

Grass-and Forage-Based Finishing of Beef, with Consumer Testing



Ken Peterson, on right, talks to a group at a field day

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Project Duration
1997 to 1999

Demonstrators
Tim Malone, beef, Sturgeon Lake
Ray Johnson, dairy, Kettle River

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Project Summary

This project documents the early stages of product development, education, and consumer testing of meat products for the members of the Lake Superior Meats Cooperative (LSMC). The project will gauge consumer response to LSMC meat through controlled taste test panels. This is a great opportunity for farmers to show consumers what they do and why.

Project Description

The shortage of USDA-inspected processing facilities close to Carlton County makes direct marketing of custom processed meats all the more important for the viability of local livestock production. The LSMC was developed to facilitate the processing and marketing of meats produced naturally in northeastern Minnesota. The co-op is made up of about 100 producer members. Although it eventually plans to build its own USDA-inspected facility, LSMC is currently processing members' meats in Hinckley and marketing them in Duluth as part of a marketing analysis.

This project has three components: 1) pasture analysis; 2) field days and

consumer education; and, 3) consumer taste test panels.

The goals of the pasture analysis component are to have farmers learn how to analyze the quantity and quality of pastures and to share this information with other farmers in northeast Minnesota.

Two farmers cooperators are working on pasture analysis with the assistance of Kelly Smith from the Carlton County Soil and Water Conservation District (SWCD). These farmers are:

1. Tim Malone and family of Sturgeon Lake. Tim raises about 40 head of Hereford crosses and Angus crosses on 200 acres with 50 acres in paddocks.
2. Ray Johnson and family of Kettle River. Ray raises about 100 Holsteins on 520 acres, intensively grazing on primarily grass pasture.

Field days will be held often throughout the course of the project as a way for LSMC members to show consumers how and why farmers raise their livestock the way they do. Field days are also a great way for farmers to network with each other to discuss grazing management techniques.

The consumer taste panels are a way to gauge consumer response to pasture raised meat. This testing serves to educate consumers on the benefits of pasture raised livestock and to provide producers with information about what consumers expect in taste and texture from their meat.

Results and Observations Pasture Analysis

In 1997, baseline data on pasture quality was collected on the cooperating farmers' pastures to serve as a gauge for the work conducted throughout the project. Overall pasture conditions were mostly "good" (21 to 30 points out of 40) to "very good" (31 to 40), with a range of 17 to 33.5.

Kelly Smith, a SWCD employee, reports that one result of this work was that he learned much more about livestock farming and about what is and is not practical for producers in improving pastures. Recommendations for pasture improvements that call for an extra, time-consuming trip to a pasture, for example, probably will not be adopted.

In addition, northeastern Minnesota pastures tend to be acidic and, while liming sources are available inexpensively as by-products, lime can't be incorporated into a rocky pasture and instead must be top-dressed.

In 1998, Denny Tressel, from NRCS, and Kelly Smith made six visits to the Malone farm between May 27 and November 6 and made five visits to the Johnson farm between June 30 and November 6. Field evaluations were completed at the end of the year for each of the 11 pasture fields walked at each farm. These evaluations include assessments of grassland condition and trends, soil tests, soil survey maps, estimates of forage available on September 28, 1998, and recommendations.

The pastures on the Johnson farm are established and generally productive. Ray has gained more insights into which plants do better in specific parts of the pastures. He has learned how to manage the spots that tend to be drier or wetter depending on the weather.

Tim Malone has gained an appreciation for his wilder, more mixed pasture composition, and is particularly interested in seeing whether the deep-rooted species are bringing up a different range of nutrients, which may be beneficial. In 1999, plant tissue analyses will be taken to see if he can see if there are differences in nutrient uptakes by the plants. This winter, Tim also started experimenting with feeding hay out in the field, spreading bales in strips on half the field and feeding half of it in the yard. He will be watching to see the effects of manuring and reseeding in the field. In 1999, Tim will also be working with Troy Salzer, Carlton County Extension Educator, to look at different ways of renovating land which is not suitable for tillage by using multiple techniques and combinations to improve existing species for future productivity.

The producers feel that the 40 to 50 hours of their time per year budgeted for this project was not enough to do a full

study of different pasture types and feeding regimens and then correlate those regimens with consumer acceptance. Instead, they started from square one: getting trained to assess their own pastures. They are documenting production and feeding information for the meat used in the consumer test, which gives the co-op the preliminary results that they had initially planned.

Field Days and Consumer Outreach

Three field days were held in 1997. One was designed to share information about grazing and marketing to other farmers. It was held at the Johnson and Malone farms. The other two field days were aimed at broadening the consumer outreach component of the project.

