

POSSIBILITIES OF USING HUCUL HORSE (CARPATHIAN PONIES) AT RIDING SCHOOLS BASED ON THE RESULTS OF BEHAVIOURAL TESTS

Melinda Gyalus^{1*}, Richárd Kiss¹, Mónika Galambosné Tiszberger²,
J. Péter Polgár¹, Szabolcs Bene¹

¹University of Pannonia, Georgikon Faculty, Department of Animal Sciences and Animal Husbandry, 16 Deák F. Str., H-8360 Keszthely, Hungary

² University of Pécs, Faculty of Economics, Institute of Business Methodologies, Rákóczi Road 80, H-7622 Pécs, Hungary

*pirkadat25@freemail.hu

Abstract

Nowadays Hucul breed is less popular in Hungary compared to the half-bred horses. However, by the versatile exploitation, stature, bearing capacity and frugality, the breed was able to occupy a more significant role at riding schools, hobby horse owners and riders. Temperamental and behavioural qualities of the training horses have essential role in teaching beginners or children and at therapeutic courses. Cooperation with the trainer and the rider and friendly, calm behaviour are fundamental requirements using these breeds. By reforming the traditional performance test system, uniquely in the national horse breeding practise, the Hungarian National Pony and Small Horse Breeders' Association lays considerably more emphasis on besides the general value traits (confirmation, origin, performance, summarising exterieur) moreover to achieve better understanding of temperamental and behavioural characteristics (internal value traits summarising interieur). Apart from physical appearance / conformation and origin; temperament, rideability and obedience of ponies and small horses are evaluated at a horse muster based on an accurately defined skill test. Knowing and examining these features (similarly to foreign practise) as well as using its objective results is a rightful claim in terms of safe training, sport-, hobby- and therapeutic riding in today's modern horse breeding. In this paper, temperament and nature of Hucul breed were examined

with the help of several easily performed behavioural tests. It was also investigated whether the breed is suitable for teaching beginner riders.

Key-words: Hucul horse, behavioural tests, training horse, qualifying traits of horses

Összefoglalás

A hucul fajta napjainkban még kisebb népszerűségnek örvend a félvér fajtákhoz képest Magyarországon, azonban sokoldalú hasznosíthatósága, termete, teherbíró képessége és igénytelensége alapján nagyobb szerepet kaphatna a lovas iskolák és hobbilótartók/lovasok állományában. A kezdő vagy gyermek lovasok oktatásában, a terápiás célú foglalkozások során kiemelt szerepe van az oktatólovak vérmérsékleti és viselkedésbeli tulajdonságainak. Az oktatóval és lovassal való együttműködés, a barátságos és nyugodt viselkedés alapkövetelmény az ilyen jellegű lóhasználat során. A hazai lótenyésztési gyakorlatban egyedülálló módon a Póni és Kislótenyésztők Szövetsége a hagyományos teljesítményvizsgálati rendszert átalakítva nagyobb hangsúlyt fektet a lovak általános értékmérő tulajdonságai mellett (küllem, származás, teljesítmény összefoglaló néven exterieur) a vérmérsékleti és viselkedésbeli tulajdonságainak (belső értékmérő tulajdonságok összefoglaló néven interieur) megismerése is. A küllem és származás bírálata mellett pontosan meghatározott készségvizsga alapján bírálják a tenyészszelemlén résztvevő pónik és kislovak vérmérsékletét, lovagolhatóságát illetve kezelhetőségét. Ezen tulajdonságok ismerete és vizsgálata (a külföldi gyakorlathoz hasonlóan) illetve objektív eredményeinek felhasználása jogos igény, a biztonságos kiképzés, sport, a hobbi és a terápiás lovagoltatás részéről a mai modern lótenyésztés felé. Munkánk során a hucul fajta vérmérsékletét és természetét vizsgáltuk különböző egyszerűen elvégezhető viselkedési tesztek segítségével illetve kerestük a választ arra, hogy a fajta alkalmas-e kezdő lovasok oktatására.

