

# Thesis

“A study investigating the benefits of group stabling  
in comparison to individual stabling of horses”



Hogeschool Van Hall Larenstein  
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## **1. Title**

“A study investigating the benefits of group stabling in comparison to individual stabling of horses”

## 2. Abstract

### “A study investigating the benefits of group stabling in comparison to individual stabling of horses”

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The aims of this study are first of all to investigate the reasons for choosing group or individual housing of horses. Moreover the study should give an overview about the opinions of horse owners on the concept of group housing and its advantages / disadvantages.

For this research 35 horse owners (n= 35) were recruited to participate. They are either leisure (74, 36%) or competitive (25, 74%) riders and they all have their horses stabled in livery yards. They were interviewed about their personal opinions on advantages / disadvantages of individual and group housing systems, about their actual livery stable and the reasons for choosing a certain stable. The interviews were semi-structured; therefore each interview is unique in its course. The data is collected in EXCEL and SPSS tables and results are also described in EXCEL and SPSS charts.

Most of the horses (91, 52%) are kept in individual stables, either with individual or group run-out. Although 51, 48% of the horse owners would prefer group housing, the difference between ideal conception and reality is tremendous. 40, 04% of the participants chose another stabling system for their own horse, although they think the group housing system is more species-appropriate. Five out of nine competition horses are stable in individual housing and 12 out of 26 leisure horses are stabled individual.

The reasons for choosing a certain housing system vary. They are depending on the living arrangements of the people, the assortment of livery yards and on the horse itself. For 57, 2% is the housing an important reason, closely followed by training facilities with 51, 48%.

In comparison to the benefits of individual stabling, the advantages of group stabling are more beneficial for the horse as a social animal. 80, 08% of the interviewees mentioned the social contact and the company of other horses as an important advantage of group housing. 34, 32% said an important advantage of group stabling is the possibility to move around freely.

When comparing both housing systems, it should be considered that both systems can have positive and negative effects on the horse. Depending on the planning, the management and the implementation of recommendations and innovations, both systems can provide stabling concepts which have a performance enhancing effect on the horses. Of course that is again depending on the horse and its history.

### 3. Introduction

#### 3.1 Background information

This research is written for the company HIT- Hinrichs Innovation & Technik. The company was established in 2000 and within 10 years more than 400 HIT-Active stables were built in whole Europe. The traditional method of stabling horses in individual boxes is not natural at all and therefore the company started up a whole new stabling concept. In nature horses walk around 6, 1 and 10, 8 km a day, whereas horses in individual stables only walk about 0,17km a day (3). With placing the feed stations, the water and the hay on places far away from each other (see plate 1); the system of a HIT active stable encourages the horses to move around the area (see also plate 1) (1).

In this research the systems of individual and group housing are compared to detect advantages or disadvantages of both.

Horses need to live with other horses and they should also be able to eat small amounts of food continuously throughout the day. In nature, horses spent most of the day for the searching and the intake of food (3). Their digestive tract is built for permanent food supply and feeding concentrates and small amounts of hay twice a day leads to colics and gastric ulcers in stabled horses. Furthermore vices such as crib biting may occur (3, 4). Also shelter is important; horses of every breed seek shelter when the weather conditions are bad, e.g. continuing rainfall in combination with wind and low temperatures or intensive insolation and high temperatures. If horses live outside on the pasture during the year (or only seasonal), they need protection against the weather (11).

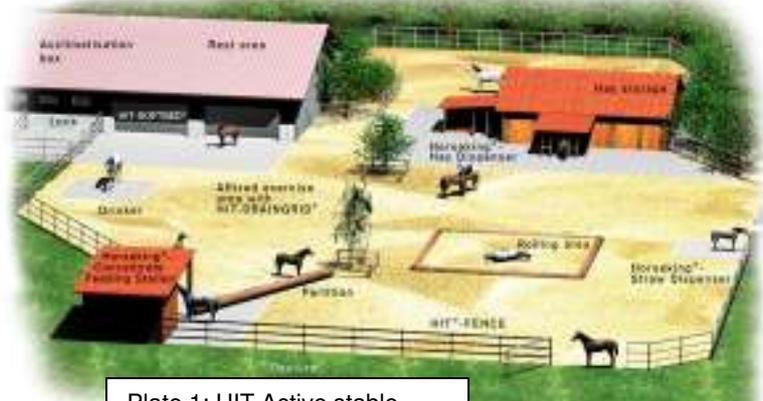


Plate 1: HIT Active stable

The concept of group housing combines a natural life for the horses with advantages for the stable managers and horse owners. Nowadays especially livery stables have a hard time to survive if they do not offer some specialties and great service to their customers. Livery yards have to be unique to get and to keep their customers. They have to offer a combination of benefits for both, the owner / rider and the horse. For the stable managers of a group stable the workload is less than in traditional stables and they do not have to stick to fixed feeding times (1 2). Livery yards become more and more important, due to the number of horses and the living arrangements of their owners. Due to the several different housing systems available in German livery yards, a species appropriate housing is not visible in every stabling system. However, the interest in "horse-friendly" stabling systems is increasing and not only among experts, but in public (14).



Plate 2: Group of horses

Indicators of species-appropriate stabling of horses are the consideration of natural, biological needs, as well as the consideration of individual tendencies and the possibility to carry out characteristic behaviour. Keeping animals always means to make compromises between the requirements of humans and animals, in this case horses (9). In today's livery yards the requirements of the horse owners/riders and their horses have to be considered to ensure customers satisfaction and a healthy horses.

### **3.2 Problem Definition**

The problem which is investigated in this research is the difference between the general opinion of horse owners on group stabling and the decision(s) they made for the stabling of their own horse(s).

The differences between the ideal and the actual stabling are most of the time based on several personal circumstances of the horse owners. In Germany the individual stabling of horses has a long history. People are used to see horses stabled individual and the system may have its advantages. However, since a few years a change in thinking emerges and the old systems are reconsidered (14).

The reason for this research is to learn about the facts which influence horse owners to stable their horse(s) in housing systems which are contrary to their stabling preference.

## **4. Research Objective**

The object of this study is to investigate on the reasons for choosing group housing versus individual housing of horses. This knowledge will be used to give a better overview of the opinions of horse owners on the concept of group housing as well as on the concept of individual housing.

In the following the main research question as well as the sub questions are shown to clarify the objective of this research.

### **4.1 Main research question**

- What are the main reasons for choosing either group housing or individual housing of horses?

### **4.2 Sub research questions**

- Are there any prejudices against the group stabling concept?
- What kind of prejudices against group stabling can be found?
- What are the advantages of group stabling in the opinion of horse owners?
- What are the disadvantages of group stabling in the opinion of horse owners?
- What are the advantages of individual stabling in the opinion of horse owners?
- What are the disadvantages of individual stabling in the opinion of horse owners?
- Are there differences in opinions between different groups of riders?