The two consumer tours were in August and September. Some of the visitors came from as far away as 60 miles. Discussion included the importance of livestock in sustainable agriculture and of bridging the gap between animal and crop production. Response to these consumer field days was enthusiastic. Many visitors phoned ahead to confirm details and were glad to have a chance to visit a farm. These visitors are looking forward to future tours.

On July 19, 1998, in nice, cooperative weather, about 60 people attended a tour at Ken Peterson's beef farm and Keith Payton's bison ranch, both near Carlton. After a lunch of the operations' meats, Ken spoke on the ethics of livestock production, his direct marketing efforts and whole farm planning, and led visitors out to the pasture to discuss

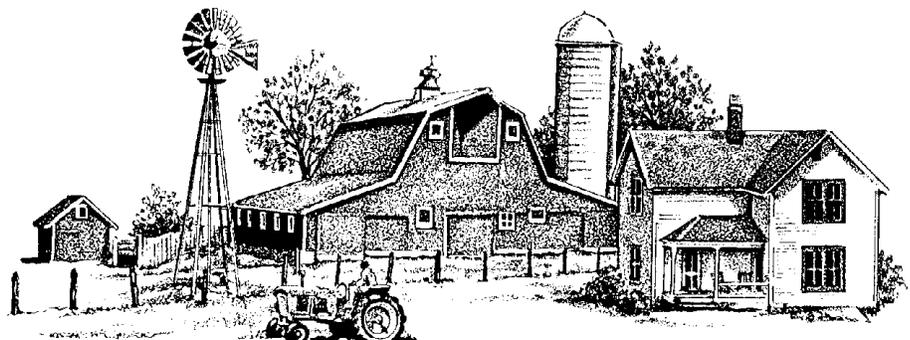
rotational grazing. Chris von Rabenau, assistant manager of the Whole Foods Co-op in Duluth, spoke on the increasing interest in "natural" meat, and Dennis Sjodin of the Minnesota Farmers Union spoke about the importance of supporting small local farmers. Visitors at the Payton ranch witnessed the animals running through a squeeze chute for a worming treatment.

The overall response to the tour was positive: one person commented that he hadn't known that good beef could be bought locally or that "chemical-free" beef existed. Visitors had more questions for Ken about cattle and cattle production than had been anticipated.

Consumer Taste Test

In early December 1997, we gathered nine people who had expressed interest in local meats to conduct a blind comparison of meat market rib eye steak with forage-finished rib eye produced by project demonstrator, Tim Malone. Participants were given a pound of co-op ground beef as a thank you.

Two steaks from each treatment were broiled on an open broiler and cooked to an estimated medium degree of doneness. Participants were presented with three 1/2" x 1/2" cubes from each treatment. Participants were asked to circle the verbal description that characterized their eating pleasure for each treatment. Forage finished steaks averaged 5.6 out of a total of 9 points; meat market steaks averaged 7.2.



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In 1998, we added the component of education into the study to help determine whether consumer acceptance of LSMC meat was greater among participants who had been educated about the way LSMC livestock are produced and about the benefits of “natural” meat, than participants who had not been. It was a test of the information used in LSMC marketing although it also provided some information on consumer acceptance of the meat itself.

On November 30, 1998, 30 people participated in the taste test. The goal, which was withheld from participants, was to test the effectiveness of LSMC marketing information. We had reasoned that comparing samples of conventional store-bought meat with LSMC meat did not really tell us what we wanted to know. We wanted to know whether we were giving people effective information about the difference between conventionally produced meat and LSMC meat. Participants were divided into two groups in two rooms. The 17 people assigned to “Group Non” were presented with two saucers with three samples in each saucer and instructed to sample them and complete the ratings form. The 13 people in “Group Ed” were given one saucer of meat, the LSMC brochure, a Sustainable Farming Association newsletter and a 15 minute presentation on LSMC. They were told that they were testing three samples of LSMC meat.

Eight 1” thick steaks from a forage-finished steer were broiled on an open broiler to an estimated medium rare degree of doneness. The steak came from a Hereford cross steer, about half British breeding with some Limousine. It was born in March 1997, weaned in November 1997 and fed on hay with a 1.5 to 2 lb corn/oat mix with trace minerals and vitamin supplement over the first winter (about 200 days). The steer was on green pasture all summer and finished, starting 60 days before slaughter, on free choice hay with five pounds of corn per day, still on green pasture. The steak was aged 20 days in

the meat processor’s cooler at 36° to 38°F. The steaks were markedly better in grade with more marbling than the ones used in last year’s taste test, which had been finished on grass with two pounds of corn per day over 45 days.

The steaks were cooked to an estimated medium rare degree of doneness because there wasn’t enough time to cook them longer. As many people are concerned with the safety of undercooked meat, the steaks should have been cooked to a medium degree of doneness. Two participants of the 30 found the samples too rare.

