

A Preliminary Investigation into Forage Dunking Behavior in Horses in the UK

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Abstract

Forage dunking refers to a horse collecting forage with its mouth, dunking it in a nearby water source, and eating the dampened forage as it normally would. It is primarily thought to function as a method to rehydrate the forage or is observed when dental pathology is present, though limited research has been undertaken into this specific behavior. This study aimed to determine the prevalence of forage dunking behavior in horses in the UK and potential relationships between the behavior, horse activity, or management practices. An online survey consisting of 20 closed-answer questions was distributed via social media for 3 weeks. Questions focused on horse demographics and their daily management practices, and the presence of forage dunking behavior. Likert scale statements were aimed at gaining further insight into potential influencing factors. A chi-square test of association was used to analyze the collected data. Based on 414 valid responses, a prevalence of 42.7% (n = 161) was reported for forage dunking. This was significantly ($P < 0.05$) higher in dressage horses (54.8%) compared to other disciplines (36.4–51.0%). Horses housed in American barns were also more likely ($P \leq 0.001$) to dunk their forage compared to horses housed in other stable designs. While 50.3% of owners reported that feeding dry forage increased forage dunking behavior compared with feeding soaked or steamed forage, soaking or steaming did not eliminate the behavior ($P > 0.05$). Of the 71 horses with reported health conditions, 46.5% (n = 33) were reported to dunk their forage, especially those with laryngeal hemiplegia (83.3%). Results from this study suggest that forage dunking may not only be used to rehydrate forage but may, in some way, be used to make the forage more acceptable or palatable to horses with respiratory disorders, particularly those with laryngeal hemiplegia. Forage dunking behavior was not eliminated by feeding soaked or steamed forage; thus, the reasons behind this activity need further investigation to determine if this behavior is beneficial or detrimental to equine health.

Keywords

Equine; forage dunking; prevalence; stabling; respiratory conditions

1. Introduction

Domesticated horses are fed conserved forages, hay, and haylage, as part of their diet to meet their nutrient, behavioral, and digestive health requirements, especially when grazing is limited [1]. Within the UK, the most popular forage fed is hay, which can be either from a mixed grass species sward and termed meadow hay or consist of single

ryegrass or timothy grass [2], referred to as seed hay. All hay is conserved by air drying in the field and must reach >85% dry matter (DM) to ensure good preservation. Good quality hay plus a balancer can supply a high proportion of the nutritional requirements for most leisure horses and, as such, is a highly valuable constituent of the daily ration. However, hay has been identified as one of the main sources of airborne respirable dust particles (ARDP) in the stable

environment, which can result in respiratory conditions such as equine asthma [3,4].

To combat this dust, horse owners may soak the hay to remove ARDP. Soaking the hay for 10–30 minutes has been shown to significantly ($P < 0.01$) reduce ARDP levels by up to 96% [5,6]. High-temperature steaming has also been shown to be highly effective at reducing ARDP while also conserving the nutritional profile of the forage, unlike soaking, which can leach out valuable nutrients [7]. Hay may also be soaked or steamed for longer periods (up to 16 hours) for the purpose of reducing the water-soluble carbohydrate (WSC) levels as part of equine weight loss management [8–11]. While it has been suggested that this loss of WSC as a result of soaking or steaming can result in a decreased palatability of the hay [12,13], no significant differences have been reported within preference tests [14,15].

Horses have also been reported to dunk their forage in their water buckets, typically referred to as "forage dunking" or "forage wetting" [16–20]. This behavior consists of the horse collecting forage with its mouth, proceeding to dunk it in its water source and then ingesting it as normal. While mention of forage dunking has been made in research papers, limited research has been undertaken to understand the prevalence or potential role of this behavior. It has been suggested [17] that this is a normal behavior that horses may use as an attempt to rehydrate and soften their forage, especially hay due to its higher DM content, making the forage easier to chew. As such, it is also feasible that this behavior may be used by stabled horses to reduce ARDP levels in their breathing zone [21] or could be associated with dental pathologies in horses due to the softer texture.

