



# From Hay to Play

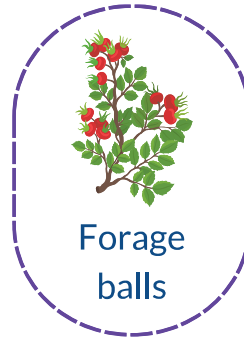
*Investigating how horses respond to environmental enrichment and how this contributes to equine well-being*





## Summary

A total of 40 horses were assessed at HorseWorld from June to August 2024 for their behavioural response to four different enrichment items:



Horses were observed within one of six locations at HorseWorld, with 45% of horses being kept on an Equine Track System over three locations, and 55% of horses being kept over three traditional paddock management systems as a comparison. Each enrichment item was presented three times over the period of twelve weeks, with behaviours recorded as present or absent during a 10 minute period.

Basic information on each horse was recorded, including:

- ★ Age
- ★ Sex
- ★ Breed
- ★ Temperament around people
- ★ Health/management requirements

Key findings include:

More positive behaviours were seen with forage balls

Less positive behaviours, but more negative behaviours were seen with essential oils

Horses on a track system were more likely to be curious towards the different enrichment items

Horses under 12, classed as 'friendly' and with no existing health issues interacted more positively with enrichment overall







## Methodology

40 horses across six locations were studied throughout a twelve week period. Some horses moved locations during the study, but stayed on either a track system or traditional paddock. Below is the proportion of horses studied across the different locations:

### Tracks (18/40)

(5/40) horses on Middle Sidelands Track

(5/40) horses on Stockwood Track

(8/40) horses on Pony Paddock Track

### Comparisons (22/40)

(9/40) horses in Far Sidelands Right

(7/40) horses in Pony Paddock Field

(6/40) horses in Clover Strip

Each enrichment item was presented three times, at four-weekly intervals. The enrichment types were:



### Poo Bags

Droppings were collected from random fields with faeces of unfamiliar horses. The droppings were then put into net bags, which were either hung from trees or placed on the floor



### Water Buffet

Turquoise buckets were used due to research showing this is a preferred water bucket colour. 2 buckets per field were presented, with a different flavour herbal tea in each; Twinings Balance (Rose, Lemon Verbena & Lemon Balm) and Twinings Digest (Ginger & Turmeric with Fig). Buckets were placed near usual water source for choice options



### Essential Oils

Two plastic bird feeders per field were filled with cotton wool and a different scent added to each; Lavender & Geranium



### Forage Balls

Two forage balls per field were filled with forage collected from around the HorseWorld site, including items such as ash, willow, hazel, rosehips, bramble and dried nettles



## Horses and Locations

Track A (Middle Sidelands) layout and location of resources:



Track A (Middle Sidelands) horse details:

### Chevie



13yo  
Gelding  
Cob  
Enjoys human interaction  
No health requirements

### Sox



17yo  
Mare  
Welsh A  
Enjoys human interaction  
No health requirements

### Winnie



4yo  
Mare  
Cob  
Enjoys human interaction  
No health requirements

### Florence



4yo  
Mare  
Cob  
Enjoys human interaction  
No health requirements

### Calypso



5yo  
Mare  
Cob  
Enjoys human interaction  
No health requirements





Track B (Bottom Stockwood) layout and location of resources:



Forage would be spread in small piles all the way round the track

Water trough

-  New internal fencing
-  mud mats or similar
-  Gates
-  Temp fencing (winter use)
-  Field shelter

Track B (Bottom Stockwood) horse details:

**Perry**



8yo  
Mare  
Welsh  
Indifferent to people  
Laminitis & EMS

**Kira Bay**



19yo  
Mare  
New Forest x  
Indifferent to people  
PPID

**Davina**



23yo  
Mare  
TB x  
Indifferent to people  
Laminitis

**Rosie**



22yo  
Mare  
Welsh  
Indifferent to people  
Laminitis & EMS

**Molly**



27yo  
Mare  
New Forest x  
Indifferent to people  
Laminitis & PPID



## Track C (Pony Paddock) layout and location of resources:



Field Shelter (relocated)    
  New internal fence    
  Gate (metal 5 bar)    
  Temp fence (winter use)    
  mud mats or similar

