

LLAMA

Name: _____ Club: _____

Guidelines for Project Proficiency Award

Date

Leaders
Initials

Beginning:

1. Name the four members of the South American camelid family.
2. Name five desirable conformation traits in llamas.
3. What are three forms of llama identification?
4. What are three reasons why llamas make good pack animals?
5. What is castration?
6. What is the term for a baby llama?
7. What is the average lifespan of a llama?
8. What is the average weight span for an adult male llama?
9. Discuss the type of feeds in your area.
10. What are the nutritional requirements for llamas?
11. Do llamas spit? Explain under what circumstances.
12. What is desensitization?
13. Describe a basic obstacle course having 6 obstacles.

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ACTIVITIES

1. Demonstrate how to catch and halter a llama
2. Demonstrate how to lead and tie a llama with an approved safety knot
3. Exhibit ability to handle a llama through a basic obstacle course
4. Give a demonstration pertaining to the llama project
5. Visit a llama breeders farm or ranch
6. Attend a llama show as a spectator or an exhibitor

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Intermediate:

1. Is there a llama registry? If so does it have a name? _____
2. On registration papers, how many generations are shown? _____
3. How many compartments does a llama's stomach have? _____
4. At what age is the average cria weaned? _____
5. Name at least two sounds that llamas make. _____
6. In the Andes, what color llama is most desirable for wool products?
Why? _____
7. Explain the purpose of Halter, Showmanship, and Obstacle classes for llamas. _____
8. Name the three gaits of a llama. _____
9. Explain the purpose of a spit rag. _____
10. Name the parts of a saddle pack. _____
11. Explain how to groom a llama for show. _____

ACTIVITIES:

1. Show the proper procedures used to check a llama's ears, eyes, nose, teeth, tail and feet. _____
2. Demonstrate how to put a pack on a llama. _____
3. Demonstrate how to prepare a llama for a fair or public exhibition. _____
4. Give a demonstration pertaining to the llama project. _____
5. Design an obstacle course for a beginning llama. (six obstacles) _____

Leaders

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Initials

Advanced:

- | | | |
|---|-------|-------|
| 1. What is the average age to begin breeding females? | _____ | _____ |
| 2. What is the average age male llamas become mature enough to breed. | _____ | _____ |
| 3. When does ovulation occur? | _____ | _____ |
| 4. How long is the average gestation period of a pregnant llama? | _____ | _____ |
| 5. Explain the sound males make when breeding | _____ | _____ |
| 6. What is imprinting? | _____ | _____ |
| 7. Name three signs that indicate an imprinted llama. | _____ | _____ |
| 8. Explain the process of desensitization. | _____ | _____ |
| 9. What is cushing? | _____ | _____ |
| 10. What is the tail posture for a submissive llama? An alert llama? | _____ | _____ |
| 11. What type of parasites affect llamas? | _____ | _____ |
| 12. How are the different parasites controlled? | _____ | _____ |
| 13. Name the body parts of a llama. (Name at least 10) | _____ | _____ |

ACTIVITIES

- | | | |
|--|-------|-------|
| 1. Demonstrate how to desensitize a llama. | _____ | _____ |
| 2. Be a member of a llama organization. | _____ | _____ |
| 3. Exhibit a llama at a llama show and/or fair. | _____ | _____ |
| 4. Give a demonstration on a llama project. | _____ | _____ |
| 5. Demonstrate how to cush a llama. | _____ | _____ |
| 6. Demonstrate how to perform a showmanship pattern with a llama. | _____ | _____ |
| 7. Demonstrate how to successfully trim the nail part of a llama's foot. | _____ | _____ |

