

MSU Extension Crops Newsletter for Northwest Michigan

Greetings!

February 2013

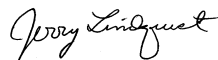
This is a new endeavor in one of my roles as Michigan State University Extension State Field Crops educator for nine counties in Northwest Michigan. In today's new way of doing business we in Extension are being told we must reach our audience in new, more effective ways, and oh yes we must do it with little or no cost. So this electronic newsletter is a first attempt to reach across the region to the crop farming community.

For those of you that may not know me I have worked for MSU Extension of 30 years always based here in Osceola County. I have worked closely with the local agricultural community in the areas of dairy, livestock, forages including hay and grazing, and field crops.

If you like this information in this format, do nothing and you will continue to receive it on a quarterly basis via email. Also let others know about this newsletter and if they are interested have them send me their email address. If you wish to be dropped from the mailing list let me know at linduis@anr.msu.edu or toll free at 1-888-678-3464 and at the county prompt enter 67236. Also if you have comments, criticisms, ideas on how to improve this newsletter, or topics for future articles feel free to contact me as this is a new approach and I am sure there will be lots of improvements that we can make.

Enclosed is information on some upcoming educational meetings that will be held over the next month. Also some other articles of interest are included.

Jerry Lindquist



MSU Extension Grazing
and Field Crop Educator

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Agriculture and Natural Resources
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Family Nutrition Program

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tus.*

*Michigan State University,
U.S. Department of
Agriculture and counties
cooperating.*



2013 Could Be a Ride to Remember

As the planting season draws closer you can start to feel the tension and anticipation in the air. Cash corn price is floating around \$6.80, land rents and competition for farmland is feverish, hay supplies will be rock bottom come spring, and everyone knows the stakes are high. If ever there was a year for optimism in the cropping sector this may be it as crop planting intentions are very high. However those that have been involved in agriculture for some time also know, if ever there was a year to be concerned about commodity price wild swings, this may be it as well.

Market analysts believe we could plant somewhere around 97 – 98 million acres of corn this year which across the country which would be up 4 - 5 million acres over 2012. If we plant this much and if rain returns to the corn belt yields will rebound closer to the five year average of 154 bu/acre from the 124 bu the USDA estimated for last year. This will drive the corn price down. The question is how far will the price fall?

It seems like long ago but in the 2009 harvest season and into winter of 2010 the corn price averaged just \$3.55/bu. On the futures market December corn is around \$5.66/bu. Corn exports have fallen and are projected to stay lower in 2013 unless corn price drops substantially. I am estimating for 2013 that the breakeven price for corn in Northern Michigan will be around \$4.00/bu. with a normal corn yield of around 126 bu/acre. So if the futures are in the ballpark there still could be an opportunity to profit with corn but some of the glitter will be taken off of the crop if rainfall returns to the corn belt.

Currently South America's corn and soybean crops are approaching the harvest season needing water however they still will be very large crops because of the acres planted. Reports from Iowa are still reporting a winter with little moisture. If there are good harvests in South America and the U.S. the corn price could fall closer to \$4 in one year. If yields are low we could easily see corn in the \$7 - \$8 range again.

In the end this corn price will likely move away from the price it is at today. Buyers of corn are wanting to move the price lower but they need supply side help in the form rainfall to bring the grain yield back up. If the drought continues for another year the price will rally and you hope your crop will receive more rainfall than the rest of the nation. Either way it may be ride you will not soon forget.

Be prepared for this potentially volatile season by doing the following:

1. Soil test – if there was ever a year for your crop to have proper nutrition this is it
2. Have everything ready to roll – planting on time is critical, avoid supply and equipment breakdown delays by preparing now
3. Consider risk management opportunities by contracting a portion of the crop to be sold to protect it from price movement
4. Consider crop insurance to cover a portion of your investment to protect it from weather disaster
5. Be thinking about market access in the situation of a large crop, with the extra acres being planted grain terminals especially in Michigan may be backed up so you cannot deliver and sell, especially if you do not have access to grain storage think ahead about what you would do to avoid letting corn stand in the winter for wildlife feeding and lodging losses.

There are good opportunities in all of the cash crops for this year but there are also some great risks. Consider taking steps now to make it a successful season no matter what hand mother



Northern Michigan Soybean Program



What: The results of the 2012 SMaRT (Soybean Management and Research Technology) on-farm research projects and other related soybean topics will be presented. Participants will learn essential soybean crop management information and have the opportunity to provide input into the 2013 SMaRT on-farm research projects.

When: Tuesday, February 19th from 9:00 a.m. to 3:30 p.m.

Where: McGuire's Resort, 7880 Mackinaw Trail, Cadillac, MI 49601

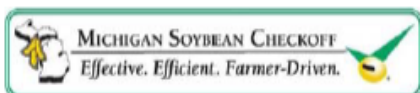
Registration: The Michigan Soybean Checkoff program and Zeeland Farm Services are covering all program costs. However, pre-registration is requested to ensure an accurate count for lunch and materials. **Please call the Osceola County MSUE office at (231) 832-6139 before Wednesday, February 13th to register.**

Agenda

- 9:00 a.m. Registration and coffee
- 9:30 a.m. Welcome — *Jerry Lindquist, MSU Extension Educator*
- 9:40 a.m. 2012 SMaRT On-Farm Research Results (tillage, fertility, populations and crop growth promoters/protectors)— *Mike Staton, MSU Extension Soybean Educator*
- 10:50 a.m. Zeeland Farm Services Update — *Dan Bailey, Zeeland Farm Services*
- 11:15 a.m. Weed Control Recommendations for Non-GMO, Liberty Link, and Roundup Ready Soybeans — *Gary Powell, MSU Research Technician*
- 12:00 p.m. Complimentary Lunch (*the Michigan Soybean Checkoff and Zeeland Farm Services*)
- 1:00 p.m. Michigan Soybean Checkoff Update and An Overview of Checkoff-Funded Research — *Keith Reinholt, Field Operations Director and Dr. Tim Boring, Research Director, the Michigan Soybean Promotion Committee*
- 1:30 p.m. High Yield Management Practices of the Michigan Soybean Yield Contest Winners in the Group I Maturity Class—*Ned Birkey, Spartan Agricultural Consulting*
- 2:00 p.m. Essential Soybean Agronomic Practices for Northern Michigan — *Mike Staton*
- 2:20 p.m. Northern Michigan Soybean Producer Panel— *Tim Boring*
- 3:00 p.m. Prioritizing Soybean Research, Education and Communication Topics for 2013
- 3:15 p.m. Pesticide Applicator Credits and Adjournment

Pesticide applicator credits and CCA credits have been requested.

