



Lesson Three

The Life Cycle and Recycle of Horses

- Content examines the typical course of a horse’s life in uses and ownership: Average lifespan of horses, economics of horse care, current euthanasia and disposal options, and worldwide uses of horses.

Teacher Guide and Resources:

Goals

1. Learner will develop familiarity with common practices and economics of horse care.
2. Learner will increase awareness of equine uses and end of life options.
3. Learner will gain knowledge of world-wide cultural differences in the uses of horses and the by-products of these uses.
4. Learner will develop practical math skills.

Common Core State Standards

RIT.1	Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
RIT.6	Assess how point of view or purpose shapes the content and style of a text.
RIT.10	Read and comprehend complex literary and informational texts independently and proficiently.
SL.1	Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others’ ideas and expressing their own clearly and persuasively.
SL.2	Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.
SL.6	Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate
W.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience
W.7	Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
W.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences
5.NOB10	Perform operations with multi-digit whole numbers and with decimals to hundredths.
5.MD	Represent and interpret data

Activities for this lesson:

Lesson Three Herd Time:

- Exercise 1: Student will discuss typical reasons for changes of ownership linked to horse linked to the human.
- Exercise 2: Students will calculate the minimum average cost of care for the life of a horse
- Exercise 3: Rank the methods of carcass disposal cost and environmental impact the have using the chart.

Lesson Three Pasture Time:

- Exercise 1: Students will list the countries with the highest human horse meat consumption.
- Exercise 2: Student will research and identify cultures eating foods considered in parts of the US to be unusual.





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Background Information

Domesticated horses with modern veterinary care routinely live to an **average of 25 years of age**; it is not uncommon for them to reach 30 years. Historically, horses pass through several owners during this long lifespan. Ownership transitions often occur at predictable points. The first typically happens when the breeder sells a young horse as a performance prospect to an owner or horse trainer specializing in starting young horses; this transfer usually occurs when the youngster is a **weanling, yearling, or two-year old**. After being started, the horse may change owners for a performance career, and possibly again for a subsequent move into a second career or to a different level of competition. As horses become aged and their capacity to perform in their discipline is diminished, they are often retired to pasture, or to become companions to other animals, or to move into careers that require limited workloads. This may mean another change of ownership. These typical transfers can account for **five, six, or more changes of ownership in a horse's lifetime**.

Most young horses are started with a specific discipline or sport in mind. Generally, these activities are done "under saddle" or in harness and fall into one of **three large categories: racing, showing, and recreation**. Under saddle activities include turf or dirt track racing, steeple chasing, Western pleasure, gymkhana events, working cattle classes, reining, English equitation, jumping, dressage, eventing, packing, fox hunting, and trail riding. Driving activities are somewhat less common in modern equitation; examples include harness racing, pleasure driving, combined driving, farming with horses and pulling contests. If the animal proves unsuccessful in one intended career, it is often moved to a different discipline. Transfers of ownership happen frequently at this stage until matches between owner and purpose are found. Horses that are successful in many Western disciplines are reclassified from junior animals to seniors around age five or six, although in English disciplines the classification change frequently happens at older ages, often at 8 to 12 years. Many aged animals (15 and older) are desirable mounts for beginning riders and are very reliable in their specific abilities; this is another common ownership transfer point. Even with more vigorous careers behind them, many horses work until late in their lives in riding schools, therapeutic riding programs, and even as "baby sitter" mounts for young children.

The cost of maintaining a horse is an important factor affecting the course of the animal's life. Horse-keeping is expensive for most owners: According to the American Association of Equine Practitioners (AAEP), **the average minimum cost of care is \$1825 annually per horse**. Veterinary expenses, farrier fees, and board can easily increase these costs to \$5,000 or more annually. These costs may be less for owners with large pastures such as farmers and ranchers who do not provide hay for their animals on a year-round basis. But regardless of horse-keeping circumstances, when horses reach the end of their usable lives, the costs of continued feed and care can be overwhelming to their owners.

