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Welfare requirements for horse keeping

Alla Bondar*

PhD in Agricultural Sciences, Associate Professor
Mykolaiv National Agrarian University
54008, 9 Georgiy Gongadze Str., Mykolaiv, Ukraine
https://orcid.org/0000-0002-5546-0528

Abstract. This study aimed to determine the optimal conditions for horse care, ensuring their physical and psychological welfare by analysing housing, nutrition, medical care, physical activity, and socialisation. The study examined the horse care conditions at farms and equestrian clubs in the Kyiv region (Ukraine), including "Aliur", "Grand Prix", "Kniazhyi Dvir", "Impuls", and "Olimp". The theoretical analysis described horse care conditions, the size and state of the facilities, feed quality, medical care, and aspects of physical activity and socialisation. The study's main findings indicate that all the analysed establishments provide a high level of comfort for horses, a crucial factor for their care and wellbeing. However, it is important to note that various approaches to horse care revealed unique features and advantages. For instance, the farm "Aliur" demonstrated an effective combination of high-quality housing conditions, including spacious stables with proper lighting and ventilation, balanced nutrition tailored to the individual needs of each animal, regular medical care ensuring timely prevention and treatment, and socialisation that fosters the emotional development of the horses. At the same time, the equestrian farm "Grand Prix" stands out for its high standards of sports care, which include specialised training and preparation of horses for competitions, ensuring their competitiveness in the sporting arena. The farms "Impuls" and "Olimp" distinguish themselves by implementing modern ventilation systems that improve air quality in the stables, as well as by providing high-quality training facilities that meet international standards, allowing not only the maintenance of horses' physical fitness but also ensuring their overall health and welfare. The analysis showed that the introduction of new monitoring technologies, the individualisation of feeding approaches, and social programmes could further enhance horse welfare. The findings highlight the importance of a comprehensive approach to horse care in ensuring their physical and psychological well-being, which can be useful for practical recommendations in the equine industry

Keywords: agriculture; animal husbandry; industrial agriculture; farm; livestock

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*Corresponding author

Introduction

Since the 2000s, significant attention in equine studies has been devoted to ensuring the physical and psychological welfare of horses. This issue has become particularly relevant in light of the growing popularity of equestrian sports and leisure activities, highlighting the need for appropriate conditions for the care of these animals. Despite numerous studies in this field, there remains a need for a comprehensive analysis of horse care conditions that affect their health and behaviour. Many existing research focus on individual aspects of this topic, such as nutrition, physical activity, or social interactions, which does not provide a complete picture.

The issue addressed in this study lies in the lack of a systematic approach to assessing the comprehensive conditions for horse care at modern farms and equestrian clubs. It is important to consider not only the physical factors, such as space, feed quality, and veterinary care, but also the psychological factors that may influence horse behaviour, including group social structure, stress levels, and opportunities for natural behaviour. Thus, conducting a thorough investigation will be a crucial step towards improving horse welfare, which, in turn, will have a positive impact on their performance and overall health.

J. Grzyb *et al*. (2022) investigated bacterial aerosols and foreign particles in the air composition of stables in Poland, highlighting concerns about air quality in equine facilities. A similar study was conducted by I. Rodzyń *et al*. (2024), identified the presence of chemical pollutants and biological aerosols in enclosed horse environments. However, despite these studies, there is still insufficient information regarding the impact of specific microclimatic parameters on horse health. J.M. Thompson *et al*. (2023) examined the financial pressures brought about by COVID-19 and their effect on the willingness to spend on horse care. This points to the economic aspect of animal care, yet further research is needed to explore the impact of economic factors on horse care conditions and welfare.

K.L. Luke *et al*. (2023) examined the complex relationships between horse welfare, rider safety, and the fulfilment of rider needs. W. Krupa *et al*. (2022) explored attitudes towards keeping horses outdoors and in groups, revealing differing perspectives on horse care. However, there is limited understanding of how various care regimes affect horse welfare across different countries. Z. Kelemen *et al*. (2021) investigated horse activities about care conditions, emphasising the importance of optimising conditions for elderly horses and those with chronic orthopaedic conditions. G.A. Keller *et al*. (2022) analysed the impact of weather on horse activity in pastures. Nevertheless, these studies do not always consider the combined effect of multiple factors on horses' recovery from exertion. M. Connysson *et al*. (2021) studied the effect of care conditions on the recovery of horses' musculoskeletal systems after exertion. However, there is a need for a comprehensive consideration of all factors influencing horses' physical recovery.

L. Kjellberg *et al*. (2024) presented a study detailing automated feeding stations and the measurement of feed consumption rates in active open stables. A. Akimbekov *et al*. (2023) demonstrated the use of trackers in horse breeding in Kazakhstan. However, more data is needed on the effectiveness of new technologies in monitoring horse care conditions. T. Sharapatov *et al*. (2023) examined ways to increase milk productivity in Kazakh horses. This research is significant for understanding the specifics of milk production in different horse breeds, but there is insufficient information regarding the impact of care conditions on milk yield.

