MICHIGAN LIVESTOCK PRODUCER CAPACITY ASSESSMENT

FINAL REPORT

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MICHIGAN STATE UNIVERSITY | Center for Regional Food Systems

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CONTENTS

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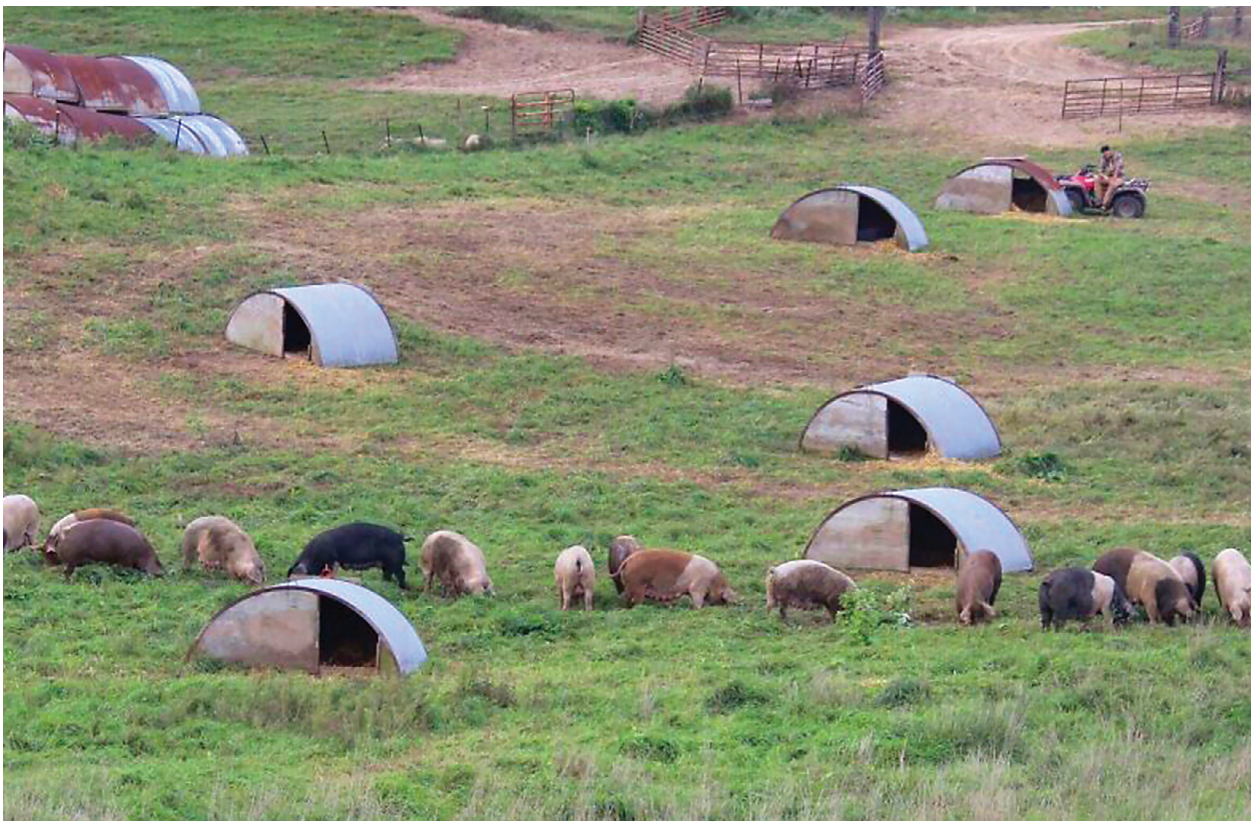
EXECUTIVE SUMMARY

A survey of livestock producers in Michigan was conducted to better understand their interest and capacity to serve demands for local meat products. Despite limited responses to the mail-in survey (*N* = 303) a number of trends were observed in the data that helped draw conclusions on the general picture of a subset of the Michigan livestock producer industry.

Of those surveyed, trends show that:

- Livestock production units are small and are mainly raising grass-fed livestock (with the exception of hogs).
- As many producers are profitable as are not profitable.
- Processing is not a major challenge for those surveyed, although working with processors and producers to improve advanced scheduling would help with streamlining the industry.
- Producers are marketing their products locally. Those that are currently not branding their products as local have a high level of interest in doing so.
- Many of the livestock owners are already selling directly but are interested in investigating new market channels to increase income and simplify sales.
- Some of the producers had interest in a livestock broker or market agent to support increasing sales in new market channels.

The survey findings indicate that diversifying local marketing opportunities for livestock producers may be one strategy to help improve profitability and sustain livestock production in the state of Michigan.



STUDY OBJECTIVE

The demand for locally produced meat has increased over the last few years, but this increase in demand is not necessarily being met due to bottlenecks in the value chain (Torres et al, 2015).[1] The Michigan State University (MSU) Center for Regional Food Systems (CRFS) Livestock Work Group identified, in working with stakeholders across the value chain, the need to better understand the capacity of livestock producers and meat processors to meet the demand of locally produced meats.

In 2014 and 2015 respectively, the "Michigan Meat Processing Capacity Assessment Final Report" (Schweihofer et al., 2014)[2] and a corresponding infographic paper, the "Michigan Red Meat Survey 2014 – A visual guide to responses to our Michigan Meat Processing Capacity Survey" (Bielaczyc et al., 2015)[3] were released. These papers described the geographic distribution and demographics of processors, their inspection status, where product is sold, and the challenges that processors encounter in their business operations.

