

MICHIGAN FARM NEWS



April 30, 1994

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At Press Time

House Takes Action on Farmland Definition; Senate Next

After lengthy debate on Thurs., April 21, the state House finally passed H.B. 5329, a measure which gives most farmland the property tax exemption provided to homesteads.

"The bill can be characterized as basically including all farmland at 6 mills if classified as agriculture or used primarily for agriculture," said MFB Legislative Counsel Ron Nelson. "At this time, the House version of the bill would not take effect until April 1995, meaning that some farmland would be taxed at the 24-mill rate, unless given immediate effect by both the Senate and the House.

Nelson expects the Senate to consider the package the last week of April. MFB supports the House version of the property tax exemption legislation and will urge further action to secure immediate effect. For more information, contact Ron Nelson at 1-800-292-2680, extension 2043.

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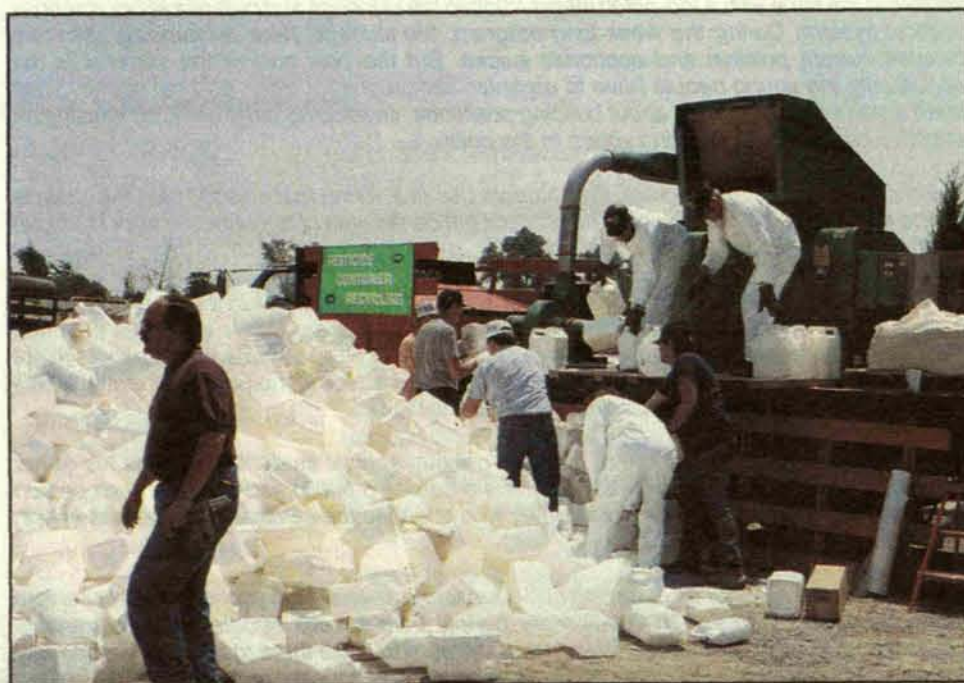
Third Annual Pesticide Container Recycling Program Gearing Up in Michigan

Thanks to a growing interest both from agricultural producers and chemical manufacturers, nearly 25 percent of the plastic pesticide containers used in Michigan will be recycled through 85 locations across the state. That means nearly 229,000 containers will be ground and reused, instead of ending up in a landfill.

The Pesticide Container Recycling program, spearheaded by Grower Service, in cooperation with the Michigan Department of Agriculture, and the Michigan Agri-Business Association, has seen tremendous growth since its first year as a pilot program when just 21,000 pounds were collected, according to Grower Service, Inc. Operations Manager Greg Vicary.

"It's a greater expansion this year, not only in numbers, but also in education and chemical industry affiliation," Vicary explained. "We have representation this year from Terra, Wilbur Ellis, Helena, and CountryMark, and numerous other agricultural dealers, all of which will contribute labor, staff time and promotion to develop this program even further. We've also received tremendous support from MSU Extension in educating farmers about the program."

Each of the 85 Michigan facilities will have an appointed day for area farmers to deliver their cleaned agricultural plastic containers for recycling (see list for location and phone numbers to call for exact dates). Although there's no direct charge to the farmer to participate in the program, there is a requirement that the containers



be triple rinsed or pressure cleaned, labels and foil removed, and the containers be dry.

According to MDA's Agricultural and Environmental Coordinator, Dr. Chuck Cabbage, MDA inspectors, with the assistance of 70 trained members of the Michigan Agri-Business Association, will both be on hand at each facility to inspect containers before they can be ac-

cepted. If the containers don't pass inspection, farmers can expect to take their containers back home with them.

"When we first started this program, we had a 14 percent rejection rate on the approximate

Continued on page 11, see **Pesticide Container Recycling**

Partial Delay Only in Farm Worker Protection Standards

Make sure you understand what's required now and what's not, cautions Michigan Farm Bureau's Al Almy.

Congress has approved and President Clinton has signed legislation delaying implementation from April 1, 1994 to Jan. 1, 1995 of new EPA regulations regarding farm worker pesticide protection standards. However, the delay affects only the "Generic" provisions of the

worker protection standards (WPS), advises MFB Public Affairs Director Al Almy.

Label Specific Requirements Not Delayed

"The bill does not delay compliance and enforcement of specific worker protection requirements that appear directly on the pesticide label or labeling," Almy explained. "These include personal protective equipment, reentry and label notification requirements."

According to Almy, when employers use a product with a WPS label, they must comply with the WPS requirements that are stated on the label immediately. In addition:

- * They must provide their handlers and early entry workers with personal protective equipment specified on the label. The equipment must be in clean and operating condition.

Continued on page 5, see **Worker Protection Standards**

Sugar Situation Does Not Merit Marketing Allotment

The USDA announced that, based on estimated sugar production and imports, it will not issue sugar marketing allotments for the third quarter of fiscal 1994, according to a Knight-Ridder News report.

Under marketing allotments, USDA limits the amount of sugar sold to assure that imports from developing nations remain stable. The department said further estimates will be made in June to determine if marketing allotments should be revived later in the fiscal year, which ends Sept. 30.

According to MFB Commodity Specialist Bob Boehm, the news is good news for Michigan producers. "The recent decision by USDA means that the sugar supply and demand situation is positive for producers and processors," Boehm said.

At right, Ed Szekely of Saginaw County makes a test run with his new planter in preparation for planting his 150 acres of sugar beets, in addition to corn, navies and soybeans.



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"YPCS: An Investment in Citizenship"

If you're concerned about improving the caliber of people we have involved in the political process, make an investment for the future by encouraging a high school student from your county to attend the 1994 Michigan Farm Bureau Young People's Citizenship Seminar. The program will take place June 20-24 at Calvin College in Grand Rapids.