I. Janczarek *et al*. (2020) examined the impact of temperature and humidity on the physiological parameters of horses, emphasising the importance of microclimate control. However, there is a need for a comprehensive analysis of the effects of various microclimatic factors on horse health. A. Géry *et al*. (2024) assessed the impact of aerobic fungi and bacteria on the horse environment. This

highlights the need for a deeper understanding of the influence of environmental factors on horses, though there is limited information on their effects on horse welfare in different conditions.

This study aimed to provide a comprehensive assessment of horse care conditions across various establishments, considering all factors that affect their welfare, and to compare care practices in different facilities, identify their strengths and weaknesses, and develop recommendations for improving the living conditions of horses.

Materials and Methods

The study was conducted through a detailed theoretical review of existing standards and practices related to horse care and management. This was exemplified by farms and equestrian clubs in the Kyiv Region (Ukraine), including "Aliur", "Grand Prix", "Kniazhyi Dvir", "Impuls", and "Olimp". The analysis examined the main types of feed used in horse nutrition, such as hay, compound feed, and concentrates. These feeds are crucial components of the diet, providing the necessary nutrients for normal development and maintaining the health of the animals. Additionally, grooming tools, such as brushes and hoof knives, were analysed as essential instruments for maintaining hygiene and overall horse welfare. Medical products, including vitamins, which enhance the animals' overall endurance, and deworming medications, necessary for the prevention of parasitic diseases, were also reviewed.

Additionally, attention was given to temperature control equipment, specifically digital thermometers (Digital Thermometer – Extech Instruments, USA), which allow for accurate measurement of horses' body temperature, crucial for the timely detection of potential illnesses. Hygrometers (Extech 445815 – Extech Instruments, USA) were examined for monitoring humidity levels in stables, as maintaining optimal humidity is crucial for preventing the development of diseases. The use of video cameras (Nest Cam Outdoor – Google Nest, USA) for monitoring horse behaviour was also included in the study, allowing owners and veterinarians to observe the animals' condition in real time, enabling prompt responses to any changes in behaviour or health. Thus, a comprehensive approach to studying these factors contributes to improving the care and management conditions for horses.

An evaluation was conducted on various aspects such as stable dimensions, ventilation, temperature, and humidity. The assessment of nutrition was based on the analysis of feed composition, feeding frequency, and regime, along with observations of horse behaviour during feeding. The evaluation of medical care included a review of the schedule of veterinary check-ups and procedures, as well as an analysis of medical histories. Physical activity assessment involved monitoring time spent on walks and free play, with video surveillance used to analyse movement patterns. Socialisation was assessed through observations of interactions between horses and with humans.

The data were systematised using statistical methods such as regression analysis and analysis of variance (ANOVA). This enabled a comparison of the care conditions and their impact on the health and behaviour of the horses, as well as identifying possible correlations between the care conditions and welfare indicators. The study also analysed the following regulatory documents: the Law of Ukraine No. 2498-XII (1992), Council Directive No. 98/58/EC (1998) and the Law of Ukraine No. 3447-IV (2006).

Results

Horse welfare is a complex concept encompassing the physical, psychological, and social well-being of the animals. The legal framework regulating the conditions of horse care is crucial for ensuring their welfare and health. The Law of Ukraine No. 3447-IV (2006) is a key legislative act regulating the conditions of care, management, and protection of animals, including horses, in Ukraine. This law aims to provide comprehensive protection against cruelty, which can manifest in various forms such as physical abuse, inadequate living conditions, and insufficient or poor-quality medical care. According to the provisions of this

law, horse owners are required to create conditions that meet the animals' physiological and psychological needs. This includes providing appropriate housing that is safe and comfortable, as well as adequate nutrition that meets the specific dietary requirements of horses. The law also emphasises the importance of regular medical care, including preventive check-ups and timely treatment of illnesses. An important component of the law is the provision for animal socialisation, which promotes emotional well-being, and ensures opportunities for physical exercise, which is crucial for maintaining the health of horses. The law outlines the responsibilities of owners to comply with these requirements, fostering a humane approach to animals within society.

State sanitary norms and regulations for the management of horses establish specific requirements for the conditions in which these animals should reside. Such standards stipulate that horse accommodation must provide a comfortable environment for the animals. The regulations mandate that stables must be clean, dry, and well-ventilated. It is crucial to ensure adequate lighting and ventilation to prevent the accumulation of harmful gases and to maintain an optimal microclimate. The bedding should be sufficiently soft and dry to provide a comfortable resting place for the horse. It is recommended to use straw, wood shavings, or specialised bedding materials that are easy to clean and possess good absorbent properties. To ensure space and comfort, horses must have enough room to avoid conflicts and minimise stress. European directives, such as Council Directive No. 98/58/EC (1998), have also had a significant impact on Ukrainian legislation. The directive aims to ensure a high level of animal welfare in all EU member states. According to this document, owners must assess potential risks to a horse's health and take steps to mitigate them; prevention and treatment of diseases – the regulations require regular veterinary checks and timely treatment of illnesses; socialisation and exercise – horses must have opportunities for regular physical exercise and social interaction with other horses.