This paper is a companion piece to the processing capacity survey and reports on a survey conducted in the summer of 2015 with Michigan's livestock producers. The objectives of this study were to assess the production capacity of livestock producers in Michigan, how producers get their animals processed, their interest in exploring new markets for their meat products, and future plans they have for their business.

With a low response rate, the data collected could not be analyzed with confidence to make strong conclusions of the state's livestock production capacity. However, the data provided insights into trends in production, processing, and marketing that may be helpful in identifying producer needs, developing livestock education programs, and strategic planning for the future. The data collected in this survey may inform local and statewide strategies to develop robust network structures and public-private partnerships to improve the connectivity of regional meat value chains based in Michigan. It may also be of interest to other states as they review the capacity of their livestock industry and develop regional research, education, and outreach programs.

This data provides insights into trends in production, processing, and marketing that may be helpful in identifying producer needs and strategic planning.

1 Torres, H., Barry, J. & Pirog R. (2015) *Before we seek change is there a demand for local meats?* Michigan State University Center for Regional Food Systems. Retrieved from: http://www.canr.msu.edu/resources/demand_for_local_meats_review

2 Schweihofer, J., Wells, S., Miller, S., & Pirog, R. (2014). *Michigan Meat Processing Capacity Assessment Final Report.* Michigan State University Extension and the Center for Regional Food Systems. Retrieved from: https://www.canr.msu.edu/resources/mi-meat-processing-report

3 Bielaczyc, N., Schweihofer, J., Miller, S. & Pirog, R. (2014). *Michigan Meat Processing Infographic Report.* Michigan State University Center for Regional Food Systems. Retrieved from http://foodsystems.msu.edu/resources/michigan_meat_processing_infographic

METHODS

A survey of Michigan livestock producers was conducted in the summer of 2015. Survey questions were developed by members of the Michigan State University Livestock Work Group, an organized group of MSU and MSU Extension faculty and staff that have a mutual interest in developing local and regional meat value chain systems. Questions that were outlined in the survey fell broadly under four different categories:

- Livestock production practices
- Harvesting and processing livestock
- Assessing markets/buyers
- Business growth and sustainability

An electronic version of the survey was developed on Qualtrics (software company; qualtrics.com) and hard copies were printed for mailing.

The population frame was based on a database of Michigan lamb (n = 1681), goat (n = 3120), pork (n = 2565), and beef (n = 10402) producers provided to the research team by the Michigan Department of Agriculture and Rural Development (MDARD). The addresses provided were put through a USPS deduping process to eliminate addresses of people who were no longer there or inaccurate addresses. Due to the sheer size of this pool of potential survey participants, a random sample of producer names was selected to receive the survey in the mail. With the desire to attain a 5% confidence interval in the data and accounting for expected valid address rate (90%), expected eligibility rate (95%), and expected cooperation rate (27%), surveys were mailed to a total of 1,295 sheep, 1,473 goat, 1,473 pork, and 1,624 beef producers. This was a disproportionately stratified random selection based on species; 0.770 for sheep, 0.472 for goats, 0.574 for hogs, and 0.156 for beef to attain a 5% confidence interval for each with the anticipated rate of return. A reminder duplicate mailing of the survey was sent approximately three weeks after the first mailing. A total of 303 surveys were returned with suitable data to process. While a 23% response rate was anticipated, only a 5% total response rate was established. Of the 303 surveys returned, 163 were beef producers, 87 were hog producers, 100 were sheep producers, and 75 were goat producers. Some of the surveys indicated that livestock producers owned more than one species. All surveys returned by mail were manually entered into Qualtrics. An additional 57 were returned that indicated they were no longer farming livestock or were deceased. Respondents were not required to answer each question, so there was a number of responses on any one question that may not have totaled 303.

Data were transferred from Qualtrics and analyzed in SPSS, a statistical software from the IBM Corporation, to develop summary statistics with mean and standard deviation of response for each species in each question.

RESULTS

The survey questions that were developed were split into four different sections:

- Livestock production practices
- Harvesting and processing of livestock
- Assessing market/buyers
- Business growth and sustainability

The results are presented for each section below.

Livestock Production Practices

Species numbers owned and sold

Farmers responded to the survey indicating the numbers of animals they owned and sold for meat in 2014. Table 1 shows the mean and range for numbers of animals for each species. It is clear that there is a large range in numbers owned for each species, but the mean number of head owned and sold for meat tended to be low and indicated that that the majority of producers that responded to the survey were owners of small operations. Multiple survey respondents owned more than one species of livestock. United States Department of Agriculture Census data (2012) concur that the majority of livestock production facilities in Michigan own small numbers of animals. Based on the number of Michigan livestock recorded by species in the 2012 Census,[4] the number of animals that we recorded in this survey represent 4.4% of the Michigan beef population, 6.5% of the Michigan hog population, 9.0% of the Michigan sheep population, and 4.3% of the Michigan goat population.