For the past 30 years, the seminar has presented some of the best high school juniors and seniors in the state with a top-notch introduction to the workings and purpose of our country's political system. During the week-long program, the students hear outstanding speakers discuss current political and economic issues. But the best part of the seminar is the opportunity the young people have to organize campaigns for mock political offices. They learn a tremendous amount about building coalitions, developing party unity, conducting an effective campaign and getting voters to the polls.

At the conclusion of the program, the students use real voting machines to cast their ballots for the candidates of their choice. The winners get certificates of appreciation from Michigan Farm Bureau to recognize their "election."

Why does Farm Bureau invest considerable staff and volunteer time in the seminar? We do it because it's a sad fact of political life that the 18-to-24 age group is the group of voters least likely to show up at the polls. Anything we can do to help motivate young people to not only vote, but also get actively involved in the political process in their own communities, will be tremendously positive for our cities, state and nation.

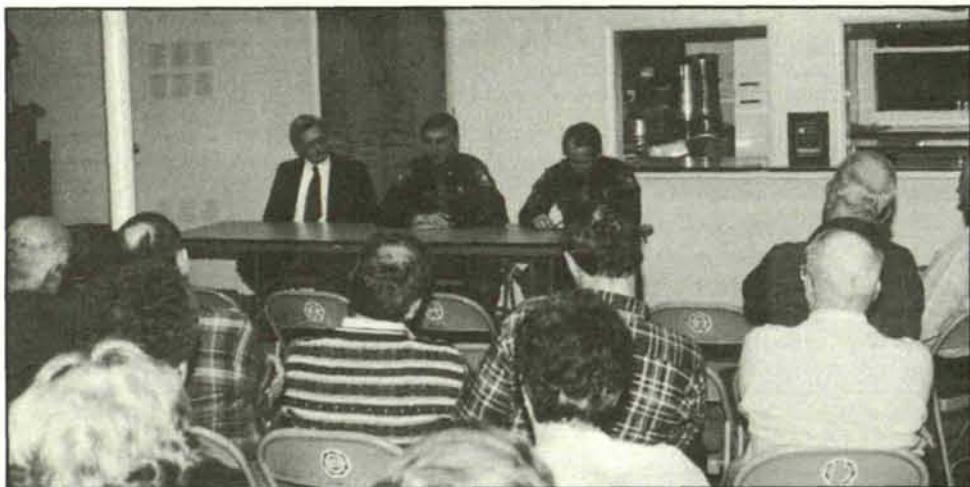
Plus, you never know when you're going to get that special student who takes his or her seminar experience and is inspired to pursue a career in public service. One such person is Senate Majority Leader Dick Posthumus, who attended the seminar when he was in high school.

Help support the seminar by surfacing and sponsoring several high school juniors or seniors from your county who you think will really benefit from a week of outstanding citizenship education. And after they attend the seminar, be sure to invite them to address your county annual meeting in the fall to share their experiences with your entire membership.

The Young People's Citizenship Seminar registration forms are due May 10. Please don't overlook this opportunity to positively affect the future of a young person in your county.

Jack Laurie
Jack Laurie, President
Michigan Farm Bureau

The Sheriff Wants to Talk to You!



Approximately 30 Washtenaw County Farm Bureau members took advantage of a recent Local Affairs Committee-sponsored meeting with the county Sheriff's Department and their local prosecutor. According to Committee Chairman Luke Schaible, the event afforded many members an opportunity to address key issues, including property owner notification in the event of vandalism to field crops and personal property, 911 response times and priorities, and investigation procedures by the prosecutor's office. Schaible, a cash crop and sheep farmer, said the county Farm Bureau generally tries to sponsor this type of meeting once a year, so that members can meet and talk directly with officials on local issues.

Michigan Farmland Task Force Schedules Hearings

The Michigan Farmland and Agriculture Development Task Force recently appointed by Gov. John Engler will hold the first of three public hearings and workshops on May 10, from 1:30 p.m. to 4 p.m., at the Eberhard Center on the downtown campus of Grand Valley State University in Grand Rapids.

The Michigan Farmland and Agriculture Development Task Force has been charged by Gov. Engler with drafting a report on the nature and extent of loss of agricultural land in the state, and to make policy recommendations for strengthening the agricultural industry and maintaining land in agricultural production.

The task force will hold three public hearings and workshops in locations where agriculture has seen the greatest threat from land fragmentation. In addition to Grand Rapids, other hearings will take place July 11 in Traverse City and in Oakland County in September.

The task force welcomes written comments and input. All written correspondence can be sent to: Michigan Farmland and Agriculture Development Task Force, 600 West St. Joseph, Suite 10, Lansing, MI 48933 or call (517) 484-4954.

In Brief...

Burning Permit Moratorium in Effect

Despite an agricultural exemption in the state Forest Fire Law, farmers are encouraged to hold off seeking and using burning permits until a May 15 burning permit moratorium expires. According to MFB Legislative Counsel Vicki Pontz, the Department of Natural Resources permit moratorium applies to all permits issued under the state Forest Fire Law.

"Spring is typically the most critical time of year for wildfires in Michigan," Pontz explained. "Nearly 37 percent of the wildfires responded to will be caused by the outdoor burning of yard and household debris. More importantly, however, nearly two-thirds of the large wildfires -- those that burn over 100 acres -- have historically occurred during this period of time."

Local fire departments or townships are allowed to issue burning permits under the authority of a local ordinance, provided that local ordinance is more stringent than the state Forest Fire Law. MFB members are encouraged to contact their local township office or fire departments before burning. The Michigan Interagency Wildfire Prevention Group is encouraging all fire departments not to issue burning permits until after the May 15 date.

Your Farm Pesticide Records Subject to Audit!

The Michigan Department of Agriculture inspectors will be conducting 150 inspections from May 1, 1994 to Feb. 28, 1995 to check grower compliance with federal record keeping requirements for restricted use pesticides. The law requires a private applicator (a farmer) to make a written record of:

1. The brand name or product name of the restricted use pesticide and its Environmental Protection Agency registration number.
2. The total amount of the actual product used.
3. The size of the area treated in a unit of measure, such as acre, linear foot, cubic foot, number of animals treated, etc.
4. The crop, commodity, stored product, or site to which pesticide was applied.
5. The specific location of the actual application.
6. The month, day, and year of application.
7. The name and certification number (if applicable) of the applicator or applicator's supervisor.

Records must be maintained for two years from the date of the pesticide application. Record keeping forms are available from your local Extension office.

