MICHIGAN
CROP IMPROVEMENT
ASSOCIATION ™

MCIA Annual Report 2020

Cover photo of J.W. Brownfield farm by Joyce Hiebert

ANNUAL REPORT OF THE MICHIGAN CROP IMPROVEMENT ASSOCIATION

ON BEHALF OF THE MICHIGAN CROP IMPROVEMENT STAFF AND BOARD OF DIRECTORS, WE ARE PLEASED TO SHARE THE 2020 ANNUAL REPORT WITH YOU.

JANUARY 1, 2020 – DECEMBER 31, 2020 | C. JAMES PALMER, MANAGER

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Honorary Membership Award

Each year the MCIA Board of Directors chooses one or more deserving individuals who have donated their time to improve the association and the certified seed industry and presents them with the MCIA Honorary Membership Award. Due to the lack of an in person meeting this year, the board chose not to present an Honorary Membership Award.

Below is a list of past recipients:

1979	**Stanley Woods**
1980	**Basil McKenzie**
1981	**Dr. Herbert Pettigrove**
1982	**Norman R. Thompson**
1983	**Dr. Elmer Rossman**
1984	**Dr. Everett Everson**
1985	**Dr. Milo Tesar**
1986	**Dr. Carter Harrison**
1987	**Dr. Wayne Adams**
1988	**Dr. Larry Copeland**
1989	**John Dreves**
1990	**Dr. Fred Saettler**
1991	**Allan Houghtaling**
1992	**Roy Greenia**
1993	**Dr. Robert Gast**
1994	**Richard Long**
1994	**Charles Leipprandt**
1995	**Ken Rauscher**
1995	**Glen Harrington**
1996	**Chester Metz**
1996	**Larry Metz**
1997	**Don Keinath**
1997	**Wayne Sturm**
1998	**John Majzel**
1999	**Don Reif**
2000	**Charles Rhode**
2001	**Bill Renn**
2002	**Dr. Russ Freed**
2003	**Dr. James Kelly**
2004	**David Woods**
2005	**Clare Harrington**
2006	**Larry Ivan, Ken Ivan**
2007	**Steve McGuire**
2008	**Kent Houghtaling**
2009	**John Diehl**
2010	**Dr. Douglas Buhler**
2011	**George Zmitko**
2012	**Robert Clarke**
2013	**Robert Van Kampen**
2014	**James Stein**
2015	**Mark Wittstock**
2016	**Alan Schiellerd**
2017	**Hauck Seed Farm**
2018	**Dr. James Kells**
2019	**Greg Varner**
2020	**No Recipient**

Manager's Address

The past year has challenged us to change the way we think, behave and carry out our daily activities. Through all of the turmoil, the Michigan Crop Improvement Association remained a vital element in seed certification, quality assurance programs, foundation/parent seed stock production, custom conditioning and lab testing. As one of the designated "essential" industries in Michigan, our team met the challenges of 2020 head on and delivered excellent products and services for our members and customers.

The success of the Michigan Crop Improvement Association begins with a few main components. First, it starts with the leadership of our nine member Board of Directors. The vision and guidance of this Board is imperative in setting the course for the management and staff at MCIA. Next, the relationships built with Michigan State University personnel including the plant breeders, researchers and technology licensing officials, are imperative for furthering the variety development and advancement for the benefit of our members. Thirdly, is the collaboration with the Michigan Department of Agriculture and Rural Development, who play a critical role in seed disease testing and seed law enforcement. Lastly, we cannot forget the membership and customers who require and use our products and services as a part of their business; they are the lifeblood of this organization. All of these ingredients woven together allow the MCIA to effectively fulfill its mission and purpose.

The 2020 year at MCIA was, by many measures, a highly successful year. The team at MCIA excelled in all areas of business. The seed lab recorded the highest lab income in the past eight years. The field division increased its corn services by over 20%. The seed division introduced several new varieties, increased the custom processing business and achieved an A+ rating for the BRC food safety plan. This was all accomplished while working under restrictive conditions in hopes of maintaining a healthy and safe work environment.

The 2020 year taught us some valuable lessons. One, there is a solution to every problem. Be open and willing to pivot and find a solution to a new challenge. Two, adversity brings opportunity. Being forced into change sometimes brings efficiencies which would have gone otherwise undiscovered. Three, our existing relationships serve as a cornerstone to success. It was a difficult year to build new relationships but a great year to lean on established ones. Thank you for the relationship YOU have with MCIA. We look forward to continuing to deliver value to you and your business in 2021.

Sincerely,

C. James Palmer

Manager

Our Team

MCIA is very fortunate to have an experienced and well trained team of employees to accomplish the goals of the association. Currently, the team consists of 8 full-time employees and numerous part time staff. Our full-time staff members are listed below in the order of date of hire.

LAUREN MEZO

SEED INSPECTION AND SEED TESTING TECHNOLOGIST (2020)

Lauren is the newest member to the MCIA team. She is responsible for the field inspections in Gratiot and Clinton counties as well as seed corn inspections as needed. Lauren performs planting and purity duties in the seed lab when needed. She also manages our website, keeping interactive documents and appropriate links current as well as posting relevant information and content for our member's benefit.

LEE SILER

SEED PLANT COORDINATOR/QUALITY MANAGER (2018)

Lee is responsible to direct and manage all quality aspects in the seed and organic food processing plant while maintaining compliance with all regulations for USDA, FDA and BRC. He is in charge of scheduling incoming and outgoing shipments of seed and food products. Lee also manages our winter greenhouse dry bean seed increases, in co-operation with MSU.

ANTHONY UPDYKE

SEED PROCESSOR I (2014)

AJ's responsibility is to assist with seed plant operations, operate seed cleaning equipment and ensure a quality product is delivered to all customers. Other duties include loading and unloading seed and food products. AJ also is in charge of the warehouse sanitation and equipment maintenance.

TODD MCPHERSON

SEED PROCESSING SPECIALIST (2013)

Todd's responsibility is to oversee all seed plant operations and operate all cleaning equipment. Todd is an expert on fine tuning the optical sorter which allows him to train other operators. Todd also is responsible for unloading and loading trucks as necessary.

JANET POLICELLA

OFFICE MANAGER (2013)

Janet is responsible for accounts payable, accounts receivable, cash receipts, invoicing, statements, financial records, and processing certification applications. She has other office duties including answering phones and handling customer inquiries. Janet is also responsible for royalty collection and royalty payment to our genetics suppliers.

JOYCE HIEBERT

LAB TECHNICIAN (2011)

Joyce's responsibilities include; coordinating and performing all seed laboratory tests including sample log in, planting, reading out, TZ tests, purity tests and tag printing. Joyce prints tags and keeps the lab work procedures up to date. Joyce also is responsible for lab and tag billings.

C. JAMES PALMER

MANAGER (1995)

Jim became the Manager of MCIA in 2020. Under the direction of the Michigan Crop Improvement Association Board of Directors, Jim is responsible for the day to day decisions for the association. He keeps the Board informed of pertinent information as necessary. Jim also develops budgets, identifies and reviews purchases, looks for new business opportunities, identifies promising seed varieties and manages seed multiplications.

CHRIS TIEDJE

FIELD AND LAB SUPERVISOR (1988)

Chris is responsible for hiring and training the MCIA inspection staff of over 35 employees. He also holds a supervisory role in the seed lab where he guides the team and lab operations. Chris also holds a Registered Seed Technologist (R.S.T.) designation which demonstrates his outstanding proficiency in seed evaluation and testing.

Field Inspectors

Ingham, Eaton ..... **CHRIS TIEDJE** | OKEMOS, MI

Clinton, Gratiot ..... **LAUREN MEZO** | OKEMOS, MI

Shiawassee ..... **JOHN DURLING** | PERRY, MI

Barry, Branch, Kent, Kalamazoo, St. Joseph ..... **HARLAN BLOOD** | STURGIS, MI

Lenawee, Monroe, Washtenaw ..... **JARED WIELFAERT** | BRITTON, MI

Huron, Tuscola ..... **BRENDON KENNARD** | VASSAR, MI

Lapeer, St. Clair, Sanilac ..... **SHAUNA MATER** | AVOCA, MI

Bay, Midland, Isabella, Saginaw ..... **DEB LEVASSEUR** | KAWKAWLIN, MI

Board of Directors

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Financial Results

MCIA finished 2020 with a surplus in both the Seed and Field/Lab departments. A comprehensive effort by all team members played a huge role in our success. Looking inside the numbers, improved foundation seed sales, increased inspection revenues, a robust lab testing year, as well as significant gains in our investments led to this outstanding performance. Please find a summary of the MCIA finances printed below:

SCHEDULES OF REVENUES AND EXPENSES BY BUDGET CLASSIFICATION

FOUNDATION SEED DIVISION | YEARS ENDED DECEMBER 31, 2020 AND 2019

	2020 (Compiled)		2019 (Audited)	
	Actual	Budget	Actual	Budget
REVENUES				
Gross profit				
Barley	$ 3,717	$ 3,000	$ 3,365	$ 2,000
Kidney beans	211,458	129,000	134,799	115,500
Beans	248,201	134,500	126,458	140,000
Oats	16,224	12,500	15,060	8,000
Soybeans	4,593	6,000	5,458	5,000
Wheat	234,010	193,400	226,043	185,000
Chemical and bag cost of sales	(2,640)	14,000	10,143	(35,000)
Freight	(28,201)	(16,000)	(22,112)	(22,000)
Sales discounts and inventory adjustments	(23,902)	(5,000)	(1,629)	(10,000)
Gross profit	663,460	471,400	497,585	388,500
Services				
Custom processing	105,488	100,000	92,225	120,000
Color sorter	27,408	25,000	20,846	30,000
Roguing	2,702	1,500	-	2,000
Organic processing	22,632	25,000	16,018	35,000
Collection fees	11,772	15,000	29,971	15,000
Other	8,367	-	10,253	-
Total service revenue	178,369	166,500	169,313	202,000
Other income	1,284	1,250	5,929	1,250
Investment return (loss), net	71,532	2,500	69,842	5,000
TOTAL REVENUES	914,645	641,650	742,669	596,750
EXPENSES				
Salaries and benefits	361,536	349,800	367,182	319,400
Payroll taxes	22,974	22,000	24,256	20,000
Training, workshops and meetings	487	7,500	5,179	7,500
Travel and vehicle	4,922	11,200	7,573	10,200
Telephone	2,514	3,000	3,128	2,800
Office supplies and postage	9,458	5,800	5,369	6,100
Maintenance and repairs	32,014	37,000	27,058	38,000
Rent	8,825	9,000	8,766	10,000
Warehouse supplies	8,641	8,900	7,649	11,250
Insurance	8,564	8,500	8,088	8,500
Utilities	22,408	24,250	21,261	22,800
Depreciation	97,622	95,000	95,526	92,000
Dues and subscriptions	4,923	4,000	5,620	5,000
Research	72,361	10,000	66,771	10,000
Professional services	34,507	31,500	29,598	19,500
Promotion and advertising	7,495	7,500	8,427	7,500
Directors' expenses	2,791	2,700	2,985	2,200
Miscellaneous	4,752	4,000	5,168	4,000
TOTAL EXPENSES	706,794	641,650	699,604	596,750
CHANGE IN NET ASSETS	$ 207,851	$ -	$ 43,065	$ -

