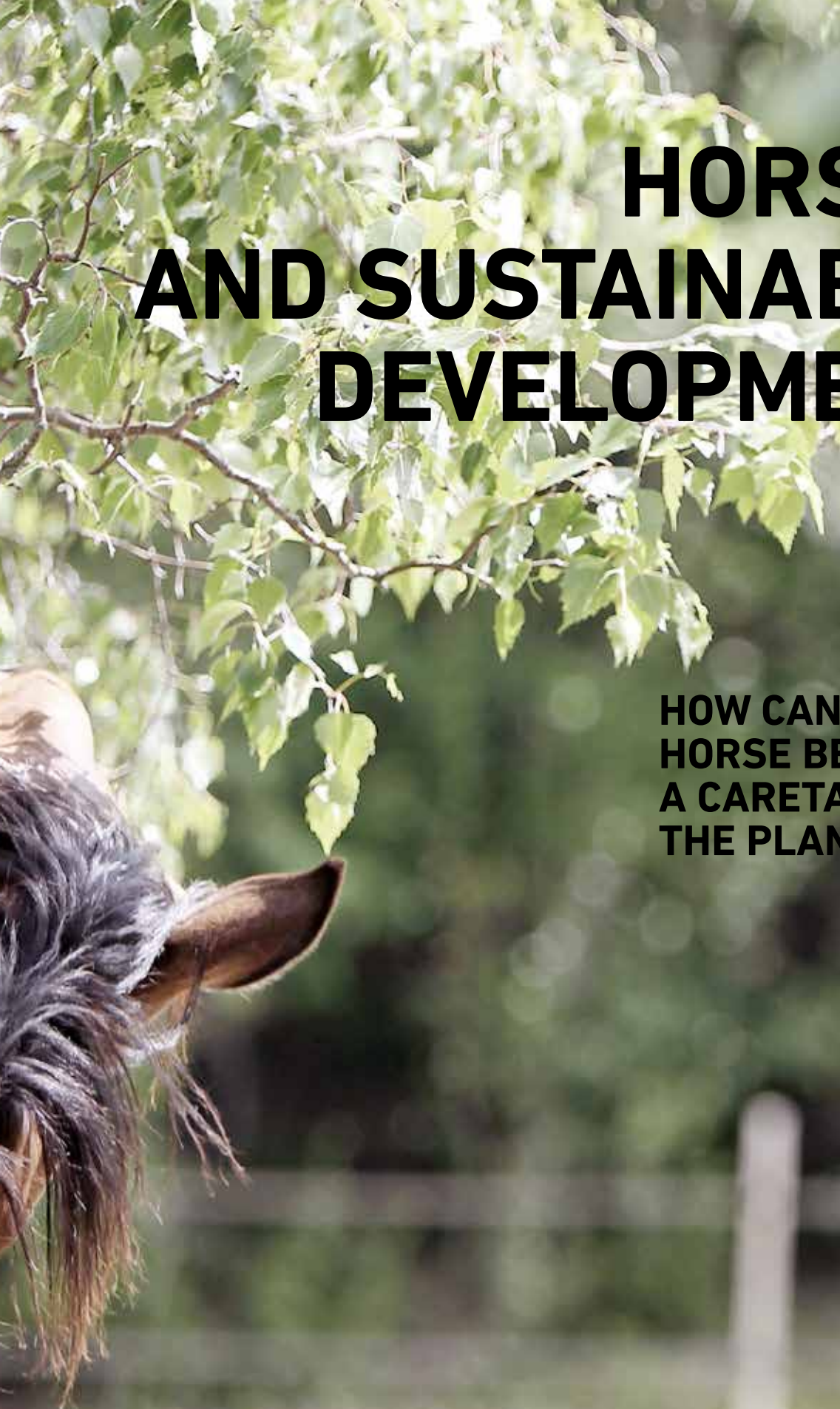




HORSES AND SUSTAINABLE DEVELOPMENT

**HOW CAN THE
HORSE BECOME
A CARETAKER OF
THE PLANET?**



WHILE THERE IS AN INCREASING URGENCY TO SOLVE OUR SUSTAINABILITY CHALLENGES, THE SOLUTIONS ARE ALSO GROWING.

This report provides an initial overview of the sustainability challenges connected with keeping horses for recreation and professional sport. As the authors, we hope to contribute to a holistic view of the situation and inspire others to work together to accelerate the transformation to a society that is sustainable for planet, people and our domesticated animals.

We hope that this report will inspire even more active consumers and companies as well as partnerships to create a profitable and sustainable equestrian community, today and in the future.

The report describes what it means to become sustainable and provides tips on steps that we can take. It's important for you to choose the solutions that are best for you, the horse you take care of, your group of horses and your stable based on your own circumstances. Change comes about through many small steps, and we can all contribute in ways large and small to creating a sustainable and thriving world where our societies continue to develop.

SUSTAINABILITY IN THE SPOTLIGHT – NOW IS THE TIME

All over the world, we've begun to see a transformation toward a better and more sustainable future. 2015 was declared the super environmental year.

After many years of negotiations, we finally achieved a climate agreement that united the majority of the world's countries. Earlier in the autumn, 17 global sustainable development goals were approved. Crown Princess Victoria is an ambassador for these goals.

We see numerous good examples of sustainable products and services in all sectors of society. Solar cells are the fastest-growing technology in the world when it comes to renewable energy; the sharing economy is on the rise; recycled materials in clothing, safe and beneficial working conditions in supply chains, and the share of organic foods are all growing more than ever before.

Individuals, companies and organisations are recognising the potential of sustainable development. 100 million people around the world belong to the group LOHAS (Lifestyle of Health and Sustainability), which is dedicated to leading an enjoyable, healthy and exciting life, but not at the expense of others. Today, sustainable development is the largest driving force behind business innovation, since it improves profits in both the short and long term.

Today, most large companies have active sustainability programmes, while small companies with fewer than ten employees are a bit behind. Small companies are an important part of the Swedish business community. As the number of horses rises, there is growing demand for more products, clothing and services for our activities, and the equestrian community's responsibility for contributing to sustainable development grows alongside this demand. A large portion of equine-related environmental impact occurs during the supplier stage, when feed or equipment is manufactured.

We all have the ability to contribute to a positive future through our consumption or investments.

We can purchase fewer things of higher quality to reduce our impact on the climate and environment and help improve working conditions. We can use energy more efficiently, switch to green electricity, and choose to take the train rather than flying or to cycle rather than driving.

We all need to do our part if we are to continue enjoying the world we know, the only planet where there are horses.

WHY IS SOCIETY TRANSITIONING TO SUSTAINABILITY?

Many people have enjoyed better and more comfortable lives since the 1950s. At the same time, we've also seen a dramatic increase in the negative environmental impact on our planet. The 1950s marked the beginning of the great acceleration, with curves that show a negative global environmental impact pointing straight up. In the 1950s, there were three billion of us – and now there are over seven billion. In the future, we will share this planet with a few more billion people, who all need the Earth's resources. This means that we will face significant challenges if we are to create a worthwhile and sustainable future.

Even if all of the solutions are not yet in place and the economic system does not always make things easy for people who want to do the right thing, acting sustainably will become more and more profitable in the future. Prices of raw materials are expected to continue rising, which means that economising on resources, being as efficient as possible and viewing waste as a new resource will pay off more and more. Laws and regulations will continue to become more stringent when it comes to activities that pollute our planet, which means in turn that it will also be profitable to avoid the impact of stricter legislation for example on chemicals or emissions from fertilisers.