Kulcsszavak: hucul ló, viselkedési tesztek, oktató ló, lovak értékmérő tulajdonságai

Introduction and objectives

Behaviour and character of riding school horses contributes greatly to beginner riders' safe training as well as pleasant and relaxed atmosphere. Without the contribution of horses, trainers undertake an impossible task. Choosing the appropriate horse bred or being devoted

for training duties, requires thorough consideration, as their breeding and training is time-consuming and expensive. Consequently, it is of high importance, especially at national level, that the chosen/bred horse meets the expectations and suits our requirements.

The quality and skills of the present training horses in Hungary have improved a lot recently thanks to organised instructor and coach training and legal control. However, they could even be better. Instructors and riding schools can choose from extremely heterogeneous stock and most of the time at the majority of riding schools there are only very limited financial resources for this.

According to experts, Hucul breed is considered to be even-tempered, kind, reliable and easily manageable which is recommended for adults and children, either for hobby or for races. This breed is less favoured in Hungary. However, in the surrounding countries (Romania, Poland, Slovakia and Austria) it is extremely popular thanks to its favourable use, traits and being undemanding (Mihók, 2006).

Our aim is to popularize Hucul breed by presenting the results of the applied ethological tests examining its behavioural and temperament features and, as a completion of documents of the breed in riding schools with the help of scientific methods.

Qualifying traits of training horses

Breeding and educating training horses used with beginner riders is a specific field of exploitation and horses have to fulfil numerous requirements.

In the case of horses the qualifying traits are determined by the direction of exploitation, too. The real value of training horses used for training beginner riders is set by the following characteristics: proper conformity and body features and the related value of locomotion; behaviour-temperament, character, relationship with people; cognitive skills trainability and teach ability; qualification.

The appearance of the horse is not only an aesthetic factor, but also an important aspect influencing the direction of exploitation. Horse breeding is the area among domestic animals where it is the easiest to conclude the possible performance based on the appearance of the animal. General body features have an important role in shaping locomotion. That is why they are important in therapy and in the case of horses used in riding schools.

Locomotion of the training horse is an essential qualifying trait. In general, the stride should be regular four-cycled regardless of the pace, the hind legs must not step beyond the

tracks of the front ones. Horses should be able to lengthen or shorten its step. Trotting should be convenient and easy to sit.

Besides appearance and locomotion, behaviour is the other significant feature of training horses. Horses have to be calm, patient and cooperative during training.

In the practise of horse breeding horses are mainly evaluated by conformity and body as well as pedigree and other objectively measurable performance parameters, so these are the primary breeding aspects.

Behavioural patterns and demands regarding temper are only mentioned and examined by regulations of very few breeds, though recognised foreign riding schools, besides exterieur, increasing importance is attached to interieur examination, cognition and testing. German horse breeding practise is an excellent example of it, as interieur exam is an integral part of their performance evaluation system.

The term interieur exam is not found in the documentation of Hungarian horse breeding, so no answer is provided to our question. Despite if one starts browsing in international literature, there are numerous hits to choose from.

The expression interior means all the different behavioural habits, individual traits and temperament of the horses. The most important positive characteristics are calmness, kindness, strong and well-balanced nervous system, general intelligence (attention, ability of evaluating, solving situations) and appropriate social behaviour. Undesirable characteristics: being fearful, nervous, scared, biting, refusing doing tasks and antisocial behaviour.

Behavioural and nervous system of the horses living near people is categorised into four different groups, which means differences while working with them and treating them: 1. *Sanguine* (the most unfortunate type) - calm, balanced, friendly, has good work skills, vivid, but easy to manage. 2. *Choleric* (unbalanced nervous system) vivid, but difficult to manage, tend to resist. 3. *Phlegmatic calm, slow, lazy*. 4. *Melancholic* (unbalanced nervous system) calm, but gets irresistant easily, unreliable (Novotni, 2011).

