

**2016 Northeast Pasture Consortium Annual Conference & Meeting Agenda
March 16-17, Harraseeket Inn, Freeport, Maine**

Digestibility of Processed and Raw Milk Products

Impact of processing on the digestibility of milk

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Processing of milk by homogenization and pasteurization causes changes in the milk proteins and fats, but there is little information about whether these changes affect milk digestibility. In this study, whole and skim milk samples were processed and compared to raw milk after all samples had undergone simulated human gastric and intestinal digestion. Whole milk that had been homogenized and had the highest heat treatment (UHT) was more digestible than raw whole milk, and skim milk that had been pasteurized was more digestible than raw skim milk. Digestion also released several peptides from the milk proteins that may enhance the bioavailability of calcium. The results provide new insights into how humans digest milk.

Recycling Plastic Wrap in Livestock Agriculture

Recycling agricultural plastics has potential

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Large quantities of plastics are being used on livestock farms. Increasing amounts of plastic films are being used to improve preservation of stored feed, typically for round bale silage, silage bags and bunker silos. The benefits of plastics are large, minimizing the environmental impacts are important.

It is estimated that the average dairy uses 8 pounds of plastic per mature cow annually. Traditional waste disposal is often expensive. Burning of plastics has been common; this has environmental, health and legal issues. Many of the plastics are recyclable and can be made into new products or processed into an average of one gallon of diesel fuel per mature dairy cow.

The NY Recycling Agricultural Plastics Program (RAPP) is working to integrate agricultural plastics into NY's recycling infrastructure. RAPP assists with farmer education, collection and

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marketing of agricultural plastics. Since 2009, nearly 4 million pounds of agricultural plastics have been recycled from New York farms.

Climate Change Impacts on Pasture Management

Educating farmers on soil management amid climate change

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The New York Grazing Coalition (NYGC) and Cornell Cooperative Extension have partnered with the National Grazing Lands Coalition to bring a National Conservation and Innovation Grant funded Soil Health Trailer to New York. The Trailer is equipped with a rainfall simulator and other technical demonstration tools that are intended to disperse the understanding of soil health. NY Soil Health Trailer events are tailored to the needs and challenges of NY grazing livestock producers.

Stocking rate affects net income and drought management

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Livestock producers often think that they make the most money when they ship the most calf weight off the farm. However, when economics and risk management are concerned this is not the case. The economic view is of net income not just the check received for the calves. Risk management addresses the issue of what happens in a dry versus an average year. The following West Virginia case study can be useful in looking at the interplay of stocking rate, calf gain, economics and risk management.

A cow-calf farm was destocked due to a major drought in 1999. Over the following four years the farm was gradually restocked from 22 to 32 cows on the 90 acres of hay and pasture land. This acreage provided all the grazing and winter feed for the herd. As stocking rate increased calf sale weight decreased from 655 to 569 pounds per head. This linear decrease in sale weight per head as stocking rate increased was similar to that documented in numerous research studies.

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To calculate gross and net receipts calf sale price was on a slide from \$1.45/lb. for light weight to \$1.41/lb. for heavy weight calves. Cash cost per cow was \$315 to cover worming, fly control, vaccinations, mineral and other cash expenses per cow-calf pair. A fixed whole farm annual cost of \$3600 was set for harvesting hay, bush hogging pastures, fence repair, utilities, taxes and other fixed expenses. These values are averages for the case study farm and will differ from other farms based on local management practices.

When sale weight per head and total sale weight were extrapolated past 30 cows, maximum gross receipts would be achieved with 45 cows (Table 1). Prior to destocking, the farm supported 40 cow-calf pairs with some imported winter feed. When cash costs per cow were used to calculate net cash income, the economic optimal stocking rate was reduced to 35 cows (Table 1, Relative Net Income of 1.00). However, if stocking rate were reduced to 30 cows (86% of the optimum) net income would only decrease 1%. Annual forage yield in West Virginia varies with 2- out of 3-years having yields within $\pm 25-30\%$ of average. *Thus, by stocking cows at 86% of the economic optimum, net income would be reduced by 1%, while forage production would be adequate for the herd 70% of the time.* This demonstrates the value of stocking the farm below the average economic optimum as a management tool to reduce the risk of drought. Doing so, the cow-calf herd will have adequate forage 7 years out of 10 reducing the need to sell cows, purchase hay, and reducing the risk of overgrazing pastures. *It is very close to the old western adage of stocking the range at 85% of carrying capacity protects you from drought 85% of the time.*

(Editor's Note: My addition of the blue highlighting to emphasize lesson learned.)

Table 1. Impact of stocking rate on observed and projected calf sale weight, calf value per head, gross receipts, cash costs, net cash income, and selected relative values.

Calf Sale Wt.	Calf Value/ Hd †	Gross Receipts	Cash Costs ‡	Net Income	Rel. Stocking Rate	Rel. Gross Receipts	Rel. Net Income
657	\$926	\$18,516	\$9,900	\$8,616	0.56	0.69	0.79
608	\$860	\$21,503	\$11,475	\$10,028	0.72	0.80	0.92
559	\$794	\$23,834	\$13,050	\$10,784	0.86	0.89	0.99
509	\$729	\$25,509	\$14,625	\$10,884	1.00	0.95	1.00
460	\$663	\$26,527	\$16,200	\$10,327	1.14	0.99	0.95
411	\$598	\$26,889	\$17,775	\$9,114	1.28	1.00	0.83

† Price of calves used a linear decline from light calves priced at \$1.45/lbs. to heavy calves priced at \$1.41/lbs.

‡ Annual variable cost/cow was \$315, with a fixed cost of \$3600

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Using Annual Forages for Pasture and to Improve Soil Health

**Adding brassicas to northeast grazing swards for nutrition and
remediating soil health damage**

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NE SARE and NIFA Organic Research Extension Initiative funded a 2-year project to explore methods to introduce different species of brassicas into existing grazing swards. The intended outcome was to establish methods of planting that would provide farmers with reliable ways to include brassicas to their pastures for the late grazing season nutrition benefit and remediation of compaction in their soils.

Promoting Pasture-Based Farming

UVM Extension's Pasture Program Highlights from 2014-2015

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The goal of the UVM Center for Sustainable Agriculture's Pasture Program is to promote and enhance sustainable grass-based livestock farming through improvements in soil, water and forage quality, and profitability. We seek to provide this by working with farmers and other partners to provide research, information (including our Pasture Calendar), educational opportunities (including grazing workshops and the Vermont Grazing & Livestock Conference), and technical support.

The Center's Pasture Program was established in 1996, as a partner in the Vermont Pasture Network with USDA Natural Resource Conservation Service Grazing Lands Conservation Initiative and the Vermont Grass Farmers Association. The Pasture Program provides staff support to Network activities, as well as pursuing independent research and education.

Our primary purpose is to carry out research to help farmers stay at the leading edge of sustainable practices. We support farmers by offering practical guidance, various forms of technical assistance, education, and outreach. As you would expect, research is primarily situated on farms throughout the state, matching leading-edge practices and inquiries with innovative farmers.

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Our current research is focused on:

- soil quality impacts of farming methods,
- pasture species trials,
- community biomass production,
- winter grazing, and
- equine pasture management.

Can we help your farm? Do you have pasture-related research to propose? Contact Jennifer Colby, Pasture Program Coordinator, at (802) 656-0858 or by email: jcolby@uvm.edu.