Leaders Signature: _____ Date: _____

LLAMA PROFICIENCY

BEGINNING ANSWERS

1. Llama, Alpaca, Vicuna, Guanaco
2. Straight legs, straight back, high tail set, curved ears, dense bone, Overall balance (body parts in proportion)
3. Tattooing, micro-chipping, ear tagging
4. Llamas are sure footed, can carry 1/3 of their own body weight, foot pads don't destroy the trail, easy to maintain (feed) while on the trail
5. Castration is the removal of the males testicles so that they may no longer reproduce.
6. Cria
7. 15 to 29 years. (As llamas are more intensely studied, more accurate information will be produced)
8. 250 lbs to 450 lbs
9. Answers will vary according to locality. May include: Alfalfa hay, Oat hay, grass hay, rye hay, various grains - crimped oats, barley
10. Nutritional requirements are not fully known as few detailed studies have yet to be conducted. What is known is based on data accumulated by studies of sheep, goats and cattle.

The bulk of the diet is generally dry matter in the form of hay or grazing grass. Llamas eat approximately 1.8% of their body weight or approximately 6 - 7 lbs per day. Protein levels of 12% to 13% are quite adequate for llamas as they have been found to be able to digest protein and fiber more efficiently than other ruminants on adequate diets (adequate rations).

Depending on where the llamas are geographically, they may also need mineral supplements such as selenium, zinc, phosphorous and salt. The mineral supplements can most often be controlled by a trace mineral salt block.

Grain may be a supplement to pregnant or lactating females, or to those animals who are not thrifty (on a case by case basis)

An ample supply of fresh water should be provided at all times. (As more studies are completed this section should be updated)
11. Yes. Llamas spit when they are upset, feel threatened or are in danger (attack from another llama)
12. Desensitization is the process of having an animal become nonreactive to the touch of human hands anywhere on the body.
13. Jumps, back-up (L-shaped or straight), water, bridge, van or trailer, limbo, caveletti, brush, gate

Table 2.7. Composition of mixed alfalfa and grass hays

Feed		Dry matter (%)	Crude protein (%)	Digestible energy (Mcal/kg)	Fiber (%)	Calcium (%)	Phosphorus (%)
Alfalfa—grass hay, cut 2, 25% grass	As fed	89.1	14.1	2.00	33.1	0.94	0.26
<i>Medicago sativa</i>	Dry	100.0	15.8	2.24	37.1	1.05	0.29
Alfalfa—orchardgrass, cut 1	As fed	92.9	9.8	2.53	29.4	...	...
<i>Medicago sativa</i> , <i>Dactylis glomerata</i>	Dry	100.0	10.6	2.72	31.7	...	...
Alfalfa—timothy hay	As fed	89.0	12.2	2.12	30.9	0.79	0.18
<i>Medicago sativa</i> , <i>Phleum pratense</i>	Dry	100.0	13.7	2.37	34.7	0.89	0.20

Source: U.S.-Canadian Tables of Feed Composition, 3rd ed. 1982.