Table 1:
Mean Number of Beef Cattle, Hogs, Sheep, and Goats Owned, Raised, and Sold

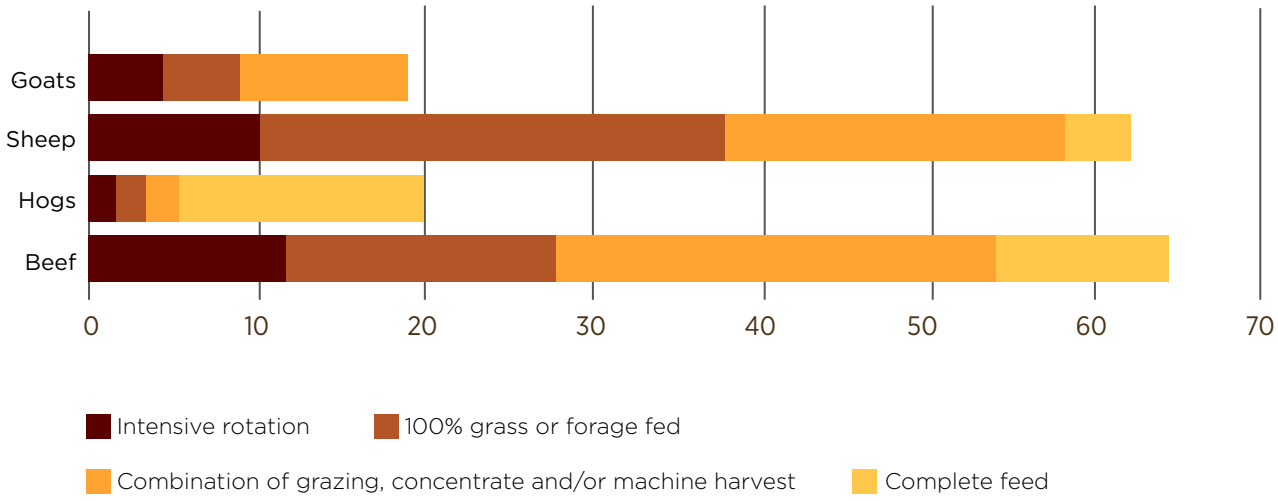
ANIMAL	HEAD OWNED	FEMALES OWNED	REPLACEMENT FEMALES	FEEDERS	HEAD SOLD FOR MEAT
Beef cattle	50 (*SD* = 172; *N* = 163; range 0-2,000)	23 (*SD* = 88; *N* = 138; range 0-1,000)	9 (*SD* = 46; *N* = 125; range 0-500)	42 (*SD* = 264; *N* = 135; range 0-3,000)	33 (*SD* = 249; *N* = 146; range 0-3,000)
Hogs	2269 (*SD* = 9757; *N* = 87; range 0-60,000)	502 (*SD* = 1839; *N* = 62; range 0-12,000)	250 (*SD* = 1503; *N* = 53; range 0-10,800)	2819 (*SD* = 10,883; *N* = 49; range 0-53,000)	3,628 (*SD* = 18,838; *N* = 64; range 0-120,000)
Sheep	82 (*SD* = 257; *N* = 100; range 0-2,000)	54 (*SD* = 145; *N* = 84; range 0-1,000)	13 (*SD* = 33; *N* = 82; range 0-250)	53 (*SD* = 155; *N* = 71; range 0-1,000)	63 (*SD* = 194; *N* = 85; range 0-1,300)
Goats	14 (*SD* = 27; *N* = 75; range 0-160)	12 (*SD* = 12; *N* = 54; range 0-114)	4 (*SD* = 6; *N* = 46; range 0-26)	6 (*SD* = 15; *N* = 40; range 0-70)	6 (*SD* = 13; *N* = 49; range 0-60)

4 United States Department of Agriculture Census of Agriculture (2012) Chapter 1: State Level Data for Michigan, *2012 Census Volume 1.* Retrieved from https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_State_Level/Michigan/

Feeding practices

When asked about feeding practices, it was evident that ruminant producers (producers of beef cattle, sheep, or goats) who responded to the question predominantly either graze 100% grass or forage, or a combination of grazing, concentrate, and/or machine harvest. Fewer respondents fed with intensive rotation or complete feed. In contrast, the majority of monogastric hog producers responded as feeding with a complete feed (Chart 1).

Chart 1:
Mean Number of Respondents That Indicated Their Feeding Practices by Species



Acreage used for pasture feeding

A portion of the producer survey respondents estimated the acreage they used for feeding their animals on pasture (Table 2). There were considerable ranges of acreage used for feeding pasture, but as with the mean number of animals owned by producers, the mean acreage was markedly lower than the range, indicating that respondents to the survey were predominantly small producers.

Table 2:
Mean Acreage Used for Feeding Different Species on Pasture

	BEEF CATTLE	HOGS	SHEEP	GOATS
Mean acreage	57 (*SD* = 127; *N* = 106; range = 0-1200)	42 (*SD* = 84; *N* = 22; range = 0.25-300)	26 (*SD* = 53; *N* = 64; range = 0.25-300)	11 (*SD* = 29; *N* = 30; range = 0.5-160)

Harvesting and Processing of Livestock

Producers were surveyed about the distance they needed to travel for processing, how they transported their livestock, what type of processing facility they used, and what potential challenges they encountered when arranging for their livestock to be processed. The following presents the responses.

Transportation of livestock

Producers were asked if they hired someone to transport their livestock for processing and the majority (60.1%) did not (Chart 2). However, 24.1% of the respondents did hire someone either full (17.2% of respondents) or part time (6.9%) to transport their live animals. In addition, 47.4% of those respondents hiring transportation assistance on a part-time basis indicated they did so 26-50% of the time.

When asked about the distance they traveled, the majority of producer respondents (61.4%) transported their animals fewer than 50 miles to the slaughter or processing facility (Chart 3). A little over 5% of the respondents transported their livestock more than 100 miles to slaughter or processing facilities.

