Northeast Pasture Consortium News Update   September 2016

Linking Graziers, Researchers, Extension, and Technicians

http://grazingguide.net/ James Cropper, Executive Director & Editor

2017 Northeast Pasture Consortium Annual Conference & Meeting

Our annual conference and meeting in 2017 will be at the Clarion Hotel and Conference Center in Hagerstown, MD on March 2 and 3. The complex is located at 901 Dual Highway (US 40).

Location Map of the Hagerstown Clarion Hotel & Conference Center

We will be partnering with the Maryland Cattlemen's Association to combine our Conference with their Maryland Hay & Pasture Conference. The theme of our Conference in 2017 is: "From Pasture to Table - Grass-Fed Livestock Production of Meat and Milk and Its Preparation - Their Effects on Fatty Acid Composition and Human Health". Three technical sessions and the Producer Showcase will directly relate to our theme. The three technical sessions each cover a segment of the theme. The *Ruminant Fatty Acid Production with Pastured Livestock* session covers how to enhance the content of healthful fatty acids in meat and milk produced by livestock raised on pasture. The *Processing Milk and Cooking Meat effects on Fatty Acid Profiles in Consumed Grass-Fed Meat and Milk Products* session covers the fate of ruminant fatty acids in processing milk and cooking meat. The third session, *Human Health Implications of Consuming Grass-fed Meat and Milk Products*, covers the impact of consuming ruminant fatty acids on human health. The Producer Showcase will have two Maryland farms, a beef operation and a dairy operation, that pasture their livestock. The beef farm finishes their feeder cattle on grass. The January newsletter will contain the registration form and a detailed agenda complete with speakers and the title of their presentations.

Driving Directions:

From Baltimore, MD:
Take I-70 West to exit 32B (Rte. 40 West). The hotel is 2.5 miles on the left.
From Washington DC:
Take Rte. 270 North to Frederick. Take I-70 West exit. Follow I-70 to exit 32B (Rte. 40 West). The hotel is 2.5 miles on the left.
From Carlisle, PA:
Take I-81 South to Rte. 40 East exit. The hotel is 4.5 miles on the right.
From Breezewood, PA:
Take I-70 East to exit 32B (Rte. 40 West). The hotel is 2.5 miles on the left.
From Martinsburg, WV:
Take I-81 North to Rte. 40 East exit. The hotel is 4.5 miles on the right.

Maryland Cattlemen's Association

As in 2016 with Maine, this will be the first time that we hold our Northeast Pasture Consortium Conference in Maryland. This time, however, we go one step further by holding a joint conference with the Maryland Cattlemen's Association. As a way of introducing the Association to many of our members, here is a brief history of it.

The Maryland Cattlemen’s Association, as it is known today, was formed through the merger of two prominent Maryland beef cattle organizations dating back to the 1950’s. This merger, between the Maryland Cattle Producers Association, Inc.(MCPA) and The Maryland Beef Cattle Improvement Association, Inc. (MBCIA) occurred in February 1972.

The Maryland Cattle Producers Association Inc. was formed by Mr. Amos Myers in the early 1950's and functioned primarily as a marketing organization for Maryland produced feeder cattle. This group conducted many feeder calf sales over the years and was primarily responsible for the development of graded sales in Maryland.

Dr. Jim Ferguson of the University of Maryland formed the Maryland Beef Cattle Improvement Association (MBCIA) in 1958. The purpose of the MBCIA was to conduct and promote standardized performance testing of growing beef cattle across Maryland. In addition to on-farm performance programs, this group also conducted a central bull test program for Maryland cattle producers. In 1968, the MBCIA became a charter member of the national Beef Improvement Federation (BIF).

By the mid 1960's, the MBCIA was becoming the more active and effective of the two organizations and showed a clear desire to build a single, more unified cattle organization in the state of Maryland. For example, the MBCIA had expressed a willingness to support the activities of both the Eastern National Livestock Show and Maryland Red Meat Council and had extended a hand to the MCPA.

Over the years between 1957 and 1972, several failed attempts were made to merge these two groups into one large state organization. Finally, in 1972, under the leadership of Ken Pruitt and A. Leland Clark of the MBCIA, the two organizations were merged to form the Maryland Cattlemen's Association, Inc. (MCA).