## 5. Literature Review

### 5.1 Housing of horses

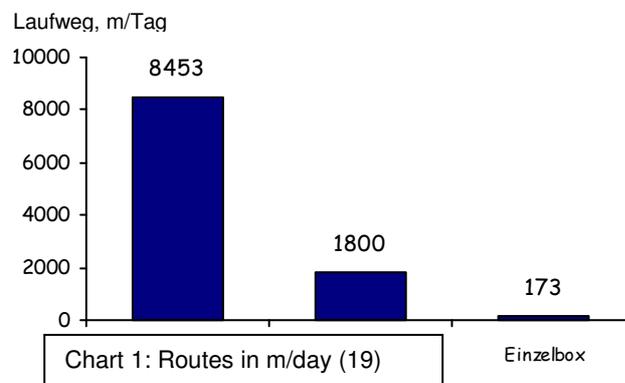
Existing research from Korries in 2003 investigated the housing of horses in Lower Saxony. Korries analyzed 104 stables which stabled 2.147 horses. Unfortunately the percentage of indoor individual stables without contact to the outside world added up to 63%; it was the main housing system. Only 31% of the horses had contact to their neighbours, e.g. via windows or in outdoor stalls. Directly accessible paddocks or similar, which satisfy the necessity of locomotion, only added up to a percentage under 6% in the researched stables. 28% of the investigated horses were used for breeding, 28% were performance horses and 44% were used for leisure riding and similar (see table 1 below).

	Indoor stall	Outdoor stall	Outdoor stall&paddock	Loose barn	Loose barn&paddock
<b>Total</b>	63,3	30,7	3,1	2,4	0,5
<b>Breeding</b>	53,7	38,4	0,6	6,2	1,1
<b>Sport</b>	58,7	39,9	0,2	1,2	0,2
<b>Leisure</b>	74,3	18,0	7,2	0,2	0,3

Table 1: Percentages of housing systems (14)

Frenzen investigated the activity and locomotion of horses depending on housing systems in 1994. He investigated the routes the horses walk and found out that they walk 8453 m/day when stabled on pasture, 1800 m/day in group run out and 173 m/day in individual stalls (19).

As consequences of limited locomotion in individual stables without paddock several problems occur. First of all cardiac and circulatory troubles can occur. Moreover a loss of elasticity in tendons, ligaments and joints, increased danger of fractures, stereotypes and increased jumpiness and due to that increased risk of accidents (9).



A species-appropriate housing of horses becomes nowadays more and more important due to the fact that more research is undertaken and people begin to understand how they can improve their horses as well as their own live by only switching the stabling system. According to Korries the species-appropriate housing needs to consider the physiological and psychological needs of the horse. The well-being of the animal is highly depending on the design of stables and paddocks, but next to the requirements of the animals, the needs of the owner are decisive. Here a preferably well-priced housing and efficiency are meant, to keep costs on an adequate level. The factors of influence on the species-appropriate housing of horses are shown in chart 2 (14).

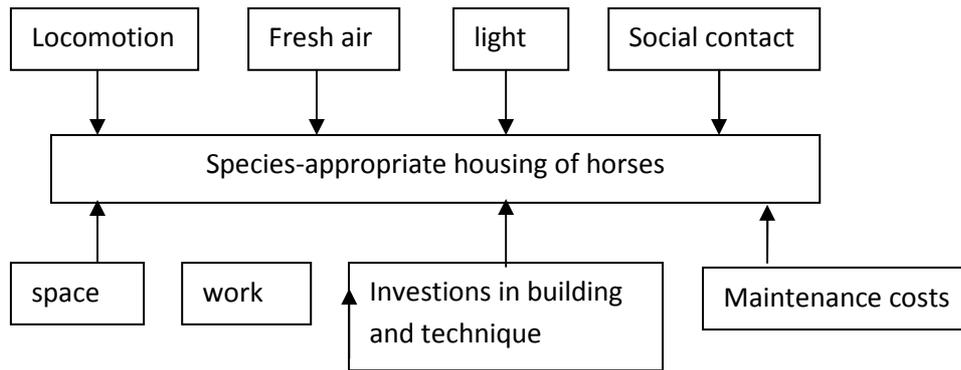


Chart 2: species-appropriate housing of horses (14)

In the chart below (chart 3) the different housing systems are shown. The systems can be subdivided in individual and group housing. The individual housing consists of tie stall housing and the well-known box stall. The tie stall housing is illegal in Germany, except for Bavaria where the law is coming into effect in 2014. The box housing can be indoors and outdoors, furthermore a paddock can be attached.

The group housing can be divided into the loose barn and the open stable. Normally the loose barn is a spacious inside stall for several horses, probably with attached paddock. The open stable is located outside on a pasture or paddock and the horses can choose if they want to be outside or inside (14).

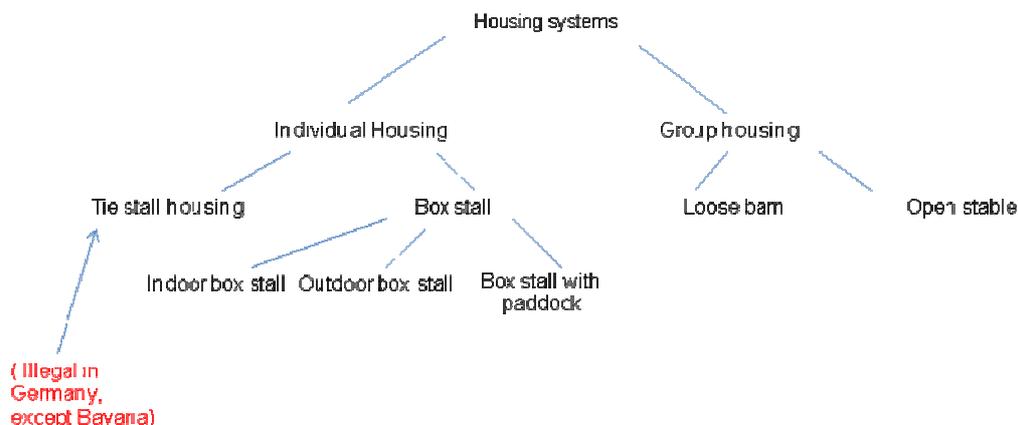


Chart 3: Housing systems

## 5.2 Livery yards in Germany

After the Second World War riding was not reserved to rich people or the military anymore. Increasing prosperity and leisure time stopped the decreasing numbers of horses and caused an enlargement of leisure riding. Also the interest of a broader population stratum in horses and horse stabling can be explained with the desire for a meaningful and nature orientated recreational activity. Due to research of Hoffmann working with and around the horse is today a compensation for the daily work routine (15).

Against the background of increasing numbers of horses and their changing use, the species-appropriate housing gains in importance. The number of horses in Germany rose up to more than a million animals within 35 years. Thereby stabling of horses displays a market for agriculture which should not be underestimated. Due to a study of the "Deutsche Reiterliche Vereinigung" in 2004 the horses and ponies in Germany need around 1, 6 million tons of feed grain, and around 1, 8 million tons hay and straw each year. Moreover three to

four horses represent one employment position and around 2, 6 billion euro is spent by riders, breeders, etc. for the running expenses in horse sport and stabling (15, 21).