Hucul breed is of a human scale, kind breed the most important of its advantageous characteristics is its unbelievable good nervous system (Dögei, 2009). According to Krisztián Boros, the manager of Jósvalfő stud at Aggteleki National Park and one of the Hungarian experts of Hucul horses, this breed has a much stronger nervous system and can regenerate much easier than its family members. This gives an obvious advantage at races (Kégl, 2013). Hucul horses have always been characterized by unconditioned willing to work. This makes them unparalleled (Mihók, 2001).

Breeding, situation and exploitation of Hucul breed in Hungary

The primary aim of Hucul breeding in Hungary is to keep the gene bank stocks as well as to Hucul horses suitable for small mountain farms and forestry and also for sport especially children's sport. The supervision of the Hucul breeding is performed by the Pony and Small Horse Breeders' National Association located in Debrecen. Hucul breeds can be registered earliest at 3 years of age, based on their pedigree and according to the performance testing.

The performance examination of the breed is special, it is not adjusted to the performance oriented types, but it is a skills examination. The skills exam consists of compulsory and optional elements. The compulsory tasks are needed for the studbook registration and to recognise them as breeding horses. The optional tasks are part of higher level (sport) tests increasing its usage (and commercial) value, describing the type's workability skills in details and referring to their breeding value as well. Performing the optional elements contribute to the studbook classification, too.

Temperament, manageability and character have to be evaluated 1-10 points considering aspects, such as kindness, easy manageability, calm behaviour, which enable them to be used with children. Horses that are dangerous for the environment, people and other horses, or those which seem to be haphazard, uncertain or malicious cannot be registered at the studbook. Estimated stock in Europe is 2000 heads (Fehér, 2014).

There are 254 brood mares and 16 reproductive stallions in the 2012 Hungarian breed register and 100 Hucul foals are born per year on average. The number of heads of the breed shows a slow but gradual increase year by year. Aggteleki National Park has a significant role in this improvement - as nearly one third of the Hungarian Hucul stock is owned by this national park - the Budapest Zoo and the Szigetcsép breeding of Hunovo Ltd. Two people who also play an important part in the breeding, Gabor Magyar PhD and József Vörös, should also be mentioned. They have a significant mare stock. The breed is slowly growing in popularity, there are more and more owners possessing some Hucul mares registered in the studbook from year to year (Németh, 2012).

Hucul breed can widely be used. Originally it is a pack-horse and military forces also bred, exploited and liked it as a pack-horse being a very strong footed mountain horse. It was also a service horse for mountain hunters serving in the Carpathians, having to carry out all kinds of duties. It pulled mountain battery, the bigger ones served as saddle horses. The idea

of exploiting them as pack-horses emerged even during World War II. Today this role has been ignored, but its wonderful temperament has made it an ideal hobby horse. It is an excellent hobby horse, exceptionally valuable as a driving horse, which obviously does not mean that well-trained Huculs do not provide the riders with explicit riding experience. They do not require a tranter even when used casually (Mihók, 2001). Nowadays using Hucul horses in sports, driving, special military (Hucul path) and free time activities has become more remarkable. These days, it is most popular with traditional and hobby riders in Hungary, but the type's significance in sports achievements is being discovered. This can best be proved in Hucul paths, which is an obstacle course where 16 natural or man-made obstacles have to be built. This course is remarkably similar to the military off-road races, but contains more „colourful” tasks (Vörösné, 2011). The contest among Hucul horses was worked out by Polish scientists at the University of Krakow. Coupled horses have to carry out 20 tasks all of them testing manageability and the nervous system (Dögei, 2009).

Vörösné (2011) describes her experiences with Huculs as follows: „It is ideal as far as size, character and temperament are considered. It can easily learn, accept unusual situations and maintain a good contact with humans. Thanks to its and kindness, the breed is suitable for satisfying demands from the smallest to adults, from handicapped people to athletes. Its history and today's aims of breeding and also the criteria for breeding have created a horse that is definitely man's best supporter and friend. In horse therapy a team mate is needed in the first place, which can perfectly be represented by this small horse. It can be used manifold thanks to its intelligence. The very same horse can look after a shy child on its back, help with riding school tasks, pull a cart or even perform on a jump course or Hucul path.”