Table 2.8. Composition of North American llama feeds

Feed		Dry matter (%)	Protein (%)	Digestible energy (Mcal/kg)	Fiber (%)	Calcium (%)	Phosphorus (%)	Ca:P
<i>Pasturage</i>								
Acacia leaves, fresh	As fed	30	1.5	0.25	6.8	...	...	...
<i>Acacia catechu</i>	Dry	100	5.8	0.84	22.6	...	...	...
Crested wheat grass, fresh, early veg.	As fed	28	6.0	0.92	6.0	0.18	0.07	2.60
<i>Agropyron desertorum</i>	Dry	100	21.5	3.31	21.5	0.45	0.19	2.40
Grama grass, hairy, fresh, late veg.	As fed	55	3.6	1.21	...	...	...	...
<i>Bouteloua desertorum</i>	Dry	100	6.7	2.21	...	...	...	...
Bermuda grass, fresh	As fed	34	4.1	0.89	8.9	0.43	0.16	2.70
<i>Cynodon dactylon</i>	Dry	100	12.0	2.65	6.4	0.47	0.17	2.80
Orchardgrass, fresh, early bloom	As fed	25	4.0	0.72	7.4	0.10	0.11	0.90
<i>Dactylis glomerata</i>	Dry	100	12.0	2.91	30.0	0.37	0.39	0.95
Rye grass, perennial, fresh	As fed	27	2.8	0.80	6.2	0.15	0.07	2.10
<i>Lolium perenne</i>	Dry	100	10.4	3.00	23.2	0.55	0.26	2.00
Alfalfa, fresh, late veg.	As fed	21	4.3	0.59	4.9	0.48	0.07	6.90
<i>Medicago sativa</i>	Dry	100	20.0	2.78	23.0	1.96	0.30	6.50
Clover, fresh	As fed	19	4.5	0.55	3.3	0.30	0.06	...
<i>Trifolium hybridum</i>	Dry	100	24.1	2.91	17.5	1.32	0.28	...
<i>High-energy concentrates</i>								
Oats, grain	As fed	89	11.8	3.02	10.8	0.07	0.33	0.20
<i>Avena sativa</i>	Dry	100	13.3	3.40	12.1	0.07	0.38	0.20
Barley, grain	As fed	88	11.9	3.27	5.0	0.04	0.34	0.10
<i>Hordeum vulgare</i>	Dry	100	21.5	3.31	21.5	0.45	0.19	2.40
Acorns, oak fruit, fresh	As fed	64	3.1	1.32	8.8	...	...	...
<i>Quercus</i> sp.	Dry	100	4.8	2.07	13.9	...	...	...
Wheat, grain	As fed	89	14.2	3.45	2.6	0.11	1.22	0.09
<i>Triticum aestivum</i>	Dry	100	16.0	3.88	2.9	0.13	1.38	0.09
Molasses (treacle), blackstrap 80 brix	As fed	75	4.4	2.37	0	0.75	0.07	10.70
<i>Saccharum officinarum</i>	Dry	100	5.8	3.17	0	1.00	0.11	9.10
Sorghum, milo, fresh	As fed	90	11.1	3.40	2.4	0.03	0.28	0.10
<i>Sorghum vulgare</i>	Dry	100	12.4	3.79	2.6	0.04	0.32	0.10
Corn, dent yellow, grain	As fed	89	9.6	3.40	2.6	0.03	0.26	0.10
<i>Zea mays</i>	Dry	100	10.9	3.84	2.9	0.03	0.29	0.10

Source: U.S.-Canadian Tables of Feed Composition, 3rd ed. 1982.

LLAMA PROFICIENCY
INTERMEDIATE ANSWERS

1. Yes. the International Llama Registry (ILR)
2. Three
3. Three
4. 5 - 7 months
5. Humming - provides auditory contact, especially between a female and her cria
Orgling - A guttural sound omitted by males during breeding
Clicking - Indicates mild aggression
Scream - Indicates extreme fright
Screech - A loud squealing sound omitted usually during male fights
6. White, because it can be dyed any color.
7. Halter - to judge correct conformation
Showmanship - Judges how well an exhibitor can show a llama to its best advantage
Obstacle - To show compatibility between handler and llama through a series of obstacles
8. Walk, pace, gallop
9. The smell of spit can be terrible. When a spit rag is placed over the animal's mouth and nose the smell is so irritating that eventually the spitting stops.
10. Horns(front and back), cinch(front and back), breaststrap, butt-strap seat(or saddle)
11.
 1. Blow out all debris (in extreme cases - as best as possible)
 2. Wash with shampoo
 3. Rinse
 4. Wash with color highlighter (optional)
 5. Rinse highlighter if used
 6. Apply conditioner
 7. Rinse
 8. Blow dry
 9. Brush out tangles and any remaining debris