This report demonstrates that horses have both a positive and a negative impact on society and our environment. For example, several activities make a negative contribution to climate change, degradation of farmland, eutrophication of our lakes and oceans, poor working conditions,

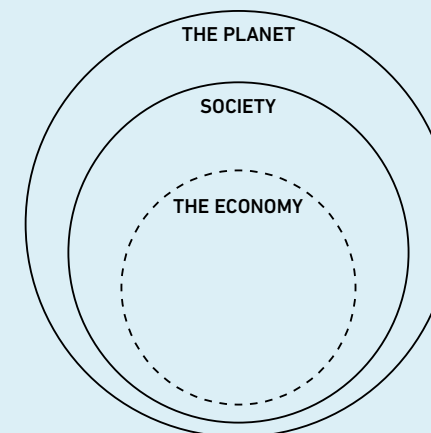
extinction of species and more toxic chemicals in our environment. If we are to thrive together today and in the future, we need to ensure that we don't exceed the planet's limits and that we can prosper together.

In Sweden, we have a high level of knowledge and commitment to environmental issues, while at the same time we consume far too many resources. We belong to the middle class of this planet, which buys and discards a lot of things. Today, human beings are the largest force affecting the planet due to exactly this, everything that we produce and consume. You could say that this impact is our ecological footprint. Sweden ranks tenth among countries with the largest footprint per capita. If everyone on earth had an ecological footprint as large as we Swedes do, we'd need 3.7 planets.

This also applies to equine-related consumption. We have seen five-fold growth in the number of horses in Sweden over the last 40 years, and today there are about 360,000 horses in Sweden. The Swedish equine industry has about SEK 52 billion in revenue per year, and provides over 30,000 full-time jobs.

SUSTAINABLE DEVELOPMENT, BECOMING A CARETAKER OF THE PLANET

The most common definition of sustainability comes from the Brundtland Report. According to



this definition, sustainable development meets current needs without endangering the ability of future generations to meet their needs as well.

To live up to this definition, we must understand that we depend on the planet's resources and services for what we are able to achieve in our societies, which in turn affects our economic activities. If we are to thrive together in the future, we need to ensure that we don't exceed the planet's limits, work to achieve mutual trust, respect human rights and take good care of our domesticated animals.

THE HORSE AS A CARETAKER OF THE PLANET

Being a caretaker of the planet means creating a sustainable society that takes the planet, people and our domesticated animals into account. A society that is more attractive, enjoyable, just and democratic.

Change is brought about when many people continue to contribute by taking different steps in a sustainable direction. It's important for you to choose the solutions that are best for you, the horse you take care of, your group of horses or your stable based on your own circumstances. The following is a list of areas that will be described in more detail further on in this report.

- Horses contribute more than just a ride
- Grazing by horses contributes to biodiversity in the environment
- Horses' well-being – what do they do when you're not there?
- What horses eat – how sustainable is it?
- Horse manure is an important resource
- The stable's energy usage
- Transport – horses hit the road
- Clothing, equipment and accessories
- Stable waste and recycling
- A sustainable competition

HORSES PROVIDE US WITH SO MUCH MORE THAN A RIDE

Horses have a positive effect on us, both body and soul. Half a million Swedes ride regularly, and many others are on a waiting list. Riding is the second largest sport in Sweden, where boys and girls, men and women meet on equal ground. It's also a lifestyle.

Riding contributes to social sustainability in many ways, while also sharing some of the challenges. Close to 160,000 people are members of a riding club. Moreover, riding is the second-largest sport for the disabled in Sweden, with about 4,000 riders. Trotting and horse racing is the second-largest spectator sport.

Riding is the second-largest youth sport in Sweden, especially among girls. Stables and riding schools have proven to be an environment that develops girls' self-confidence and leadership skills. They have become a source of future female managers. It is said that 70 percent of female Swedish managers have a background at a stable. Horses are also being used more and more in healthcare and rehabilitation. Equine-assisted therapy is when horses and riding are a component of treatment, but the objective of the treatment is something other than learning to ride and handle horses. 30 minutes on horseback at a walking pace is equivalent to a 30-minute walk. This means a lot if you are unable to walk on your own legs.

Stables may also have a downside, where hierarchies can result in bullying, fear and inequality. In Sweden, only one rider in ten is male. There has also been criticism that the sport encourages materialism and a fixation on appearances. A fixation on brands is increasing

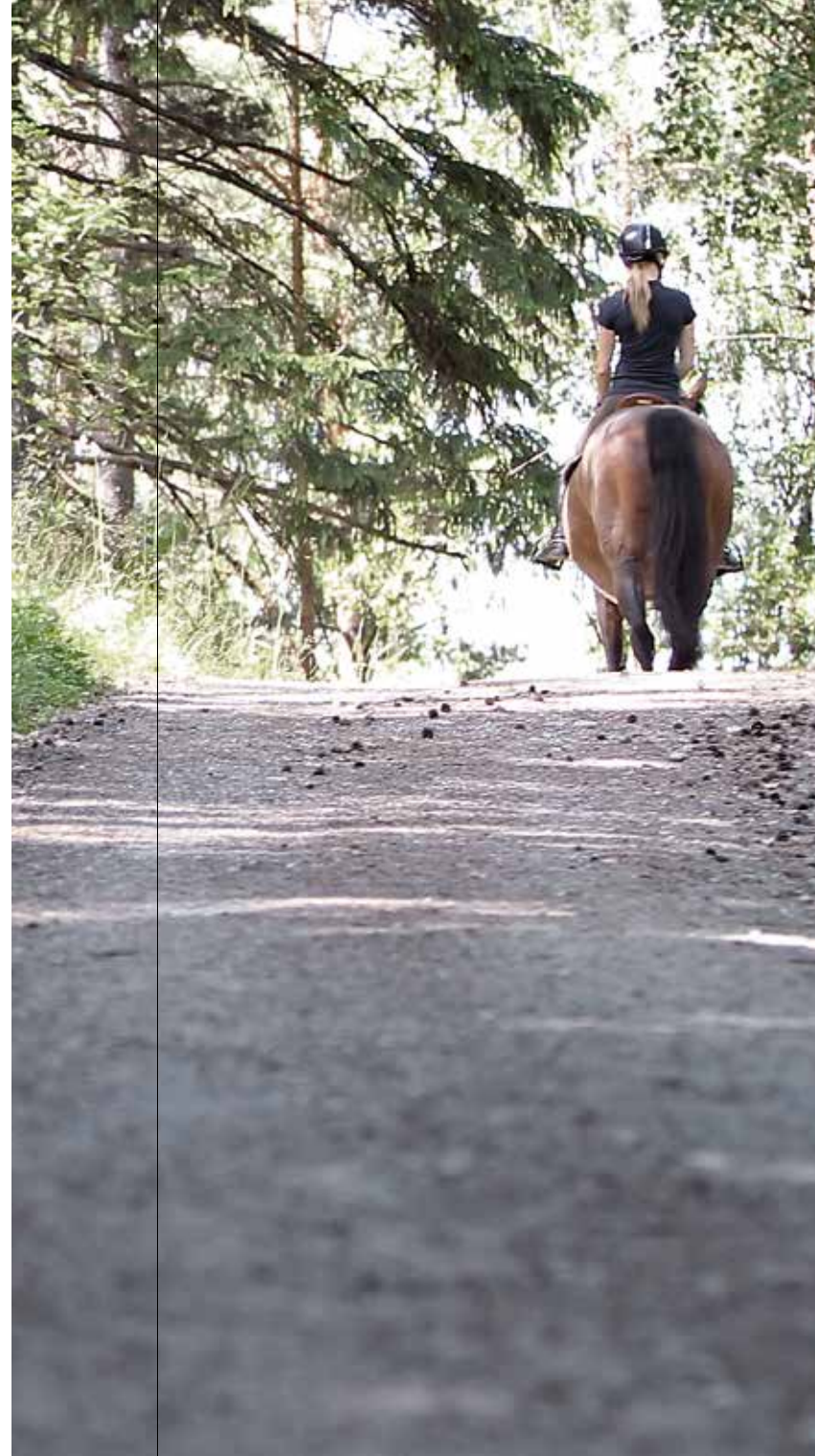
in stables, with the broad reach of social media and a focus on blogs devoted to riding fashion and tack.