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Online Crop and Forage Highlights

March 14th & 21st, 2013

Online and at group viewing sites throughout Michigan

Growers, consultants and agribusiness professionals are invited to attend two online programs addressing key grain and forage production points for 2013. Participants will learn how to enhance their corn, small grain and forage systems in the coming season, and have an opportunity to ask questions of MSU agriculture experts. The programs can be viewed independently online at no cost or at one of several group viewing sites throughout the state for \$10 per person. MEAP Phase I and two MDARD Pesticide Recertification Credits will be available through each event for application to one of the following categories: Private Core, Commercial Core, or Field Crops.

Corn & Small Grains

March 14th, 7pm-9pm EST

- ◊ Corn Production
Dr. Bob Nielsen, Purdue
- ◊ Small Grain Production
Martin Nagelkirk & Jim Isleib, MSUE
- ◊ Weed Management
Dr. Christy Sprague, MSUE
- ◊ Insect Pest Update
Bruce MacKellar, MSUE

Viewing Sites

Bellaire • Benton Harbor • Escanaba
Grand Rapids • Monroe • Ontonagon
Rogers City • Sault Ste. Marie • St.
Johns • Tustin • West Branch

Forage Systems

March 21st, 7pm-9pm EST

- ◊ Corn Silage Production
Dr. Bob Nielsen, Purdue
- ◊ Drought Recovery Management
Dr. Kim Cassida, MSUE
- ◊ Cost of Production
Phil Kaatz, MSUE
- ◊ MAEAP for Forage and Livestock
Allen Krizek, MAEAP

Viewing Sites

Bellaire • Benton Harbor • Escanaba
Grand Rapids • Ionia • L'Anse • Monroe
Rogers City • Sault Ste. Marie • St. Johns
Tustin • West Branch

Visit events.anr.msu.edu/GrainAndForageWebinarSeries
to register and access connection information.

Contact James DeDecker (989-734-2168 or dedecke5@msu.edu) for more information, or
by March 7th, 2013 to request accommodations for persons with disabilities.

Restricted Use Pesticide Review and Exam

WHEN: Monday, February 25, 2013
9:30 a.m. to 12:30 p.m. - MSU Extension Pesticide Update & Exam Review
1:00 p.m. - MDARD Restricted Use Pesticide Exam

WHERE: Baker College – Lake City Campus Center of Transportation and Technology
4800 South Morey Road, Lake City, MI. 49651
(South of Voelker Implement Sales, Inc. on M-66)

The review is for those wishing to receive final training before taking the exam or for those wishing to receive pesticide re-certification credits (**3 credits have been granted**). You do not have to attend the review to take the exam. The exam is for those wishing to purchase and utilize restricted use pesticides in the State of Michigan.

For the exam you must:

- Bring a #2 pencil and an ink pen
- Bring a photo ID (driver's license)
- Bring your registration paperwork received in the mail from Michigan Department of Agriculture and Rural Development (MDARD) if renewing.
- Make check/money orders payable to "State of Michigan" - cash or credit/debit cards are not accepted
- If retaking an exam that you failed you must bring receipt of payment from the previous exam session
- Not bring personal calculators or cell phone calculators (calculators if needed will be available from the exam proctor)

Cost: Review - \$10/person payable at the door to MSU (cash or check);
Exam -\$50 for private applicators (farmers); \$75 for commercial applicators (cash is not accepted).

Lunch will be provided by Voelker Implement Sales.

Registration: Please register for these two events by either:

1. Calling Jerry Lindquist toll free 888-678-3464 and at the county prompt enter 67236 or at lindquis@msu.edu or
2. You may register on-line for the exam only at www.michigan.gov/pestexam

Exams are also offered at various times and locations around the State. For the complete list of exams go to www.michigan.gov/pestexam.



Michigan Forage Technology Conference

When: March 7, 2013

Time: 10:00 A.M.—4:00 P.M. (Registration begins at 9:00 A.M.)

Location: Kellogg Hotel and Conference Center, Big Ten Room B
219 South Harrison Rd, Michigan State University, East Lansing, MI 48824

Theme: The Changing Forage Industry

Join us for an information-packed day. Here are just a few of our planned topics:

The Future of the Forage Industry, Cover Crops as Forage, Corn Shredlage, Growing Alfalfa-Grass Mixtures, Hay Supplies and Demand, What NRCS Can Do for You, MSU Forage Research Updates, Shupe Grazing Dairy, Fencing and Water for Temporary Pastures, Michigan Forage Council Annual Meeting, Vendors, and more!

For more information, see complete conference schedule at <http://fis.msue.msu.edu/events.htm/> or contact Dr. Kim Cassida (cassida@msu.edu) or Jodie Schonfelder (schonfel@msu.edu, 517-355-0271)

Cut here

	MFC members	non-members	total \$ enclosed
Pre-registration (closes Mar. 1, 2013) (covers proceedings, lunch, and snacks)	\$35 _____	\$40 _____	_____
Day of conference registration (9:00-10:00 AM) (lunch not guaranteed)	\$40	\$45	

Your Name _____

Address _____

Telephone number _____

E-mail _____

Return this form and payment to: Jodie Schonfelder
Plant and Soil Science Building
1066 Bogue St. Room A286
Michigan State University
East Lansing, MI 48824

Weed Responses to Corn Herbicide Tables

The Weed Responses to Corn Herbicide tables found on page 8 and 9 of this newsletter are from the 2013 MSU Weed Control Guide for Field Crops.

The 2013 Guide is available at the MSU Extension Bookstore <http://bookstore.msue.msu.edu/> or via your local MSU Extension County Office for \$12.00.

It contains 180 pages of herbicide information for all the major field crops in Michigan including corn, soybean, wheat, oats, alfalfa, pasture and more. Each year it is updated with the latest herbicides for each crop including the rates to apply and how effective the treatment was in MSU trials.