On the other hand, the industry branch “livery yard” is an interesting alternative for agricultural businesses. Out of mere agricultural businesses around 15.000 horse farms emerged due to changes of occupancy (15).

Korries (2003) explains that in today’s situation, with the livery yard system, where horse owner and stable owner is not the same person; the supply and demand structure affects the stable choice. Therefore the infrastructure of livery stables is quite significant. In terms of animal welfare the facilities of the business can be of great importance. For example an indoor riding arena can be very important for the daily work with the horse, if the rider is employed and only able to ride after nightfall or if the weather does not allow riding outside (14).

Regarding economic aspects, a housing system for horses should satisfy following principles: it should be cost-saving and low in terms of labour, to achieve a preferably high profit due to Hoffmann (2008). Furthermore the housing should maintain the health of the horses to avoid an endangering of the economic success. Several scientific studies show that insufficiencies in housing result in relevant follow-up costs, which are often higher than the capital needed for optimal housing beforehand. The follow-up costs arise when horses cannot be trained effective to survive in top-class sport or due to higher costs for vets or pharmaceuticals (15, 20).

The responsibility for the horses is divided between riders / horse owners and stable owners. In accordance with Korries (2003) this is important for species-appropriate husbandry, because competencies are considered from different point of views. Different aspects such as profit seeking, care, rider’s ambition, expertise and human comprehension play a role here. Other than in productive livestock is the horse nowadays mainly a luxury, whose husbandry is determinate only by a few laws (14).

### 5.3 Legal regulations in horse husbandry

There is no housing regulation with specific information on the implementation of the animal protection law for the species horse in Germany. According Korries (2003) there are guidelines for the assessment of horse husbandry under the aspect of animal protection. These guidelines are determined by the “Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft and they describe which requirements have to be fulfilled by animal appropriate stabling of horses. Even if the guidelines are used in legal cases, they do not have the same legal obligation as housing regulations (14).

The German animal protection law 1998 is considered as a legal requirement, especially § 2 “Animal Husbandry”.

§2 [species appropriate husbandry and supervision] Everybody who keeps an animal or takes care of one ...

1. has to stable, care and feed the animal according to its nature and its needs,
2. shall ensure that the freedom of movement is not restricted in a way, that the animal is hurt or suffers from avoidable pain,
3. has to possess the required knowledge about adequate nutrition, care and species-appropriate housing.

After the last change of the animal protection law in 1998, the expertise of the animal handler is requested. Usually this should be a matter of course. However, due to the fact that

nowadays a lot of “beginners” turn towards the horse, its husbandry and equitation, unfortunately those requirements are not always given (14).

## 6. Methodology: Research design

This qualitative research is based on semi-structured interviews. Semi-structured interviews are open individual interviews, which allow a focused conversational communication. Interview scripts with a set of questions are used as a starting point to guide the interaction (annex 3). However, in order to get as much information as possible about the interviewees opinion on the particular topic, the interviewer asks more in depth questions after the first given answers. At the end, every interview can differ from the others (5, 6). The advantage of this qualitative research method is of course its flexibility. The interviewer is able to ask more open questions, which also give profound information content. Furthermore the interviewer is able to ask for more background information and to correct unclarities on the side of the interviewee. On the other hand qualitative research is very time consuming, both the conducting and the analysis are quite complex (7).

For the background information desk research is appropriate. There are different sources like books, articles and dissertations used to find information about the different stabling concepts of horses.

## 7. Methodology: Data collection

The necessary data for this research is collected with the use of semi-structured interviews. The interviews are designed in order to get more knowledge about the opinions of horse owners on group stabling compared to individual stabling of horses. Questions regarding the horses, the riding level, the actual stabling and the group stabling can be found in the interviews.

For collecting the necessary data a certain region in Germany is chosen. The company HIT-Hinrichs Innovation & Technik is located in Weddingstedt in the North of Germany and therefore the region around Hamburg is chosen to undertake the survey. In the surrounding of Hamburg a variety of livery stables are located and the horse owners who keep their horses there will be part of this study. All in all 35 horse owners who keep their horses in livery yards took part in this research.

The semi-structured interviews are conducted personally. There will be a two-way communication and not all questions are prepared ahead of the interview. Some questions are created during the interview, allowing a flexible discussion and more detailed answers (6).

In the following some interview questions are mentioned (also see annex 3):

- How many horses do you own?
- How much time do you approximately spend in the stable (hours/week)?
- What do you use your horses for?
- How are your horses stabled at the moment?
- What is important for you when choosing a livery yard for your horse?
- What were the decisive factors when you choose the current stable?
- Did you accept compromises when choosing the stable? Which ones?
- From your point of view what are the advantages of group stabling?
- What do you think are the advantages of individual stabling?

## 8. Methodology: Data processing

Due to the fact that this research is based on semi-structured interviews with several open questions, the interviewees' answers differ from each other. The data collection is quite large, which makes it difficult to compare the results with each other.

Therefore, the interviewees' answers are collected in an EXCEL table, which also contains information about their age and job (seen annex 1). A small cut-out of the data collection is shown in table 2.

Teilnehmer	Geschlecht (Frau=2, Mann=1)	Alter	Beruf	Anzahl Pferde	Stunden/Woche Stall	Nutzung Pferd
1	2	33	Kauffrau	1	21	Freizeit, reiten
2	2	27		2	20	Turnier, reiten
3	2	35	Sekretärin	1	25	Freizeit, westernreiten

Table 2: Cut-out of the complete data collection

In addition to the large excel table several smaller ones display the main responses to the following topics:

- Advantages of group housing
- Disadvantages of group housing
- Advantages of individual housing
- Disadvantages of individual housing

These tables are divided in three parts: the raw data responses, higher order themes and the global themes. The individual responses are subdivided in higher order themes and those are summarized in one global theme. The tables only show the main answers and the main themes to the questions, otherwise it would be unclear and confusing. However, in the annex 1 the large table is enclosed.

Raw data responses	Higher order themes	Global themes
Social behaviour in the group is developed.	Social contact	Species-appropriate animal husbandry

Table 3: Cut-out of the responses

The general facts of the interviews are collected in EXCEL and SPSS tables (see Annex 1 and 2). Further details, such as tests are described in SPSS as well. The description of the results during the study will be formulated in SPSS and EXCEL tables. The chi-square test is used to test for a difference in the stabling of horses between competition and leisure riders. The analysis of the total results is formulated using Word, whereby the used tables, statistics, diagrams, figures and graphics are from SPSS or EXCEL (see Annex 2). They will support the written outcomes. The graphs used for showing the outcomes of the research are bar charts, crosstabs and frequencies. They will give an overview over the different figures to be able to answer the research questions and to come to a conclusion.