Material and methods

We carried out tests in three out of four significant Hungarian breedings as well as our own Hucul horses (the two mares come from Vörös József's herd).

Table 1 shows the introduction of the breedings, the use of the horses and composition of their gender. Behavioural tests were conducted on the horses in the order shown in Table 2.

Table 1. Summary of examined studs

Venue (stud)	Rep. stallion/ stallion	Mare	Gelding	Sum	Date of test	Keep*	Use [#]
Almas	-	2	-	2	05.09.2011	B + S	R
Gyűrűs	-	17	2	19	05.10.2012	P	R, D, T, H
Szigetcsép	2/2	11	10	21	12.10.2013	S + R	R, D, T, H
Jósvafő	4/4	7	5	12	26.10.2013	B + S	R, D, T, H
Altogether	6/6	37	17	64			

*B = box; S = stock yard; P = pasture; R = semi-roof

[#]R = riding with children; D = driving; T = therapy; H = Hucul path;

Table 2. The description of the ethological tests

	Name of test	Reference to authors works	Measured. time		Measurable parameters
1.	Modified open field test	Grandin, 1993 ; Dantzer and Morméde, 1984; Fraser, 1992; Visser et al., 2001; Wolf et al., 1997	300 sec	-	Temperament – behavioural patterns, social isolation
2.	New object test	Grandin, 1998; Szabó and Tóthné, 2006	60 sec	-	Temperament – fear generated by new object
3.	Fear tests:		Max time	Scores of manageability	
3./1.	Tarp or bridge test	Takács, 2007; Pirsich, 2009; von Borstel et al, 2012; Sommer et al., 2006; Mihók, 2002	180 sec	Between 1 and 5	Behavioural pattern generated by well foreseen visual stimulus
3./2.	Suddenly opening umbrella test		180 sec	Between 1 and 5	Behavioural pattern generated by unforeseen, sudden visual stimulus
3./3.	Water squirt test		-	Between 1 and 5	Behavioural pattern generated by a sudden but familiar stimulus
3./4.	PET bottle test		-	Between 1 and 5	Behavioural pattern generated by a sudden, unknown audio stimulus
Collecting background information					
Questionnaire 1			Name, origin, age, gender, breeding, feeding and using circumstances of horse		
Questionnaire 2			21 item horse personality questionnaire		

Results and discussion

We used the cumulative behavioural variables based on the motivational background of the horses taken from Szabó and Tóthné's (2006) works. Comparing the results of the two experiments, there were differences between behaviour of the tested English thoroughbred and our Hucul horses. Thus the behavioural variables determined by them had to be complemented with behavioural patterns like peaceful standing/ resting, feeding/grazing, weltering/scratching and scraping.

Szabó and Tóthné (2006) do not mention behavioural instances in connection with feeding and body care in their open field test carried out in English thoroughbred horses. However, in our experiment the examined Hucul horses spent a significant amount of time with feeding. According to our observations, the primary aim of exploring their immediate environment was to find further nutrition. Naturally, they also monitored their broader environment, but we found that continuous stepping aimed at finding possible nutrition rather than observing stimuli (e.g. smell of the previous horses). During the open field test we learned that they are less sensitive to social isolation. Fast, locomotor movements (part of escape behaviour) and playful behaviour were much rarer compared to the time spent on feeding. Analysing the video recordings of the modified open space test comparing the results of the breedings and keeping methods we found that the behaviour is not influenced significantly by the keeping method. We examined the differences of the variables between the breedings with the Kruskal-Wallis non-parametric test because of the low number of items and the lack of normality. Variables marked with an asterisk show significant differences (Hajdú et al., 1994).