LLAMA PROFICIENCY

ADVANCED ANSWERS

1. 24 months, (some breeders begin at 18 months depending on the size and maturity of the animal) because that is the average age that a female is considered to be mature.
2. 2 to 3 years - again depending on the size and maturity of the individual animal
3. 24 to 36 hours after breeding
4. 350 days
5. Males orgle while breeding.
6. Imprinting is when a bottle reared animal, especially males, have had too much human attention. The llama will begin to treat humans as if they (humans) were a llama.
7. Signs that indicate an imprinted llama are: pushes nose into human face, pushes humans around with chest (chest rams), lays ears back and clucks, and in serious cases, attacks and bites.
8. Desensitization is the process of having an animal become nonreactive to the touch of human hands anywhere on the body. The basic process of desensitization is as follows: Begin touching neck and back; continue to head and ears, stomach and tail, legs and toes. Desensitization is an ongoing process and done in small increments at a time.
This is a very important process if a person is to work in close proximity to these animals.
9. Cushing is when a llama lays down.
10. A submissive llama holds its tail up and over its back.
An alert llama holds its tail high and fluffy.
11. Internal and external parasites
Internal parasites consist of a numerous assortment of worms.
External parasites consist of lice (biting and sucking), fleas, flies, ticks, mites.
(See attached chart)
12. Internal parasites can be controlled by various commercial wormers. Ivermectin has been recommended for many.
External parasites can be controlled by dusting with pesticides, Ivermectin may be used for sucking lice and mange mites.
13. Foreleg, cannon bone, knee, tail, pastern, neck, poll, ears, eyes, nose, mouth, teeth, pads, nails, withers, back, ribs, hip, hock, scent glands

Table 8.5. Internal parasites of llamas

Scientific name	Common name	Size (mm)				Anatomic location		Intermediate host	Prepatent period (days)
		Adult male	Adult female	Larva (μm)	Egg (μm)	Adult	Immature		
<i>Fasciola hepatica</i>	Liver fluke	13-30			130-150 x 63-90	Bile ducts	Small intestine, peritoneum, liver	Snail, <i>Lymnaea</i> sp.	56
<i>Echinococcus granulosus</i>	Hydatid	2-7			32-36 x 25-30	Intestine of carnivores	Lungs, liver	SAC (primary host is dog)	
<i>Moniezia expansa</i>	Tapeworm	600 cm x 1.6 cm wide			56-67	Small intestine	Small intestine	Oribatid mite	37-40
<i>Thysaniezia</i> sp.	Tapeworm	200 cm x 1.2 cm wide				Small intestine	Small intestine	?	
<i>Trichostrongylus colubriformis</i>	Stomach worm	4-5.5	5-7	620-790	79-101 x 39-47	Stomach, small intestine		None	20
<i>Ostertagia ostertagi</i>	Medium brown stomach worm	6.5-7.5	8.3-9.2	L-3 797-910	80-85 x 40-45	C-3		None	21
<i>Ostertagia (Marshallagia) marshalli</i>	Stomach worm	10-13	12-20		178-217 x 78-100	C-3, duodenum		None	
<i>Camelostomylus mentulatus</i>	Stomach worm	6.5-7.5	8.3-9.2		75-85 x 40-50	C-3		None	
<i>Bunostomum</i> sp.	Hookworm	12-17	19-26	500-678	79-97 x 47-50	Small intestine		None	30-56
<i>Skrjabinema ovis</i>	Pinworm	2.3-3.7 x 110-180 μm	5-10 x 350-500 μm		47-63 x 27-36	Colon, rectum	Small intestine	None	17-25
<i>Parelaphostrongylus tenuis</i>	Meningeal worm		39-91	348		Central nervous system (may never mature in llama)	Small intestine, spinal cord		90
<i>Thelazia californiensis</i>	Eye worm	17 (11-19.5)				Conjunctival sac, lacrimal duct	Conjunctival sac, lacrimal duct	<i>Musca autumnalis</i> , face fly	
<i>Gongylonema</i> sp.	Cattle gullet worm	30-62 x 150-300 μm	80-145 x 300-500 μm		50-70 x 25-37	Esophagus, C-3	?	Beetles	?
<i>Trichuris</i> sp.	Whipworm	50-80	35-70		70-80 x 30-42	Cecum, large intestine	Small intestine	None	28-35
<i>Capillaria</i> sp.		8-13	12-20		45-50 x 22-25	Small intestine		None	
<i>Eimeria</i> sp. <i>Sarcocystis</i> sp.	Coccidia Sarcocyst					Small intestine Muscle		SAC	2-7 in cats
<i>Toxoplasma gondii</i>	Toxoplasma				(oocysts) 11-14 x 9-11	Sexual cycle in cats	Multiple organs		15
<i>Haemonchus contortus</i>	Large stomach worm	10-20	18-30	650-750	70-85 x 41-48	C-3	C-1	None	14-21
<i>Cooperia mcmaisteri</i>		4.5-5.4	5.8-6.2	780		Small intestine		None	15
<i>Nematodirus</i>	Thread-necked strongyle	10-15	15-23	922-1120	175-260 x 106-110	Lumen of small intestine	Mucosa of small intestine	None	
<i>Graphinema aucheniae</i>	Stomach worm	5.5-7.8	9-12		80-90 x 40-45	C-3		None	
<i>Lamenema chavezii</i>		10-13	14-18		150-170 x 70-80	Small intestine	Liver	None	
<i>Spiculopteria peruvianus</i>	Stomach worm	6.7-7.7	8.4-10.3		81-95 x 45-49	C-3		None	
<i>Dictyocaulus viviparus</i>	Lung worm	40-55	60-80	L-1 300-360	82-88 x 33-38	Bronchi	Small intestine, mesenteric lymph node, thoracic duct	None	30
<i>Oesophagostomum columbianum</i>	Nodular worm	12-16.5	15-21.5	771-923	73-89 x 34-45	Small intestine, large intestine		None	41
<i>Chabertia ovina</i>	Strongyle	13-14	17-20	710-789	90-105 x 50-55	Large intestine	Small intestine	None	49