Old age is not the only thing that can sideline a horse from usefulness. Injury, dangerous disposition or sickness can negate a horse's desirability. Not every owner has the means or the will to keep the horse that has no purpose, or requires on-going veterinary expense, or is difficult or dangerous to handle. When this is the case, the owner faces limited options, typically consisting of private sale, sale at auction, leasing, placement at a retirement facility, and donation or surrender to a wide variety of organizations such as therapeutic riding centers, colleges or universities, mounted police units, prison programs, and horse rescues.





Lessons about the Unwanted Horse

ANIMAL
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www.animalwelfarecouncil.org

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The truth, however, is that not all horses will have homes for the full length of their lives because ultimately there may not be a willing new owner or appropriate placement for the horse. People tend to view horses as livestock, working animals, or companion animals. All three views are respected within the larger horse industry, and decisions made for horses will be shaped by the owner's perspective. End of life decisions for animals can be and often are emotional from any of these viewpoints, but should be guided by factual information and humane treatment of the animal.

An end of life decision may in fact be the kindest and most practical solution for an animal. These decisions are not made lightly, and typically involve a licensed veterinarian to assist in euthanasia and advise on carcass disposal. According to AAEP, "Euthanasia refers to a good death, which is one that occurs with minimal pain and at the appropriate time in the horse's life to prevent unnecessary pain and suffering." The American Veterinary Medical Association (AVMA) recognizes three methods of humane euthanasia for horses: barbiturate overdose, gunshot, and captive bolt.

The decision to euthanize a horse should be based not only on medical considerations but also on the horse's current and future quality of life and on the owner's means or will to provide continued care for the horse. The following criteria developed by the AAEP should be considered in evaluating the necessity for euthanasia. Not all criteria need to be met for every case.

1. Is the horse's medical condition chronic and incurable?
2. Does the immediate medical condition have a hopeless prognosis for life?
3. Is the horse a hazard to itself or its handlers?
4. Will the horse require continuous medication for the relief of pain for the remainder of its life?
5. Will the medical condition result in a lifetime of continued individual confinement?

Furthermore, and in accordance with the AVMA's position on the euthanasia of unwanted animals, the AAEP is not opposed to the euthanasia of unwanted animals, when appropriate, by properly trained personnel, using acceptable humane methods. Although euthanasia is a difficult decision, it gives the owner total control over the way his or her horse's life comes to a conclusion.

Carcass disposal also needs to be planned. Options include rendering, processing for food, disposal at landfill, burial, incineration, composting, and bio-digestion. The method of euthanasia may affect disposal options; some euthanasia methods present environmental factors—for example, in many areas of the country, there are laws governing the burial or disposal of horses following euthanasia via intravenous anesthetic. A veterinarian should be able to assist in determining what method of carcass disposal is most available and what the costs for disposal would be.

Processing horses for food (slaughter) may be an option unthinkable to some horse owners in the United States but in much of the rest of the world, horses are processed for food in the same way as other livestock species. Worldwide, 1485650.41 metric tonnes of horsemeat was processed for food between 2009 and 2010. Outside of the U.S., more than one billion people consume horsemeat, in some places by preference and in some by necessity. Countries consuming the most horsemeat are China, Mexico, Kazakhstan, Russian Federation, and Argentina. Furthermore, horsemeat is now being imported back into the U.S., primarily for zoo meat, but also for ethnic markets desiring horsemeat. Horsemeat is high in protein (20% more than beef), low in fat (25% less fat than lean beef) and is rich in both iron and Omega 3. Horsemeat is free from Bovine Spongiform Encephalopathy ("mad cow" disease)—horse





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breeding for meat has never been industrialized and horses are fussy eaters, only feeding on grass and grain. Other by-products of processing horsemeat include leather, horse hair products such as bows for musical instruments and belts or jewelry, tail extensions and wigs for horses, as well as zoo animal and pet food, bone-meal, and glue ingredients. Traditionally, horses that are processed are unserviceable, vicious or otherwise unacceptable in today's equestrian community. Less than 1% of U.S. horses are processed for food annually, compared to other mortality of 3-4% of U.S. horses annually.

The Animal Welfare Council respects the right of the responsible horse owner to choose this option when applicable. In addition the AWC asserts that every horse and all animals shall, at all times, be treated humanely and with dignity, respect and compassion.