According to the results of our experiments differences found in the behavioural habits of the herds do not origin from keeping methods, so we examined the age and the possible effects of gender of the horses. We found that age group shows a significant difference in one variable, peaceful standing only. The other variables do not depend on the age group. In Hucul bred the comparison in gender shows, that gender does not influence the variables significantly. In case of mares and geldings there is only a difference in gallop. Stallions show difference separately from both groups in the sniffing standing and sniffing walking variables. Besides these, variables peaceful standing and manuring show differences between mares and stallions. We applied Kruskal-Wallis, Mann-Whitney and in the case of non-rate scale variables Chi-square tests for the comparisons. To sum it up, the performance of the horses is

not influenced by age and gender - except for the above mentioned variables - in the examined Hucul studs.

The gap between the rates of the variables can be explained by the different combination of genders in the breedings (see Table 3).

The most time spent in resting was typical of the mares with a foal in Gyúrús Herd. Mares with foal produced the most neighs in our experiments (0.47 on average) too, because foals could easily get away from their mothers and they required their presence less, so mares signalled that they should return with a neigh. The balanced behaviour of mares is shown by the fact that they spent approximately same time on feeding (52.53 seconds on average) and watching (60.26 second on average).

Table 3. The results of temperament test I. (modified open field test)

Behavioural patterns recorded during test and their motivation	Behaviour not related to exploring surroundings				Behaviour aimed at exploring immediate surroundings		Behaviour aimed at exploring broader surroundings		Quick locomotor movement – parts of escape behaviour, factors signalling sensitivity level		Tension marker/ discontentment indicator	Playful behaviour	Ground marking, tension indichaviour	Bearing social isolation – seeking kins
	Resting	Feeding	Body care											
	peaceful standing/resting	grazing	welting	scratching	sniffing standing	sniffing walking	watching	continuous striding	continuous trot	continuous gallop	scraping	buck/ rolllick	manuring (p)	neigh (p)
p	*	NS	NS	NS	**	*	*	NS	NS	NS	NS	*	NS	NS
Av	8.8	67.6	0.7	0.8	16.1	21.7	40.9	15.5	3.6	1.0	0.1	0.4	0.0	0.3
GY	16.3	52.5	0.0	0.7	9.5	13.2	60.3	24.7	1.4	0.5	0.0	0.0	0.0	0.5
SZ	10.9	72.0	0.0	1.6	12.2	20.5	37.3	16.6	5.6	1.9	0.3	1.0	0.0	0.4
JO	0.0	74.4	2.1	0.0	27.1	28.6	30.0	16.0	1.9	0.0	0.0	0.0	0.1	0.0

Average (Instances measured in piece and second)

Av = average of studs; GY = Gyúrús stud; SZ = Szigetcsép stud; JO = Jósmafő stud

*p<0.05; **p<0.01

In the Szigetcsép stud the 0.44 neighs on average were mainly produced by the geldings. They proved to be more sensitive to isolation. It did not manifest in any other, accident inducing behaviour with any geldings.

Compared to the other herd horses in Jósvalfő, stud spent more time exploring their immediate surroundings than sniffing standing. Eight stallions (the biggest number among the groups) of Jósvalfő stud took part in our experiments. Besides feeding, the stallions put considerable emphasis on exploring their immediate and broader surroundings. This behaviour was the same with stallions in Szigetcsépi stud, too.