## Track C (Pony Paddock) horse details:

### Charlie



13yo  
Gelding  
Shetland  
Enjoys human interaction  
Laminitis & EMS

### Daisy



10yo  
Mare  
Shetland  
Enjoys human interaction  
Partially collapsed trachea

### Beth



15yo  
Mare  
Shetland  
Indifferent to people  
Laminitis & PPID

### Doris



2yo  
Mare  
Shetland x  
Enjoys human interaction  
No health requirements

### Dodger



16yo  
Gelding  
Miniature Shetland  
Nervous around people  
No health requirements

### Marigold



14yo  
Mare  
Shetland  
Nervous around people  
Laminitis

### Odette



8yo  
Mare  
Shetland  
Enjoys human interaction  
No health requirements

### Shelly



14yo  
Mare  
Shetland  
Indifferent to people  
Laminitis & PPID

*Some photos provided - credit to Jo Hamstead Photography*





Comparison field D (Far Sidelands) layout and location of resources:



Natural water source via stream

Electric fencing Gate

Comparison field D (Far Sidelands) horse details:

**BamBam**



3yo  
Mare  
Welsh A  
Enjoys human interaction  
No health requirements

**Dreamer**



16yo  
Mare  
Welsh  
Enjoys human interaction  
No health requirements

**Ava**



6yo  
Mare  
Cob  
Enjoys human interaction  
No health requirements

**Dior**



13yo  
Mare  
Cob  
Indifferent to people  
No health requirements

**Smudge**



7yo  
Mare  
Cob  
Indifferent to people  
No health requirements

**Blossom**



8yo  
Mare  
Cob  
Indifferent to people  
No health requirements

**Rayne**



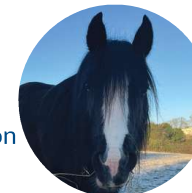
7yo  
Mare  
TB x  
Enjoys human interaction  
Neurological grade 2

**Katniss**



9yo  
Mare  
Pacer x TB  
Enjoys human interaction  
No health requirements

**Ruby**










11yo  
Mare  
Welsh x  
Enjoys human interaction  
Navicular



Comparison field E (Pony Paddock) layout and location of resources:



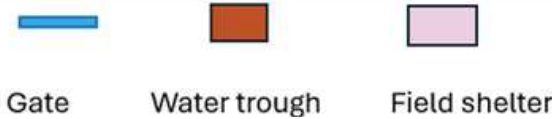
Comparison field E (Pony Paddock) horse details:

<p><b>Pip</b></p>  <p>4yo Mare Cob Enjoys human interaction No health requirements</p>	<p><b>Sally</b></p>  <p>15yo Mare Cob x Nervous around people Laminitis</p>	<p><b>Kyra Cob</b></p>  <p>21yo Mare Cob Indifferent to people No health requirements</p>
<p><b>Elsa</b></p>  <p>15yo Mare Welsh A Indifferent to people No health requirements</p>	<p><b>Cleo</b></p>  <p>20yo Mare Cob Indifferent to people No health requirements</p>	
<p><b>Flower</b></p>  <p>20yo Mare Cob Indifferent to people Chronic lameness</p>	<p><b>Lottie</b></p>  <p>23yo Mare Welsh x Indifferent to people Navicular &amp; pelvic issues</p>	





### Comparison field F (Clover) layout and location of resources:



### Comparison field F (Clover) horse details:

**Bertie**



7yo  
Gelding  
Shetland  
Nervous around people  
Cannot live with mares

**Shadow**



14yo  
Gelding  
TB x  
Enjoys human interaction  
No health requirements

**Little Red**



7yo  
Gelding  
Shetland  
Nervous around people  
No health requirement

**Mowgli**



11yo  
Gelding  
Mule  
Enjoys human interaction  
Specific companion needs

**Salisbury**



9yo  
Gelding  
Cob x  
Indifferent to people  
No health requirements

**Jasper**



6yo  
Gelding  
Welsh  
Enjoys human interaction  
Cannot live with mares





## Demographics of Horses

### Age

The average age of horses included in the sample was 12 years old, with horses then categorised as over 12 years old or under 12 years old to see if age produced any differences.

