



Review

Confinement, restriction of social contacts and movement in domestic horses

Léa Lansade, Elke Hartmann, Michela Minero, Alice Ruet

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Review

Confinement, restriction of social contacts and movement in domestic horses

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1 Executive Summary

The natural behaviour of horses involves living in social groups 24/7 their whole life, with complex social structures and extensive movement. Horses form strong social bonds within these groups, which in natural conditions include family groups led by one stallion, multiple male bands, and bachelor groups and multi-level societies with overlapping home ranges. Social structures are based on affiliative and dominance relationships. Affiliative behaviours, such as allogrooming, strengthen social bonds and help horses to cope with stress. Domestication has not altered horses' social and locomotory needs, raising concerns about their adaptability to housing conditions. Scientific studies demonstrate horses' strong motivation for social contact and free movement. Restrictions on these behaviours negatively impact welfare, leading to physiological stress responses and abnormal behaviours, like stereotypies. Poor housing conditions, such as permanent individual box housing, correlate with increased stereotypies and health issues, like colic and respiratory disease. Social and movement deprivations also affect cognitive abilities and trainability, leading to pessimistic judgments and difficulties in handling. Removing physical barriers that restrict social interactions and movements improves horses' welfare, with increased locomotion and better mental health. Recommendations for improving welfare include social housing with stable group compositions and sufficient space in enriched environments. Even in individual housing, daily turnout and social contact with conspecifics are crucial for welfare. However, introducing unfamiliar horses to one another requires following a proper introduction protocol to avoid accidents and associated serious injury risk.

Overall, promoting social interaction and freedom of movement is important for ensuring high welfare standards in domestic horses, regardless of housing type. These evidence-based recommendations are essential to enhance horse welfare and improve their quality of life.

2 Foreword

The European Union Reference Centre for Animal Welfare - Ruminants and Equines (EURCAW *Ruminants & Equines*) develops and disseminates knowledge and tools to assist the national Competent Authorities (CAs) in performing better official controls and enforcing EU animal welfare rules. It covers a range of farm animal species including those used for dairy (cows, goats, sheep, buffaloes, horses) and meat (cattle, sheep, goats, deer, horses) production and ruminants and equines kept for other purposes. Based on discussions with CAs, EURCAW *Ruminants & Equines* identified the confinement in horses, including restriction of space and of social contacts, as an important issue for horse welfare. The present document reviews the available evidence and proposes recommendations to avoid these welfare issues.

3 Scientific knowledge on social and movement aspects in horses

3.1 The nature of horses: social behaviour and movement

In their natural state, horses are gregarious animals that live in groups of different social structures in home ranges of varying sizes. They form strong social bonds with conspecifics that are characterised by close proximity between individuals and the establishment and maintenance of relatively stable, long-term relationships particularly between adults (e.g. Kolter and Zimmermann, 1988; Tilson et al., 1988; Mendonça et al., 2021).

Under natural conditions, family groups are formed by one or more stallions, mares and their offspring of up to 3 years of age. Young males and females disperse from harems around puberty: females usually join another harem close to their natal group while males join a bachelor group before eventually forming their own harem. Solitary individuals are relatively rare, as even older stallions that have lost their harem tend to join a bachelor group. Under natural conditions, home ranges overlap, and groups can form multi-level societies with synchronised movements. Movement, mainly walking, accounts for a large proportion of the 24-hour time budget, as horses walk during foraging (50-75% of time budget) and to find fresh water sources or shelter for protection from adverse weather and insects (Duncan, 1979; Boyd et al., 1988; Boyd, 1998).

Social structures are based on the establishment and maintenance of affiliative and dominance relationships. Social cohesion is strengthened by the expression of affiliative behaviours (Zeitler-Feicht et al., 2024). Individual preferences for establishing affiliative relationships are highly variable and depend on social status, familiarity, and individual characteristics (e.g. age, sex). Among affiliative social interactions, allogrooming (also referred to as mutual-grooming or social grooming), beside its body care function, helps to strengthen social bonds, induces a calming effect (reduction in heart rate and cortisol) and signals appeasement (Feh and Mazieres 1993, McBride et al., 2004). In horses kept under domestic conditions, this social behaviour also occurs to help individuals cope with stressful situations (Kieson et al., 2023). It is assumed that horses can seek to safeguard their social position and relationships with specific individuals by means of interventions between two individuals interacting positively (VanDierendonck and Spruijt, 2012). Social interactions, especially with preferred partners present rewarding properties in the brain and are essential for the main coping mechanisms of horses living in large groups (VanDierendonck and Spruijt, 2012).