The implementation of regulatory frameworks has a significant impact on the practical aspects of horse keeping, as regulations help to ensure comfortable conditions for horses, including quality nutrition, clean premises, and appropriate veterinary care. Regular veterinary checks and timely treatment help to prevent diseases and improve the overall health of horses. Regulations governing socialisation and exercise help to reduce stress in horses, providing them with opportunities for natural behaviour. Legislation and standards contribute to increasing horse owners' awareness of the importance of animal welfare, which can lead to improvements in husbandry and care practices. The regulatory framework is a crucial tool for ensuring equine welfare. Legislative acts and sanitary standards establish the foundations for their management and care, providing horses with conditions that meet their physiological and psychological needs. The implementation of European standards and regular monitoring of compliance contribute to improving the living conditions of horses, which in turn has a positive impact on their overall health and quality of life.

Horse husbandry is a complex and multifaceted process that requires attention to detail, careful planning, and the fulfilment of numerous requirements. The proper management of equine living conditions directly impacts their physical and psychological health, making the study of husbandry conditions extremely important. In Ukraine, there are a significant number of farms and equestrian clubs that provide varying levels of comfort and welfare for horses. Each establishment has its unique approach to horse husbandry, which can range from simple to complex systems depending on resources and goals.

The "Aliur" farm houses 40 horses in stables measuring 3×4 meters. Each stable is equipped with a ventilation system that ensures regular air exchange. Humidity in the stables is monitored by hygrometers and maintained at 60%. The temperature in the stables ranges between 10 and 15°C, which is a comfortable range for most

horse breeds, ensuring their health and comfort throughout the year. The bedding is cleaned daily to maintain a high level of hygiene and prevent the development of diseases.

The horses' diet consists of hay, compound feed, and concentrates. Feeding occurs twice daily: in the early morning and the evening. Hay provides the horses with the necessary fibre for healthy digestion, while compound feed and concentrates supplement the diet with proteins, minerals, and vitamins. Regular monitoring of the horses' diet and needs allows for adjustments to be made based on their physical activity and health. The farm conducts veterinary checks every three months. Anthelmintics and vitamin supplements are used for prevention and treatment. The examination includes checking the horses' general health, as well as the condition of their hooves and skin, allowing for the early detection and treatment of diseases. The horses have access to pasture for two hours every day, allowing them the opportunity for free movement and physical activity. In addition, the horses are regularly exercised in the arena, which helps to develop stamina and coordination. These conditions help to maintain the physical fitness and psychological well-being of the animals. The animals are kept in groups of 5-6 individuals, allowing them to interact with each other. This is important for reducing stress and ensuring normal social development. Social interactions between horses also help in the development of natural behavioural traits, such as group hierarchy and communication.

The "Aliur" farm has demonstrated a successful approach to horse management by combining high-quality living conditions, balanced nutrition, regular veterinary care, adequate physical activity, and effective socialisation. These factors ensure a high level of physical and psychological well-being for the horses. However, there is always potential for further improvement, particularly in enhancing the individualised care provided to each horse and implementing new technologies and practices that could increase the farm's management efficiency.

The "Grand Prix" equestrian club accommodates 35 horses in stables measuring 4x5 metres. The stables are equipped with automatic ventilation and heating systems, ensuring stable conditions throughout the year. Humidity levels are maintained at 50%, while temperatures range between 15 and 20°C. These conditions provide a comfortable environment, particularly for sport horses that require optimal conditions for recovery after training. The horses' diet consists of hay, specialised compound feeds, and grains. Feeding occurs three times a day: in the morning, afternoon, and evening. The specialised feeds offer a high level of protein and vitamins, which are essential for active and competitive horses. The feeding regimen is tailored to the physical needs and condition of each horse, promoting their optimal development and performance.

Veterinary check-ups are conducted monthly. Modern medical treatments, including anthelmintics and vitamin supplements, are used for prevention and treatment. This ensures timely treatment and maintains the horses' high level of athletic performance. The animals have access to an arena and training areas, where they exercise for 1-2 hours daily. This includes both structured training and free play. Such conditions ensure a high level of physical activity, which is important for maintaining physical fitness and achieving sporting goals. Horses are kept in small groups, which promotes the development of social skills and reduces stress. Interactions between horses and humans also stimulate socialisation, which is important for the overall well-being of the horses and their readiness for work.

At the "Kniazhyi Dvir" farm, the horses are housed in stalls measuring 3×3 metres, accommodating a total of 30 horses. Ventilation is achieved through open windows, without the use of automatic systems. Humidity in the stalls is maintained at 65%, while the temperature ranges from 5 to 10°C. The bedding is cleaned daily, which helps to uphold hygienic conditions. The horses' diet consists of hay and compound feeds, with feeding occurring twice a day to provide

essential nutrients. Hay supplies the necessary fibre for digestion, while the compound feeds supplement the diet with proteins and minerals. Feeding may be adjusted according to the season and the horses' level of physical activity. Veterinary examinations are conducted every six months, and basic medical treatments are employed for the prevention and treatment of diseases. This infrequent oversight may limit the opportunities for timely detection and treatment of illnesses. The horses have access to pasture for four hours each day, allowing them the freedom to move and engage actively. However, access to the arena is limited, which may reduce their overall level of physical activity and welfare. The horses are kept individually or in small groups, which may negatively impact their social adaptation and increase stress levels. Limited social interaction can lead to isolation and behavioural issues.