52% of horses were under 12 years old

48% of horses were over 12 years old

### Breed

Horses were a mix of breeds, with most horses being a native pony type (Cob/Cob x, New Forest, Shetland & Welsh), alongside four Thoroughbred crosses and one Mule.

### Sex

There was a bias towards sex, with more female horses included in the study. This was unfortunately unavoidable but prevented the analysis of gender impact on behaviour towards enrichment.

78% of horses were female

22% of horses were male

### Temperament

Horses were categorised into three categories for temperament; friendly, indifferent or nervous.

48% of horses were categorised as friendly, or enjoys human interaction

40% of horses were categorised as indifferent towards people

12% of horses were categorised as nervous of people

### Health Conditions

Horses were categorised into whether any existing health concerns were reported as present or absent.

38% of horses had existing health issues

62% of horses had no existing health issues






## Behaviour Observations

Horses were observed once a week for a period of 10 minutes. An ethogram\* was used and completed to show whether they displayed positive or negative behaviours in response to the enrichment item offered.

*\*An ethogram is a catalogue of behaviours that can be observed from an animal*


Behaviours were categorised as:

### Positive



Curious  
Interactive/exploratory  
Oral exploration  
Lively  
Play  
Pawing  
Positive vocalisation  
Smell  
Content/calm  
Relaxation/rest

### Negative



Fearful  
Anxious  
Resource guarding to conspecifics  
Uneasy  
Head tossing/frustration  
Negative vocalisation  
Restlessness

### Neutral



Uninterested  
Alert

### Positive interactions



Forage balls produced the highest amount, whereas essential oils produced the lowest amount.

### Negative interactions



Essential oils produced the highest amount, whereas water buffet produced the lowest amount.

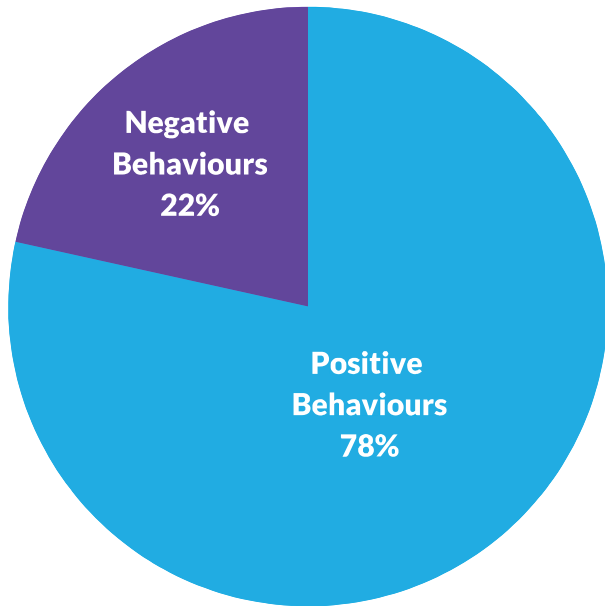
Interactions were assessed by the proportion of horses which showed one or more negative or positive behaviour towards the enrichment item.





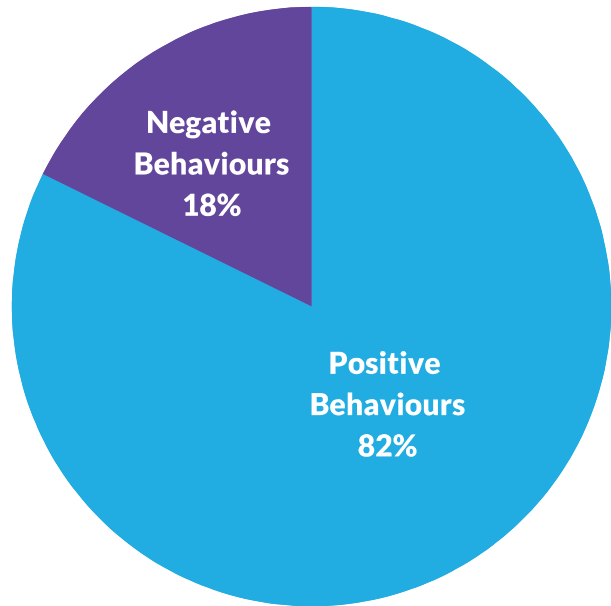
Below are charts of the percentage of positive and negative behaviours from all behaviours, observed over all days, locations and horses.