As no specific research has been undertaken into the prevalence of forage dunking as a behavior or its potential link with horse health, the aim of this study was to investigate the occurrence of forage dunking behavior in horses in the UK and to determine if any relationship existed between dunking behavior, horse health, or management practices.

2. Materials and Methods

A cross-sectional study design was selected to answer the study aims, using an online survey aimed at horse owners in the UK. Ethical approval was gained from the Hartpury University Ethics Committee (ETHICS2014-171-LR) before the start of the study.

2.1. Survey Design

An online, anonymous survey was created using Microsoft Forms (see **Supplementary Materials**). Prior to data collection, a pilot study was conducted to ensure the clarity and validity of the questions included within the survey. For the pilot study, the questionnaire was distributed to 10 horse owners with various backgrounds, and revisions were made prior to final administration.

The survey consisted of 20 closed-answer questions, including multiple-choice and Likert scale questions. The first part of the survey focused on collecting information on the respondent's horse, including age, breed, and discipline. Further questions focused on daily management practices, gaining information around the inclusion of forage in the

diet, weight management, respiratory health conditions, and stabling and turnout management. The second part of the survey focused on forage dunking behavior. Respondents were asked to identify whether their horse had shown forage dunking behavior. A definition of forage dunking was provided within the survey to ensure all respondents had an understanding of the behavior that was being referred to. Using branching within the survey, respondents were directed to a series of Likert scale statements if they indicated that their horse showed the behavior or if they were unsure. A total of 9 Likert scale statements, using a 5-point (1: strongly agree to 5: strongly disagree) scale [22], focused on potential influencing factors for forage dunking behavior. The use of a 5-point Likert scale is reported to be the most used scale in related research [22] and therefore was deemed most suitable for the purpose of this study.

2.2. Participants

The survey was aimed at horse owners and carers in the UK, aged 18 years and older. To record the prevalence of forage dunking behavior, the survey was aimed at owners of horses which did or did not display the behavior. An *a priori* sample size calculation with a confidence level of 95% and a 5% error margin determined that a minimum sample of 384 respondents was required, based on the number of horse owners registered in the UK [23].

2.3. Data Collection

The survey was distributed via social media platforms, including Facebook, Instagram, X, and LinkedIn between 11th–31st December 2024. Following an introduction to the aim of the study at the start of the survey, respondents were required to confirm that they were aged 18 years or older and that they consented to their data being used for the purpose of the study. Due to the anonymous nature of the survey, withdrawal of submitted responses was not possible. If the respondents left the survey prior to submitting their answers, no record of their responses was made.

2.4. Data Analysis

Data were entered into IBM SPSS for Social Sciences 29.0 for data analysis. Collected data consisted of nominal and ordinal variables, for which descriptive statistics, including frequencies and percentages, were determined. For prevalence estimations, forage dunking responses were recoded into binary variables (present / absent), with "unsure" responses treated as missing data. Prevalence estimates were accompanied by 95% confidence intervals.

Inferential analyses were conducted using chi-square tests of association to examine relationships between forage dunking behavior and management variables, and agreement with Likert-scale statements. For these analyses, the original three-category response format (yes / no / unsure) for forage dunking behavior was retained. Statistical significance was set at $P < 0.05$. For statistically significant associations, Cramer's V was determined as a measure of effect size.

3. Results

A total of 419 responses (with a margin of error of 5%) were received, of which 5 responses were removed. This included one response from a respondent who did not confirm consent or age and respondents including information for more

than one horse. Therefore, 414 responses were used for further analysis. Horses were of various breeds and ages. The most common breeds included Warmbloods (WB, 19.8%, $n = 82$), native pony breeds (14.7%, $n = 61$), crossbreeds (14.7%, $n = 61$), and Thoroughbreds (TB, 14.5%, $n = 60$). The majority of horses were aged between 5–19 years old (82.1%, $n = 340$) but ranged from <1 year old to 20+ years old. Horses were used for a range of disciplines, with leisure horses being most represented (37.9%, $n = 157$) (**Figure 1**).

3.1. Forage Dunking Prevalence

Of the 414 responses, 37 horse owners (8.9%) were unsure if their horse showed forage dunking behavior. Prevalence of forage dunking was calculated using the remaining 377 responses, of which 42.7% of horses ($n = 161$, CI = 37.7–47.7%) were reported to show forage dunking behavior.