Chart 2:
The Percentage of Producer Respondents That Hire Transportation of Their Livestock to the Processing Facility

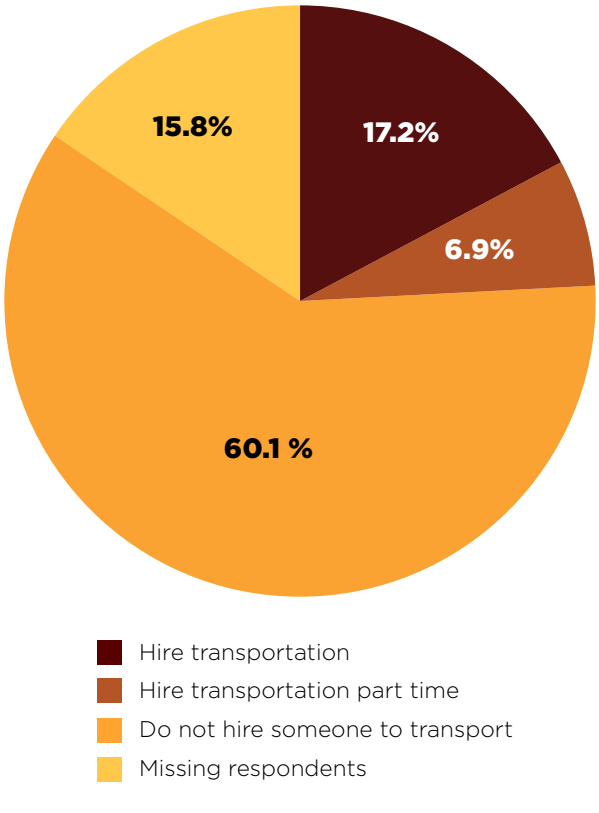
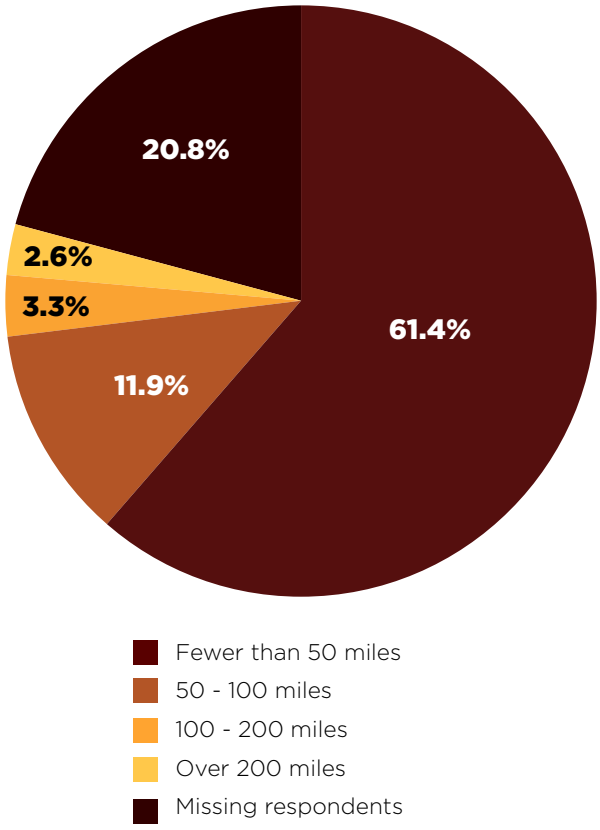


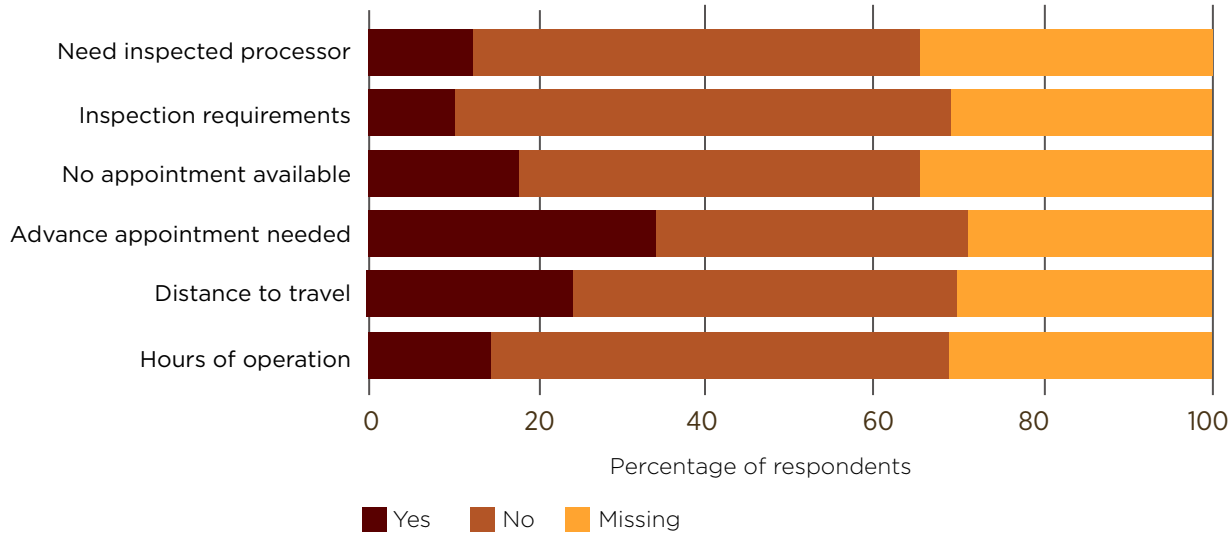
Chart 3:
The Distance Respondents Traveled to Transport Their Livestock to the Slaughter or Processing Facility They Typically Use



