

Donkeys and Mules:



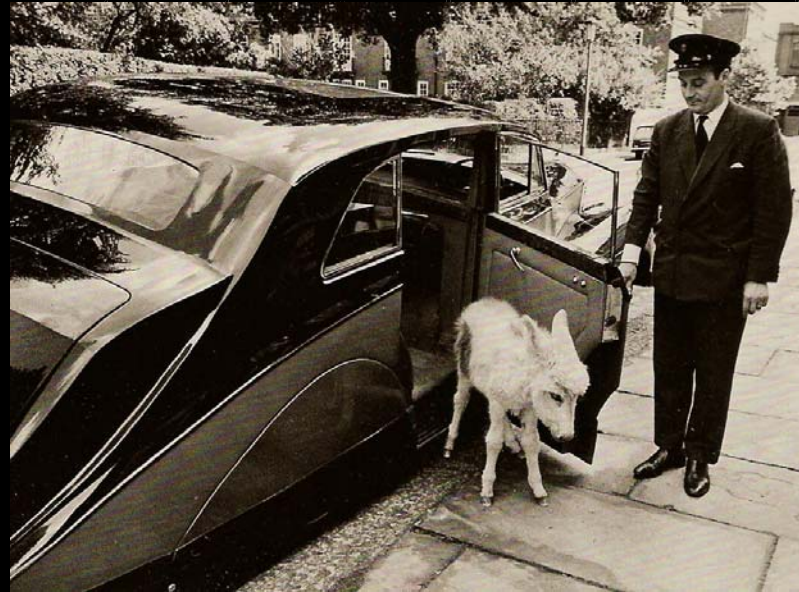
The International Symbol of Agriculture

Amy K. McLean

Sowhatchet Mule Farm, Inc

Madison, GA

Before Planes, Trains, Tractors and Automobiles



"The donkey and mule the most used, but most abused animals in history by man yet little attempt has been made to study any aspect of these equine."

Svendsen, Elisabeth Dr., The Professional Handbook of the Donkey, 3rd edition.

Imprinted by Longears



My Love for Longears

- 1984- Entered my 1st Mule Show
- 1988- First Mule Foal was born
- The rest is history!





My life, Showing Mules!



Promoting Mules



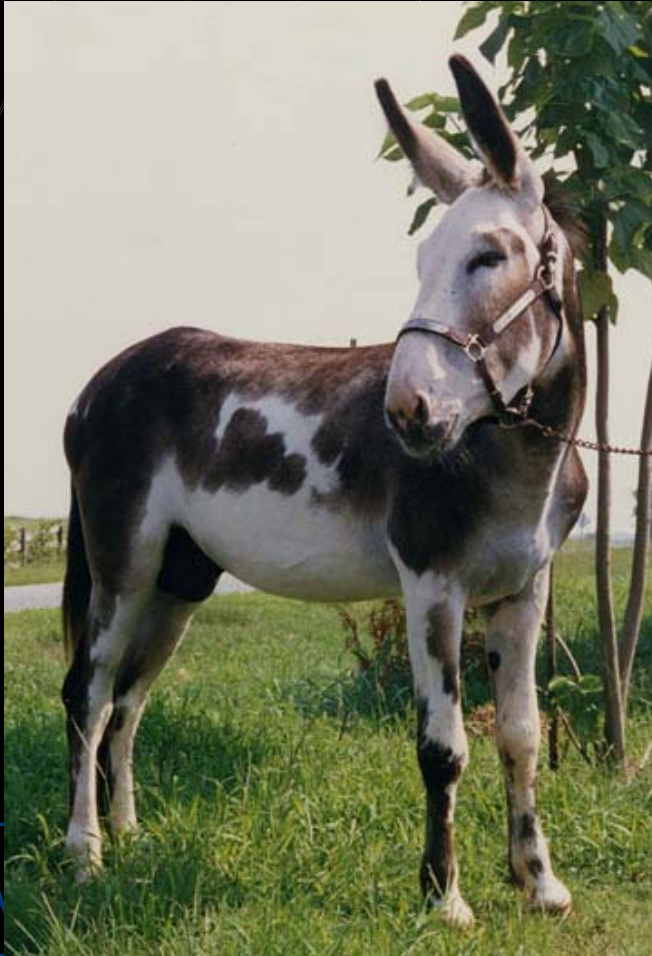
- **World Grand Champion Gaited Mule** Shelbyville, TN
- **World Champion Gaited High Point Mule, & Reserve World Champion Amateur All Around High Point Mule**, Bishop Mule Days, Bishop, CA
- **NASMA World Champion**, Amarillo, TX
- **National Amateur Mule High Point Champion**, Shelbyville, TN
- **Board of Director**, & member of **Rules Committee**, North American Saddle Mule Assoc. (NASMA)
- **Guest columnist** for national Mule and Donkey Magazine

Anything is Possible!



