



U.P. Ag Connections Newsletter

July 2023

Agricultural News from MSU Extension and AgBioResearch

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Wanted: Exhibitors for the County and UP State Fair

By Frank Wardynski, MSUE

It seems that over time the exhibits at county and UP State Fairs has diminished. Probably one of the big reasons was the elimination of state funding to fairs about 15 years ago during tough budget times. Fairs used to pay state aided premiums to exhibitors. There probably are other reasons but the bottom line is that we still have empty tables and shelves in the exhibit buildings. Those exhibits are such an important piece of the fair experience. Fairgoers love to walk through the grounds and buildings to see everything that is there. Unfortunately, there is less to see in the exhibits than there used to be.

What can we do to change that? And let me be clear, this is not criticism of the many volunteers that make our fairs what they are. These are suggestions and encouragement. Many of these suggestions have come from others that I have asked what we can do to increase participation.

Contact schools - Many crafts and art projects are completed at school. Some of the best could be entered at the fair. FFA teachers could encourage their students to enter posters they may have prepared for leadership competition. Some programs have greenhouses. Use those opportunities to enter vegetables. Collect sheaves of grain and forage – give students grades as they identify various forages and give extra class credit for those entering in the fair.

Encourage 4-H clubs to enter at the fair. We used to have 4-H clubs with fair entries being an end goal to show off the learned talents. Many of our 4-H clubs now are Special Interest (SPIN) clubs that work on a project for a short term. Let's try to coordinate to get these clubs entering at the fair.

Advertise – It seems like everyone should know when the fair is but I have heard people say they do not know the dates of the county fair. Get information out earlier on radio announcements, community calendars, make social media pages and make special note encouraging participants to enter exhibits. Let them know when exhibits need to be entered and when the judging is going to be.

More classes inside youth interest - It seems more kids are being creative with Legos projects and robotics as examples. Of course building blocks will fit into the still exhibit category but maybe we need to add demonstration exhibits.

Bragging Rights – In the spirit of competition and sportsmanship, make some entries and win some blue ribbons and let people know. Encourage them to enter. When my kids were younger, and the State of Michigan helped pay for premiums, I would take the kids to prepare agricultural entries. I would take a part of a bale from second cutting trefoil. We would go into hay fields and get fresh sheaves of trefoil, alfalfa, red clover, anything we could find that would quality. They would get a nice little check and I would tell everybody that I make the best hay in the county. I proved it by getting first place at the county fair. Within a couple years the number of hay entries went from one or two to a dozen. It was fun.

Help make the fairs great, enter an exhibit!

(For upcoming fair dates, see back page)

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2022 Broccoli Variety Report

Seed to Kitchen Collaborative, MSU UPREC

Management

In 2022, five spring and five summer broccoli varieties (some dual purpose) were trialed at the MSU Upper Peninsula Research and Extension Center in Chatham, MI. Broccoli was seeded in the greenhouse April 21 (spring) and June 1 (summer) into 72-cell plastic trays using Morgan Composting Dairy Doo Seed Starter 101 media, and transplanted into raised beds outdoors May 23 (spring) and June 28 (summer). Plots 3 ft wide x 4.5 ft long were laid out on raised beds in a RCBD design with four replications. Fertility was applied prior to planting, and consisted of a poultry-based 10-0-4 fertilizer from Morgan's Composting called Safe Green Lawn applied at 1,400 lbs/ac (0.032 lb/ft²). Six plants were spaced 18 inches apart in-row, with 2 staggered rows per plot. Irrigation was provided as needed via a single line of drip tape. Weeds were controlled by black plastic mulch, crimson clover and buckwheat between beds, mowing and hand weeding. Broccoli was harvested July 4 – August 4 (spring) and August 4 – August 28 (summer).