Table 8.1. Pesticides registered for use on livestock and horses

Pesticide	Formulation	Beef cattle	Dairy cows	Sheep, goats	Horses
1. Calcium polysulfide (sulfur)	EC, WP, S, D	*	*	*	*
2. Carbaryl (Sevin)	WP, D	*	*	*	*
3. Chlorpyrifos (Dursban)	SO	*	*	*	*
4. Coumaphos (CuRal)	EC, WP, PO, S, D	*	*	*	*
5. Crotoxyphos (Ciobrin)	EC, S	*	*	*	*
6. Diazinon	EC	*	*	NL	*
7. Dichlorvos (Vapona)	EC, S	*	*	*	*
8. Dioxathion (Co-Nav)	EC	*	*	NL	*
9. Famphur (Warbex)	SO, D	*	NL	*	*
10. Fenthion (Tiguvon)	PO, SO	*	NL	*	*
11. Fenvalerate (Ectrin)	ET, S	*	*	*	*
12. Ivermectin* (Eqvalen for horses, Ivomec for cattle)	IM, SC	*	*	*	*
13. Lindane (Gamma BHC)	EC, WP, S, D	*	*	NL	*
14. Malathion	EC, WP, S, D	*	*	NL	*
15. Methoprene (Altosid)	F	*	*	*	*
16. Methoxychlor (Marlate)	EC, WP, D	*	*	NL	*
17. Naled (Dibrom)	EC	*	*	*	*
18. Nicotine sulfate (Blackleaf 40)*	EC	*	*	*	*
19. Permethrin (Atroban, Ectiban, Permectrin)	ET, ETT, S	*	*	*	*
20. Phosmet (Prolate)	EC, PO	*	NL	*	*
21. Pyrethrins, plus piperonyl butoxide	S	*	*	*	*
22. Ronnel (Korlan)	ASC, SM, G	*	*	*	*
23. Stirofos (Rabon)	EC, WP, F, D	*	*	*	*
24. Toxaphene*	EC	*	*	*	*
25. Trichlorfon (Neguvon)	SO	*	NL	*	*

Source: Extension Veterinary Medicine, Univ. of Calif., Davis. Used by permission.