TABLE 1A – Weed Response to Soil-Applied Herbicides in Corn*

Soil Applied	SITE OF ACTION	CORN TOLERANCE**	ANNUAL BROADLEAVES										ANNUAL GRASSES							PERENNIALS							
			COCKLEBUR	JIMSONWEED	LAMBSQUARTERS	T-R LAMBSQUARTERS ^a	NIGHTSHADE (E. BLACK)	PIGWEEED	RAGWEED (COMMON)	RAGWEED (GIANT)	SMARTWEED	VELVETLEAF	WILD MUSTARD	BARNYARDGRASS	CRABGRASS	GIANT FOXTAIL	GREEN FOXTAIL	YELLOW FOXTAIL	FALL PANICUM	WITCHGRASS	SANDBUR	CANADA THISTLE	QUACKGRASS	YELLOW NUTSEDGE	JOHNSONGRASS (seedling)	JOHNSONGRASS (Rhizome)	
ATRAZINE	5	1	F	F	E	N	E	G	E	G	G	F	E	G	P	F	F	G	P	P	P	F	P	F	N	N	
BREAKFREE/DEGREE/HARNESS/ SURPASS/TOPNOTCH	15	2	P	N	F	F	G	G	F	N	P	P	P	E	E	E	E	E	E	E	F	N	N	F	P	N	
CALLISTO	27	1	P	G	E	E	E	E	F	F	E	E	G	N	P	N	N	N	N	N	N	P	N	N	N	N	
DUAL II MAGNUM/ CINCH/PARALLEL	15	1	N	N	P	P	F	G	P	N	P	N	P	E	E	E	E	E	E	E	F	N	N	F	P	N	
MICRO-TECH	15	2	N	N	P	P	G	G	P	N	P	N	P	E	E	E	E	E	E	E	F	N	N	P	P	N	
OUTLOOK	15	2	N	N	P	P	G	G	P	N	P	N	P	E	E	E	E	E	E	E	F	N	N	P	P	N	
PRINCEP	5	1	F	F	E	N	E	G	E	F	G	F	E	G	F	F	F	G	P	P	P	P	F	F	N	N	
PROWL H ₂ O ^b (PRE only)	3	3	N	N	G	G	P	F	P	N	P	F	P	G	G	G	G	G	G	G	N	N	N	P	N		
PYTHON	2	3	F	F	E	E	G	E	F	P	G	G	E	P	P	P	P	P	P	P	N	N	N	N	N	N	
RESOLVE SG	2	1	G	F	F	F	P	E	F	P	F	F	E	G	F	G	G	G	F	F	P	P	P	P	P	P	
SHARPEN	14	1	G	G	G	G	G	E	G	F	G	G	G	N	N	N	N	N	N	N	N	P	N	N	N	N	
VALOR ^c (7d EPP or more)	14	2	P	F	G	G	G	G	G	F	F	F	G	P	P	P	P	P	P	P	N	N	P	P	N		
ZIDUA	15	1	P	F	F	F	G	E	F	N	F	F	F	E	E	E	E	E	E	E	F	N	N	F	F	N	
Premixes																											
BASIS BLEND	2/2	1	G	F	G	G	P	E	F	P	F	F	E	G	F	G	G	G	F	F	P	P	P	P	P	P	
BICEP II LITE MAGNUM/ CINCH ATZ LITE	5/15	1	F	F	G	P	E	G	G	F	F	F	E	E	E	E	E	E	E	E	F	P	N	F	P	N	
BICEP II MAGNUM/CINCH ATZ/ PARALLEL PLUS	5/15	1	F	F	E	P	E	G	E	G	G	F	E	E	E	E	E	E	E	E	F	F	P	F	P	N	
BREAKFREE ATZ LITE/ DEGREE XTRA/FULTIME/ KEYSTONE LA	5/15	2	F	F	G	F	E	G	G	F	F	F	E	E	E	E	E	E	E	E	F	P	N	F	P	N	
BREAKFREE ATZ/HARNESS XTRA/ KEYSTONE	5/15	2	F	F	E	F	E	G	E	G	G	F	E	E	E	E	E	E	E	E	F	F	P	F	P	N	
BULLET/LARIAT	5/15	2	F	F	E	P	E	G	E	F	G	F	E	E	E	E	E	E	E	E	F	F	P	P	P	N	
CAPRENO ^d	2/27	2	P	P	G	G	P	E	F	P	G	G	P	F	N	F	P	F	F	N	N	N	N	N	N	N	
FIERCE ^c (7d EPP or more)	14/15	2	P	F	G	G	G	E	G	F	F	F	G	G	G	G	G	G	G	G	F	N	N	F	F	N	
G-MAX LITE	5/15	2	F	F	G	P	E	G	G	F	F	F	E	E	E	E	E	E	E	E	F	P	N	P	P	N	
GUARDSMAN MAX	5/15	2	F	F	E	P	E	G	E	G	G	F	E	E	E	E	E	E	E	E	F	F	P	P	P	N	
HORNET WDG	2/4	3	G	F	E	E	G	E	E	G	G	G	E	N	N	N	N	N	N	N	N	F	N	N	N	N	
INSTIGATE	2/27	1	G	G	E	E	E	E	F	F	E	E	E	G	F	G	G	G	F	F	P	P	P	P	P	P	
LEXAR EZ/LUMAX EZ	5/27/15	1	F	G	E	E	E	E	E	G	E	E	E	E	E	E	E	E	E	E	F	F	P	F	P	N	
SURESTART/TRIPLEFLEX ^d	2/4/15	3	G	F	E	E	G	E	G	F	G	G	E	E	E	E	E	E	E	E	F	P	N	F	P	N	
VERDICT ^d	14/15	2	G	G	G	G	G	E	G	F	G	G	G	G	G	G	G	G	G	G	F	P	N	P	P	N	
ZEMAX	27/15	1	P	G	E	E	E	E	F	F	E	E	G	E	E	E	E	E	E	E	F	P	N	F	P	N	

Herbicide Site of Action: The site of action key is located on pages 16-17.
 Herbicide Effectiveness: P = Poor; F = Fair; G = Good; E = Excellent; N = None; -- = Not enough information to rank
 *The above ratings are a relative comparison of herbicide effectiveness. Weather conditions greatly influence the herbicide's effectiveness, and weed control may be better under favorable conditions or poorer under unfavorable conditions.
 **Crop Tolerance: 1=Minimal risk of crop injury; 2=Crop injury can occur under certain conditions; 3=Severe crop injury can occur. Follow precautions under Remarks and Limitations and on the label; 4=Risk of severe crop injury is high.
^a Triazine-resistant common lambsquarters.
^b DO NOT incorporate Prowl H₂O and corn should be planted a minimum of 1.5-inches deep.
^c Valor or Fierce must be applied at least 7 day before planting, for use only in no-till corn.
^d These herbicides are intended only for use only in planned preemergence followed by postemergence programs. Ratings only reflect early-season weed control, not full-season control.

