

The Prospects for Pasture-based Agriculture in Michigan: Overview of Findings

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The pasture-based model of livestock production can bring a broad array of benefits to farmers, consumers and their communities. Over the past three years, members of the Mott Group have been conducting research on pasture-based agriculture and its prospects in Michigan, with a key question in mind: is there potential to expand the market for these products? Based on our findings, we believe that there is unmet demand for pasture-raised products. We advocate a series of initiatives, including consumer education, development of alternative supply chains and greater attention from public scholars and policy makers, which would increase consumer awareness and product availability, and better coordinate supply and demand of these products. This report is a summary of findings: these issues are discussed in greater length and detail in the studies cited below. This paper presents an overview of findings for a scholarly audience; a research brief (1) provides a synopsis for a wider audience.

What is pasture-based agriculture?

We know of no standard or universally accepted definition of pasture-based (PB) agriculture and pasture-raised (PR) products, nor a clear demarcation between them and the more common conventional or confinement raised livestock system and products. The most important distinctions are two-fold:

- ✓ the animals spend their lives outdoors, on pastures (barring birthing, inclement weather and other limited circumstances).
- ✓ in the case of ruminants, the animals forage for significant portions, if not all, of their diets. Other species (e.g., swine and poultry) may also get some portion of their diets from pastures but also require grain and other feed.

Many pasture-based operations utilize managed intensive rotational grazing (MIRG) as a management strategy. Michigan pasture-based farmers commonly forgo the use of added hormones and sub-therapeutic antibiotics, adhering to a more “natural” production philosophy. This system is widely seen as being more humane than the confinement system. Finally, some studies find PR products have enhanced human nutrition and health benefits.

How would greater prevalence of this model contribute to sustainability?

Economic sustainability

Our recent literature review (2) found that PB dairy operations generally operate with lower costs and achieve higher profits per animal and per hundredweight of milk, compared with confinement operations. Reliance on grass-based feed may also help farmers better manage risk in grain supply and price as increasing amounts of field crops are used in bio-fuel production. PB farms often require lower start up investment and debt, making this model favorable for many beginning or transitioning farmers. By offering a viable income at a scale which can be managed by family labor, this model can foster the viability of small and medium scale family farms. Diversity of farm scale has been repeatedly cited as vital to the social and economic well-being of rural communities.

Social sustainability.

In addition to its potential to foster farm scale diversity, the PB model affords high quality of life to farmers and provides an alternative to Confined Animal Feeding Operations (CAFOs). Two studies from Wisconsin find that dairy farmers utilizing MIRG report a higher overall quality of life than other types of dairy farmers. While CAFOs are associated with community disputes, driven in part by community health problems, environmental pollution and decreased property values for residential neighbors, Michigan PB farmers commonly say that their operations do not generate complaints, and neighbors are often enchanted by the sight of their grazing animals.

Ecological sustainability.

Many studies suggest pastures have ecological benefits when compared to row crops, the principal feed sources for confinement operations. PB systems have been found to promote ecological sustainability in four ways: they create less sediment erosion and phosphorus runoff, while offering greater biodiversity and carbon sequestration. (2).

Is there really potential for growth in the market for these products?

We have completed a series of three studies that we believe demonstrate great growth potential for these products. First, we conducted intensive interviews of farmers, processors and others engaged in the market for these products. Next, we used a statewide poll to measure Michiganders' preferences and beliefs about livestock product characteristics. Finally, we conducted consumer research at three area retail sites and conducted experimental auctions. Together, these studies build the case for greater engagement from policymakers, public scholars and business people.

Our interviews (3) found a small but dedicated community of farmers, processors and buyers who are bringing these products to consumers. In many ways the farmers embody the essence of sustainable food systems: family farmers, selling natural products to local

markets, and practicing animal and ecological stewardship. The farmers promote their products on these bases and on the relationships with their consumers based in part on these shared values. Several farmers mention needing help with communicating with consumers and promoting their products.

The statewide poll (4) revealed that Michigan residents place great importance on attributes associated with PR products and the farmers who produce them (Table 1). About 80% of respondents also believe these products are healthier for consumers. Michiganders also believe, almost certainly in error, that they are already buying these products. When asked why they do not consume more of these products, they cite an inability to identify these products as different from confinement raised, and a lack of product availability.

Consumer research found that many consumers associate pasture-raised products with favorable attributes. We surveyed shoppers at three Michigan retailers which sell PR products. Large majorities agreed with statements that PR products are more humane, better for human health and for the environment than are confinement raised products (Table 2). More than 90% said that, given the opportunity, they were very or somewhat likely to purchase pasture-raised milk and beef. These shoppers also reported they were willing to pay, on average 41% more for pound of PR beef and 35% more for a gallon of PR milk. The price premiums for PR milk were also supported by a series of three experimental auction, in which participants bid on average \$0.73 more for a half gallon of PR milk than for conventional milk.