Knowing the temperament of training horses alone has little information on their exploitation, so we put four ethological tests modelling scariness in different daily situation. The extrinsic manifestation of fear and being scared and the strength of the reaction can be influenced by temperament. Manageability and control are important features in everyday work and training especially in a riding school, regarding the beginners and children. Scariness and head-shyness are undesirable characteristics, as horses can slip out of control, which can lead to dangerous or life-threatening situation. The different fear tests try to explore how horses react to scary or unknown situations and how they can handle these situations, how much time they need to solve it, to what extent let they control themselves, how much they trust in people. Our tests were based on foreign tests with the difference that while in foreign tests a rider is mounted on the horse in most cases, in our tests the horse is led on a halter. The tasks modelled dangerous everyday situations that can occur while working or training with horses. Tests can be repeated, and the results measured in seconds can serve as objective and comparable data. During the tests the behaviour of the horses is scored - similarly to the foreign pattern. Scoring was conducted by the person leading the horse and the person taking part in the experiment. Scores on behaviour were given between 1 and 5 based on predetermined requirements. (Our scoring system was based on the strict behavioural and manageability criteria of the evaluation system for performance of Hungarian National Pony and Small Horse Breeders' Society. The average of handler's and the test leader's scores was calculated. Special attention was paid to provide audio stimuli besides visual cues. These stimuli were completely different. The results of the experiments are shown in Tables 4 and 5.

We asked our helpers to walk with the horse on a halter rope-lunge along an approximately 1.4 x 2.0 meter blue tarp during the tarp or bridge test. To perform the task the horse had maximum 180 seconds. The situation was well foreseen, still unknown for the horse and it induced fear in the animal, so it was quite unwilling to perform the task. It is assumed that the intensity of the reaction to the stimulus depends on the temperament. The length of time and the way of fulfilling the task suggests about its ability of situations-perceiving and

problem-solving (e.g. walking over the tarp), and of manageability, obedience and trust towards people (accepts being led by a person in an unfamiliar situation). The horses showed very calm behaviour during the test and did not cause any accidents or dangerous situations. No jumping away, jumping over the tarp or denying tasks occurred. The test was carried out in a relatively short time (the accumulated average result was 18.72 seconds).

Hucul horses made a convincing impression during the bridge test, the foreseen stimulus inducing fear did not scare them off, and they produced calm reactions. They carried out the task quickly, behaved in a balanced way during the test and proved to be manageable and controllable. The average point was 4.76.

Table 4. The results of the experiments measuring fear and manageability

The results of fear and manageability tests carried out on Hucul horses	Temperament test II.			Results measured in fear test			
	Neophobia/New object test			Tarp test		Umbrella test	
	Focusing time	Time spent until first touch	Number of touches	Average seconds	Went through tarp	Average seconds	Touched the umbrella
	seconds		average	time		time	
Kruskall-Wallis test (p)	0.252	0.638	0.290	0.001**		0.001**	
Hucul breed N=65	3.51	5.52	0.74	18.92	65/65	10.28	65/65
Gyűrűs N=19	2.63	8.35	0.68	22.95	19/19	15.11	19/19
Szigecsép N=25	4.16	4.64	0.80	23.36	25/25	9.52	25/25
Jósvafő N=21	3.52	4.05	0.71	10.00	21/21	6.81	21/21

**p<0.01

Table 5. The scores of the fear tests

The results of fear and manageability tests carried out on Hucul horses	Scores given on manageability in fear tests			
	Tarp test	Umbrella test	Water squirt test	PET bottle test
	Average score given on manageability/executing task			
	Average scores			
P-value of the Khi-square test	0.465	0.326	0.182	0.105
Average of Hucul bred N=65	4.76	4.85	4.78	4.85
Huculs in Gyűrűs Herd N=19	4.89	4.79	4.79	5.00
Huculs in Szigecsép N=25	4.64	4.92	4.80	4.84
Huculs in Jósvafő N=21	4.7	4.81	4.71	4.71

