

# ACTION PLAN

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for the Conservation  
of the Faroese Horse



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First plan of action for the conservation of the Faroese Horse, 2024.

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The action plan is based on the 2017 report ["Faroese Horse: Population status & conservation possibilities."](#) In addition to updated information about the status and needs from the Faroese Horse Association and the Faroese Agricultural Agency, the recommended actions are based on FAO's ["International guidelines to \*in vivo\* conservation of animal genetic resources"](#) from 2013.

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# BACKGROUND



## Background

Horses were brought to the Faroe Islands by Norse settlers in the 9th and 10th centuries. Over the centuries, the geographical remoteness in the North Atlantic Ocean forced these horses to adapt to their surroundings. Only the horses that could withstand the weather survived, and the Faroe Islands became home to a horse breed that was small, strong, hardy, and agile. The small horses were used by farmers for agricultural purposes and occasionally for transport between villages. Most of them roamed the mountains all year and no targeted breeding took place. The oldest record available of horses on the Faroe Islands is from 1857, which counted 844 horses with 396 mares, and 476 foals and stallions.

Exportation of the horses to coal mines in Britain combined with modernization of the agriculture on the Faroe Islands, resulted in a breed that nearly went extinct. By the 1960s, there were less than ten horses of the breed left alive. A rescue operation was initiated, and suitable horses for breeding were used, however many of them were already related. All Faroese horses alive today, are descendants of only four individual horses.

In 1978, the Faroese Horse Association (Felagið Føroysk Ross) was established to conserve the Faroese indigenous horse breed and they have kept a studbook ever since. In 2018, the online pedigree registration system Føroya Fongur was created, in which online access is provided to the studbook with extensive information about the Faroese horse breed.

By the end of 2023 there were 82 living Faroese horses. The breed can thank their survival to the hard work and dedication from individual horse owners and enthusiast through the years, and through the work of the Faroese Horse Association. You could say that the conservation of the Faroese horse this far is a success story as the breed has managed to survive and increase in numbers over the years. However, there are still several big challenges and threats facing this small and hardy breed. There is a critical need to act today to secure that the breed will be around for future generations as well. The Faroese horse is, after all, a living and breathing part of the Faroese cultural heritage.

All Nordic countries, including the Faroe Islands, have adopted The Global Plan of Action for Animal Genetic Resources (GPA) established by FAO in 2007. This framework obligates all parties to contribute to the conservation, sustainable use and development of animal genetic resources. One of the main areas of concern expressed in the GPA, is that there is too little research and information about many of the native farm animal breeds. Increased characterization, involving phenotypic, genetic, and historical information on breeds is needed (FAO, 2007).

The purpose of the Action Plan for the Conservation of the Faroese Horse is to highlight concrete actions and measures that need be implemented to conserve the horse breed for the future.



# THE CURRENT STATUS OF THE FAROESE HORSE

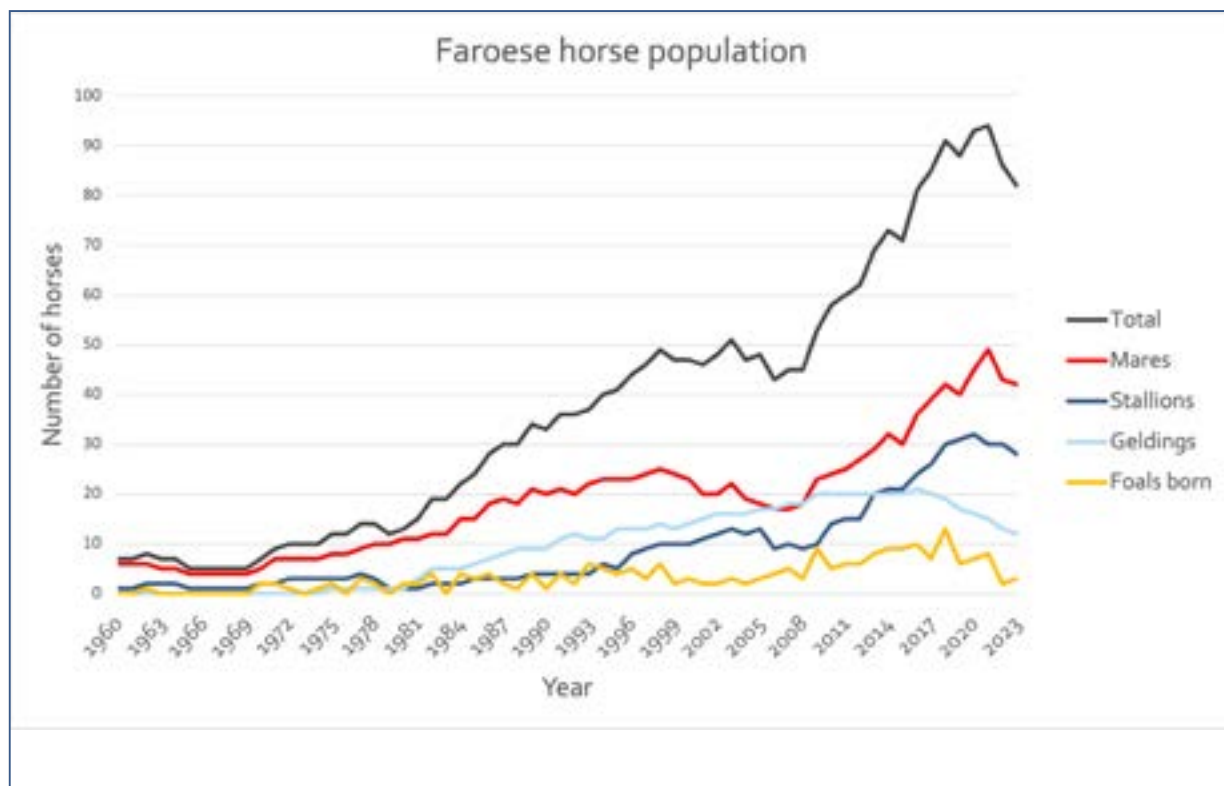


## Current status of the Faroese horse

The population size of the Faroese horse has slowly increased since the rescue operation started in the 1960s. In 2021, the highest number of living horses, 94 individuals, were noted. However, in 2022, there was a population decline of 8.5% because 10 horses were lost while only two new foals were born. Consequently, the population existed solely of 86 live animal by the end of 2022 (Figure 1).

A large portion of the horses that were lost were from one flock of healthy horses that had to be put down because the owner was no longer able to keep them and new homes were not obtainable. This is just one example of how vulnerable the breed is. A further decline was seen in 2023, when seven horses were lost due to age and illness, while three foals were born. By the end of 2023, there were 82 live horses in the population (Figure 1).

Reports from Faroese horse breeders and owners show that few foals are born due to a saturated foal market on the Faroe Islands. The breeders cannot afford the risk of having to keep all the foals themselves, leading to fewer foals being born annually. Today, it is not possible for horses born on the Faroe Islands to obtain an EU pass-



**Figure 1.** The population size of the Faroese horse in number of mares, stallions, geldings and foals born, as well as the total population size from 1960 until 2023.

port, which is required for a horse to be able to travel or sold abroad in the EU. This is a severe limitation for the possibility to increase the population size and properly conserve the breed for the future.