Resources for further reading

Ahern, Ph.D., James J., David P. Anderson, Ph.D., DeeVon Bailey, Ph.D., Lance A. Baker, Ph.D., W. Arden Colette, Ph.D., J. Shannon Neibergs, Ph.D., Michael S. North, MBA, Gary D. Potter, Carolyn L. Stull, Ph.D., *"The Unintended Consequences of a Ban on the Humane Slaughter (Processing) of Horses in the United States"*, Animal Welfare Council, Inc. 2006

Alberta Equine Welfare Group. *"The Alberta Horse Welfare Report"*, 2008, found at <http://www.afac.ab.ca/reports/08horsereport.pdf>

American Veterinary Medical Association. *"Euthanasia Guidelines: 2007 Report of the AVMA Panel on Euthanasia,"* JAVMA 2001; 218:669-695.

Food and Agriculture Organization of the United Nations. http://faostat3.fao.org/home/index.html#VISUALIZE_BY_DOMAIN Choose: Production >Livestock Primary> Horsemeat >from 2009 to 2010>sum

Unwanted Horse Coalition. *"Own Responsibly."* Available at: http://www.unwantedhorsecoalition.org/resources/UCH_brochure.pdf

WeirdFood.com. <http://www.weird-food.com/index.html>

WorldAtlas.com. Map of the Globe, <http://www.WorldAtlas.com>





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The Life Cycle and Recycle of Horses

1. Explain to students the format of the lesson:
 - a. Introduction of topic – lifespan of horses, economics of care, current euthanasia and disposal options, and worldwide uses of horses.
 - b. Distribute Student Background handout (pages SB1-3) for student use in completing exercises.
 - c. “Herd time” (Provide students with handouts and worksheets.)
 - d. “Pasture time” (Explain expectations for which activities will be used and how assignment will be checked.)
2. From ownership to end of life:
 - a. Horses live to an average of 25 years of age. It is not uncommon for them to reach 30 years. They can have many uses during this time; three broad categories of use are racing, showing, and recreation.
 - b. During a horse’s long life, ownership commonly transfers when the horse is young, when it is trained for a specific purpose, when it changes to a different level of competition or a different career, and when it becomes aged or injured. Ownership is also transferred because owner’s circumstances change. Ask students about what circumstances would prompt owners to sell or transfer ownership of a horse.
(Refer to Student Handouts Herd Time Q1.)
 - c. The American Association of Equine Practitioners (AAEP) estimates the **average cost of care is \$1825 annually per horse**. Veterinary expenses, farrier fees, and board can easily increase these costs to \$5,000 or more annually. These costs may be less for owners with large pastures.
 - d. When horses reach the end of their usable lives or their owner’s circumstances change, the costs of continued upkeep can be overwhelming to their owners. (Refer to Student Handouts Herd Time Q2.)
 - e. Options for horses that are no longer wanted or usable include private sale, sale at auction, leasing, retirement, and donation or surrender to a wide variety of organizations such as therapeutic riding centers, colleges or universities, mounted police units, prison programs, and horse rescues. Not all horses are able to go on to second careers due to injury, dangerous dispositions, sickness, or old age. Some owners who can no longer care for their horses may not be able to find a new owner to take on the horse. In some cases euthanasia may be the kindest and most practical solution. This difficult decision is most often made with advice from a licensed veterinarian.
 - f. The AAEP publishes guidelines regarding euthanizing a horse to help owners faced with this important decision. The term euthanasia is derived from the Greek term *eu* meaning good and *thanatos* meaning death. A “good death” would be one that occurs with minimal pain and at the appropriate time in the horse’s life to prevent unnecessary pain and suffering. Justification for euthanizing a horse should be based on medical considerations as well as on the horse’s current and future quality of life and the owner’s means or will to continue care.