Challenges in getting livestock processed

Chart 4 shows challenges producer respondents faced in getting their livestock processed. Of the respondents, 23.8% indicated that distance to travel for processing was a challenge. Nearly half of respondents (46.5%) indicated that distance to processing was not a challenge to their business. Nearly one third (32.7%) of respondents indicated that making advance appointments for processing was difficult for them, with 37.6% responding that it was not. Nearly 20% of respondents stated that appointments were not available to them. Others stated that inspection requirements were a challenge (9.9%), and they were in need of an inspected processor (11.9%).

Chart 4:
Challenges Producer Respondents Faced in Getting Their Livestock Processed



Processing facilities used

Producers were asked which type of inspected facilities they use for slaughtering and processing their animals. When answering the survey, they could respond yes to more than one option. The results of the survey showed that more producer respondents use USDA-inspected slaughter/processing facilities than custom exempt slaughter/processing facilities and retail-exempt food establishments. The results can be found in Table 3.

Table 3:
The Percentage of Respondents Who Do or Do Not Use Different Slaughter and/or Processing Facilities

SLAUGHTER/PROCESSING FACILITIES	DO USE	DO NOT USE	NO RESPONSE
Retail-exempt food establishments (Michigan Department of Agriculture and Rural Development; MDARD-inspected)	4.3	55.4	40.3
USDA/FSIS-inspected slaughter facility	42.6	26.4	31.0
USDA/FSIS-inspected processing facility	38.0	29.4	32.7
Custom-exempt slaughter/processing facility	24.4	41.3	34.3

Assessing Markets/Buyers

In order to better understand the capacity of the livestock in Michigan, it was important to understand where producers are currently marketing their livestock and meat.

Do producers sell their livestock directly to consumers or other local or regional buyers?

Of the survey respondents, 64% sell their livestock and/or specialty meats directly to consumers or other local or regional buyers, while 32% do not, and 4% did not respond.

Current markets and potential markets of interest

When asked about specific markets that they currently sell into, producer respondents stated that they mostly sell directly to consumers compared to other market channels such as retail markets, processing plants, restaurants, community-supported agriculture (CSA), specialty grocers/ local butchers, wholesale distributors, food hubs/ aggregation businesses, out-of-state markets, and farmers markets (Chart 5). The number of respondents that sell into different market channels is not high. Of the highest, approximately 10% of respondents sell to processing plants, and 9% sell to specialty grocers/ local butchers. Wholesale and retail markets comprise approximately 6% of the respondents that sell into these market channels. Less than 6% of respondents to the survey sell to restaurants, CSAs, food hub/ aggregation businesses, and farmers markets.

If producers were not selling to specific local and regional market channels, they were asked if they would like to sell into the different market channels. They were given "yes," "no," or "maybe" options to each market channel. Of respondents that were not already selling to specialty grocers/ local butchers, 42.3% were either definitely or maybe interested in marketing to them in the future, 34.6% of respondents were interested in selling to farmers markets, and 34% to CSAs. Chart 6 highlights that more than 1 in 4 producer respondents that were not already selling to specific market channels were interested in selling to these markets, with the exception of out-of-state markets and direct sales to consumers.