To increase the population size, it is important to produce as many foals as possible, and a limiting factor to number of foals that could be born is the number of available breeding mares, as one mare can have one foal per year, while one stallion can have many. The number of breeding mares is thus a factor used for categorizing the risk status of a breed. In 2023, there were 43 Faroese mares alive, out of which 31 were potential breeding mares (ages 3-20) and 28 stallions. This places the breed in the category of "critical risk of extinction" according to the criteria set by the FAO (Table 1). To move from the category "Critical risk" to "Endangered", the breed would need a minimum of 300 breeding mares (Table 1).

**Table 1.** Risk categories according to the FAO guidelines for *in vivo* conservation of animal genetic resources (FAO, 2013) for animals with low reproductive capacity. Red colour = critically endangered, orange = endangered, yellow = vulnerable and green = not at risk.

Breeding males (n)	Breeding females (n)			
	≤300	301-3000	3001-6000	≥ 6001
≤ 5				
6-20				
21-35	<b>Faroese horse</b>			
>35				

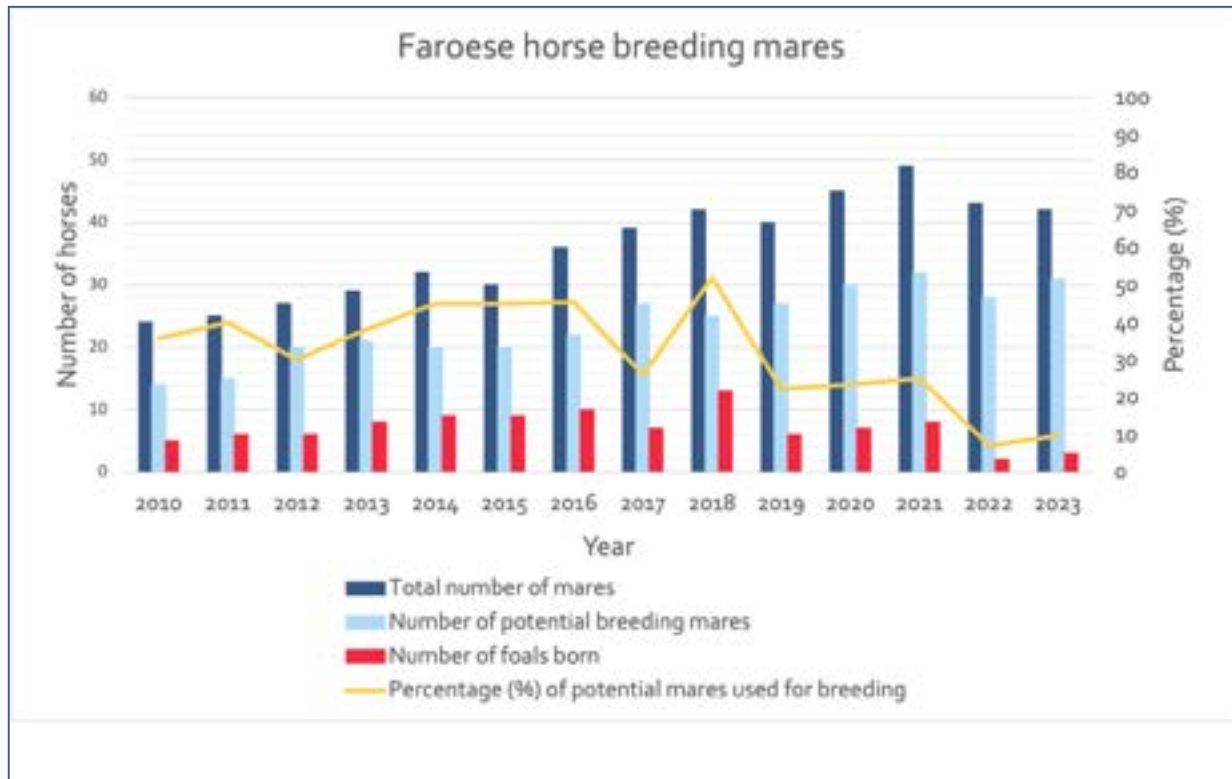




As shown in Figure 2, the number of potential breeding mares have been less than 30 over the last 10 years, and even fewer mares have been used for breeding in practice. The percentage of mares used for breeding was in decline in 2022, with approximately 7% of the mares being used for breeding. Fortunately, there was a slight increase in this number in 2023, and approximately 10% of the mares were used for breeding this year.

The major threats to a population in critical risk category is loss of genetic diversity, genetic defects, or the susceptibility to random events (Table 2). When you have a limited number of animals with a high level of inbreeding, the risk of losing genetic diversity is dangerously high, and they need to use all available animals for breeding to minimize the loss of genetic diversity. Genetic defects can occur in any population but they are a larger problem when the population is small and highly inbred.

Another risk associated with the Faroese horses is that they only exist on the Faroe Islands. If a random event is to occur, for example a highly contagious disease or a natural disaster, the breed would suffer greatly, and maybe even become extinct. Having a back-up population outside of the Faroe Islands is thus important for safeguarding this breed for the future.



**Figure 2.** The total number of mares (dark blue), potential breeding mares (ages 3-20; light blue), number of utilised breeding mares measured by the number of foals born (red), and the percentage of mares used in breeding (yellow). The left axis depicts the number of horses and the right axis depicts the percentage of potential breeding mares used for breeding (number of foals born/number of potential breeding mares). The percentage of breeding mares used for breeding does not include mares that were unsuccessfully mated as this information is unavailable.

The relative importance of population management objectives according to FAO at different levels of risk status (Table 3) shows that the first priority for the Faroese horse should be to enlarge the population size, in addition to use cryoconservation as a back-up safeguard.

Cryoconservation means to store reproductive material such as semen and embryos in addition to blood, DNA and tissue samples. It is an important tool for backing up the genetic diversity of the breed, and proper cryoconservation routines would reduce the risk of extinction in addition to complementing the breed management. Cryoconservation would also increase the possible number of animals available for breeding as it can include animals already dead or unable to breed anymore.

**Table 2.** Genetic and demographic consequences associated with risk categories (FAO, 2013)

Genetic and demographic consequences associated with risk categories			
Risk category	Genetic consequences		Demographic consequences
	Loss of diversity	Genetic defects	Susceptibility to random events
Critical	++++	++++	+
Endangered	+++	++	
Vulnerable	++	+	
Not at risk	+	+	

*Note: the number of plus signs corresponds to the severity of the negative consequence.*

**Table 3.** Importance of population management objectives according to risk status (FAO, 2013)

Relative importance of population management objectives according to risk status				
Risk category	Enlarging the population	Managing diversity	Selection for productivity	Cryo-conservation
Critical	+++	++	-	+++
Endangered	++	+++		++
Vulnerable	+	+	+++	+
Not at risk		+	+++	

Managing the genetic diversity of the breed is also of utmost importance. The breed went through a severe bottle-neck in the 1960s with the current population tracing back to only four ancestors, meaning that the genetic diversity of the breed is already limited. This could be done through establishing a proper breed management plan and utilising inbreeding management tools to maintain the remaining genetic diversity of the breed.

Other important measures to conserve the breed is to properly document the breed's history and traits. This is done by documenting what is already known about the history and traits of the breed, in addition to research to discover new possibilities for the breed. It is also important to educate the inhabitants of the Faroe Islands on the breed's value as cultural heritage, as part of the unique history of the Islands and their way of living. Increasing the marketing of the breed towards tourists could also be a good idea for increasing the market value of the horse and generating income for horse owners. Education and marketing of the breed towards horse owners both on the Faroe Islands and abroad, is also critical to attract new buyers and enthusiast for the breed that can continue to work for the breeds conservation in the future.