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- g. The following criteria should be considered in evaluating the necessity to euthanize a horse (not all criteria need to be met for every case):
 - 1. Is the horse's medical condition chronic and incurable?
 - 2. Does the immediate medical condition have a hopeless prognosis for life?
 - 3. Is the horse a hazard to itself or its handlers?
 - 4. Will the horse require continuous medication for the relief of pain for the remainder of its life?
 - 5. Will the medical condition result in a lifetime of continued individual confinement?
 - h. Acceptable methods of euthanasia for horses include: barbiturate overdose, gunshot and penetrating captive bolt.
 - i. Options for carcass disposal include rendering, processing for food, disposal at landfills, burial, incineration, composting, and bio-digestion. Euthanasia methods will affect disposal options, some of which are regulated by law. Costs vary widely across the nation, and by methods used. The ranges of cost for euthanasia and carcass disposal could be defined as \$0 - \$300 low, \$301 - \$750 moderate, and \$751 and up high. Prompt students with discussion questions from student handouts. Invite students to work on the carcass disposal exercise as a class or in small groups. (Refer to Student Handouts Herd Time Q3.)
3. Worldwide uses of horses
- a. Much of the world's population uses horses for racing, recreation, and work just as Americans do; however, much of the non-U.S. world also uses horses for food.
 - b. Worldwide, 1485650.41 metric tonnes of horsemeat was processed for food between 2009 and 2010. Outside of the U.S., more than one billion people consume horsemeat, in some places by preference and in some by necessity. Countries consuming the most horsemeat are China, Mexico, Kazakhstan, Russian Federation, and Argentina. Furthermore, horsemeat is now being imported back into the U.S., primarily for zoo meat, but also for ethnic markets desiring horsemeat. Other by-products of processing horsemeat include leather, horse hair products such as bows for musical instruments and belts or jewelry, tail extensions and wigs for horses, as well as zoo animal and pet food, bone-meal, and glue ingredients. (Refer to Student Handouts Pasture Time Q1, Q2 and World Map)
4. Review how "Pasture Time" field exercise will be completed (in group or individually).
- a. Explain whether the mapping exercise will be returned completed at the next meeting or given as just take-home. Refer to the websites shown on the handouts.
 - b. Explain whether the unusual food exercise will be returned completed at the next meeting or given as just take-home. Refer to the websites shown on the handouts.
 - c. If time allows prompt students to work on mapping exercise and questions from student handouts during meeting. Refer to Student Handouts Pasture Time Q1, Q2 and World Map





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Answer Key ~ “Herd Time” Student Handout

1. Discuss the typical times at which horses change owners. What circumstances in the owners’ lives might lead to the sale of a horse or transfer of its ownership?

Typical changes of ownership linked to horse:

- breeder sells a young horse as a performance prospect to an owner or horse trainer to start
- after being started
- for a performance career
- for a second career or to a different level of competition
- when moved into careers that require limited workloads
- when retired to pasture, or to become companions to other animals

Typical changes of ownership linked to owner circumstances:

- economic hardship
- divorce
- child rider goes to college
- loss of interest
- change of residence
- illness or injury
- death of owner

2. Calculate the average minimal cost of horse-keeping for the entire average lifespan of a horse.

$$\$1,825 \times 25 = \$45,625$$

3. What methods of carcass disposal have the most impact on the environment? The least? Which are the most cost effective? What is the most expensive? The least expensive?

	Method of Disposal	Cost Range (Low, Moderate, or High)	Environmental Impact (*euthanasia method increases risk or prohibits) (Low, Moderate, or High)
1.	Bio-digestion	moderate to high	low
2.	Burial	high	moderate to high*
3.	Composting	moderate	low*
4.	Incineration	high	high
5.	Landfill	low	high*
6.	Processing for food	low or no cost	low*
7.	Rendering	low to moderate	low