Secchia Commission Hearings on State Government's Service to Rural Michigan Scheduled

The Secchia Commission Task Force on the Delivery of State Government Services to Rural Michigan, headed by former Ambassador Peter Secchia, was convened earlier this year by Gov. John Engler to explore ways to improve the operation of state government.

The seven-member commission, comprised of members of the public from around the state, will be hosting a series of hearings around Michigan over the next several months, according to MFB Legislative Counsel Howard Kelly.

Hearings are scheduled May 23 in Benton Harbor, June 27 in Grayling, July 25 and 26 at undetermined locations in the Upper Peninsula, and on Aug. 22 in the Saginaw Valley area at a location to be determined.

If you are unable to attend a hearing, but would like to share your comments in writing with the task force, direct them to: The Secchia Commission, P.O. Box 30026, Lansing, MI 48909. For more information about the hearing dates, and/or to learn more about the Secchia Commission, contact Kelly at 1-800-292-2680 ext. 2044.

No Agreement on Wheat Reached with Canada Yet

The U.S. and Canadian negotiators still haven't reached an agreement on how much wheat Canada can export to the U.S., according to Canadian Trade Minister Roy MacLaren. A top Clinton administration official said the U.S. had set an April 22 deadline for resolving the rift over Canadian wheat sales to the United States. Canada is expected to export more than 2.5 million metric tons of wheat to this country in 1993-94, while the U.S. wants that figure lowered. U.S. Trade Representative Mickey Kantor warned that time is running out for a solution to the U.S./Canadian grain dispute.

Study Finds Little Pesticide Residues in Food

A study done in 1992, but just made public in April, found traces of pesticides on fruits and vegetables, but not in amounts to cause harm. USDA said there were traces of some pesticides on products even after they were washed, peeled or cored, "but in amounts well below legal limits." They did leave the door open for more discussion by saying the limits may be outdated and said the Clinton administration would seek to lower the limits, especially for children. William Franks, director of science at the USDA Agricultural Marketing Service, said more residues are being found because researchers "set their equipment to spot even the tiniest amounts of residue."

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CAPITOL CORNER



Private Property Rights

MFB POSITION

The bill is supported by Farm Bureau. Included among the several co-sponsors is Michigan Congressman Bart Stupak (D-Menominee).

MFB CONTACT

Al Almy, Ext. 2040

H.R. 3875, known as the Private Property Owners Bill of Rights, has been introduced by Congressman Tauzin (D-Louisiana). The bill would:

- Require compensation to owners deprived of 50 percent or more of the fair market value of their property, or of the economically viable use of that property by federal actions.
- Require federal agencies to comply with state and tribal property laws.
- Require federal agencies to get written permission from landowners before entering private property to gather information.
- Set up an administrative appeals procedure for private property owners affected by "adverse" endangered species or wetlands rulings.

OSHA Reform

MFB POSITION

MFB opposes both bills.

MFB CONTACT

Al Almy, Ext. 2040

Legislation has been introduced in both the U.S. House of Representatives and the U.S. Senate to reform OSHA. The bills, H.R. 1280 introduced by Congressman Ford (D-Mich.) and S. 575 introduced by Sen. Kennedy (D-Mass.), specifically target agriculture for the new workplace standards. The bills contain the following major provisions:

- Transfers responsibility to set exposure limits for agriculture workplace chemicals from EPA to the Department of Labor.
- Requires farm employers to advise employees in writing of exposure to chemicals and keep records of chemical use where worker exposure may be involved.
- Requires farm employers to develop safety and health programs and provide annual training for every worker at each worksite.
- Requires farm employers to devise safety and health committees and provide medical monitoring of all employees.
- Failure to comply with any of the proposed OSHA standards could result in fines of \$10,000 to \$50,000 per day and criminal penalties of 10 to 20 year jail sentences.
- The legislation is likely to receive action in committee before the summer congressional recess.

Clean Water Act Reauthorization

MFB POSITION

MFB does not support.

MFB CONTACT

Al Almy, Ext. 2040

The Clean Water Act is up for reauthorization by Congress this year. The House Public Works subcommittee on Water Resources has begun mark-up on H.R. 3948 which reauthorizes the Act. It's expected the Subcommittee will also mark up wetlands legislation at the same time.

H.R. 3948 is extremely harsh and punitive and, if enacted, would affect every farmer. It gives no recognition to the progress farmers have made to date in using good soil conservation practices.

The EPA, through state agencies, would set terms and conditions for farm plans and have primary enforcement authority. The following is a summary of some of the troubling provisions in the legislation:

- Every farm, regardless of location and the current condition of water quality, is required to have a comprehensive water quality plan approved by the state.

Each plan must, at a minimum, conform to a list of soil, water, nutrient and land-use Best Management Practices (BMP's) developed by EPA. Each plan must be enforceable with, at a minimum, injunctive enforcement authority.

- Raises penalties to \$100,000 per day per violation. It authorizes and funds citizen monitoring, strengthens citizen suits and provides a reward for citizen-reported violations that are successfully enforced.

- Requires all waters to be assessed every five years and a new round of management measures implemented if water quality standards are not met. Future rounds of BMP's are likely since EPA will be developing new water quality criteria for stand-

ard setting concurrently with the implementation of BMP's. In short, farm management plans will be chasing a moving and increasingly stringent set of standards.

- Establishes fishable, swimmable and "drinkable" as a new national policy goal that ALL surface and groundwater be protected and managed "to achieve a level of quality appropriate as a source of water for human consumption."

- Ignores the fact that over 70 percent of our waters meet the fishable/swimmable goal of the current law and that the trendline continues to improve. Of the 30 percent that are a problem, agriculture is a factor in only half of the waters that currently do not meet designated uses.

- Fails to recognize that nonpoint source runoff does not pose the same acute threat to health and the environment that point source pollution does. It is a manageable problem, not a crisis.

The tremendous investment in conservation made by farmers over the last decade is not credited nor is it understood that time is required for these efforts to produce water quality improvements.

Equine Liability

MFB POSITION

The bill appears to conform to Farm Bureau policy on equine liability.

MFB CONTACT

Ron Nelson, Ext. 2043

Rep. Llewellyn (R-Fremont) is sponsoring H.B. 5006, which would limit the liability for equine owners. Although the bill does not provide total liability exemption, it would limit the owner's liability under certain circumstances, unless there was negligence or the users were not advised of the potential risk.

P.A. 232 Amendments

MFB POSITION

Farm Bureau opposes the bill as written with the 10 percent requirement. Farm Bureau policy specifically states the 25 percent or 200 minimum requirement for any changes to P.A. 232.