SCHEDULES OF REVENUES AND EXPENSES BY BUDGET CLASSIFICATION

FIELD AND LAB SERVICES DIVISION | YEARS ENDED DECEMBER 31, 2020 AND 2019

	2020 (Compiled)		2019 (Audited)	
	Actual	Budget	Actual	Budget
REVENUES				
Services				
Inspections and tags				
Wheat	$ 46,056	$ 42,000	$ 47,132	$ 36,000
Rye	1,384	1,000	1,341	1,500
Oats	4,465	3,500	3,217	3,000
Barley	2,474	1,350	1,440	1,250
Soybeans	67,947	85,800	69,864	90,500
Corn	511,184	425,000	430,312	410,000
Beans	12,524	5,600	7,928	5,750
Mulch	-	5,000	1,518	6,000
Other tags	72,294	85,750	54,745	101,000
IRM inspections	5,925	1,500	7,289	-
Testing	96,806	67,700	61,738	69,550
Total service revenue	821,059	724,200	686,524	724,550
Other income	1,585	1,300	4,285	1,000
Investment return (loss), net	75,004	30,000	73,950	30,000
TOTAL REVENUES	897,648	755,500	764,759	755,550
EXPENSES				
Salaries and benefits	485,259	486,400	522,034	503,400
Payroll taxes	29,789	32,000	30,756	36,000
Training, workshops and meetings	752	12,000	10,186	10,000
Field inspections	44,449	46,500	45,185	44,150
Telephone	2,514	3,000	3,128	3,000
Office supplies and postage	17,541	9,700	8,554	11,100
Maintenance and repairs	7,011	10,500	11,735	9,500
Lab supplies	13,599	8,000	8,354	7,000
Outside lab testing	4,243	7,000	7,464	9,000
Tags	16,205	10,000	5,226	10,000
Insurance	8,564	8,400	8,018	8,400
Utilities	10,230	14,400	12,145	14,400
Depreciation	20,787	22,000	23,224	21,000
Dues and subscriptions	9,138	10,000	10,424	12,000
Professional services	45,891	24,600	21,516	23,600
Promotion and advertising	13,938	16,000	15,738	20,000
Directors' expenses	2,792	3,000	2,986	3,000
Miscellaneous	7,911	12,000	9,646	10,000
TOTAL EXPENSES	740,613	735,500	756,319	755,550
CHANGE IN NET ASSETS	$ 157,035	$ 20,000	$ 8,440	$ -

Current Services to Assist Our Membership

Field

- Field inspection for Seed Certification Programs.
- Quality Assurance inspections for brand marketing of seed.
- Disease Inspection for dry beans and other crops.
- Company directed service inspections.
- Field Assessments used to directly manage pollen control for hybrid seed corn.

Seed Lab

- Perform standard warm germination and purity tests.
- Assess seed vigor with TZ, accelerated aging and cold tests.
- Provide seed count, seed moisture and testing with seed treatments.
- Herbicide trait verification and GMO testing.
- Perform purity and noxious weed exams for international shipping.

Seed and Processing

- Provide quality foundation and parent seed stock for our seed growers.
- Provide custom processing services for seed, grain and feed.
- Offer field roguing services.
- Certified Organic and BRC Food Safety Certified.
- Perform color sorting services to remove unwanted defects or contamination.

Facility Upgrades

- Completed upgrade of MCIA Website to improve appearance, include interactive forms, and allow for instant updates to members.
- Reprogrammed the Crop Data System to allow for easier searching of lab samples, tags and results.
- Updated computer server and back-up services.
- Repaired 115 mobile storage bins.
- Insulated and sheeted walls in warehouse number one.
- Installed new vacuum pump in seed lab to improve planting efficiency.

Scholarship Recipients

MSU Scholarships

Each year MCIA awards 10 $2,000 scholarships to deserving MSU students who are studying programs with an emphasis in agriculture. The scholarships are intended to encourage a greater number of students to enter the field of agriculture. The 2020 recipients and the potential leaders of tomorrow are:

MADISON BANK
CARLETON CITY, MI

JOSH DERADOORIAN
MILFORD, MI

RACHEL DROBNAK
OLMSTED TOWNSHIP, OH

CAROLINA FREITAS
PATOS DE MINAS-MINAS GERAIS, BRAZIL

DJ HISLER
CHARLOTTE, MI

CAM LANGMAACK
CHARLOTTE, MI

LUKE RETFORD
OWENDALE, MI

BRICE WALTHER
SCHOOLCRAFT, MI

CLAUDIA WALZ
MANCHESTER, MI

JENNA WOLFE
ASHLEY, MI

Scott Judd Memorial Scholarship

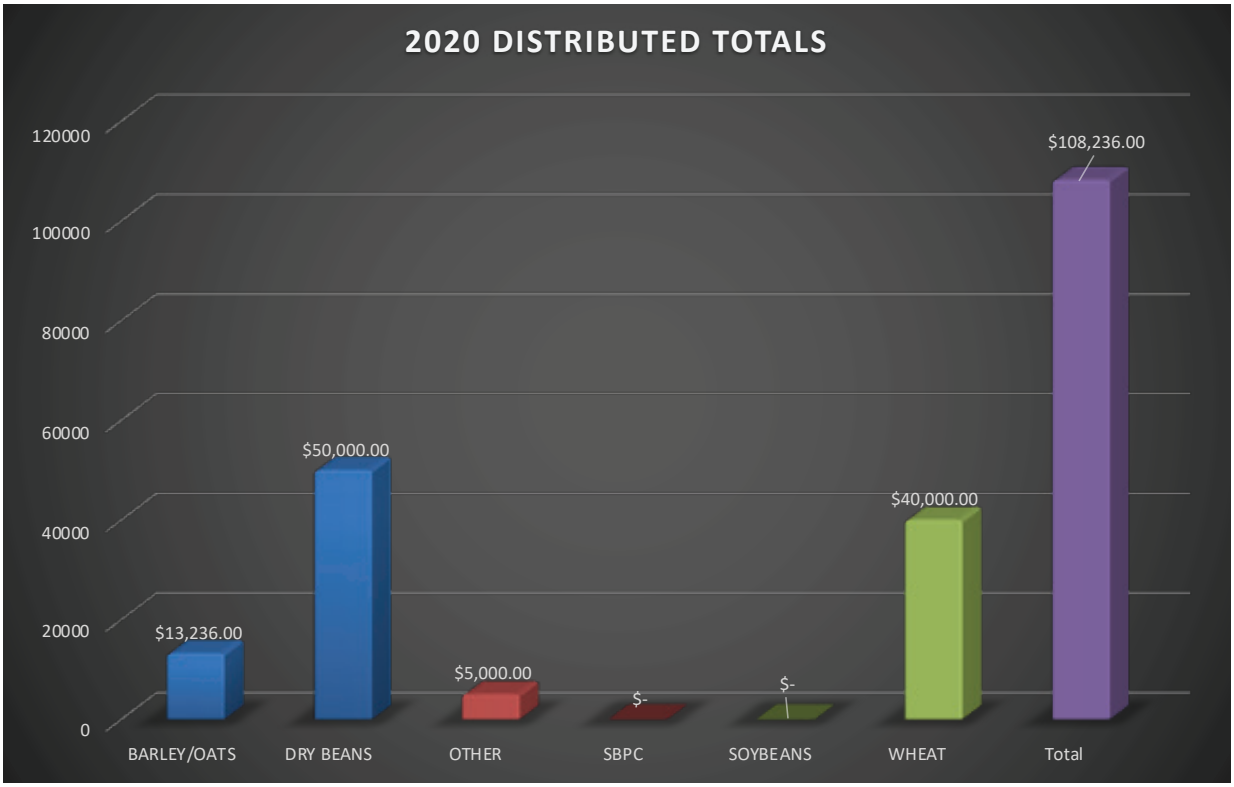
The Scott Judd Scholarship was established in 2020 to honor the long time MCIA Manager Randel H. Judd who lost his son to cancer at an early age. The applicants must attend Mason High School and be planning to attend MSU in a STEM or Ag related field. There are two recipients per year who receive $1,000 scholarships. This scholarship continues for ten years. The 2020 recipients are:

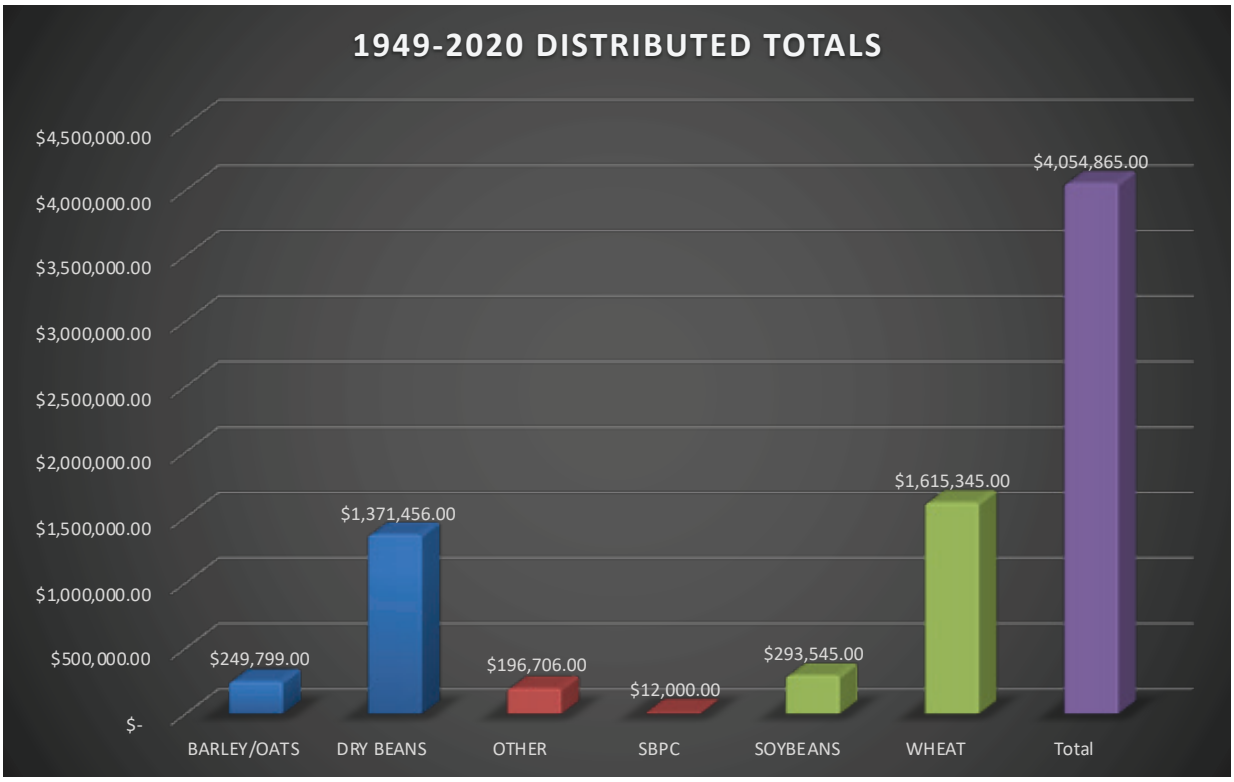
MICHAEL KIRBY
MASON, MI

AMY NGUYEN
MASON, MI

Research Funded

MCIA funds several MSU Programs which help provide access to new varieties and research. These funds are assessed and paid by growers who purchase Foundation Seed.





Projects Funded

Title: Investigating Oat and Barley Variety Performance Across Michigan

Principal Investigator:

DR. JAMES DEDECKER
MSU Upper Peninsula Research and Extension Center
E3774 University Dr.
Chatham, MI 49816
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Cooperators:

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Justification:
Oats and barley are well adapted to the relatively short growing season and cool summertime temperatures found in much of Michigan. Presently, there are approximately 81,000 acres of oats and barley planted in the state (NASS, 2017). Oats and barley are commonly grown as a nurse crop or rotational crop. However, growers' interest in oat and barley production for market has increased again in recent years. This is being driven by several factors, including low corn, soybean and dairy prices, emerging niche markets for malting, distilling and baking, as well as erratic fall weather more frequently delaying winter wheat planting.

Farmers that are considering transitioning acres to oats or barley are somewhat hesitant because of the lack of current, research-based information regarding oat and barley variety performance in Michigan. In addition to local agronomic, yield and test weight data, producers also require information on feed, milling and malting quality of available oat and barley varieties to enhance marketability and value. We therefore propose a three-location oat and barley variety trial in cooperation with the Michigan Wheat Program and national Uniform Early Oat Performance Nursery (UEOPN) project to support development and release of new superior oat and barley varieties to MCIA members.

Objectives and Hypothesis:
Objective: Identify elite oat and barley varieties adapted to Michigan in terms of agronomic qualities, disease resistance, yield potential, test weight, feed, milling and malting qualities.

Hypothesis: Significant differences in agronomic qualities, disease resistance, yield potential, test weight and quality will be observed between studied oat and barley varieties.

Procedures:
We will conduct a three-location oat and barley variety trial at the MSU Upper Peninsular Research and Extension Center (UPREC) in Chatham, MI, at the MSU Kellogg Biological Station in Hickory Corners, MI, and at the MSU Mason Research Farm. The trial will include oat entries from the UEOPN as well as other elite commercial and experimental oat and barley varieties solicited from MCIA, seed companies and breeders. All oat and barley varieties entered will be trialed at all three locations. Oats and barley will be planted in their own respective blocks, with feed and malting varieties further segregated. Plot size will be 4' X 16' and each variety will be replicated three times in a rectangular lattice design. Nitrogen rates will be determined by intended market, with feed varieties receiving 100 lbs/a and malting varieties 50 lbs/a. Planting, in season management, and harvest will be conducted by staff from UPREC at the Chatham location, by Dennis Pennington at the Mason location, and by KBS staff at their location.

Measurements of stand establishment, crop disease or pest damage, average heading date, straw height, lodging, yield and test weight will be recorded for each variety. Harvested samples will also be analyzed for feed, milling and malting quality,

including the presence of mycotoxins. In- season observations and data analysis will be completed by UPREC, KBS and Dennis Pennington at the respective locations. Post-harvest analysis for quality parameters will be completed at the UPREC Malting Barley Quality Lab. All data will be analyzed and interpreted using appropriate statistical methodology.

Progress to Date:
UPREC and KBS have conducted spring malting barley and oat variety trials at these same locations since 2014 and 2017 respectively. In 2019, MCIA support allowed us to expand this work by bringing the UEOPN oat nursery to Michigan for the first time in several years. This ongoing work provides the only public variety performance information for these crops in Northern Michigan and the Upper Peninsula. Oats and barley have generally performed well in northern locations, ranking high in yield and quality relative to the same varieties of spring grain grown at other locations in MI (i.e. Kellogg Biological Station) or across the Midwest and Northeast US, in the case of the Eastern Spring Barley Nursery (ESBN) project.

Funds Requested: $13,235.63

Matching Funds:

Impact on Michigan Agriculture:
Providing local data on oat and barley varieties for Michigan will aid variety selection and help farmers be more confident in growing these crops. Increased crop diversity from adding spring small grains will help to mitigate financial and environmental risk on farms. These crops may also improve climate resilience by serving as an alternative to wheat when adverse fall weather prevents timely winter wheat planting. Additionally, conducting variety performance trials will provide data to breeders of spring small grains to help speed the development and release of new superior varieties to MCIA members.

Budget: See attachment

Principal Investigator Signature:

Authorizing Organizational Representative:

Title: Development of Soft Winter Wheat Varieties for Michigan and the Great Lakes Region

Principal Investigator:

DR. ERIC OLSON
Michigan State University, Department of Plant Soil and Microbial Sciences
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eolson@msu.edu

Justification:
New wheat varieties with increasingly higher yield potential are necessary to enhance the competitiveness of wheat production in Michigan and enhance profitability across the entire network of seedsmen, end users and wheat growers. The Michigan State Wheat Breeding and Genetics program aims to develop elite soft winter wheat varieties with high yield potential adapted to Michigan growing environments.

MSU Wheat Breeding and Genetics is on track to develop soft red and white winter wheat varieties with the high-end yield potential, disease resistance and quality parameters required by all stakeholders in the Michigan wheat industry. Funding from MCIA provides the personnel and equipment resources necessary to continue developing new wheat varieties and driving yield potential higher.

Hypothesis and Objectives:
The primary objective of MSU Wheat Breeding and Genetics is to develop elite soft winter wheat varieties adapted to Michigan and the Great Lakes Region. By this work MSU Wheat Breeding will expand the germplasm base of the program and develop high yielding wheat varieties.

1. Make crosses to incorporate new sources of yield potential, PHS and FHB resistance into soft red and soft whiter winter wheat breeding populations.
2. Make selections in early generation bulk breeding populations to fix high heritability traits including flowering date, plant height and disease resistance.
3. Implement genomic selection to identify lines that have high agronomic potential based on model predictions.
4. Conduct preliminary and advanced yield trials to identify lines with high yield potential.

Procedures:

1. *Crossing:* 600 crosses are targeted in spring and fall cycles to make F1 single crosses, topcrosses and backcrosses. Currently, in the fall 2020 crossing block, 281 crosses have been made with focus on resistance to FHB and rusts, grain quality and grain yield.
2. *Early generation selection:* Populations are randomly advanced from the F1 the F4 generation in the greenhouse using the mini-bulk system. F4 seed of each population is space-planted in bulk plots of 300 plants. Single plants are selected from each population based on agronomic type, phenology and disease resistance.
3. *Genomic selection.* DNA is isolated from 3000 selected plants to generate genome-wide SNP marker data. Genomic estimated breeding values (GEBVs) are developed for grain yield, DON mycotoxin and Preharvest sprouting (PHS). A total of 675 selected plants are grown in short four- row plots for observation and seed increase. Selections are grown in two replicates in the misted FHB nursery. A total of 250 plants are then advanced into replicated yield testing.
4. *Yield testing:* Replicated yield trials are conducted on 40 to 100 lines in two replications at 11 locations: six in MI, three in OH and two in IL. In addition to MSU breeding lines, ~115 entries are tested in three replicates in seven locations in the Michigan State Wheat Performance Trials including four new MSU soft white and two soft red winter wheat entries. Extensive evaluation and stringent selection for pre-harvest sprouting and Fhb resistance are applied at this stage.

Progress to Date:

In 2020, MSU-WBG made 598 crosses focused on yield potential, quality and resistance to FHB. Segregating F4 populations were developed from all crosses. Selections were made within 445 F4 and F5 bulk populations at Mason, MI. A total of ~2,800 new inbred lines were derived. GEBVs were estimated for grain yield, DON and PHS and 675 individuals were planted in small plots for observation and seed increase. Selections were made among ~700 lines in a single plot observation nursery. A total of 250 of these were advanced into replicated yield testing.

Selections were made among 1,200 lines in preliminary yield trials (PYT) tested at Mason and Richville locations. From the PYT, 147 lines are being tested at locations in MI, IL and OH. From the 2020 advanced yield trials (AYT), six elite lines have been advanced to the Michigan State Wheat Performance Trials. Two soft red winter wheats, MI17R0357 and MI16R0906 were approved for release.

In 2020, all lines in preliminary and advanced yield trials were evaluated for FHB resistance in an irrigated and inoculated nursery. Data were collected on severity, incidence and DON mycotoxin. Lines with high levels of resistance were identified and are in advanced stages of yield testing and are being used in the crossing program.

Currently, 256 PYT entries are planted in two replications at four locations, 675 small plots of single plant selections and 467 F4 bulk populations, have been planted at Mason. The 147 AYT entries are planted at 11 locations. The State Performance Trial, includes 6 new MSU entries, and has been planted at seven locations in Michigan. Crossing for the fall cycle has been completed and parents for the spring cycle in being planted and vernalized.

Funds Requested:

MSU Wheat Breeding and Genetics is requesting $40,000 to support research associates, undergraduate employees, consumables for field, greenhouse and lab activities and summer salary for the project PI.