How do expand this market?

These findings suggest several initiatives that could enhance the market and increase the sustainability of livestock agriculture, by increasing consumers' ability to identify and access pasture-raised products

- Consumer education and product promotion. A campaign to educate consumers about the features and benefits of PR products, and efforts to assist consumers in identifying and locating them, is a vital first step in meeting consumer demand. A label and certification system may be needed to prevent fraudulent claims.
- Alternative supply chains. Models such as “values-based value chains” hold great promise for facilitating small and medium scale farmers' access to broader market channels while preserving information about how and where products were grown (3).
- Engagement by public scholars. Our research leaves many unanswered questions:
 - What consumer education efforts would be most effective? Would this differ if implemented on local, regional or national levels?
 - Under what circumstances and management practices are the environmental, economic, social, human health and animal welfare benefits of PB production maximized or enhanced versus diminished? How should these findings be communicated to consumers wishing to better express their values in the marketplace?

- Public policy. In addition to encouraging and funding scholarship, the development and oversight of standards, labels and third party verification may be an appropriate role for government. A legal definition may also increase consumer knowledge and confidence. Care must be made, however, to avoid the industrialization and commoditization that has accompanied US Department of Agriculture's National Organic Program.
- Other research and policy needs are discussed in the proceedings of the Animals in the Food System Conference (5).

What constraints may remain?

Even with the initiatives discussed above, PB agriculture faces constraints on both the supply and demand sides that will be difficult to address, including:

- Seasonality. Particularly in the case of ruminants, production cycles follow pasture growth. Many dairy graziers calve their herds seasonally, leading to potential supply shortfalls in certain months. Ruminants raised for meat generally reach slaughter weight on the fall, leading to glut (and low prices), (expensive) overwintering on hay or selling frozen products (when markets favor fresh products).
- Flavor and texture. Most consumers are more accustomed to grain-fed meats. PR products, while favored by some, are perceived by many as being tough, stringy and gamey. Meat grading standards also favor grain fed animals.

For More Information

(1) Conner, D. (2007). *Research Brief: Pasture-based Agriculture*.

<http://www.mottgroup.msu.edu/portals/mottgroup/PastureBasedResearchBrief.pdf>

(2) Conner, D., Heller, M., Cocciarelli, S. and Hamm, M. (2007). *Opportunities in Grazing Dairy Farms: Assessing Future Options*. C.S. Mott Group Occasional White Paper.

<http://www.mottgroup.msu.edu/Portals/mottgroup/Opportunities%20in%20Grazing%20Dairy%20Farms.pdf>

(3) Conner, D. and Hamm, M. (2005). *Adventures in Pasture-based Agriculture: Opportunities, Obstacles and Outlook*. Presented to the Agriculture, Food and Human Values Society annual meeting, Portland, OR, June 2005.

<http://www.mottgroup.msu.edu/portals/mottgroup/downloads/Adventures%20in%20Pasture-based%20Ag%20paper.pdf>

(4) Conner, D. "Marketing Strategies for Pasture-Raised Pork." Presented at the 2006 Niche Pork Conference, Michigan State University Extension, Kalamazoo, MI, February 17, 2006.

<http://www.mottgroup.msu.edu/portals/mottgroup/downloads/Marketing%20Strategies%20for%20Pasture-Based%20%20Animal%20Products.pdf>

(5) Conner, D., Hamm, M., Smalley, S. and Williams, D. (2005). Pasture-based Agriculture: Opportunities for Public Research Institutions.
http://www.mottgroup.msu.edu/portals/mottgroup/animals_in_food_files/AITFS_proceedings.pdf

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Appendix

Table 1. “When Purchasing Animal Products, How Important are the Following Attributes?”

Rating of animal product attributes by Michigan consumers (n=988) using a 5-point Likert-type scale Note that percentage values may not add to 100 due to rounding.

Attributes	Responses				
	Very important	Somewhat important	Neutral	Not very important	Not important at all
Environmentally friendly	65%	28%	2%	4%	1%
Humane treatment	63%	29%	2%	4%	3%
Raised without hormones or antibiotics	63%	24%	3%	7%	3%
Raised on a family farm	30%	33%	4%	25%	9%
Raised in Michigan	23%	29%	3%	27%	18%
Knowing the farmer who raised it	17%	17%	2%	32%	32%

Table 2. “Compared to confinement-raised products, pasture-raised products are...”

Shopper (N=253) beliefs about pasture-raised products, using 4 point Likert-type scale. Note that percentage values may not add to 100 due to rounding.

Beliefs	Responses			
	Strongly disagree	Somewhat disagree	Somewhat agree	Strongly agree
Healthier for people to eat	2%	2%	41%	56%
Produced in a more environmentally friendly way	1%	4%	25%	69%
Better for animals' welfare	2%	2%	16%	80%