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Araştırma Makalesi

FEEDING PRACTICES FOR RACEHORSES IN TURKEY

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Türkiye'de Yarış Atları Beslenmesi ile İlgili Uygulamalar

Özet: Bu çalışmanın amacı, Türkiye'deki yarış atlarının pratikte beslenmesi, yemlerin çeşidi ve dengesi ve yem katkılarının kullanımı ve yarış öncesi yapılan ilave beslemelerin neler olduğunu tespit etmekti. Türkiye'deki yarış atlarının pratikte beslenmesi hakkında bilgi sahibi olmak için bir anket hazırlanarak at yetiştiricilerine gönderildi. Bunun dışında bir kısım anket ise kişisel görüşmeler ile tamamlandı. Posta ile gönderilen 50 adet anketin 20 tanesi üniversiteye geri döndü. Tamamlanan ve geçerli olan toplam anket sayısı 50 olarak belirlendi. Anket sonuçları at sahiplerinin at besleme konusunda oldukça bilinçli olduğunu gösterdi. Ankete katılan at sahiplerinin %90'ı atlarını protein konsantresi, vitamin-mineral karışımları ilave edilmiş tahıl ve kaba yeme dayalı rasyon ile beslerken, %10'u ticari olarak hazırlanmış yemleri kullandıklarını belirtmişlerdir. Ankete katılanların %45'inin enerji kaynağı olarak yulafı, %45'inin ise yulaf ve arpayı beraber kullandığı belirlendi. Kuru yonca kullanımı (%40) yulaf ve buğday otu kullanımından (%60) daha az olarak tespit edildi. Anket ayrıca yarış atlarının beslenmesinde mera ve silaj yemlemesinin oldukça sınırlı olduğunu gösterdi. Katılımcıların %90 vitamin-mineral karışımı kullandıklarını belirtmişlerdir.

Anahtar Kelimeler: At, yem, besin maddeleri

Summary: The aim of the survey was to obtain information on feeding practices, the type and balance of feeds and the use of nutritional additives and pre-race supplementation in racehorses in Turkey.

To have information about feeding practices of racehorses in Turkey, the questionnaires were prepared and some of them were mailed to horse owners and the others were completed by personal interview. The rate of mailed surveys returned through the mail was 40%. There were 50 surveys completed. Overall of the survey, horse owners were conscious about horse feeding. Ninety percent of surveyed horse owners fed horses with grain and hay based diets supplemented with protein concentrates and vitamin-mineral mixtures, only ten percent of them fed horses mixes/pelleted compound manufactured feeds as whole ration. Oat was the major energy source alone (%45) or together with barley (%45). The percentage of usage of alfalfa hay (40%) was less than oat and wheat hay (60%). The survey results indicated that the pasture and silage feeding was indeed limited (10%). Ninety percent of respondents reported that they supplemented diets with a general mineral and vitamin supplement.

Key Words: Horse, feed, nutrients

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Introduction

Horses require differing amounts of nutrients in their daily diets depending upon their nutritional class or status in life. Once a houseman understands the nutrient requirements of various classes of horses and he selects feeds to meet these requirements. There are numbers of considerations in feeding horses. Most of these considerations are based on the knowledge of a horse's nutrient requirements, eating behavior, and an understanding of the anatomy and physiology of the horse's digestive tract **(9).** The racehorse generally has a higher major nutrient requirement for energy, protein and minerals **(13).** This is influenced by the more intense training and increased frequency of race competition and size of the horse.

A number of surveys have been reviewed and published related to feeding racehorses in practice in other countries **(15, 6).** But no published information is available on the ways in which racehorses are being fed in Turkey. The goal of this survey is to provide information for feeding practices of racehorses in Turkey.

Materials and Methods

The survey reviewed in this paper was carried out by using a multiple choice question format. The survey questionnaire was designed to gather details of the types of feed used, the relative proportions and the use of dietary supplements. The survey was formatted to minimize the time required to complete the questions avoiding additional explanations.

The questionnaire was mailed out as 50 survey forms to horse owners. Potential clients or respondents were gathered from lists provided to the University by The Jokey Club of Turkey and a private feed company. Space was provided on the survey form for respondents to provide names and contacts. Attempts were made to contact respondents by phone if mailed surveys were not returned to the University. 20 questionnaires were returned and the other 30 questionnaire were completed by personal interview. There were 50 surveys completed.