The aim of the umbrella test is to examine the reaction of the horse to unknown and unforeseen stimuli and its fear. The horse is led towards the helper during the test, and when the helper is about 1.0-1.5 metres from the horse, the helper suddenly opens an umbrella. Then the person leading the horse tries to get the horse closer to the umbrella. The examination ~~is~~ finishes, when the horse touches the umbrella with its nose. We measured the time between opening the umbrella and the horse touching it and marked the behaviour of the horse during the test (5 points for keeping calm and carrying out the task, 1 point for being strongly reactive and resistant. The horse had 180 seconds to carry out the task. If the horse was unable to touch the umbrella, however well it managed to cope with the situation (did not get scared), it could get only one point. Hucul horses needed 10.21 seconds on average to overcome the scare caused by the suddenly opened umbrella and touch it with their nose. There was no horse in the group which got scared (jumped away, resisted, rushed away), getting surprised is a better term to describe the situation. For behaviour they got 4.85 points (out of 5.00) on average. Hucul horses behaved impeccably during the test, and showed maximum cooperation and manageability. They were not scared by the frightful and sudden stimulus, they were rather surprised (with the exception of some) and they fulfilled the task (of touching the umbrella with their nose) obediently without any resistance.

A slight difference could be seen between the times the tasks had been carried out in the case of the different breedings in the tarp and umbrella tests. But they are not too big to influence the excellent use traits significantly.

Carrying out the water squirt test was aimed at examining the reactions of the group given to sudden and maybe unpleasant but familiar stimuli. To examine this, the leader person stopped the horse, and the helper sprinkled some water on the neck of the horse two or three times. Time could not be measured in this particular test but the behaviour of the horse was averaged from the points given by the leader and the helper. The marking system was similar to that of the previously described two tests. Behavioural traits perceived during the tests - and their intensity - suggested about the temperament and the situation-perceiving of the horses. The horses of the examined group averaged 4.78 points out of 5.00, meaning that the horses did not mind the squirt test.

Getting scared is a really unfavourable characteristic in a world overwhelmed with technology. Hoses at riding schools, in open fields and in the stables are highly exposed to constant noise and sound effects. For the sake of their own and the peoples' safety their reactions should not be ignored. That is why, besides the visual tests, we consider it extremely

important to put an audio test in their ethological examinations. The aim of the PET bottle test is to examine how the horses react to a sudden, unnatural, unfamiliar and very loud unexpected sound effect. We used empty PET bottles for the examination that, when pressed, can produce really loud, and sharp noises. The leader made the horse stand up calmly, and then the helper steps to the horse and suddenly presses a PET bottle near the ear of the horse. Time could not be recorded during the test, and the evaluation system is the same as that of the previously described tests.

Hucul horses put in an excellent performance at the audio test, out of 5.00 points they got 4.85 points on average, which means they are not affected by noises. Quite unexpectedly (based on our tests on other breedings) and to our surprise no horse got scared, jumping or stepping away. They gave resigned reactions occasionally lifting up their heads and turning their ears towards the direction of the noise, the tether remained loose in the leader's hand.

The examined groups averaged between 4.50 and 5.00 which indicated balanced temperament and immaculate behaviour. There were no significant differences between the groups in connection with the points given for manageability.

Conclusions

Behavioural tests chosen for the intrinsic examination of Hungarian training horses proved to be reliable their results confirm the practical experiences of breeders. Thus, taking the positive characteristics of the type into consideration, they can well be recommended for children and adults alike. In accordance with the breeders' concordant opinion Hucul horses are ideal hobby and family horses.

Hucul horses can widely be used based on their observed advantageous temperamental characteristics; advantageous work skills and behavioural traits. They can be an ideal choice for riding schools as their calm temper makes them suitable for training or therapy. Unfortunately, considering the size of the Hungarian Hucul stock, these possibilities are far from being exploited.

According to the results of our tests, the selection efforts set up in the Hucul breed's breeding program, the skills test system and the evaluation of behaviour meets the objectives to be achieved (favourable temperament, manageability, working skills, reliability) and their use created integrated, homogeneous stocks in the examined Hucul breedings in Hungary.

The findings of the examinations on Hucul horses confirm that the spread of the type would be useful, and therefore not only the breeders would get an advantage but also the owners. The survival and genetic variability of the breed would be granted by bigger stocks.