No significant associations were found between forage dunking and horse breed ($\chi^2 = 15.223$, $df = 12$, $P = 0.229$) or between forage dunking and age ($\chi^2 = 7.094$, $df = 10$, $P = 0.717$). However, a significant association ($\chi^2 = 19.735$, $df = 8$, $P = 0.011$, Cramer's $V = 0.154$) did exist between the horse's discipline and forage dunking behavior (**Figure 1**). Forage dunking prevalence was highest in dressage horses (54.8%, CI = 36.3–73.4%) compared to the remaining disciplines. However, the majority of respondents with horses showing forage dunking (FD group, $n = 161$) and respondents unsure whether their horses showed this behavior (U group, $n = 37$) did not feel that exercise influenced forage dunking occurrence (47.2% ($n = 76$) and 54.1% ($n = 20$), respectively).

3.2. Association Between Forage Dunking and Management Practices

Horses were reported to be housed in a range of stable designs. The majority of horses were stabled in American barns (34.3%, $n = 142$) and open-facing stables (34.3%, $n = 142$) (**Figure 2**) and were predominantly provided with water using water buckets (72.0%, $n = 298$). A significant association ($\chi^2 = 25.787$, $df = 8$, $P = 0.001$, Cramer's $V = 0.176$) was found between forage dunking prevalence and stable design, whereby forage dunking was more prevalent in horses stabled in an American barn (53.4%, CI = 44.8–62.0%) compared to other stable designs. However, there was no significant association ($\chi^2 = 19.928$, $df = 16$, $P = 0.224$) between discipline and stable design. Bedding type was not found to be associated with forage dunking prevalence ($\chi^2 = 11.202$, $df = 10$, $P = 0.342$). The majority of FD group respondents (50.3%, $n = 81$) found their horse's stable to be wet, which they attributed to this behavior, compared to 24.3% ($n = 9$) of U group respondents.

The majority of horses (93.7%, $n = 388$) received hay and/or haylage as part of their diet, which was presented primarily on the floor (47.4%, $n = 184$) and/or in a hay net (62.1%, $n = 241$). 24.7% of horses ($n = 96$) received soaked forage and 5.4% ($n = 21$) of horses received steamed forage. The majority of forage was soaked or steamed for up to 2 hours (66.7%, $n = 78$). No significant association ($\chi^2 = 10.110$, $df = 8$, $P = 0.257$) existed between feeding soaked forage and the discipline of the horses. However, a significant association ($\chi^2 = 12.771$, $df = 4$, $P = 0.012$, Cramer's $V = 0.124$) did exist between the feeding of soaked or steamed forage and the prevalence of forage

dunking (**Figure 3**). While the majority of owners (FD group: 50.3%, $n = 81$; U group: 59.5%, $n = 22$) indicated agreement with the statement that feeding dry forage increased forage dunking in their horses, feeding soaked or steamed forage did not eliminate forage dunking behavior (**Figure 3**). In addition, 64% ($n = 104$) of FD group respondents and 43.2% ($n = 16$) of U group respondents disagreed that feeding soaked or steamed forage resulted in cleaner water containers. However, only 22.4% ($n = 36$) of FD group respondents and 21.6% ($n = 8$) of U group respondents believed their horse preferred soaked or steamed forage.

Turnout time ranged from up to 2 hours per day (9.2%, $n = 38$) to up to 24 hours per day (16.4%, $n = 68$), with the majority of horses receiving a minimum of 5 hours of turnout per day (79.2%, $n = 328$). A significant association ($\chi^2 = 17.562$, $df = 6$, $P = 0.007$, Cramer's $V = 0.146$) was found between forage dunking prevalence and turnout duration, whereby forage dunking prevalence was lowest in horses turned out for 24 hours per day (21.9%, CI = 11.5–32.2%) compared to shorter turnout durations.