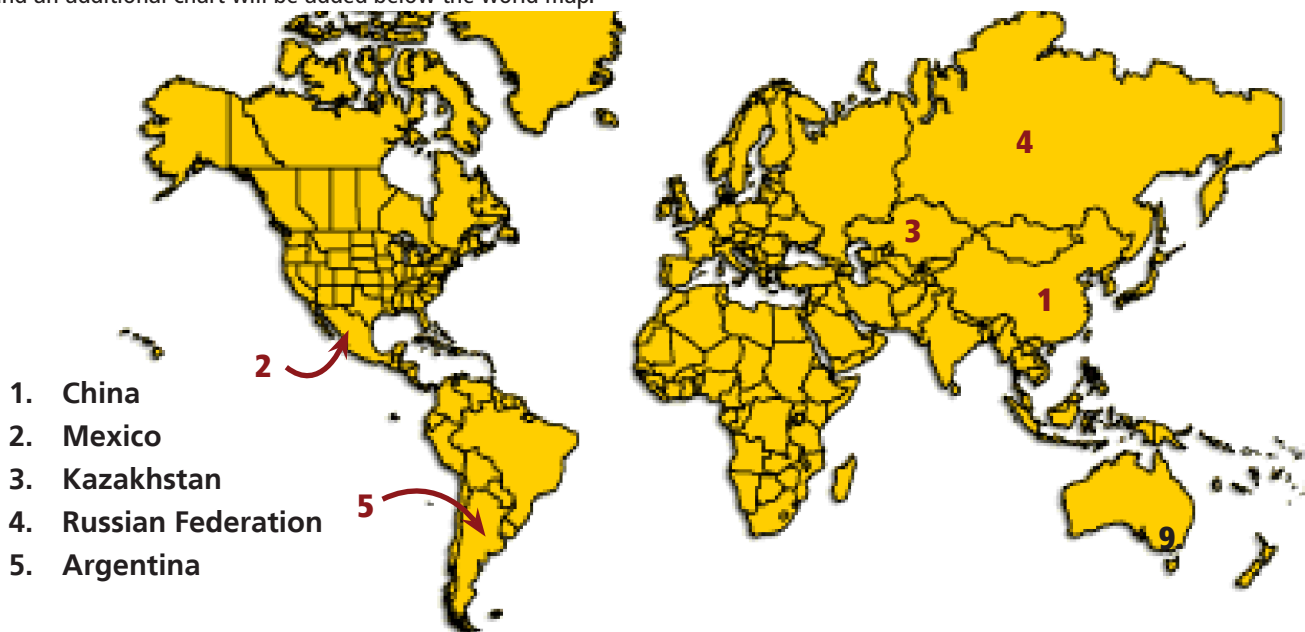


Lesson Three

Answer Key ~ "Pasture Time" Student Handout

1. What countries consume the most horsemeat? List the top 5.

Visit the Food and Agriculture Organization of the United Nations at <http://faostat3.fao.org/home/index.html#VISUALIZE>. From the left hand margin select Production from the options and then select Livestock Primary. Next, on the map select "horsemeat" on the drop down items menu, then select 2009 in the "from year" drop down menu and in the "to year" select 2010. In the last drop down menu box for aggregate select "sum." Scan the map with your cursor to see the production of horse meat in different countries. If you want to see a specific country's production level, select that in the country drop down box and an additional chart will be added below the world map.



2. Food preferences vary vastly between cultures. What foods are consumed in other cultures that we may find unusual in the U.S.? Visit <http://www.weird-food.com/index.html> Pick a category or a country and see what strange things people like to eat.

Examples include:

ants
(Belize)

fish eyes
(Southeast Asia)

grasshoppers
(Mexico)

cat
(China)

witchety grubs
(Australia)

mountain oysters
(Western United States and Canada)

liver
(Midwestern United States)

tripe
(Southern United States)

sweetbreads
(Southern United States)



Lessons about the Unwanted Horse: Lesson Three

The Life Cycle and Recycle of Horses

Student Background Information



Domesticated horses **live to an average of 25 years** of age. It is common for them to reach 30 years. They can have many uses during this time.

Historically, horses pass through several owners during this long lifespan. **Ownership transitions** often occur at predictable points. The first typically happens when the **breeder sells a young horse** to an owner or horse trainer specializing in starting young horses; the youngster is usually a weanling, yearling, or two-year old. **After being started**, the horse may change owners for a **performance career**, and possibly again for a **move into a second career** or to a **different level of competition**.

Most young horses are started with a specific discipline or sport in mind. Generally, these activities are done under saddle or in harness and fall into one of three large categories: racing, showing, and recreation. Under saddle activities include racing on the track, steeple chasing, Western pleasure, gymkhana events, working cattle classes, reining, English equitation, jumping, dressage, eventing, packing, fox hunting, polo, and trail riding. Driving activities are somewhat less common today; examples include harness racing, pleasure driving, combined driving, farming with horses and pulling contests.

