Grass-Fed Beef

Finishing time and weights of grass-fed beef animals

A Farmer-Rancher Grant Project supported by North Central Region Sustainable Agriculture Research and Education (NCR-SARE)

Willow Sedge Farm

Jane Grimsbo Jewett, jane@janesfarm.com

25 Years of SARE
NORTH CENTRAL SARE
Sustainable Agriculture Research & Education

Acknowledgements:

Edgar Brown, Willow River, MN
Jake and Lindsay Grass, Pine City, MN
Bill McMillin, Plainview, MN
Troy Salzer, Carlton County Extension
Wayne Martin, University of MN Extension
The Jewett and Grimsbo Families
Kate Clancy, Senior Fellow, Minnesota Institute for Sustainable Agriculture (MISA)
Helene Murray, Executive Director, MISA
Kris Johnson, MISA Board of Directors
Kate Seager, Minnesota SARE Co-Coordinator
Betsy Wieland, Minnesota SARE Co-Coordinator
Midwest Perennial Forage Working Group
Rich Pirog, C.S. Mott Group for Sustainable Food Systems, Michigan State University

What is Grass-Fed Beef?

Grass(Forage) Fed: Grass and forage shall be the feed source consumed by the animal for its lifetime, with the exception of its pre-weaning diet. The diet shall contain forage consisting of grass, forbs, browse, or cereal grains in their pre-grain state. Hay, haylage, baleage, silage, crop residue without grain, and other roughage sources are allowed as is vitamin and mineral supplementation. No grain or grain byproducts are allowed. Animals must have access to pasture during the growing season. Adverse environmental or physical conditions permit supplementation with full documentation of amounts,frequency, and supplements provided.

Federal Register Notice. Vol. 72, No. 199 "U.S. Standard for Livestock and Meat Marketing Claim, Grass (Forage) Fed Claim for Ruminant Livestock and the Meat Products Derived from Such Livestock" October 16, 2007. http://edocket.access.gpo.gov/2007/pdf/E7-20328.pdf

Why Grass-Fed Beef?

Why Grass-Fed Beef?