MFB CONTACT

Ron Nelson, Ext. 2043

H.B. 5393, introduced by Rep. Gnodtke, would revise several sections of P.A. 232, known as "The Agricultural Commodities Marketing Act." Interest has also been expressed by nurserymen and aquaculture to amend P.A. 232 to allow them to utilize the program. The revisions include:

- Revising the \$800 minimum producer product value for the checkoff to take effect.
- Provide for the administration of collections which would mandate that the Michigan Department of Agriculture follow up on complaints, investigate and carry out court action if necessary.
- Change the petition requirement from 25 percent or 200 producers, whichever is smaller, to 10 percent or 100 producers, whichever is smaller, for amendments to P.A. 232.
- Permit borrowing money and allow unlimited per diem for committee members.

Appropriations - DNR - P.A. 116

The Appropriations Committee has discussed at some length the appropriations for administration of P.A. 116, which have grown rapidly. The proposal for Fiscal Year 1994-95 is \$600,000. Funding comes from the payback of credits received when the agreement is terminated.

When funding was shifted from general funds to the payback fund, appropriations increased approximately \$150,000. Legislators are questioning the \$600,000 appropriation since there is very little new land entering the program to justify increased funding.

Garbage Feeding Permit Repeal Proposed

Rep. Jaye has introduced legislation calling for the repeal of the permit process required for feeding garbage to hogs. In a meeting with representatives from Michigan Farm Bureau, Michigan Pork Producers Association, and Michigan Department of Agriculture officials, opposition was voiced to the proposal, since without the permitting process, there would be no guidelines for feeding garbage to hogs. Without those guidelines, there was fear about public reaction to the practice, and control of trichinosis and hog cholera.

H.B. 5353 Worker's Disability Compensation

MFB POSITION

Farm Bureau policy has consistently been supportive of Workers' Compensation insurance and supports the "exclusive remedy" clause of existing law. Farm Bureau strongly opposed bills diluting this exclusivity clause.

MFB CONTACT

Howard Kelly, Ext. 2044

Legislation co-sponsored by Reps. Olshove, Rivers, Parks, DeMars, Freeman and Jondahl, would eliminate the prohibition against employees filing a claim for recovery from an employer for an on-the-job injury. Currently, Workers' Compensation is an employee's exclusive remedy against an employer for a personal injury or occupational disease.

This bill would add additional exceptions to the only current exception of intentional tort. The new language would allow a lawsuit in which a personal injury or occupational disease is caused by a defective machine or a defective or employer-modified piece of equipment for which the employer was previously issued a citation by OSHA (Occupational Safety and Health Administration) or MIOSHA, and failed to repair the machine or equipment before the date of the personal injury or occupational disease.

This bill is a part of a package of bills addressing product liability issues. They are reported to, in part, be designed, to "facilitate the reporting of agricultural-related accidents."

H.B. 5351 is called the "sunshine in litigation act," which applies to civil actions and, in effect, mandates that facts about any device, instrument, person, procedure, or product that causes, or is likely to cause, personal injury, or the pollution, impairment, or destruction of air, water, or other natural resources, cannot be prohibited from disclosure.

H.B. 5355 makes it a felony for a person who causes a dangerously defective product or device to be manufactured or distributed in Michigan. The penalty is up to five years in prison and \$1 million fine. The definition of dangerous is any product that is "designed or constructed in such a manner as to be dangerous... when used in any manner for which the product or device is intended to be used or may foreseeably be used."

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Weather

30 Day Forecast - Warmer and Drier Than Normal

Vegetation began to green across much of the state during the past week or two as recent warmer than normal air temperatures and soil temperatures (rising into the 40s and 50s) led to the first appreciable growing degree day accumulations of the season.

One likely contributing factor to the warm soil temperatures was drier than normal soils, the result of below normal precipitation for much of the past several weeks. A series of strong cold fronts and associated precipitation, including thunderstorms, brought surface soil moisture levels back up to more normal levels in spots recently, although some parts of the state remain drier than normal (especially in the north).

The new National Weather Service 30-day outlook calls for a weak ridge to cover the middle of the U.S., resulting in warmer and drier than normal conditions across Michigan. Before dreaming of early spring planting, however, I would consider the following: the jet stream flow during the past two or three weeks has been very erratic and unpredictable, making forecasts more than a few days in advance very difficult.

Secondly, the accuracy of long range outlooks at this time of the year is the lowest

3/16/94 to 4/15/94	Temperature		Growing Degree Days		Precipitation	
	Observed Mean	Dev. From Normal	Actual Accum.	Normal Accum.	Actual (Inch.)	Normal (Inch.)
Alpena	36.0	+2.3	30	15	1.82	2.11
Bad Axe	36.8	-0.7	30	38	2.15	2.03
Detroit	43.2	+2.8	71	50	3.19	2.60
Escanaba	32.5	+0.3	4	3	1.57	2.12
Flint	40.7	+1.9	52	50	2.13	2.60
Grand Rapids	41.1	+2.5	50	56	2.56	2.71
Houghton	31.5	+1.5	4	14	1.10	2.01
Houghton Lake	36.1	+1.2	22	15	2.63	2.11
Jackson	40.7	+0.2	50	54	1.41	2.50
Lansing	40.7	+2.0	57	54	2.72	2.50
Marquette	31.4	+2.8	14	14	2.30	2.01
Muskegon	39.0	+0.6	25	34	1.99	2.47
Pellston	33.9	+2.3	13	21	2.43	2.16
Saginaw	39.6	+1.0	39	38	3.03	2.03
Sault Ste. Marie	30.2	-0.1	4	3	2.14	2.12
South Bend	43.4	+1.7	81	56	2.00	2.71
Traverse City	36.6	+1.2	24	21	2.24	2.16
Vestaburg	38.3	-0.5	40	37	2.36	2.24

Observed and growing degree day totals are accumulated from April 1. Normals are based on district averages. Jeff Andresen, Ag Meteorologist, MSU

of any time of year. While we are likely to see more of the up and down temperature pattern of the past week or two, my guess is that overall means during the next few weeks will still trend somewhat lower than normal as a source region of cold air persists just across the border in Canada.

Michigan and Major Commodity Area Extended Weather Outlook

T - Temp.	4/30.....	5/15	4/30.....	6/30
P - Precip.	T.....	P	T.....	P
Michigan	A.....	B	B.....	B
W. Corn Belt	A.....	N	N.....	N
E. Corn Belt	A.....	N	N.....	N
Wint. Wheat Belt	N.....	N	N.....	B
Spr. Wheat Belt	A.....	N	N.....	N
Pac. NW Wheat	N.....	N	A.....	N
Delta	A.....	N	N.....	B
Southeast	N.....	N	N.....	N/B
San Joaquin	N.....	N	A.....	N

A-Above Average, B-Below Average, N-Normal, MA-Much Above, MB-Much Below, NP-No Precip. Source: National Weather Office

Soil Moisture is Key to Seed Germination

Adequate soil moisture is vital to achieving maximum germination in corn fields, says Win Johnson, Northrup King Co. senior agronomist. He notes that seed with good vigor contains an ample supply of key sugars. When the seed absorbs water, it reacts with these sugars, immediately triggering germination. Experts believe seeds that are slow to germinate suffer from a shortage of these important sugars.

