

# **U.P.** Ag Connections Newsletter

Agricultural News from MSU Extension and AgBioResearch

Volume 29 Issue 1

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## News and Views By James DeDecker

## Agriculture for Tomorrow Conference Scheduled for Tuesday, March 11th, in Escanaba, MI

Michigan State University Extension will once again host the annual Agriculture for Tomorrow Conference in Escanaba. The event will take place Tuesday, March 11th, 2025 from 9:00am to 4:00pm ET at the Joseph Heirman University Center, Room 952, at Bay College in Escanaba, MI. Online registration for the event will open soon with early bird pricing available until March 1st. Participants registering before March 1st will save \$10 and reserve their spot for a delicious local food lunch at the conference.

A keynote address will kick-off the event highlighting the recently updated strategic plan for MSU's Upper Peninsula Research and Extension Center based on stakeholder input collected over the last six months. Afterward, four concurrent educational tracks focused on specialty crops (vegetables), field crops & forage, homesteading, and livestock topics will be offered. Attendees have the option of staying in a single track or floating among the individual sessions/topics. A conference trade show will feature local agencies and companies serving agriculture in the Upper Peninsula.

There is a \$30 per person registration fee for attending this event, which includes educational materials and lunch. After March 1st through the day of the conference, the registration fee will increase to \$40 per person, with only cash or check accepted at the door. Agricultural companies and organizations are invited to sponsor the conference and/or exhibit at the event trade show. Sponsorships of \$50+ are eligible for one complimentary trade show booth and conference registration. Non-profit organizations are eligible for a free trade show booth. Visit https://events.anr.msu.edu/2025Ag4Tomorrow/ for more information and to register. Contact James DeDecker at dedecke5@msu.edu or (906) 439-5114 with questions.



Caption: Former Deputy Director of MDARD, Dr. James Averill, addresses participants at the Agriculture for Tomorrow Conference in 2020.

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# Agriculture for Tomorrow Conference Due, March 11, 2025 Bay College in Escanaba, MI UP-focused talks: • Livestock • Field Crops • Specialty Crops

- Specialty Crops Cocal food lunch Homesteading Fellowship & Fun
- Homesteading
- Registration opening soon at:
- https://events.anr.msu.edu/2025Ag4Tomorrow/

## 2024 Early Maturity Soybean Variety Trial

James DeDecker, Christian Kapp, Paul Rusmisel, Noel Hardies & Andy Bahrman

For a seventh year, Michigan State University Extension received funding from the Michigan Soybean Committee to evaluate early maturing soybean varieties in Northern Michigan. Our objective was to inform farmers in the region about the performance of soybean varieties adapted to local conditions. This included yield potential of individual varieties, as well as gathering additional information on grain quality and relative deer preference.

Twenty-seven soybean varieties solicited from private seed companies and MSU were planted on a commercial farm in Hillman, MI on May 30, 2024. Our seeding rate was 175,000 pure live seed per acre accounting for actual seed size and assuming 80% germination. Growing degree-day accumulation from planting to harvest was slightly above normal for Hillman and total precipitation was near the five-year average. However, precipitation was concentrated in June and July leading to some stunting and moisture stress early in the season. The trial was harvested October 17<sup>th</sup> using a Wintersteiger plot combine. Seed was cleaned, weighed and yield corrected for moisture content to a standard 13%. Protein and oil concentration were estimated using a FOSS Infratec<sup>™</sup> NOVA NIR. Data were analyzed using ANOVA and Tukey's HSD test (alpha = 0.05) in the Agricolae package for R.

Soybean population averaged almost 224,000 plants per acre, which is somewhat denser than normal (Fig 1). Despite heavy stands, grain yield was positively correlated with plant stand (p=0.04) and two varieties had significantly lower populations (p=0.04). Lodging, partially related to white mold, was only noted in a few mid-late maturity entries. Varieties differed significantly in grain yield (p<0.001). The trial averaged 50.34 bu/a with the lowest yielding variety producing 41.03 bu/a and the best performer yielding 60.48 bu/a. Varieties also differed significantly in grain protein (p<0.001) and oil concentration (p<0.001), with one MSU line approaching 35.5% protein.