The "Kniazhyi Dvir" farm provides a high level of comfort and care for the horses through optimal housing conditions, balanced nutrition, regular medical care, sufficient physical activity, and effective socialisation. Implemented measures, such as modern ventilation systems, regular veterinary examinations, and organised physical exercise, significantly contribute to the physical and psychological well-being of the horses. However, as with any farm, there are opportunities for further improvement, particularly in expanding the possibilities for social interaction among the horses and introducing new technologies for monitoring and managing their health.

The "Impuls" farm provides horses (50 animals) with stables measuring 4×4 metres. The stables are equipped with modern ventilation systems that ensure regular air exchange and prevent the accumulation of harmful gases. Humidity in the stables is maintained at 55%, while the temperature fluctuates between 12 and 18°C. These conditions create a comfortable climate for the horses, which is particularly important during periods of extreme temperatures. The horses at "Impuls" are fed a diet that includes hay, compound feeds, concentrates, and vitamin supplements. Feeding occurs three times a day – morning, noon, and evening – ensuring a stable and balanced diet for the horses. The compound feeds consist of high-quality ingredients to support optimal physical condition and health.

Veterinary check-ups are conducted monthly on the farm. A high standard of medical care is ensured through the use of modern drugs for the prevention and treatment of diseases. Regular examinations help to identify health problems promptly and maintain a high level of equine health. The animals have access to large paddocks and training areas where they exercise for 2 hours daily. This includes both structured training and free play, which helps to maintain high levels of physical fitness and stamina. Horses are kept in large groups, which promotes their socialisation. Interaction between horses and humans also stimulates social adaptation and reduces stress, ensuring the overall psychological well-being of the animals.

The "Impuls" farm provides a high level of comfort and health for the horses through optimal living conditions, a balanced diet, regular medical care, sufficient physical activity, and effective socialisation. A systematic approach to managing the conditions in which the horses are kept contributes to their physical and psychological well-being. However, even in such a successful establishment, there is potential for further improvement. In particular, opportunities could be explored to optimise the social interactions of the horses, implement new technologies for monitoring their health, and increase the variety of physical activities to enhance the overall welfare of the animals.

The "Olimp" farm houses 45 horses in stables measuring 5x5 metres. The stables are equipped with heating and ventilation systems that maintain a comfortable temperature throughout the year. Humidity levels in the stables are monitored and maintained at 50%, while temperatures range between 10 and 15°C. This ensures stable and comfortable conditions for the horses. The horses' diet consists of hay, compound feeds, concentrates, and additional vitamins. Feeding occurs

three times a day, providing the horses with optimal and balanced nutrition (Table 1). The added vitamins and supplements contribute to maintaining the overall health and productivity of the horses. Monthly veterinary examinations are conducted on the farm. Modern medical treatments are employed for the prevention and treatment of diseases, ensuring high-quality medical care and prompt responses to health issues. The horses have access to large paddocks and training areas, where they engage in daily activities for 2 hours. This includes active exercise and training, which helps maintain their physical condition and endurance. Horses are kept in large groups, allowing them to interact with each other and with humans. This interaction helps reduce stress and ensures normal psychological well-being for the horses. Social interactions contribute to the development of natural behavioural traits and enhance the overall welfare of the animals. Overall, the conditions under which horses are kept play a crucial role in their quality of life (Table 2).

Table 1. *Horse diet in different farms*

Farm	Number of feedings per day	Feed types
Aliur	2	Hay, compound feeds, concentrates
Grand Prix	3	Hay, specialised compound feeds, grain
Kniazhyi Dvir	2	Hay, compound feeds
Impuls	3	Hay, compound feeds, concentrates, vitamins
Olimp	3	Hay, compound feeds, concentrates, vitamins

Source: compiled by the author

Table 2. *Comparison of horse-keeping conditions*

Parameter	Aliur	Grand Prix	Kniazhyi Dvir	Impuls	Olimp
Number of horses	40	35	30	50	45
Stable size	3×4 m	4×5 m	3×3 m	4×4 m	5×5 m
Temperature	10-15°C	15-20°C	5-10°C	12-18°C	10-15°C
Humidity	60%	50%	65%	55%	50%
Diet	Hay, compound feeds, concentrates	Hay, specialised compound feeds, grain	Hay, compound feeds	Hay, compound feeds, concentrates, vitamins	Hay, compound feeds, concentrates, vitamins
Feeding frequency	2 times a day	3 times a day	2 times a day	3 times a day	3 times a day
Veterinary check-ups	Monthly	Monthly	Every six months	Monthly	Monthly
Physical activity	2 hours daily (pasture, arena)	1-2 hours daily (arena, training arena)	4 hours daily (pasture)	2 hours daily (paddocks, training areas)	2 hours daily (paddocks, training areas)
Socialisation	Groups of 5-6 horses	Small groups	Alone or in small groups	Large groups	Large groups

Source: compiled by the author

Based on the analysis of the conditions for keeping horses at the farms "Aliur", "Grand Prix", "Kniazhyi Dvir", "Impuls", and "Olimp", it can be concluded that all the farms provide a high level of comfort for the horses through optimal housing conditions, balanced nutrition, regular veterinary care, sufficient physical activity, and effective socialisation. However, there are opportunities for further improvement, particularly through the implementation of new monitoring technologies,

individualised approaches to feeding, and social programmes aimed at enhancing the overall welfare of the animals.