A seed must absorb about 50 percent of its weight in water to achieve good germination, the Northrup King agronomist says.

When planting corn on irrigated ground, soil moisture should be in the range of 70 percent to 100 percent of field capacity for rapid seed absorption of water. Soil moisture in the 10 percent to 12 percent range is typically too dry for germination.

To determine if soil moisture is adequate, Johnson suggests growers squeeze a handful of soil. If the soil sticks together, moisture levels are probably about right for planting. If the soil is muddy, it's probably too wet for planting. If it falls apart, it is too dry to germinate seed satisfactorily.

Many growers plant by the calendar. Johnson advises growers to plant as early as possible and suggests that conditions are best when the soil temperature is 55 degrees Fahrenheit at four inches deep at 8 a.m.

Ideal seeding depth also depends on soil conditions, he says. In cold, moist soils, planting shallow at one to one-and-one-half inches is generally sufficient. However, even in drier soils, two to two-and-one-half inches is considered maximum depth. Johnson explains that when planted deeper, the seed may not be able to push the coleoptile out of the ground.

Pesticide Registration Update for Grapes

According to the MSU Cat Alert, Fruit edition, registration has been granted to DowElanco for Lorsban 4E use on grapes, effective until Feb. 14, 1999. Lorsban 4E is recommended for controlling climbing cutworms.

Use Lorsban 4E by thoroughly mixing with water to form an emulsion spray or drench, and use as a pre-bloom spray. Lorsban 4E should not be tank mixed with other pesticides, surfactants, or fertilizer, unless prior use has shown the combination does not cause injury under your conditions. Don't make more than one application per season. Don't use with a soil surface spray application of Lorsban 4E for grape root borer control. The section 24(c) label must be in possession of the user at the time of application.



Serving Michigan Farm Families is Our Only Business

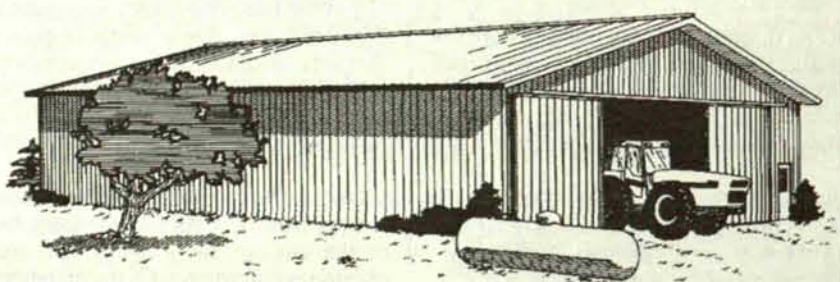
Since its beginning in 1971, Michigan Farm Radio Network's only objective has been to serve Michigan's farm families. This dedication to serve agriculture is shared by 29 local radio stations in Michigan. Through these stations, Michigan Farm Radio Network provides the latest in market analysis, weather and news to Farm Bureau members daily on the following stations:

Station	City	Frequency	Morning Farm	Noon Farm
WABJ	Adrian	1490	5:45 am	11:50 am
WATZ	Alpena	1450	5:30 am	11:30 am
WTKA	Ann Arbor	1050	6:05 am	12:05 pm
WLEW	Bad Axe	1340	6:30 am	12:50 pm
WHFB	Benton Harbor			12:30 pm
WKYO	Caro	1360	6:15 am	12:15 pm
WTVB	Coldwater	1590	5:45 am	***
WDOW	Dowagiac	1440	6:05 am	12:15 pm
WGHN	Grand Haven	1370/92.1	5:45 am	12:15 pm
WPLB	Greenville	1380	6:15 am	11:45am
WBCH	Hastings	1220	6:15 am	12:30 pm
WCSR	Hillsdale	1340	6:45 am	12:45 pm
WHTC	Holland	1450		12:15 pm
WKZO	Kalamazoo	590	**	11:30 am
WJIM	Lansing	1240	5:05 am	11:50 am
WWGZ	Lapeer	1530	*	12:15 pm
WOAP	Owosso	1080	6:15 am	12:30 pm
WHAK	Rogers City	960		12:15 pm
WSJ	St. Johns	1580	6:15 am	12:15 pm
WMLM	St. Louis	1540	6:05 am	12:20 pm
WSGW	Saginaw	790	5:55 am	12:20 pm
WMIC	Sandusky	660	6:15 am	12:45 pm
WCSY	South Haven	940		12:15 pm
WKJC	Tawas City	104.7		12:45 pm
WLKM	Three Rivers	1510/95.9	6:15 am	12:15 pm
WTCM	Traverse City	580	5:55 am	11:20 am

* Station signs on at different times during the year. Morning farm times change with the sign-on times.
 ** Station airs various farm reports between 5:30 and 6:00 a.m.
 *** Station airs various farm reports between 12:00 and 1:00 p.m.

Some stations carry additional market reports throughout the market day.

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Herbicide Applications - Debunking the Water pH Myth

Despite what you may have read in major farm publications, or heard from salesmen recently about lowering your herbicide spray water pH levels, you may want to re-check your facts and your water, says MSU Extension weed specialist Jim Kells.

He says much of the talk of lowering water pH levels applies only in those situations where sulfonyleurea herbicide spray solutions, such as Classic, Pinnacle, Accent, and Beacon, would be left in a spray tank for an extended period of time - overnight for example.

"In those cases, the recommendation is very simple. If at all possible, spray the mixture the same day that you mix it up," Kells explained. "If you get caught where you can't spray the same day, the label then recommends adding a pound of sodium bicarbonate or baking soda per 100 gallons of spray solution to neutralize the pH, to keep the spray solution more stable overnight. But for any soil applied herbicide, this idea of modifying the pH to get maximum activity just isn't valid!"

Roundup Confusion?

Kells suspects that much of the confusion about pH levels results from the common practice of adding ammonium sulfate or food-grade

Dry and liquid versions of ammonium sulfate are available on the market to combat hardwater antagonism in Roundup solutions. MSU's Jim Kells says that food-grade citric acid can also be used. Although the citric acid does lower pH levels, it's actually not the reason for improved Roundup activity, but rather the binding of calcium and magnesium salts in hard water conditions.



citric acid to water in combination with Roundup. Either of these two ingredients are suggested in hard water conditions, to overcome "hard water antagonism."