If the animal proves unsuccessful in one intended career, he may be retrained for a different one. **Transfers of ownership happen frequently at this stage until matches between owner's purpose and horse ability are found.** Many reliable aged animals (15 and older) change homes to be desirable mounts for beginning riders. Many horses work until late in their lives in riding schools, therapeutic riding programs, and even as "baby sitter" mounts for young children. As horses become quite aged, they are often **retired to pasture**, or to become companions to other animals, or to **move into careers that require limited workloads**.

Old age is not the only thing that can sideline a horse from usefulness. **Injury, dangerous disposition or sickness** can cause a horse to be unwanted. Not every owner has the means or the will to keep the horse that has **no purpose**, or requires **on-going veterinary expense**, or is **difficult or dangerous to handle**. Situations such as **economic hardship, divorce, departure of a child rider to college, loss of interest, change of residence, illness or injury to owner** can necessitate an ownership change.

The cost of maintaining a horse is an important factor affecting the course of the animal's life. Horse-keeping is expensive for most owners: According to the American Association of Equine Practitioners (AAEP), the **average minimum cost of care is \$1825** annually per horse. Veterinary expenses, farrier fees, and board can easily increase these costs to \$5,000 or more annually. These costs may be less for farmers and ranchers with pastures who do not need to provide hay for their animals year-round. But regardless of horse-keeping circumstances, when horses reach the end of their usable lives, the cost of continued feed and care can be overwhelming to their owners.

When the horse becomes unwanted, the owner faces limited options, typically consisting of private sale, sale at auction, leasing, placement at a retirement facility. Other options include donation or surrender



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to organizations such as therapeutic riding centers, colleges or universities, mounted police units, prison programs, and horse rescues. The truth, however, is that not all horses will have homes for the full length of their lives because ultimately there may not be a willing new owner or appropriate placement for the horse.

In the USA, people categorize horses as livestock, or working animals, or companion animals. All three views are respected, and decisions made for horses will be shaped by the owner's perspective. End of life decisions for animals are not made lightly; they can be and often are emotional for the owner, but should be guided by factual information and humane treatment of the animal. Ending an animal's life may in fact be the kindest and most practical solution for an animal.

Ending an animal's life typically involves a licensed veterinarian to assist in euthanasia. According to AAEP, "**Euthanasia** refers to a good death, which is one that occurs with minimal pain and at the appropriate time in the horse's life to prevent unnecessary pain and suffering." The American Veterinary Medical Association (AVMA) recognizes three methods of humane euthanasia for horses: **barbiturate overdose (chemical euthanasia), gunshot, and captive bolt.**

The decision to euthanize also takes into account the horse's current and future quality of life as well as the owner's means to provide continued care for the horse. The AAEP states the following criteria for evaluating the necessity for euthanasia. Not all criteria need to be met for every case.

1. Is the horse's medical condition chronic and incurable?
2. Does the immediate medical condition have a hopeless prognosis for life?
3. Is the horse a hazard to itself or its handlers?
4. Will the horse require continuous medication for the relief of pain for the remainder of its life?
5. Will the medical condition result in a lifetime of continued individual confinement?

The Animal Welfare Council respects the right of the responsible horse owner to choose this option when appropriate. Furthermore, the Animal Welfare Council asserts that every horse and all animals shall, at all times, be treated humanely and with dignity, respect and compassion.

Euthanasia requires planning for carcass disposal, the costs of which range from as low as \$0 to more than \$2,000. Options include rendering, processing for food, disposal at landfill, burial, incineration, composting, and bio-digestion. The method of euthanasia may affect disposal options. In many areas, there are laws governing the burial or disposal in landfills of horses following chemical euthanasia (barbiturates). **Rendering** an animal euthanized by gunshot may entail only the expense of transportation to the rendering plant. **Landfill disposal or burial** can have significant environmental impacts and costs can be moderate to high for either. More expensive is **incineration (cremation)** which costs in the thousands and is not environmentally friendly. **Bio-digestion** of the carcass may be moderate in cost and have little environmental impact but it is not widely available; this is true also for the **composting** method. A veterinarian should be able to assist in determining what method of carcass disposal is most available and what the costs for disposal would be.