Results and Discussion

Grain and Energy Concentrates

The data illustrated the widespread use of oats as the major source of energy in race diets. Yellow oat was the most preferable one (90% of respondents). With 50% of respondents of the 90% use oat and barley together. Barley is generally fed rolled or cooked. This is probably due to increase in small intestinal digestibility. The percentage of cracked corn to increase the energy density of rations was 10%. The use of wheat and lentil as an energy supplement in horses was also limited (10% of respondents). Contrary to other survey results, feeding with sorghum as an energy supplement in

horses was not common **(9).** As an energy source, corn oil was also used by horse owners (20% of respondents). Equine diets usually do not contain much fat, but in recent years the use of corn oil to increase the energy density of a meal has been used in horses undergoing intensive training programs **(8, 10).** As long as the diet is balanced for the additional fat, Vitamin E should be increased.

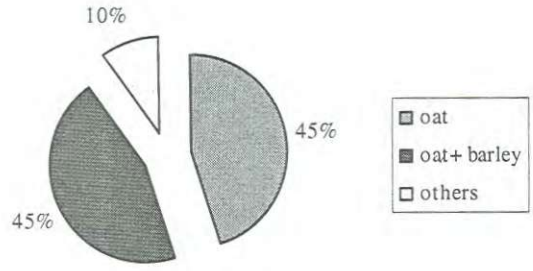

Figure 1: Percent (%) distribution of grains used in horse feeding
Şekil 1: At beslenmesinde kullanılan tane yemlerin % dağılımı

There are thought to be a number of advantages of Vitamin E including increased rate of fat mobilisation from the fat stores, glycogen sparing and better muscle glycogen utilisation during sprinting activities. The survey results indicated that horses in hard competition were commonly fed a competition coarse mix or pellet in addition to the grains (90 %).

Hay and Silages

A horse's digestive system is designed for digestion of forage (pasture/hay), which is the main focus of their diet. Grains and supplements are only secondary and should be provided for essential nutrients not present in appropriate amounts in forage. Through our survey, we found that most horse owners base the main diet of their horses on alfalfa (%40 of respondents) or oat/wheat hay (%60 of respondents) (Figure 3). The 3 most important criteria when purchasing hay, they indicated, are: mould free, dust free and protein.

Through observation, it was found that the pasture feeding was indeed limited. As in other countries a thoroughbred in race training is **(5, 6, 15)** likely to be kept in individual stalls and with little or no access to grazing. Thoroughbred racehorses tend to be stabled for very long periods, have limited access to grazing and are fed low forage/high cereal diets. This increases the risk of gastrointestinal disturbances **(12)** due to changes such as the lysis of certain bacteria releasing endotoxins which may be

absorbed, increasing the risk of colic, diarrhoea and laminitis (**4**) compared to horses of other breeds and disciplines. Therefore, the respondents were asked whether their horses had colic recently. 100% of the respondents reported that their horses were not experienced with colic. This data shows that horse owners are aware that forage is important for their horse health and 90% of respondents reported that the average concentrate to roughage ratios of diets of race horses were 55-60% concentrate to 40-45% roughage.

The survey also indicated that silages were not common in horse feeding than expected (10% of respondents, Figure 3). The horse owners indicated that microbial control showed that the

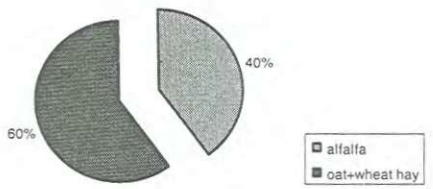

Figure 2: Percentages of forages used in horse feeding
Şekil 2: At beslemede kullanılan kaba yemlerin %'si.

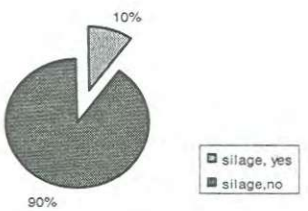

Figure 3: Silage usage (%)
Şekil 3: Silaj kullanımı (%)

amount of bacteria, moulds and yeasts in silages could be high leading to colic and diarrhea. Occasionally horses show watery or moist faeces and horse owners suggest

that this may be a problem associated with feeding silages. The addition of sugar beet pulp to the diet may help to reduce the problem. The contamination of cut grass or corn by soil is also a risk factor for occurrence of clostridium in silage **(16).** When all these risk factors are taken into account, it is obvious to limit of the using silages in horse feeding. However, grass and alfalfa silage offer the remarkable advantage **(2).** Corn silage is higher in energy than grass silage and it requires protein supplementation.

Protein Supplements

Generally, protein concentrates are used to make up low or imbalanced levels of quality protein sources that are deficient in cereal grains for horses. However, the use of alfalfa hay which in itself provides from 18-20% crude protein may have reflected the lower inclusion of protein concentrate feeds in rations as indicated in this survey. A total of 50% of respondents indicated that they included soybean meal to ration, 10% of respondents used linseed meal and the inclusion of these protein supplements to ration were between 100-500g. The rest of the horse owners did not respond to this question. The explanation could be that they realize excess protein is an unnecessary expense and is broken down and used for energy but may also be detrimental to athletic performance. For example, German research **(5)** with endurance horses has shown a negative effect on fluid balance when high protein diets were fed.