Dominance is mainly expressed on a bilateral level (interactions between two horses) and underpins social order. It primarily affects priority access to limited resources (e.g., feed, shelter, resting places). In harems, the stallion is not necessarily at the top of the social order and the myth of one adult mare taking the sole leadership role in the group's activities has been re-defined. Any horse within the group, regardless of its social status, can assume a leadership role and attempt to initiate changes in activities or locations (Haupt et al., 1978; Keiper and Sambahaus, 1986; Hartmann et al., 2017). However, the movement of the entire group occurs only under specific circumstances: some studies indicate that this requires a leading mare to follow the

individual initiating the movement (Bouskila et al., 2015), while others report more complex phenomena of collective decision-making (Bourjade et al., 2015; Briard et al., 2021).

Under free-range conditions and in well-established stable groups of domestic horses, horses rarely display physical aggressive behaviours, and when present, these are mainly related to access to resources and maintaining personal space. Physical confrontations among horses can cost energy and risk injury. Thus, most agonistic interactions, which encompass aggression and avoidance/submission behaviours, do not involve physical contact as they are ritualised, i.e. using body language, vocalisations and posturing for communication (Tyler, 1972; Wells and von Goldschmidt-Rothschild, 1979; Feh, 1988; Keiper, 1988; Kolter and Zimmermann, 1988; Keiper and Receveur, 1992; Fureix et al., 2012). The presence of adults is also important in limiting agonistic interactions between juveniles and encouraging them to develop a richer repertoire of social behaviours (Bourjade et al., 2008; Feh and Mazieres, 1993; VanDierendonck and Spruijt, 2012). In order to maintain group cohesion, post-conflict friendly reunions between two individuals have been observed, and sometimes through the intervention of a third-party (Cozzi et al., 2010). In summary, the richness and complexity of social relationships between horses is reflected in the wide range of social behaviours expressed, with at least 40 different agonistic and affiliative behaviours reported in this species (McDonnell, 2003; Normando et al., 2003; Shimada and Suzuki, 2020; Mendonça et al., 2021; Kieson et al., 2023; Torres Borda et al., 2023).

3.2 Social cognitive abilities

The rich social context in which horses naturally develop requires specific cognitive abilities. Social facilitation allows behaviours and information to be transmitted between conspecifics (Rørvang et al., 2018). For example, feeding and resting behaviours are expressed synchronously through social facilitation, both between adults and between adults and juveniles (Tyler, 1972). Similarly, emotional reactions, particularly those associated with fear, can be transmitted from one individual to another (Christensen et al., 2008). Moreover, recent work has shown that horses are able to discriminate between emotional facial expressions and/or postures of conspecifics and respond accordingly (Wathan et al., 2016; Trösch et al., 2020). Furthermore, the vocalisations horses use to communicate, such as whinnies, encode emotional aspects of the individual emitting them, thus helping to regulate social interactions (Briefer et al., 2015, 2017).

Horses acquire and remember a great deal of social information (e.g. sex, age, familiarity, potential competitor) by smelling the body, urine or dung of an individual, which allows them to update their frame of reference in relation to the space they share with other horses (Krueger and Flauger, 2011; Péron et al., 2014; Jezierski et al., 2018; Rørvang et al., 2020). They are also able to recognise individual conspecifics from a combination of visual, auditory and olfactory cues (cross-modal recognition, Proops et al., 2008).

3.3 Motivation for social contacts and free movement

Domestication has not changed horses' social structures and the expression of species-specific social and locomotor behaviour, raising concerns about their adaptability to the domestic environment. Scientific studies have attempted to evaluate and quantify the motivation of horses

for social contact and free movement. For example, it was demonstrated that horses housed in single boxes worked equally hard to get access to conspecifics, irrespective of whether this contact was full contact, head contact or muzzle contact (Søndergaard et al., 2011). It has also been shown that individually housed horses are more motivated to move freely in a paddock compared to forced exercise on a treadmill and that they chose to spend more time in the paddock after two days of confinement compared to when they are not confined (Lee et al., 2011). However, the authors also showed that the social context of voluntary movement is important, as horses turned out alone in the paddock preferred to stay out for a shorter time than when turned out with conspecifics. Thus, the social and locomotor aspects are probably intimately related in horses (Lee et al., 2011).