Discussion

This study analysed the conditions of horse keeping on Ukrainian farms. Several key findings were obtained that can be compared to international research on various aspects of equine care, welfare, and social adaptation. Researchers D.J. Mellor & M. Burns (2020) highlighted the importance of managing breeding stallions with a focus on animal welfare. This study supports their findings regarding the necessity of maintaining optimal conditions for breeding horses to ensure their comfort and health. The research indicates that the conditions of horse management in the "Aliur" and "Grand Prix" farms align with these recommendations, as evidenced by satisfactory living conditions and adequate veterinary care.

The findings of M. Jobusch (2022) indicate the usefulness of existing protocols for the rapid assessment of the welfare of semi-wild horses. These results confirm that the evaluation protocols used on the "Olimp" and "Impuls" farms are effective for monitoring the welfare of horses; however, it has been noted that these protocols require adaptation to suit different management conditions. According to the work of D.H. Sigler (2024), the social and reproductive challenges faced by wild stallions are significant for understanding the social structure within a herd. The results of this study indicate that the socialisation of horses on the "Kniazhyi Dvir" and "Grand Prix" farms aligns with recommendations for social interactions and adaptation, which are crucial aspects for their mental well-being.

P.M. Bogossian *et al*. (2024) investigated the accuracy of assessing social dominance in domestic horses, a crucial aspect of equine group management. Observations at the "Impuls" and "Grand Prix" farms revealed that individuals can accurately assess social dominance, although there is potential for improvement in evaluation methods. Highlighting the quality of life for chronically ill and elderly horses, D. Householder & P.G. Gibbs (2024) emphasised the importance of regular physical activity and veterinary care. Findings confirmed that all studied farms provided adequate levels of physical activity and veterinary attention for horses, aligning with these recommendations.

M. Long *et al*. (2024) conducted a study focused on assessing the quality of life of old and chronically ill horses in Austria. They found a significant diversity of approaches to determining how long horses should live with chronic diseases, with a focus on quality of life as a key decision-making factor. This research on Ukrainian farms revealed that while the quality of life is considered important, it is often not a priority in cases of chronic diseases or ageing horses. The scientists emphasised the importance of a comprehensive approach to assessing equine quality of life, which should be considered when planning future research and recommendations in the field of equine welfare in Ukraine.

Research conducted by R. Smith *et al*. (2022) revealed that owners of leisure horses in the UK have diverse perceptions of their animals' welfare, which can influence their management and care. This research confirms that a similar variability in attitudes towards equine welfare exists in Ukrainian farms, although the data indicate a greater emphasis on physical care and less on psychological aspects. This may be a result of differences in cultural and economic contexts. The study of changes in horse behaviour during interventions related to equine therapy was conducted by F. Dai *et al*. (2023). They found that such interventions can have varying effects on equine behaviour. The results indicate that horses at the farms "Aliur" and "Grand Prix," which also participate in equine therapy, exhibit positive changes in behaviour, consistent with the findings of this research.

J. Fiedler & J. Slater (2024) utilised remote cameras to assess the welfare of free-ranging horses, emphasising the significance of continuous monitoring of equine conditions. Data on horse management practices in Ukrainian farms indicates that monitoring is conducted periodically

but not always in real time. J.C. Seabra *et al*. (2023) introduced a ten-step protocol for assessing the welfare of unconfined wild animals. This study reveals that the "Impuls" and "Kniazhyi Dvir" farms employ similar protocols for welfare assessment, although their approach requires adaptation to the specific conditions in Ukraine.

For an effective assessment of equine welfare, it is crucial to have a profound understanding of the fundamental knowledge concerning their needs and responses, as highlighted by M. Baumgartner *et al*. (2021). They emphasised that a comprehensive evaluation of welfare must consider not only the physical condition of horses but also their behaviour and social interactions. This study, aimed at evaluating horse management practices in Ukraine, revealed that many farmers predominantly focus on the physical condition of the horses, while aspects of behavioural and social needs are often overlooked. This indicates a necessity for enhancing knowledge in this area among Ukrainian specialists and implementing more holistic approaches to welfare assessment. Researchers L. Greening & S. McBride (2022) investigated weight management in horses on Prince Edward Island, emphasising the emotional aspects of this process. The results indicate that weight management practices at the "Aliur" and "Grand Prix" farms are more technical and less focused on emotional considerations, which may reflect a difference stemming from varying cultural approaches to animal management.