The Swedish Equestrian Federation trains 600–700 youth leaders per year, and a large number of Swedish riding clubs depend on devoted members and volunteers. This is a sector that benefits from knowledge transfer and learning, much of which is done on a volunteer basis during people's spare time. However, the equine industry is also the source of 30,000 full-time paying jobs. A five-fold increase in the number of horses in Sweden over the last 40 years has created demand for well-trained employees. Working with horses may be a short-time occupation or a lifelong profession. The stable is a hazardous work setting, due to the large animals and machines. Studies show that there are challenges in the areas of working conditions and safety. In 2015, not even half of the employers in the equine industry paid their employees on the books. One challenge is to find satisfactory solutions and forms of employment in a sector where labour is extremely time-intensive.

WHAT CAN WE DO?

The social aspect of sustainable development has received a great deal of attention in recent years. Trust is critical to healthy societies. Numerous organisations and companies have a shared set of values concerning justice, rights and needs. How they put these values into practice varies depending on their circumstances.

If we are to have socially sustainable societies, five important areas must receive attention. We must find it meaningful to be a part of the society or group to which we belong. In order to have this sense of meaning, we must participate on equal terms and have the chance to develop, be able to influence our situation, and promote good health.



"In our experience, many stable owners, clubs and trainers need to improve significantly when it comes to surveying and preventing workplace risks, before an accident occurs."

Hans Jansson, Inspector, Swedish Work Environment Authority, Stockholm.

Respect for the equal value and rights of all people is fundamental.

In 2015, the Swedish Equestrian Federation developed the "Secure in the Stable" toolkit. The toolkit considers issues of security, well-being and equal treatment, and preventive measures that we can take against bullying and social exclusion, thereby creating a secure and equitable environment. Several initiatives focusing on young men and equestrian sports have also begun recently.

If you are a professional or employer in the field, check out the Swedish Horse Industry Foundation (HNS)'s Equestrian Jobs of the Future programme and the book "Secure horse employment", which was developed by KA and Prevent. Equestrian Jobs of the Future includes proposals for employee and work environment handbooks. "Secure horse employment" includes a checklist that will help you review your own operation.

If you are looking for a horse-related job, ask the employer if you will be insured. And bear in mind that if you work off the books, you will not receive national retirement pension, paid parental leave, sick pay or unemployment benefits. You can find more information on working conditions and other issues from the various trade unions.

GRAZING BY HORSES CONTRIBUTE TO BIODIVERSITY IN THE ENVIRONMENT

Horses benefit from grazing, since they are able to engage in their natural behaviours such as roaming, finding their own feed and socialisation with other horses.

The fact that horses are good at grazing makes them an important part of keeping our landscapes open, along with other grazing animals such as sheep and cows. Today, our open landscapes, characterised by sparse forest growth, meadows and oak groves, are rapidly disappearing. The reason is that pastures are not being used as much as they were in the past and they are therefore becoming overgrown. Natural pastures in Sweden have declined from two million hectares to about 450,000 hectares since 1850. Many types of flowers, butterflies and birds need open landscapes and are thus threatened when the land becomes overgrown. Variation in animals and plants is called biodiversity. Together they create ecosystems, which provide us with services such as clean water and pollination. Pollination transforms apple blossoms into apples. Did you know that one in three bites of the food you eat is thanks to pollinating bees? Natural pastures are not only valuable for biodiversity. They are also valuable because they capture carbon, which combats climate change.

Today, many horse pastures are on cultivated land, in other words fields that have been ploughed and

”At Tunarp, we run a riding school and riding camps with 27 horses and 11 ponies. At our stable, the horses are able to go outside in a herd in large paddocks all year round. In the summer, they are outside day and night, except when they are being used for classes. We combine grazing in cultivated fields with grazing on natural pastures. All of our horses graze on natural pastures, but the ponies graze only there. Even horses that we’ve bought from England and the Netherlands do well on our natural pastures.”

Beata Thafvelin-Karltorp of Tunarp Manor Farm.



planted with grass for grazing and hay. Horses contribute to keeping our landscapes open by grazing, and because we grow hay for them in the fields. But if horses grazed more on natural pastures, this would contribute even more to biodiversity and the capturing of carbon. A natural pasture is an old field that has been grazed but never ploughed, fertilised or planted with hay. Natural pastures have a high level of biodiversity, and they are home to many endangered species that depend on this particular type of land.

Horses thrive in large rolling fields where there is feed, water, sunshine and shade. This description fits many natural pastures. Horses are the best animals at grazing on overgrown, coarse grass, so that open land that has not been grazed for a long time is quite suitable for horses. Other pluses for horses are that they prefer grass to plants such as flowers, and that many dung beetles thrive in their manure. Horses occasionally have an extremely poor reputation as grazing animals due to their ability to graze very hard, quite close to the ground, so that the ground cover may be easily destroyed by trampling. In order to protect pastures, it's important for the ground to be covered by plant growth at all times, and for the horses not to damage trees by gnawing on their bark, for example. Horses are also relatively heavy, and they can cause a lot of wear and tear on the land, especially if they are shod. Therefore, it's important to continually ensure that horses only graze while the land is not damaged. If the land is destroyed by trampling, it will not capture as much carbon either.

WHAT CAN WE DO?

If you don't have access to your own natural pasture land, the first step is to get in touch with nearby farmers. You can also contact your municipality or county council to find out whether they lease grazing land or can refer you to landowners you can contact. They may also be able to share valuable information and knowledge. Consider that grazing for even a short time can make an important contribution to nature conservation and biodiversity.

For grazing by horses to promote biodiversity in natural pastures, it's important to plan the grazing so that the land is not trampled or over-fertilised with manure or leftover feed. If a horse begins to gnaw on the bark of valuable trees, it should be moved immediately. It's good to have access to a variety of fields, so that it's easy to move the horses in time. One rule of thumb is that natural pasture land is only suitable for summer grazing, never as an exercise paddock or winter pasture.

Alternating horses, cattle and sheep, or allowing them to graze together, is beneficial and increases a field's pasture production while reducing parasite pressure. It's also important to perform a faecal test to keep parasite pressure down. If the test shows that the horse needs to be dewormed, this should be done at least three days before it is set out to graze. This will protect the dung beetles that break down droppings from the deworming substances.

HORSES' WELL-BEING – WHAT DO THEY DO WHEN YOU'RE NOT THERE?

We have nearly absolute control over a horse's life – what it eats, who its companions are, if it will be allowed to breed and its activities. This means that we bear a great responsibility for their well-being.

A horse needs the opportunity to engage in its natural behaviours in order to thrive. The well-being of horses is a large topic. This section focuses on what we can do to provide horses with the opportunity to engage in their fundamental behaviours during the time we are not using them for riding, training or competition.

The horse is a grass-eating herd and flight animal, and it devotes much of its waking hours to roaming and looking for feed. Horses in the wild roam between 10 and 30 kilometres per day. Horses are programmed to graze or eat roughage 14 to 16 per day, without taking breaks of longer than three to four hours. Horses also eat at night, since they can only sleep for three to four hours broken into short periods over 24 hours.