TABLE 1B – Weed Response to Postemergence Herbicides in Corn*

Herbicide	SITE OF ACTION	CORN TOLERANCE**	ANNUAL BROADLEAVES										ANNUAL GRASSES							PERENNIALS						
			COCKLEBUR	JIMSONWEED	LAMBSQUARTERS	T-R LAMBSQUARTERS ^a	NIGHTSHADE (E. BLACK)	PIGWEEED	RAGWEED (COMMON)	RAGWEED (GIANT)	SMARTWEED	VELVETLEAF	WILD MUSTARD	BARNYARDGRASS	CRABGRASS	GIANT FOXTAIL	GREEN FOXTAIL	YELLOW FOXTAIL	FALL PANICUM	WITCHGRASS	SANDBUR	CANADA THISTLE	QUACKGRASS	YELLOW NUTSEDGE	JOHNSONGRASS (seedling)	JOHNSONGRASS (Rhizome)
Postemergence																										
2,4-D	4	3	G	F	G	G	G	G	G	P	F	G	N	N	N	N	N	N	N	N	F	N	N	N	N	
ACCENT Q	2	2	F	G	F	F	P	E	P	N	G	F	P	E	P	E	E	E	E	E	G	F	G	F	E	G
AIM	14	3	P	F	F	F	G	G	P	P	P	E	F	N	N	N	N	N	N	N	N	N	N	N	N	N
ARMEZON/IMPACT	27	1	G	E	E	E	E	E	G	G	G	E	G	G	E	E	G	G	G	F	F	F	F	N	N	
ATRAZINE	5	1	G	G	E	N	G	E	E	G	F	E	F	P	F	F	P	P	P	F	F	F	N	N		
BANVEL/CLARITY	4	3	G	G	G	G	G	G	E	E	F	G	N	N	N	N	N	N	N	N	F	N	N	N	N	
BASAGRAN	6	1	E	G	F	F	P	P	F	P	G	F	E	N	N	N	N	N	N	N	N	G	N	G	N	N
BEACON	2	2	E	G	F	F	G	E	E	E	G	G	F	P	P	F	F	F	G	G	F	F	G	F	G	F
BUCTRIL/MOXY	6	2	G	G	E	E	G	F	G	G	G	G	F	N	N	N	N	N	N	N	N	P	N	N	N	N
CADET	14	2	P	F	F	F	F	G	P	P	P	E	P	N	N	N	N	N	N	N	N	N	N	N	N	N
CALLISTO	27	1	F	E	E	E	E	G	G	G	E	E	E	N	F ^b	N	N	N	N	N	N	P	N	P	N	N
LAUDIS	27	1	G	E	E	E	E	E	G	G	G	E	F	G	F	G	P	E	P	F	F	P	P	P	F	P
OPTION	2	2	F	G	F	F	G	E	F	P	P	F	G	E	P	G	G	G	G	G	F	F	G	F	E	G
PERMIT	2	1	E	G	N	N	P	E	G	G	F	G	E	N	N	N	N	N	N	N	N	P	N	E	N	N
RESOURCE	14	2	P	P	F	F	P	P	P	P	P	E	P	N	N	N	N	N	N	N	N	N	N	N	N	N
STINGER	4	1	E	G	P	P	F	P	E	E	F	P	P	N	N	N	N	N	N	N	N	E	N	N	N	N
Premixes																										
CALLISTO XTRA	5/27	1	G	E	E	E	E	E	E	G	G	E	G	N	F ^b	N	N	N	N	N	N	F	N	P	N	N
CAPRENO	2/27	2	G	E	G	G	E	E	G	G	G	E	G	G	G	G	G	E	G	G	F	P	P	P	G	G
HORNET WDG	2/4	2	E	F	F	F	F	P	E	G	G	G	G	N	N	N	N	N	N	N	N	E	N	N	N	N
MARKSMAN	4/5	3	G	G	E	G	G	E	E	E	E	G	E	P	N	P	P	P	N	N	N	F	P	F	N	N
NORTHSTAR	2/4	2	E	G	G	G	E	E	E	E	G	F	G	P	P	F	F	F	G	G	F	F	G	F	G	F
REALM Q	2/27	2	G	E	E	E	E	E	G	F	E	E	E	G	F	G	G	G	G	G	P	F	F	P	F	N
REQUIRE Q	2/4	2	G	G	G	G	E	G	G	F	F	G	E	G	F	G	G	G	G	G	P	F	F	P	F	N
RESOLVE Q	2/2	2	G	P	G	G	F	E	F	P	G	F	E	G	F	G	G	G	G	G	P	F	F	P	F	N
SHOTGUN	5/4	3	G	G	E	G	G	E	E	G	E	F	E	N	N	N	N	N	N	N	N	F	N	N	N	N
STATUS	4/19	2	E	G	E	E	G	E	E	E	E	G	G	P	P	P	P	P	P	P	P	G	N	N	N	N
STEADFAST Q	2/2	2	F	G	F	F	P	E	P	N	G	F	G	E	F	E	E	E	E	E	G	F	G	F	E	G
YUKON	2/4	2	E	G	G	G	E	G	G	G	G	E	E	N	N	N	N	N	N	N	N	P	N	E	N	N
Glyphosate-Resistant Corn																										
GLYPHOSATE	9	1	E	E	G	G	G	E	G	G	G	G	E	E	E	E	E	E	E	E	E	G	E	F	E	E
EXPERT	5/9/15	2	E	E	E	G	G	E	E	G	G	G	E	E	E	E	E	E	E	E	E	G	E	F	E	E
FIELD MASTER	5/9/15	2	E	E	E	G	G	E	G	F	F	F	E	E	E	E	E	E	E	E	E	F	G	F	E	G
HALEX GT	9/15/27	1	E	E	E	E	E	E	G	G	E	E	E	E	E	E	E	E	E	E	E	G	E	F	E	E
SEQUENCE	9/15	1	E	E	G	G	G	E	G	G	G	G	E	E	E	E	E	E	E	E	E	G	E	F	E	E
WARRANT + GLYPHOSATE	9/15	1	E	E	G	G	G	E	G	G	G	G	E	E	E	E	E	E	E	E	E	G	E	F	E	E
LibertyLink Corn																										
LIBERTY	10	1	E	G	F	F	G	G	E	G	G	G	E	F	F	G	G	F	F	F	P	P	P	P	G	F