Varieties Tested

<u>Treatment #</u>	<u>Breeder</u>	<u>Variety</u>	<u>Market Class</u>		
1	Bayer	Abrams	Summer	1	2
2	Bejo	Belstar	Spring		
3	Bayer	Castle Dome	Spring/Summer	3	4
4	Bejo	Covina	Spring		
5	Sakata	Green Magic	Spring/Summer	5	6
6	Sakata	Gypsy	Spring		
7	Sakata	Imperial	Summer	7	8
8	HM Clause	Luna	Summer		

Field Traits

Vigor (1-5), Disease Resistance (1-5), Earliness (1-5), Total Marketable Weight (lbs), Marketable Crown Count, Marketable Crown Weight (lbs), Unmarketable Weight (lbs), and Proportion Unmarketable were measured. Analysis was conducted at the per plant level.

Quality Evaluation

Sensory evaluation was completed by chefs, food retailers and nutrition educators in Marquette, MI. Varieties were packed with individual alphanumeric codes. Boxes were delivered to tasters, including instructions for evaluation and a link to a Qualtrics survey where data was entered. Broccoli was tasted raw. Flavor intensity and complexity were rated on a scale of 1 (low) to 5 (high). Appearance, texture, and overall flavor were rated from 1 (poor) to 5 (excellent). The likelihood that they would buy it for their restaurant (1=no way, 5=yes, definitely) and perceived ease of preparation (1=difficult, 5 = easy) were also rated.

Results

Data were analyzed using ANOVA and Tukey’s HSD test in the Agricolae package for R at alpha = 0.05. Spring and summer trials were analyzed together. Plants were exposed to moderate hail damage on July 1. Spring varieties yielded significantly more than summer varieties. Significant differences between varieties were observed in total weight, crown weight and appearance. Hail damage on July 1, over and under maturity were the primary reasons heads were deemed unmarketable. Gypsy and Castle Dome yielded especially well. Castle Dome, Green Magic and Luna showed above-average flavor and marketability. Additional data on these and other broccoli varieties can be found at Seedlinked.com.

Broccoli Performance at Chatham, MI (field)

(* indicates varieties statistically similar to the “best” variety in each category shown in **BOLD**)

Variety	Total Weight (lbs/plant)	Crown Weight (lbs/plant)	Unmarketable Proportion (%)	Appearance (1-5)	Overall Flavor (1-5)	Willingness to Purchase (1-5)
Abrams	0.43	0.40	5.73*	4.00*	3.43*	3.14*
Belstar	0.52*	0.45	9.46*	3.75*	3.50*	3.60*
Castle Dome	0.81*	0.63	19.23*	4.15*	3.96*	4.04
Covina	0.58*	0.45	14.83*	3.85*	2.85*	3.05*
Green Magic	0.61*	0.49	17.31*	4.59*	3.81*	3.96*
Gypsy	0.95	0.93	2.68	3.20	3.30*	3.05*
Imperial	0.42	0.39	5.63*	4.86	3.43*	3.29*
Luna	0.57*	0.48	14.79*	4.29*	4.14	3.57*
Average	0.63	0.53	12.62	4.03	3.56	3.56

Not all protein sources are the same

By Jerad Jaborek, MSUE

Protein is one of the main macronutrients needed by cattle to survive and grow. As you may know, cattle are ruminants, and therefore have a four-compartment stomach that consists of the rumen, reticulum, omasum, and abomasum. The largest stomach compartment in ruminants is the rumen, which contains a vast diversity of microbes. In the rumen, ingested feedstuffs undergo microbial fermentation and breakdown allowing for nutrient absorption. The rumen microbes also use the dietary carbohydrates and protein consumed by cattle to maintain, grow, and reproduce themselves. As a result, the passage of microbes from the rumen to the lower gastrointestinal tract can provide cattle with two-thirds to three quarters of their protein requirements. We can think about the metabolizable protein requirements of cattle as the sum of rumen degradable protein (RDP), microbial protein (MCP), rumen undegradable protein (RUP), and small contributions from endogenous protein. Rumen degradable protein consists of dietary protein and amino acids, and non-protein nitrogen (NPN), such as urea, that are used by the rumen microbes to reproduce or replicate. The microbes themselves provide the small intestine with MCP, in addition to dietary RUP that is not degraded by the rumen microbes, endogenous protein from sloughed cells within the digestive tract, and digestive enzymes reaching the small intestine.