### Poo Bags



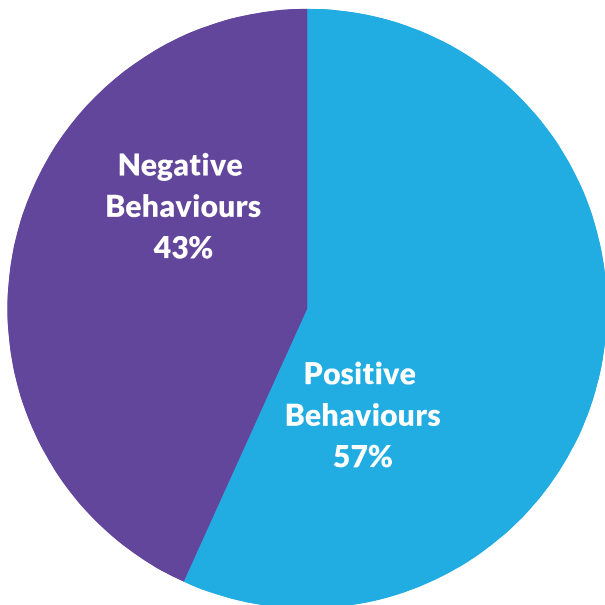
90% of horses interacted positively  
68% of horses interacted negatively

### Water Buffet



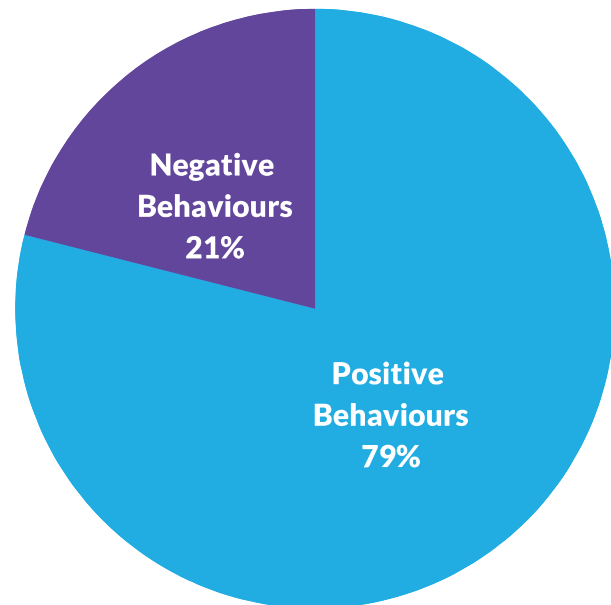
80% of horses interacted positively  
65% of horses interacted negatively