Today, the MCA serves as the unified voice of Maryland's cattle industry and plays both an education and political action role for the benefit of cattle and beef producers across Maryland. In addition, MCA promotes Maryland beef and beef products through their Beef Industry Council, established in 1986, using checkoff dollars to fund those activities.

Disspelling Some of the Misinformation about Fatty Acids in Meat & Milk

Marbled meat is meat, especially red meat, that contains various amounts of intramuscular fat, giving it an appearance similar to a marble pattern (Wikipedia). Why do I bring up a statement like this out of the clear blue? To grab your attention and start with what happens to omega-3 (n-3) and conjugated linoleic acid (CLA) when meat is cooked by three different methods - boiling, microwaving, and grilling. These two fatty acids (FA) reside in the intramuscular fat. They are retained in cooked meat. They are actually concentrated in the meat as the meat loses moisture as it is cooked regardless of method. It was originally thought that the fat drippings from the meat removed enough of them that no difference existed between confinement fed meat and grass fed meat. Once the meat is cooked, the level of n-3 and CLA is more or less the same regardless of feeding regime. This is **not the case** as reported in *Effect of cooking methods on fatty acids, conjugated isomers of linoleic acid and nutritional quality of beef intramuscular fat* by

Drs. Susana Alvez, Ana S. H. Costa, Rui Bessa, and José A. M. Prates, Meat Science 84 (2010) 769–777. This is due to the fact that intramuscular fats (lipids) are absorbed by the surrounding muscle tissue. The fat drippings encountered when grilling meat are mostly from the external fat that surrounds the muscle tissue. There is little muscle tissue in intimate contact with this fat to absorb the fat as it is liquified under heat. Grass fed and finished beef or lamb has much less of the external fat while having a significant level of intramuscular fat if on lush pastures.

Grass Finished Steer - Looking Good   *Photo by T. Bishopp*

In the paper cited above, the omega-6 (n-6) to n-3 ratio in cooked grass finished beef was 1.89, well below the top threshold that a healthful 6/3 ratio should be - 4.0. Meanwhile, the confinement fed cooked meat 6/3 ratio was 11.6. A level almost 3 times above what is considered to be healthful. The typical American diet tends to contain 11 to 30 times more n-6 FA than n-3, a phenomenon that has been hypothesized as a significant factor in the rising rate of inflammatory disorders in the United States (Daley et al.: A review of fatty acid profiles and antioxidant content in grass-fed and grain-fed beef. *Nutrition Journal* 2010, 9:1-12).

In the mean time, CLA content (mg/g muscle) was significantly higher ($P < 0.001$) in cooked beef than in raw cuts as a result of moisture loss in the Alvez et al. study. However, eating a 6-ounce portion (The bare minimum that I would eat.) would only add 13-15 mg. of CLA to the daily diet. Yet, the Aussies consume 500 to 1000 mg/day approximating what may be required for cancer prevention: 620 mg/day for men and 441 mg/day for women (Daley et al.). While we Americans on average only consume between 150 to 200 mg/day. Obviously, neither us nor the Aussies, are getting much CLA from meat.

So where is that CLA coming from? You may guess that it comes from milk judging by the title of this article. You would be right. Quoting Shingfield et al., "Dairy products are the main source of CLA in the human diet, with the cis-9, trans-11 isomer accounting for between 70–80% of total CLA intake, since cis-9, trans-11 is the major isomer of CLA in ruminant milk." This is why certain nationalities, such as the Aussies and several European countries, have elevated dietary intake of CLA due to eating various dairy products, such as butter, cheese, and yogurt.

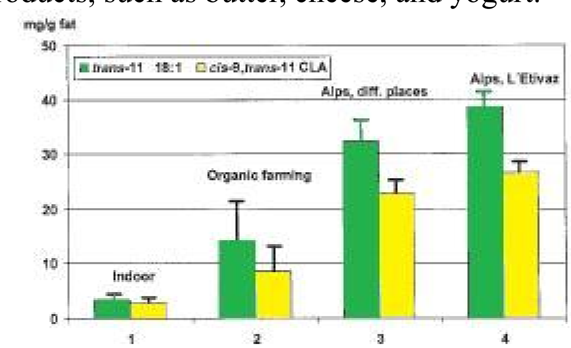


FIG. 2. Content of *cis*-9,*trans*-11 CLA and of *trans*-11 18:1 in milk fat of different origins (all differences between the groups are significant, $P < 0.05$, except between groups 3 and 4).