Matching Funds:

Michigan Wheat Program:	$121,518
US Wheat and Barley Scab Initiative:	$101,000
Total Matching Funds:	**$222,518**

Impact on Michigan Agriculture:
Improved wheat varieties have great potential to impact the Michigan wheat industry and agricultural economy. Each bushel per acre increase across 500,000 acres statewide at $5.00 per bushel translates into 2.5 million dollars of increased farm revenue. MSU Wheat Breeding and Genetics has the capacity for continued impact by developing soft winter wheat varieties with increased yield potential, high quality and improved disease resistance.

Principal Investigator Signature:

Authorizing Organizational Representative:

Title: Developing Dry Bean Cultivars with High-Yielding, Disease Resistant, Drought Tolerant, and High Canning Quality suitable for Direct Harvest in Michigan

Principal Investigator:

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Justification:
Michigan is the second largest producer of dry bean in the US. To maintain dry bean production at current levels in Michigan and meet industry standards, a cooperative effort by researchers, producers, and the elevator industry is required. To meet Michigan bean industry standards dry beans must have disease resistance, appropriate maturity with uniform dry down, upright architecture for direct harvest, and good canning quality. These standards are used as a selection criterion for the MSU dry bean breeding program. As dry bean production shifts to narrow row widths and the majority of black, navy, and small red beans are direct harvested, breeding for plant architecture continues to be a major target to reduce losses incurred during direct harvest and provide avoidance to white mold. While avoidance provides some resistance, physiological resistance to white mold is still necessary as narrow row widths exacerbate mold development. Plant architecture also addresses seed quality as seed is more easily damaged during the direct harvest process. During early stages of the breeding program all new small and medium- sized varieties are direct harvested without major problems in seed loss, due to low pod height, lodging, uniform dry down and less seed splitting due to actual threshing as plant material (no roots) passes through the combine. As breeding lines are advanced, yield and processor quality are major selection criteria to advance lines but direct harvest continues to indirectly select against those lines that fail to meet expectation for ease of harvest with minimum harvest loss, or lower yield as a result of direct harvest losses and/or increased incidence of seed splitting due to the actual threshing process. Quality traits such as such as seed coat checking in great northern, slow darkening in pintos prior to canning, color retention in black beans, seed shape in white kidneys, and color uniformity in reds and pinks after canning are strictly selected. Selection for efficient dry down at maturity to reduce the need for crop desiccation is performed as well. Disease resistance such as common bacterial blight (CBB) is being incorporated into all commercial classes, root rot resistance needs to be improved in Andean classes, rust, anthracnose, and virus resistance is also being introduced into medium-seeded classes. Efforts to improve N-fixation of new beans are underway to reduce the level of N-fertilizer that contributes indirectly to the incidence of white mold and environmental pollution in the Great Lakes watershed. Furthermore, researchers are evaluating new bean varieties for new uses such as bean flour and fast cooking times to increase the consumption of dry bean in the US. Maintaining an active breeding program at MSU offers an opportunity to meet these needs and address

other short-term and long-term issues like climate change, genetic diversity, environmental pollution in the Great Lakes watershed, and the opportunity to expand bean production into the northern areas of the state.

Objectives and hypotheses:
Select for high yield, upright architecture, disease resistance, maturity and uniform dry down, drought tolerance, and canning quality traits in the major dry bean market classes grown in Michigan. Explore and utilize germplasm from other breeding programs, foreign and domestic to introduce new genetic variability to improve agronomic, abiotic, and biotic traits. Incorporate BCMV and anthracnose resistance into black, navy, pintos, great northerns, reds, and pink seed classes due to the recent identification of new anthracnose race. The lack of resistance to anthracnose in medium size classes could cause major production issues as they become increasingly important in the state. Continue to improve yellow bean market classes adapted to Michigan. Continue to develop new genomic tools such as KASP markers to assist in marker-assisted selection (MAS) for major diseases. Explore the use of genomic selection for more complex quantitative traits (e.g. yield). Develop new high-throughput phenotyping tools to phenotype for plant architecture, disease resistance, and maturity. Maintain the genetic integrity and purity of varieties at advanced stages of breeding for overall uniformity and quality.

Procedures:
Develop new and novel germplasm through elite by elite mating crosses. Evaluate early generation nurseries using MAS to efficiently transfer major gene resistance for anthracnose, and virus into black, navy, pinto, pink, small red, otebo, great northern and yellow bean classes. Evaluate yield trials in alpha-lattice designs in small and medium seeded market classes and collaborate in statewide trials and growers' fields to identify high-yielding varieties with uniform dry down suitable for direct harvest. We will perform linkage mapping using bi- parental and association mapping populations to identify QTL for diseases (e.g. CBB) and quality traits (e.g. color retention). Markers associated with QTL will be utilized for MAS for these traits. Genomic prediction models for yield and quality will also be determined. A high-throughput phenotyping pipeline using unmanned aerial system (UAS) will be developed to estimate traits such as maturity, CBB, and root rots. Perform field screening for root rot in major classes to identify resistance parents and to develop new methods to phenotype using UAS.

Progress to date:
The dry bean-breeding program conducted 17 yield trials in 2020 in ten market classes and participated in the growing and evaluation of the Cooperative Dry Bean, Midwest Regional Performance, National Drought and the National Sclerotinia Nurseries in Michigan and winter nursery in Puerto Rico. Early generation nurseries were also grown for ten market classes at two locations in Michigan. The nurseries were planted between (5 June and 18 June). Bean trials received an average of 9.96" of rain (June - mid Sept). This resulted with an average bean yields up to 30 cwt/acre at the Saginaw Valley Research and Extension Center (SVREC) near Frankenmuth. CBB was prevalent on some of the research plots on both research farms and notes were collected to identify those lines that showed some level of resistance. Efforts to breed for anthracnose resistance into large, seeded beans including kidney and yellow beans continued this year by continued introgression and screening. Recombinant inbred lines were also grown and evaluated for potential for agronomic and disease resistance traits at Montcalm research farm. UAS were flown at the SVREC location for six weeks. A black bean N-fixation trial was continued at the SVREC research farm to evaluate yield performance under low N conditions.

Funds requested: $50,000

Matching Funds:
Royalty funds from current MSU varieties; MSU continues to provide field, greenhouse and lab facilities and equipment; Continue to collaborate with PRAB to conduct statewide testing of elite MSU breeding lines with funding from MDARD Block Grant and MBC; Funds from Project GREEEN for research on anthracnose resistance and from MSU Plant Resilience Institute for work on stress tolerance.

Impact on Michigan agriculture:
New high-yielding, disease resistant bean varieties suitable for direct harvest would help sustain the Michigan dry bean industry estimated at a farm-gate value of $140 million with an additional $25 million in handling and shipping the commodity. Impact will be measured by known acreage of varieties grown in Michigan. Breeding for disease resistance, maturity, and SNF will help dry bean producers reduce cost of additional inputs added that can contribute to an ecological impact in the Great Lakes watershed.

Title: Evaluating impacts of planting date and seeding rate on Whitetail soft white winter wheat

Principal Investigator:

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Cooperators: none

Justification:
It has been a couple of decades since planting date and seeding rate studies have been conducted in MI. With continued genetic improvement of new released soft winter wheat lines, it is time to re-evaluate the effect of planting date and seeding rates on winter wheat growth and yield potential. Whitetail is a new soft white winter wheat variety released to MCIA from MSU. Not only will this project provide new data on how to properly manage this new variety, it will also provide basis for making decisions about planting dates and seeding rates for MI grown soft winter wheat.

Objectives and hypotheses:
The objectives of this research are to evaluate planting dates and seeding rates using the new soft white winter wheat variety Whitetail. Specific hypotheses include:

1. Planting date will affect yield and milling/baking quality of whitetail soft white winter wheat
2. Seeding rate will affect yield and milling/baking quality of whitetail soft white winter wheat
3. Significant interaction between planting date and seeding rate will drive wheat yield and quality responses.

Procedures:
The MSU Wheat Research team will plant and manage the trial. Small plots (5 foot x 18 foot) will be planted at the Mason Research Farm near Mason, MI. Plots will be arranged in a split plot design with planting date (5 levels) as the main factor and seeding rate (5 levels) as the sub-factor, with 4 replications as described below:

Planting dates	Seeding rate*
September 15	0.8
October 1	1.2
October 15	1.6
November 1	2
November 15	2.4

million seeds per acre

All five seeding rates will be planted on each planting date, for a total of 100 plots in this project. Planting will occur as close to the target date as possible based on the weather and field conditions. Plots will be planted with an Almaco HD grain drill equipped with a packet planter. Plots will be managed using the same practices as the high management trials in the variety testing program.

These include a herbicide at Feekes 4-5, 90 pounds of nitrogen in the form of urea applied just prior to greenup, a second application of 30 pounds of nitrogen in the form of 28% UAN streamed on at Feekes 6-7, a fungicide application at Feekes 9 (flag leaf) and a second fungicide application at Feekes 10.5.1 for head scab control.

In-season data collection include stand counts from 0.5m sections of middle two rows just after emergence in the fall, tiller counts and yield component samples will be collected prior to harvest. Yield, moisture, and test weight data will be collected at final harvest. Subsamples will be sent to the USDA Soft Wheat Quality Lab in Wooster, OH for milling/baking quality analysis. All data will be presented back to MCIA and at winter grower meetings, summer field days and through the Wheat Wisdom newsletter.

Progress to date:
This project has been underway for over a year now. In year one, this trial was planted and harvested at the Mason Research Farm. Year 2 trials were planted in fall of 2020. In the first year of this trial, there was a lack of labor and supplies to collect stand and tiller counts as well as yield component samples. Funding for this project will provide us with the ability to hire an undergraduate student to collect these data and process samples. In order to make new extension recommendations to farmers, we need to conduct this study for 2-3 years. Based on the significance and consistency of data from the first two years, a decision will be made about whether a third year of data (crop year 2021-22) is needed to draw final conclusions. We don't need a large amount of funding, just enough to get the help we need to do the stand and tiller counts, yield component samples, and evaluate grain quality on samples collected at harvest.

Funds requested: $5000

Matching Funds: $3000 from MSU Wheat Performance Trial Program, in-kind support (personnel, land, and equipment) from Wheat and Cropping Systems Agronomy programs.