Through the measures outlined in this Action Plan we hope to secure this wonderful little horse for the future generations to come







A close-up, profile view of a dark-colored horse, possibly black or dark bay, with a thick, flowing mane. The horse's head is lowered, and its eyes are partially closed. The background is a soft, out-of-focus light green and white, suggesting an outdoor setting. The text "RECOMMENDED ACTIONS" is overlaid in the upper left quadrant in a bold, white, sans-serif font.

# RECOMMENDED ACTIONS

# 1. Establish an official breeding program

## SUGGESTED ACTION:

- To create an official breeding program and management plan where the Agricultural Agency and the Faroese Horse Association collaborate and have well-defined roles and responsibilities.

## Official breeding program

An official breeding program gives the possibility to improve many of today's concerns for the Faroese horse breed. An official breeding program with a consistent management system over time is therefore needed.

The Faroese Agricultural Agency has the official responsibility for conservation of the Faroese horse and is important for longevity and consistency of the conservation. They administer the money subsidised for the conservation of the Faroese horse in addition to cryoconservation of semen from 9 stallions at their location. Today, the Agricultural Agency is also keeping eight stallions and two mares.

The Faroese Horse Association has been the driving factor of the conservation of the horse historically and without the work of this association, the Faroese horse would not be here today. They are currently keeping the studbook FøroyaFongur, making sure the data is up to date. They also register and mark new foals with microchips and collect DNA samples that are both analyzed and recorded. In addition, the association works with the marketing of the breed through various channels: They promote the breeds through social media, provide education for horse owners, and they aim to create and maintain a Faroese horse community with competitions, shows, courses, and events. The Faroese Horse Association is based on voluntary work. However, some volunteers have unfortunately become exhausted due to the responsibility being too great. This leads to inconsistency which can threaten the longevity of the conservation work.

A closer collaboration between the Faroese Horse Association and the Agricultural Agency would highly benefit the longterm conservation management of the breed. This could be implemented by establishing an official breeding program where the roles of the association and the agency are clarified.

## Official breeding program for the Faroese horse

An official breeding program would include a longterm plan for the management and conservation of the Faroese horse that involves the cooperation between private owner of horses, the horse association and the agricultural agency. It is important that everyone works together to best secure the future of the breed. The tasks listed below are examples of what needs to be clarified in terms of roles and responsibilities in a breeding program. Many of the tasks that are included will be explained more thoroughly in the later actions.

Tasks to be clarified:

- Keeping the studbook FøroyaFongur
- Marking new foals with microchip and collect DNA samples. Getting the DNA sample analysed and recording the result in FøroyaFongur
- Planning and management of the animals used for breeding in agreement with private horse owners
- Using an inbreeding management tool to recommend which horses should mate to reduce inbreeding.
- Control and management of international horses by establishing rules and guidelines to determine which horses should stay in the breeding program on the Faroe Islands, and which horses could be exported to be part of breeding abroad.

In addition, there would also be a need to establish:

- A place for keeping stallions for breeding ("stallion station")
- Safe storage and routine collection of germplasm and somatic cells etc. for cryoconservation.



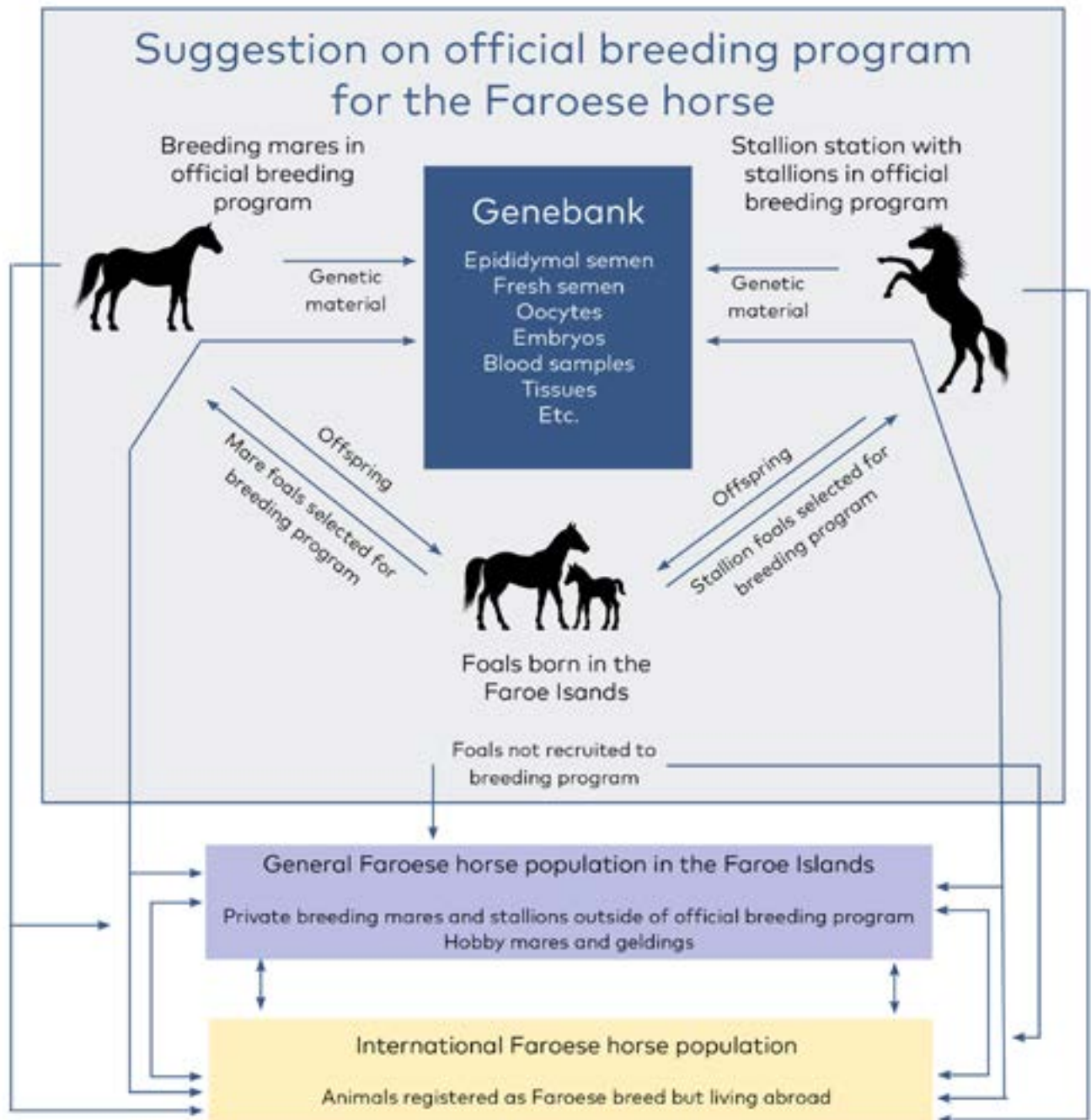


Figure 3: Flowchart of a suggested official breeding program



## 2. Expand the Faroese horse population size

### SUGGESTED ACTIONS:

- Work to increase the number of horse owners and breeders on the Faroe Islands.
- Work towards exporting live Faroese horses abroad.
- Establish a project researching how to use reproductive technology to expand the Faroese horse population abroad.