Lifestyle diseases are increasing among horses, and many times they are related to our failure to allow them to engage in their fundamental behaviours. It is important to meet horses' needs to search for feed, to eat and to roam, in order to avoid behaviour disorders such as weaving, gnawing on wood or cribbing. The horse's digestive system is designed to continuously process feed in small doses. Unfortunately, today we are seeing horses afflicted by gastric ulcers, excess weight and colic, which could have been prevented in many cases through proper feeding procedures, access to movement and clean water. Sometimes a horse displays few obvious symptoms or none at all, but it is still not completely healthy and it does not perform. The risk of dental decay also increases if a horse does not receive enough roughage, since protective saliva is only secreted when a horse eats.

WHAT CAN WE DO?

Go over your stable, paddock and pasture environment as well as the exercise your horse gets, and consider how eating time, movement and social contact can be provided. Individual horses and groups of horses may differ, but remember that all horses have the same need to express their natural behaviours.

Anna Hassö, a member of the Swedish national eventing team, writes in the preface to the book *Hästsignaler* (Horse Signals): "We impose our own eating and sleeping patterns as well as a way of thinking about horses that resembles how we humans socialise. A horse's digestive system is very different from that of humans and some other animals. Horses rest at completely different times and they need movement to be healthy. If we take advantage of this knowledge, we can keep our horses healthier, avoid a lot of stomach and intestinal problems, and get both companion and competition horses to do what we ask of them."

Horses are herd animals and should always be in contact with other horses. They have a clear ranking system, which makes the herd healthy and secure for the horse. Keeping horses in groups in sufficiently large fields is preferable, but if this is not possible try to ensure that a horse can see and be in contact with another horse.

Keeping horses in groups improves their ability to learn, and spending time in groups in larger pastures provides the opportunity for continual movement, which reduces the risk of injury due to peaks of intense training alternating with low activity.

Roughage is important for horses. Chewing gives them a sense of calm. There is a great deal of research showing that horses can obtain sufficient nutrients from roughage. Of course, this requires the roughage to be analysed so that you know its nutrient content when deciding how much to feed. A rule of thumb is that a horse can eat 2.5 to 3 percent of its own body weight in kilograms of solid matter. This might mean feeding a 500-kilogram horse 19 to 23 kilograms of silage, for example. If a horse has a tendency put on weight and become fat, it should receive roughage with a lower level of nutrients. Straw may be used to supplement the roughage, for example. Some have expressed a concern that horses that receive feed rations that are richer in roughage may develop hay belly. There is no reason for this concern if the roughage is nutritious and the horse gets proper exercise.

"We also let our competition horses out into a large paddock. It's important to us to allow our horses to move completely freely every day, to the greatest possible extent. They're used to it, which reduces the risk of injury. I've seen many times that more movement, especially moving freely, has been the key to solving a lot of problems that arise when riding."

Peder Fredricson, owner of Grevlundagården and a member of the Swedish national jumping team.





WHAT HORSES EAT – HOW SUSTAINABLE IS IT?

Roughage should be the base of a horse's feed ration. Many Swedish horse owners also supplement this with concentrated feed containing fat, protein or starch. Concentrated feed is made from raw materials such as cereals, linseed or occasionally soybeans.

Only five percent of the soybeans used for animal feed in Sweden are used for horse, dog or cat food.

Most of our feed is grown in Sweden, but some of it, such as soybeans, is imported from the rest of Europe or further abroad. The largest sustainability impact of feed comes from its cultivation. The main issues include greenhouse gas emissions from machinery and chemicals from pesticides. When we cultivate the soil, there are emissions of plant nutrients such as phosphorus and nitrogen. These contribute to eutrophication in lakes and coastal areas all over the world.

Another global problem is that we have lost 25 percent of our topsoil to erosion. And deforestation is still taking place to produce farmland and grazing land, which contributes to CO2 emissions and the loss of biodiversity.

The risk of a negative impact from cultivation increases with the crops we use for concentrated feed. The risks are greatest when we grow crops in countries with a warm climate, with more pesticides, and in countries with weak environmental and labour legislation. Soybean farms face serious challenges in the areas of environmental issues and working conditions. Extremely hazardous pesticides are still used to grow soybeans. Pesticides can pose a health risk to farm labourers as well as running the risk of poisoning the environment.

"We produce roughage according to our animals' nutritional needs, so that we don't have to buy supplementary feed. This allows us to reduce our transport and our impact on the climate. We return the manure to the fields rather than buying fertiliser, completing the cycle. So my idea is that more people should consider the importance of roughage that's been analysed in detail in order to reduce the amount of unnecessary supplementary feed and transport as well as managing the manure and reusing it on the fields."

Lina Andersson, competitor in the Young Riders Category of the Lövsta Future Challenge Dressage Event.

WHAT CAN WE DO?

In general, growing roughage causes a lower environmental impact than growing the crops used for concentrated feed. Growing hay or silage is also beneficial to the quality of the land, since it contributes organic matter that also captures carbon, which in turn helps to combat climate change.

Make sure that as much of your horses' feed ration as possible consists of high-quality roughage. It is important to have an analysis of the nutrient content of the roughage in order to determine the extent to which it will provide your horse with the nutrients it needs. The results can be used to calculate your horse's feed ration using an independent feed ration programme. This calculation will also show clearly whether the feed ration needs to be supplemented with concentrated feed and minerals. You should then keep an eye on your horse's body condition and adjust its feed ration as needed. Not only is reducing concentrated feed better for your horse and the environment, Swedish stables can also save tens of thousands of kronor by reducing their use of concentrated feed.

If you do need to supplement your feed rations with concentrated feed, avoid buying concentrated feed that uses soybeans as its source of protein. If your horse needs more protein, an excellent solution is to replace the soybeans with alfalfa, which has the additional advantage of being a type of roughage. Ask for feed that has been grown according to environmental or sustainable labelling schemes such as EU Organic, KRAV and Svenskt Sigill.

HORSE MANURE IS AN IMPORTANT RESOURCE

Horse manure is responsible for about 10 percent of the total manure produced by all domesticated animals in Sweden. A horse weighing about 500 kilograms produces eight to ten tonnes of manure every year. It amounts to approximately 2.7 million tonnes manure per year in Sweden.

Manure is an important resource that is needed for sustainable agriculture. Manure contains various nutrients such as nitrogen, potassium, phosphorus and micro-nutrients. It also contains bedding materials that become organic matter, which are beneficial to the structure and fertility of farmland. Plant nutrients must be returned to fields and agriculture in order to reduce our need for energy-intensive fertiliser. If phosphorus does not return to farmland via stable manure and organic waste, new phosphorus has to be mined. Mining demands energy and has a negative impact on the environment. Our planet also has a limited supply of phosphorus, so we must manage it wisely so that there will be enough for everyone in the future as well.