Impact on Michigan agriculture:
Planting date has long been proven to impact crop yield, and might become even more important as we deal with extreme weather events and variable planting windows. As farmers look for ways to remain competitive and gain the next 5 bushel yield increase, it is important to look at all of the variables. Seed cost is the second highest input cost when growing wheat. Finding the right combination of planting date and seeding rate will help MI wheat growers optimize the rate of return on their investment. Harvest delays, uncooperative weather patterns and a whole number of things impact when each farm can get their wheat planted. While all wheat growers strive to get their wheat planted early, there are many things outside of their control that impact when they are able to get the crop planted. Data from this trial will not only provide valuable information on the new variety Whitetail, but it will help inform all wheat growers about the proper seeding rates based on the date they are able to get their wheat planted.

Budget: (attachment)

Principal Investigator Signature:

Authorizing Organizational Representative:

MCIA Programs

- **AOSCA** – Traditional certification for public varieties in mutual cooperation with other state certification agencies within the United States.
- **OECD** – Mutual cooperation with certification agencies in other countries verifying seed meeting international standards.
- **Quality Assurance (QA)** – Quality verification system for private labeled seed marketed by brand name.
- **Identity Preserved (IP)** – Verification and traceabilty system for grain with added value traits.
- **Source Identified** – Verification system for native species/germplasm to show adaptability based on genetic origin and seed production location.
- **Forage and Mulch** – Inspection program to prevent the spread of noxious weeds in feed material.
- **Audits** – A sequence of questions and evaluations used to document compliance to guidelines or standards.

MCIA Certifications/Accreditations

- **MDARD** – The Michigan Department of Agriculture and Rural Development(MDARD) authorizes MCIA to verify that all seed certified sold in Michigan meets the State of Michigan standards.
- **AOSCA** – MCIA is a member of US and international seed certification agencies collectively known as AOSCA (Association of Official Seed Certification Agencies).
- **OECD** – MCIA is authorized by USDA to verify that seed shipped to the European Union (and other member countries) meets the minimum OECD certification and shipping standards.
- **USDA** – MCIA is authorized as the official certification agency for interstate seed sales according to the Federal Seed Act.
- **SCST** – MCIA is a member of the Society of Commercial Seed Technologists (SCST), an organization of professional seed analysts and labs across the US and Canada.
- **ASL** – The MCIA seed lab is accredited by USDA to perform official testing as an Accredited Seed Lab (ASL).
- **BRC** – The MCIA Processing Plant is a third party approved food safety handler.
- **Organic Handler** – The MCIA processing plant is designated a Certified Organic handler audited yearly by Minnesota Crop Improvement Association.
- **FDA** – MCIA is a registered food facility under authority of the FDA.
- **MDARD** – Commercial Pesticide Applicator.

Events Attended

While travel restrictions kept our staff from attending live events, we managed to participate in many virtual meetings and training webinars. A snapshot of a few events attended is listed below.

- MABA Winter Conference and Trade Show
- ASTA Annual Conference
- Independent Professional Seedsman Association Conference
- AOSCA Regional and Annual Meetings
- Wheat Growers Summer Virtual Field Day
- Soybean Quality Workshop by SODAK
- Bean and Beet Virtual Field Day
- Virtual Thumb Ag Day
- Seed Treatment Seminar
- Fumigation Seminar
- Facility Pest Control in Agriculture
- SCST Organizational Webinar

Field Services Report

In 2020 MCIA field inspections totaled 110,699 acres, which is a 1% decrease from last year. Corn acres were up, with soybeans down, and wheat acres flat. Inspection programs include: OECD certification for international seed sales, AOSCA certification for in-state and national seed sales, Quality Assurance (QA) for brand labeling of seed, and Identity Preserved (IP) for grains marketed for specialty products. The focus of MCIA field inspections is to provide official unbiased information as it relates to genetic purity and seed quality for certification. Field inspections are an opportunity to identify and isolate potential problems in the field to keep the final product pure. This step has been valuable to companies as well for their internal quality management system. MCIA inspectors can serve to collect and input specific information into their data systems.

Crop Year

2020 was a more normal crop production year than we have had in recent history. Crop planting was not too early or late. Small grains were harvested timely for good quality. Although globally it was one of the warmest three years in history, Michigan did not see the extremes that were experienced in some areas. Perhaps this is attributed to the buffering of the Great Lakes. It is a strong statement that Michigan held the highest national corn contest yield of 476 bu./acre in 2020. It is a testimony to Michigan's climate, genetics, and an individual's keen attentiveness to crop management. It was also a very good year for dry edible bean production with reports of over 40 cwt./acre not uncommon.

Small Grain

In 2020, 8,429 acres of wheat were inspected, which is a 4% increase over last year. The acreage split between white and red wheat was 36% white and 64% red. The new variety, Whitetail was the most popular wheat variety. Seed quality was good, but yields were down slightly from last year. Fall weather was good providing timely bean harvest for an increase in wheat plantings. Oat, barley, and rye acreages were all up with certification acreages being 696, 211, and 288 respectfully. Triticale is a new emerging crop with a total of 403 acres inspected. Most of this is for sales outside of Michigan.

Corn

In 2020 69,452 acres were inspected, representing an 2% decrease from last year. Although acres were down, workload was up due to an increase in the number of acres inspected daily. MCIA continues to perform daily inspections on seed corn fields serving two purposes: assisting in pollen management and verification for certification. Fields were planted in fairly good time allowing a good maturity spread for pollen management. There were no summer storms to disrupt de-tasseling efforts. Sterile genetics are being utilized more to reduce human resources especially during the health concerns of the pandemic. Yields were good resulting from the good growing conditions. The majority of seed corn is inspected according to accreditation guidelines for labeling as USA Certified. The accreditation process involves field inspection with an audit review for other seed certification related functions. Seed company field inspection and documentation has gone well. MCIA continues to audit company records and inspections annually. No corn refuge assessments were performed in 2020 reflective of farming trends of blended seed products and also company focus of assessments in higher priority locations.

Dry Bean

Dry edible bean acreage was up in 2020, totaling 1,458 acres. Approved acreages consisted of 127 acres of navy beans, 654 acres of kidney beans, and 657 acres of black beans. This is the first year in the last 3 years that navy types were certified. It is also the first time Foundation class seed has been inspected in many years. There was little disease pressure found in seed fields this year with common blight found in only one field. Lab tests are showing similar results.