Supplement

The respondents were asked whether they ever used feed additives or supplements. A large proportion (95%) of respondents reported that they supplemented diets with a general mineral and vitamin supplement. This can sometimes lead to over supplementation of certain mineral and vitamins together with possible unknown interactions and interferences. The limitation of the questionnaire restricted the response to the actual amounts of supplements that were routinely used. The survey indicated the widespread use of mineral, vitamin and electrolyte supplements. Salt is often available as free-choice salt containing trace minerals in many horse's box and is often required to provide the Na and Cl necessary for the horse, especially those which sweat extensively and regularly. None of the respondents were aware that horses can balance only their sodium intake; they are not nutritionally wise about other minerals**.** Fifty percent of respondents did not give an answer for iron supplementation of race horses. Whereas race horses require a higher intake of iron to meet their needs and to replace elevated amounts of iron (23-25mg iron/L of sweat) **(9).** 60% of respondents used a vitamin B group and vitamin C supplement on a daily basis. The reason using vitamin C in daily basis is that research has suggested that oxidant/antioxidant imbalances may affect lung health. Recent ascorbic acid levels were found to be lower in the lung epithelial lining fluid of horses with chronic obstructive pulmonary disease and in the plasma of these horses compared to those of healthy horses **(3, 11).** Kirschvink et al. **(7)** suggests that feeding an appropriate antioxidant may modulate the oxidant/antioxidant balance and airway inflammation, thus improving lung function of horses in remission.

A large proportion of respondents (%90) reported use of electrolyte replacers, but the response to the question relating to content of the electrolyte (e.g. potassium, bicarbonate content) resulted in the rate of empty responses exceeding 80%. None of respondents indicated that they supplemented their horses with sodium bicarbonate. This may be cause of the restriction of usage of sodium bicarbonate by authorities due to negative effects on horse health and difficulties of application before the race **(1, 8).**

Carrots and apples are commonly given to horses as succulents. Seventy percent of the respondents in this survey said that they fed succulents.

Financial Circumstances

Contrast to other surveys published in other countries, all horse owners responded this section being aware of how much they spent for feed. The feed cost estimates varied and ranged from 1000 to 3000 YTL/year. Percentage distribution is given in Figure 4.

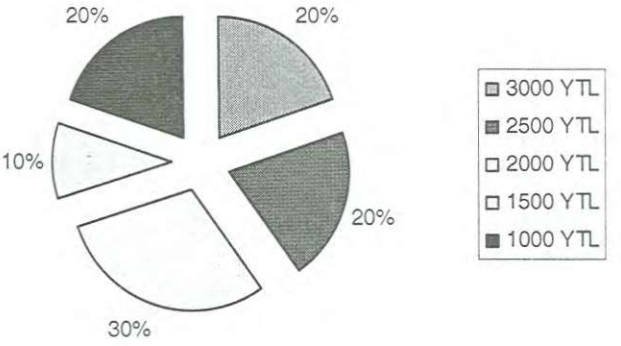

Figure 4: Percent distribution of feed costs (YTL/year)
Şekil 4: Yem harcamalarının % dağılımı(YTL/yıl)

Comparison with USA, UK and Germany

Alfalfa hay is commonly fed in the USA, but in UK and Germany it is not common as it tends to be imported. This means that its regular use is limited to some of the racehorses. However, alfalfa chaffs are increasingly fed as part of the diet often mixed with the concentrate portion. Seventy-four percent of the respondents in the survey fed chaff in UK **(6).** Chaff is commonly added to concentrate feed. Instead of chaff, oat and wheat hay are commonly used in Turkey. Due to unpredictable weather conditions; there has been an increase in the use of alternative forage sources haylage and silages in UK. But, similar to our results, silage feeding is only 3% of the 86% of

respondents that fed forage in one survey **(6).** Oats tend to be the major cereal fed to horses in Germany, as well as Turkey and other western countries. Contrary to results reported by Southwood et al. **(14),** showing crude protein intakes significantly higher than those published in the NRC (National Research Council). Our survey results indicated that energy and protein intakes were within the recommendations of the NRC guidelines.

Conclusion

This survey of feeding practices provided information on feed types and supplement usage of racehorses in Turkey in the year of 2004. The information provided by participants was sufficiently detailed to allow an overview of feeding practices. Although there is considerable variation in the management and feeding practices of the domestic horse across the world **(5),** feeding practices of racehorses in Turkey were consistent with the feeding practices in other countries.

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