All in all 35 individual horse owners, 33 women and two men, were interviewed. The average age is 31, 82 years. The youngest person is 17 and the eldest is 66 years old. The interviewees have different social backgrounds; they work as police officer, businesswoman, secretary, photographer, biologist, nurse or property managers. Some are students, others are retired. In order to show the results in an understandable and clear way, some figures are expressed as a percentage. In this case all participants (35 people) are regarded as 100%. This figure is used for all calculations (see annex 3).

The number of horses they own lies between one and six. The majority, 62, 92%, owns only one horse. 22, 88% of the interviewees own two horses, 5, 72% own four horses and one interviewee (2, 86%) owns three, five or six horses respectively. 74, 36 % (26 people) of the interviewees are leisure riders and only 25, 74% (9 people) are riding competitively.

The chapter “Results” will contain more in-depth information to the individual answers.

## 9. Results

The overall research question was to find out the main reasons for people choosing either group housing or individual housing of horses. Additionally, advantages and disadvantages of group and individual housing are clarified. The listed benefits and drawbacks in following text make no claim to be complete. There may be more or different ones. However it is a summary of answers to the questions in the interviews. It only reflects the opinions of the interviewees.

### 9.1 The housing systems

As a starting point the different housing systems of horses in this research have to be mentioned. All of the interviewed horse owners in this research keep their horses in livery yards. The housing at the different yards varies but most stables offer individual housing in box stalls either with or without paddocks.



Plate 3: Individual Box Stall

Most of the interviewed people keep their horses in individual box stalls with individual run-out (either on a paddock or pasture). Therefore 48, 62% (17 people) choose individual housing for their horses with only little or no contact to conspecifics. Those individual box stalls differ from each other, they are either inside or outside and some have a small individual paddock attached.

Ten out of 35 interviewees (28, 6%) stabled their horses in individual box stalls but with group run-out in the pasture or paddock. Five horse owners (14, 3%) choose to keep their horses in individual box stalls with both individual and group run-out. Only 8, 58% (3 people) keep their horses in open group stables. In chart 4 the division of the different actual housing systems is shown.



Plate 4: Box stall & paddock

**ACT.STA**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Individual stall&runout	17	48,6	48,6	48,6
individual stall&group runout	15	42,9	42,9	91,4
group stall	3	8,6	8,6	100,0
Total	35	100,0	100,0	

Chart 4: Actual housing systems

The participants spend around 19, 8 hours per week in the stable (see annex 3). This time includes not only riding, but all the work around the horses. The time span lies in between 5 and 50 hours per week and depends on the number of horses and other living arrangements. Moreover the main group of participants is female (94, 38%) (see Annex 2).

## 9.2 Prejudices against group housing

The first statement which 57, 2% of the participants mentioned when asked about disadvantages of group housing was the increased risk of injuries. When asked to explain why they think there is a bigger risk, the answers were mainly focused on the hierarchic conflicts in a group and their effects on the health of the individual horse. It can be said that there are prejudices against group housing and during the interviews it became obvious that most of the participants had no or only little experience which supported their prejudices. Only three of the interviewees keep their horses in a group stable and they could not confirm the prejudice of the higher risk of injury. However, they mentioned the aspect that the risk is depending on the horse.

## 9.3 Advantages and disadvantages of group housing

In this research different housing systems are compared and therefore advantages and of course disadvantages have to be mentioned.

Every participant mentioned one or more aspects of species-appropriate animal husbandry; 80, 08% (28 people) mentioned the social contact and the company of other horses as an important advantage of group housing. 34, 32% (12 people) said an important advantage of group stabling is the possibility to move around freely.



Plate 5: Group housing

During the interviews it became clear that another advantage of group housing is the (mental) balance of the horses. Nine participants (25, 74%) think that the natural way of keeping the horses, the movement and the company will lead to a calmer, even-tempered horse. In addition to that they mentioned that a relaxed horse is safer to handle for the owner / rider.

Moreover the "education" of young horses takes place within the group of horses. Later on those youngsters are a lot easier to handle than youngsters which are kept all by themselves in a stable. Furthermore, horses which are raised in a herd are socialised and they know how to behave. In later life it is possible to put them in other groups, because they already made the experience of living in a group. Those aspects were also mentioned by 14, 3% of the interviewees.

In the table below the main answers are summarized and ordered by global themes. As mentioned before the main focus is placed on the species-appropriate animal husbandry and the well-tempered horse (table 4).

Raw data responses	Higher order themes	Global themes
Social behaviour in the group is developed.	Social contact	Species-appropriate animal husbandry
Social contacts are strengthened.		
Social contact helps to reduce vices.		
Full-time movement in the herd, contrary to the individual stabling.	Ability to move	
The horses are even-tempered due to the natural moving.		
Horses are busy the whole day with playing, grazing, etc.		
The horses are occupied the whole day.	Easy handling	Experienced, well-tempered horses safety
The horses are socialized, working with them becomes easier.		
Horses are busy the whole day with playing, grazing, etc.		
Young horses are raised by older members of the herd.	Horses gain experiences	
A well-functioning herd educates its members, especially the youngsters.		
The horses get to know different stimuli, which make them tougher.		

Table 4: Advantages of group housing



Plate 6: Fighting horses

During the interviews it became obvious that the group housing also has some disadvantages. The main disadvantage is according to the participants the risk of injuries for the horses, especially for competition horses. 57, 2% (20 people) of the interviewees think that the risk of injuries is bigger than in individual stables, e.g. because of hierarchic fights or play fights (see table 5 below).

Closely associated with that is the fact that group housing is not possible in training or trading stables, considering the constantly changing horse population. Furthermore it is most of the times not allowed to shoe the horses, at least not on the hind legs – which is explained with the risk of injuries. 17, 16% (6 people) think these two facts are quite important drawbacks for group stabling.

Another disadvantage of group housing is the feeding. During the interviews it was mentioned that in group stables the horses are mainly kept together and the feeding is the same for every horse in the group. Exceptions, e.g. in case a horse is sick, were mentioned. However, if there is hay available the whole day, it is accessible for every horse. Although

some horses probably do not need so much feed, it is obtainable for them and the problem of overfeeding and weight gain arises. 22, 88% (8 people) of the participants think the feeding is another problem in group housing.

The feeding is part of the daily care and the owners are very concerned about it. In the interviews other details were discussed such as the higher risk of infection or the stress some horses have when living in a group. Further on the impossibility to control the exact intake of water or feed is a disadvantage according to 5, 72% of the participants in this research.

Some horses are not socialized very well (see part advantages of group housing above) and when they are placed in a group they can get stressed or they become aggressive or panic. Seven people out of 35 (20, 02%) think that stress for poor socialized horses as well as for subordinated horses (see table 5 below) is a disadvantage in group stabling.

Raw data responses	Higher order themes	Global themes
Injuries due to hierarchic conflicts.	Conflicts	Risk of injury
Changing group members and evolving conflicts.		
Instable groups in livery stables.		
Not every horse can be part of every group.	Individual problems	
It is too dangerous for sport horses.		
Unsocialised horses may become aggressive or anxious.		
Higher risk of infection.	Health	Care
Some horses may become stressed due to conflicts in the group.		
Probably (older) horses do not have enough time to rest and to sleep.		
The owner is not able to control the horses' intake of feed, water, etc. exactly.	Control	
A loss of appetite for example is detected later.		
All horses get the same feed, no individual diet.		