### Expanding the population size on the Faroe Islands

When applying the status of the Faroese horse to the guidelines of conservation established by FAO (FAO, 2013), expanding the population size of the Faroese horse is shown as the most critical action for future conservation of the breed. In order to increase the population size, more foals need to be born each year. Increased subsidies and benefits for producing foals could be established to make it more appealing to produce foals. However, according to the Faroese horse breeders, the major reason they are not having more foals is that they are not able to find new buyers for them and cannot afford the risk of having to keep the foals themselves. The Faroe Islands has a limited market for keeping horses and the horses also need food and space for pasture. However, some measures could be taken to increase the demand for the horses locally.

For example, cooperation with local farmers could increase the room for horses on the islands. There are arguments that co-grazing of several species is good for the diversity of grass and grass quality on grazing fields. Most grazing areas on the islands today are dominated by sheep. Having the horses and sheep co-grazing could be a benefit both for the farmer and the horse owners. Some would also argue that the horses could be used for meat production and that this would increase the monetary value of the horse and thus increase demand. Other measures could be to develop special competitions and horse sports with Faroese horses. Increased marketing towards tourists could increase demand for horse tourism with real Faroese horses. Increased funding for breeders of the horse is also an option for increasing the number of foals born locally on the islands. Still with these measures, the potential for increasing the population size locally are not enough for the breed to be able to grow enough to not be considered at "critical risk" of extinction. Being able to export horses to other countries is the action that would bring the highest potential for expanding the horse's population size.

## Expanding the population size abroad

Although the Faroese horse is not well-known outside of the Faroe Islands, two closely related breeds, the Icelandic Horse and the Shetland Pony, are very popular worldwide. The Icelandic breed have a population of approximately 180,000 and the Shetland Pony a population of approximately 100,000 horses worldwide. The Shetland Pony is a popular horse for small children, and the Icelandic horse is popular both with children and adults, with a whole horse industry and sport dedicated to its special gaits tölt and flying pace.

The Faroese horse is smaller than the Icelandic horse, but larger than the Shetland Pony and with a very gentle nature. Thus, it could easily be marketed as a good horse for children. The gene associated with the tölt gait has also been found in some Faroese horses, but it is not yet known how large proportion of the Faroese horse that would be able to show the gait. As a small and hardy breed, it could also be used for landscaping and the gentle temperament would make it an excellent horse for use in animal assisted therapy.

In the middle of the 20th century, Faroese horses were exported to the mines in Britain, partly leading to the breed's vulnerable state today. Referring to this, some have raised concerns that all Faroese horses would be sold abroad and lost if export is made possible. However, both the Faroese Horse Association and the Agricultural Agency agree that measures can be adopted to avoid this. For example, if an official breeding program is established to maintain a core of Faroese horses on the islands for breeding.

In addition, the digital pedigree and registration system, Føroya Fongur, where all Faroese horses are registered today, is ready to go international. Føroya Fongur is based on WorldFengur, the registration system for the Icelandic horse, which has many years of international experience. With proper registration of Faroese horses living abroad, the exported horses are never truly lost, and there are always possibilities to have them imported back to the islands.

## Possibilities for exporting Faroese horses abroad

There are two ways of exporting the horses abroad; either through exporting live horses, or by using reproductive technologies such as embryo transfer or artificial insemination with semen. The easiest and cheaper option would be to export live horses. Live export is not possible today because there is no current existing legislative framework to register and give EU passport to any horse born on the Faroe Islands (no matter what breed). Without an EU passport, the horses cannot travel in or out from the Faroe Islands. However, horses born abroad that have EU passports can currently travel in and out of the Faroe Islands.

The other alternative is using reproductive technology. For example, pure-bred Faroese horse embryos could be produced for transfer into surrogate mares abroad, resulting in a pure-bred Faroese foal born. This foal could obtain an EU passport from the country it was born in, and so it would be possible to import the foal back to the Faroe Islands if needed, or it could be used for breeding abroad to establish a population of Faroese horses there. However, producing embryos come at higher costs, and the techniques are not necessarily always successful, meaning that it can be difficult to get more than a few live foals per year.

Export of semen is easier and cheaper. But this would result in cross-bred foals from a Faroese stallion and a mare abroad from a different breed. However, by crossing with Faroese horses for a few generations, you could eventually get a horse that fits the criteria to be accepted in the studbook of the Faroese horse breed again, which would also contribute to increase the genetic diversity of the breed. There have been successful crossbreeding strategies to save breeds with high rates of inbreeding before. One example is the Norwegian Lundehund, a small dog breed that have an extremely high inbreeding, leading to genetic defects and low fertility. The breed has successfully implemented a crossbreeding program in their population and the crossbred dogs are healthier and more fertile, in addition to being difficult to distinguish from the pure-bred dogs after just 3 or 4 generations of back-crossing (Norsk Kennelklubb, 2023). However, crossbreeding is often a controversial topic for breeders, and such a program would need close monitoring and control of the breeding of the horses abroad.

As the population of Faroese horse has already started to decline, there is no time to lose. As long as there are no possibilities to export live horses, the only current option to establishing the breed abroad is embryo or semen export. NordGen, the Agricultural Agency and the Faroese Horse Association have started working towards a project for using reproductive technologies. A project is needed to research the different techniques available and to find the best and most cost-effective solutions that would most benefit the breed and the conservation work.

It is still possible that the legal framework to export live horses from the Faroe Islands will be established in the future. If this were to happen, having established embryo technology routines is still a positive thing for the conservation of the breed, as it could also be utilized in a cryoconservation program.



### 3. Establish *ex situ*/cryoconservation genebanking program

#### SUGGESTED ACTIONS:

- To establish a cryoconservation program for the Faroe Islands that includes:
  - Routine collection and conservation of semen from stallions at castration.
  - Collection of embryos and/or oocytes from mares.
  - Collection of blood, DNA and tissue samples.
- Make sure the storage containers are secure for long term storage (liquid nitrogen tanks) and that the stored material is properly catalogued so it is easy to find the right materials for use in the future.

#### *Ex situ* conservation/cryoconservation

For a breed that is in critical risk of extinction, conservation of reproductive material, such as semen, oocytes (non-fertilized eggs), and embryos (fertilized eggs) in a gene bank, is of critical importance. For a small population, it expands the pool of breeding animals to animals that may no longer be alive or available for breeding, which is good for the genetic diversity of the breed. If a worst-case scenario should happen, and the live population disappears – there would be possibilities to recreate the breed again. Storage of blood, hair and tissue samples is beneficial for example for DNA testing to monitor the breed for genetic diseases and to further characterize the breeds traits and its genetic variation. Advanced technology could even make it possible to produce live offspring from for example skin tissue in the future.

Currently there is stored semen from 9 individual stallions for cryoconservation at the Faroese Agricultural Agency. Blood and hair samples are routinely collected and sent to Sweden /SLU for storage and DNA testing.