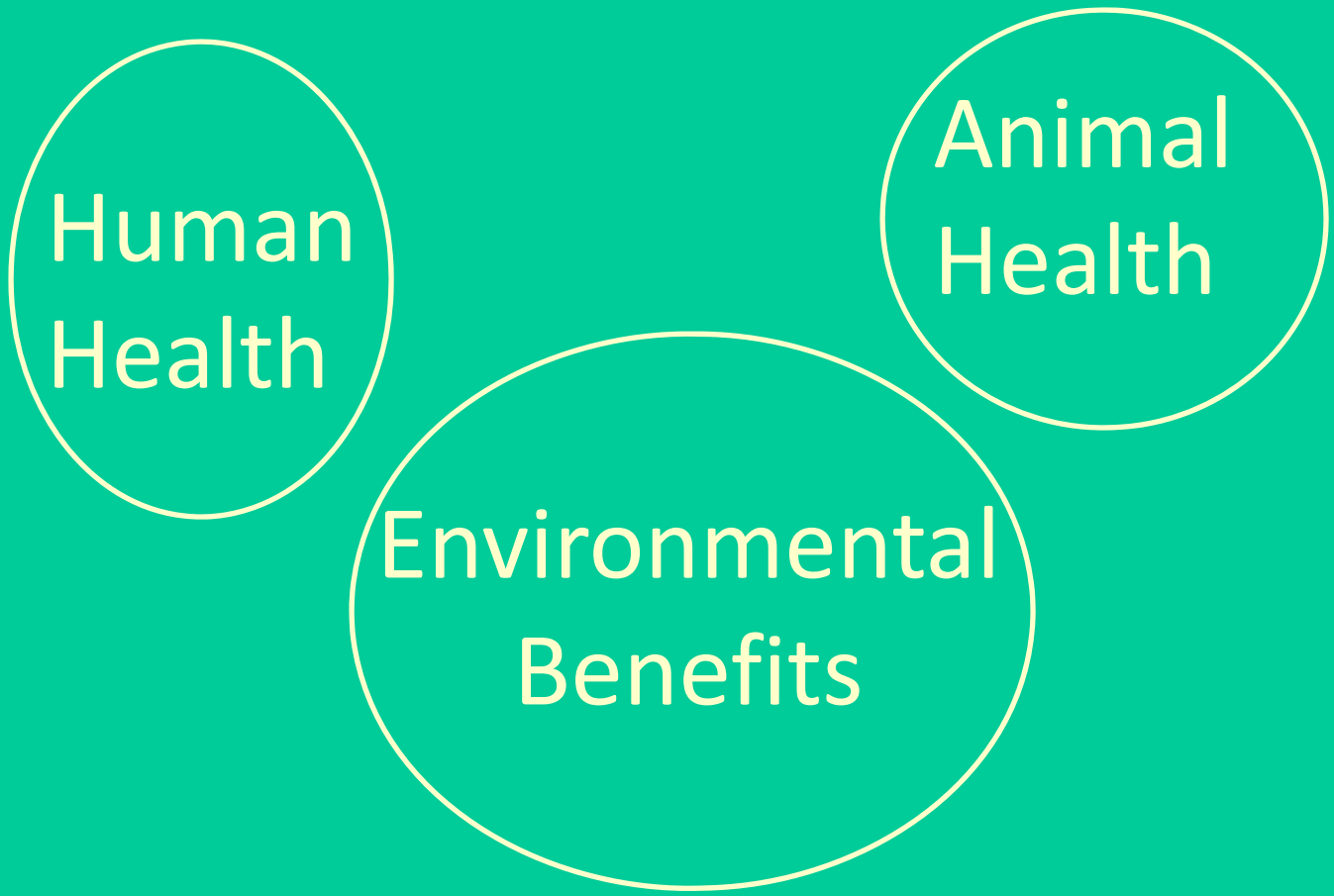
Human Health

Why Grass-Fed Beef?

Human Health

Animal Health

Why Grass-Fed Beef?



Why Grass-Fed Beef?

Human Health

- Documentation of higher CLA: Conjugated Linoleic Acid
- Improved Omega-3/Omega 6 fatty acid ratios
- **No proof that these fatty acid differences mean anything in terms of public health**
- Beef is not considered a significant source of Omega-3

Why Grass-Fed Beef?

- Less use of antibiotics
- Animals eating the diet for which they evolved

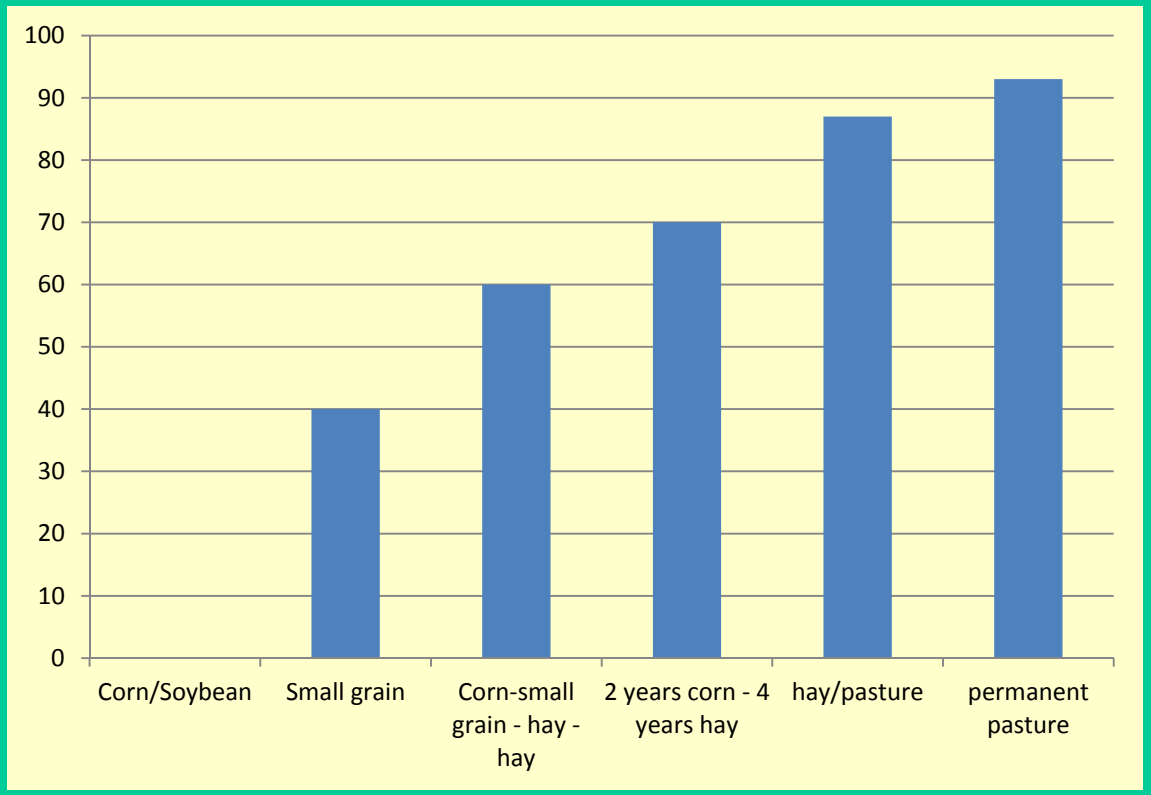
Animal Health

Why Grass-Fed Beef?