Table 5: Disadvantages of group housing

## 9.4 Advantages and disadvantages of individual housing

When looking at the different housing systems, every system has its' assets and drawbacks. The advantages of the individual housing system are highlighted in the following part:

First of all the participants in this research mentioned the lower risk of injury (compared to group housing). 74, 36% of the interviewees have the opinion that the horses which are stabled in individual box stalls either with or without individual paddock suffer less from injuries than horses in group housing. The occurring (hierarchic) fights in group housing often involve little cuts or scratches, sometimes even bad injuries. These injuries are particularly

bad when the horses wear shoes; hence the individual stabling is an advantage for the shod horse (5, 72%).



Plate 7: Individual feeding

Another benefit of individual stabling is the individual care and feeding of every horse (see table 6). Each horse only gets the amount of feed it needs. If required, it is also possible to feed special diet without having too much trouble with the other horses. 22, 88% (8 people) of the interviewed horse owners think that this fact is quite important. Moreover there is almost no jealousy about food. At least there are no fights about it which on the belief of 17, 16% of the participants also mean that the horses can rest more.

The individual stabling also has the advantage that it is possible to change the horse population whenever it is required. The mentioned aspects are training stables or livery yards with high fluctuation. There it is impossible to build up a constant group; therefore it is quite useful to stable horses individual. Five participants (14, 3%) think this is beneficial (see table 6 below).

Horses which are subordinated or not socialized very well can easily be stabled in individual box stalls, because of the facts mentioned above. That is the opinion of 20, 02% (7 people) of the participants. Also it is stated that individual housing is most of the time the only way to keep stallions.

One interviewee mentioned the aspect of lower costs for the horse owner; due to the fact that there are fewer pasture injuries, no loss of halters and no damaged blankets. Further on the horse is always within reach and mostly clean, so the owner / rider has less work and saves time. Only two people (5, 72%) found no advantages at all in individual stabling (see table 6 below).

Raw data responses	Higher order themes	Global themes
No conflicts or injuries due to jealousy about food.	Conflicts	Risk of injury
No hierarchic conflicts; new horses can be introduced to the stable without any problems.		
Horses can wear shoes without presenting a serious danger to other horses.		
Costs as a result of pasture injuries, lost halters or damaged blankets are lower.	Care	
Less work for the horse owner, the horse is always within reach.		
Most of the time the horses look well groomed, without little cuts or bites.		
It might be the only (and easiest) way to keep stallions.	Special cases	Individuality
Horses that never got socialised should be housed individually.		
Less stress for e.g.		

handicapped horses.	Independence	
Every horse can get its' special diet.		
Horse owners are not depending on others.		
The horses are used to being on their own, no bond to a group.		

Table 6: Advantages of individual housing

The disadvantages of individual stabling are explained in the following. First of all the aspect species-appropriate animal husbandry has to be highlighted. 85, 80% (30 people) remarked the missing social behaviour in individual housing. The horses are not able to interact with others; most of the interviewees remark that the horses only stand next to each other with a fence or wall between them (13).

Young horses do not learn how to interact within a group, they are not socialized and will get problems later on is the opinion of 14, 3% of the interviewees. 71, 5% of the participants (25 people) also mentioned the missing locomotion as remarkable. Even if the horse has run-out in the pasture or paddock, the company of other horses would stimulate the locomotion better (9).

Another point which needs to be highlighted is the fact that horses which are kept individual often show a nervous behaviour which is based on the congestion of locomotion. Once the horses get outside (riding or run-out) they start running and / or bucking. This can lead to injuries of the horse or even to accidents. 14, 3% (5 people) of the interviewees mentioned exactly this problem. Finally three people (8, 58%) mentioned vices as a problem of individual housing (see table 7 below).

Raw data responses	Higher order themes	Global themes
The horses are not able to groom each other or just to interact with other herd members.	Social contact	Species-appropriate animal husbandry
Young horses have no possibility to learn the right behaviour.		
The social contact is just not possible, or only to a limited extent between stall neighbours.		
The movement of a horse in a box stall is quite restricted.	Ability to move	
Without stimulation through others, some horses might reduce their movement to a minimum.		
The whole group interaction is missing.		
Some horses become very nervous and stressed when kept individually.	Extreme behaviour	Difficult horses
A horse which is kept on its own can become very alert to its surroundings.		

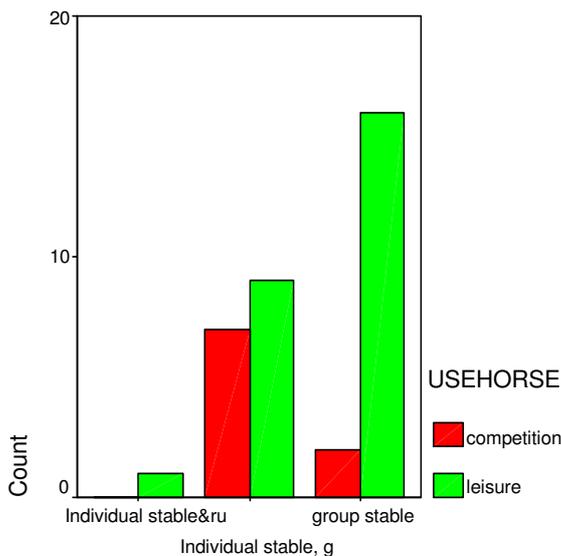
In some cases the horses get bored and develop vices.		
A horse that is always on its own can never develop real social behaviour.	Missing socialisation	
Horses that are kept individual have a lot of trouble when they are introduced to a group.		
Some horses that are used to individual housing become anxious or start to panic when they are introduced to a herd.		

Table 7: Disadvantages of individual housing

### 9.5 Differences between groups of riders

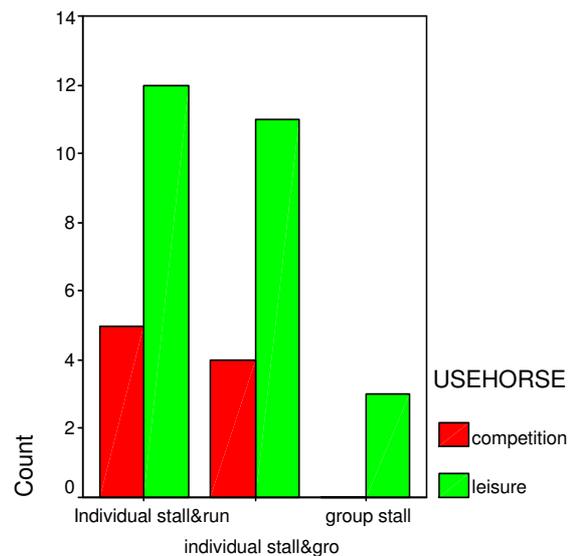
The participants of this research can be divided into leisure and competition riders. There are 26 (74, 36%) leisure riders and 9 (25, 74%) competition riders, which own 1, 7 horses on average. Most of the interviewees (62, 92%) own only one horse, the others own either two, three, four, five or six horses (for detailed information see chapter 8).