Kraft et al. found total CLA in milk fat was significantly lower in milk from confinement fed cows compared with the pasture fed cows in the Alps. See figure 2 from their paper above. They attributed this to optimal ruminal fermentation in cows grazing herb-rich pasture (optimal pH, polyunsaturated fatty acids as substrate for transvaccenic acid [tVA]) minimizes the formation of trans-10 FA. The absence of this depressing agent maximizes the desaturation of tVA. Milk fat synthesized under these conditions is rich in CLA and relatively poor in tVA. Cows, on the other hand, fed concentrate-rich rations alters the rumen microbial ecosystem to favor synthesis of trans-10 FA. This FA inhibits mammary milk fat synthesis as well as the tissue synthesis of CLA from tVA.

The best way for us to bump up our CLA intake is to eat more full or reduced fat milk products. Get rid of all the fat and the CLA goes with it.

CLA and omega-3 are the main FAs often mentioned in grass fed circles, but there are many other fatty acids of note that play a role in human health that are favored when livestock are eating pasture grasses. More on them in the January News Update, but not enough to spill all the beans to be arrayed at our 2017 Conference.

Full citations of the other two papers cited in this article:
Kraft, Jana, Marius Collomb, Peter Möckel, Robert Sieberb, and Gerhard Jahreis. 2003. Differences in CLA Isomer Distribution of Cow's Milk Lipids. *Lipids* 38 issue 6:657-664.

Shingfield, K. J., Y. Chilliard, V. Toivonen, P. Kairenius and D. I. Givens. 2008. *Trans* Fatty Acids and Bioactive Lipids in Ruminant Milk. Z. Bösze (ed.), *Bioactive Components of Milk*. pp. 3-65.

Pasture Walk at Wolfe's Neck Farm

Freeport, ME
by Diane Schivera, NEPC Executive Committee

The University of Maine Cooperative Extension and Wolfe's Neck Farm hosted a pasture walk on August 11 to show how the apprentices that work on the farm manage the new organic dairy herd.

The Wolfe's Neck Farm Dairy apprenticeship program was excited to show off the progress it has made in managing the dairy herd as well as to tell the public about the education program that now has 4 apprentices who are enrolled in the Dairy Grazing Apprenticeship (DGA) Program. Website: https://www.dga-national.org/


Milking parlor at Wolfe's Neck Farm Organic Dairy Photo by K. Soder

The program at Wolfe's Neck Farm aims to increase the production of organic milk in the Northeast while fostering the next generation of organic dairy farmers. This program is the first of its kind in the nation, and is being launched with a major grant from the Danone Ecosystem Fund and Stonyfield.

Joe Tomandl from DGA in Wisconsin was on hand for the pasture walk as well as Rick Kersbergen who works for the University of Maine Cooperative Extension and is also the Maine Education coordinator for DGA.

Under the leadership of Sarah Littlefield, who is the dairy director at Wolfe's Neck and the Master Grazer at the farm, visitors learned how the cows are rotated through pasture paddocks and the fields managed to provide top quality forage to the organic grazing herd.

Wolfe's Neck Farm is located on Burnett Road in Freeport. The pasture walk began at 3:00 pm and the cows headed to the milking parlor at 4:30.

Cows headed to the milking parlor at Wolfe's Neck Farm
Photo by K. Soder

For more information, contact Rick Kersbergen at Richard.kersbergen@maine.edu

Pasture walks in Maine are supported by the Maine Grass Farmers Network (MGFN) https://extension.umaine.edu/livestock/mgfn/

H.R. 3187: PRIME Act

The summary in quotes below was written by the Congressional Research Service, which is a non-partisan division of the Library of Congress.