- Perennial forage crops = less soil erosion than corn & soybean
- Perennial forage crops = less fossil fuel use than corn & soybean
- Legume crops (alfalfa, clovers) fix atmospheric nitrogen into soil

Environmental Benefits

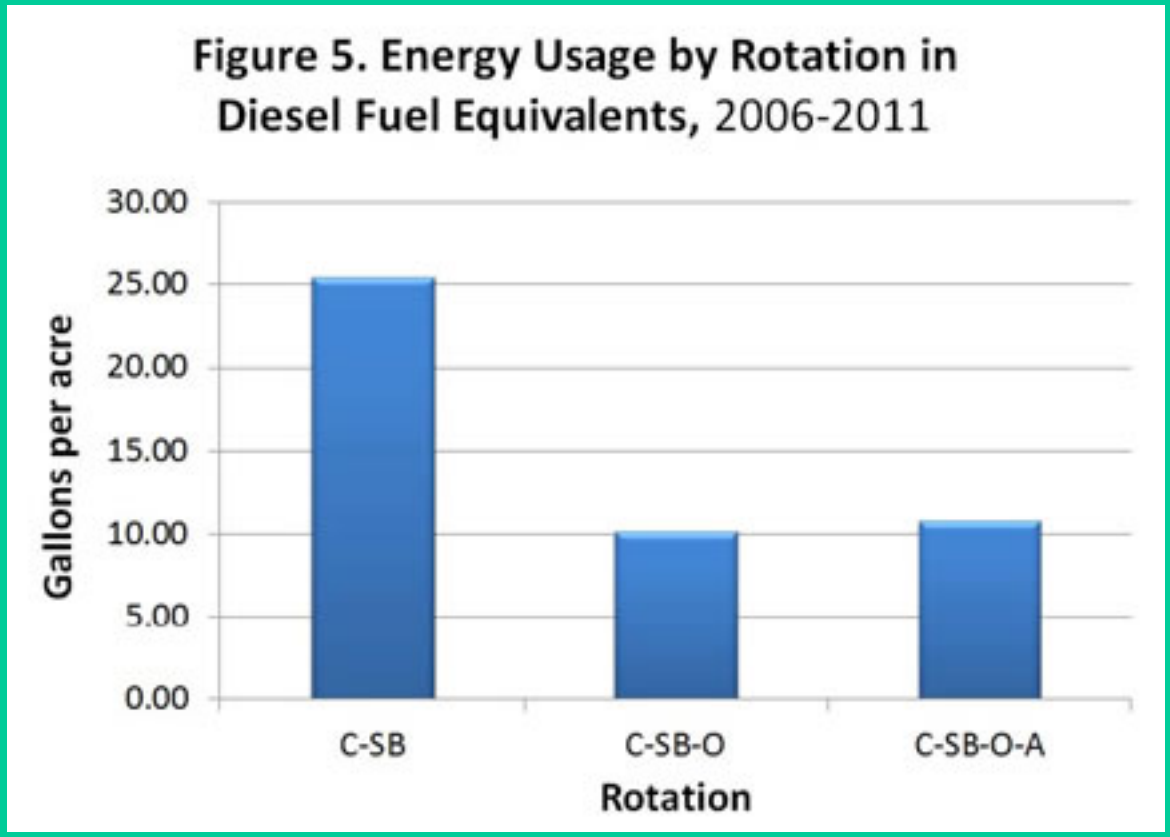
Reduction in soil loss % due to cropping system



Control of Soil Erosion Fact Sheet. Robert P. Stone and Neil Moore. Ontario Ministry of Agriculture and Food. http://www.omafra.gov.on.ca/english/engineer/facts/95-089.htm

Perennial Grasses have a phenomenal root system!!

Jerry Glover and Wes Jackson
The Land Institute
Salina, KS



Energy and Economic Returns by Crop Rotation. September 2012. Ann M. Johanns, Craig Chase, and Matt Liebmann. Iowa State University Extension. www.extension.iastate.edu/agdm/crops/html/a1-90.html

Alfalfa Nitrogen Credit

A fair stand of alfalfa on medium-textured soil can provide **160 lbs./acre** of nitrogen to the corn crop that comes after it (1).