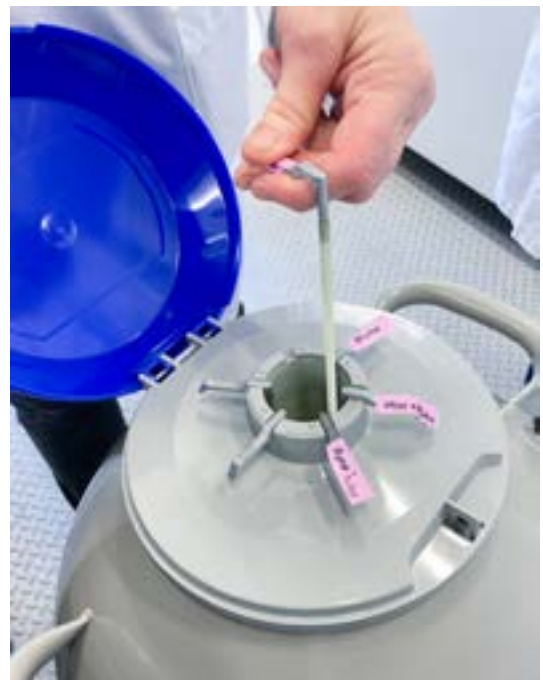
#### Routine semen collection from stallions

To conserve as much genetic variation as possible, keeping stallions intact and not castrating them is very important to be able to use as many stallions as possible for breeding. However, keeping stallions is not easy as they need secure fencing to not break out, and they need to be kept separate from the mares to avoid unwanted mating. The stallions often have more attitude than mares or castrated males (geldings). There are indications from horse breeders that the male foals are much



more difficult to sell than the mares, as it is highly encouraged to keep them as stallions, which is also another reason that a breeder might not choose to breed their mares. Through an official breeding program, it is possible to routinely collect semen from stallions for cryopreservation in a genebank. It is also possible to collect semen from the testis during the castration process of stallions that are no longer planned to be used for live breeding. This sperm can then be stored for future use. New technology also allow for the collection of epididymal sperm (collected from the epididymis) after castration. Utilising either of these methods would reduce the need to keep large numbers of stallions (allowing for more geldings), which could create a better market for selling horses. This would increase the capacity for keeping horses in the Faroe Islands while preventing the risk of losing the genetic diversity of the castrated stallions' genetic material because it can still be used for breeding through artificial insemination. In addition, routinely collecting semen or epididymal sperm from all males will increase the pool of available stallions for breeding.

There are already actions taken towards this goal. In April 2023, two participants from the Faroe Islands were sent to a workshop arranged by NordGen and the Norwegian University of life Sciences (NMBU), to learn the procedure for collection of semen from testis, so that they can be established on the Faroe Islands.



↑ *In cryoconservation, genetic material is stored in liquid nitrogen.*



## 4. Implement inbreeding management tools

### SUGGESTED ACTIONS:

- Create an inbreeding management plan with a person who can utilize inbreeding management tools to plan the breeding seasons.
- Monitor health and fertility of the breed and the inbreeding levels on both pedigree and genomic level.

### Inbreeding level

In the 1960s there were few individuals left of the Faroese horse population, and all living Faroese horses can be traced back to only four individuals. This is called a population bottleneck and it is a severe restriction on the genetic diversity of the population. This means that special attention and measures to manage the inbreeding, and conserving the genetic variation left in the population is critical.

The inbreeding level of the Faroese horse population was examined in 2017, as NordGen published the report "Faroese Horse: Population status & conservation possibilities." The results of the pedigree analysis were also published as a peer-reviewed scientific article in 2022 (Kettunen et al., 2022). The overall average inbreeding for the Faroese horse was 21.9%. In comparison, most native breeds have an overall inbreeding level less than 10%. Almost half of the population (48.2%) had an inbreeding coefficient corresponding to half-sib to full-sib-mating (12.5-25%), and more than a tenth (11.3%) of the horses had inbreeding coefficients above 30% (Kettunen et al., 2022).

The study concluded that although the inbreeding level for the breed is high, it could be possible to manage it with inbreeding management tools such as Optimum Contribution Selection (OCS), which uses the pedigree to calculate which matings would cause the least increase in inbreeding level. However, even with strict inbreeding control it is not unthinkable that the breed will have to consider a cross-breeding scheme in the future if the fertility and health of the breed starts to decline.

## Management tool

The registration program for the Faroese horses, Føroya Fongur, has the possibility to show the inbreeding level for foals that would be born to possible pairings before they are done. This is a big help for breeding management to make sure that one avoids creating close inbreeding in relatives. It is also highly recommended to use a computational program to optimize the contributions of parents in the next generation of foals that considers all the horses available for breeding at once (OCS) to minimize the inbreeding on the population level. One such program is called EVA (Berg, 2006). However, the computational program calculating this can be a bit advanced to use and would require some training. It is therefore a need that at least one person can take the responsibility of learning and using this tool and creating a mating plan for the breed each year. In addition, there needs to be some incentive to make the breeders follow the mating recommendations.

A pedigree analysis will not show all available information about the inbreeding level. Through DNA testing it is possible to calculate inbreeding on a genomic level in addition to find out the true effect of the small population size and bottleneck event. If DNA-data is available in the future, it could also be possible to use OCS to optimize the matings from DNA-data that would be even more accurate.



## 5. Document and monitor the traits of the Faroese horse

### SUGGESTED ACTIONS:

- To create an official breed standard.
- To record and monitor health and fertility related traits.
- To document the breed traits.
- To conduct genomic characterization of the breed.

### Breed standard

Today, there is no official breed description and breeding guidelines for breeders to follow. This is something that most modern horse breeds have. A breed standard describes the history of the breed, the current situation of the breed and guidelines for selecting animals for breeding.

Breed guidelines include a description of the horse conformation and how to judge it, in addition to necessary testing, requirements, and documentation of the horses to be able to use them for breeding. Until now, most of the breeding is focused on avoiding inbreeding. With such low genetic diversity, there is no room for selection. However, a document should still be available for breeders to have some sort of standard of what a typical Faroese horse is, and to ensure that the horses used for breeding are healthy.

There are existing breed descriptions and some documentation of colour, height and size that can be found in Appendix 1. This documentation is a good foundation to be able to create an official breed standard.

### Recording and monitoring of health and fertility traits

Recording traits in a database is a very useful tool to monitor a population, especially one under critical endangerment so that if a pattern of disease is found, one can intervene before the problem becomes too big. As the Faroese horse has gone through a severe genetic bottleneck and has a high level of inbreeding, the breed is especially susceptible to health and fertility issues. Health and fertility of the breed should therefore be monitored closely.



Today, all Faroese horses are registered in the database. The database already has records on the Faroese horses dating back to as far as the known pedigree. Statistics on number of horses, ages and colour has been derived from this database and can be found in Appendix 2.

It is however recommended that the database Føroya Fongur is expanded with the following information:

- 1 All attempted matings and the results of these such as:

**Mares:**

- Date of attempted mating(s)
- Result of mating
  - Foaling date
  - If a mare did not get pregnant (and if it was tried to be mated again or not)
  - If a mare got pregnant but foal was lost (also: reason for loss if known, early or late stage in pregnancy, stillborn etc.)

**Stallions:**

- Success rate of mating attempts
- Any known deformities or if determined not fertile.

- 2 Health issues or defects, especially those who could have genetic back ground. Special attention should be put on monitoring of mares that are known infected and/or treated for *Streptococcus equi subsp. zooepidemicus* and the fertility states of these mares.

- 3 It is also recommended to state the reason why the animal died, such as:

- Old age
- Injury
- Disease (and what disease)
- Other



## Documenting the breed traits

Measuring and recording the traits that are present in the breed is important especially for marketing the horse to new owners. What can the horse be used for and what sets it apart from other breeds? The horse is known to have a good temperament, but many keep the horses as hobby horses without using them for riding or sports. One trait that has been found among some of the Faroese horses is a variant of the gene DMRT3 that makes Icelandic horses able to have the extra gaits tölt and flying pace. Since this gene is only found in a few Faroese horses, it is important to ensure that the trait is not lost. Further characterization of the horse breed is necessary to fully understand what the breed is capable of, and if there are any issues that needs to be addressed.