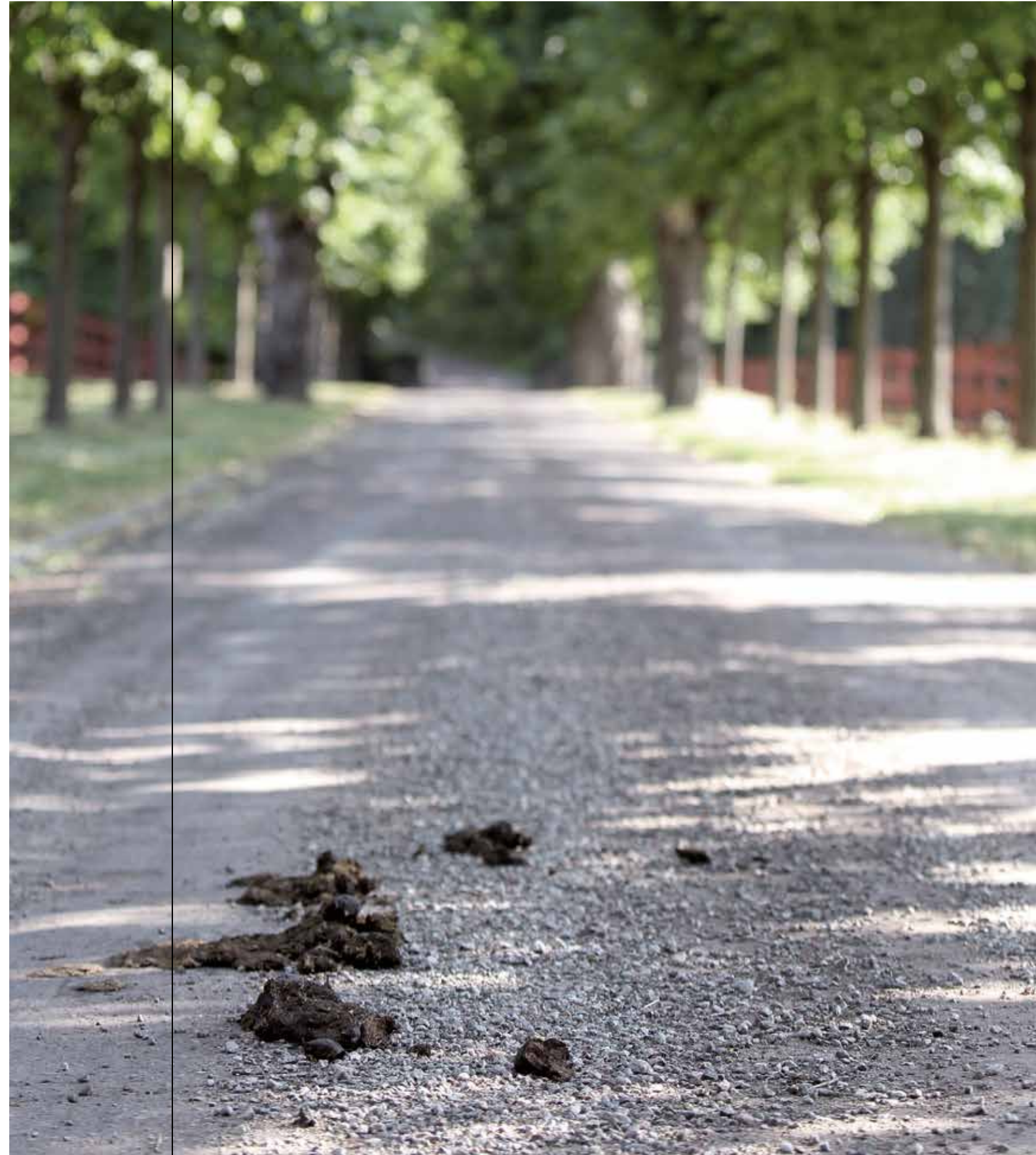
Today, it is difficult and expensive for many stables to dispose of manure in a satisfactory way. One reason is that society views horse manure as waste, rather than a resource. Managing manure can be extremely problematic for many stables as well as an expensive prospect unless the horse owner finds a satisfactory solution. Everyone engaged in the equine sector needs to do their part to change this view, so that the sustainable solution becomes the easy and most economical choice.

EMISSIONS PRODUCE EUTROPHICATION

Wherever manure is managed, there is a risk that plant nutrients will be released into the air and water. Plant nutrients also run off from horse manure in pastures and paddocks where the ground is not covered by vegetation. Emissions of plant nutrients into the environment contributes to eutrophication of our waterways. Therefore, it's important for us to follow existing regulations and advice for managing and storing manure in order to minimise the risk of emissions.

VARIOUS TYPES OF BEDDING MATERIALS

We use various types of bedding materials in our stables, primarily straw, straw pellets, wood shavings or peat. It was believed for a long time that manure containing wood shavings was in danger of poisoning the land, but now we know



this is not the case. On the other hand, manure containing wood shavings ordinarily takes longer to compost.

WHAT CAN WE DO?

To contribute to sustainable development, it's important to recover as many nutrients and organic matter as possible from manure for agriculture. Follow the existing regulations for managing manure. It's important to store the manure so that it does not discharge liquid manure, which carries plant nutrients and may carry bacteria. Manure is often stored on a cast metal slab or in a watertight container. We need to remove manure from pastures and paddocks where the ground is not covered by vegetation.

Keep horse manure clean and in good condition. Keep in mind that it is to be used for growing crops, and that rubbish can spread in the environment. Make sure that foreign substances such as baling twine and plastic do not make their way into the manure pile. Try to minimise the amount of bedding that winds up in the manure pile, since this often makes the manure easier for farmers to use.

RETURN THE MANURE STRAIGHT TO THE FARMLAND

From a sustainability standpoint, the best option is to return the manure to the farmland, so that all of the nutrients and organic matter will return to the land. Some horses in Sweden live on farms that produce their own feed and use the manure on their own farmland. Other stables have agreements with farmers who take the horse manure. The manure can be used immediately but intermediate storage can be a good idea, and sometimes it is necessary to make the manure easier to spread and less bulky. At times intermediate storage or composting takes place on the field where the manure will subsequently be spread. Sometimes it can be difficult to find farmers who can take the horse manure, since it requires a lot of work in both handling and administration. Contact your trade association, the Federation of Swedish Farmers or your municipality for suggestions about farmers to contact or whether there are other businesses that might be interested in your manure.

"Stig H Johansson trotting facility at Alby Gård has bought its roughage from Helleby Gård AB for many years. Now they are completing the

cycle together, as Helleby Gård receives the horse manure to be used as fertiliser in its cultivation. When they deliver roughage they pick up the manure at the same time to avoid additional transport. For Helleby Gård, this means that they have reduced their use of commercial fertiliser. However, it has also required time and patience as well as many calls to the municipality. It also required some innovation, such as intermediate storage of the manure on the field where it is to be spread after composting. This is done so that precipitation runs off without penetrating the manure and causing nutrient emissions, even when the manure is composted for over two months. Managing the manure has also required major investments in machinery to meet the requirements of the Swedish Environmental Code," explain Staffan Söderberg of Helleby Gård AB and Karin Johansson of Alby Gård.

BIOGAS PROVIDES ENERGY AND DIGESTATE THAT IS USED IN AGRICULTURE

Horse manure is beginning to be viewed as a resource at biogas plants. The method is still expensive, since these are often large plants that require cooperation among multiple farms or companies. But costs are declining and smaller farm-based facilities may become an alternative in the future. When the manure is digested in a biogas plant, the products are biogas, which becomes energy, and a digestate that contains organic matter and plant nutrients. The digestate should be returned to the field. Horse manure often needs to be digested together with another material containing more water, such as liquid manure from other animals.

PLANT NUTRIENTS IN ASHES ARE ALSO NECESSARY

Manure can be used as fuel, either directly in a boiler or by being made into pellets before burning. Ensure that nothing else is burnt in the boiler that will cause the ash to be polluted. This alternative is more accessible at the farm level and provides us with energy. Unfortunately, we lose a great deal of the manure's value as a source of plant nutrients, so combustion is not the best way to recover plant nutrients for agriculture. The organic matter and nitrogen disappear from the ash, but minerals such as phosphorus and potassium remain. It's important to find a solution so that these substances are returned to agriculture.