2004 Reserve World Champion All Around Amateur

Professional Experiences:



Assistant Manager:

Sowhatchet Mule Farm, Inc.

- Promote, market, sell mules, donkeys, mares, & breeding contracts from website
- Administer vaccines, medications, and oversee the nutrition program
- Assist in conditioning and training of mules and donkeys for show and sale
- Assist in breeding and foaling program

www.sowhatchetmulefarminc.com

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- [Show Mules](#)
- [Mules for Sale](#)
- [New Arrivals](#)
- [Donkeys](#)
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Professional Experiences:



Equine Specialist:

Land O' Lakes Purina Mills, LLC

- Consulted with owners, trainers, breeders, and veterinarians to prescribe/recommend diets for equine with metabolic & weight problems as well as diets for performance horses
- Marketed, promoted horse feeds at Equine Events
- Prepared and presented seminars for Horse Owner Workshops

Education:



- Bachelor of Science, Majors: (1) Animal Science (Equine Emphasis), (2) Dairy Science and Minor: Agribusiness, University of Georgia, Athens, GA
- Masters of Science, Animal & Dairy Science, Reproduction Physiology emphasis, University of Georgia, Athens, GA

Donkeys & Production



Internationally, a large sample of donkeys and mules exist, vital to many economies, & the industry needs research!

International Donkeys



- 150,000 working donkeys
- Important alternative to mechanization
- Very little is known about their health status
 - Example: Deworming methods

Wells D, et al. 1998 Helminth levels of working donkeys kept under different management systems in the Moretele 1 district of the North-West Province, South Africa. *Vet Parasitol.* 1998 Jun 15;77(2-3):163-77. Department of Veterinary Tropical Diseases, Faculty of Veterinary Science, University of Pretoria, Onderstepoort, South Africa.

The Need for Long-ear Research

Nutrition

- Requirements?
- Jack Sores

Anatomy & Physiology

- Digestive system
- Fat Pones
- Lameness?
- Pharmacokinetics

Disease/Parasites

- Management control
- Equine Herpes Virus
- Lungworms

Reproduction

- Cloning
- Sterilization
- Twining
- Frozen Semen



Too much of a Good Thing?

"Jack Sores"



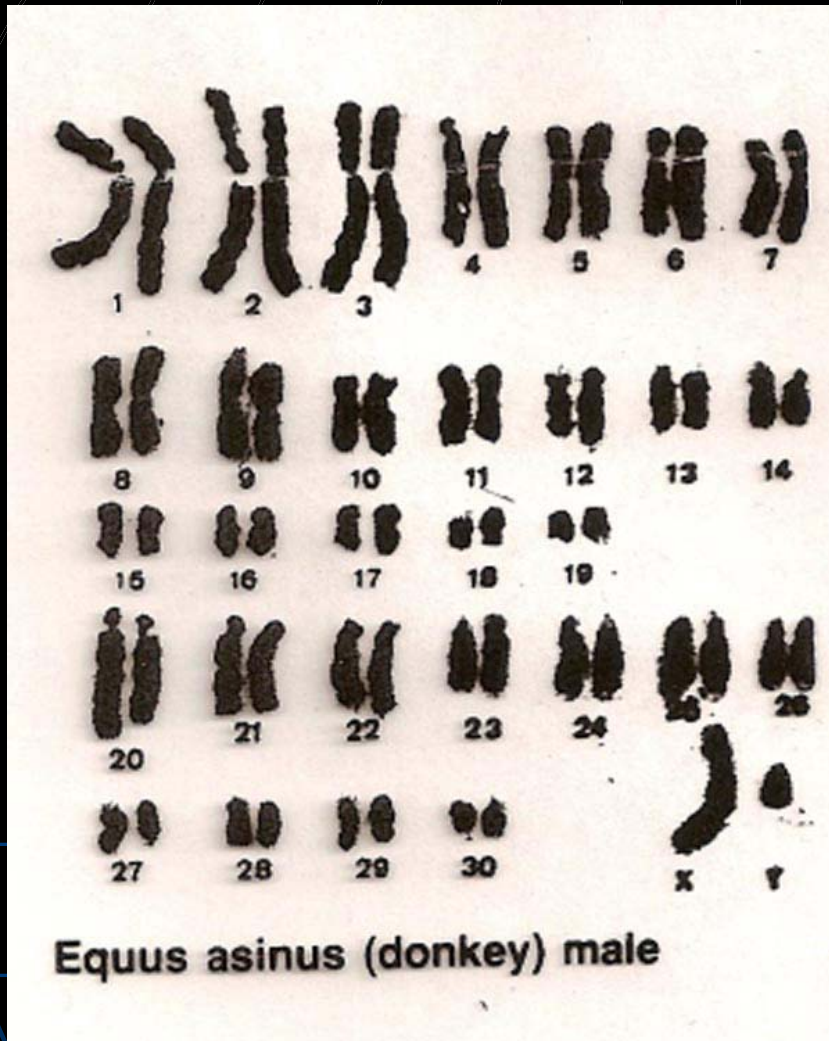
Food for Thought:



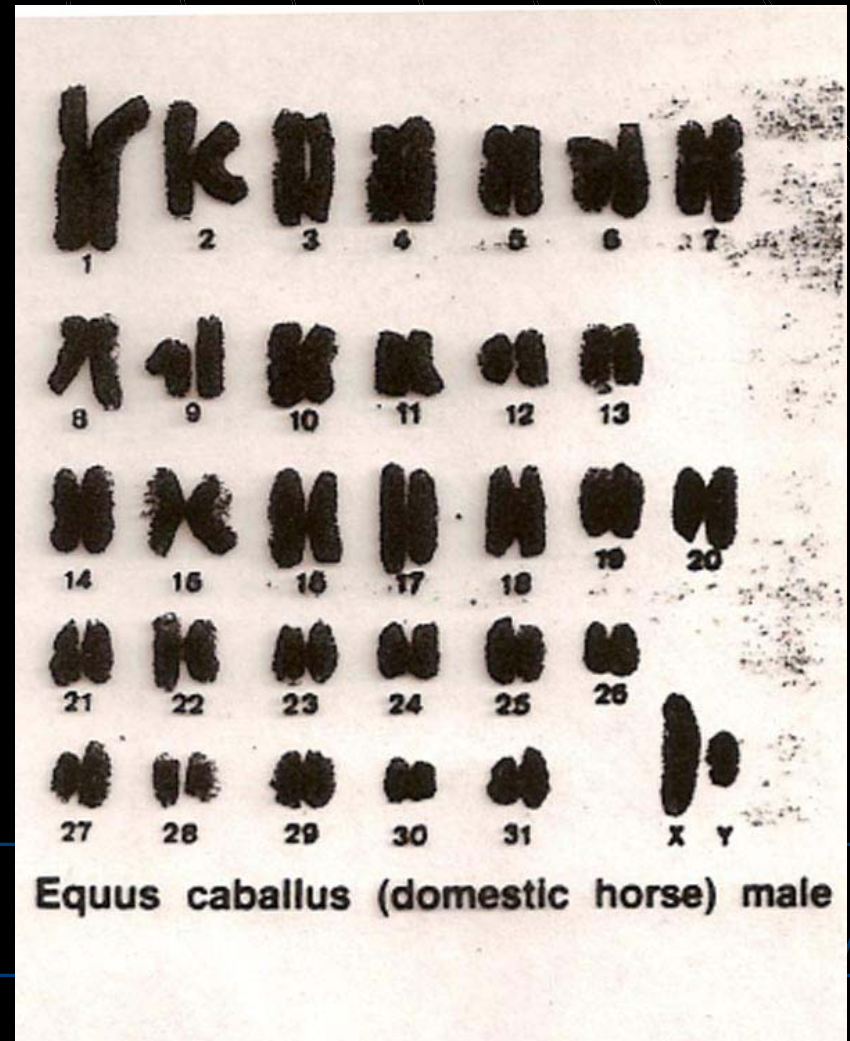
“Few studies have been conducted into the digestibility of different forages & little information exists on nutritional requirements of donkeys.”