## Genomic characterization

Genomic characterization means to analyse the breed at the DNA level. It is recommended for two reasons. First, genetic relationships between individuals based on DNA may be even more precise than through a pedigree. Consequently, individuals that are less related to the other breeding candidates may be recognized and prioritized in breeding due to their high conservational value. Second, DNA information may be used for screening for known lethal or detrimental genes, enabling breeding restrictions on individuals carrying these genes.

Currently there is an ongoing project called "Genomic Characterization as a Tool Towards Sustainable Breeding of Nordic Native Horse Breeds" coordinated by NordGen, and in collaboration with The Norwegian University of Life Science (NMBU), and the Swedish Agricultural University (SLU), that is aiming for genomic characterization of the Nordic horse breeds. Within the project, ten Faroese horses were DNA tested using the most thorough DNA testing protocol available. In addition, a Master student from the Faroe Islands is connected to the project and her thesis will focus especially on the Faroese horse. The result from the project is expected to be ready by the end of 2024. This project could lay important groundwork for future use of DNA testing in the Faroese horse for conservation purposes.

More details can be found in the following appendices:

Appendix 1: Breed description and characteristics

Appendix 2: Statistics from Føroya Fongur database

## 6. Marketing, awareness and increased funding

### SUGGESTED ACTIONS:

- To create a marketing strategy for the breed.
- To market the breed to recruit new horse owners both in the Faroe Islands and abroad.
- To find new marketing opportunities for the breed such as festivals, museums, tourist information and social media.
- To find ways to increase the income and funding for the Faroese Horse Association.



## Marketing and awareness

Increasing people's awareness of the Faroese horse and their situation both on the Faroe Islands and abroad is extremely important to successfully continue the conservation work. The Faroese Horse Association is already working a lot with marketing of the breed through the following channels:

Homepage [www.ffr.fo](http://www.ffr.fo)

Facebook page [www.facebook.com/ForoyskRoss](https://www.facebook.com/ForoyskRoss)

Instagram page [@the\\_faroese\\_horse](https://www.instagram.com/the_faroese_horse)

Additionally a short video about the Faroese horse has been made to increase awareness of the critical situation of the breed. Marketing through social media is important to reach a large audience. The association has been able to hire a part time social media manager to produce high quality content. But there is also a lot of volunteer work involved.

There are possibilities to increase the marketing and awareness efforts. Through the years, many events about the Faroese horse have been arranged, and the plan is to host a lot more. For example, participation at the Viking Festival, the national day Ólavsøka, and to host an event with the breed at centre to increase awareness. Another idea is to have a Faroese version of the "Horses of Iceland".

## Recruitment

To increase the population size, it is very important to recruit new owners of horses both on the Faroe Islands and abroad. Increased marketing and raised awareness of the horses can drive the recruitment of new owners. It is especially important to recruit horse owners who are willing to participate in the breeding program. However, people who want to keep horses for their own interest are also important – especially in a growing population.

Actions for recruiting new owners could be to develop some sport or activity that the breed could be used for. Internationally there are for example "pony trotting races" for children, or it could be connected to the gaits tölt or flying pace for those horses that show these traits. Marketing in general is good for recruitment of owners to the breed.

## Cultural heritage

The Faroese horse is a living, breathing part of the Faroese cultural heritage and it is also important to raise awareness around this aspect of the horse breed. There are some possible collaborators that could help to highlight the importance of the breed in the Faroese culture. The Faroese Museum, Tjóðsavnið, has invited the Faroese Horse Association to apply the breed as part of the Faroese list of living cultural heritage (Livandi mentan). It would also be great to have the horses represented on the island of Koltur, which is the Faroese national farm with traditional farming. Festívalhöll could also be a possible cultural collaborator. Festívalhöll is a Viking festival which aims to build a Viking village. Their plan is to use living history to awaken the interest for our cultural heritage.



## Increase income and funding for the Faroese Horse Association

The work of the association is carried out by volunteers, but it is difficult to keep costs under the annual financial support the association receives. Looking back at history, it is thanks to The Faroese Horse Association that Faroese horses still exist. The association has ensured a well-kept studbook, a professional registration system ready to go international, and that there is a general awareness on the breed and its situation in the Faroe Islands. Providing the association with more funding would enable the association to reach more ambitious goals. It is also important to create additional income streams that could support the work of the association. Such income streams could be closer collaboration with the Faroese tourism industry, creating tourist activities, in addition to selling Faroese horse merchandise. Currently, the tourists are mostly informed about the sheep and the puffin birds of the Faroe Islands. In other words, there is great potential to start telling the story of the small, hardy and gentle Faroese horse as well.



## 7. Research and education

### SUGGESTED ACTIONS:

- To continue educate the general public and horse owners about the breed for example by creating education material.
- To establish the breed as an essential part of the Faroese Cultural heritage.
- To continue collaboration with current research projects and research institutes.
- To look for future funding opportunities for research and education.

### Education

Education about the Faroese horses is important, both education to children and to the general population. It is important for them to be aware of the horse and its need for protection, and to recruit the newer generation that hopefully will continue the work with the Faroese horses. Education of horse owners about breeding and management is also very important for the breed's conservation. For education of children, the child book "Føroyska Rossið" written in 2021 is available for schools and private homes, and new digital primary school material is being written now. For horse owners, courses on horse management, riding and other things are also very important to be able to build a good Faroese horse community.

### Research

Research on the breed is important to increase the knowledge of how the breed can be utilised, and how to conserve it. Some research has been conducted on the horse but there are still many things that are unknown. The published research includes a poster on related breeds from 2004 (Mikko et al., 2004) and the pedigree inbreeding analysis published in 2022 (Kettunen, 2022). A Bachelor thesis has also been written about equine endometritis in Faroese mares. The study found that 20% of the study population was infected with dormant *Streptococcus equi subsp. zooepidemicus* leading to infertility. The infected mares were treated and could be active in breeding again (Joensen, 2019). A Master study found that the North Atlantic breeds, the Faroese horse, the Shetland pony, and the Icelandic horse, are closely related. The consequences of the bottleneck have led to low genome-wide heterozygosity levels in the Faroese horse and very high rates of inbreeding compared to the other breeds (Joensen, 2024). This master thesis is connected to a larger project that is working on genomic characterization of the Nordic Native horse breeds (also mentioned in chapter 5 under Genomic characterization). More research about the breeds genetics and traits such as the DMRT3 "Icelandic gait gene" or possible genetic defects is also needed.