### Essential Oils



60% of horses interacted positively  
83% of horses interacted negatively

### Forage Balls



90% of horses interacted positively  
58% of horses interacted negatively





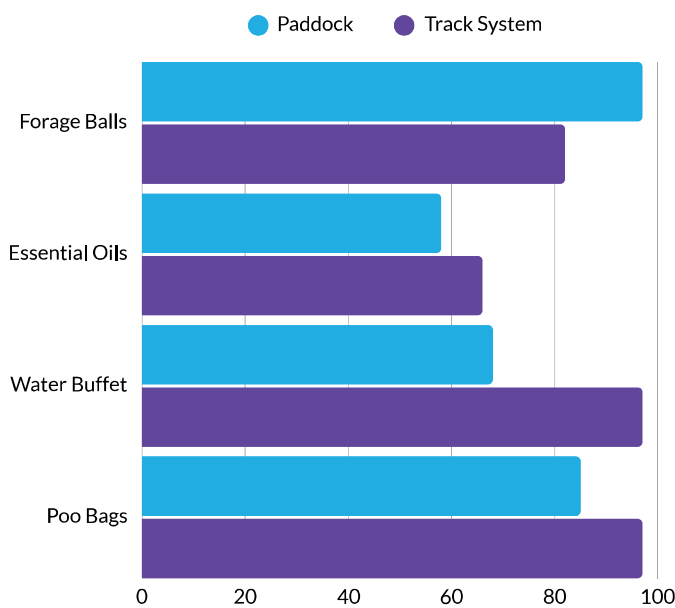


We looked at the amount of positive and negative behaviours for horses on a track system, or traditional paddock and here is some key findings:

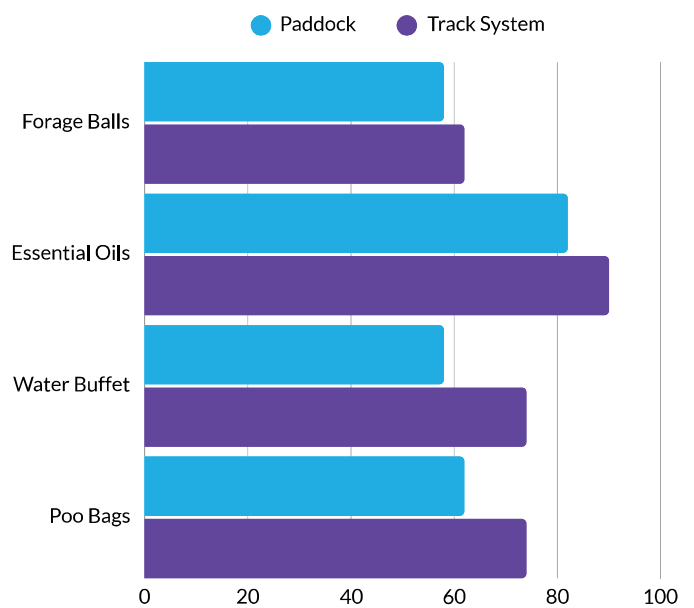
- ➔ Horses on a track system produced more positive interactions with poo bags, water buffet and essential oils than horses in traditional paddocks
- ➔ Horses in traditional paddocks produced more positive interactions with forage balls than horses on a track

There was no significant statistical difference between management systems for the total count of positive or negative behaviours in response to each enrichment item, except for negative behaviours towards essential oils where horses on tracks showed a higher proportion of negative behaviours

### % of positive behaviours on a track vs paddock



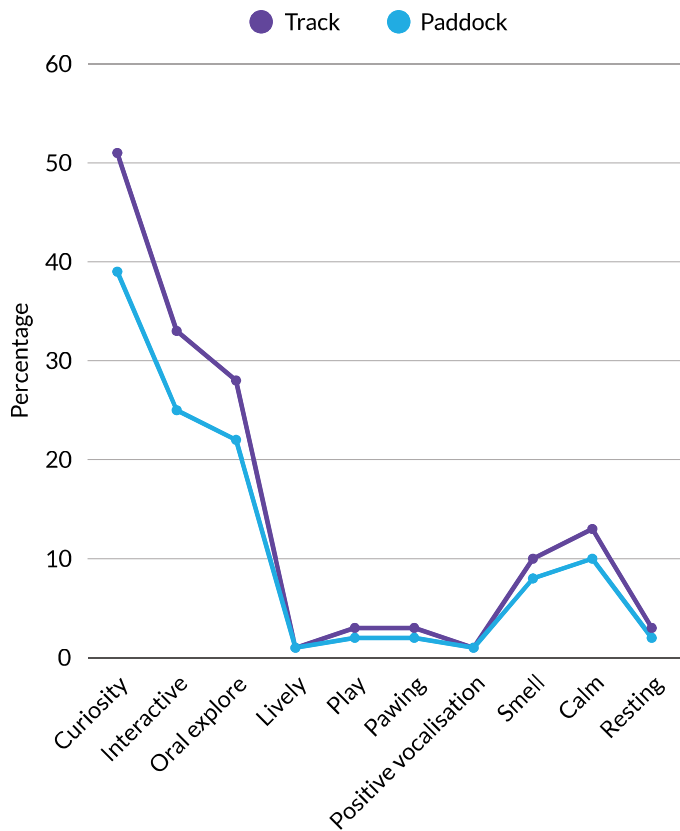
### % of negative behaviours on a track vs paddock