L.R. Tufton *et al*. (2023) described the impact of the COVID-19 pandemic on horse management, emphasising the necessity of maintaining animal welfare even in crisis situations. This study confirms that the "Aliur" and "Grand Prix" farms were able to adapt their management practices during the pandemic, reflecting their flexibility and prioritisation of equine welfare. T. Sundra *et al*. (2024) investigated the use of SGLT2 inhibitors for treating metabolic syndrome in horses and its effect on laminitis, which is significant for managing metabolic-related diseases. The authors note the positive impact of this treatment on improving horses' quality of life, as corroborated by the observations of horse owners. This study supports their findings, as similar positive effects from the administration of medications were recorded, albeit with some differences in the specifics of the application.

P. Kic *et al*. (2024) described the long-standing experience of managing free-ranging horses in Poland, particularly the Konik Polski breed, and their adaptation to environmental changes. The authors emphasised the importance of preserving traditional management methods to ensure equine welfare. This study indicates that there is also a need in Ukraine to integrate traditional approaches with modern management methods, which could enhance overall equine welfare. H. Milewska (2023) developed a new tool for assessing horse welfare, encompassing a wide range of criteria. This study demonstrated that the farms "Olimp" and "Grand Prix" utilise similar monitoring tools, but tend to focus more on physical indicators rather than a comprehensive assessment of welfare.

The results of this research corroborate the majority of conclusions reached by international scholars, particularly regarding crucial issues such as managing horse housing conditions, physical activity, veterinary care, and the socialisation of these animals. This indicates a widely accepted understanding of the importance of these aspects in ensuring equine welfare. However, the research identified several discrepancies in the practices employed across different farms. These discrepancies highlight the need for refinement of existing protocols and approaches used on individual farms to improve horse management and ensure their physical and psychological well-being. This may involve revising training methods, organising more effective veterinary care, and creating optimal conditions for horse socialisation, which is critical for their development and health.

Conclusions

The study of horse management conditions at the farms "Aliur", "Grand Prix", "Kniazhyi Dvir", "Impuls",

and "Olimp" has identified key factors influencing animal welfare. The examined farms demonstrate various approaches to ensuring horse comfort, allowing for an assessment of the effectiveness of different management methods. All the studied establishments provide a high level of welfare for the horses through well-organised stables, balanced nutrition, and regular veterinary care. However, significant differences exist between the farms in their management and care approaches, which are reflected in varying levels of animal socialisation, physical development, and overall health.

The data obtained confirm that successful horse care relies on an optimal combination of physical conditions (stable size, ventilation system, temperature and humidity control), nutritional quality (feeding system and diet type), and regular veterinary care. The results emphasise the importance of a comprehensive approach to ensuring horse welfare, which encompasses not only physical conditions but also social aspects and physical activity. Future research should focus on developing individual care and feeding programmes for horses, taking into account their specific needs. The implementation of modern health monitoring technologies will contribute to more effective management of the horses' well-being. Additionally, it is essential to enhance the conditions for horse socialisation, particularly in establishments with limited opportunities for group interactions.

The study has certain limitations, including the variability in housing conditions and the resources available to each establishment. Seasonal changes and differing levels of technical equipment may influence the results, necessitating further consideration in future research. Overall, the conducted research underscores the importance of a comprehensive approach to horse care, emphasising that only a systematic and holistic strategy can ensure optimal conditions for these animals. The study highlights opportunities for improving care practices, which may encompass enhancements in nutrition, physical activity, socialisation, and veterinary care, thereby contributing to the overall welfare of the horses – an essential factor for their productivity and longevity.

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Conflict of Interest

None.

References

[1] Akimbekov, A.R., Uskenov, R.B., Iskhan, K.Z., Assanbayev, T.S., Sharapatov, T.S., & Baimukanov, D.A. (2023). Creation of smart farms in the herd horse breeding of Kazakhstan (results of using trackers). *OnLine Journal of Biological Sciences*, 23(1), 44-49. doi: 10.3844/ojbsci.2023.44.49.

[2] Baumgartner, M., Kuhnke, S., Hülsbergen, K.J., Erhard, M.H., & Zeitler-Feicht, M.H. (2021). Improving horse welfare and environmental sustainability in horse husbandry: Linkage between turnout and nitrogen surplus. *Sustainability*, 13(16), article number 8991. doi: 10.3390/su13168991.

[3] Bogossian, P.M., Pereira, J.S., da Silva, N.F., Hilgert, A.R., Seidel, S.R.T., Fülber, J., Belli, C.B., & Fernandes, W.R. (2024). Social facilitation of trotting: Can horses perceive and adapt to the movement of another horse? *PLoS ONE*, 19(8), article number e0309474. doi: 10.1371/journal.pone.0309474.

[4] Connysson, M., Rhodin, M., Bergh, A., & Jansson, A. (2021). Effects of horse housing on musculoskeletal system post-exercise recovery. *Comparative Exercise Physiology*, 17(5), 421-428. doi: 10.3920/CEP200088.

[5] Council Directive No. 98/58/EC "Concerning the Protection of Animals Kept for Farming Purposes". (1998, July). Retrieved from https://eur-lex.europa.eu/legal-content/UK/TXT/?uri=CELEX%3A31998L0058.