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# APPENDICES



# Appendix 1.

## Breed description and characteristics

### Breed description

In 1985 and 1987 the Faroese horse was described by Henning Rasmussen, a Danish national advisor in horse breeding at the Agricultural Advisory Center in Denmark (Landbrugets Rådgivningscenter). He made the following description of the breed (translated from Danish):

*"The Faroese horse is a small, harmonious and appealing horse (pony) with proportionate depth and width. It has a well-formed, lean and expressive head. Predominantly a little short, but well-set neck. The shoulder and withers form a good saddle bearing. It has a strong topline, muscular and well-shaped (regularly a little short) croup and good thigh muscles. The limbs are proportionately lead and lean, and mostly well positioned. The knees and hock joints are well marked, and the breed has very good hooves with good horn quality. The movement is predominantly energetic and light. The Faroese horse is known as a very hardy horse that can carry a relatively large weight and is also very sure on its feet."*

The description above is mostly still relevant, though they show very big variety in fullness of the muscles on the head. A newer description from Heiðrún Sigurðardóttir MSc í Animal Science and FEIF breeding judge and Tanja Rún Jóhannsdóttir MSc í Animal Science has also been made:

*"The Faroese horse is a small and strongly built horse, or rather a pony. The height on the withers is on average 122 cm. There is considerable variation in neck types, but in general it can be said that straight shoulders and low necks are characteristic of the breed. It is common for stallions to have a coarse head and deep neck, while mares are generally more delicate. Another characteristic of the breed is that the height of the withers is typically lower than the haunches. Their feet are of good quality with big joints, strong tendons, and good hoof quality. The Faroese horses are particularly unafraid of humans and are easy to handle in all interactions."*

### Coat colours

Faroese horses can have chestnut, black, bay, or dark bay coat colours (Figure A1.1). Tobiano horses also occur with these coat colour variations, however there is no living horse that is tobiano with chestnut coat colour. Historical texts have described white and grey coat colours, and also glass eyes, among the horses, but these were lost due to the bottle neck.

## Traits

A trait that has been found among some of the Faroese horses is a variant of the gene DMRT3 that makes Icelandic horses able to have the extra gaits tölt and flying pace. Because this variant is only found in a few horses, it is important to ensure that this trait is not lost. The horse is also known for its good temperament.

## Height and conformation statistics

M1, M4 and M11 (Figures A1.2, A1.3 and A1.4) were measured on Faroese horses in 1985, and in 2018. M1-M8 + M9-11 were measured for 26 horses. But the method for measuring was slightly different so the only measure directly comparable from 1985 to 2018 is M11. M1 was measured with measuring tape in 1985 and a measuring stick in 2018. You can see the height at withers (M1) for Faroese horses in 1985 and 2018 in Table A1.1. Table A1.2 shows all the measurements from M2-M11.



Figure A1.1. Pictures showing a variety of conformations and colours that can be seen in the Faroese horse. (top left: chestnut, top right: black, lower left: tobiano bay, lower right: tobiano black)

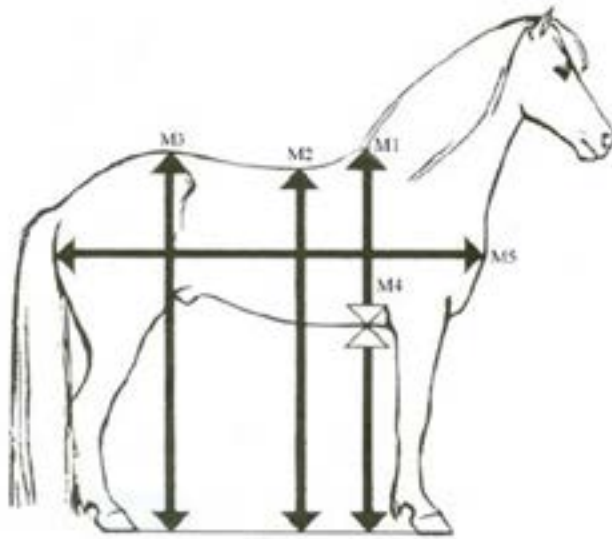
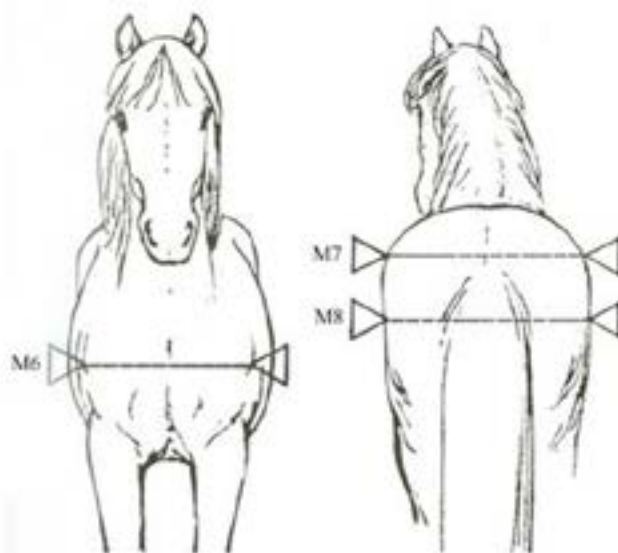


Figure A1.2 Measurements of the Faroese horse. M1 is height at withers, M2 is height at saddle, M3 is height at rump, M4 was measured differently in 1985 and 2018. M4 in 1985 was the chest circumference and M4 in 2018 was depth of chest. M5 is the body length.



**Figure A1.3.** Measurements of the Faroese horse. M6 is chest width, M7 is hip width, M8 is rump width.

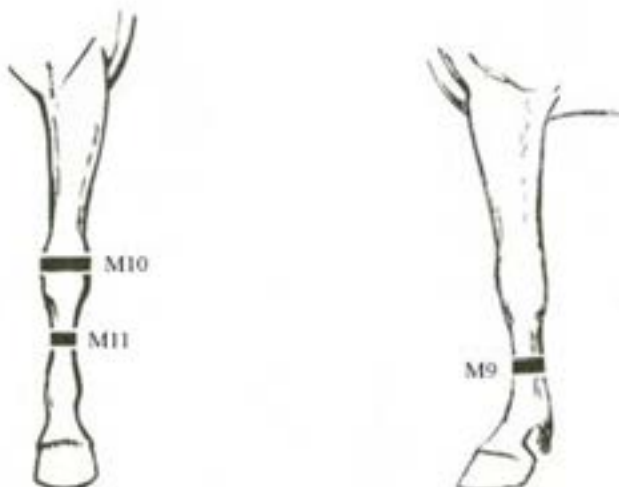


Figure A1.4. Measurements of the Faroese horse. M9 is leg width, M10 is knee circumference and M11 is leg circumference.



Table A1.1 Height at withers (M1) measured on Faroese horses in 1985 and 2018. N is the number of horses measured, Min is the minimum height measured, Max is the maximum height measured and Mean is the average of the heights measured.

Year/gender	N	Min	Max	Mean
<b>1985</b>	20	110.0	127.0	121.3
male	7	118.0	124.0	121.1
female	13	110.0	127.0	121.3
<b>2018</b>	26	117.0	127.0	122.0
male	10	117.0	126.0	122.0
female	16	119.0	127.0	121.9
<b>Total</b>	<b>46</b>	<b>110.0</b>	<b>127.0</b>	<b>121.6</b>

Table A1.2. Measurements of the Faroese horse from 1985 and 2018. For explanations of measurements (M2-M11) where M2 is height at saddle, M3 is height at rump, M4 (1985) is chest circumference, M4 (2018) is depth of chest, M5 is the body length, M6 is chest width, M7 is hip width, M8 is rump width, M10 is knee circumference and M11 is leg circumference.