Using a 2012 nitrogen price of $0.60 per lb. (2):

160 lbs. nitrogen/acre x $0.60/lb = $96/acre nitrogen credit from the alfalfa crop

References:

(1)Using Legumes as a Nitrogen Source. June 1997. L.G. Bundy, K.A. Kelling and L. Ward Good. University of Wisconsin Extension, publication #A3517. http://ipcm.wisc.edu/download/pubsNM/Uselegumes.pdf

(2) **Fertilizer Use and Price**. Reports from the Economic Research Service, USDA. http://www.ers.usda.gov/data-products/fertilizer-use-and-price.aspx#26727

Comparative life cycle environmental impacts of three beef production strategies in the Upper Midwestern United States

Nathan Pelletier, Rich Pirog, Rebecca Rasmussen
July 2010. Agricultural Systems 103(6):380-389.

“Impacts per live-weight kg of beef produced were highest for pasture-finished beef for all impact categories and lowest for feedlot-finished beef”

Materials & Methods:
“Calves weaned to pasture in Iowa finish at 505 kg in 450 days on a ration of forage and hay.”

Typical beef steer life:

- Born in March or April
- Weaned in November at 7 mos.
- “Backgrounded” or sent directly to feedlot
- Slaughtered at 17-18 mos.

Grass-fed beef finish time:
505 kg = 1,111 lbs.
450 days = 1 year + 3 mo.

Compare to:
Feedlot beef
637 kg = 1,400 lbs.
303 days = 10 mos.

Grass-fed: Total of 22 months to get a 1,100-lb. animal

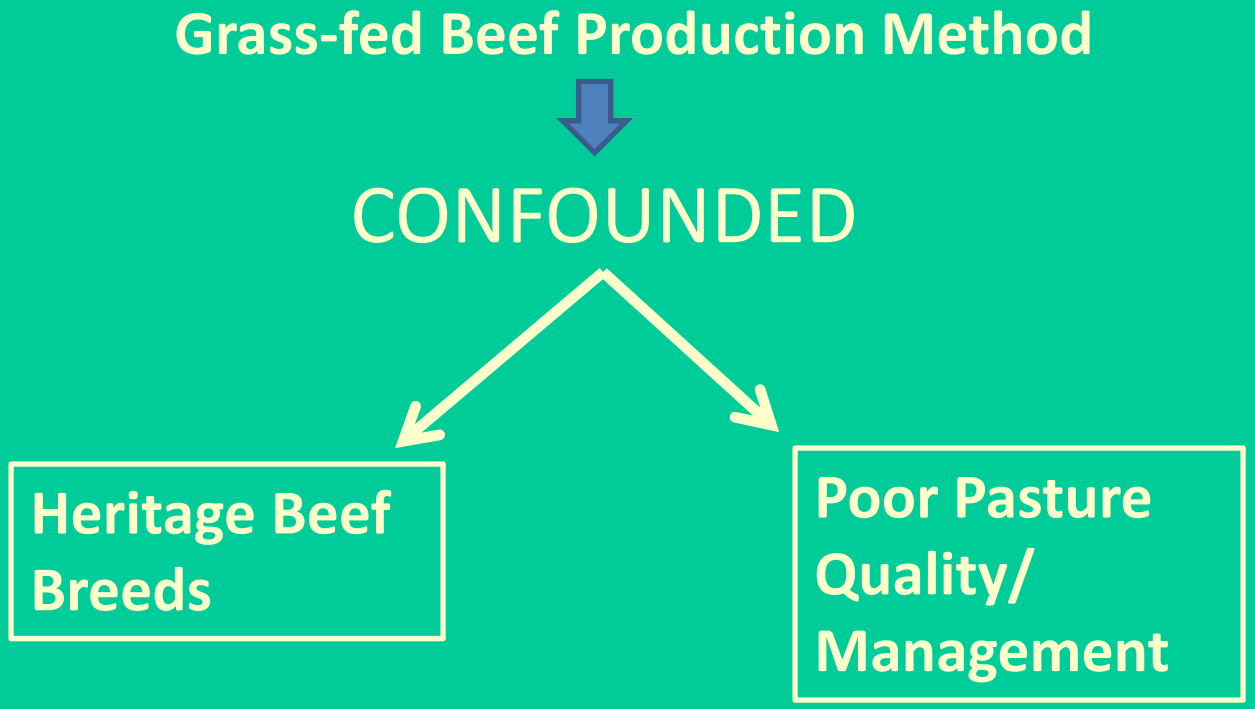
Feedlot beef: Total of 17 months to get a 1,400-lb. animal

“Calves weaned to pasture in Iowa finish at 505 kg in 450 days on a ration of forage and hay.”

Where did these figures come from?

Where did these figures come from?