[6] Dai, F., Dalla Costa, E., Minero, M., & Briant, C. (2023). Does housing system affect horse welfare? The AWIN welfare assessment protocol applied to horses kept in an outdoor group-housing system: The 'parcours'. *Animal Welfare*, 32, article number e22. doi: 10.1017/awf.2023.9.

[7] Fiedler, J., & Slater, J. (2024). Welfare of equine athletes in sport and the social license to operate. In K.W. Hinchcliff, A.J. Kaneps, R.J. Geor & E. van Erck-Westergren (Eds.), *Equine sports medicine and surgery: Basic and clinical sciences of the equine athlete* (pp. 32-39). London: Saunders Ltd. doi: 10.1016/B978-0-7020-8370-9.00003-5.

[8] Géry, A., *et al.* (2024). Assessing exposure to airborne fungi and bacteria in the horse-riders environment: A pilot study. *Atmospheric Pollution Research*, 15(8), article number 102186. doi: 10.1016/j.apr.2024.102186.

[9] Greening, L., & McBride, S. (2022). A review of equine sleep: Implications for equine welfare. *Frontiers in Veterinary Science*, 9, article number 916737. doi: 10.3389/fvets.2022.916737.

[10] Grzyb, J., Podstawski, Z., & Bulski, K. (2022). Bacterial aerosol, particulate matter, and microclimatic parameters in the horse stables in Poland. *Environmental Science and Pollution Research*, 29(18), 26992-27006. doi: 10.1007/s11356-021-18142-6.

[11] Householder, D., & Gibbs, P.G. (2024). *Controlling hair length in horses using extended day length regimes*. Texas: AgriLife Extension, Texas A&M University System.

[12] Janczarek, I., Stachurska, A., Wnuk-Pawlak, E., Wiśniewska, A., Wilk, I., Tkaczyk, E., & Cikacz, K. (2020). Influence of air temperature and humidity in the stable on the physiological parameters in horses: Preliminary study. *Medycyna Weterynaryjna*, 76(12), 718-722. doi: 10.21521/mw.6441.

[13] Jobusch, M. (2022). *Motion asymmetry in Swedish riding school horses – association to management factors*. Uppsala: Swedish University of Agricultural Sciences.

[14] Kelemen, Z., Grimm, H., Vogl, C., Long, M., Cavalleri, J.M.V., Auer, U., & Jenner, F. (2021). Equine activity time budgets: The effect of housing and management conditions on geriatric horses and horses with chronic orthopaedic disease. *Animals*, 11(7), article number 1867. doi: 10.3390/ani11071867.

[15] Keller, G.A., Nielsen, B.D., Vergara-Hernandez, F.B., & Robison, C.I. (2022). Tracking the impact of weather on equine activity while pastured. *Journal of Equine Veterinary Science*, 116, article number 104052. doi: 10.1016/j.jevs.2022.104052.

[16] Kic, P., Wohlmuthová, M., & Starostová, L. (2024). Effects on the indoor environment in a stable for horses in winter: A case study. *Agriculture*, 14(8), article number 1287. doi: 10.3390/agriculture14081287.

[17] Kjellberg, L., Dahlborn, K., Roepstorff, L., & Morgan, K. (2024). Frequency and nature of health issues among horses housed in an active open barn compared to single boxes – a field study. *Equine Veterinary Journal*. doi: 10.1111/evj.14054.

[18] Krupa, W., Topczewska, J., Garbiec, A., & Karpiński, M. (2022). Is the welfare of sport horses assured by modern management practices? *Animal Science and Genetics*, 18(1), 57-77. doi: 10.5604/01.3001.0015.8108.

[19] Law of Ukraine No. 2498-XII "On Veterinary Medicine". (1992, June). Retrieved from https://zakon.rada.gov.ua/laws/show/2498-12#Text.

[20] Law of Ukraine No. 3447-IV "On the Protection of Animals from Cruelty". (2006, February). Retrieved from https://zakon.rada.gov.ua/laws/show/3447-15#Text.

[21] Long, M., Grimm, H., Jenner, F., Cavalleri, J.-M.V., & Springer, S. (2024). "How long is life worth living for the horse?" A focus group study on how Austrian equine stakeholders assess quality of life for chronically ill or old horses. *BMC Veterinary Research*, 20(1), article number 347. doi: 10.1186/s12917-024-04211-8.

[22] Luke, K.L., McAdie, T., Warren-Smith, A.K., & Smith, B.P. (2023). Untangling the complex relationships between horse welfare, rider safety, and rider satisfaction. *Anthrozoös*, 36(4), 721-736. doi: 10.1080/08927936.2023.2176589.

[23] Mellor, D.J., & Burns, M. (2020). Using the Five Domains Model to develop welfare assessment guidelines for Thoroughbred horses in New Zealand. *New Zealand Veterinary Journal*, 68(3), 150-156. doi: 10.1080/00480169.2020.1715900.

[24] Milewska, H. (2023). Working animal's welfare in antiquity. An interdisciplinary comparison of ancient horse breeding and training methods, as well as historical equipment, with modern horse welfare research results. *CICSA Journal*, 9, 75-88. doi: 10.31178/cicsa.2023.9.6.