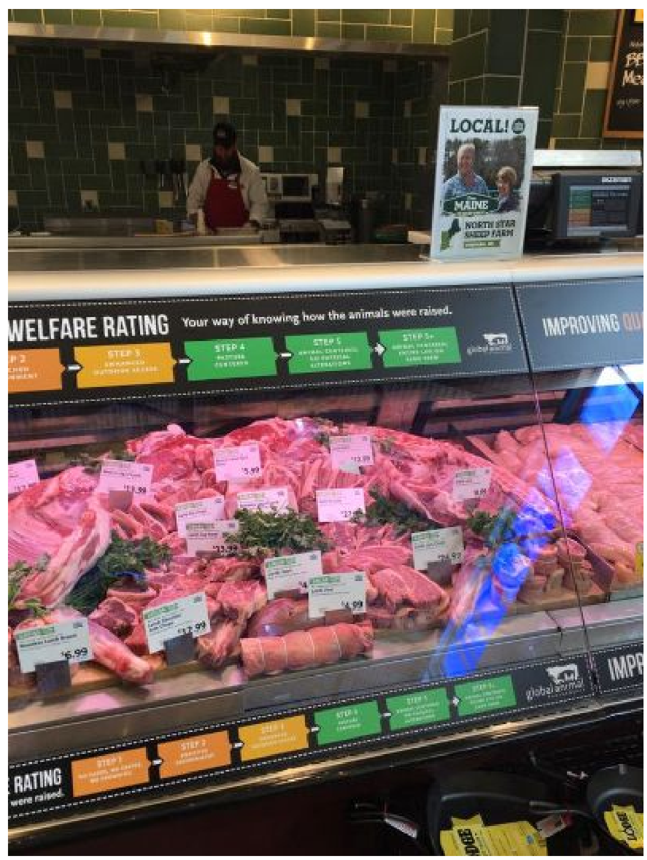
"Processing Revival and Intrastate Meat Exemption Act or the PRIME Act"

"This bill amends the Federal Meat Inspection Act to expand the exemption of custom slaughtering of animals from federal inspection requirements.

Under current law, the exemption applies if the meat is slaughtered for personal, household, guest, and employee uses. The bill expands the exemption to include meat that is:
slaughtered and prepared at a custom slaughter facility in accordance with the laws of the state where the facility is located; and prepared exclusively for distribution to household consumers in the state and restaurants, hotels, boarding houses, grocery stores, or other establishments in the state that either prepare meals served directly to consumers or sell meat and food products directly to consumers in the state. The bill does not preempt any state law concerning the slaughter of animals or the preparation of carcasses, parts thereof, meat and meat food products at a custom slaughter facility, or the sale of meat or meat food products."

On September 12, a new cosponsor, Rep. Marshall “Mark” Sanford [R-SC1], was announced by a GovTrack.us email.

The bill now has 21 cosponsors (16 Republicans, 5 Democrats). Chellie Pingree [D-ME1] and Scott Garrett [R-NJ5] are cosponsors of the bill from the Northeast Region. Thomas Massie [R-KY4] is the sponsor.



This bill was assigned to the House Agriculture Committee's Livestock and Foreign Agriculture Subcommittee on July 23, 2015, which is considering it before possibly sending it on to the House or Senate as a whole. Committee chairs determine whether a bill will move past the committee stage. It is given only a 5% chance of being enacted.

A parallel bill, S. 2651, was referred to the Senate Agriculture, Nutrition, and Forestry Committee on Mar 8, 2016. Its language is the same as H.R. 3187. It is sponsored by Angus King [I-ME] and cosponsored by Rand Paul [R-KY]. It is given a 0% chance of being enacted.

Why is this legislation important? Regulations are hurting the local production of meat for sale. Currently, meat for sale must be inspected by a USDA meat inspector. Very few small meat processors can afford to upgrade to some of those standards that in many instances are more appropriate for much larger packing plants. The smaller packing plants could produce meat safe to eat without the additional expense. With the growing demand across the country for local, grass-finished beef, there are too few USDA-approved small packing plants close to those producers. The PRIME Act under consideration in the US Congress would not require USDA inspection for in-state sales of meat. State inspection based on each state's food safety laws would prevail.

Since neither House or Senate bill is given much chance of enactment, it is time for our membership to contact our Representatives and Senators to urge them to pass this legislation. Since our Nation was founded on a federal system, a type of government characterized by both a central (federal) government and state governments that are partially self-governing. Why not allow the States to handle some of the workload by inspecting meat processed in the state that is sold in-state?

Grass-Fed Beef Production

From Alternative Beef Production Systems: Issues and Implications by Kenneth H. Mathews, Jr. & Rachel J. Johnson, USDA-ERS.