In the following two clustered bar charts the differences between the attitudes of the participants towards group stabling and their actual choice of stabling are shown.



IDEALSTA

Chart 5: Ideal stabling - group of riders



ACT.STA

Chart 6: Actual stabling – groups of riders

Most of the leisure riders would prefer group stabling for their horses (16 people). However the graph shows that most of the leisure horses are stabled in individual stables with individual run-out (12 people). Only one person thinks that an individual stable and individual run-out is the best choice for his / her horse. Some of the participants (17, 16%) would even prefer the group stabling, yet their horses are kept individual (see Chart 5, 6).

The competition riders would prefer the individual stable with group run-out (7 people). Most of their horses are also kept in individual stables with individual run-out (5 people). Two of the participants would prefer the group housing, but their horses are stabled individual either with individual or group run-out (see chart 5, 6).

When only looking at the bar charts, it can be said that there are on average more performance horses stabled individual than leisure horses. Five out of nine competition horses are stable in this kind of housing, whereas only 12 out of 26 leisure horses are stabled individual.

To find out if there is a difference in the actual stabling of horses between competition and leisure riders, two hypotheses are formulated.

H0: There is no significant difference in actual stabling between competition and leisure riders

H1: There is a significant difference in in actual stabling between competition and leisure riders

To test for differences in nominal data the chi-square test is used. In this case the number of cases is not big enough to be reliable. Even after recoding the cells, there are “empty cells” and therefore the test is not reliable (see Annex 2).

## 9.6 Reasons for choosing a stable

In the chart below (Chart 7) the reasons for choosing a stable are shown. Due to the fact that

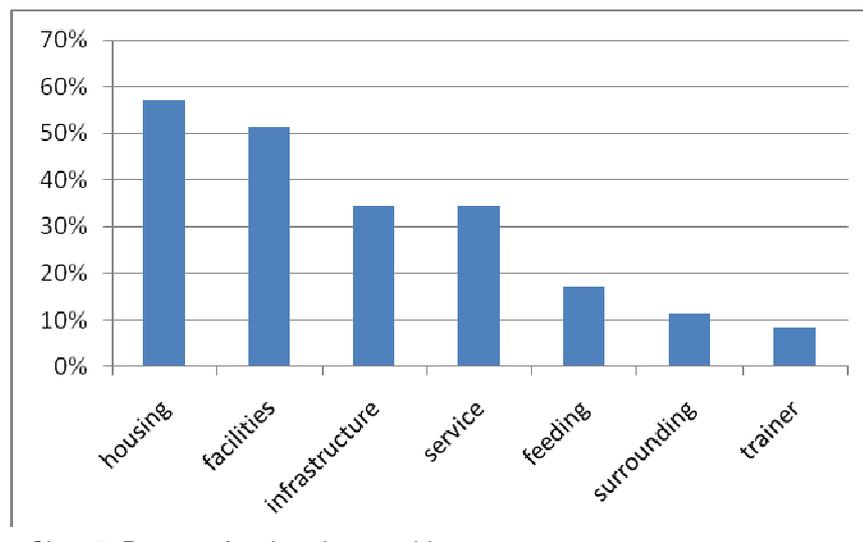


Chart 7: Reasons for choosing a stable

some interviewees gave multiple answers, the percentages vary and do not add up to 100%.

The participants in this research have different views on this topic but for most of them the housing of the horses is an important reason. 57, 2% of the interviewees say that the housing of the horses is important for them when they are looking for a livery yard.

The second important aspect when choosing a yard are the training

facilities. 51, 48% of the horse owners choose a livery yards with regards to its facilities.

The infrastructure, meaning the distance between the stable and the horse owners' homes as well as the service of the stable are important for 34, 32% of the participants. 17, 16% of the interviewees say that the feeding of their horses as well as the costs for the stable is important. Two more aspects are the surrounding of the stable and the trainer. For 11, 44% the surrounding is important whereas only 8, 58% think that an available trainer on-site is important.

## 10. Discussion

In the following chapter some aspects of this research are picked up and explained and discussed more in detail.

### 10.1 Species- appropriate stabling of horses



Plate 8: Tie stalls

In history the stabling of work, riding or cavalry horses was with few exceptions the tie stall housing. Only very noble horses or studs were stabled in box stalls. Thus the horses were within reach and time was saved, because they were mainly clean and ready for work. The tie stall housing was used in riding schools until the 1980s. For today's leisure horse which is not working the whole day, the disadvantages of tie stall housing could not be ignored. Therefore, it is banned nationwide in Germany nowadays, except for Bavaria - prohibition in 2014 (3, 9, 10).

From the tie stall housing the box stall developed which is today the main housing system in Germany. The minimum size of a box stall should be the double-height of the withers squared, with the smallest side of the box meeting a minimum of 1, 5-times the height of the withers. In Lower Saxony 94% of the horses are stabled in individual box stalls, 63% of them in indoor stalls. When looking at the high performance horses, the percentage of indoor box stalls is actually 67% (14). Looking at the results of this research it can be confirmed that most people (48, 62%) keep their horses in individual box stalls with individual run-out (see chapter 9.1).

The box stalls ten or fifteen years ago had no windows or only small ones. Meanwhile it changed to bigger windows and half-height walls between two stalls. In nature-orientated surroundings horses cover a distance between 6, 1 and 10, 8 km. In an individual box stall without paddock horses cover only a distance of approximately 0, 17 km (3).

Stabling horses in box stalls is not necessarily inappropriate. Improvements such as individual paddocks attached to the box stables where horses can decide themselves whether to go in or out (see plate 4) are small but effective changes. This kind of individual housing is definitely an acceptable option, which is also useable in modern performance horse stabling. It combines the individual feeding and supervision a high performance horse needs with at least a minimum of social contacts (neighbour



Plate 9: Herd coming in

horses), light, fresh air and depending on the size of the paddock a certain possibility to move. In individual housing the horse specific requirements are best fulfilled with a box stall with an attached paddock. The small paddock should not hide the fact that the possibilities for social contact or locomotion are clearly restricted. When combined with daily group run-out on a pasture it is quite adequate housing (3, 10, 14). 28, 6% of the participants in this research choose this kind of stabling for their horses (see chapter 9.1).

The loose barn housing is a group housing system, which is not often used for riding horses or in livery yards. Mainly it is used on breeding farms for young horses, weanlings or broodmares. The advantages compared to the housing systems described above are of course the social contact and the mobility. Occurring problems are social conflicts and difficulties with individual feeding (3). Those problems were also mentioned in this research when talking about the disadvantages of group housing (chapter 9.3).