Carretero-Roque L, et. al., 2005. Digestible energy requirements of Mexican donkeys fed oat straw and maize stover. Trop Anim Health Prod. 2005 Nov; 37 Suppl 1:123-42.
Centro de Investigacion en Ciencias Agropecuarias, Universidad Autonoma del Estado de Mexico, Mexico.

Donkey vs. Horse



31 Chromosomes



32 Chromosomes

First Cloned Equine



Was a Mule!

The Working Donkey

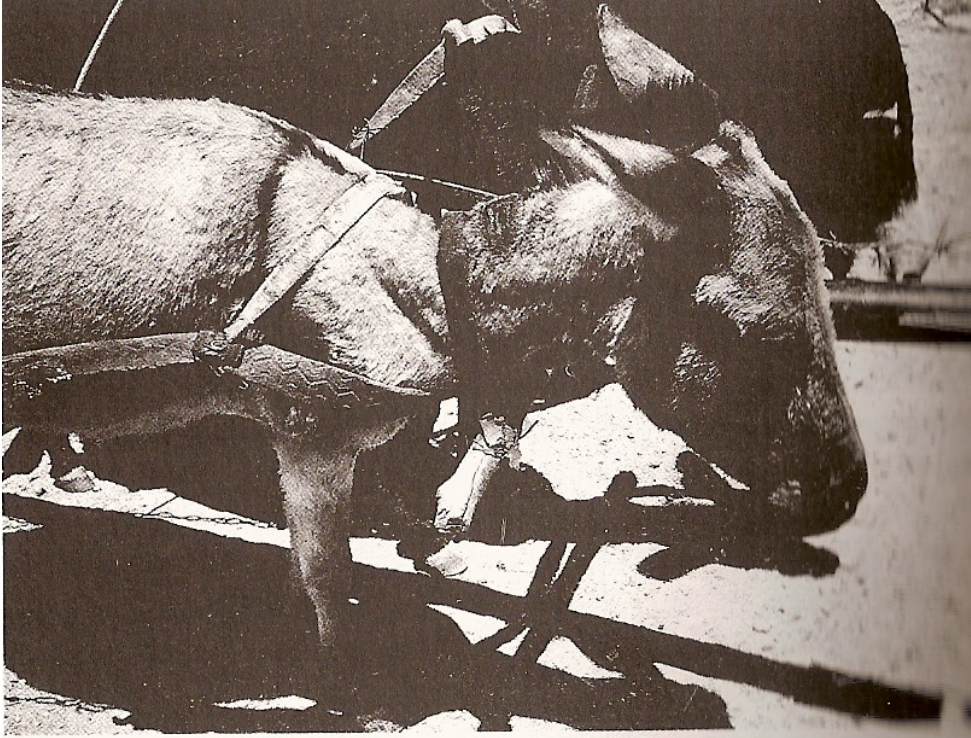
“Unfortunately, they are rarely given any veterinary attention, they receive no feed supplements and their owners are often unaware of improved saddling techniques that would reduce the back sores their animals suffer from.”

Tesfaye A, Martin Curran M.

A longitudinal survey of market donkeys in Ethiopia.
Trop Anim Health Prod. 2005 Nov;37 Suppl 1:87-100
Holetta Research Center, Addis Ababa, Ethiopia.



Common Donkey Problems



- Many donkeys can not work due to:
 - Sores & gallading
 - Poor Harness/Saddles
 - Poor nutrition
 - Lack of Water
- No donkey means no income!
 - Decrease in production
 - Increases loss of earnings

Foamed, Diarra Mamadou. Analytical Study of the aliments of the donkey related to their Conditions of operating in the area of Segou, Mali (unpublished data)

Overworked & Underpaid

- Decrease in Longevity
 - 11 years vs. 27 years non-working donkey
- Decrease in Reproduction



AUBURN CAL - 1849.

Donkey Advantages:



“Donkeys appear to have a survival advantage over cattle that is increasingly recognized by smallholder farmers in their selection of working animals (especially in drought conditions).”