As most cattle consume forages nearly all their lives, a distinction must be made between grass-fed animals and grass-finished animals. Grass-finished cattle have grazed only on grass, pasture land, or other forages and, most importantly, have been fattened only on grass or forages to achieve adequate levels of finish to carcasses within an economically feasible time prior to slaughter. Finishing cattle on grass or forages alone requires large quantities of high-quality forages and strong operator-management skills. Otherwise, grass-fed beef is not substantially different from beef produced from culled beef cattle or beef imported for processing in that it generally lacks sufficient fat to reach an acceptable quality grade level (equivalent to USDA Select, Choice, or Prime grades).

The type and quality of forage fed to cattle affects animal weight gain and carcass characteristics. To increase an animal's weight solely on forage, the animal must have year-round access to high-quality forage. Providing sufficient high-quality forages throughout the year is physically difficult and costly in much of the United States because of the seasonal growth habits and nutrient contents of most forages. Further, cold temperatures increase energy requirements necessary to maintain an animal's normal body functions, which must be met before growth and fat deposition take place. Alternatively, during warmer temperatures, reduced feed intake presents a challenge to achieving sufficient quality while forage-finishing cattle.

Producers who market high-quality forage-finished beef have reduced variances that may occur in the product as a result of differences in genetics, forage type and quality, and/or other management practices. They accomplish this through careful attention to grazing management and often by using breeds with selected characteristics or genetics. Faucitano et al. (2008) found that, when fed to the same level of finish (8 mm of backfat), there was no statistically significant difference in tenderness scores between beef from cattle fed grass and silage and those fed grain. Another study reported, however, that feeding grain to cattle reduced the length of the feeding period by 21% (Berthiaume et al., 2006), which generally lowers per-unit production costs (see table 1).

Table 1
Summary of studies comparing conventional beef production with alternative production systems[1]

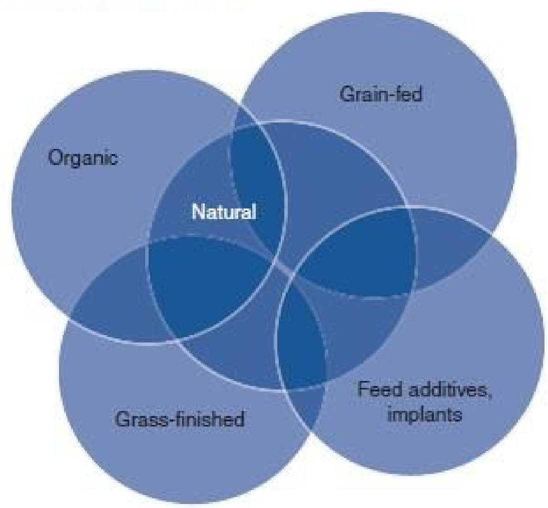
Study	Number of head in study treatment	Slaughter weight (pounds/ head)	Total days	Carcass weight (pounds/ head)	Marbling score[7]	Break-even price ($/cwt)	Profits ($/head)
Jordan et al. (2002) compares three conventional finishing systems:							
Calf-fed[2]	1,257	1,234^{s}	182^{nt}	777^{s}	497^{nt}	68.10^{nt}	-23.18^{nt}
Fast gain on pasture (1.54 pounds/day), conventionally finished	212	1,360^{s}	387^{nt}	858^{s}	555^{nt}	66.00^{nt}	21.00^{nt}
Slow gain on pasture (0.42 pounds/day), conventionally finished	160	1,254^{s}	450^{nt}	790^{s}	531^{nt}	69.21^{nt}	-20.66^{nt}
Bennett et al. (1995) compares conventional and forage finished (natural) systems:							
Forage-finished[3]	156	1,115.5	218	617	311		
Conventionally finished[3]	152	1,234. 6	176	763	367		
Fernandez and Woodward (1999) and Woodward and Fernandez (1999) compares conventional and "organic" systems:							
Conventionally fed[4,5]	12	1,273.5^{s}	163.62^{s}	790^{s}		61.55^{nt}	
Organic fed[4,5]	40	1,182.3^{s}	225.81^{s}	728^{s}		75.42^{nt}	
Lacy et al. (2011) compares conventional and natural (forage finished) systems:							
Natural[6]		1,154^{s}	432$^{s, 6}$	703^{s}	81.9$^{nt, 8}$	91.47^{s}	-16.72^{s}
Conventional[6]		1,198^{s}	414$^{s, 6}$	736^{s}	48.1$^{nt, 8}$	83.95^{s}	70.12^{s}