Since 2019, we have collected evidence demonstrating that soybean tissue sugar (Water Soluble Carbohydrate, WSC) concentration and deer damage vary significantly among soybean varieties, and that deer preference is positively correlated with WSC. In 2024, we again collected tissue samples from our entries to measure WSC concentration. Varieties differed significantly in WSC (p=0.017) when protected from deer browsing by temporary electric fencing. Since 2019, common soybean brands in our trials have differed significantly in sugar concentration (Fig. 2, p=0.036).

The trial was featured at a Soybean Field Day on September 12<sup>th</sup>, 2024. Many thanks to Michigan Soybean Committee, our seed suppliers and Hardies Dairy Farm for hosting the 2024 variety trial!





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## TRIAL DETAILS

## PURPOSE:

Compare performance of available commercial soybean varieties, RM 0.5-2.0, under Northern Michigan conditions.

## TRIAL LOCATION:

Hardies Dairy Farm in Hillman, MI on Negwegon silt Ioam.

## EXPERIMENTAL DESIGN:

Randomized complete block design with four replications

## TRIAL MANAGEMENT:

- Conventional tillage
- Previous crop com
- Manure fertility only
- 8 seed brands, 27 varieties, RM 0.3-1.9
- Planted May 30, 2024 at 175,000 seeds per acre
- Plots 4' X 16' with 7 in. row spacing
- Borders and alleys
   planted to minimize
   edge effect
- 1 pt/a Outlook preemerge herbicide, no post herbicide

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 Fenced with 3-D electric rope for deer

Extension

Table 1. Soybean yield and quality at Hillman, MI by brand and relative maturity. (\* denotes varieties statistically similar to the HIGHEST value for a given parameter at alpha = 0.05.)

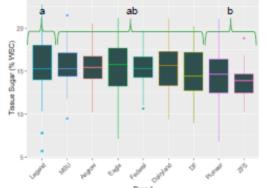
Brand	Variety	MG	Stand (plants/a)	Lodging (0G-5B)	Yield (bu/a)	Protein (%)	Oil (%)	Sugar (%)
3G Seeds	AA0821E3	0.8	152,460	0.00	48.14*	34.73*	20.03	19.97*
Alloy	A10E35	1.0	201,465*	0.00	49.57*	33.55*	20.87	19.76*
Alloy	A13E35	1.3	179,685*	0.00	49.52*	32.81	20.16	19.35*
Asgrow	A10XF4	1.0	234,135*	0.00	49.35*	32.83	20.41	16.88*
Asgrow	A12XF5	1.2	217,800*	0.25	48.71*	33.30*	20.30	19.41*
Dairyland	DSR-0585E	0.5	223,245*	0.00	41.58	33.02	21.40°	18.61*
Dairyland	DSR-0799E	0.7	212,355*	0.00	46.31*	32.72	21.39*	18.74*
Dairyland	DSR-1345E	1.3	212,355*	0.00	50.04*	33.53*	21.18*	17.08*
Dairyland	DSR-1788E	1.7	245,025*	0.00	56.73*	34.07*	20.67	17.71*
DF Seeds	DF 3135 N E3	1.3	223,245*	0.00	55.53*	33.69*	21.93°	17.45*
DF Seeds	DF 3144 N E3	1.4	212,355*	0.25	50.58*	34.33*	20.33	17.71*
DF Seeds	DF 3165 N E3	1.6	245,025*	0.13	60.48	32.50	20.77	16.21
DF Seeds	DF 3194 N E3	1.9	201,465*	0.13	53.62*	32.06	21.37*	18.30*
Legend	03E553N	0.3	234,135*	0.00	42.61	33.25	20.63	21.88
Legend	05E453N	0.5	255,915*	0.00	46.64*	32.25	21.48*	18.36*
Legend	07E165N	0.7	239,580*	0.00	51.11*	34.12*	20.29	18.74*
Legend	09E345N	0.9	179,685*	0.00	43.30	32.36	21.39*	16.67*
Legend	11E453N	1.1	168,795	0.00	41.03	32.04	21.70°	19.06*
MSU	E15338	1.5	234,135*	1.38	54.07*	32.67	20.69	17.78*
MSU	E19314T	1.6	304,920	0.88*	52.50*	35.50	19.73	17.08*
MSU	E21409-2GT	1.7	255,915*	0.25	53.31*	31.32	21.14*	17.12*
MSU	E21100	1.8	212,355*	0.00	56.61*	32.64	20.34	15.69
Pioneer	P09Z79E	0.9	250,470*	0.00	46.78*	32.62	22.03	18.72*
Pioneer	P11Z72E	1.1	255,915*	0.00	50.33*	32.47	21.49*	18.40*
Pioneer	P13Z28E	1.3	223,245*	0.00	52.79*	33.88*	21.28*	17.88*
Pioneer	P16Z42E	1.6	223,245*	0.13	52.88*	32.70	21.24*	15.78
Pioneer	P18Z01E	1.8	239,580*	0.00	55.20*	32.63	21.16*	17.02*
	Mean	1.2	223,648	0.13	50.34	33.09	20.94	18.05
	P-Value		0.043•	<0.001***	<0.001***	<0.001***	<0.001***	0.017**