Category	M2	M3	M4 1985	M4 2018	M5	M6	M7	M8	M10	M11
1985 average			147.3							16.4
male average			147.3							16.7
female average			147.3							16.2
2018 average	114.9	125.0		60.9	131.5	32.8	41.4	35.5	27.6	17.2
male average	115.6	124.8		60.5	131.0	32.7	40.2	33.1	29.2	18.0
female average	114.5	125.1		61.2	131.9	32.9	42.1	37.1	26.6	16.7
Overall average	114.9	125.0	147.3	60.9	131.5	32.8	41.4	35.5	27.6	17.2
Overall minimum	110.0	118.0	135	58.0	125.0	30.0	38.0	30.0	25.0	15.0
Overall maximum	120.0	131.0	162	65.0	140.0	38.0	45.0	44.0	32.0	19.5

## Appendix 2.

# Føroya Fongur database statistics

### Population statistics

The database Føroya Fongur is the database where all Faroese Horses are registered. The database is based on WorldFengur, the Icelandic horse database and register ID number and name of horse, name of the farm, colour code, Dam, Sire, Status (Living/Dead), County, Country, birth year, death year, gender (Mare, Stallion, Gelding, and a few unknown), and year of castration if castrated. It is also possible to add extra notes for each individual horse. Table A2.1 shows the age statistics for Faroese horse in total and Table A2.2 shows the average age for each decade.

The age statistics show that the Faroese horses on average live to about 11-12 years (Table A2.1). However, mean age could be a difficult number to interpret as it is affected by if there are young animals that die from diseases or accidents. As long as the horse is healthy and is free from accidents, the expected living age is usually higher. For example, the oldest known Faroese horse achieved the age of 33 and the oldest horse that is currently living is 25 years old. The average age per decade (Table A2.2) shows that for the last 20 years the average age has been stable. The data from before 2000 is probably skewed because of the low number of horses in these years.

Table A2.1. Table A2.1. Age statistics from the Føroya Fongur database. N total is the number of horses in total in the database. N dead horses are number of dead horses with registered birth and death date. N living horses is the number of horses registered as currently living as of February 2024. Mean age at death is the average age achieved at death. Mean age living is the average age of the current living population. Max age achieved is the highest registered age for a Faroese horse.

Description	Value
N total	230
N dead horses w/age	132
N currently living horses	82
Mean age at death	11.8
Mean age currently living	9.5
Max age achieved	33
Max age currently living	25

Table A2.2. Average age achieved per decade. N is the number of horses registered with age per decade.

Years	Average age	N
1960-1969	14.8	4
1970-1979	17.0	6
1980-1989	5.8	4
1990-1999	10.6	25
2000-2009	11.5	30
2010-2019	12.0	44
2020-2023	12.1	19
<b>Total</b>	<b>11.8</b>	<b>132</b>

## Colour statistics

The database also registers the colour of the horses. The horses are registered with both a base colour (Figure A2.1) and with white marking (Figure A2.2). Out of 230 horses in the database, 219 are registered with a colour code. Figure A2.1 shows that the most common base colour is Bay, followed by Black, Chestnut and Jet black. Figure A2.2 shows that most horses have no white markings, but those who do have either tobiano (large white body spots) or a forehead star.

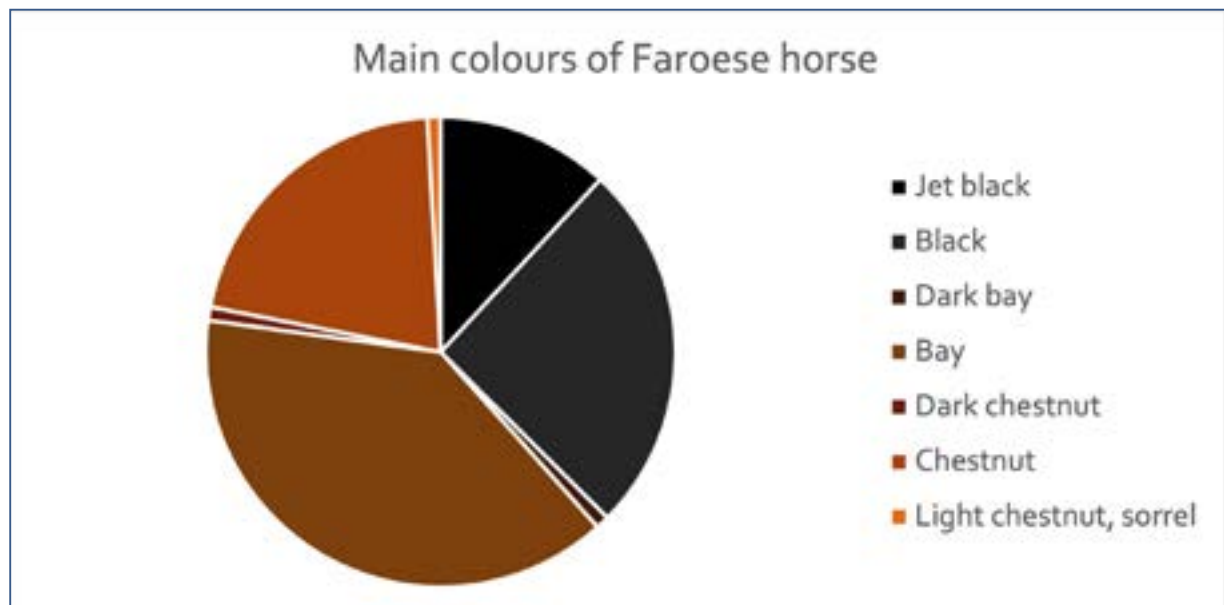
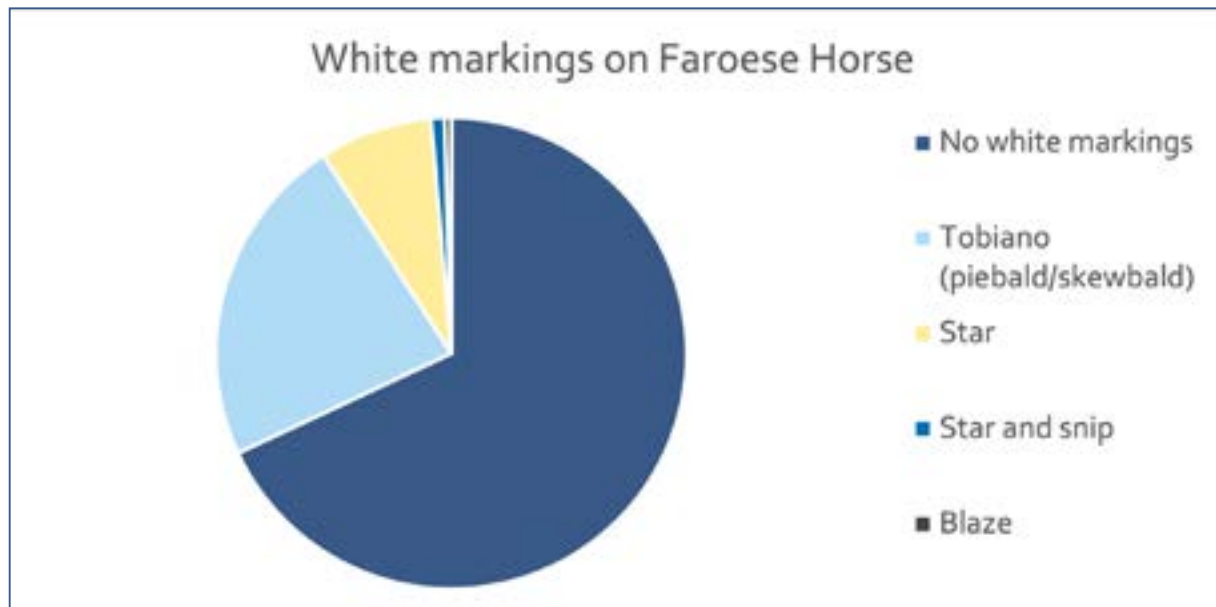


Figure A2.1 Base colours of Faroese Horse.

Figure A2.2 White markings on Faroese Horse







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