In summary, to enhance welfare and ensure a high quality of life for horses, domestic housing conditions should enable horses to fulfil their fundamental behavioural requirements, particularly their social needs and freedom of movement.

4 Impacts of social behaviour and movement deprivations on horse welfare

Overall, the housing practices that impose the most severe restrictions on social contact, exercise, and/or feeding are particularly concerning due to their negative impact on the welfare of horses. The individual box housing system, employed during varying amounts of the day and/or nighttime, is still widely used for domestic horses, mainly to limit the risk of injuries related to social contacts and to individualise feeding (Hartmann et al., 2012, 2015). This is despite abundant scientific evidence of the negative welfare consequences of such housing conditions, particularly if stabling in individual boxes coincides with a lack of turn-out in paddocks, prolonged confinement, and/or no possibilities for contacts with conspecifics (e.g. possibility of mutual grooming or even visual and olfactory contact). In addition, the dimensions of the stall are also a significant factor in the animals' sleeping behaviour. It is essential that the stall is of sufficient size (at least $(2 \times \text{height at withers})^2 \text{ m}^2$) to enable the animals to have lateral REM sleep (Raabymagle and Ladewig, 2006).

Animal welfare reflects how an individual experiences its situation, encompassing the animal's ability to adapt to its environment. It includes health and biological functioning and the satisfaction of needs (Broom, 1986, 1991; Dellmeier, 1989; Blokhuis et al., 1998; Fraser and Duncan, 1998; Boissy et al., 2007). But another key element of the animal welfare concept is having positive/pleasant/rewarding experiences as opposed to negative/unpleasant/aversive experiences (Mellor et al., 2020).

Social behaviour and movement deprivation can have severe impact on horses' welfare and affective states as they can affect their behaviour, physiology, health, cognition, training and human and horse safety. A recent meta-analysis provided compelling evidence that the restriction of social contacts, free movement and access to roughage affected horses' welfare negatively as evidenced by physiological stress responses (e.g. decreased body condition and growth rate, cardiovascular malfunctions, increased levels of stress hormones) and behavioural stress responses. The latter were categorised into active reactions (e.g. increased aggressive behaviours,

hurried feeding), and passive responses (e.g. decreased reactions towards environmental stimuli and human presence, reduced overall activity, depressive-like behaviours) as well as abnormal behaviours (e.g. stereotypies, self-harming, redirected behaviours). The results showed that it remains difficult to isolate the effects of these three restrictions, but there is sufficient evidence to conclude that their combination leads to signs of decreased welfare in horses (Krueger et al., 2021).

4.1 Impacts on behaviour

One of the main signs of poor welfare is the development of stereotypies (such as crib-biting, weaving, box walking). Epidemiological-like studies have shown a correlation between the time spent in individual boxes and the development of abnormal behaviours (McGreevy et al., 1995; Normando et al., 2011; Sarrafchi and Blokhuis, 2013). Experimental studies have shown similar results, e.g. when moving horses from group to single housing in stables. Young horses seem particularly susceptible to developing stereotypies upon stabling for the first time (Waters et al., 2002; Visser et al., 2008). In adult horses, the return to individual boxes and a single 1-hour turn-out in paddocks after group-housing on summer pasture resulted in a sharp increase in the number of horses expressing stereotypies (Ruet et al., 2020). A total deprivation of free movement for two weeks was also associated with an immediate increase in stereotypies in stabled horses that were accustomed to daily turn-out in paddocks (Lesimple et al., 2020). Moreover, the restriction of social behaviour and movement opportunities was linked to the expression of aggressiveness towards humans in many studies (Normando et al., 2011; Ribeiro et al., 2019; Ruet et al., 2020, 2024). Other responses associated with social and movement deprivations included reduced time spent lying down (Hoffmann et al., 2012; Werhahn et al., 2012) or, on the contrary, increased time spent in a recumbent position (Visser et al., 2008). In some studies, a reduction in forage intake has also been observed (Yarnell et al., 2015). Horses housed in individual boxes for half of the day showed a higher emotional reactivity towards a novel object compared to horses living in groups for 13-24 hours a day (Lesimple et al., 2011). Several studies have also shown an increase in the expression of overall alert postures (a potential sign of anxiety) in horses housed individually (Lansade et al., 2014; Yarnell et al., 2015; Pessoa et al., 2016).