Fig 2. Tissue Sugar by Soybean Brand 2019-24



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## MCIA SPRING OAT & BARLEY VARIETY TRIAL – 2024 RESULTS

James DeDecker, Brook Wilke, Christian Kapp, Josh Dykstra, Paul Rusmisel, Ben Sklarczyk, Joe Charlebois & Andy Bahrman



Michigan State University conducted spring oat and barley variety trials in 2024 with support from the Michigan Crop Improvement Association (MCIA). Locations included Chatham, MI at the MSU Upper Peninsula Research and Extension Center (UPREC), Hickory Corners, MI at the W.K. Kellogg Biological Station (KBS), and one commercial farm, Sklarczyk Seed Farm in Johannesburg, MI. Our project included a three-location strip trial designed to compare leading genetics for Michigan from field to glass at pilot scale and a small plot study at Chatham only. The strip trials included three elite two-row spring barley varieties and four white oat varieties. The small plot study included those MCIA entries plus 29 paid entries from

three private seed companies (data not reported here). This research represents an expanded effort to understand oat and barley adaptability and performance in Michigan for both traditional markets and emerging opportunities in craft malting, milling, and distilling.

Temperature was near normal at Johannesburg, slightly above normal at Hickory Corners and slightly below normal at Chatham from planting through harvest. Much of Michigan was abnormally dry heading into 2024 following a warm, dry winter. However, precipitation was 3-5 inches above normal at all three locations during the growing season. Lodging was observed in oats and barley at Hickory Corners, but not the other locations. Raw grain quality was analyzed at MSU-UPREC, with micro malting and malt quality analysis forthcoming from the USDA-ARS Cereal Crops Research Unit in Madison, WI. Craft maltsters at Great Lakes Malting Company, Mitten State Malt and/or Emergent Malt will also be malting small batches of grain from the Chatham and Johannesburg locations to share their observations with the project team and funders. Data were analyzed across locations using ANOVA (alpha = 0.05) and Tukey's HSD test in the Agricolae package for R. DON data was not replicated nor statistically analyzed.

Significant differences were observed among barley varieties for all parameters, except yield and germination energy. Variety differences were marginally significant for grain test weight and protein concentration (P < 0.10). Mean yield was 75.1 bu/a with Esma and HudsonNY producing numerically higher yields than LCS Odyssey. Mean test weight was 45.8 lbs/bu with HudsonNY and northern locations showing significantly higher grain density. LCS Odyssey was later to head/mature than the other varieties. HudsonNY was notably taller than the other entries, which could benefit staw yield, but may also increase lodging risk. HudsonNY also had higher grain protein concentration than the other two varieties. LCS Odyssey produced the greatest percentage of plump kernels and highest germination capacity overall. Germination energy was low across varieties at Chatham, which stood out in contrast to much higher germination capacity numbers. This suggests either dormancy or PHS, which will be confirmed later with RVA data. DON was low across varieties and locations. In general, our results indicate that both HudsonNY and Esma, but especially HudsonNY, may be comparable to LCS Odyssey and suitable for malting barley production in Michigan.

Significant differences were observed among oat varieties for all parameters, except yield and the percentage of thin kernels (through a 0.064 inch seive). Variety differences were marginally significant for the percentage of plump kernels (P < 0.10). Mean yield was 83 bu/a with Rushmore and RC Amaze producing numerically higher yields than other entries. Mean test weight was 35.4 lbs/bu with Rushmore, AAC Reid and northern locations showing significantly higher grain density. Heading date varied across varieties with RC Amaze being earliest and AAC Reid latest. Rushmore and AAC Reid were notably taller than RC Amaze. AAC Reid had the highest protein concentration, but also the most plump kernels. RC Amaze and Rushmore showed higher germination energy than AAC Basil. Oat germination capacity data should be treated with skepticism, as the GC protocol is not well suited to oats. DON was low across varieties and locations. In general, our results indicate that both RC Amaze and AAC Reid may be comparable to Rushmore and suitable for oat production in Michigan.