THE STABLE'S ENERGY USAGE

More than half of Sweden's CO₂ emissions come from transport and electricity generation.

All energy usage affects our environment, and the use of fossil fuels is the greatest source of emissions of greenhouse gases, which contribute to climate change. Climate change is the critical issue of our time, and it is linked with numerous global disasters. A warmer climate increases the risk of a greater number of vermin, parasites and exotic diseases. But rain and drought also affect the production of feed, and if there is a shortage prices will rise. We have two ways to make a difference: by reducing energy usage and by converting to renewable energy and heating.

WHAT CAN WE DO?

Every kilowatt-hour saved is a savings in CO₂ emissions and money. You can save up to 20 percent on your electricity bill when you replace incandescent bulbs with LED and low-energy bulbs. It's worth it to replace major appliances over seven years old if the old appliance is recycled and replaced with a new one with an A+++ energy rating.

If there is a small crew at the stable, it's easiest if everyone who spends time there helps each other to keep windows and doors closed and to remember to turn out the lights. If you run a large riding school, for example, installing water-saving brush nozzles and taps can be a good idea. Light sensors that only turn on the lights when someone is there can be installed in some spaces.

To convert to renewable energy sources, you should begin by investigating how your facility gets its heat and electricity. Begin by choosing a plan offering eco-labelled electricity from your energy company. If you own your facility and are able to make the investment, there are good examples of stables that have installed solar panels, geothermal heating pumps and air heat pumps. You can also install a small wind turbine on the farm. Some stables have incorporated sunlights into their roofs so that they don't have to turn on the lights in the daytime. There are facilities that burn their own manure in a boiler for heat.

"If you replace the mixer taps/faucets in three places you can save 1,000 kWh/year. If the price of energy is SEK 1.5/kWh, you will save SEK 1,500 per year."

The Municipal Energy and Climate Advisory Service.



TRANSPORT – HORSES HIT THE ROAD

Transport accounts for a third of Sweden’s climate emissions. This includes trips by car to and from the stable, transporting horses to and from training sessions, competitions and vet visits, and transport of products and waste.

There is only one type of animal that travels more than horses, and that is human beings. Along with the production of concentrated feed, transport is responsible for horses’ largest impact on the climate. Reducing emissions from the transport sector is a major challenge, since they are still generally dominated by fossil fuels. For example, all horse trucks registered for class B and C driving licences only run on diesel, which is a fossil fuel.

WHAT CAN WE DO?

When it comes to reducing the negative impact of transport, the issues are the vehicle, the fuel

and the behaviour. We need better vehicles, more environmentally friendly fuel and behaviour that reduces unnecessary travel. Sweden has a vision of being independent of fossil fuels by 2030, and by 2050 we are to have a sustainable and resource-efficient energy supply with no net emissions. In other words, Sweden is to ensure that it absorbs more CO₂ than it emits.

Every one of us can help to reduce the number of trips using fossil fuels, with the best trip being the one that doesn’t happen. The sharing economy or collaborative consumption are designed to share resources – for example, carpooling to and from the stable and training sessions, and making joint purchases of roughage, concentrated feed and bedding, which are transported to the stable together. Having roaming trainers that come to stables is more climate-smart than multiple riders trailering their horses to the trainer. There are riding schools that have planned riding classes with children from the same part of town so that they can carpool and save on trips.

With a petrol-powered car that gets one litre per ten kilometres and is driven 1,000 kilometres per year, you can save nearly SEK 2,000 per year

“The average driver can also reduce their fuel consumption by 5 to 15 percent by driving economically.”

Martin Prieto Beaulieu of the Swedish Association of Green Motorists.

through economical driving. All horse trucks currently on the market run on diesel. You can use biodiesel to start. Biodiesel is a type of diesel with a renewable ingredient blended in. In addition, there are biogas and ethanol vehicles that are quite suitable for pulling horse trailers. In recent years, there has been a strong focus on battery power and rapid progress in electric vehicles. Today, nearly every automotive manufacturer offers an electric or hybrid vehicle. An electric vehicle powered by renewable electricity will be an important solution in the future. In the longer term, we should also be able to expect a transformation in the selection of horse trucks on offer.

“When I’m not riding my wonderful horse, I drive my Nissan Leaf, a 100 percent electric car! I hope that horse trucks and planes can also run on green energy in the future,” says Emma Karlsson, a competitor in the Young Horses Category of the Lövsta Future Challenge Dressage Event.

It has also been shown that there is often a lack of good public transport to riding schools, so that many people drive there. Make sure to persuade your municipality to have a bus stop near your facility. Use the local media, and contact your local politician directly.



CLOTHING, EQUIPMENT AND ACCESSORIES

Internationally, more and more companies that manufacture and sell clothing and footwear are converting to more sustainable production, with products also being made from more sustainable materials.

Last year, over SEK 150 million was spent at the Gothenburg Horse Show, an event that lasts for just over four days. Naturally, this means that equipment for horses and riders is having an ever larger impact on the planet. The largest sustainability impact occurs where the product is produced, even if shops, transport and how we take care of our products also have an effect. By demanding more sustainable products and services, we can help with the conversion to equestrian equipment that has a positive impact.

SADDLES, BRIDLES AND RIDING BOOTS – THAT’S A LOT OF LEATHER

Many equestrian products are leather goods such as riding boots, saddles, bridles and halters. The global leather industry produces two billion square metres of leather per year, and sales have grown by over 10 percent annually since 2002. The origin of the leather is animal hides from slaughterhouses. As a result, animal protection legislation in the country of origin affects how the animal was treated during its lifetime.

The animal hides must be tanned before they are used, and the most common tanning method today is chrome tanning. Chromium is a heavy metal that cannot break down in the environment. Instead, it goes into the sewage sludge from the tannery or winds

”All leather in our products is 100 percent vegetable-tanned, and comes from our own tannery in Tärnsjö. The high quality of Swedish cowhides depends largely on our climate: we don’t have many insects that feed on the animals. We also have some of the world’s strictest animal protection legislation, which bans the use of electric stun guns for example.”

Thomas Bayerlein, Tärnsjö Tannery

up in the environment when leather products are discarded. Chromium that is released into the environment when the leather is left in landfills or incinerated can be transformed into carcinogenic substances. The tanning process also involves other heavy metals that are hazardous to people, animals and the environment.

Right now, the majority of the leather used in our equestrian equipment comes from India. The working environment in tanneries is often poor and dangerous. Tannery workers run twice the risk of illness compared with other workers, due to their exposure to high chromium levels. A shortage or complete lack of protective equipment sometimes leads to breathing problems, higher frequencies of asthma, skin problems, lower fertility and various forms of cancer. Even people who live close to the tanneries become ill. The Indian authorities are aware of the problem

and they have confirmed the existence of chromium-contaminated groundwater themselves. Unfortunately, they have not solved the problem of who should pay for this environmental pollution.

A HORSE BLANKET IS EQUIVALENT TO AT LEAST SIX T-SHIRTS

The textile industry is one of the largest industries in the world and it poses significant sustainability challenges. In 2014, 128,000 tonnes of clothing and textiles were imported into Sweden, which is equivalent to 13.1 kilograms per person. 8 kilograms of this will be thrown into the rubbish.