3.3. Association Between Forage Dunking and Respiratory Conditions in Horses

A range of respiratory or airway health conditions were reported by respondents. In total, 71 horses were reported to have been diagnosed with laryngeal hemiplegia (8.5%, $n = 6$), equine asthma (73.2%, $n = 52$), and/or choke (31.0%, $n = 22$). Out of these, 33 horses (46.5%) were reported to show forage dunking behavior, whereas 5 owners (7.0%) were unsure if their horse showed this behavior. While 12 owners (16.9%) soaked their horse's forage and 4 owners (10.5%) steamed their horse's forage, 65.8% ($n = 25$) disagreed that soaking or steaming forage reduced the occurrence of forage dunking behavior.

A significant association ($\chi^2 = 6.676$, $df = 2$, $P = 0.036$, Cramer's $V = 0.127$) was determined between forage dunking and laryngeal hemiplegia, with 5 out of 6 horses with laryngeal hemiplegia also being reported to show forage dunking behavior. No significant ($P > 0.05$) associations were identified between forage dunking and other respiratory conditions.

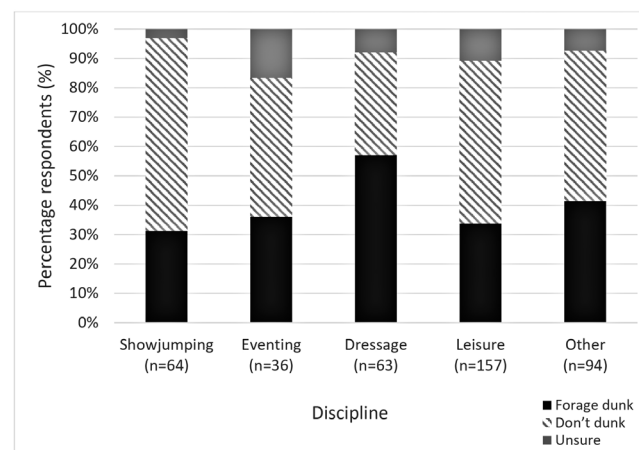


Figure 1: Distribution of horses showing forage dunking behavior across different disciplines ($N = 414$). Other disciplines included endurance ($n = 4$), racing ($n = 1$), carriage driving ($n = 3$), hunting ($n = 13$), and unspecified ($n = 73$).



Figure 2: Examples of (A) American barn stabling and (B) U-shaped stable block (photos: author's own).

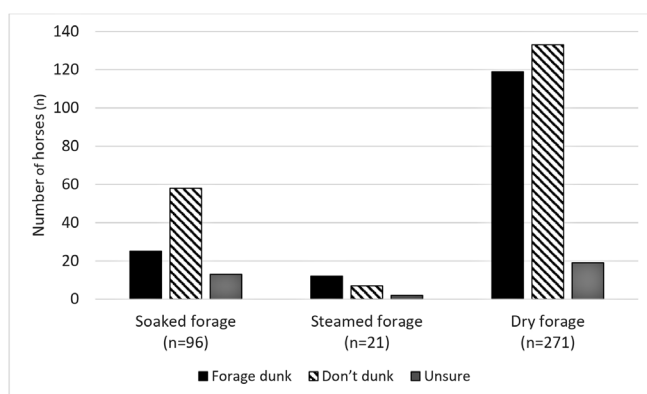


Figure 3: Significant ($\chi^2 = 12.771$, $P = 0.012$) association between forage dunking occurrence and soaked forage, steamed forage, and dry forage ($N = 414$).

4. Discussion

The identified prevalence of forage dunking behavior at 42.7% (CI: 37.7–47.4%) supports suggestions from early work that forage dunking should be considered as a normal behavior as it may serve a purpose for the horse [20]. The occurrence of this behavior in horses receiving hay may be interpreted as an attempt by the horse to rehydrate its hay [17], as hay typically has a higher DM content compared to natural forage due to the conservation process. As feed intake and feed selection in horses are influenced by somato-sensory stimuli such as taste and textures [13,24,25], forage dunking could result in a softer and more flexible structure, preferred by horses [26,27]. Indeed, in the current study, 50.3% of owners of a horse showing forage dunking behavior agreed that the frequency increased if dry forage was provided.