"Food-grade citric acid does lower the pH of the water, but the primary benefit is that the citric acid binds with the calcium and magnesium, so they can't react with the Roundup, Kells said."

Calcium and magnesium salts in hard water are positively charged and soluble in the water. When a negatively charged herbicide such as Roundup is added to the spray tank, the positively charged salts are attracted to the negatively charged herbicide. Ultimately, this re-

duces the herbicide's absorption into the plant leaf.

"It's recommended on the Roundup label that 17 pounds of dry ammonium sulfate per 100 gallons of water be added to overcome the hard water antagonism," Kells said. "The other approach is to add citric acid to tie up the calcium and magnesium in the water."

Kells suggests that farmers have their water tested through their local health departments for hardness. Generally, water with calcium and magnesium levels exceeding 250 parts per million is considered objectionable as drinking water.

Last, but not least, if you determine that you must add ammonium sulfate or citric acid to combat hard water antagonism in Roundup solutions, then make sure you add them to the solution prior to adding the Roundup.

"If you put the Roundup in first, it will react with the calcium and magnesium, before the additive has a chance to do anything," Kells cautioned. "Put the ammonium sulfate or citric acid in first. After you've tied up the calcium and magnesium, then add the Roundup."

How You Can Reduce Hard Water Antagonism

Several approaches can be utilized to adjust the spray tank chemistry to overcome the reduced control from hard water antagonism of Roundup herbicide.

Ammonium Sulfate:

Ammonium sulfate has been used successfully in increasing Roundup efficacy on a broad spectrum of weed species.

The Roundup label recommends the addition of 2 percent ammonium sulfate by weight or 17 pounds of dry ammonium sulfate per 100 gallons of water for most applications. Ammonium sulfate should be added to the water prior to the Roundup.

Organic Acids:

A common practice to reduce hard water antagonism is the use of organic acids, such as food-grade citric acid. The organic acid should be added to the water prior to the addition of the Roundup.

A use rate of 2.2 pounds per 100 gallons should be adequate for water with 250 parts per million of calcium. Acidifiers should not be used in conjunction with organo-silicone adjuvants as increased acidity may enhance chemical breakdown of the organo-silicone adjuvant.

Urea-Ammonium Nitrate (28% Liquid N):

Urea-ammonium nitrate or 28% liquid N will also increase Roundup efficacy on many weed species. However, ammonium sulfate is preferred over 28%.

Low Volume Rates:

Decreasing the spray carrier volume has

also been found to reduce hard water antagonism simply because the calcium and magnesium are proportionally reduced with lower water volumes. However, adding ammonium sulfate or organic acid in addition to a non-ionic surfactant is still recommended under hard water conditions.

Soft Water:

Water treated with ion exchange water softeners contains monovalent sodium in place of calcium and magnesium found in hard water. Although not as antagonistic as hard water, water softeners have still been found to antagonize Roundup activity.

Surface Water Sources:

Surface water sources generally have significant levels of dissolved solids and organic particulate matter.

These soil particles decrease Roundup activity and this type of antagonism cannot be corrected by adding ammonium sulfate or organic acid. Surface water, therefore, should be avoided for Roundup applications.

Non-Ionic Surfactants:

Non-ionic surfactants will generally enhance Roundup activity on most weed species. However, they will not overcome hard water antagonism of Roundup.

Therefore, under hard water conditions, ammonium sulfate or organic acids should be used in conjunction with non-ionic surfactants to maximize Roundup absorption.

Source: Crop and Soil Sciences, Kurt Thelen

Worker Protection Standards (continued from page 1)

* They must restrict entry during the restricted entry interval specified on the label.

* They must post fields and orally notify workers about an application if the label specifically requires posting and notification.

Pesticide Labeling Changes Not Delayed

According to Chuck Cabbage, agriculture environmental coordinator at the Michigan Department of Agriculture, the legislation does not delay the date for chemical manufacturers to make WPS-required label changes.

Pesticide registrants are still required to change labels on all product released for shipment after April 21, 1994. The EPA estimates that 2,000 labels will require changes.

Generic Provisions Delayed

According to Craig Anderson, manager of the Regulatory Compliance Assistance Program (RCAP), the "Generic" provisions are delayed until Jan. 1, 1995. These are the requirements referenced, but not specified on the label.

Generic requirements include safety training for agricultural workers and pesticide handlers, providing of decontamination supplies - towels, soap, water, change of coveralls - notice of pesticide applications, maintaining an application log, and displaying a safety poster.

For more detailed information on Worker Protection Standards, contact Anderson at 1-800-782-6432.

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ACA on Corn

Since its introduction, ACA has demonstrated its ability to enhance plant vigor and help the plant overcome environmental stress during plant development. Seed tolerance studies have shown ACA to be completely safe to germinating corn seedlings when placed in direct contact with the corn seed in-furrow.

Identifiable Performance Parameters on Corn

The following are frequently observed plant responses from soil applications of ACA on corn.

Visual Response

- Vigorous early plant growth.
- More fibrous and extensive root system

- Wider, darker green leaves (ACA-treated plants often fill the row sooner)
- Larger diameter stalk
- Taller plant (ACA-treated plants often tassel sooner)
- Heavier ear and kernel weight
- Grain dries down quicker

Observation Timing¹ (Stage of Growth)

- VE to V3
- Early-V1 to V5
- Late-10 days after silking
- V12 to V17

- V12 to maturity
- V12 to tasseling

- Maturity (Harvest)
- Maturity (Harvest)

The staging of development described above is adapted from "How a Corn Plant Develops," Special Report No. 48, Iowa State University. V represents a leaf stage on corn where the leaf has a fully expanded leaf collar. V1 represents a corn plant with one leaf with fully expanded collar.

The identified performance parameters typically result in:

- Increased uptake of soil nutrients
- Increased utilization of sunlight in photosynthesis
- Improved standability and ease of harvest
- Reduced grain moisture at harvest
- Increased uptake of soil moisture
- Reduced leaf rolling during moisture stress
- Higher yields and/or test weight

Yield Information Field Corn (1993)

- 37 total studies
- 6.9 bushel per acre increase
- 5.8% increase in yield
- Return on ACA investment of \$12.09 (1/2 pint/acre) or \$10.37 (2/3 pint/acre)
- 1/2 pint ACA per acre in-furrow [Corn at \$2.25/bushel x 6.9 bushel increase/acre = \$15.53 - ACA investment of \$3.44/acre (1/2 pint/acre) = \$12.09 R.O.I./acre]
- 2/3 pint ACA per acre broadcast [Corn at \$2.25/bushel x 6.9 bushel increase/acre = \$15.53 - ACA investment of \$5.16/acre (2/3 pint/acre) = \$10.37 R.O.I./acre]

Application Techniques/Procedures

Test results have shown that ACA works best injected as a pure product in-furrow, or when the fertilizer that contains ACA is either injected or incorporated into the soil prior to, at, or soon after planting. The incorporation of movement of ACA into the soil profile can be by tillage, rainfall, or irrigation. This positions the ACA near the developing root system of the plant.