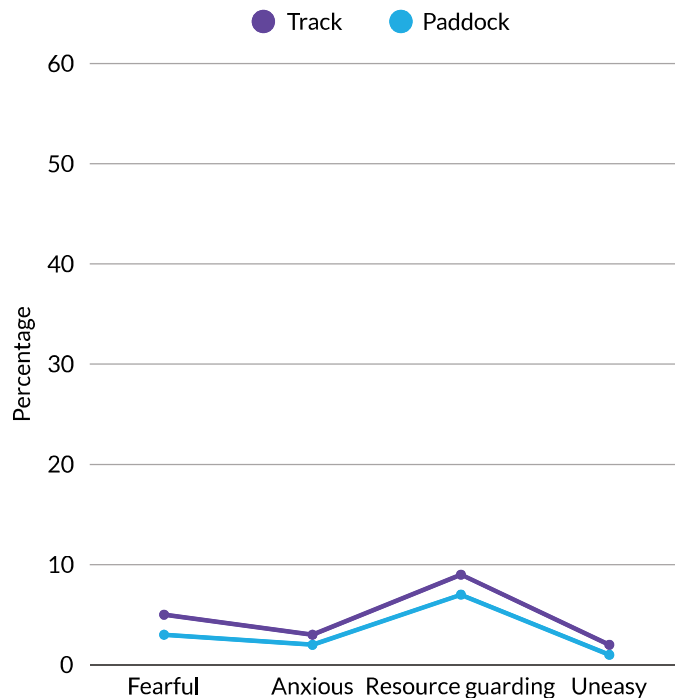


Individual behaviours produced by track horses vs paddock horses:

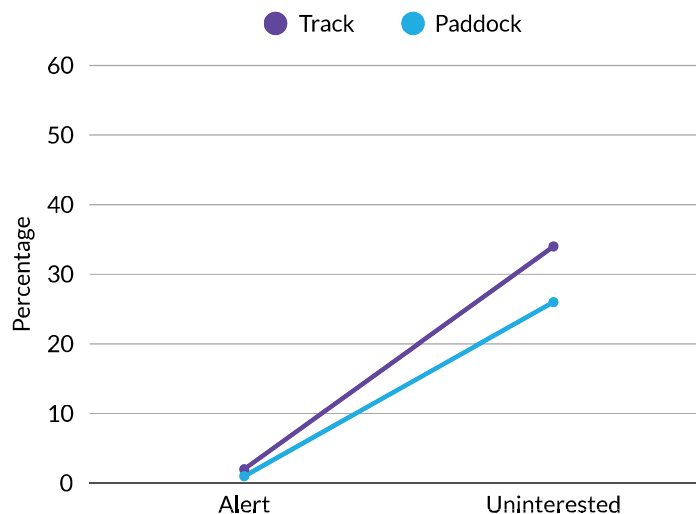
## Positive Behaviour



## Negative Behaviour



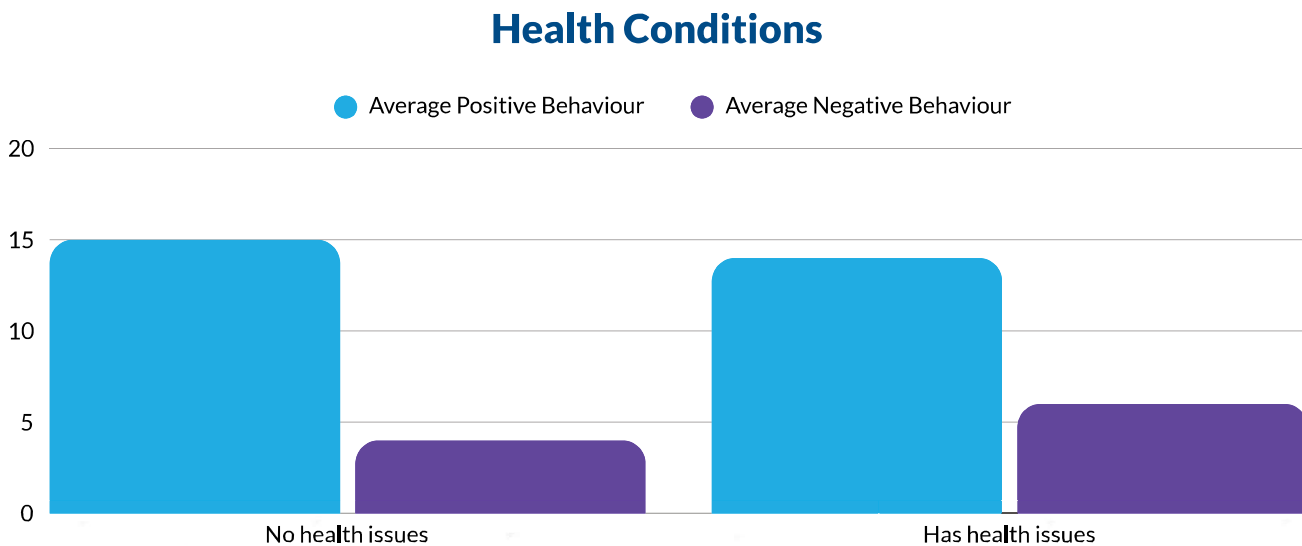
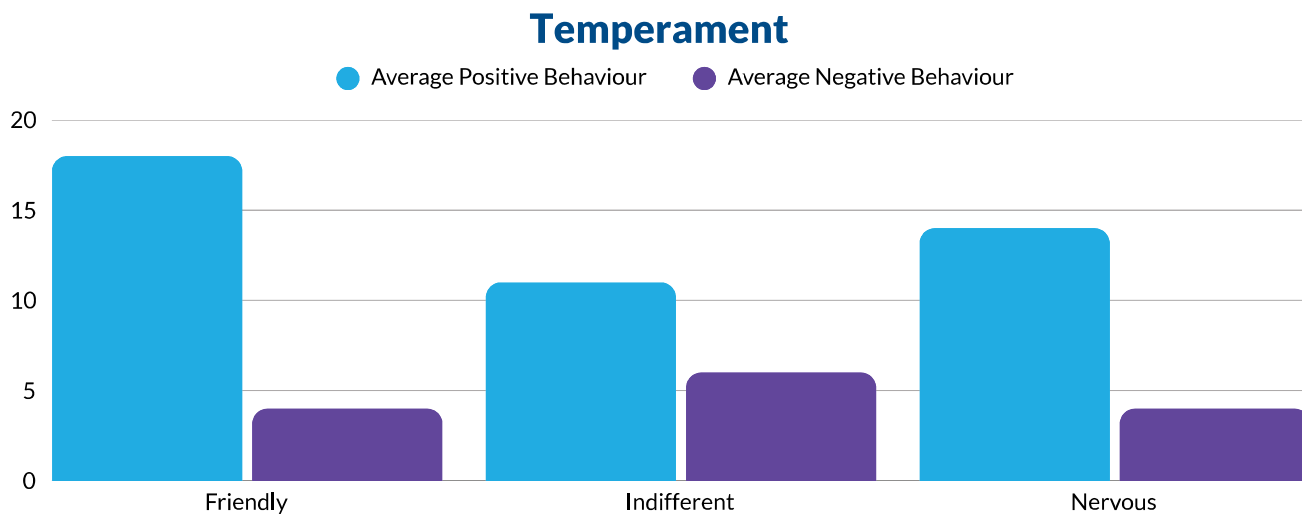
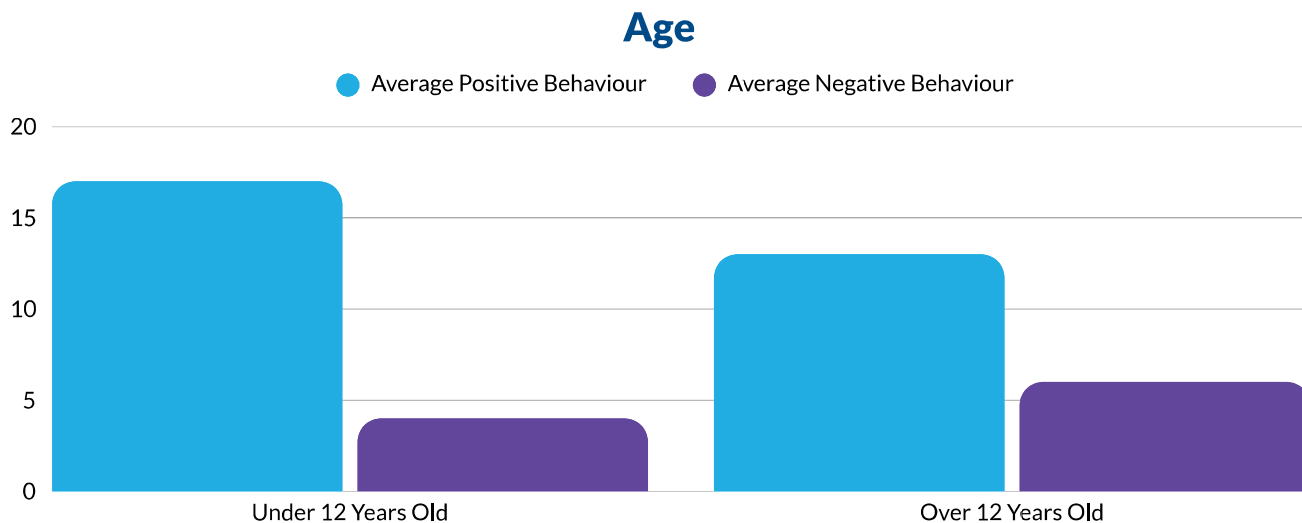
## Neutral Behaviour