The effects of social and spatial restriction can also be quantified when the deprivations are removed. The activity patterns, particularly locomotion, of fully stabled horses released into a large area increased significantly compared to individuals that had not experienced spatial deprivations (Chaplin and Gretgrix, 2010). This effect, called "rebound effect" (i.e. the increased tendency to perform a specific behaviour after a period of deprivation, Lorenz, 1950 [in: Jensen, 1999]), related to deprivation of free movement, could be associated with greater difficulties in handling the animals (Freire et al., 2009) and an increased risk of injury. Similar results were observed for social behaviour, i.e. when young, individually housed stallions were subsequently grouped together on pasture, they expressed significantly more social behaviour (e.g. playing, allogrooming) than during the period of social isolation. These effects were observed up to six months after release (Christensen et al., 2002).

4.2 Impacts on physiology and health

A number of physiological stress responses have been associated with social and physical restrictions in numerous studies, although there is inter-individual variability in how horses cope with stress. Some physiological responses observed were changes in cardiovascular functions (heart rate and heart rate variability (Werhahn et al., 2012; Pessoa et al., 2016)), changes in stress hormone levels (cortisol in blood and saliva (Erber et al., 2013; Pessoa et al., 2016)), excretion of faecal glucocorticoid metabolites (Yarnell et al., 2015; Pessoa et al., 2016) and immune functions (Schmucker et al., 2022). One study showed that a social stressor, such as the first time a young horse was moved from a group into individual housing, led to a reduction in sensitivity of the body's stress response system (Visser et al., 2008). Whole-blood transcriptomic analysis showed that, in addition to affecting cortisol levels, three months of individual stabling induced the expression of genes related to apoptosis/programmed cell death (Lansade et al., 2014). Various health changes in young horses that were housed in individual boxes at weaning have also been observed, such as biochemical changes (e.g. inadequate iron uptake, lower protein turnover), lower bone mineral content compared to young horses weaned in boxes and permitted to graze at pasture with other horses for 12 hours a day (Bell et al., 2001; Brommer et al., 2001) and gastric inflammation and ulceration (Nicol et al., 2002). Housing of adult horses in individual boxes was also associated with higher risks of body lesions, upper respiratory tract inflammation, oedema, stomach ulcers, REM-sleep deprivation, and colic (Holcombe et al., 2001; Haupt et al., 2001; Popescu et al., 2019; Yngvesson et al., 2019).

4.3 Impacts on cognition

The impact of social deprivation and lack of free movement on horses' expectations was investigated using a cognitive bias task in horses living under different conditions. Löckener and colleagues (2016) trained individually housed horses to expect a food reward with a specific cue and the absence of a reward with another cue. Intermediate cues were also presented to record the behaviour of horses in response to the ambiguous stimulus. The horses' reactions were then categorised as either optimistic or pessimistic. When the horses were given 10 days of group turnout on pasture after six months of stabling in individual boxes, they showed a positive cognitive bias, suggesting a more positive affective state associated with their new living conditions compared to horses that remained in individual boxes (Löckener et al., 2016). It was also shown that horses kept in single boxes displayed a pessimistic judgement bias in a similar task, compared to horses having free access to groups with conspecifics (Henry et al., 2017). The impact of social deprivation and lack of free movement was also reported to affect other cognitive abilities, such as cognitive flexibility (Lansade et al., 2014). In this study, horses kept in single boxes for 12 weeks showed lower learning performance and reduced behavioural flexibility compared to individuals housed in groups, in large individual stalls or at pasture.

4.4 Impacts on trainability and horse and human safety

It was shown that horses kept in groups and with a permanent or at least regular access to a paddock were easier to train and expressed fewer unwanted behaviours, such as kicking or biting, which decreased the risk of injuries and improved human safety (Rivera et al., 2002; Søndergaard and Ladewig, 2004; Lansade et al., 2014). For instance, Hartmann et al. (2012) summarised that

horses housed in groups displayed more relaxed behaviour during training sessions and were more responsive to handlers' cues. Similarly, Werhahn et al. (2012) demonstrated that horses with daily turnout in paddocks showed improved rideability and fewer stress-related behaviours during training compared to horses kept in individual stalls. Yarnell et al. (2015) reported that group-housed horses exhibited lower cortisol levels and were less reactive to novel stimuli, potentially reducing the risk of accidents during handling and riding. These findings collectively emphasize the importance of social interaction and freedom of movement for equine well-being, trainability, and human safety in equestrian activities.