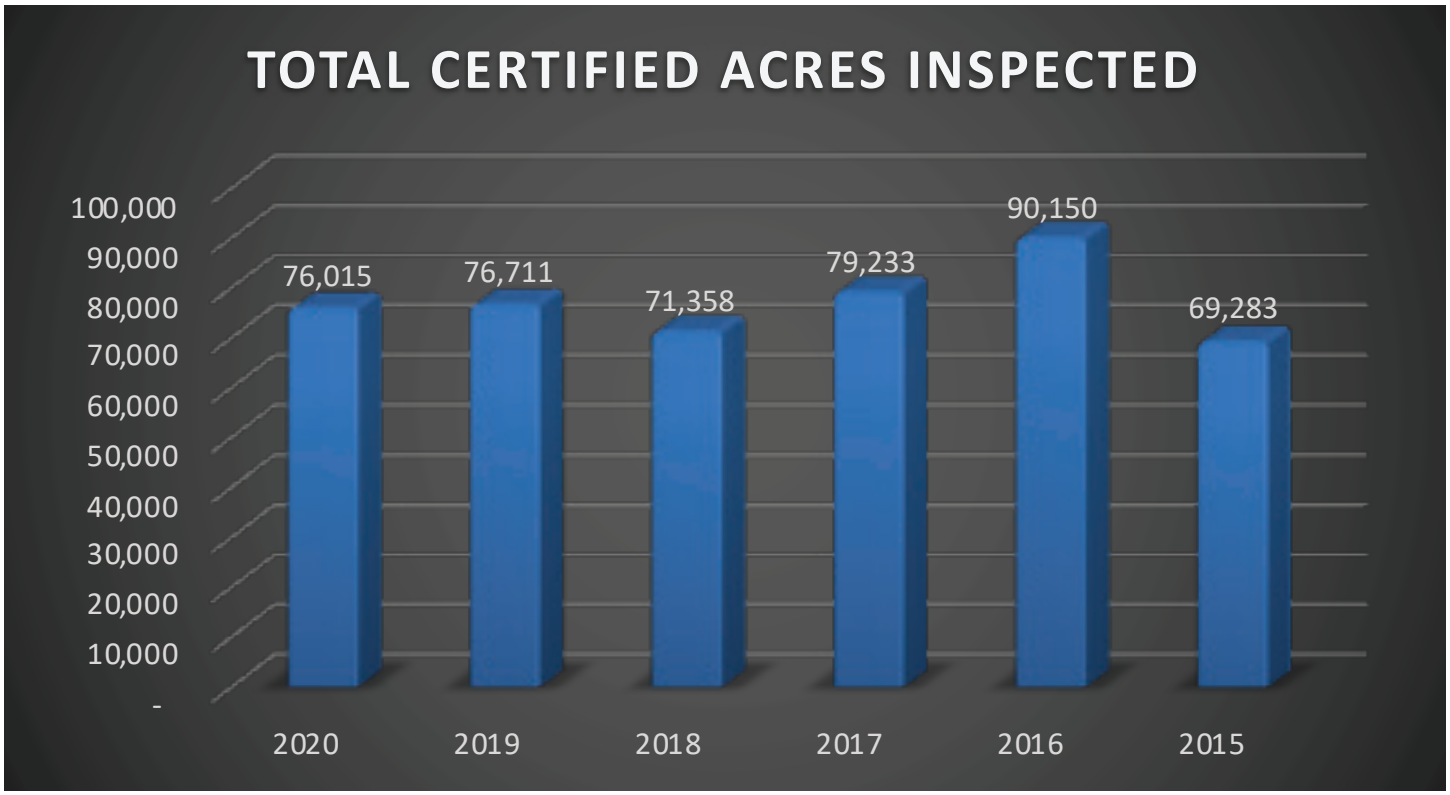
Soybean

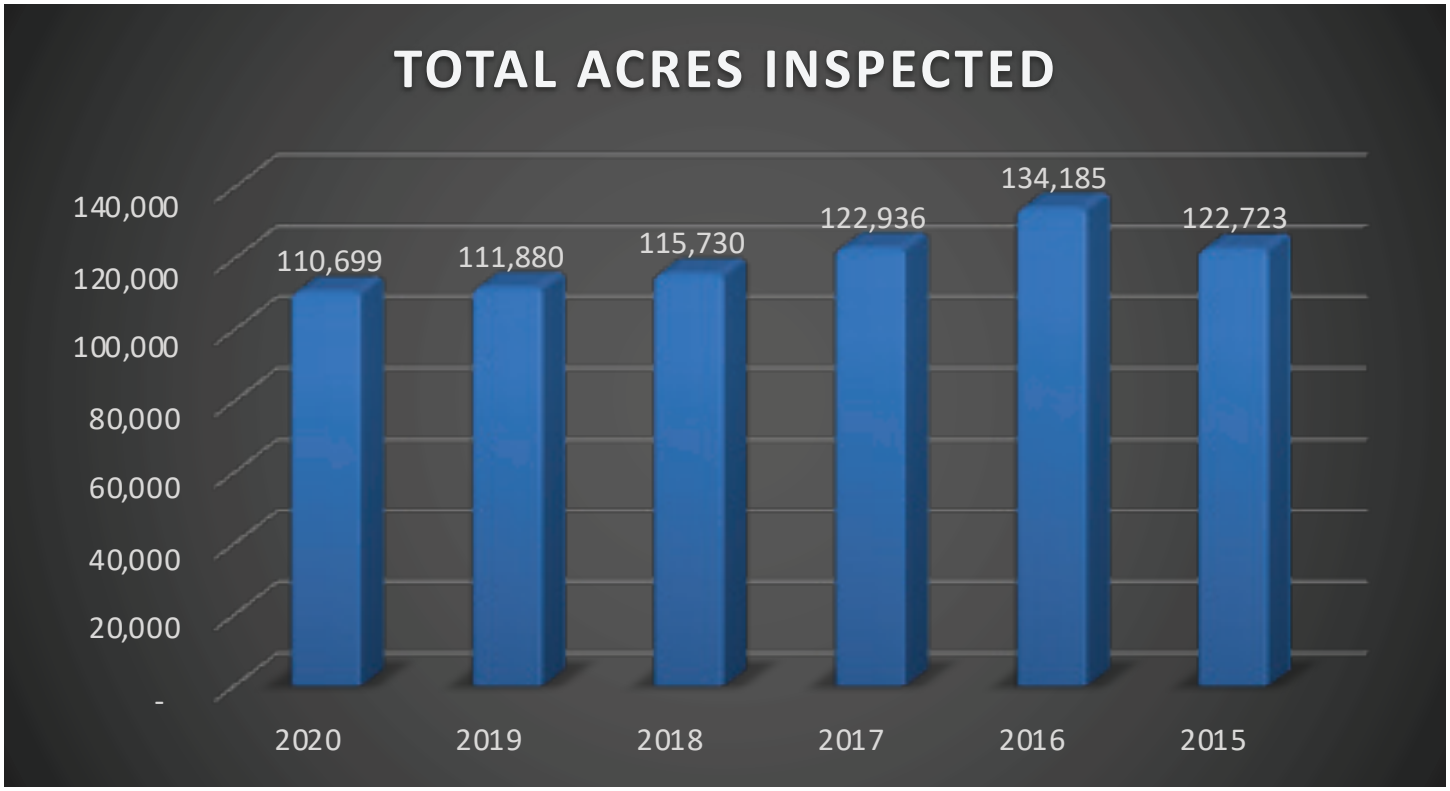
Soybean acreage was down 2% in 2020. It included: 35 acres for certification, 13,173 acres of Quality Assurance, and 16,535 acres of interagency and service inspections. New soybean herbicide traits are coming to market increasing the need for robust seed programs in both the field and lab. Products include Glyphosate, Liberty, Dicamba, Enlist, and Balance. These offer improved performance for controlling resistant weeds. MCIA performs inspections for: Certification, Quality Assurance, and also several types of Interagency Certification. Quality Assurance inspections are offered to seed companies for the evaluation and documentation of private genetics. Early soybean inspections focus on crop management information such as weed escapes, volunteer corn, diseases, insect activity, and blossom color. These inspections are also commonly used to verify trait purity in new herbicide resistant varieties following a herbicide application. A fall inspection is performed to identify off-types and evaluate the varietal purity. MCIA continues the real time electronic inspections where information is documented on an iPad with an app specific for seed inspections.

Summary

2020 was certainly a unique year. For some it was a challenge to decide what to do with carryover soybean seed. For some, it was understanding how to do business with the restrictions of the pandemic. We are grateful for all the efforts of those who contributed to the mission of the association: to serve the seed industry in providing professional information for seed and plant products in the ever-changing world. As we look forward to the future there is talk of carbon credits, new varieties, new traits . . . each with new opportunities. MCIA is here to help you capitalize on them.

Inspection Acres





Inspection Acres by Variety

2020 ACREAGE DETAIL

WHITE WHEAT ACREAGE

VARIETY	2018	2019	2020
A/C Mountain	460	410	270
E6012	227	88	83
Jupiter	1450	1614	842
MCIA Venus	40	49	40
Moonlight	0	0	10
Whitetail	0	28	986
Private	453	350	163
Service Wheat	160	229	217
Total White	**2790**	**2768**	**2611**

RED WHEAT ACREAGE

VARIETY	2018	2019	2020
Harbor	0	0	10
Hopewell	31	20	0
Starburst	226	114	114
Sunburst	396	355	449
Private	591	782	839
QA Wheat	1355	1230	1304
Service Wheat	1492	1932	1853
Total Red	**4091**	**4433**	**4569**
Wheat Total	**6881**	**7201**	**7180**

OAT ACREAGE

VARIETY	2018	2019	2020
Antigo	0	0	15
Goliath	10	0	11
Hayden	116	153	259
Horsepower	113	142	103
Ida	227	307	308
Jerry	0	10	19
Ogle	71	52	0
Esker	11	0	0
Oats Total	**548**	**664**	**715**

BARLEY ACREAGE

VARIETY	2018	2019	2020
Bowers	122	111	130
LCS Calypso	25	17	15
LCS Odyssey	14	26	25
LCS Violetta	0	0	22
Kewaunee	18	0	0
Rasmussen	20	17	19
Spartan	3	5	0
Total	**202**	**176**	**211**

COLORED BEAN ACREAGE

VARIETY	2018	2019	2020
Montcalm	212	137	130
Red Hawk	30	60	135
Red Cedar	22	82	75
Snowdon	0	20	0
Zorro	10	15	30
Zenith	378	323	607
Cayenne	0	12	20
QA	219	335	334
Total	**871**	**984**	**1331**

NAVYBEAN ACREAGE

VARIETY	2018	2019	2020
Alpena	0	0	127
Total	**0**	**0**	**127**

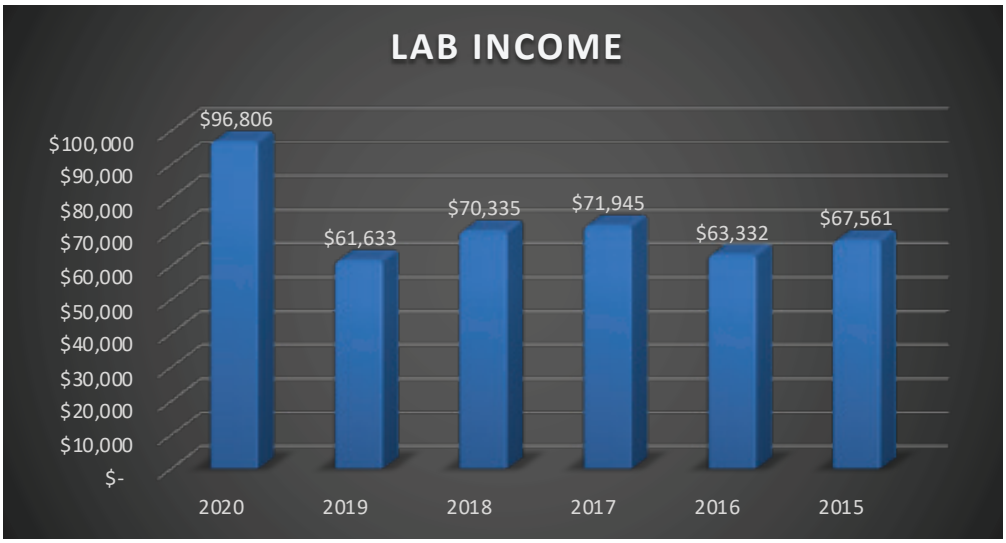
SOYBEAN ACREAGE

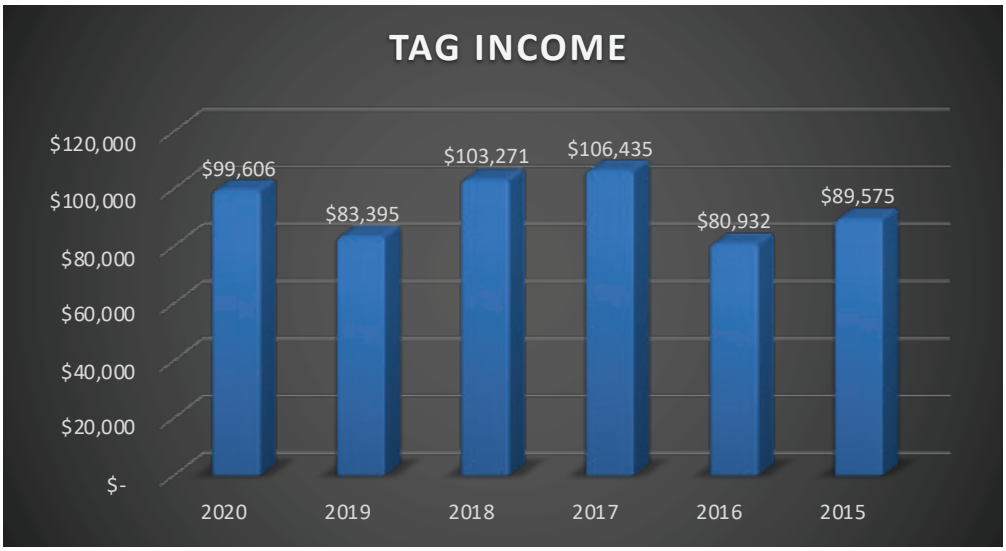
VARIETY	2018	2019	2020
Streeter	9	8	0
Summit	10	8	6
Vinton 81	50	15	25
Wyandot	0	0	4
Total	69	31	35
QA	15231	15489	13173
Soybean Total	**15300**	**15520**	**13208**