Chart 5:
Markets Livestock Producers Are Selling Into

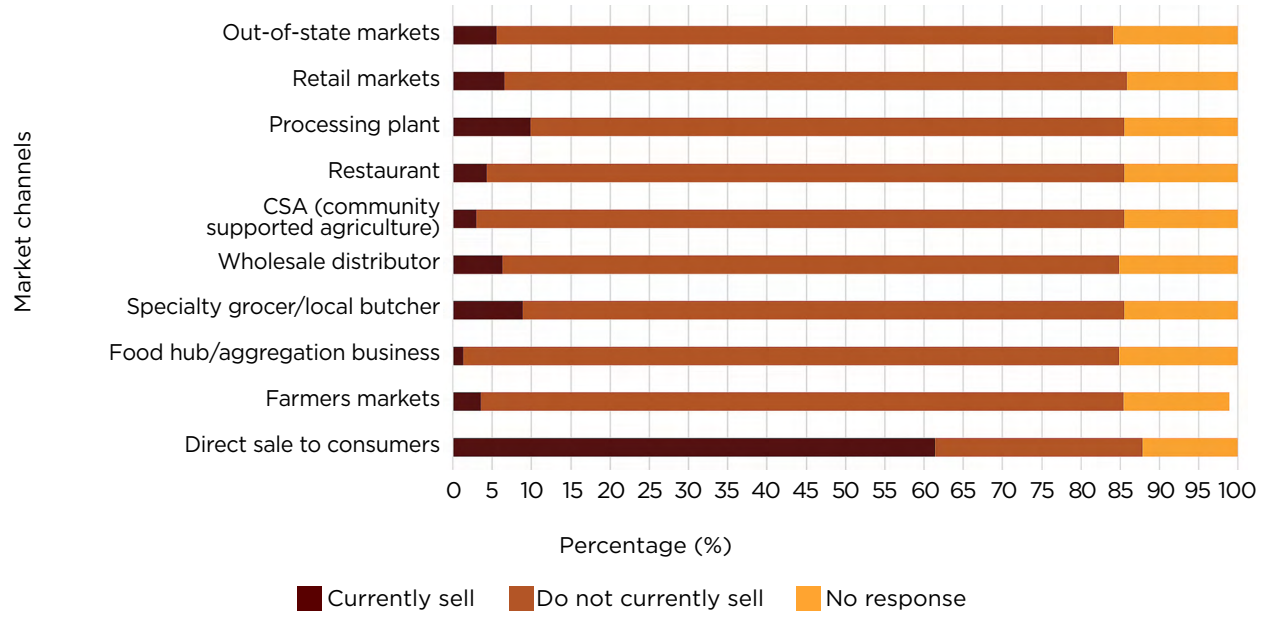
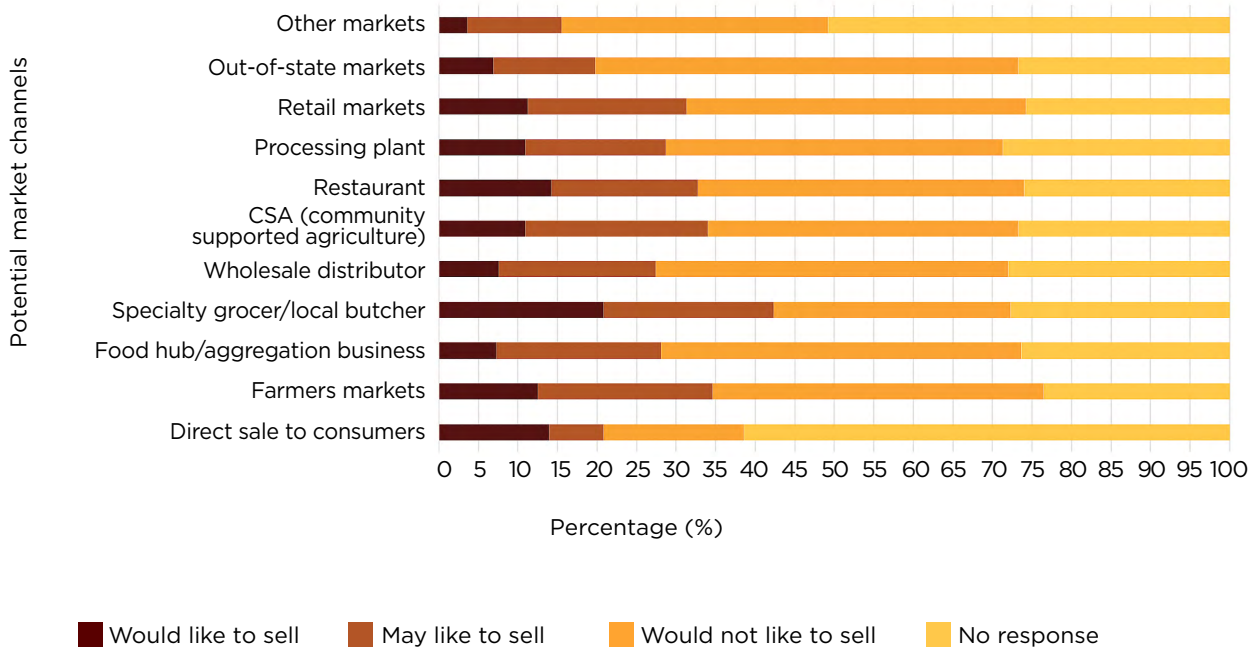


Chart 6:
Producer Interest in Market Channels They Are Not Currently Selling Into



The main reason people were interested in selling into new markets was to increase their net income (53.1%), although many also stated that they were interested in promoting their business through local business (43.2%) and simplifying sales (32.7%).

One of the challenges identified by producers when selling directly to consumers is that consumers may want certain cuts of the animal and, consequently, selling the whole carcass is a challenge (Barry and Pirog, 2013).[5] Producers that sell directly to the consumer currently were asked in this survey if they have difficulty selling the whole carcass. Fourteen percent of respondents to the survey indicated that they found it difficult to sell the whole carcass, but in the majority of cases, producers that responded to this survey who sell directly to consumers do not have difficulty selling the whole carcass (50.2%).

When asked if they would like to work with a livestock broker or marketing agent, 36% of the producer respondents to this survey indicated they would have some interest in working with them. Nearly half of the survey respondents (49.2%) were not interested in working with a livestock broker or marketing agent.