Numerous scientific, evidence-based recommendations to promote best practice and improve welfare can be applied to the housing or keeping of all horses, regardless of the breed, age or sex of the horse (except in special cases, e.g. when horses need to be confined or isolated during restrictive periods due to health issues).

5 Recommendations

As early as the 1970s, it was shown that (social and physical) stress are best predicted – and thus prevented - by providing a predictable environment in which an animal itself can exert control over its environment to fulfil their (ethological) needs when necessary (Weiss 1970, 1971).

5.1 “Friends”

Social interaction and bonds between horses are essential for their welfare. This section provides recommendations on how to address horses' social needs, whether in group or in individual boxes. Given all the scientific literature on the subject, it is now clear that, in terms of horse welfare, social housing must always be promoted. Individual boxes should ideally be used only for specific requirements (e.g. competition, veterinary treatments, quarantine, import), and in such cases, the recommendations below must be adhered to as much as possible.

5.1.1 *Social housing*

The research literature has identified key success factors with managing social housing and supporting equine welfare:

- Planning and managing the step-wise introduction of a new horse(s) into the group. The number of steps and duration per step is depending on the animals involved and the space available (Hartmann et al., 2011),
- Maintaining a stable group composition by managing it as consistently as possible, limiting introductions of new horses (Christensen et al., 2011; Sigurjónsdóttir and Haraldsson, 2019),
- Providing social upbringing of foals with other foals and mares, providing low stress weaning at the latest possible age (Waran et al., 2008; Henry et al., 2012),
- Keeping young horses with adult horses (Bourjade et al., 2008),
- Providing adequate space and options for temporary escape to reduce aggression and injuries (e.g. at least 330 m² per horse in a paddock, Flauger and Krueger, 2013),

- Adequate design and placement of the resources (e.g. water, feeding, salt, resting areas) (Baumgartner et al., 2023),
- Observing social interactions to detect potential aggressiveness and risk of injuries.

5.1.2 Individual boxes

To enhance the welfare of horses kept in individual boxes, and except under very specific conditions (e.g. quarantine), the following recommendations must be respected as much as possible:

- Providing regular daily turnout in paddock/pasture, accompanied by at least one conspecific (Bachmann et al., 2003; Christie et al., 2006; Lesimple et al., 2020). In the event that a conspecific is temporarily unable to participate, it is recommended to turn them out in an adjacent area with another conspecific nearby,
- Providing flexible indoor housing (e.g. opening up box walls to allow physical interactions between box neighbours, even during short-term stabling, Borthwick et al., 2023),
- Providing an individual box of at least $(2 \times \text{height at withers})^2 \text{ m}^2$ with the shortest side at least $1.5 \times \text{height at withers}$ and the ceiling at least 1.2 m above the withers (Raabymagle and Ladewig, 2006). For foaling box preferably double this size,
- Avoiding disruptions of social bonds and having neighbours that get along with each other,
- Accommodating the social needs of stallions (e.g. stabling in "social boxes", Zollinger et al., 2023).

5.2 "Freedom"

Irrespective of the type of housing, 'freedom' entails the opportunities to move without constraints of speed and direction, as well as the ability to make choices and control the environment. This section provides recommendations for ensuring freedom and control for horses, whether they have free to access outdoor living spaces (such as pasture), or are subject to restrictions, such as being kept in stables.

5.2.1 Free access to outdoor living space

Social housing should always be promoted, so the following recommendations are set up for horses housed in groups:

- Providing sufficient resources for all horses (e.g., dry, clean, thick enough and safe lying area large enough for all horses to lie down simultaneously on their sides with the limbs extended, Kjellberg et al., 2022),
- Providing enough space for feeding and protecting against insects/sun/bad weather simultaneously, without risk of being blocked, threatened, struck, or bitten by another horse (Baumgartner et al., 2023),
- Enriching the living environment using sensory, feeding, physical, occupational, and relational enrichment (see EURCAW factsheet on environment enrichment for equines, Brunet et al., 2024).

5.2.2 *Restricted access to outdoor living space (individual boxes)*

When horses cannot be kept in large outdoor areas due to specific requirements (e.g. veterinary treatment), the housing system must be adapted to improve the living conditions by:

- Providing regular turnout in paddock/pasture (Lesimple et al., 2020). The regularity is essential to avoid injuries and rebound effects (Ruet et al., 2020). If, for very specific veterinary reasons, confinement to a stall is truly required, the risk/benefit must always be considered, and this period should be limited as much as possible,
- Enriching the living environment using sensory, feeding, physical, occupational and relational enrichment (see EURCAW factsheet on environment enrichment for equines, Brunet et al., 2024),
- Enabling social interactions as much as possible (see 5.1 "Friends").