Herbicide Site of Action: The site of action key is located on pages 16-17.

Herbicide Effectiveness: P = Poor; F = Fair; G = Good; E = Excellent; N = None; - = Not enough information to rank

*The above ratings are a relative comparison of herbicide effectiveness. Weather conditions greatly influence the herbicide's effectiveness, and weed control may be better under favorable conditions or poorer under unfavorable conditions.

**Crop Tolerance: 1=Minimal risk of crop injury; 2=Crop injury can occur under certain conditions; 3=Severe crop injury can occur. Follow precautions under Remarks and Limitations and on the label; 4=Risk of severe crop injury is high.

^a Triazine-resistant common lambsquarters.

^b Large crabgrass only.

Vertical Tillage Effects on Soybean Yields in Michigan

Local and current research can help Michigan soybean producers understand how vertical tillage operations affect soybean yields and income.

Mike Staton, Michigan State University Extension

The quantity and quality of the corn stalks remaining following harvest operations has increased in recent years. This situation has led to damaged tires, decreased planter and drill performance and delayed soil drying and warming in the spring. Vertical tillage is one of the conservation tillage options for managing corn residue prior to planting soybeans. This article summarizes the results from five Michigan on-farm research trials evaluating the effects that two different vertical tillage implements had on soybean yields.

In all cases, the untilled control was not tilled prior to planting soybeans, but had been tilled prior to planting corn the previous year and therefore should not be considered no-till. All vertical tillage operations were performed in the spring into untilled corn stalks and all treatments were planted with no-till planters or drills.

Salford RTS versus an untilled control

The Salford RTS vertical tillage implement was compared to an untilled control at two locations in 2010 and one location in 2012. When the 2010 trials were combined and analyzed, tillage did not significantly affect soybean yields (Table 1).

Table 1. Salford RTS effects on soybean yield in 2010 (two sites)

Treatment	Yield (bu/ac)
Untilled control	50.8 a
Salford RTS	51.5 a
C.V.%	1.7
LSD _{0.1}	0.8

However, in 2012, a single pass of the Salford RTS did significantly increase soybean yields by 2.5 bushels per acre over the untilled control at one location near Hamilton, Mich. (Table 2).

Table 2. Salford RTS effects on soybean population and yield in 2012 (one site)

Treatment	Population (plants/ac)	Yield (bu/ac)
Untilled control	173,659 a	56.4 b
Salford RTS	169,884 a	58.9 a
C.V.%	5.0	2.1
LSD _{0.1}	14,175	2.0

When all three sites were combined and analyzed, the yield advantage produced by the Salford RTS was statistically significant, but was reduced to 1.3 bushels per acre (Table 3). The Salford RTS produced an additional \$8 per acre more income than the untilled control when all three sites were combined (Table 3).

...Continued on page 9

...Continued from page 8

Table 3. Salford RTS effects on soybean yield and income in 2010 and 2012 (three sites)

Treatment	Yield (bu/ac)	Income (\$/ac)
Untilled control	52.7 b	\$751
Salford RTS	54.0 a	\$769
C.V.%	1.9	
LSD _{0.1}	0.7	

Assumptions: Soybean market price of \$14.25 per bushel; Salford RTS costs = \$10 per acre

Sunflower 6630 versus an untilled control

The Sunflower 6630 vertical tillage implement was compared to an untilled control at two locations in 2012. The Sunflower 6630 increased soybean yields by 2.8 bushels per acre in Monroe County, but decreased soybean yields by 6.8 bushels per acre in Hillsdale County (Table 4). The Sunflower 6630 increased income by \$30 per acre in Monroe County, but reduced income by \$107 per acre in Hillsdale County (Table 4). Plant populations were not affected by tillage at either location. The Hillsdale County site was planted on a coarser-textured soil and was planted 12 days later than the Monroe County site. These factors combined with the drought conditions may have contributed to the reduced yields in the Sunflower 6630 treatment at the Hillsdale County site.

Table 4. Sunflower 6630 effects on soybean populations, yields and income in 2012

	Monroe County	Hillsdale County	Monroe County		Hillsdale County	
Treatment	Population (plants per acre)		Yield (bu/ac)	Income (\$/ac)	Yield (bu/ac)	Income (\$/ac)
Untilled control	174,240 a	125,235 a	43.0 b	\$613	47.0 a	\$670
Sunflower 6630	179,757 a	120,592 a	45.8 a	\$643	40.2 b	\$563
C.V.%	7.6	3.1	2.4		3.7	
LSD _{0.1}	22,521	6,284	2.2		3.3	

Assumptions: Soybean market price of \$14.25 per bushel; Sunflower 6630 costs = \$10 per acre

Historically, the effects of tillage on soybean yields have been relatively small and may not offset the additional fuel, labor and depreciation costs. Research results from more locations and more years are needed to determine if vertical tillage consistently improves soybean yields and profitability in Michigan.

Tillage operations will reduce residue cover exposing soils to wind and water erosion. Producers that farm highly erodible land should check with their local Natural Resources Conservation Service office to make sure that the tillage operations they want to perform comply with their conservation plan.