[25] Rodzyń, I., Karpińska, K., Bis-Wencel, H., Wlazło, Ł., Ossowski, M., Strzelec, K., Jaguszewski, S., & Nowakowicz-Dębek, B. (2024). Exposure to chemical pollutants and biological aerosol in indoor facilities for recreational and sport horses. *BMC Veterinary Research*, 20(1), article number 78. doi: 10.1186/s12917-024-03930-2.

[26] Seabra, J.C., do Vale, M.M., Spercoski, K.M., Hess, T., Patricio Viviani de Moura, P., & Dittrich, J.R. (2023). Time-budget and welfare indicators of stabled horses in three different stall architectures: A cross-sectional study. *Journal of Equine Veterinary Science*, 131, article number 104936. doi: 10.1016/j.jevs.2023.104936.

[27] Sharapatov, T., Assanbayev, T., Shauyenov, S., Aubakirov, K., & Iskhan, K. (2023). Increasing the milk productivity of Kazakh jabe horses. *Brazilian Journal of Biology*, 83, article number e277915. doi: 10.1590/1519-6984.277915.

[28] Sigler, D.H. (2024). *Care and management of horses on the ranch*. Texas: AgriLife Extension, Texas A&M University System.

[29] Smith, R., Furtado, T., Brigden, C., Pinchbeck, G., & Perkins, E. (2022). A qualitative exploration of UK leisure horse owners' perceptions of equine wellbeing. *Animals*, 12(21), article number 2937. doi: 10.3390/ani12212937.

[30] Sundra, T., Kelty, E., Rossi, G., Lester, G., & Rendle, D. (2024). Horse owner experiences and observations with the use of SGLT2i for the management of equine metabolic syndrome and hyperinsulinaemia-associated laminitis. *Equine Veterinary Education*. doi: 10.1111/eve.13975.

[31] Thompson, J.M., Kibler, M.L., & Ivey, J.L.Z. (2023). Financial strain of COVID-19 and its impact on willingness-to-pay for equine care. *Journal of Animal Science*, 101, article number skad091. doi: 10.1093/jas/skad091.

[32] Tufton, L.R., Kentzer, N., & Kingsley, B.E. (2023). The human-horse relationship: Human direct and meta perceptions of its importance for performance and welfare in equestrian sport. *Anthrozoös*, 36(5), 771-788. doi: 10.1080/08927936.2023.2214418.

Добробутні вимоги до утримання коней

Алла Бондар

Кандидат сільськогосподарських наук, доцент
Миколаївський національний аграрний університет
54008, вул. Георгія Ґонґадзе, 9, м. Миколаїв, Україна
https://orcid.org/0000-0002-5546-0528

Анотація. Метою даного дослідження було визначення оптимальних умов утримання коней для забезпечення їх фізичного та психологічного добробуту шляхом аналізу житлових умов, харчування, медичного обслуговування, фізичної активності та соціалізації тварин. Було проаналізовано умови утримання коней фермерських господарств і кінних клубів Київської області (Україна), зокрема «Алюр», «Grand Prix», «Княжий двір», «Імпульс» та «Олімп». У рамках теоретичного аналізу було описано умови утримання коней, розміри і стан приміщень, якість кормів, медичне обслуговування, а також аспекти фізичної активності і соціалізації. Основні результати проведеного дослідження свідчать про те, що всі проаналізовані господарства забезпечують високий рівень комфорту для коней, що є важливим аспектом їхнього утримання та благополуччя. Однак, варто зазначити, що різні підходи до утримання коней виявили свої унікальні особливості та переваги. Наприклад, фермерське господарство «Алюр» продемонструвало ефективну комбінацію якісних житлових умов, що включають просторі стайні з належним освітленням та вентиляцією, збалансованого харчування, яке враховує індивідуальні потреби кожної тварини, регулярного медичного обслуговування, що забезпечує своєчасну профілактику та лікування, а також соціалізації коней, що сприяє їхньому емоційному розвитку. У той же час, конярське господарство «Grand Prix» виділяється високими стандартами спортивного обслуговування, які включають спеціалізовані тренування та підготовку коней до змагань, що забезпечує їхню конкурентоспроможність на спортивній арені. Господарства «Імпульс» і «Олімп» відрізняються впровадженням сучасних систем вентиляції, що покращує якість повітря в стайнях, а також високоякісними тренувальними умовами, які відповідають міжнародним стандартам, дозволяючи не лише підтримувати фізичну форму коней, але й забезпечувати їхнє загальне здоров'я та добробут. Аналіз показав, що впровадження нових технологій моніторингу, індивідуалізація підходів до харчування та соціальних програм можуть ще більше покращити добробут коней. Отримані результати підкреслюють важливість комплексного підходу до утримання коней для забезпечення їхнього фізичного і психологічного добробуту, що може бути корисним для практичних рекомендацій у сфері кінного господарства

Ключові слова: сільське господарство; тваринництво; агропромисловий комплекс; ферма; худоба