Drs. DeDecker and Wilke presented preliminary results of the project at the KBS Food Grade Grains field day in June 2024 and at the UPREC 125th Anniversary Celebration in August 2024. Dr. Wilke presented results of the project at the Michigan Crop Improvement Association annual meeting in February 2025. We would like to thank MCIA for supporting this research and all our cooperators for making it happen!





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W. K. Kellogg Biological Station MICHIGAN STATE UNIVERSITY

# Michigan Crop

## TRIAL DETAILS

## Design:

**RCBD** with three replications

## Planting date:

 May 10<sup>th</sup> (barley) & 13<sup>th</sup> (oats) at Chatham
 April 26<sup>th</sup> at Johannesburg
 April 22<sup>nd</sup> at Hickory Corners Seeded at 28 seeds/ft<sup>2</sup>

## Fertility:

- 60 lbs N, 30 lbs P, 78 lbs K/a (oats) & 69 lbs/a N (barley) at Chatham

- 66 lbs N, 36 lbs P, 60 lbs K/a at Johannesburg

> 60 lbs N, 1.4 lbs B/a at Hickory Corners

## Herbicide:

 1 pt/ac Broclean, plus 0.75 pt/ac MCPA at Chatham

> 12 oz/a Huskie at Johannesburg

 - 0.75 oz/a Harmony Extra at Hickory Corners

## Fungicide:

- 4 oz/a Priaxor (oats & barley), plus 8.2 oz/ac Prosaro (barley only) at Chatham
  - 13.7 oz/a Miravis Ace, plus 8.2 oz/a Prosaro at Johannesburg
    - 13.7 oz/a Miravis Ace at Hickory Corners

## Harvest Date:

 August 21<sup>st</sup> (barley) & 22<sup>nd</sup> (oats) at Chatham
 August 20<sup>th</sup> at Johannesburg
 July 23<sup>rd</sup> at Hickory Corners

Table 1: Barley Yield and Quality Across Locations (Means followed by the same letter are not significantly different.)											
Location	Variety	Yield (bu/a)	Test Wt. (Ib/bu)	Heading Date	Height (in)	Protein (%)	Plump (%)	Thin (%)	Germ Energy 4ml (%)	Germ Capacity (%)	DON (ppm)
Chatham (strip)	LCS Odyssey	76.4	46.0	17-Jul	21.3	11.6	96.5	0.36	75.5	95.0	0.27
Chatham (strip)	Esma	79.9	50.1	16-Jul	19.5	11.7	95.3	0.61	76.5	92.0	0.18
Chatham (strip)	HudsonNY	71.6	48.3	14-Jul	27.3	12.3	95.7	0.56	75.3	95.5	0.34
Chatham (strip)	Average	76.0	48.1	15-Jul	22.7	11.9	95.8	0.50	75.8	94.2	0.26
Chatham (small)	LCS Odyssey	89.5	43.8	15-Jul	29.3	NA	NA	NA	NA	NA	NA
Chatham (small)	Esma	114.9	46.0	10-Jul	27.3	NA	NA	NA	NA	NA	NA
Chatham (small)	HudsonNY	103.8	49.4	10-Jul	30.0	NA	NA	NA	NA	NA	NA
Chatham (small)	Average	101.2	46.4	12-Jul	28.9	NA	NA	NA	NA	NA	NA
Johannesburg	LCS Odyssey	NA	49.2	4-Jul	24.0	9.9	96.0	0.89	94.0	93.0	0.32
Johannesburg	Esma	NA	49.2	2-Jul	22.3	9.7	95.5	0.87	92.0	91.0	0.33
Johannesburg	HudsonNY	NA	49.7	30-Jun	30.0	10.0	95.5	0.78	95.0	94.0	0.34
Johannesburg	Average	NA	49.4	1-Jul	25.4	9.9	95.7	0.80	93.7	92.7	0.33
Hickory Corners	LCS Odyssey	49.7	42.6	NA	NA	12.7	95.6	0.40	97.3	96.3	0.30
Hickory Corners	Esma	49.9	39.0	NA	NA	12.7	88.4	1.35	95.0	90.3	0.31
Hickory Corners	HudsonNY	52.1	40.7	NA	NA	12.8	93.1	0.80	97.7	94.0	0.33
Hickory Corners	Average	50.6	40.7	NA	NA	12.7	92.4	0.80	96.7	93.6	0.31
Average	LCS Odyssey	72.3 a	44.7 b	14-Jul a	24.6 b	11.8 b	96.1 a	0.4b	86.0 a	95.3 a	0.30
Average	Esma	77.7 a	45.9 ab	12-Jul b	22.8 b	11.8 ab	92.9 b	0.9a	85.4 a	91.3 b	0.27
Average	HudsonNY	75.4 a	46.7 a	11-Jul b	28.6 a	12.2 a	94.5 ab	0.7ab	86.1 a	94.8 a	0.34
	Mean	75.1	45.8	12-Jul	25.3	11.9	94.5	0.7	85.8	93.8	0.30
	P-Value	0.358	0.077	0.001	0.013•	0.082	0.02•	0.05*	0.955	0.009**	NA