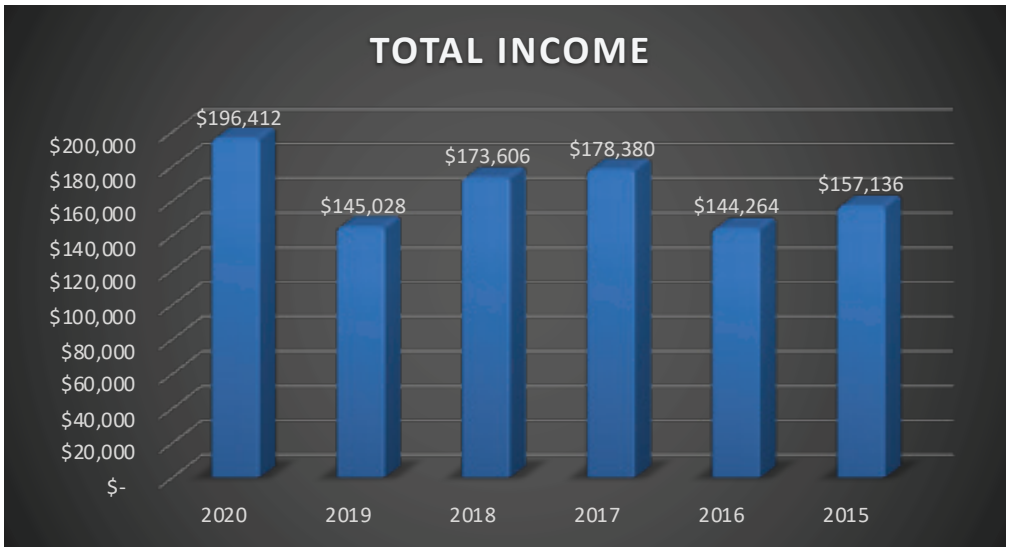
MISCELLANEOUS

VARIETY	2018	2019	2020
Corn	47471	51547	40724
Rye	392	226	288
Triticale	81	306	403
Interagency Cert.	7709	2203	4658
Monsanto Project	19113	19302	28728
Grand Total	**98568**	**98129**	**97573**
IRM audits	5	5	0
Field disease insp.	141	35	0
Pioneer Project	17162	13751	13126

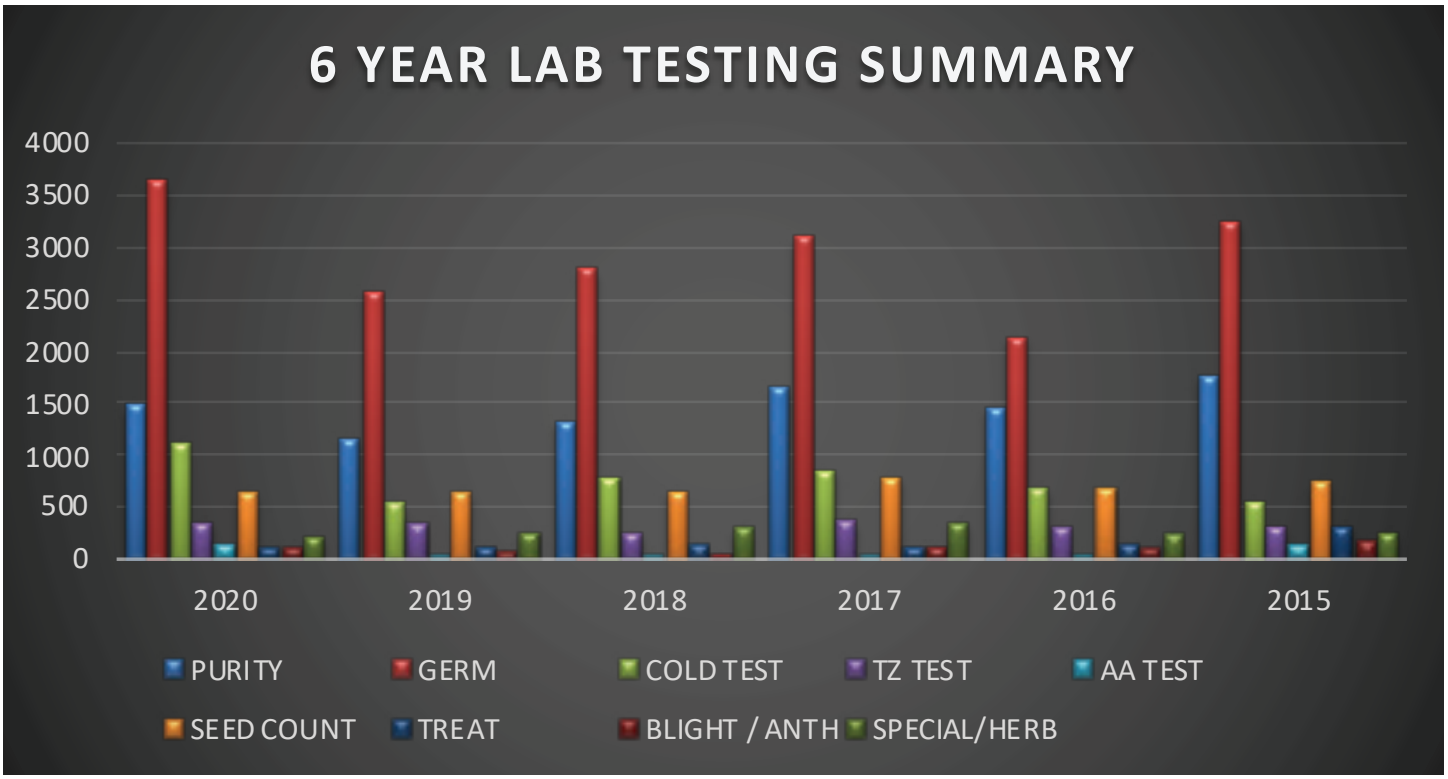
Lab and Tag Income







Lab Testing Summary *(January 1 to December 31)*



CROP	PURITY	GERM	COLD TEST	TZ TEST	AA TEST	SEED COUNT	TREAT	BLIGHT/ ANTH	SPECIAL/ HERB	TOTAL TESTS
Wheat	191	626	0	161	0	255	52	0	40	1,325
Oat	31	51	0	25	0	24	3	0	12	146
Barley	15	23	0	9	0	12	0	0	1	60
Rye	16	46	0	10	0	15	1	0	0	88
Soybean	117	1084	724	127	69	198	15	0	148	2,482
Navys	8	63	16	2	5	11	0	19	0	124
Black Bean	52	181	64	0	42	37	1	33	12	422
Kidney	25	80	5	0	18	35	1	48	1	213
Corn	824	1028	270	0	2	6	0	0	2	2,132
Misc.	188	435	18	13	3	35	31	6	1	730
Total	**1467**	**3617**	**1097**	**347**	**139**	**628**	**104**	**106**	**217**	**7,722**

Tagging Summary

Crop	Certified	Foundation	OECD	QA	White	Corn Co. Printed	2020 Total	2019 Total
Wheat	226,497	13,376	-	40,423	-		280,296	265,323
Oats	15,273	350	-	-	-	-	15,623	33,266
Barley	5,431	120	-	-	-	-	5,551	9,989
Rye	18,173	924	-	-	-	-	19,097	22,153
Soybean	6,087		-	3,591	-	-	9,678	11,321
Dry Bean	20,683	1,033	-	-	4,831	-	26,547	25,760
Corn	36,084	-	-	-	-	657,189	693,273	682,192
Misc.	15,555	7,997	-	-	170	-	23,722	-
Total	**343,783**	**23,800**	**-**	**44,014**	**5,001**	**657,189**	**1,073,787**	**1,050,004**

Total Tags	1,073,787
Company (Corn) Printed	693,273
Approved (Producer) Printed	285,862
Mcia/Fd Printed	94,652

Year	Certified	Foundation	OECD	QA	White	Corn Co. Printed	Total
2019 Total	245,318	21,009	-	96,407	5,078	682,192	1,050,004
2018 Total	273,682	15,457	-	96,770	4,850	602,896	993,652
2017 Total	257,347	12,966	-	82,572	3,550	539,829	896,264
2016 Total	267,485	28,645	-	93,748	3,417	591,804	985,099
2015 Total	364,434	23,200	-	132,132	4,451	370,949	895,166
2014 Total	307,969	24,522	-	100,903	8,470	626,966	1,068,830
2013 Total	467,323	54,595	-	78,282	2,780	916,036	1,519,016
2012 Total	748,192	38,749	20,644	115,488	7,036	307,276	1,237,385
2011 Total	777,719	28,202	-	71,478	10,639	45,958	933,996
2010 Total	915,493	56,640	-	60,022	6,544	219,700	1,258,399
2009 Total	553,018	28,917	2,214	62,420	7,054	437,096	1,090,719

Foundation Seed Report

While we faced a turbulent year on many fronts, the 2020 growing season in Michigan was fairly "normal". A decent spring for planting, a good growing season and a nice fall for harvest allowed for respectable crops for the Michigan grower. Over all, Michigan grew 2 million acres of corn up from 1.6 million in 2019 with an average yield of 154 bushels per acre. Soybean planting increased to 2.2 million acres, up from 1.75 million in 2019 with a yield of 47 bushels per acre 6.5 bpa higher than 2019. Dry bean acres ballooned to 260,000 up from 185,000 in 2019 with a final yield of over 2,300# per acre. Wheat yields in 2020 averaged 75 bushels per acre up 4 bushels per acre over 2019. Total acres of winter wheat seeded in 2020 were 580,000 up significantly over the 490,000 in 2019.

Seed sales followed the trends of increased planted acres as we saw sales of most seed classes increased over 2019. Feed barley seed sales increased 14%, oat sales increased 6%, wheat sales were up 7% and total dry bean sales increased 33% from the year prior. Looking ahead to 2021, seed demand continues to be strong, especially with the introduction of several new high yielding seed varieties. We will continue to identify and secure the best available seed products for our membership from both public and private sources.

Custom processing continues to be a significant and important part of the MCIA Foundation Seed Division. In 2020 our team increased revenues from the custom processing business by 20% and are positioned well for another increase in 2021. Interest from customers in our Organic handler license, as well as our BRC third party food safety program, continue to drive more business to MCIA. Our team's commitment to producing the best quality product possible makes our customer's decision to return an easy choice.