Not all protein sources are the same because they are comprised of different concentrations of amino acids. Amino acids are the building blocks of protein, and the animal requires a certain concentration of each amino acid to meet its growth requirement. Therefore, if one amino acid is deficient or limiting, it can limit growth performance to a level that is less than when all the amino acids are supplied at their optimal concentration. Protein sources vary in digestibility and composition, but factors such as diet forage to concentrate ratio, rumen pH, and passage rate of digesta out of the rumen can influence the site of protein digestion, thus making it very complicated to predict RDP, MCP, and RUP requirements and supply.

For growing and finishing cattle, the metabolizable protein requirements are quite different and are largely influenced by dry matter feed intake and muscle (i.e., protein) gain. Therefore, smaller, and typically younger cattle (less than 660 lb) are depositing more protein for lean muscle tissue than fat compared with larger, older, finishing cattle (greater than 660 lb). Additionally, smaller calves are capable of consuming 3.0 to 3.5% of their body weight in dry matter feed daily compared with about 2.0% for a mature finished steer or heifer. A greater feed and energy intake will result in a larger population of rumen microbes that can contribute to MCP supply in the small intestine. Considering these facts, the ratio of RDP to RUP needed in the diet of cattle increases as the cattle achieve a greater weight, where a growing steer calf (<660 lb) may require 65 to 85% RUP for a 2.2 to 3.3 lb/day gain, while a finishing steer (>660 lb) may only require 35 to 50% RUP for the same rate of gain.

In the Midwest, corn silage is a common feedstuff in growing cattle diets because of the greater energy content compared with other forage sources. Corn silage is about 8% crude protein, with most of the crude protein being RDP. Therefore, corn silage-based diets require supplemental protein to meet the protein needs of the growing calf. [Research conducted by Oney and others from the University of Nebraska](#) investigated supplying dietary protein at different RUP concentrations to determine the effects on growing crossbred steer performance. As the percentage of RUP increased in the corn silage-based growing diet from 0.4% to 5.5% (9 to 41% of the crude protein) the average daily gain (ADG) and feed efficiency of steers improved, especially during the first five weeks of the feeding period.

In another study investigating the protein requirements of growing steers, [Zinn and Shen from the University of California, Davis](#) supplied protein via urea, fishmeal, or soybean meal to growing crossbred Brahman-influenced steer calves weighing 500 lb. As the concentration of crude protein and RUP increased due to a greater inclusion of fishmeal (1.5, 3.0 or 4.5%), ADG increased during the 56-day growing period.

In a study investigating increasing RDP concentrations of finishing diets offered to heavy crossbred yearling steers (870 lb), [Wagner and others from Colorado State University and Five Rivers Cattle Feeding](#), kept RUP constant at 5.1% of the diet so that the RDP concentration ranged from 51.4 to 64.8% RDP as a percentage of dietary crude protein. The ADG for these finishing steers increased in a linear fashion as the percentage of RDP increased, while dry matter feed intake tended to increase, while feed efficiency did not change.

Overall, smaller calves (<660 lb) require a greater percentage of crude protein, with a greater percentage of the crude protein in the diet being RUP. As these calves grow to weights >660 lb, they require a lesser percentage of dietary crude protein. Additionally, as cattle get larger and deposit more fat, they require less RUP, so a greater percentage of the crude protein can be supplied as RDP. As a result, these protein needs could be met with cheaper feed ingredients, such as urea, during the finishing period.

If you are interested in more information about the protein needs of growing cattle, check out this other [article](#). If you have questions about this topic, you can find [my contact information](#) on the [MSU Extension](#) website and if you have any general beef related questions, you can reach out to any of the members of the [MSU Extension beef team](#).

Michigan Beef Industry Announces Public Meetings on Checkoff Proposal

Commission set to decide on proposal at its July meeting.

The Michigan Beef Industry Commission today announced dates for three public meetings to discuss and take questions on its proposal to create a state checkoff for producers.

The MBIC currently retains half of \$1 per-head on cattle when they are sold, through a federal checkoff program instituted in 1985. MBIC Executive Director Quackenbush and the producer leaders serving on the Michigan Beef Industry Commission say that needs to change, and they are weighing a proposal to create a state checkoff program that would add up to \$1 per animal sold in Michigan.