Related MSU Extension article "[Strip tillage effects on soybean yields in Michigan](#)"

This article was published by **Michigan State University Extension**. For more information, visit <http://www.msue.msu.edu>. To contact an expert in your area, visit <http://expert.msue.msu.edu>, or call 888-MSUE4MI (888-678-3464).

Edited by: Dennis Stein, Extension Educator, District Farm Business Management, Michigan State University Extension
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2012 - 2013 Production Season Costs

updated 10.31.12

LABOR:		Custom Rate \$/ Hour	Machine Cost \$/Hour			
Farm Labor Unskilled ⁷ = \$ per hour		\$13.46	\$15.00		\$3.60 per gallon of fuel	
Farm Labor skilled ⁷ = \$ per hour		\$16.13	\$20.00		\$3.96 per gallon lube & fuel cost	
TRACTORS ONLY:		Custom Rate \$/ Hour	Machine Cost \$/Hour	Est. Fuel Gal. / Hour	Est. Fuel Cost per Hour	
No driver or fuel cost						
	4WD - 260 hp.	\$87.00	\$108.69	9.95	\$39.40	
	MFWD - 200 hp.	\$75.00	\$74.27	7.04	\$27.88	
	MFWD - 130 hp.	\$58.00	\$49.83	5.72	\$22.65	
Est. Tractor Cost \$0.24/hp/hr.						
	2- WD - 75 hp.	\$40.00	\$23.05	3.3	\$13.07	
Est. Fuel use .044 gal. diesel/PTO hp / hour						
	2- WD - 40 hp.	\$30.00	\$11.66	1.76	\$6.97	
Auto Steer systems charge per acre		\$2.29				
TILLAGE OPERATIONS:		Custom \$/Acre ¹	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Est. Fuel Gal./Acre ⁶
Plowing: Moldboard (6 bottom)		\$18.70	\$22.66	\$94.49	4.17	1.32
Chisel Plow (23 ft.)		\$14.58	\$10.76	\$140.20	13.03	0.60
Chisel - front disk (16.3 ft.)		\$14.71	\$11.03	\$101.59	9.21	0.97
Disk-V.Ripper combo (17.5 ft)		\$18.13	\$20.81	\$187.71	9.02	1.47
Subsoiler 30" - 10ft (12-15")		\$16.64				
Discing - tandem (21 ft)		\$12.57	\$10.41	\$127.21	12.22	0.58
Field Cultivator (23 ft.) + incorp.		\$12.13	\$11.75	\$194.93	16.59	0.38
Field Cultivator (23 ft.)		\$10.91	\$6.19	\$102.69	16.59	0.32
Harrow		\$10.63				
Soil Finisher		\$14.63				
Strip tillage		\$15.95				
Row Cultivate (12 rows)		\$11.10	\$7.01	\$108.30	15.45	0.46
Row Cultivate - high residue (12rows)		\$12.00				
Stalk Shredder (20 ft.)		\$13.73	\$12.95	\$100.49	7.76	0.74
Rotary Hoe (21 ft.)		\$8.56	\$2.67	\$69.31	25.96	0.18
Land Rolling		\$7.25				
Highboy spraying		\$7.00				
Boom Sprayer - self-Prop.80ft.		\$7.05	\$7.73	\$341.05	44.12	0.14
Boom Sprayer - pull type 50ft.		\$5.68	\$3.23	\$82.72	25.61	0.10
Spraying - road ditches/ hr						
PLANTING:		Custom \$/Acre ¹	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Est. Fuel Gal./Acre ⁶
Planter - conventional (12row) w/fert 30" corn-soys		\$16.22	\$10.80	\$151.20	14.00	0.32
Planter - soybean 15" rows		\$15.58				
Planter - No Till w/fert (12 row)		\$18.09				
Planter - Min Till (12 row)		\$16.53	\$14.60	\$185.86	12.73	0.53
GPS mapping addition to planting		\$2.45				
Air Seeder Drill w/cart 52ft		\$17.70	\$17.70	\$390.46	22.06	0.45
Drill Soybeans Conventional		\$15.87				
Drill - No Till (15 ft.)		\$17.25	\$21.47	\$136.55	6.36	0.81
Drill - No Till - drill only no tractor		\$10.75				
Drill press wheels - (20 ft)		\$15.16	\$12.47	\$105.75	8.48	0.61
Grain drill - only - no tractor		\$9.95				
Pest Control - scouting		\$5.00				