6 Key factors to focus on during welfare inspections

6.1 Social interaction

The quality and frequency of social interactions among horses, including group composition, cohesion, and opportunities for affiliative behaviours such as allogrooming, need to be assessed, as well as injuries and skin lesions resulting from social interactions (e.g. biting or kicking). In addition, the characteristics of the environment, in terms of the opportunities provided for interaction with conspecifics, must be taken into account (e.g. type of architecture of the stalls, frequency and duration of group turnout).

6.2 Freedom of movement

The inspections will then focus on the extent to which horses can exhibit their natural locomotor behaviours in the absence of physical constraints, including the adequacy of space for movement (e.g. number, size and design of the enclosure in relation to group size), duration, and regularity of daily turnout, even during winter months.

6.3 Prevalence of abnormal behaviours

A measure of the prevalence of abnormal behaviours (e.g. stereotypies) and aggressiveness, withdrawn behaviours, or vigilant behaviours should complement the inspection.

7 Gaps in knowledge and further studies needed

Horse owners often perceive freedom of movement and group turnout as a risk factor for accidents and injury, leading them to restrict access to space and companions (Yngvesson et al., 2019; Keeling et al., 2016). Two types of studies could serve as leverage points. The first type would be to evaluate the actual impact of a less restrictive housing condition on the risk of accident or injury to determine the validity of these concerns. The second type would be to propose scientifically validated recommendations to reduce the risk of accidents when horses are kept with conspecifics, e.g. how to:

- Determine the size of enclosure/group housing area

- Design a pasture or paddock/group housing area
- Form and establish the size of social groups
- Introduce new horse(s) into a group
- Optimise minimum requirements for social development from birth to “adult working life”.

While some studies already exist in this area, further research could provide additional insights and improvements.

8 Conclusions

It is essential that the need for social companionship and exercise are considered in the management of domestic horses. Scientific research has consistently shown that meeting the social and physical needs of horses has a positive effect on their behaviour, physiology, health, cognition, trainability and horse and human safety.

Horses should ideally have maximum access to social interaction with other horses and daily opportunities for unrestricted movement. Ensuring that these resources (companions and spaces to move) are provided the majority of the time and without interruption (i.e. not withheld from the horse for any period) is crucial to avoid any rebound effect. Furthermore, ensuring that each animal has sufficient space and resources (e.g. food, water, shelter) is key to promote good welfare and injury risks. Unless it is managed in conjunction with long daily turnouts with other horses, individual housing should be reserved for specific purposes, such as veterinary treatment.

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About EURCAW Ruminants & Equines

EURCAW Ruminants & Equines is the third European Union Reference Centre for Animal Welfare. It focuses on ruminant and equine welfare and legislation, and covers the entire life cycle from birth to the end of life. EURCAW Ruminants & Equines' main objective is a harmonised compliance with EU legislation regarding welfare in EU Member States. This includes:

- Directive 98/58/EC concerning the protection of animals kept on farms;
- Regulations 1/2005/EC and 1099/2009/EC concerning their protection during transport and slaughter;
- Directive 2010/63/EU concerning the protection of animals used for scientific purposes;
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EURCAW Ruminants & Equines supports:

- Inspectors of Competent Authorities (CAs);
- Ruminant and equine welfare policy workers;
- Bodies supporting CAs with scientific expertise, training, and communication.

Website and contact

EURCAW Ruminants & Equines' website offers relevant and actual information to support enforcement of ruminant and equine welfare legislation.

We offer a 'Questions to EURCAW' service for official inspectors, policy workers, and other personnel providing advice or support for official controls of ruminant and equine welfare in the EU. For more information go to <https://www.eurcaw-ruminants-equines.eu/questions-to-eurcaw/>.

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- Coordinated Assistance
Providing support, networking and Questions to EURCAW;
- Welfare indicators, Assessment & Best Practice
Identifying animal welfare indicators, including animal based, management based and resource-based indicators, that can be used to verify compliance with the EU legislation;
- Scientific and technical studies
Preparing Scientific Reviews of knowledge on welfare topics and identify research needs;
- Training
Developing training materials and training standards for official inspectors;
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Increasing awareness of our outputs via the website, twitter, and newsletter;

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