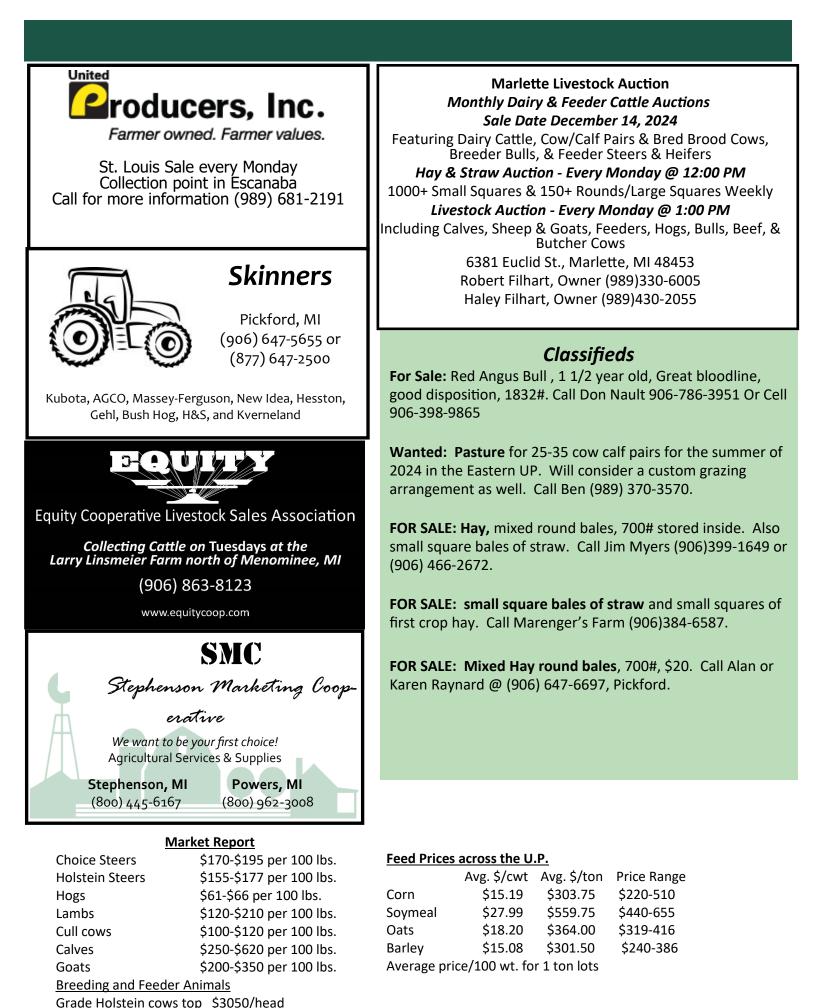


Table 2: Oat Yield and Quality Across Locations (Means followed by the same letter are not significantly different.)