SUGAR BEETS:	Custom \$/Acre ¹	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Est. Fuel Gal./Acre ⁶
Sugar Beets - Planting (12 row)	\$21.37	\$0.00	\$0.00	4.67	0.99
Sugar Beet Cultivation	\$13.75	\$0.00	\$0.00	5.60	0.81
Sugar Beet Topper (8 rows)	\$14.50	\$0.00	\$0.00	7.13	0.56
Sugar Beet Harvester (6 rows)	\$85.00	\$0.00	\$0.00	3.03	2.22
Sugar Beet Cart (20 ton)	\$30.00	\$0.00	\$0.00	5.20	1.80
HARVESTING:	Custom \$/Acre ¹	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Est. Fuel Gal./Acre ⁶
Combine - (Corn -8 row head)	\$31.40	\$35.09	\$238.26	6.79	2.35
Combine - stalk chopper head	\$35.80				
Combine Small grains (20 ft head)	\$29.75	\$30.38	\$206.28	6.79	1.49
Combine Soybeans (25 ft. head)	\$30.91	\$30.59	\$226.98	7.42	1.95
Combine Soybeans - air reel	\$33.35				
Combine, cart, haul to storage - Corn	\$52.02				
Combine, cart, haul to storage - Soybeans	\$45.16				
GPS mapping addition to harvesting	\$2.45				
Picker 2 row - Ear Corn + 3 wagons	\$27.08				
Combine Field Beans (belt pickup)	\$35.00	\$33.39	\$223.38	6.69	1.81
Pulling Dry Beans (knife 6 row)	\$9.25	\$0.00	\$0.00	8.73	0.66
Pulling Dry Beans (rod 6 row)	\$8.25	\$0.00	\$0.00	8.73	0.66
Dry Bean - windrowing (6 row)	\$9.50	\$0.00	\$0.00	8.73	0.66
Grain Cart - corn / acre	\$5.00	\$20.88	\$143.45	6.87	1.44
Chopping Forage - Pull type (2 row corn hd) /ton	\$5.43/Ton	\$63.24	\$87.27	1.38	3.35
Chopping Forage - w/kernel processor	\$6.43/ton				
Chopping Forage - Pull type Pickup head - 12ft		\$24.80	\$100.94	4.07	1.40
Chopping Forage - Self-propelled (6 row corn head)	78.78/ Ac	\$48.92	\$67.51	1.38	2.35
Silo Filling-Tower silo: 1Tractor, 1Chopper & Driver, 2 Wagons	\$8.66/ Ton				
Bunker: Chopper & 3 forage wagons or 2 trucks & packer	\$8.15/ Ton				
Silage Bagging per ft. (9 ft diameter)	\$8.78/ Ton				
Mowing	\$12.85				
Raking - Hay 9ft.	\$6.18	\$6.04	\$21.08	3.49	0.50
Tedding	\$7.03				
Windrowing - hay or straw	\$12.35				
Mower-Conditioner Pull-type (9 ft.)	\$15.10	\$13.04	\$57.25	4.39	0.40
Mower-Conditioner- Self Propelled (16ft)	\$16.89	\$23.75	\$184.30	7.76	0.64
Mower - Conditioner- Rotary (12ft)	\$14.22	\$9.18	\$71.24	7.76	0.38
Small Square Baling Hay	\$0.78 per bale	\$13.62	\$47.67	3.50	0.40
Straw	\$0.70 per bale				
Mow, Rake, Baler & Handle - small square	\$1.85 per bale				
Baler, Rake & Handle - Large Round	\$20.33/bale				
Complete Hay harvesting per ton	\$38.00				
Baling Round - 600-800# per bale	\$8.95 per bale				
Baling Round - 1200 -1500# per bale	\$10.56 per bale				
Baler 1000# Round /with wrapper	\$11-\$13.25 per bale	\$9.09	\$27.36	3.01	0.35
Baling - 1500# - Lrg. Round - stalks/straw	\$11.56 per bale				
Baling - 1500# - Lrg. Round - stalks/straw - w/wrap	\$13.50 per bale	\$0.00	\$0.00	3.04	0.49
Baling - Hay - Large Square - 4x3x6	\$10.50-\$12.75/bale			11.64	0.49
Baling - Hay - Large Square - 4x3x8	\$12- 14.50 per bale				

FERTILIZER:	Custom \$/Acre ¹	Total Machine Cost/ Ac ³	Machine Rate per Hour ⁴	Acres/Hr. ⁵	Est. Fuel Gal./Acre ⁶
Fertilizer Dry Bulk: Spreading	\$6.38				
Lime application	\$10.03				
Fertilizer - Liquid-Knifed In	\$10.70				
- Liquid-Sprayed	\$7.26				
Fertilizer - Anhydrous: 21 ft.	\$11.36				
Fertilizer - Anhydrous: NoTill 32 ft.	\$11.66				
Manure Hauling-semi-solid- Load & Spread / hr.	71.95 per hr	\$39.22	\$78.44	2.00	2.31
Liquid Manure Injected Spreader-6000 gal.	11.00 per 1000 gal.	\$66.57	\$133.14	2.00	2.86
Manure Pump, Hauling, Spreading - liquid (9500 gallon cap.) per hour	\$92 / hour				
Manure Pump, Hauling, Injecting - 1000 gal. liquid (9500 gallon cap.)	\$12.50 per 1000 gal.				
Bobcat /Skid Loader / day	\$75 to \$130 per day				
Ditch Mowing	\$58.35 per hour				
Brush Hogging	\$24.30				
Grain Drying - continuous flow /point/ bu.	\$0.04/pt./bu.				
Grain Drying - inbin dryer /point/bu.	\$0.06/pt./bu.				
Grain Auger/ bu.	\$0.05 per bu.				
Grain Storage/ mo.	\$0.05/bu./mo.				
Grain Storage for season	\$ 0.21 per bu.				
Grain Haul - per bushel - field to farmstead	\$0.10/ up to10 miles	.16/25mi	.098/ 5miles		
Rock picking	\$12.90				
Custom Farming - Corn	\$174.25	(all machine operations for growing & harvest)			
Custom Farming - Soybeans	\$145.71	(all machine operations for growing & harvest)			
Custom Farming - Sm Grains	\$140.85	(all machine operations for growing & harvest)			

Fuel cost is calculated by adding fuel, oil and lube calculated by adding 10% to the power fuel cost.

\$3.60 Fuel Price ==>

\$3.960 ** base fuel & lube price used

1 **Custom \$ per acre:** Represents the rate obtained from surveys of actual farm data surveys for 2012 from Universities listed below

to do this type of machine work for another farm on a general basis. Higher or lower rates apply in each situation depending on crop conditions, soil conditions, size of fields and there locations. This numbers includeds machine, power unit & operator where needed. Values have been adjusted higher to reflect the change in power fuel costs noted above.

3 **Total Machine Cost/Acre:** Includes tractor, fuel cost⁷, lubricants, repairs, maintenance, labor and overhead costs including depreciation. This could be considered as an estimate of the ownership cost and operation of this machine on a per acre basis. No profit or return to management, which would be necessary for on going enterprises were included in this number. Values are based on "Farm Machinery Economic Cost Estimates for 2012, University of Minnesota

4 **Machine Rate per Hour:** This number takes the Total Machine Cost per Acre and factors in the estimated Acres per Hour to give a value that represents an estimate of the hourly operational and ownership cost of machinery supported by @University of Minnesota, Machinery Economic cost estimates for 2012. If the machine is run at full capacity (or engine clock hours) this per acre rate should be in the custom work value generated.

5 **Acres/ Hour:** This is an estimate of the acres this machine should average on a per hour basis with normal down time.

6 **Gal./ Acre:** This is an estimated machine use of fuel consumed to do this activity and is based on a factor of 0.044 gallons of diesel fuel per PTO horsepower-hour on an average. Your individual machines fuel use may vary from this number.

7 **Labor cost:** Charged for this table at a rate of \$15.00 per hour unskilled tasks and \$20.00 per hour for skilled labor (planter, sprayer, harvester).

Costs were developed as an adjusted estimate of common rates being used by farms in this area to cover their cost of operation.