Rich Pirog: Iowa State U. Extension beef expert's estimate, personal communication to authors



What if the Life Cycle Analysis used input numbers obtained through use of modern beef genetics and good pasture with good management?

What if the Life Cycle Analysis used input numbers obtained through use of modern beef genetics and good pasture with good management?

That question is where this project starts.

Collaborators:

Edgar Brown
Jake & Lindsay Grass
Jane Jewett
Bill McMillin

All using managed rotational grazing on improved pastures.

Livestock Breeds:

Edgar Brown - Shorthorn

Jake & Lindsay Grass – Black Angus, British White, Ayrshire

Jane Jewett – Black Angus

Bill McMillin – Black Angus, British White

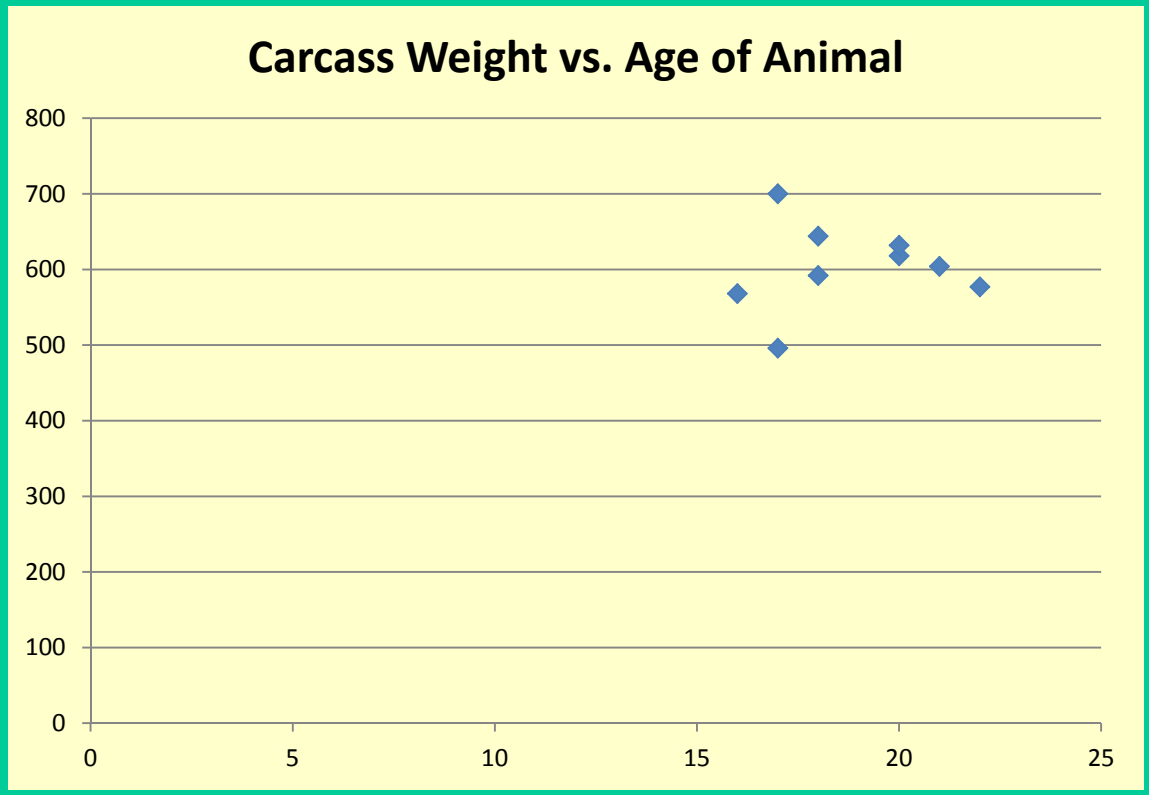
Carcass wts., 2010-2013:

Compare to Life Cycle Analysis estimate: 577-lb. carcass wt. at 22 mos.:

	Brown	Grass	Jewett	McMillin
2010	-	-	644 lbs./18 mo.	632 lbs.
2011	-	-	592 lbs./18 mo.	665 lbs.
2012	618 lbs./20 mo.	604 lbs./21 mo.	496 lbs./17 mo.	700 lbs./17 mo.
2013	-	632 lbs./20 mo.	568 lbs./16 mo.	-

Carcass wts., 2010-2013:

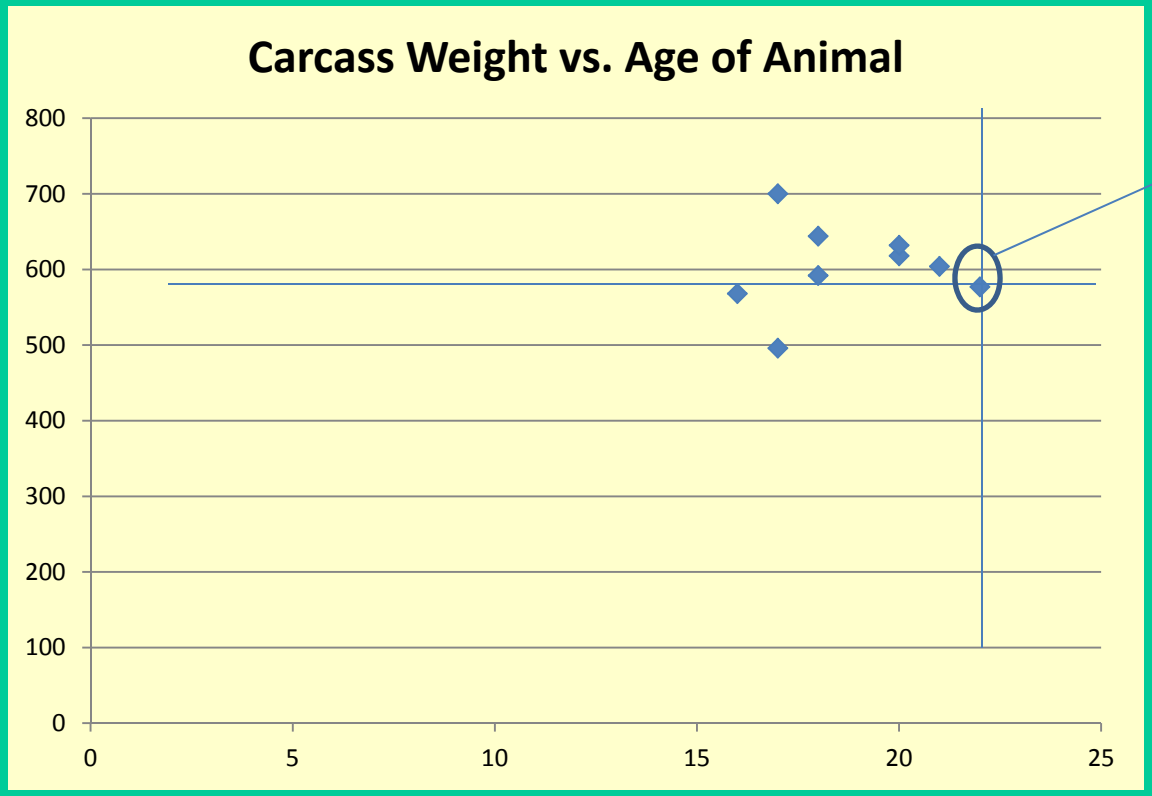
Lbs. of carcass Wt.



Age of animal in months at slaughter

Carcass wts., 2010-2013:

Lbs. of carcass Wt.