Group housing satisfies the specific demands of horses regarding the regular movement and social contact. Horses which are raised in a herd / group develop better social skills than horses in individual housing (3, 13). Although all this is known, social isolation and confinement which reduce the expression of natural behaviour are common in conventional housing systems (see chapter 9.1). Despite the great improvements and innovations in the stabling of horses in the past, a lot of horses – the majority- are housed in individual stables (14). The reason for that is the fact that people have a lot of concerns about group housing. Horse owners are worried about the increased risk of injuries, the feeding or the difficulty of separating one horse from the herd. Regarding these concerns, it becomes clear why the group housing is not as outspread as might be expected when looking at the advantages.

Whereas the life-span of most of the livestock is quite short, the expected useful life of horses is most of the times longer to be efficient. The long time period from raising the foal and training the young horse should be accompanied by a long useful life. Therewith the maintaining of health and performance should have priority over other factors – also over the housing. The horses' requirements on its' housing are based on the history as flight and social animal (12).

During a research on horse farms in Lower Saxony in 2003 less than 6% of the horses were stabled in group housing, although the fraction of leisure horses was up to 44% (14) (see chapter 5). The same was noticeable during this research. Nowadays group housing is quite a common sight at least in Germany. Still, most of the horses in Germany are stabled in individual box stalls (9). Therefore it is not very remarkable that most of the participants in this research also keep their horses individual stabled.

82, 94% of the participants stated that they were leisure riders. Nevertheless only 8, 58% of the horses were stabled in group housing and none of them was a performance horse. Although the group housing system is a good compromise between the needs of today's little used leisure horses and the requirements of the owners who want a well-tempered, healthy horse within reach, it is not used very often. Characteristic for group housing is the social contact and a lot of locomotion within the herd / group. Further on the horses can decide whether they want to be in- or outside (3).

Another research in 1996 explored the behaviour of trotting horses in individual and group housing systems. They concluded that group housing presents the more species-appropriate housing system on the basis of the social contact and the freedom to move. Moreover these results show that group housing is also applicable for high performance horses (16).

## 10.2 Why do the chosen livery stables differ from the ideal ones?

During this research it was remarkable that most of the horses were kept individual even though the horse owners would have preferred group housing or at least group run-out (detailed information in chapter 9.5).

The selection of the livery yard which fits the requirements of horse and human best is quite complicated and depends on several factors (also see chapter 5.2).

The reasons for choosing a certain stable were already described in chapter 9.6. However, most of the participants had to accept compromises when choosing a stable. Only 25, 74% made no compromise at all. The main problem is the infrastructure, i.e. the distance between the participant's home and the stable. 20, 02 % had to cut back at this point, the distance for them to drive was bigger than desired. Another point was the housing itself. In this case 17, 16% made concessions and instead of putting their horses in e.g. group stables they were constrained to choose another housing system. That was either because of no offer for group housing in the surrounding or because of too high prices.

As mentioned before (see chapter 5.2) the most common housing system in Germany still is the individual housing. Therefore it is not remarkable that the assortment of group stables is not quite as big. On the other hand there were several interviewees who paid a higher rent than expected for the stable only to keep their horses in a western stable or to stable them within reach (see annex 1).

Before choosing a stable, each horse owner has to ask himself / herself a few questions:

- What kind of housing would I prefer for my horse?
- What do I want to pay? / What am I able to pay?
- Do I need / want certain training facilities?
- Do I want to have a trainer?
- Do I need all-inclusive service?
- ...

Regarding all the aspects it is very hard or almost impossible to find the perfect livery stable. Most of the times people have to make concessions and some have to try different options until they find what they were looking for. However, at the end it is important that the requirements of both human and horse are satisfied as far as possible.

### 10.3 The risk of injury

The risk of injury is already mentioned as a disadvantage of group housing in chapter 9.3. At this point it needs to be discussed if the risk is reality or just a prejudice (see chapter 9.2).

The group housing system includes a group stable with a group paddock and ideally pasture. To avoid hierarchic fights the area should be big enough, between 8 - 9m<sup>2</sup> per horse should be calculated for the lie down area. In group housing it is necessary to arrange the feeding area in a way that all horses can eat at the same time to avoid fights. When feeding individual feed it is necessary to built feeding stands for separate feeding (12).

It can be said that a group housing system is very complex and it has to be well-thought-out. It is not enough to take the horses out of their single boxes and put them together into a paddock. Furthermore it is not a harmonic group if the horses only know each other from the pasture. People have to bear in mind that even if the individual horse has more space available in group housing than in a single box, the group housing systems are not natural, but rather horse stabling in confined spaces (18).

From this point of view there are a few disadvantages occurring, especially for subordinated horses. In the nature groups of horses develop out of families, in a group stable complete strangers are put together, because the owners want it that way. Further on the area is restricted, i.e. a subordinated horse cannot avoid every contact to herd members. Also subordinated horses have less rest and a can be chased away from feed because of other herd members and the restricted space / offer of feed (17, 18).

The manager of such a stable has to keep in mind all the aspects when building the stable. Moreover he / she has to keep an eye on all horses to be able to interfere when problems occur. However, another research from 2005 showed that even when not all requirements on a group stable are fulfilled, the impact is not as big as expected. It was shown that the number of injuries did not change a lot in group housing compared to individual housing. The horses get most of the injuries on the pasture, either from another horse or when they are running around (18).

All in all it can be said that with good planning, careful management and permanent control of a group stable, the risk of injuries is not bigger than in individual stabling. The injuries itself

may vary (18). Previous research also shows that problems and injuries often occur in individual stabling without or only with restricted run-out. Due to the limited locomotion, most of the times the injuries occur during run-out or exercising. Also the risk of accident is quite higher, because the horses are jumpy and under-worked (9).

## 11. Conclusion

The aim of this research is to investigate the benefits of group stabling in comparison to individual stabling of horses. When looking at the advantages of group stabling it becomes clear why there is an ongoing change in the industry of horse stabling systems.

The building of stables has to fulfil a certain expectation, namely to bring in line several requirements. Desirable are a smooth run of the work processes, low costs, as well as performance enhancing housing of the horses and the guarantee of “normal” life processes through a species-appropriate housing system (18). After all it can be said that the group housing system is very species-appropriate and highly recommendable for almost every horse. Of course there are expectations, e.g. non-socialized or handicapped horses.

Summing up, the reasons for choosing either group housing or individual housing of horses are depending on the living arrangements of the owners, the availability of an adequate stable and of course the horse itself. In the run-up the people have a variety of prejudices against group housing; the most important one is the risk of injury, which can be proven wrong at the end (also see chapter 5.2).

The advantages of group stabling are diversified; the most important advantage is the species-appropriate housing. The horses are able to move around freely, they have social contact and they are occupied the whole day. The main disadvantage is the fact that group housing only works out when the fluctuation of horses is insignificant otherwise the interviewees' fear of injuries will be justified.

The main advantages of individual stabling are the individual care for each horse as well as the lighter risk of injuries. However, in well managed group stables the risk of injury is not bigger than in individual stables. The main disadvantages of individual housing are the missing social contact and the restricted movements.

The differences between rider groups are not as big as expected. However, it can be said that there are more competition horses (5 out of 9) housed in individual box stalls than leisure horses (12 out of 26).