However, this study also found that horses receiving haylage, as well as steamed or soaked forage, still dunked their forage in their water. Both soaking and steaming of forage have been reported to increase the forage's moisture content, resulting in a softer texture [15,28,29]. Therefore, it would have been expected that soaking or steaming forage would reduce the occurrence of this behavior. It was therefore particularly of interest to note that while only 26.0% of horses receiving soaked forage dunked their forage, 57.1% of horses receiving steamed forage still dunked their forage. One aspect that was not considered within this study was whether the horses were already showing forage dunking

behavior before starting to receive soaked or steamed forage. Considering the potential purpose of this behavior, it may be hypothesized that this is a learned behavior to express their foraging and feed selection preferences [30], resulting in the horse continuing to express this behavior when forage with higher moisture content is provided.

In addition, the stable environment was identified as a potential factor influencing the occurrence of forage dunking behavior. Although a significant association ($P = 0.001$) was found between forage dunking and stable design, with 50% of horses stabled in American barns being reported to show this behavior, the effect size was small (Cramer's $V = 0.176$), indicating that additional factors are likely to contribute to this association. American barn stables have been associated with increased prevalence of inflammatory airway diseases due to the presence of ARDP as a result of the choice of bedding and forage [3,21,31]. As horses are obligate nasal breathers, being housed in environments with high ARDP levels can increase the horse's exposure to inflammatory airway diseases. While increasing ventilation can reduce the presence of ARDP, it has also been shown that soaking forage for 10–30 minutes can reduce the number of ARDP by up to 90% [7,10]. The number of horses in this study with reported respiratory conditions was comparable with the average prevalence in the UK (17.1%, $n = 71$), with 46.5% ($n = 33$) being reported to dunk their forage. As such, not only may dunking forage be an attempt by the horse to rehydrate its forage, but potentially also an attempt to reduce the dust in the forage. However, further research would be required to establish this.

It was of interest to note the significant ($P = 0.011$) association between forage dunking and discipline, with dressage horses more likely to show forage dunking behavior. However, stabling and use of soaked forage were not different ($P > 0.05$) for this discipline compared to other disciplines in this study, nor was breed found to be an influencing factor for forage dunking prevalence ($P > 0.05$). As this was an exploratory study, this should be considered carefully, as other factors could be underlying this association, as indicated by the small effect size.

While this study provides an initial investigation into forage dunking behavior, there are some limitations to the study that should be considered. Firstly, the survey relied

on owner self-reporting rather than direct observations of the behavior. Although a definition of the behavior was provided within the survey, variability in respondents' interpretation of the behavior may have influenced the reported prevalence. In addition, there was potential for owner recall bias to influence the results as well, suggesting further observational studies would be required. Secondly, although statistically significant associations were identified, the low Cramer's V values indicate small effect sizes. As such, these findings should be interpreted with caution, as additional variables are likely to influence the observed associations. Therefore, further research into the identified associations would be warranted.

5. Conclusion

This study has provided an initial insight into the behavior of forage dunking and potential influencing factors. To the authors' knowledge, this is the first study to report the prevalence of forage dunking in horses. The results from this study suggest that this behavior may be associated with management factors such as stabling and feeding of forages. This could indicate that this behavior may perform an, as yet undefined, function for some horses, such as increasing the hydration of the forage. However, as some horses still show this behavior while receiving soaked or steamed forage, this may suggest that forage dunking could be a learned behavior which is continued after management practices are amended. Therefore, further research into factors such as the influence that forage dunking has on water intake, ARDP levels in the stable environment, and palatability of forages is warranted.

Supplementary Materials

The **Supplementary Materials** include the full online survey used in this study.

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Authors' Contribution

H.B.: Conceptualization, Methodology, Validation, Formal analysis, Resources, Visualization, Writing – original draft, Writing – review & editing, Supervision. K.L.: Conceptualization, Methodology, Validation, Writing – original draft, Writing – review & editing. All authors have read and agreed to the published version of the manuscript.

Data Availability

The data supporting the findings of this study are available upon request from the corresponding author.

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No funding was received for this research project.

Conflicts of Interest

The authors declare that there are no conflicts of interest

Ethical Approval

This study received ethical approval from Hartpury University Ethics Committee (ETHICS2014-171-LR). The study complied with the guidelines of the Declaration of Helsinki.