[1]Column and row heading terminology is consistent with each source study. "Total days" generally commence at weaning or purchase. "Conventionally finished," "conventionally fed," and "conventional" refer to the most common beef production system in which cattle are fattened for market on grain-containing rations in feedlots at the lowest possible cost while in the feedlot and may be implanted with hormones and/or administered antibiotics at subtherapeutic levels. Prices and costs within each study are consistent and comparable, but comparisons across studies will not account for differences in real or relative prices across study years or treatment details across studies.
[2]"Calf-fed" means calves were placed on feed shortly after weaning.
[3]Average of 2 years. "Forage-finished" and "natural" means cattle were fed forages until slaughtered.
[4]Some values (e.g., break-even values) were calculated from results in table 5 from Fernandez and Woodward (1999). Veterinary costs were the only costs that were not significantly different between treatments.
[5]"Organic fed" means that this study preceded the establishment of organic certification for beef, but cattle were fed according to protocols largely consistent with organic beef production standards that eventually were established.
[6]Total days = birth to slaughter (Lacy et al., 2011).
[7]Marbling: 400 = slight and 500 = small (Hale et al., 2010).
[8]In Lacy et al. (2011), value is percent grading Choice or better. Differences in percent grading Choice and percent grading Prime were statistically significantly different, but the combination of Choice or better (Choice + Prime) was not tested.
cwt=Hundredweight.
Statistical indicators: s = statistically significantly different at $P<.05$; m = statistically significantly different at $.05<m<.10$; n = no statistically significant difference; nt = not tested.

Comparing Production Systems

Beef produced and marketed with different claims may have been raised in a system that shares some production characteristics and marketable attributes with another system (fig. 2). For example, grass-finished beef may qualify as "natural" or "certified organic" as a part of a more comprehensive production system; however, grass-finished beef is not by default "natural" or "certified organic" and vice versa. Beef from an animal may be marketed as "grass/forage-fed," for example, but if given antibiotics or implanted with growth promotants, it would be disqualified from many specific "natural" beef programs and certainly from being labeled as organic. Likewise, beef from cattle raised on pastures treated with synthetic fertilizers would not qualify as organic, and beef from cattle raised naturally or organically may not have been exclusively fed forages. Grass-only production, however, can be tailored to use minimal or no antibiotics or hormones, thus reducing the potential for residues in meat or organs—which is virtually zero if proper drug label directions are followed—and, when coupled with other distinguishing criteria, can lead to grass-finished products amenable to natural or certified organic beef production systems.

Figure 2
Some beef production technologies overlap, but some are mutually exclusive



These production systems have existed for many years, so research comparing production systems is dated, and, in some cases, precedes current designations (e.g., "organic-fed" in table 1 preceded "organic beef"). Most alternative production systems differ from conventional systems only in the final finishing phase. Natural, certified organic, and grass-finished beef production systems often emphasize feeding forages to animals or grazing pastures to achieve weight gains and a level of finish[6] acceptable to the market. Some natural and certified organic beef is grain-fed. Only about two-thirds of organic beef is grain-fed because of the high costs of organic feeds compared with conventionally grown feeds (Roberts et al., 2007). Roberts et al. (2007) observed that premiums for organic feeds were 57% above conventional feeds. In some years, organic grains may only carry premiums of 25% or so, although premiums are generally much higher, sometimes more than 100% higher, which accounts for some of the difference in observed costs for organic versus conventionally fed beef (see table 1).

Morley et al. (2011) found a statistically significant difference in the number of days fed between conventionally fed (162 days) and cattle fed without antibiotics (212 days) but no differences in beginning or ending weights. Acevedo et al. (2006) demonstrated the profit advantages of shortened production periods associated with grain feeding and the impact of varying premiums on net present values from each of their simulated production technologies. Conventional grain feeding was 52% more profitable than natural grain feeding and 5.6 times more profitable than organic grain feeding, largely as a result of the high cost of organic grain. Grain feeding was more profitable than grass feeding for both organic and natural production, and natural grass feeding was the least profitable technology by a wide margin, largely as a result of the small premiums associated with its products. (Editor's note: This depends how the cattle were sold. If sold through normal channels, then this would be the outcome. Grass-fed systems need premiums 60 to 70% higher than conventional systems to generate a higher net present value [M. Smith & J. Lawrence, 2008]).