## 12. Recommendation

When considering all the aspects and outcomes of this research, it can be said that the reasons for choosing a certain stable depend on several factors. The managers of livery yards have to keep that in mind when they want to be successful. They have to research their (potential) clients, find out about their living arrangements and their wishes. Furthermore the competitors have to be checked, what do they offer to the horse owners? The options for rebuilding e.g. from individual stables to group housing or even the possibility to offer a combination of both housing systems have to be clarified. Because only if a livery yard can fulfil the needs of horses and owners they can be successful.

During the last decades the development in housing systems of horses shows that it is advisable for livery yard managers to stay informed and to know about innovations and new research on this topic. Moreover managers should be open-minded, have a look at new systems, their advantages as well as at their disadvantages. Only this way the stabling of horses can be improved in the long-run.

### 13. Summary – Zusammenfassung

Das vorrangige Ziel dieser Studie ist es, die Gründe für die Wahl eines Gruppen- oder eines Einzelstalles zu erfahren. Desweiteren soll die Studie dazu dienen einen Überblick über die Meinungen der Pferdehalter zur Gruppenhaltung zu erhalten sowie über die Vor- und Nachteile des Haltungssystems.

35 Teilnehmer (n=35) haben an dieser Studie teilgenommen. Größtenteils Freizeitreiter (74, 36%), aber auch Turnierreiter (25, 74%) wurden in Interviews nach ihrer persönlichen Meinung zu den Vor- und Nachteilen von Gruppen- und Einzelhaltung, ihrer aktuellen Pensionsstallsituation und den Gründen für eine Stallwahl befragt. Diese Interviews waren halbstrukturiert, d.h. ein Teil der Fragen wird vorbereitet, während sich andere Fragen im Gespräch ergeben (Anhang 3). Um die Antworten klar dazustellen, wurden sie in einer EXCEL Tabelle zusammen gefasst (Anhang 1). Details, z.B. die Vor- und Nachteile der Haltungssysteme werden in weiteren EXCEL und SPSS Tabellen verdeutlicht (Anhang 2).

Alle Teilnehmer dieser Studie haben ihre Pferde in Pensionsställen untergebracht. Die meisten Tiere (91, 52%) stehen in Einzelboxen mit Einzel- oder Gruppenauslauf. Obwohl 51, 48% der interviewten Pferdebesitzer die Gruppenhaltung bevorzugen würden, gibt es doch noch eine große Differenz zwischen Idealvorstellung und Realität. Ganze 40, 04% haben ein anderes Haltungssystem gewählt, obwohl sie die Gruppenhaltung für artgerechter halten. So sind z.B. fünf von neun Turnierpferden und zwölf von sechsundzwanzig Freizeitpferden in Einzelboxen untergebracht.

Die Gründe, die bei der Stallauswahl eine Rolle spielen, sind abhängig von den Lebensumständen der Menschen, sowie von der Auswahl an Pensionsställen und dem jeweiligen Pferd. Somit können die Gründe stark variieren, während die Vorurteile doch eher dieselben sind. Das Vorurteil, welches am meisten genannt wurde, ist das erhöhte Risiko von Verletzungen bei der Gruppenhaltung. Für 57, 2% der Teilnehmer ist das Haltungssystem ein wichtiges Auswahlkriterium, aber auch die Anlage ist für 51, 48% der Pferdebesitzer von hoher Bedeutung. Die Erreichbarkeit des Stalles, d.h. die Nähe zum Wohnort sowie der Service, e.g. Vollpension ist für jeweils 34, 32% der Pferdehalter wichtig. Dahingegen sind die Fütterung sowie der Preis für die Unterbringung des Tieres nur für 17, 16% wichtig bei der Suche nach einem Pensionsstall. Das Gelände ist vor allem für Freizeitreiter ein entscheidender Punkt, auch für 11, 44% der Teilnehmer ist es ein Auswahlkriterium. Einen Trainer direkt vor Ort zu haben ist für 8, 58% der Pferdebesitzer wichtig.

Die Vorteile der Gruppenhaltung sind vor allem der Sozialkontakt und die Bewegung. 80, 08% der Befragten gab an, dass sie den sozialen Kontakt und die Gesellschaft anderer Pferde als Vorteil sehen. 34, 32% gaben an, dass die Freiheit des Pferdes sich zu bewegen wann und soviel es will, ein weiterer Vorteil der Gruppenhaltung ist.

Beim Vergleich der Stallsysteme muss berücksichtigt werden, dass beide sowohl positive als auch negative Effekte auf die Pferde haben können. Abhängig von der Planung, dem Management und der Umsetzung von Erfahrungswerten und Innovationen, sind beide Systeme mal mehr und mal weniger artgerecht. Ein gut durchdachtes System wirkt sich aber leistungsfördernd auf die Pferde aus, natürlich ist das auch wieder abhängig vom jeweiligen Pferd.

Die Gruppenhaltung ist im Vergleich zur Einzelhaltung vorteilhafter für das Pferd als soziales Lebewesen, während die Einzelhaltung augenscheinlich mehr Vorteile für den Reiter beinhaltet. Alles in allem könne die Erkenntnisse aus dieser Studie vielleicht dazu beitragen den steten Wandel in der Pferdehaltung, der schon seit Jahren stattfindet, besser zu verstehen.

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Chart 7: Reasons for choosing a stable in %

Plate on front page: [online available from] [<http://www.aktivstall.de/docs/aktuelles.html> assessed at 09.02.10]

Plate 1: [online available from] <http://www.aktivstall.de/docs/aktuelles.html> [assessed at 09.02.10]

Plate 2: [online available from] <http://www.islandpferdeportal.de/bilder/fremd/diehn/pferde-auf-der-weide.jpg> [assessed at 29.05.10]

Plate 3: [online available from] <http://www.pro-barhuf.de/fotos/boxen.jpg> [assessed at 29.05.10]

Plate 4: [online available from] <http://images1.dhd24.com/37088881.jpg> [assessed at 29.05.10]

Plate 5: [online available from] [http://www.frohnhaeuser-muehle.de/file\\_server/image/pferdep.jpg](http://www.frohnhaeuser-muehle.de/file_server/image/pferdep.jpg) [assessed at 30.05.10]

Plate 6: [online available from] <http://img.fotocommunity.com/photos/5126711.jpg> [assessed at 29.05.10]

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Plate 9: [online available from] [http://lh6.ggpht.com/\\_a6n5Nv8ZSuw/SYxuaBSZzBI/AAAAAAAAAp4/OnpcCzCNkRk/Pferdeherde.jpg](http://lh6.ggpht.com/_a6n5Nv8ZSuw/SYxuaBSZzBI/AAAAAAAAAp4/OnpcCzCNkRk/Pferdeherde.jpg) [assessed at 30.05.10]

Table 1: Percentages of housing systems (Korries 2003)

Table 2: Cut-out of the complete data collection

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Table 4: Advantages of group housing

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Table 6: Advantages of individual housing

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## **16. Annex**