One square metre of fabric is needed to make a T-shirt, a pair of riding breeches requires two square metres, and a horse blanket with one layer of fabric requires about 6 square metres. If we estimate on the low side, we can assume that we have one million horse blankets in Sweden. This is equivalent to at least six million T-shirts, or perhaps even twice that number, since one square metre of a horse blanket weighs more than one square metre of a T-shirt. Nowadays, there are ever more eco-labelled garments for sale, but so far we don't often see eco-labelled riding apparel, horse blankets or saddle pads.

Growing a crop for food, animal feed or as a raw material for cloth is all done in the same way. The greatest environmental impact from textiles and clothing comes from the production of materials and raw materials. However, transport and how we take care of and wash our clothes have an impact as well. Clothes may also use materials from animals such as wool, down and fur. This makes it important to make sure that these materials come from animals that were treated humanely.

”When we make riding apparel, our approach minimises our ecological footprint, from our materials to solar panels at the office to the sugar in our coffee. In our experience, it’s become easier to obtain more sustainable materials like organic cotton and recycled polyester. We still have to be willing to pay a bit more. A love of horses and a love of nature are closely related.”

Marjolein van Hilten of EquiRex.

Cotton farming is facing especially large challenges today. It consumes a tremendous amount of water and uses large quantities of pesticides. It takes 2,500 to 2,800 litres of water to make one T-shirt. This is as much as one person would ordinarily drink over three years. Since cotton is grown in dry regions where freshwater is in short supply, it demands a great deal of artificial irrigation. The industry consumes a quarter of the world’s pesticides and one-tenth of its herbicides, on just over 2 percent of its arable land.

Even the production of synthetic fibres such as polyester and nylon has a significant environmental impact. This is largely because the manufacture of these materials is extremely energy-intensive, and they are made from fossil raw materials such as oil.

Large quantities of chemicals are used to dye textiles, and highly fluorinated substances are used for waterproofing as well as for dirt- and water-repellent surfaces. Highly fluorinated substances may affect reproduction, are suspected of being carcinogenic and impair the immune system. They are extremely persistent, which means they don't break down easily in the environment. Some chemicals may enter the environment in wastewater from washing textiles.



Terrible working conditions in the textile industry are often portrayed in our media. The issues are low wages and a poor working environment with a lack of protective equipment for chemical exposure, for example.

PLASTIC IS EVERYWHERE

Many of the items found in a stable are made from plastic, including buckets, jars, shin guards, brushes and pitchforks. Global production of plastic is continually rising and has doubled over the last 15 years. We produced 288 million tonnes of plastic in 2012. As a material, plastic has numerous advantages, but some plastic also has major disadvantages. The manufacturing process is extremely energy-intensive and, in addition, most types of plastic are made from fossil oil, which in turn affects the climate when the oil is extracted from the ground or when the plastic is incinerated.

Plastic also contains chemicals, and some of these chemicals may contain toxic substances that can leach and affect us. Several types of plastic are suspected to be behind issues such as allergies, asthma, diabetes, obesity and fertility problems. It takes hundreds of years for a piece of plastic to break down in the environment. When some types of plastic suffer wear and tear, they distribute small particles called microplastics into our environment. For example, when you wash a fleece garment this can release up to 1,900 particles that pass straight through the sewage treatment plants' systems and are later mistaken for food by aquatic organisms. Researchers believe that by 2050, 99 percent of all birds will have plastic in their stomachs, which gradually poisons and sickens them.

A great deal of research and development is being performed in the plastics industry to find new and more sustainable types of plastic. One method is to manufacture plastic from biomass, which then must be grown sustainably to serve as a completely sustainable solution. Another is to replace problematic chemicals.

CARE AND OTHER PRODUCTS

Up to 7,000 substances are used in our most common beauty products. Even if not all of them are hazardous, we know very little about the cocktail effect, in other words the effects and consequences of chemical interactions. Low doses of chemical preservatives and parabens that are often used in cosmetics, shampoo and skin creams may be hormone



“In the future, I hope that they’ll develop fleece that doesn’t contain polyester, or move to more sustainable alternatives like bamboo for wrappings, blankets and clothes.”

Per Sandgaard, 2015 winner in the Young Horses Category of the Lövsta Future Challenge Dressage Event.

disruptors as well as being linked to cancer in several cases. The same applies to products used for horses.

Insect repellents are designed to have an effect on living organisms, so plants and animals other than the intended target may also be affected. Some insect repellents are based on so-called natural essential oils. It's a good idea to be cautious when using these products as well, since they can cause hypersensitivity or allergies in both people and animals.

The development of resistance in bacteria that cause diseases in people and animals is becoming more common all over the world. This means that the medications we use are becoming ineffective. This is especially problematic for certain groups of products, since there will no longer be any new alternatives to use in the near future. This is the case for antibiotics and dewormers.

WHAT CAN WE DO?

To help with the transformation to sustainability, those of us in the equestrian community need to increase our demand for more sustainable products and services.

Don't buy new products unnecessarily, see if you can buy things second-hand and make your own contribution by giving things away or swapping with others via #ge borttillsport.

Buy textiles, leather and equipment that are high quality and will last a long time, and take care of your clothing and tack. Mend things if you can.

Use as low a temperature as possible when doing the wash. You'll save 40 percent in energy if you wash at 30° instead of 40°.

Use environmentally friendly detergent, cleaners and waterproofing agents.



When you buy new products, investigate whether there are alternatives that are made or grown in a more sustainable manner. Other shops that don't sell equestrian products may also have good-quality clothing and products.

- Textiles: look for organic alternatives and eco-labels such as GOTS, IFOAM, KRAV or EU Ecolabel, or labels related to the chemicals that make up the products or were used in their production such as Bluesign and Oeko-Tex.
- Leather: There are companies that use vegetable or natural tanning in their leather production. They use biodegradable vegetable tanning agents that are found in sources such as oak bark instead of heavy metals. Ask about vegetable-tanned organic leather and the country of origin of the animal hide.
- Plastic: review which plastic products you can replace and avoid. A broom made with natural straw is just as good as one made with plastic straws. Plastic products are often labelled with a number inside a triangle. A simple rule of thumb you can use to avoid the most hazardous plastics when shopping is: "4, 5, 1 and 2, leave everything else on the shelf!" This means that you should ideally avoid 3, 6 and 7. Numbers 2 and 4 are considered to be low-risk if they are not heated. Numbers 1 and 5 are considered to be low-risk in general.
- Care products: buy organic or eco-labelled products. Use a hood and blanket to protect your horse rather than insect repellent. To prevent resistance, we must stop preventive treatment and de-worming of our horses. Faecal samples should be used to test for the presence of parasites. Antibiotics should only be used when they are really necessary, and treatment should not be discontinued.
- Try to purchase Fair Trade-labelled products if they are available – to ensure that the people who made the product are working in decent conditions for a fair wage.
- Since it's not always clear how a product is made, ask questions in the shop or by email. Put them on the right track by requesting sustainable alternatives. Ask to be notified if there are products made from sustainable materials or that are eco-labelled. The alternatives are out there and they are multiplying. Asking questions will speed up the pace of change.
- Find out how to recycle worn-out products such as plastic, textiles and clothing so that the materials will have a second life. More on waste and recycling on the next page.

STABLE WASTE AND RECYCLING

Waste is increasingly being viewed as a resource. If we reuse products or materials, we can avoid the negative impact of extracting new materials.

In Sweden, we were at the forefront of introducing the sorting of household waste, with the objective of reusing products and recycling materials or using them for their energy through incineration. Materials originating from waste will become even more important in the future, and it's important for us to sort waste everywhere, including the stable.

Stables produce many different types of waste. For example, their operating activities produce a great deal of plastic waste from silage, bedding and plastic jars as well as paper waste from feed sacks. We get metal waste such as horse-shoes and cat food cans at regular intervals, and sometimes we need to repaint and replace batteries. Hazardous substances need special handling since they can cause injury if they end up in the wrong place. Batteries and electronics are examples of hazardous waste.