[6]"Finish" refers to the combination of frame, body condition, and fat (external, internal, and marbling) of an animal at the time it is ready to be slaughtered for beef.

In their meta-analysis of efficiency gains from pharmaceutical technologies, Wileman et al. (2009) analyzed results from 51 studies of conventional, organic, and natural beef production with untreated control groups, finding significant efficiency gains and cost reductions from the use of pharmaceuticals (mainly antibiotics and implants) in beef production. Their analysis indicated efficiency gains of 17% in average daily gain (ADG) and 9% in weight-gain-to-feed ratios (G:F) from a single hormone implant. Further results indicated a 53% reduction in morbidity and a 27% reduction in mortality from metaphylaxis (whole-group treatment with pharmaceuticals) upon the arrival of cattle at the feedlot. In their study, feeding tylosin (an antibiotic) to feedlot cattle reduced risks of liver abscesses by 8% but no consistent advantage over control groups with respect to ADG, G:F, or feed intake (dry-matter basis: DMI). These efficiency gains and other factors (e.g., organically grown grains cost more than conventionally grown grains) resulted in simulated cost advantages of conventionally produced cattle over others of $77/head (over nonimplanted control groups) and $349/head (over organically fed cattle). They also found that a 10% increase in the price of organic feed increased costs by $54/head.

Pasture Raised Lamb at Maine Butcher Shop

Alternative Beef Products and Labeling

Natural beef—The USDA definition of natural beef refers only to the product itself and not specific animal production practices. For beef to be labeled as “natural,” the product must contain no artificial ingredients or added color and must be minimally processed.[7] USDA does not require any certification standards or regulations on how the animal should be raised.[8] As a result, natural beef can be produced by conventional or other grain-feeding practices. Additional labels that convey use of a “natural” production system are largely defined and regulated by the companies or organizations that label the product as “natural.” However, naturally raised beef, produced according to the standards of a natural beef production program, generally means that the animal has not been implanted with artificial hormones or fed antibiotics, ionophores[9], or other additives. The production program of an individual or company, however, may qualify for various quality or process merits verified by USDA-Agricultural Marketing Service (AMS) Process Verified Program, which allows the producer to qualify for marketing claims that may appear on labels. (Editor's note: Website below is for grass fed only.) (See https://www.ams.usda.gov/services/auditing/grass-fed-SVS)

[7]“Minimal processing may include: (a) those traditional processes used to make food edible or to preserve it or to make it safe for human consumption, e.g., smoking, roasting, freezing, drying, and fermenting, or (b) those physical processes which do not fundamentally alter the raw product and/or which only separate a whole, intact food into component parts, e.g., grinding meat…” (USDA/FSIS, 2005). See FSIS Policy Memo 055, August 2005, Food Standards Labeling Policy Book (http:// www.fsis.usda.gov/oppde/larc/policies/labeling_policy_book_082005.pdf).

[8]Note that “On September 14, 2009, FSIS issued an Advance Notice of Proposed Rulemaking to assist the Agency in defining the conditions under which it will permit the voluntary claim “natural” to be used in the labeling of meat and poultry products. (Editor's note: This is dated. See *FSIS Compliance Guidance for Label Approval* 11/2015.)

[9]Ionophores are molecules widely used in livestock feeding that have antimicrobial properties as a result of their ability to transportions across cell membranes (e.g., Monensin and Lasalocid).

Organic beef—Marketing organic beef was hampered until 1999 when USDA approved a provisional label for organic meat and poultry (Greene, 2001). Meat and poultry fall under USDA jurisdiction, while organic crops fall under U.S. Food and Drug Administration (FDA) jurisdiction and were allowed to be labeled “organic” much earlier than meat. As a result, organic beef production prior to 1999 was often labeled as “natural,” “organic fed” (see table 1), or other designations.

Grass-fed beef—As is the case with “natural” beef, production practices of grass-finished beef depend largely on either the individual producer’s standard practices or those defined and regulated by the companies that label the product “grass-fed” or “grass-finished.” Beef from grass-fed ruminants can no longer be labeled with a “grass (forage) fed” marketing claim through the AMS Process Verified Program if fed according to USDA standards. It was rescinded on January 12, 2016. Under the old verification standard, grass or forage must be the exclusive feed source throughout the lifetime of the ruminant animal except for milk consumed prior to wean-ing. The animal cannot be fed grain or any grain byproduct prior to marketing and must have continuous access to pasture during the growing season. However, silage was an accepted feed that can consist of relatively large portions of grain. For example, corn silage, which averages 10-20 % grain, can consist of up to a third or more grain (Bates, 1998), which blurs the distinction between grain-fed and forage-fed.
(Editor's note: Above changed to reflect AMS rescission.)