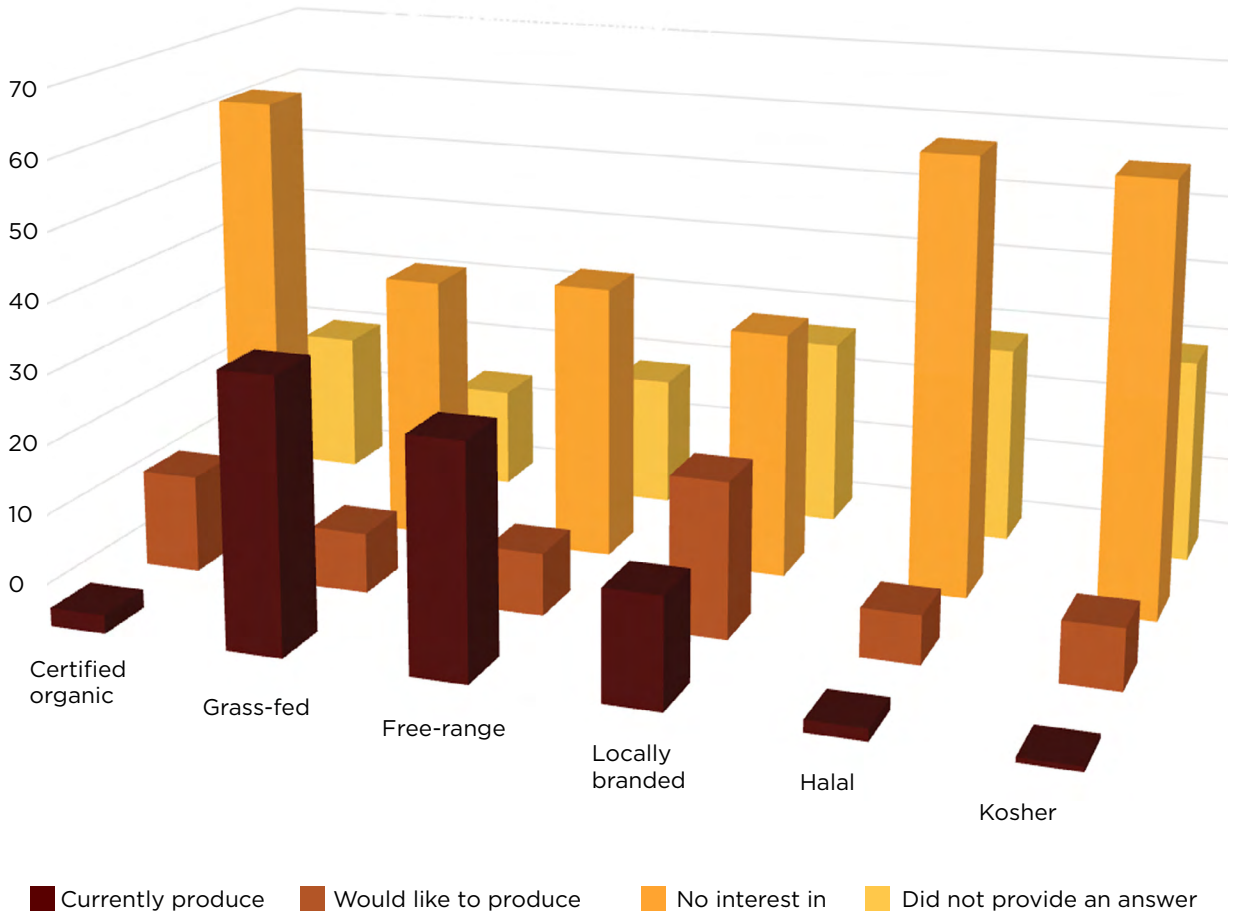
5 Barry, J., & Pirog, R. (2013). *Supplying Local and Regional Markets: Challenges and Solutions for the Michigan-Based Meat and Livestock Value Chains*. Michigan State University Center for Regional Food Systems. Retrieved from: https://www.canr.msu.edu/resources/livestock-stakeholders-report

The type of meat products livestock producers raise and/or process

Respondents to this survey are mainly producing grass-fed livestock, followed by free-range and locally branded livestock products (Chart 7). Very few respondents to this survey produce certified organic, kosher, and halal livestock products. Few respondents (less than 10%) have interest in producing grass-fed, free-range, kosher, or halal livestock products in the future. Nearly a quarter of producer respondents indicated that they had more interest in producing meat products that were branded as locally produced.

Chart 7:

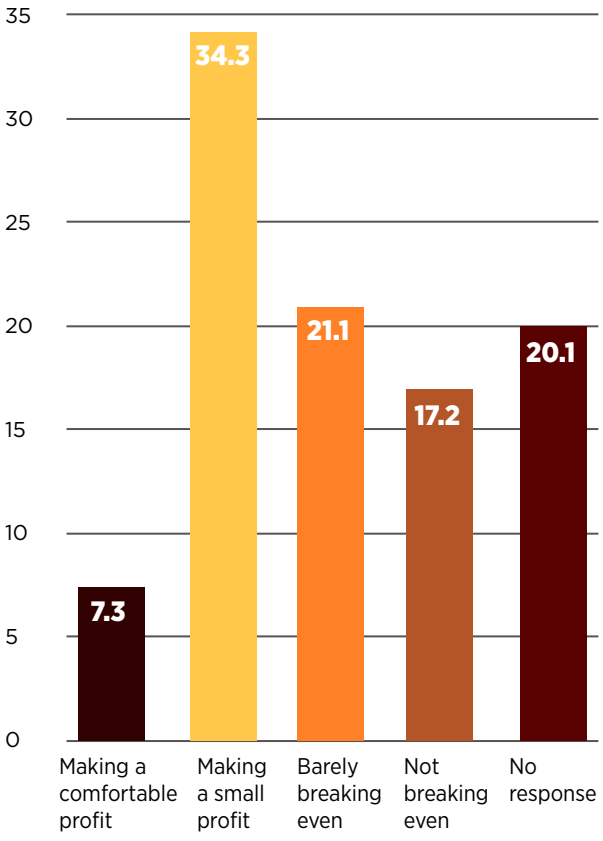
The Proportion of Producer Respondents Who Produce or Process, Would Like to Produce or Process, or Have No Interest in Producing or Processing Their Livestock in a Specific Way



The producer's perspective of the profitability of their business

Producers were asked how they would describe their business in 2014 from the perspective of making profit. Of those who responded to this survey question, 41.6% of the were making a profit, 21.1% were barely breaking even, and 17.2%, more than 1 in 6 livestock producers who responded, indicated that they were not breaking even (Chart 8). It should be noted that 21.1% of the respondents did not respond to this question in the survey.