References

- [1] Harris PA, Ellis AD, Fradinho MJ, Jansson A, Julliard V, Luthersson N, et al. Review: Feeding conserved forage to horses: recent advances and recommendations. *Animal* 2017;11:958–67. <https://doi.org/10.1017/S1751731116002469>.
- [2] Gilliland TJ, Johnston J, Connolly C. A review of forage grass and clover seed use in Northern Ireland, UK between 1980 and 2004. *Grass and Forage Science* 2007;62:239–54. <https://doi.org/10.1111/j.1365-2494.2007.00588.x>.
- [3] Ivester KM, Smith K, Moore GE, Zimmerman NJ, Couëtill LL. Variability in particulate concentrations in a horse training barn over time. *Equine Veterinary Journal* 2012;44:51–6. <https://doi.org/10.1111/j.2042-3306.2012.00647.x>.
- [4] Olave CJ, Ivester KM, Couëtill LL, Franco-Marmolejo J, Mukhopadhyay A, Robinson JP, et al. Effects of forages, dust exposure and proresolving lipids on airway inflammation in horses. *American Journal of Veterinary Research* 2022;83:153–61. <https://doi.org/10.2460/ajvr.21.08.0126>.
- [5] Blackman M, Moore-Colyer MJS. Hay for horses: the effects of three different wetting treatments on dust and nutrient content. *Animal Science* 1998;66:745–50. <https://doi.org/10.1017/S135772980009334>.
- [6] Clements JM, Pirie RS. Respirable dust concentrations in equine stables. Part 2: The benefits of soaking hay and optimising the environment in a neighbouring stable. *Research in Veterinary Science* 2007;83:263–8. <https://doi.org/10.1016/j.rvsc.2006.12.003>.
- [7] Moore-Colyer MJS. Effects of soaking hay fodder for horses on dust and mineral content. *Animal Science* 1996;63:337–42. <https://doi.org/10.1017/S1357729800014892>.
- [8] Longland AC, Barfoot C, Harris PA. Effects of soaking on the water-soluble carbohydrate and crude protein content of hay. *Veterinary Record* 2011;168:618–618. <https://doi.org/10.1136/vr.d157>.
- [9] Longland AC, Barfoot C, Harris PA. The loss of water-soluble carbohydrate and soluble protein from nine different Hays soaked in water for up to 16 hours. *Journal of Equine Veterinary Science* 2009;29:383–4. <https://doi.org/10.1016/j.jevs.2009.04.085>.
- [10] Moore-Colyer MJS, Lumbis K, Longland A, Harris P. The effect of five different wetting treatments on the nutrient content and microbial concentration in hay for horses. *PLoS ONE* 2014;9:e114079. <https://doi.org/10.1371/journal.pone.0114079>.
- [11] Müller CE, Nostell K, Bröjer J. Methods for reduction of water soluble carbohydrate content in grass forages for horses. *Livestock Science* 2016;186:46–52. <https://doi.org/10.1016/j.livsci.2015.06.011>.
- [12] Merckies K, Bogart E. Discrimination of sour and sweet solutions by mature horses. *Journal of Equine Veterinary Science* 2013;33:330–1. <https://doi.org/10.1016/j.jevs.2013.03.032>.
- [13] van den Berg M, Giagos V, Lee C, Brown WY, Cawdell-Smith AJ, Hinch GN. The influence of odour, taste and nutrients on feeding behaviour and food preferences in horses. *Applied Animal Behaviour Science* 2016;184:41–50. <https://doi.org/10.1016/j.applanim.2016.08.015>.