The same authors continued with a section on an issue that has been of concern to the Northeast Pasture Consortium for some time, the paucity of small-scale packing plants or slaughter houses.

Slaughter and Processing Issues: "Locally" Sourced Products

Because alternative cattle production systems are often smaller, local, and dispersed operations, increasing consumer demand for alternatively produced beef has implications for animal slaughter and processing. While most conventionally produced beef is processed in large plants, beef produced from alternative systems often is processed at smaller, local facilities. Locally sourced beef products can be defined by region, company, marketing channel, and by consumer definitions, and can vary by scale of production, supply chain, and marketing outlet. "Local" can imply beef from a producer selling a portion of an animal to a neighbor to much more complex arrangements like a set of producers raising animals in a designated production system, for a local meat brand, marketed fresh on a year-round basis to restaurants, retailers, and other food service. Limitations in slaughter and processing locally sourced beef are often cited—particularly by producers—as one of the key barriers to the marketing and expansion of alternatively produced beef.

Both consolidation and attrition have occurred in the livestock slaughter sector over the last decade, and processing infrastructure is such that most livestock in the United States are processed at a relatively small number of large-volume federally inspected (FI) plants. During the last 10 years, 55% of cattle were slaughtered in plants that process 1 million or more head per year, just under 44% were slaughtered in plants that process 10,000 to fewer than 1 million head per year, and just over 1% were slaughtered in plants that process fewer than 10,000 head per year (USDA/NASS,2012). However, large plants with scale economies, even if conveniently located, are essentially unavailable to local meat producers due to mismatches in scale, services, and business models (Johnson et al., 2012).

Producers using alternative systems are not always able to provide larger lots of the uniformly sized animals preferred by larger processors, thus leaving them to rely on small-scale slaughter or processing facilities. Larger slaughter facilities also cite biosecurity issues (infectious disease transmission, traceability, etc.) for not accepting cattle from small-scale producers, who do not have the resources or organizational capacity to enforce particular standards (e.g., Crutchfield et al., 1997). Further, many larger plants that might otherwise consider working with small livestock producers find it financially infeasible to break carcasses down further than subprimal cuts. Large plants that do retail cutting typically sell the product under their own label. If they were to process small batches of custom product, they would find it labor intensive and a potential conflict of interest (Johnson et al., 2012).

Location issues also limit the viability of smaller processors. In 2009, USDA's Rural Development Agency identified areas in the United States where small livestock and poultry operations are concentrated and where there is a lack of small federally and/or State-inspected slaughter establishments in their vicinity, which can affect marketing and interstate commerce. For cattle, lack of small slaughter facilities in relation to large numbers of small farms is evident across central Texas and into Oklahoma, Arkansas, and Missouri; areas of the Southeast along the Appalachian Mountains; and numerous counties in the West (USDA/FSIS, 2010). (Editors note: They should have included the Northeast US as well.) Even in areas with a number of small appropriate slaughter/processing facilities, these facilities may not be economically feasible due to a lack of consistent throughput of cattle. Growth in small-scale slaughter and processing facilities depends on whether producers in need of these services can provide enough throughput, for enough of the year, and pay a high enough fee for the services to make such facilities economically viable. Further, lack of slaughter facilities may not always be the limiting factor for local or alternative production; quality retail cutting may be a greater challenge in some areas for local marketers considering that retail cutting is more labor intensive and therefore more costly (Johnson et al., 2012).

Alternative methods for slaughter and processing geared toward niche markets—such as local and regional market aggregators and mobile slaughter facilities—may help meet some of the need for increased slaughter and processing capacity in localized areas. In such systems, both processors and their customers can benefit from scale economies, particularly with regard to collection and sales of byproducts, as well as with efficiencies gained from using the same cutting methods for larger groups of carcasses. Further developments in structural innovations for slaughter and processing are necessary to enable the growth of alternative livestock producers marketing product to consumers in their region or community.

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The News Update Credo

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