Methods of Application

- ACA mixes easily with and fits into the following fertilizer programs:
- Anhydrous ammonia
- Nitrogen solutions
- Mixed liquid starter fertilizers
- Dry blended broadcast or starter fertilizers
- Soil applied (weed & feed herbicide/fertilizer solutions or dry)

Other application methods:

- Soil applied broadcast with water as the carrier, with or without a herbicide
- Direct injection of undiluted ACA in-furrow

Application Rates

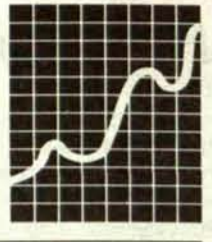
For in-furrow injection or banded (2" to side and 2" down), apply ACA at 5.33 to 8 fluid ounces (1/3 to 1/2 pint) per acre. Field studies of band or in-furrow applications have shown more consistent results at the 1/2 pint per acre rate. The rate for broadcast application is 10.66 fluid ounces (2/3 pint) per acre.

The rate of addition of ACA to anhydrous ammonia is one gallon of ACA per 3,589 lbs. anhydrous ammonia. This translates to 0.0434 fluid ounces of ACA per pound of contained nitrogen or 0.557 gallons (71.32 fluid ounces) per ton of ammonia. A typical 1,000 gallon anhydrous ammonia nurse tank filled to 85% of capacity would require 156 fluid ounces of ACA.



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Market Outlook...



FARM BUSINESS OUTLOOK

CORN

The USDA updated their Supply/Demand Report on April 12 to include the information for the Stocks Report discussed in the last issue. Their update is shown in the first two columns of Table 1. Given that stocks were somewhat lower than expected, some thought projected 1993-94 feed use would be lowered which would ease the tight stocks somewhat. However, USDA must feel second half use will make up for this and animal numbers would support this.

They did lower export projection for 1993-94 by 25 million bushels due to the slow export pace to this point and lack of future sales on the books. However, it does appear that we should reach this new lower projection if things pick up just a bit as expected. While this change did increase the ending stocks projection, stocks are still quite tight.

Strategy: Most of the potential weather scares are still in front of us; so given the tight stocks, I feel there is more upside potential than downside risk. As of mid-April, new crop prices were near what my

WHEAT

The USDA also made some changes in its 1993-94 wheat supply/demand estimates as shown in Table 2. The 1994-95 projections are mine; the USDA will issue their first projections of 1994-95 in the May update.

The USDA raised wheat feed use 25 million bushels due to the less than expected stocks reported last month. However, they did not up it as much as many in the trade expected. Exports for the 1993-94 marketing year, which runs through June 1, look like they

CATTLE

We are probably around the seasonal high for cattle prices about now. While I am not bearish, I do expect prices to follow a typical seasonal pattern and begin to drop off in June. This means we need to keep as current as possible. The more current feedlots stay, and there are indications they are trying, the less potential for a sharp drop-off as we go into the summer.

Wheat	→ ↑
Corn	→ ↑
Soybeans	→ ↑
Hogs	↑
Cattle	→ ↓

Index: ↑ = Higher Prices; ↓ = Lower Prices; TP= Topping; BT= Bottoming; ? = Unsure

1994-95 projection would suggest, given normal yields as shown in the third column of Table 1. Therefore, any scares should be positive. Consider holding off sales of both old and new crops until we rally from the mid-April levels. Then be ready to price into the possible rally. It may not stay around long.

will meet the projection. New crop export sales are not going very well. While ending stocks were lowered marginally, stocks are ample.

Strategy: New crop wheat prices are just below my expectations. However, if we have a rally, strongly consider pricing a significant portion of your production; otherwise, we may have to keep it for a December rally.

While the supply of cattle will likely be sufficient this summer, last fall's placements being down 6 percent and January's being down 5 percent, should temper the seasonal summer price decline. This, along with good income projections, i.e. good demand, should keep many feedlots near break-even the remainder of this year.

Dr. Jim Hilker, Dept. of Agricultural Economics, MSU

SOYBEANS

The USDA raised its 1993-94 crush projection 10 million bushels and lowered its 1993-94 export projection 15 million bushels to leave 1993-94 soybeans in a tight stock situation as shown in Table 3. Both exports and weather may be big market movers for soybeans as we move through the spring and summer. The tight 1993-94 ending stocks projections puts us in a position where a fairly small pick-up in export expectations would be very positive.

As seen in my 1994-95 supply/demand estimates in the last column of Table 3, mid-April new crop prices are very near what fundamentals would project.

What surprised me was how fast they got there after the stocks and planting intentions came out. I expected the market to be

HOGS

How many hogs are out there is still very much a question. Slaughter in March and through the first half of April was up 2 percent, while the Hogs and Pigs Report indicated it would be even. At this point, slaughter should be down 4 percent. Is it? With the dramatic changes in the hog industry, the numbers seem very elusive.

EGGS

Dr. Henry Larzelere, Dept. of Agricultural Economics, MSU

March egg prices averaged about 11 cents a dozen below March of 1993. Also, feed ingredient prices were more than 3 cents per dozen eggs above last year.

Wholesale prices in New York for Grade A large eggs in cartons are expected to average in the mid 60s during the April-June quarter. April prices will be above the average and May prices below.

Looking ahead to the July-September quarter, prices will likely average at about the 70 cent level. September prices will probably be above year earlier levels for the first time in a number of months.

a weather scare premium into June and be very susceptible to weather scares. I still feel there is much more upside potential than downside risk, but unfortunately we are starting from a much lower level.

Strategy: Consider pricing the basis on any remaining old crop and then holding for rallies. On new crop, wait for a rally to price, but unless the new crop basis offers tighten up, consider H-T-A's or put options when and if pricing opportunities come along.

Strategy: As of mid-April, hog futures were near their lows. If this situation persists, just hold off and price at market time. However, if year-to-year slaughter does fall off and futures rally anywhere near previous highs, consider forward pricing significant amounts of your future production.