Lessons about the Unwanted Horse: Lesson Three The Life Cycle and Recycle of Horses



Processing horses for food (slaughter) may be an option unthinkable to some horse owners in the United States but in much of the rest of the world, horses are processed for food in the same way as other livestock species. Worldwide, 1485650.41 metric tonnes of horsemeat was processed for food between 2009 and 2010. Outside of the U.S., more than one billion people consume horsemeat, in some places by preference and in some by necessity. Countries consuming the most horsemeat are **China, Mexico, Kazakhstan, Russian Federation, and Argentina**. (See below¹ for instructions to visit a website where you can explore the countries that produce and eat horsemeat.)

Less than 1% of U.S. horses are processed for food annually, compared to other horse mortality of 3-4%. Traditionally, horses that are sent for processing are unserviceable, vicious or otherwise unacceptable in today's equestrian community. Horsemeat is now being imported back into the U.S., primarily for zoo meat, but also for ethnic markets desiring horsemeat. Horsemeat is high in protein (20% more than beef), low in fat (25% less fat than lean beef) and is rich in both iron and Omega 3. Processed horsemeat by-products include leather, horse hair products such as bows for musical instruments and belts or jewelry, tail extensions and wigs for horses, as well as zoo animal and pet food, bone-meal, and glue ingredients.

To further explore foods we might consider unusual in this country, go to <http://www.weird-food.com/index.html>. Pick a category or a country and see what strange things people like to eat.

Resources for further reading

1. Ahern, Ph.D., James J., David P. Anderson, Ph.D., DeeVon Bailey, Ph.D., Lance A. Baker, Ph.D., W. Arden Colette, Ph.D., J. Shannon Neibergs, Ph.D., Michael S. North, MBA, Gary D. Potter, Carolyn L. Stull, Ph.D., "The Unintended Consequences of a Ban on the Humane Slaughter (Processing) of Horses in the United States," Animal Welfare Council, Inc. 2006
2. Alberta Equine Welfare Group. "The Alberta Horse Welfare Report", 2008, found at <http://www.afac.ab.ca/reports/08horsereport.pdf>
3. American Veterinary Medical Association. "Euthanasia Guidelines: 2007 Report of the AVMA Panel on Euthanasia," JAVMA 2001; 218:669-695.
4. Unwanted Horse Coalition. "Own Responsibly." Available at: http://www.unwantedhorsecoalition.org/resources/UCH_brochure.pdf
5. Weird Foods Index at <http://www.weird-food.com/index.html>

¹ Visit this website to explore countries that produce and eat horsemeat: <http://faostat3.fao.org/home/index.html#VISUALIZE>. Follow these steps:

- From the left hand margin select Production from the options
- Select Livestock Primary
- On the map select "horsemeat" on the drop down Items menu
- Select 2009 in the "from year" drop down menu and 2010 in the "to year"
- In the last drop down menu box, for aggregate select "sum"

Scan the map with your cursor to see the production of horse meat in different countries. If you want to see a specific country's production level, select that in the country drop down box and an additional chart will be added below the world map.



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“Herd Time” Group Discussion



1. Discuss the typical times at which horses change owners. What circumstances in the owners' lives might lead to the sale of a horse or transfer of its ownership?

Horse reasons

Owner reasons

2. Calculate the average minimal cost of horse-keeping for the entire average lifespan of a horse.



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3. What methods of carcass disposal have the most impact on the environment? The least? Which are the most cost effective? What is the most expensive? The least expensive?

	Method of Disposal	Cost Range (Low, Moderate, or High)	Environmental Impact (Low, Moderate, or High)
1.	Bio-digestion		
2.	Burial*		
3.	Composting*		
4.	Incineration		
5.	Landfill*		
6.	Processing for food*		
7.	Rendering		
		*Euthanasia method increases risk or prohibits	



Lessons about the Unwanted Horse: Lesson Three The Life Cycle and Recycle of Horses

“Pasture Time”



Field Exercises:
group activity or
independent take-
home exercise



1. What countries consume the most horsemeat? List the top 5.



2. Food preferences vary vastly between cultures. What foods are consumed in other cultures that we may find unusual in the U.S.? Visit <http://weird-food.com> pick a category or a country and see what strange things people like to eat.

Unusual food

Where it's eaten