Did you know that only 83 percent of PET bottles were recycled in 2013? Sweden's environmental target is 90 percent, and studies show that too many small PET bottles are discarded in ordinary wastebaskets rather than being returned for money. Although we are good at sorting waste in Sweden, the amount of waste has increased and in just over 20 years we've gone from discarding about 300 kilograms per person annually to over 450 kilograms per person annually. This is a 50 percent increase. The increase reflects the amount of the earth's resources that we are consuming.

WHAT CAN WE DO?

A waste hierarchy is used to determine how waste is to be handled in Sweden. Reduce waste by fixing things that are worn or broken. This is the best way to reduce use of the earth's resources and our impact on the environment. Try to reuse things by swapping, buying, selling and giving away things you don't need. Next, we can recycle materials. All packages and newspapers can be recycled at recycling stations. The material can then be made into new products. A compost heap is good for recycling food and garden waste. When it comes to horseshoes, there are systems for recovering iron. You can get SEK 0.5-1 per kilogram of iron. Talk to your farrier – this might add a little black ink to their balance sheet. Leftover medications and all thermometers should be brought to the pharmacy, just like ours.

If the materials can't be recovered, their energy can be extracted through incineration. The waste in the rubbish bin can be transformed into district heating and electricity through incineration in a district heating plant. Putting anything into the landfill should be a last resort.

As the operator of the business, you are responsible for the handling of your waste. Note that recycling centres have different rules for private individuals and business operators, both for quantities of waste and costs. Burning silage plastic is prohibited. Silage plastic is collected at several stations four times a year via Svepretur. The collection is financed through a recycling fee. In other words, you already paid the recycling fee when you bought your products, and you can bring the sorted plastic to a collection point for recycling at no further cost. You can also discuss this with your supplier of roughage, who can assist you.

A MORE SUSTAINABLE COMPETITION

Competition organisers have the chance to market themselves and to attract sponsors as well as the opportunity to communicate with and influence others. Different groups of people such as competitors, officials, sponsors, exhibitors and spectators encounter one another, and they are reached by the various messages at the competition.

Naturally, the size of the competition and whether or not it is taking place at an existing facility make a difference to its impact. If you are about to organise a large competition, the International Equestrian Federation (FEI) has developed a handbook for sustainable events, the “FEI Sustainability Handbook for Event Organisers”.

There are several areas that all competitions have in common: transport, food and beverages, waste management, prizes and sales, accessibility and equality. One way to get started with these efforts is to focus on a few areas at the outset, and then add others gradually.

TRANSPORT

Provide information early on about how spectators can get to the competition in an environmentally friendly way such as public transport or ride sharing. Ride sharing is enjoyable, and it's a great way to meet new people. Clear directions to the competition can reduce both unnecessary travel time and fuel consumption.

FOOD AND BEVERAGES

It's easy to make a difference with food and beverages. Coffee and milk that are organic,

climate-compensated and Fair Trade-labelled provide a lot of value at little expense. Offering vegetarian alternatives can reduce environmental impact and the cost of ingredient purchases. A dish that is completely organic can draw positive attention and is better for the environment and animal husbandry. Make sure to minimise the amount of waste. For example, plates and forks are not needed for wraps. If you must have disposable products, use ones that are eco-labelled and biodegradable.

WASTE SORTING

Make sure to have easily accessible and clearly labelled receptacles for sorting waste into different categories, ideally labelled with both words and pictures. In addition, deposit bottles will give you money back.

PRIZES AND PRODUCTS

Try to organise environmentally friendly prizes and offer things that people can use. Gift cards for services may be an option as well as environmentally friendly washing and waterproofing. If you have exhibitors, see if any of them provide good examples that you can highlight.

ACCESSIBILITY AND EQUALITY

Try to make for people with disabilities to attend the competition. Consider whether or not the event promotes equality. Can both men and women be seen throughout the event, for example, at the prize ceremony?

SPREAD KNOWLEDGE ABOUT SUSTAINABLE DEVELOPMENT

In addition to clearly showing and explaining what you are doing at the competition itself, you can take the opportunity to refer others to an article, website or publication that discusses sustainability and horses.



OUR DEFINITION OF SUSTAINABILITY AND THE SCOPE OF OUR STUDY

The authors have used academically published, well-tested definitions of sustainability and sustainable development.

The assessment of the sustainability impact in the areas reported on is based on the four sustainability principles included in the Natural Step Framework (also referred to as the Framework for Strategic Sustainable Development (FSSD) in academic publications), which encompasses both ecological and social sustainability, and the Stockholm Resilience Centre's Planetary Boundaries.

This initial overview puts the horse in the centre and identifies the major shared sustainability issues that are connected to the horse and concern everyone involved with horses, either privately or professionally. There is a focus on everyday flows of products and services. This report is primarily written from a Swedish perspective. Issues that only concern a small number of people, or individual activities such as constructing facilities, buildings and rings are not included. Nor does the report look at ancillary activities such as healthcare and insurance. The selected topics are assessed from a life cycle perspective, in other words the sustainability impact from cradle to grave.

AUTHORS OF THE REPORT

Jenny Blomberg has a background in the media industry and has worked on sustainability issues for several years, specifically as a climate strategist and project manager at ZeroMission, implementing environmental and climate initiatives that strengthen brands. She has a diploma in market communications from Berghs School of Communication, and a Master's degree in sustainable enterprising from Stockholm Resilience Centre. She's been a dedicated rider since the age of seven, and her base is a small private stable at Rytтарstadion in Stockholm.

Camilla Välimaa has worked on sustainable development and business for the last 15 years. Assignments in the agriculture and food sector have been a consistent theme throughout this time, not least during the eight years she spent as manager of sustainability at Lantmännen. Her degree is in soil and plant science, with a focus on sustainable development. She has worked for the organisation The Natural Step since 2008, as a senior advisor to businesses and organisations, both in Sweden and internationally. Camilla has enjoyed high-paced trail rides combined with woodland walks since she was a child, and today she is a sharer of an English thoroughbred in Vaxholm.

WOULD YOU LIKE TO KNOW MORE?

The following is a list of sources of information that provide independent facts in just about everything concerning horses and equine practices.

"Independent" means that the party providing advice or information has absolutely no financial interest in providing you with one set of advice or facts over another. They also have more information about all of the topics discussed in this report, from legislation to more detailed tips and advice.

The Swedish Horse Industry Foundation (HNS), the website "HästSverige", the Swedish Board of Agriculture, the Swedish Equestrian Federation, the Horse Entrepreneurship Division of the Federation of Swedish Farmers, Sopor.nu and Svepretur. Don't forget your own trade association. When it comes to consumption of products and services, there is a lot of information and advice available from various consumer associations such as Medveten konsumtion, the Swedish Consumers' Association and the Swedish Consumer Agency.

GET HELP FROM A KNOWLEDGEABLE ADVISOR

Find out how much information, advice and support your municipality or county council can offer you. This may vary depending on available resources and the focus of the organisation. If you need more advice and have the ability to pay for advisory services, you can get help from organisations such as the Rural Economy and Agricultural Societies or Växa Sverige.

THIS REPORT WAS PRODUCED ON BEHALF OF AND FINANCED BY:



Our deepest thanks to Lövsta Stud Farm for allowing us to use their photos as well as to Sara Öström Linde (www.tvafotogafer.se) for the photo on page 9 and Elisabeth Riksen for the photo on page 12.



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