by the horse as a source of energy. We know that how and when we provide feed to the horse is as critically important as what we feed. We have a much better understanding of nutrient-related metabolic disorders and how to manage the special needs horses. Empirically established horse nutrition information was summarized and made available in the first compilation of the National Research Council's "Recommended Nutrient Allowances for Horses" which was published in 1949. It has since been updated and revised numerous times; the latest or 7th edition was published in 2007.

In truth, it is not so much that today, our knowledge about the day to day feeding and care of the horse is so much more advanced than 75 years ago, as it is that we have a much better understanding of the scientific rationale behind the recommendations made 75 years ago. Even so, while there has always been and always will be horse owners that are willing to share their personal, anecdotal based opinions about feeding the horse, those opinions are not always supported by objective research results. Consequently, you can find both old and new texts, monographs, and articles about horse nutrition that contain erroneous information. It is not uncommon for the author to even acknowledge that their information may not be the best. For example E. B. White – President of the Percheron Society of America in 1917 stated that "I use only oats, bran and timothy hay for my stallion. Other feeds may be as good, and they may even be better, but I know from experience that these are both good and safe." (4).

Owning a horse today for many is a very personal and emotional investment that supersedes the economic imperatives of the past and therefore allows the horse owner to overlook objective guidelines if those guidelines are not in alignment with their personal experience and beliefs. Consequently, a reoccurring theme over the past 75 years has been that while there is a lot of empirically established horse nutrition information available, many horse owners either are not aware of it, or choose to ignore it. Overall, we know more than we did 75 years ago, but there is still so much we do not know. To fill the gaps in our knowledge and adjust as circumstances change, the need for on-going research continues as does the imperative obligation to convey that information to all horse owners while simultaneously encouraging them to use it.

(1) Gardner, Bruce L., American Agriculture in the Twentieth Century: How it Flourished and What it Cost, 2002. Harvard University Press, Cambridge, MA.

(2) American Horse Council Foundation National Economic Impact of the U.S. Horse Industry. 2005.

(3) Edmonds, J.L. and W. G. Kammlade. 1921. Feeding pure-bred draft fillies. University of Illinois Agricultural Experiment Station Bulletin No. 235.

(4) Sanders, A. H. 1917. A History of the Percheron Horse. Chicago Breeder's Gazette. Sanders Publishing Co.

(5) Fleming, G. LL.D., FRCVS (Principal Veterinary Surgeon of the Army) 1886. The Practical Horse Keeper. Cassell & Co. Ltd. New York.

(6) Fitzwygram, F. Sir., Lieut-General. 1911. Horses and Stables. Longmans, Green and Co. New York.

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