Location	Variety	Yield (bu/a)	Test Wt. (lb/bu)	Heading Date	Height (in)	Protein (%)	Plump (%)	Thin (%)	Germ Energy 4ml (%)	Germ Capacity (%)	DON (ppm)
Chatham (strip)	Rushmore	48.2	38.1	9-Jul	34.8	12.1	75.0	0.52	94.5	75.0	0.23
Chatham (strip)	AAC Basil	59.2	35.3	11-Jul	30.3	11.5	71.1	0.44	88.5	73.8	0.33
Chatham (strip)	AAC Reid	65.2	38.3	12-Jul	35.3	12.3	74.4	0.31	93.3	94.8	0.36
Chatham (strip)	RC Amaze	58.1	37.1	3-Jul	28.8	11.9	81.0	0.49	92.5	84.8	0.25
Chatham (strip)	Average	57.7	37.2	8-Jul	32.3	11.9	75.4	0.44	92.2	82.1	0.29
Chatham (small)	Rushmore	167.2	36.3	8-Jul	36.7	NA	NA	NA	NA	NA	NA
Chatham (small)	AAC Basil	141.2	31.2	13-Jul	37.3	NA	NA	NA	NA	NA	NA
Chatham (small)	AAC Reid	137.9	34.2	15-Jul	37.7	NA	NA	NA	NA	NA	NA
Chatham (small)	RC Amaze	143.6	32.3	5-Jul	33.3	NA	NA	NA	NA	NA	NA
Chatham (small)	Average	148.1	33.7	10-Jul	36.3	NA	NA	NA	NA	NA	NA
Johannesburg	Rushmore	NA	42.9	29-Jun	33.0	10.0	53.8	0.26	94.0	46.0	0.26
Johannesburg	AAC Basil	NA	42.1	1-Jul	25.5	12.2	64.5	0.32	88.0	100.0	0.27
Johannesburg	AAC Reid	NA	41.1	3-Jul	27.0	11.6	57.6	0.26	92.0	66.0	0.30
Johannesburg	RC Amaze	NA	39.9	24-Jun	31.0	11.2	56.5	0.28	90.0	69.0	0.26
Johannesburg	Average	NA	41.5	29-Jun	29.1	11.3	58.1	0.28	91.0	70.3	0.27
Hickory Corners	Rushmore	58.5	33.0	NA	NA	12.9	59.5	0.13	84.7	42.7	0.29
Hickory Corners	AAC Basil	59.6	29.8	NA	NA	12.5	72.3	0.10	78.3	79.0	0.52
Hickory Corners	AAC Reid	48.2	30.6	NA	NA	13.7	80.9	0.16	76.3	91.3	0.38
Hickory Corners	RC Amaze	62.8	30.2	NA	NA	12.3	66.9	0.05	89.0	87.7	0.40
Hickory Corners	Average	57.3	31.3	NA	NA	12.9	69.9	0.11	82.1	75.2	0.40
Average	Rushmore	87.0 a	36.7 a	07-Jul c	35.3 a	12.1 ab	66.6 b	0.3a	90.8 a	59.3 b	0.26
Average	AAC Basil	77.6 a	34.4 b	10-Jul b	32.3 ab	11.9 b	70.7ab	0.3a	84.6 b	79.0 a	0.37
Average	AAC Reid	81.9 a	35.8 a	12-Jul a	35.1 a	12.8 a	74.8 a	0.3a	86.8 ab	89.9 a	0.35
Average	RC Amaze	85.2 a	34.6 b	02-Jul d	30.8 b	12.0 b	72.6ab	0.3a	90.9 a	83.9 a	0.30
	Mean	83.0	35.4	8-Jul	33.4	12.2	71.2	0.30	88.3	78.0	0.32
	P-Value	0.25	<0.001**	<0.001**	0.008**	0.025•	0.075	0.39	0.019•	0.0016**	NA

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# Beef Cow/Calf Meeting – Squeeze that Budget or Smart Investments

Michigan State University Extension Educators Frank Wardynski and Phil Durst will debate the economics of squeezing the budget vs making smart investments to boost income. Do you argue with family members, business partners, or even yourself about how and where to spend your dollars on the beef operation. Come and pick a side and join in on the Educator Beef Brawl as we discuss how and where we should be spending or saving money on your beef cow/calf budget.

Please Call 906-884-4386 to RSVP so that we can contact everyone in case the meeting needs to be canceled or rescheduled.

## Meeting Locations Dates and Times:

Location: Bay College – Heirman Center

Date: Wednesday, January 29, 2025

Time: 6:00 pm Eastern Time

Location: Rudyard Township Hall

Date: Thursday, January 30, 2025

Time: 6:00pm Eastern Time

Contact: Frank Wardynski 906-884-4386 wardynsk@msu.edu

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