- [14] Oberlin C, Hay K, Pyles M. 62 feeding steamed or soaked hay affects water intake and preference compared to dry hay. *Journal of Equine Veterinary Science* 2023;124:104364. <https://doi.org/10.1016/j.jevs.2023.104364>.
- [15] Owens TG, Barnes M, Gargano VM, Julien L, Mansilla WD, Devries TJ, et al. Nutrient content changes from steaming or soaking timothy-alfalfa hay: effects on feed preferences and acute glycemic response in Standardbred racehorses1. *Journal of Animal Science* 2019;97:4199–207. <https://doi.org/10.1093/jas/skz252>.
- [16] Dickson EC, Kayser WC, Latham CM, Leatherwood JL, Daigle CL, White SH. Evaluating equine feeding behavior utilizing GrowSafe Systems: a pilot study1. *Translational Animal Science* 2019;3:288–94. <https://doi.org/10.1093/tas/txz002>.
- [17] Houpt KA. Mastication and feeding in horses. *Feeding in Domestic Vertebrates: From Structure to Behaviour* 2006:195–209. <https://doi.org/10.1079/9781845930639.0195>.
- [18] McBane S. Building a five-star relationship with your horse. CRC Press; 2024. <https://doi.org/10.1201/9781003396376>.
- [19] McDonnell SM, Freeman DA, Cymbaluk NF, Schott HC, Hinchcliff K, Kyle B. Behavior of stabled horses provided continuous or intermittent access to drinking water. *American Journal of Veterinary Research* 1999;60:1451–6. <https://doi.org/10.2460/ajvr.1999.60.11.1451>.
- [20] Waring GH. Behavioral adaptation of feeding in horses. *Journal of Animal Science* 1974;39:137.
- [21] Auger E-J, Moore-Colyer MJS. The effect of management regime on airborne respirable dust concentrations in two different types of horse stable design. *Journal of Equine Veterinary Science* 2017;51:105–9. <https://doi.org/10.1016/j.jevs.2016.12.007>.
- [22] Kusmaryono I, Wijayanti D, Maharani HR. Number of response options, reliability, validity, and potential bias in the use of the Likert scale education and social science research: a literature review. *International Journal of Educational Methodology* 2022;8:625–37. <https://doi.org/10.12973/ijem.8.4.625>.
- [23] National Equestrian survey 2023. Wetherby: British Equestrian Trade Association (BETA); 2023.
- [24] Dulphy JP, Martin-Rosset W, Dubroeuq H, Ballet JM, Detour A, Jailler M. Compared feeding patterns in ad libitum intake of dry forages by horses and sheep. *Livestock Production Science* 1997;52:49–56. [https://doi.org/10.1016/S0301-6226\(97\)00113-9](https://doi.org/10.1016/S0301-6226(97)00113-9).
- [25] Ellis AD. Biological basis of behaviour in relation to nutrition and feed intake in horses. *The Impact of Nutrition on the Health and Welfare of Horses*, The Netherlands: Wageningen Academic; 2010, p. 51–74. https://doi.org/10.3920/978-90-8686-711-0_012.
- [26] Holzer S, Herholz C, Tanadini LG, Ineichen S, Julliard S. Hay preferences in horses versus selection by their owners. *Livestock Science* 2022;258:104896. <https://doi.org/10.1016/j.livsci.2022.104896>.
- [27] Müller CE, Udén P. Preference of horses for grass conserved as hay, haylage or silage. *Animal Feed Science and Technology* 2007;132:66–78. <https://doi.org/10.1016/j.anifeedsci.2006.02.013>.
- [28] Earing JE, Hathaway MR, Sheaffer CC, Hetchler BP, Jacobson LD, Paulson JC, et al. Effect of hay steaming on forage nutritive values and dry matter intake by horses1. *Journal of Animal Science* 2013;91:5813–20. <https://doi.org/10.2527/jas.2013-6333>.
- [29] Martinson K, Jung H, Hathaway M, Sheaffer C. The effect of soaking on carbohydrate removal and dry matter loss in orchardgrass and alfalfa Hays. *Journal of Equine Veterinary Science* 2012;32:332–8. <https://doi.org/10.1016/j.jevs.2011.11.009>.
- [30] Cooper JJ, Albentosa MJ. Behavioural adaptation in the domestic horse: potential role of apparently abnormal responses including stereotypic behaviour. *Livestock Production Science* 2005;92:177–82. <https://doi.org/10.1016/j.livprodsci.2004.11.017>.
- [31] Hotchkiss JW, Reid SWJ, Christley RM. A survey of horse owners in Great Britain regarding horses in their care. Part 2: Risk factors for recurrent airway obstruction. *Equine Veterinary Journal* 2007;39:301–8. <https://doi.org/10.2746/042516407x180129>.

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