The steaks were cut into cubes measuring between 0.5” x 0.5” x 1” and 0.75” x 0.75” x 1”. The cubes were placed on strips of aluminum foil that had been pressed into the bottom of a glass saucer, and the aluminum foil was folded over the cubes to keep them warm. Three cubes were placed in each saucer. Each saucer was given a number and saucers were numbered consecutively.

Results of the taste test in 1998 indicated a higher level of acceptance of LSMC meat in the “educated” group than in the non-educated group. Group Ed’s ratings averaged 8.4 on a scale of 1 (low) to 9 (high), and Group Non’s ratings averaged 6.9. Group Non had been given two identical sets of samples as a bluff and the ratings for these two saucers were very close. In 78% of the ratings, the scores were equal to or less than 1 score apart.

Discussion and Suggestions for Conducting a Taste Test

Suggestions on Logistics

1. Have all aluminum foil cut and labeled beforehand.
2. Start steaks 30 to 45 minutes before test start, cut and wrap in foil, and keep in barely warm oven.
3. Have sign-in sheets for participant names and addresses in both rooms. Make pencils available on all tables.
4. Have juice, glasses and crackers in room beforehand, and let people know

whether they may go ahead and eat them.

5. Have brochures and other information in a stack ready for people when they leave, if they haven’t already received them.
6. Don’t let completed evaluation forms sit unattended. An advertising rep from a TV station was hanging around and looked through them.
7. Three people to prepare and run the test is not enough. We needed:
 - One person to cook and cut steaks.
 - One person to prepare, load and deliver saucers.
 - One person to direct participants on arrival.
 - One person for each group to keep them company while they wait for the test to start, give instructions and answer questions, collect forms (keeping them together, marking them as necessary).
 - One person to be the contact for the co-op, to answer questions that group “Non” has as they depart.

Management Tips

1. Serve locally produced food as part of a lunch or treats during a field day and advertise them that way.
2. Provide transportation. We plan to hire a church bus or some other means of helping consumers get out to the tour.
3. Arrange a panel of speakers to formally or informally address issues of food safety, nutrition, animals rights, and others of concern to consumers.
4. Plan for different non-farmer audiences: are you addressing agency people, consumers, environmentalists, etc.?
5. Publicize. Bring the media out, especially newspaper and TV, and especially if you can tie the tour to something currently in the news.
6. Design the field day with the real, immediate needs of your local producers in mind.

7. Prepare the promotional material enough in advance so it appears in extension newsletters and other producer-specific media.

8. Organization is extremely important. Although an inter-agency approach is very beneficial in the long run, it does take more advance planning than we had been prepared for, and the pasture analysis component of the project started much later than we had planned.

9. Keep the taste test simple.

10. Plan experiments modestly, and start out small, not overestimating the time that producers will be able to spend on special project work. For the long-term goals of this project, learning pasture assessment is a sound first step in improving the quality of direct-marketed meat.

Talking to consumers about sustainable products. (Sept. 1988). Food Choices, Food Choices, 30 W. Mifflin, Suite 401, Madison, WI, 608-258-4396. A project of the Organic Alliance Cooperative Development Service and the Land Stewardship Project.

The Stockman Grass Farmer, P. O. Box 2300, Ridgeland, MS 39158-2300, 1-800-748-9808. Monthly publication devoted to grazing.

To market, to market ... 'Healthy Meats' hires director. (Sept. 1998), p 2. Newsletter of the Michael Field Agricultural Institute, East Troy, WI, 608-242-9202. Mentions meat tastings in Madison, WI.

TasteTest, Toronto, Ontario. <http://www.tastetester.com/survsamp.html>. An internet site showing a helpful survey sample of a Canadian taste test.

Cooperators

Kelly Smith, Carlton County Soil and Water Conservation District

Jeff Stewart, Natural Resources Conservation Service

Jeff Arseneau, Carlton County Extension Service

Ken Peterson, NE Minnesota Sustainable Farming Association

Project Location

Various locations within Carlton County. Contact Jenifer Buckley 218-727-1414 at the Lake Superior Meats Cooperative for information.

Other Resources

National Live Stock and Meat Board. (1995). Beef Customer Satisfaction. Distributed by National Cattlemen's Beef Assoc., Addison, IL, 1-800-368-3138.

Can Grass Fed Beef Compete? (March 1998). Beef Today. From Website: <http://www.farmjournal.com>.

Pasture finished beef a hit. (Sept. 1998). Pasture Talk, Middleton, WI, 1-800-831-3782. On SARE-funded meat taste panels by Cattleana Ranch, Omro, WI.