Note: EC = emulsifiable concentrate; WP = wettable powder; S = usually in dilute, ready-to-use form; D = dust; SO = spot-on (high concentrate, low dose); PO = pour-on (low concentrate, low dose); ET = ear tag; IM = intramuscular injection; SC = subcutaneous injection; F = feed mixtures or medicated salt blocks; ETT = ear tag tape; ASC = aerosol spray can; SM = smear; G = granules; NL = use only on nonlactating animals.

*Registered for use in that species.

*Prescription drug only by a veterinarian.

*Registered only for use in scabies mite control on beef animals.

*Registered but no longer used.

Table 8.2. Registered pesticides for external parasite control on livestock and horses

Parasite	Beef and nonlactating dairy cattle	Lactating dairy cows	Sheep and goats	Horses
Blow flies (in wounds)	4, 13, 22	4, 13, 22	4(NL), 13(NL), 22(G)	13, 14, 22
Face fly	4, 5, 7-9, 11-16, 19, 20, 21, 23, 24	4, 5, 6, 11, 14, 16, 19, 21, 23		4, 5, 7, 8, 14, 16, 21, 23
Horn fly	4, 5, 7-9, 11-16, 19, 20, 21, 23, 24	4, 5, 7, 11, 15, 19, 21		
Horse fly	19, 20	19, 20	4, 13(NL)	2, 4, 5, 6, 8, 14, 16, 21, 23, 24
House and stable flies	5, 7, 19, 21, 23	5, 7, 19, 21, 23		2, 4, 5, 6, 8, 14, 16, 21
Heel fly	3, 4, 9, 10, 12, 20, 25			21
Mosquitoes, black flies, and gnats	5, 7, 21	21	21	21
Lice and sheep ked	3-5, 7-10, 13, 14, 16, 19, 20, 23, 24	4, 5, 7, 19, 21, 23	4(NL), 5, 6(NL), 7, 8, 13(NL), 14(NL), 16(NL), 19, 24(NL)	4, 5, 7, 8, 14, 24
Ticks—body	3-5, 7, 8, 13, 14, 19, 20, 23, 24	5, 7, 19	1, 3(NL), 14(NL), 19, 24(NL)	4, 5, 7, 8, 14, 19, 24
—ear	4, 5, 11, 13, 19, 22	4, 5, 11, 19	13(NL)	4, 13, 22
Mites	1, 13, 19, 20, 24	1, 19	1, 3(NL), 13(NL), 14(NL)	1, 24

Source: Extension Veterinary Medicine, Univ. of Calif., Davis. Used by permission.

Note: Numbers correspond to drugs in Table 8.1; NL = use only on nonlactating goats; G = use only on goats.

Table 8.7. Anthelmintics used in lamoids

Generic name	Commercial name(s)	Company*	Route of administration	Dose (mg/kg)
Fenbendazole	Panacur	B	Oral suspension, paste	10-15
Ivermectin	Ivomec	G	Oral, subcutaneous	0.2
Levamisole	Ripercol-L, Levasole, Tramisole	A F A	Intramuscular Oral Oral	5-8
Mebendazole	Telmin	F	Oral	22
Pyrantel pamoate	Strongid	E	Oral	18
Thiabendazole	Equizole, Omnizole, Thibenzole	D	Oral	66
Praziquantel	Droncit	C	Oral	5
Clorsuon	Curatrem	D	Oral	7

*A = American Cyanamid (Ripercol), One Cyanamid Place, Wayne, NJ 07470; B = American Hoechst (Panacur) National Lab Corp., Somerville, NJ 08876; C = Haver-Lockhart Labs, Box 390, Shawnee, KS 66201; D = MSD Agvet. Division Merck & Co., P.O. Box 2000, Rahway, NJ 07065; E = Pfizer, Inc., Animal Health Div., 235 East 42nd Street, NY, NY 10017; F = Pitman-Moore Inc. (Levasol, Telmin), P.O. Box 344, Washington Crossing, NJ 08560; G = Upjohn Co. (Ivermectin), 7000 Portage Rd., Kalamazoo, MI 49001.