References

- Dantzer, R., Morméde, P. 1983. Stress in farm animals: A need for re-evaluation. *Journal of Animal Science* **57** 6-18.
- Dögei, I. 2009. It uses up the fortune slower. In: *Szabad Föld Online*, 2009.08.13. An interview with Németh Zoltán, the owner of the Hucul herd in Szigetcsép.
- Fehér, K. 2014. Our National Treasure - Protected historical native horse types. <http://www.lovasszovetseg.hu/fajlok/Szakmai%20kultanyag.doc>.
- Fraser, A. F. 1992. The Behaviour of the Horse. *CABI Publishing* 11-12., 72-73.
- Grandin, T. 1993. Behavioral agitation during handling cattle is persistent over time. *Applied Animal Behavior Science* **36** 1-9.
- Grandin, T. (edit.) 1998. Genetics and the Behavior of Domestic Animals. *Academic Press*, 67-76., 205-212.
- Hajdú, O., Herman, S., Pintér, J., Rappai, G., Rédey, K. 1994. Statistics I. *JPTE*, Pécs, Hungary. 319.
- Kégl, I. 2013. Competing with the ponies of the Carpathians. In: *Magyar Hírlap Online*, 2013.08.19. An interview with Boros Krisztina, the director of the Jósvafő Hucul herd of Aggtelek National Park.
- Mihók, S. (edit.) 2001. The horse and the donkey. *Agriculturer Publishing Company*, Budapest, Hungary. 267-271.
- Mihók, S. 2002. The supervision and performance evaluation system of the Hucul breeding. *Pony and Small Horse Breeders National Association*, Debrecen, Hungary.
- Mihók, S. 2006. The morphology and gene preservation of Hucul horses. *Animal Welfare, Ethology and Keeping Technology* **2** 138-162.
- Németh, Z. 2012. Szigetcsép Hunovo LTD. An interview. <http://www.horse.races.hu/cikk.php?Id=118>
- Novotni, P. 2011. The behaviour of horses - In horses' language. *Equestrian Academy series Volume 17.*, *Agriculturer Publishing company*, Budapest, Hungary. 79.

- Pirsich, W. 2009. Studies on the objectification of interior features in horses. *MSc Thesis*, University of Göttingen, Equine Sciences.
- Sommer, H., Barz, S., Lindner A. 1996. Application of interior tests in horses. *Veterinary Panorama* **10** 641-643.
- Szabó, Sz., Tóthné Maros, K., 2006. Applying behavior tests with two-year old English thoroughbreds. *Animal Welfare, Ethology and Keeping Technology* **2** 189-203.
- Takács, L. 2007. Comparing the temperament of stunt and therapy horses with the help of behavior tests. *SZIE-ÁOTK Ethological methods assignment*.
http://www.behav.org/student_essay/horse/takacs_liza_kaszador_terapias_lovak.pdf
- Visser, R., Van Reenen. C., Hopster, H., H., Schilder. M., Knaap, J., Barneveld, A., Blokhuis, H. 2001. Quantifying aspects of young horses' temperament: consistency of behavioural variables. *Applied Animal Behavioural Science* **74** 241-258.
- Von Borstel K. U., Pirsich, W., Gauly, M., Bruns, E. 2012. Repeatability and reliability of scores from ridden temperament tests conducted during performance tests. *Applied Animal Behaviour Science* **139** 251-263.
- Vörösné Horváth, K. 2011. The Hucul as a therapy horse.
http://www.lovasterapia.hu/data/cms10545/Cikk_Vorosne.pdf
- Wolff, A., Hausberger, M., Le Scolan, N. 1997. Experimental tests to assess emotionality in horses. *Behaviour Processes* **40** 209-221.
- Interieur - Pferde@Pet-Service.de ([http://pferde.pet-service.de/index.php?title= Interieur](http://pferde.pet-service.de/index.php?title=Interieur))
- Dögei, I. (2009) Lassabban apasztja a vagyont, in: Szabad Föld Online, 2009.08.13.
 Interjú Németh Zoltánnal, a szigetcsépi hucul ménés tulajdonosával.