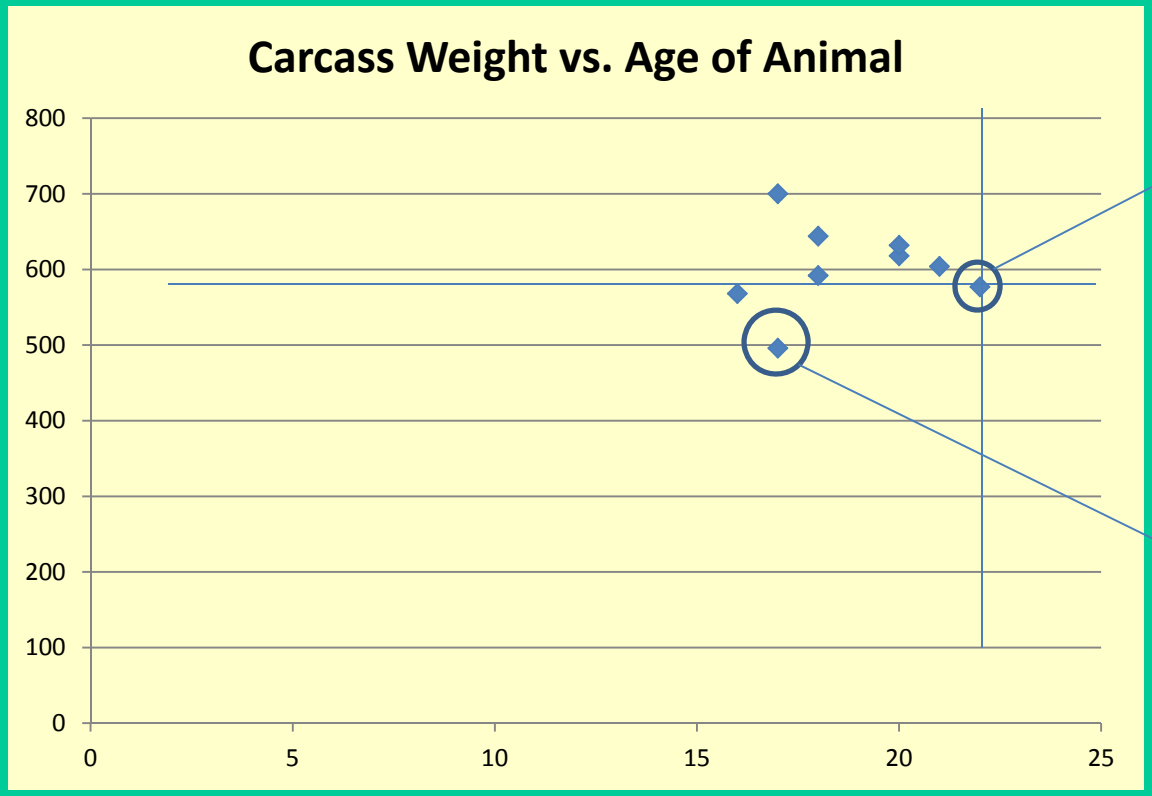


Life Cycle Analysis: 577 lbs. at 22 months

Age of animal in months at slaughter

Carcass wts., 2010-2013:

Lbs. of carcass Wt.



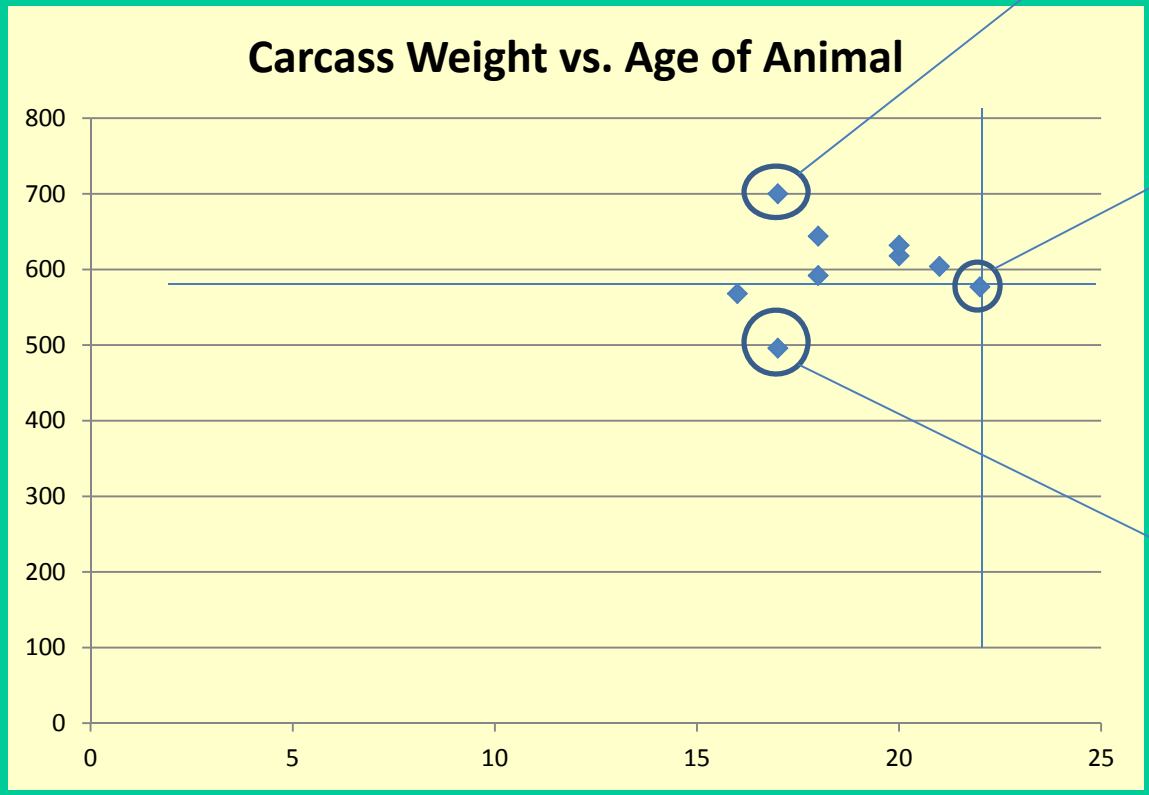
Age of animal in months at slaughter

Carcass wts., 2010-2013:

Bill's high-cost system

Life Cycle Analysis

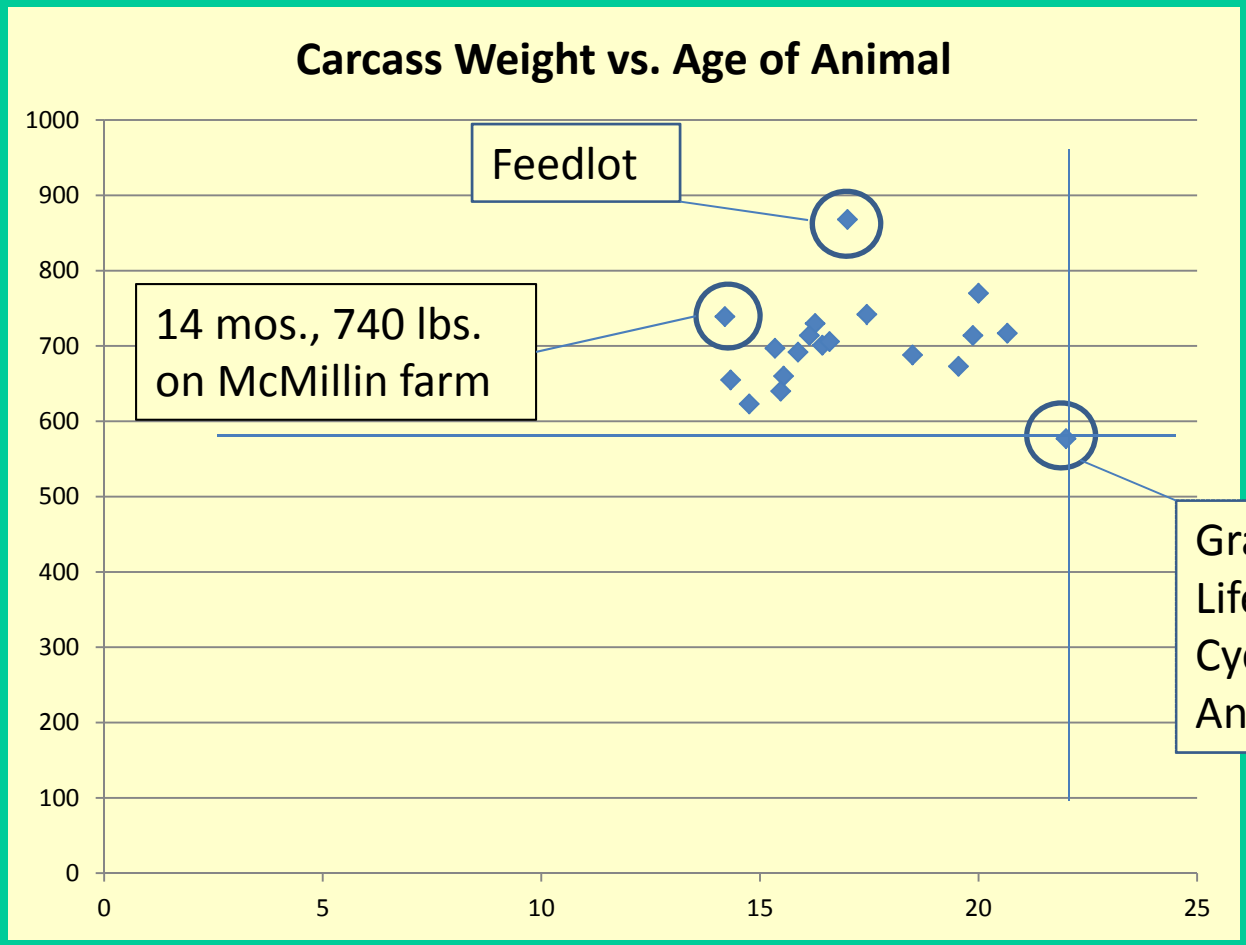
Jane's flood trainwreck



Lbs. of carcass Wt.

Age of animal in months at slaughter

Bill McMillin's carcass wts., 2012



Lbs. of carcass Wt.

Age of animal in months at slaughter

Grass-fed beef production can produce a 740-lb. carcass at < 14.5 months of animal age

Thank You!

Finishing time and weights of grass-fed beef animals

A Farmer-Rancher Grant Project supported by North Central Region Sustainable Agriculture Research and Education (NCR-SARE)

Willow Sedge Farm

Jane Grimsbo Jewett, jane@janesfarm.com

25 Years of SARE
NORTH CENTRAL SARE
Sustainable Agriculture Research & Education