- University of Minnesota, *Machinery Economic Cost Estimates for 2012* @ <http://faculty.apec.umn.edu/wlazarus/documents/machdata.pdf>
- Iowa State University, *2012 Iowa Farm Custom Rate Survey - Ag Decision Maker* @ <http://www.extension.iastate.edu/publications/FM1698.pdf>
- Kansas State University - *2012 Kansas Farm Custom Rates* @ [http://www.agmanager.info/farmmgmt/machinery/Tools/KCD_CustomRates\(Jan2012\).pdf](http://www.agmanager.info/farmmgmt/machinery/Tools/KCD_CustomRates(Jan2012).pdf)
- Texas A&M University, *2011 Texas Agricultural Custom Rates* @ 2011 <http://agecoext.tamu.edu/resources/library/publications/2011-texas-agricultural-custom-rates.html>
- NASS- USDA & Pennsylvania Department of Ag - *2012 Machinery Custom Rates*; Adam Pike, March 2012 http://pss.uvm.edu/vtrops/articles/PA_CustomRates_2012.pdf
- Purdue Extension: *2012 Indiana Farm Custom Rates 06-12* @ <http://www.extension.purdue.edu/extmedia/ec/ec-130-w.pdf>
- University of Illinois - *Machinery Cost Estimates - May 2012, Univ. of Illinois* @ <http://farmdoc.illinois.edu/manage/machinery/summary%202012.pdf>
- University of Nebraska Lincoln - *2012 Nebraska Farm Custom Rates - May 2012* @ <http://ianpubs.unl.edu/public/live/ec823/build/ec823.pdf>

* This report is a summary of information extracted from various sources. Your actual cost may vary greatly from the numbers presented. It is recommended that you calculate your own cost and economic returns necessary for the operation of machinery and equipment on your individual farm.

This document was compiled by: Dennis Stein, Extension Educator, District Farm Business Management, Michigan State University Extension. revised 10/2012

362 Green Street, Caro, Michigan 48723-1998 email: steind@msu.edu or web page: <http://www.msu.edu/user/steind/>

Reviewed by: Curtis Talley, Jr., Extension Educator, District Farm Business Management, Michigan State University Extension.

Major shifts in power fuel cost during the past few year has had an impact on and has changed the cost of machine operational cost.

As a rule of thumb, it is estimated that each \$1.00 increase in fuel cost, will increase most machine operations by an additional 15%.

HOW TO FIGURE YOUR MACHINE WORK RATES

If you are hiring or doing custom work, the following will help you determine the custom rate. Custom rates are based on tradition or usual rates set in the community, the bargaining positions of both parties (i.e., availability of machinery services and demand for machinery services in your local area) and cost of operating the machines on your farm.

Cost of ownership and operation can be determined as follows:

Ownership cost per unit (e.g., acre, bushel, ton, hour) using the DIRT 5:

1. Depreciation: $\frac{\text{original cost} - \text{salvage value}}{\text{years of use}}$		\$ _____
2. Interest: $\text{interest rate} \times \text{AIV}^a$		\$ _____
3. Repairs: estimated 2 to 5 % of original cost		\$ _____
4. Taxes: (0 in Michigan -i.e., no taxes on personal property used in agriculture)		\$ _____
5. Insurance: (estimated 0.5% x AIV for insurance premium)		\$ _____
6. Total ownership cost per year (add lines 1 thru 5)		\$ _____
A. Ownership cost per unit: total ownership cost ÷ estimated annual use (acre, hour, bushel, ton)	(A)	\$ _____

Operating Cost per (acre, hour, bushel, ton)

1. Tractor: fuel (gallon fuel per unit x price/gallon) x 1.15 ^b		\$ _____
2. Machine: gas or fuel gallons per unit x 1.15 ^b		\$ _____
3. Labor: hours per unit x wage rate (if labor wage unit is per acre, bushel or ton multiply this wage by acres bushels or tons per hour to determine wage/hour)		\$ _____
B. Total operating cost per unit	(B)	\$ _____
C. Total ownership and operating cost per unit	(A+B)	\$ _____
D. Desired profit margin and / or risk premium	%	
E. Custom Rate (per acre, hour, bushel, ton) $\text{Line C} \times [1 + (\text{Line D}/100)]$		\$ _____

a Average investment value (AIV) = (original cost basis - salvage value) ÷ 2.

b The addition of 15 percent above fuel cost is for oil & lube. maintenance.

Custom Machine rate calculator is available on line at Ohio State University:
<http://aede.osu.edu/programs-and-research/osu-farm-management/decision-tools>

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Evaluating, Operating and Scheduling Irrigation Systems (Irrigation as a Risk Management Tool)



Tuesday, March 19, 2013, 9:00a.m. - 3:00p.m.

Baker College - Lake City Campus Center of Transportation and Technology
4800 S. Morey Rd. (M-66), Lake City, MI
(Just north of the M-66 and M-55 junction)

*** Cost - \$15.00 ***

Sponsored by Voelker Implement, Lake City, MI

Who should attend?

Anyone who irrigates including; Corn, alfalfa, other field crops, Christmas trees

Topics

- ✓ Water Source and Legal Requirements for Irrigation
- ✓ New Michigan Cash Lease Farm Template
- ✓ Irrigation System Operations
- ✓ Irrigation Management and Scheduling: How much you need, when to turn it on and how much to apply
- ✓ Irrigation Economics, what can I afford to pay?
- ✓ Reporting Large Capacity Water Use
- ✓ Chemigation/Fertigation—Using irrigation to maximize your resource inputs

Speakers - *Lyndon Kelley, MSU & Purdue Extension Irrigation Educator*
Pascal Nzokou, Department of Forestry, MSU
Curtis Talley Jr., MSU Extension Farm Management Educator

◇ Accommodations for people with disabilities may be requested by calling MSU Extension at 231-779-9480 by March 12, 2013. Requests received after that date will be met if possible.

Name _____

Address _____

Phone _____

Number attending _____ X 15.00 = _____ (amount enclosed)

Make check payable to: Michigan State University

MICHIGAN STATE UNIVERSITY | Extension

Send to: Wexford County MSU Extension, 401 N. Lake Street, Cadillac MI 49601

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