Horses under 12 years old, classified as friendly and those with no pre-existing health issues showed a higher average of positive behaviours overall:





## Limitations of the Study

Some horses were not observed on all occasions for behavioural sampling due to either being out of sight (i.e. not near the enrichment item to observe interaction with it), or not in the field for whatever reason (being brought out to work, handle, moving locations, etc.).

This meant that the interactions with each enrichment item may have been biased towards particular horses. Similarly, some horses changed locations throughout the study period, however they tended to remain within the same category of management (track or paddock).

These limitations are to be expected from a 'real-life' field-based study situation and do not detract from the central findings. Further research over 24-hour time periods and utilising GPS trackers and/or video cameras would allow us to gather more data.

The categorisation of behaviours into binary positive or negative could be considered restrictive. Whilst assessors were encouraged to record obvious behaviours, they may have focused solely on the behaviours listed and experience with observing and interpreting behaviours may have been variable, hence any future research should ensure standardised training in behavioural assessment or aim to use a smaller number of observers to keep consistency and prevent bias. Similarly, factors were not able to be recorded for each observation that might have influenced behaviour, e.g. weather conditions, proximity to feeding time, etc.

## Next Steps & Future Research

The results of this study have shown that providing environmental enrichment can be beneficial and utilised by horses living on an equine track system and for traditional managed paddocks. If this study were to be conducted again, it has been highlighted that it could be useful to offer more than one type of enrichment, with the use of wildlife cameras to include details of how often the enrichment is visited, rather than if the horse interacted within the set observational period. It may also be useful to expand the management types included within the study, to assess use of enrichment for stabled horses, as many horses within the equestrian industry may be subject to this management style. Further research questions highlighted include:

- ★ *Are different types of enrichment more engaging to different horses, specifically assessing in relation to sex, age and temperament?*
- ★ *Do horses on an equine track system have a more enriched life, meaning they need less additional environmental enrichment?*

To read the full study, please contact the Welfare department at [welfare@horseworld.org.uk](mailto:welfare@horseworld.org.uk)