Smith DG, Pearson RA.

A review of the factors affecting the survival of donkeys in semi-arid regions of sub-Saharan Africa. Trop Anim Health Prod. 2005 Nov;37 Suppl 1:1-19. Department of Agriculture and Forestry, University of Aberdeen, Scotland, UK.

Donkeys vs. Oxen



- Donkeys have lower maintenance costs
- Spend less energy while foraging for food
 - Lower energy costs result in a lower dry matter intake requirement

Smith DG, Pearson RA

A review of the factors affecting the survival of donkeys in semi-arid regions of sub-Saharan Africa. Trop Anim Health Prod. 2005 Nov;37 Suppl 1:1-19

Donkey Digestion



- In donkeys, low-quality diets are digested almost as efficiently as in ruminants
- Quality of diet obtained by donkeys in a given pasture is higher than that obtained by cattle.
 - Highly selective feeding strategy

Smith DG, Pearson RA

A review of the factors affecting the survival of donkeys in semi-arid regions of sub-Saharan Africa. Trop Anim Health Prod. 2005 Nov;37 Suppl 1:1-19

Donkeys vs. Ponies



- At rest ponies ate more than donkeys
- Donkeys showed a higher digestibility
 - Dry matter
 - Organic matter
 - Acid detergent fiber

Pearson RA, Merritt JB. Intake, digestion and gastrointestinal transit time in resting donkeys and ponies and exercised donkeys given ad libitum hay and straw diets. *Equine Vet J.* 1991 Sep;23(5):339-43.
Centre for Tropical Veterinary Medicine, Roslin, Midlothian, UK.

Donkeys and Draught



- Donkeys may access more remote, under-utilized sources of forage that are inaccessible to cattle on rangeland
 - Due to their ability to tolerate thirst

Smith DG, Pearson RA

A review of the factors affecting the survival of donkeys in semi-arid regions of sub-Saharan Africa. Trop Anim Health Prod. 2005 Nov;37 Suppl 1:1-19

Donkeys and Dehydration:

- **During Chronic Dehydration**
 - Enhanced fermentation activity
 - Enhanced mucosal absorptive or secretory capacity within the hindgut
 - Observed maintenance of appetite



J. C. Sneddon* ,1, E. Boomker and C. V. Howard

Mucosal surface area and fermentation activity in the hind gut of hydrated and chronically dehydrated working donkeys J. Anim.

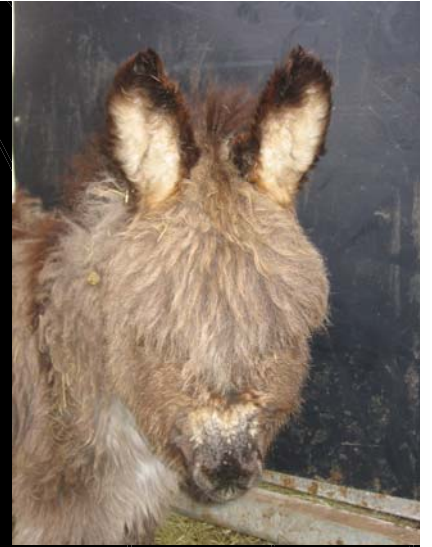
Sci. 2006. 84:119-124. Liverpool John Moores University, Liverpool , United Kingdom;

University of Pretoria, South Africa; and University of Liverpool, Liverpool L69 3BX, United Kingdom

Monogastric or Ruminant



Monogastric or Ruminant?



- **Hind Gut of the Donkey**
 - Similar to the rumen
 - Plays a role as a water reservoir
 - Helps maintain the osmotic stability of the body

Kasirer-Izraely H, Choshniak I, Shkolnik A.

Dehydration and rehydration in donkeys: the role of the hind gut as a water reservoir.

J Basic Clin Physiol Pharmacol. 1994 Jan-Mar;5(1):89-100. Department of Zoology, George S. Wise Faculty of Life Sciences Tel Aviv University, Ramat Aviv, Israel.

Conclusion:

- International Research suggests a strong need for more research and education in terms of basic care
- Economic tie between the donkey & mule and producer
- Lack of research from the United States and on Mules
- The opportunity to help improve the lives of these animals as well as the lives of their owners by improving production through education!



Thank You!