Chart 8:
How Livestock Producer Survey Respondents Described Their Livestock Business in 2014



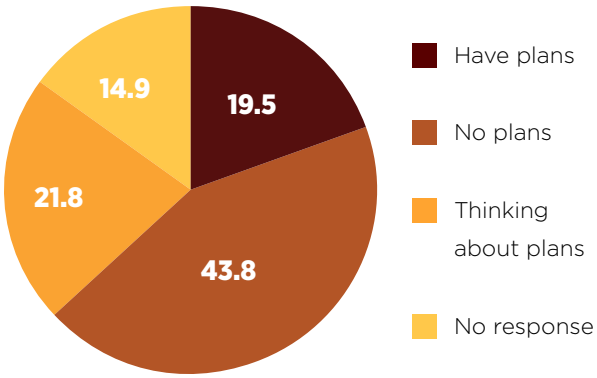
How producers see their business changing in the future

Over the next five years, 31% of respondents see their business growing, 30.4% see their business remaining the same, 10.6% see their business declining, and 17.2% see it ending. The reader should note that 10.9% did not respond to this question in the survey. Of those that see their business ending, 75% are retiring, 42.3% said they had no one to take over the business, and just over a quarter of those that are ending their business said that it was not financially viable. A few respondents (21.1% of those that are ending their business) indicated other reasons for ending their business. This included lack of labor to work on the business, death in the family, pursuing other interests, taxing and zoning codes, and government regulations.

More than 40% of the producers that responded to the survey do not have plans to improve their farm facilities or add new products or services to their business over the next three years (43.9% of respondents). However, 19.5% respondents do have plans, and 21.8% are thinking about it.

In the future, 45.5% of survey respondents indicated that they would like to increase the sale of meat from the farm directly to the consumer, while 33.7% would not, and 20.8% did not respond (Chart 9).

Chart 9:
Producer Responses When Asked If They Had Plans for Facility Improvements or Adding New Products or Services in the Next Three Years



SUMMARY

Although there were insufficient respondents to the survey to draw any statistically significant conclusion from the data, some key trends could be identified that are of interest to developing this work. A summary of these trends includes:

Production trends

- Michigan livestock production operations tended to be mainly small farmers, selling a small number of head for meat.
- With the exception of hogs, the majority of the ruminant species were 100% grass-fed or forage-fed.
- There was little interest in producing organic-certified, halal, or kosher products. There was interest in grass-fed, locally branded and free-range livestock production.

Processing trends

- The majority of producers use their own transportation for taking livestock to processing facilities, and more than half of them travel fewer than 50 miles.
- The greatest challenge for producers to get their livestock processed was working with advance appointments for processing (1 in 3 producers) and difficulty in getting appointments with processors (1 in 5 producers).
- Respondents tend to use USDA-inspected slaughter facilities more than custom-exempt facilities.

Marketing trends

- Almost two thirds of respondents sell directly to consumers, although the number selling into different market channels is not high with the highest selling to processing plants (10%) and specialty grocers (9%).
- There was considerable interest in selling into new market channels to increase net income, promote their business, and simplify sales.
- More than a third of the respondents were interested in working with a livestock broker to market their meat.
- Specialty meat product marketing was not of great interest, although branding meat as locally produced was of more interest (nearly 1 in 4 respondents).

Business growth and sustainability trends

- Responses indicate that livestock production is not financially sustainable in many cases. Thirty-eight percent of the respondents were barely breaking even or not making a profit, while 42% of respondents were making a profit.
- Results indicated that one third of producers see their business growing, one third see their business staying the same, and one third see it declining or ending in the next five years. This could suggest a large shift in the livestock business through 2020.

CONCLUSIONS

This survey, while only representing a small percentage of producers (*N* = 303), provided us with a general picture of a subset of the Michigan livestock producer industry. Those that responded are mainly small production units. As many are running a profitable business as are not. Processing livestock was not a major challenge for most producers. Although working with processors and producers to assist with advanced scheduling may help streamline livestock processing and build efficiencies for all involved.

Based on survey responses, this subset of Michigan producers is very aware of current consumer desires. They are raising grass-fed livestock (except for swine) that are typically raised free range and marketed locally. Furthermore, those who are currently not branding their meat products as local have a high level of interest in doing so.

Many livestock producers responded that they are already selling directly to consumers but are interested in investigating new market channels to increase income and simplify sales. There is potential and interest in having a livestock broker or market agent support producers in increasing sales to new market channels.

The survey findings suggest that diversifying local marketing opportunities may be one strategy to help improve profitability and sustain livestock production in the state of Michigan.

MICHIGAN STATE UNIVERSITY | Center for Regional Food Systems

The Michigan State University Center for Regional Food Systems (CRFS) unites the expertise of diverse food systems stakeholders with that of MSU faculty and staff to advance regionally-rooted local food systems through applied research, education, and outreach. Our work fosters a thriving economy, equity, and sustainability for Michigan, the nation, and the planet by increasing understanding of and engagement with systems that produce food that is healthy, green, fair, and affordable. Learn more at http://foodsystems.msu.edu/.

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