“We are the face and voice of our industry,” Quackenbush said. “Doing that job in today’s environment, using 1985 funding, simply isn’t sustainable or as effective as we need to be. The Commission realizes it’s time to modernize our funding and maximize our efforts on behalf of Michigan cattle producers.”

The listening sessions scheduled for July are an opportunity for producers to have their questions answered and learn more about the MBIC’s plans. They will be held in an online format to help ensure producers around the state have ample access to the conversation.

“We know cattle producers are busy people,” Quackenbush said. “This format saves everyone time and fuel, while still allowing anyone with questions or concerns to be part of the discussion.”

Meeting date is July 13 at 1 p.m. and 7 p.m. Login and call-in details are available on the MBIC web page www.mibeef.org/micheckoff

The MBIC halted its state checkoff in 1986, when the national checkoff program was enacted. This means the Commission can re-implement the state program without a full referendum process.

“Since announcing this proposal earlier this month, we’ve been excited to get consistently supportive responses from beef producers,” said MBIC Chairman Monte Bordner. “Our work to inform Michigan consumers about the benefits of nutrient-dense beef in a healthy diet, as well as important information about how it is raised and processed in Michigan, has never been more critical to the future of our industry. We can’t reach people with our message on an outdated budget model. It’s time for this change.”

Checkoff programs are a tool commonly used by agricultural commodities to help support their producers. Eighteen states have developed beef checkoff programs in addition to the federal beef checkoff. Michigan beef leaders say the state program will also help ensure that money collected on Michigan cattle goes to directly support and create opportunities for Michigan’s cattle producers.

Learn more about the Michigan Beef Industry at www.MIBeef.org

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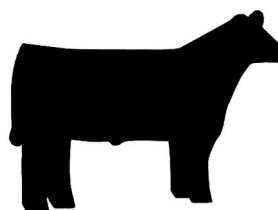
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FOR SALE: small square bales of straw and 2nd & 3rd crop hay
bales. Call Marenger Potato Farm (906)384-6587.

FOR SALE: Mixed Hay round bales, 700#, \$20. Call Alan or Karen
Raynard @ (906) 647-6697, Pickford.

FOR SALE: Hay, 5x6 round bales legume grass hay, stored inside.
Call Jon and Donna Ahlberg, Iron River (906)265-9333.

Market Report

Choice Steers	\$160-\$165 per 100 lbs.
Holstein Steers	\$150-\$160 per 100 lbs.
Hogs	\$60-\$70 per 100 lbs.
Lambs	\$150-\$240 per 100 lbs.
Cull cows	\$90-\$106 per 100 lbs.
Calves	\$150-\$220 per 100 lbs.
Goats	\$250-\$350 per 100 lbs.

Breeding and Feeder Animals

Grade Holstein cows top	\$1900/head
Grade Holstein bred heifers top	\$2225/head

Feed Prices across the U.P.

	Avg. \$/cwt	Avg. \$/ton	Price Range
Corn	\$17.41	\$348.15	\$265-528
Soymeal	\$28.97	\$579.40	\$500-650
Oats	\$17.69	\$353.75	\$319-416
Barley	\$13.81	\$276.25	\$200-386

Average price/100 wt. for 1 ton lots

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FAIR DATES:

- Menominee County Fair—Stephenson, July 13-16
- Luce West Mackinac Fair—Newberry, July 28-30
- Schoolcraft County Fair—Manistique, July 28-30
- Ontonagon County Fair—Greenland, July 28-30
- Alger County Fair—Chatham, August 4-6
- Gogebic County Fair—Ironwood, August 10-13
- Iron County Fair—Iron River, August 10-13
- Marquette County Fair—Marquette, August 10-12
- UP State Fair—Escanaba, August 14-20
- Houghton County Fair—Hancock, August 24-27
- Cedar Polka Festival—Hancock, August 24-26
- Chippewa County Fair—Kinross, August 29-September 4
- Dickinson County Fair—Norway, August 31-September 4