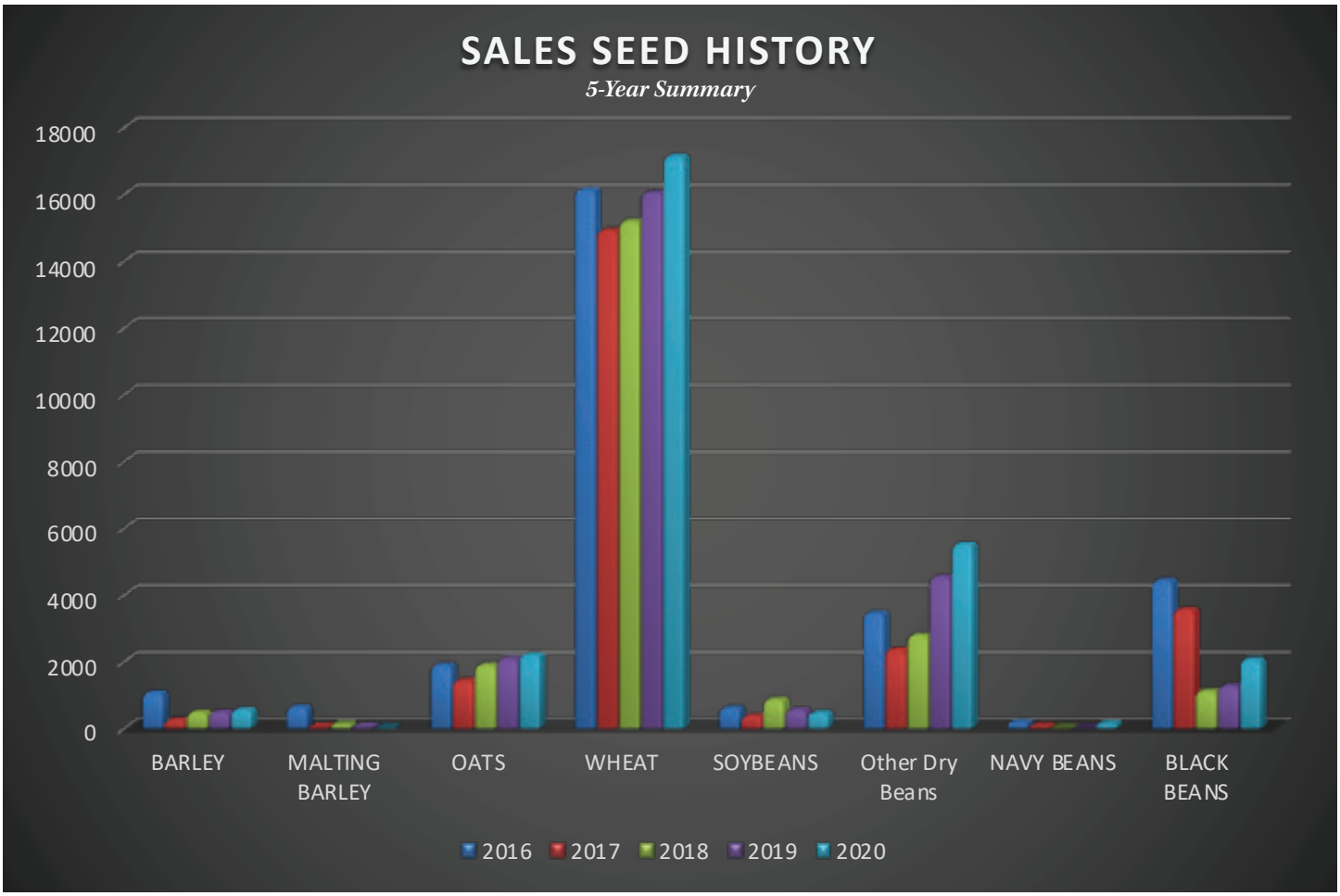
While 2020 was a challenging year for all of us, our team continued to focus on the details to make sure all our customers were serviced properly. We will continue to stay informed of industry changes, keep on the look-out for new varieties and monitor the landscape for new opportunities. We thank the members who use our products and services and we wish you success in 2021.

Sales History Report

Year	Units in Bushels			50 lb. Units		100 lb. Units		
	Barley	Malting Barley	Oats	Wheat	Soybeans	Other Dry Beans	Navy Beans	Black Beans
1992	1888	-----	5858	34598*	13455*	3885	1629	523
1993	1611	-----	7021	30880*	12052*	2932	2589	763
1994	1719	-----	4245	28261*	12808*	3440	1416	690
1995	1209	-----	4228	30609*	11131*	3240	1813	1403
1996	1155	-----	4578	32593*	12046*	3287	2460	371
1997	1339	-----	4444	31263*	9105*	3390	1705	360
1998	1377	-----	5392	14643*	10926*	2103	546	772
1999	1448	-----	3751	12043	9555*	1676	712	724
2000	863	-----	3060	11868	6451	3658	444	451
2001	778	-----	2211	14089	4977	4044	204	188
2002	714	-----	2835	16300	4632	4725	207	596
2003	1015	-----	2853	18400	4385	3384	189	465
2004	975	-----	2896	18336	2782	4675	204	843
2005	1074	-----	2896	17046	2431	4804	242	767
2006	1225	-----	2526	18576	1615	3963	365	892
2007	740	-----	1546	22739	1426	2363	201	1330
2008	1065	-----	1833	22834	2018	3720	220	1360
2009	919	-----	1817	18120	1396	4563	65	1369
2010	1005	-----	1960	20045	2356	3518	111	2356
2011	1050	-----	2357	19444	3245	2375	53	1794
2012	1071	-----	1792	19319	2735	3311	30	1328
2013	1254	-----	1947	17273	1574	3173	0	1251
2014	1131	-----	1590	15949	557	5536	75	1977
2015	1635	405	2172	17717	580	7186	288	3447
2016	1064	639	1896	16132	609	3453	187	4429
2017	255	45	1439	14922	370	2360	73.5	3558
2018	479	120	1903	15191	864	2786	0	1116
2019	491	51	2094	16047	557	4532	0	1274
2020	561	6	2207	17136	467	5513	144	2065
5 yr avg.	570	172	1908	15886	573	3729	81	2488

** Denotes units in Bushels*

Seed Sales


SALES SEED HISTORY
5-Year Summary
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
BARLEY
MALTING BARLEY
OATS
WHEAT
SOYBEANS
Other Dry Beans
NAVY BEANS
BLACK BEANS
2016
2017
2018
2019
2020

New Seed Releases

MI-17R0357 - Red Wheat
- High yield potential
- Excellent milling and baking quality
- Early flowering date
- Short strawed variety
- Non-Bearded

MI-16W0133 - White Wheat
- High yield potential
- Later than Ambassador, earlier than Jupiter
- Very high test weight
- Short plant architecture
- Non-Bearded

ADAMS - Black Bean
- Consistently one of the highest yielding black bean lines
- Matures in 95 days after planting
- Favorable high pod placement
- Erect plant architecture
- Resistant to anthracnose race 109

COHO – Light Red Kidney Bean
- Superior yield performance
- Uniform dry down
- Matures in 101 days after planting
- Works well in high management situations
- Excellent dry seed color

Foundation Seed Pricing

Commodity	Non-Member Price	Member Price	Member Discount Price	Research	Unit
Malting Barley (48#)	$30.00	$26.67	$24.00	$0.90	Bushel
Feed Barley (48#)	$20.00	$17.78	$16.00	$0.90	Bushel
Oat Seed (32#)	$17.50	$15.56	$14.00	$0.75	Bushel
Soybean Seed (50#)	$56.25	$50.00	$45.00	$1.04	50 lbs
All Dry Bean Seed (100#)	$166.25	$147.78	$133.00	$4.50	100 lbs
Wheat Seed	$27.50	$24.44	$22.00	$1.04	50#

Lab Testing and Tagging Pricing

MCIA Lab Fees

	Certified / QA	Service / Commercial
Germination (Small grains, Beans and Corn)	$12.00	$14.00
Germination (Beans and Corn in Sand)	$15.00	$17.00
Germination (Small Legumes)	$16.00	$18.00
Germination (Turf or pasture Grasses)	$20.00	$22.00
Purity (Small grains, Beans and Corn)	$12.00	$14.00
Purity (Small Legumes)	$17.00	$19.00
Purity (Turf or pasture Grasses)	$22.00	$24.00

Mixtures – there will be a $40.00 an hour charge for separation. Each component of mixture will be charged individually for germ.

Cold Test - Soil (Corn)	$14.00	$17.00
Cold Test - Soil (Beans)	$14.00	$17.00
TZ Test (Small grains and corn)	$20.00	$22.00
TZ Test (Beans)	$22.00	$24.00
Herbicide Tolerance Testing	$25.00	$27.00
DON Testing (wheat, oats, barley, rye)	$45.00	$45.00
Accelerated Aging Vigor Test (Corn, Beans, Small Grains)	$14.00	$16.00
Seed Count (Corn, Beans, Small Grains)	$6.00	$7.00
Treatments	$5.00	$6.00
Test Weight	$4.00	$5.00
Bacterial Blight Test (dry beans)	$50.00	$50.00
Anthracnose Test (dry beans)	$40.00	$40.00
Mosaic Test (dry beans)	$10.00	$10.00

Tag Fees

OECD sew-on tags..... $.10

Certified, Foundation, and Breeder sew-on tags..... $.10

Certified, Foundation and OECD stick-on tags..... $.12

Quality Assurance sew-on tags..... $.10

White Analysis sew-on tags..... $.10

Rush Tag Fee (in addition to tag fee)..... $.02

Field Inspection Fees

Field Inspection Fees

	Deadline	Fee
Small Grains (wheat, rye, barley, oats)	June 1	$3.75
Corn	June 15	$8.00
Small Legumes	June 1	$4.75
Dry Beans	August 15	$4.25
Soybeans	August 15	$3.75

Withdrawn Acres for Certification – 75% of acreage fees refunded
Late Fee - $.50 cents/acre of $25.00 minimum field charge per grower

Quality Assurance Inspection Fees

Soybeans ..... $2.00/acre – 1 inspection

For each additional field inspection (beyond the first inspection) add $1.00 to the field fee. Additional inspections could include mapping, early weed, blossom, mid pod development and harvest inspections

Wheat Service Inspection..... $2.50/acre – 1 inspection

Wheat QA Inspection ..... $3.75/acre – 1 inspection

Dry Beans..... $4.25/acre – 1 inspection

Corn..... $8.00/acre – 4 inspections

Roundup Ready Soybeans ..... $3.00/acre – 2 inspections

Prices subject to change as determined by the MCIA board of director

MICHIGAN
CROP IMPROVEMENT
ASSOCIATION ™

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