The turmoil in September results from the layer numbers and egg production being about 2 percent above last year through August. The egg-type chick hatch in January and February was 2 percent and 8 percent, respectively, below a year earlier for the first time in about a year. Further, layer-type eggs in incubators on March 1 were considerably below March 1, 1993 (80 percent of 1993). These figures will trigger higher egg prices in September.

Another price strengthening factor is the trend toward an increase from the previous year in the slaughter of spent hens. As the crop season progresses, feed price ingredients will probably move lower than last year.

Table 1
Supply/Demand
Balance Sheet For
CORN

	USDA Proj. 1992-93	USDA Proj. 93-94	USDA Proj. 94-95
Corn Acreage (Million Acres)			
Acres Set-Aside and Diverted	5.3	10.5	?
Acres Planted	79.3	73.3	78.6
Acres Harvested	72.2	63.0	71.5
Bu./A. Harvested	131.4	100.7	123.0
Stocks (Million Bushels)			
Beg. Stocks	1100	2113	827
Production	9482	6344	8795
Imports	7	20	8
Total Supply	10,589	8,477	9,630
Use:			
Feed	5301	4800	5100
Food/Seed	1511	1600	1690
Total Domestic	6813	6400	6790
Exports	1663	1250	1340
Total Use	8476	7650	8130
Ending Stocks	2113	827	1500
Ending Stocks Percent of Use	24.9%	10.8%	18.5%
Regular Loan Rate	\$1.72	\$1.72	\$1.89

U.S. Season Average
Farm Price, \$/Bu. \$2.07 \$2.55 \$2.30
Source: USDA & Hilker

Table 2
Supply/Demand
Balance Sheet For
WHEAT

	USDA Proj. 1992-93	USDA Proj. 93-94	Hilker Proj. 94-95
Wheat Acreage (Million Acres)			
Acres Set-Aside and Diverted	3.5	.5	.5
Acres Planted	72.3	72.2	71.5
Acres Harvested	62.4	62.6	61.5
Bu./A. Harvested	39.4	38.3	39.0
Stocks (Million Bushels)			
Beg. Stocks	472	529	564
Production	2459	2402	2399
Imports	70	95	77
Total Supply	3001	3026	3040
Use:			
Food	829	840	850
Seed	98	97	100
Feed	191	300	275
Total Domestic	1118	1237	1225
Exports	1354	1225	1210
Total Use	2472	2462	2435
Ending Stocks	529	564	605
Ending Stocks Percent of Use	21.4%	22.9%	24.8%
Regular Loan Rate	\$2.21	\$2.45	\$2.58

U.S. Season Average
Farm Price, \$/Bu. \$3.24 \$3.20 \$3.10
Source: USDA & Hilker

Table 3
Supply/Demand
Balance Sheet For
SOYBEANS

	USDA Proj. 1992-93	USDA Proj. 93-94	Hilker Proj. 94-95
Soybean Acreage (Million Acres)			
Acres Planted	59.1	59.4	61.1
Acres Harvested	58.2	56.4	60.0
Bu./Harvested Acre	37.6	32.0	34.5
Stocks (Million Bushels)			
Beg. Stocks	278	292	160
Production	2188	1809	2070
Imports	2	5	5
Total Supply	2468	2106	2235
Use:			
Crushings	1279	1250	1270
Exports	770	590	625
Seed, Feed and Residuals	127	106	110
Total Use	2176	1946	2005
Ending Stocks	292	160	230
Ending Stocks Percent of Use	13.4%	7.9%	11.5%
Regular Loan Rate	\$5.02	\$5.02	\$5.02

U.S. Season Average
Farm Price, \$/Bu. \$5.50 \$6.45 \$5.90
Source: USDA & Hilker

7 Explosion in Nitrogen Fertilizer Prices

As most farmers are aware, there has been a rapid increase in nitrogen fertilizer prices the past couple of months. There are many reports that anhydrous ammonia prices have increased anywhere from \$80 to \$100 per ton in the past 60 days, according to American Farm Bureau Federation Senior Economist Terry Francl.

In the Midwest, prices were running around \$200 per ton in early February and are currently pushing \$300 per ton in some areas. The reasons for the increase are multi-fold.

Supply Side Tight

There has been a chain of unforeseen events on the supply side, according to Francl. The nitrogen inventory levels were a little snug going into the planting season. Manufacturers and retailers were coming off two years of relatively low prices which had put many in a loss situation.

Consequently, many manufacturers were not taking their plants "down" for maintenance at the regular scheduled interview, normally once a

year. Some manufacturing plants have run as long as two to two-and-a-half years without any maintenance downtime. Basically, they are running their plants until they break.

Starting in February, there were several plants within the United States that had production outages. At the same time, there has been a disruption in the supply line in the East, the Former Soviet Union (FSU).

While only about five percent of the total U.S. anhydrous ammonia supply, 1 million tons out of a total of 20 million tons comes from the FSU, it is a very important incremental component of the total supply picture, says Francl.

In recent months, there have been a series of pipeline breakdowns within the FSU. In addition, two vessels collided coming out of the Black Sea, blocking shipping lanes for almost one week.

Demand Above Average

Turning to the demand side, Francl said the demand for ammonia in diammonium phosphate

(DAP or 18-46-0) production has been running at very high levels. Approximately 25 percent of all anhydrous ammonia is utilized to produce DAP. Exports of DAP and other phosphates have been very strong, particularly to the far East to countries such as India and China.

Supplies of anhydrous ammonia have become so critical that some DAP producers are considering shutting down their DAP lines and just producing triple super phosphate (TSP or O-46-O). Industrial demand is also very strong for cleaners, and to the lesser extent, for resins and explosives.

Finally, Francl said, with spring field work taking off with a bang, farmers throughout nearly all the Midwest had three or four weeks of uninterrupted time to prepare their fields and apply fertilizer. Rarely does this happen over so wide an area and with essentially no break.

No Relief Expected

The question remaining is how much longer will anhydrous ammonia, and related nitrogen

FARM BUSINESS OUTLOOK

prices, continue at their current lofty levels. Francl predicts that given the current shortage in the supply pipeline, prices will most likely remain strong throughout the spring season.

Typically, the spring season does not end until side-dressing is completed in the Midwest, sometime in early to mid-June. Unfortunately, that suggests the pressure on prices will likely remain for another month or two.

White Mold Research Leads Michigan Soybean Research Funding

During a recent directors' meeting of seven soybean farmers, it was decided that \$40,320 of producer checkoff funds will be used to further White Mold research efforts at MSU in 1994, according to Michigan Soybean Promotion Committee Executive Director Keith Reinholt.

In total, the committee allocated just over \$200,000 for various research projects. "White Mold is becoming a larger and larger problem in the state of Michigan for soybeans, and has been in dry beans, for quite some time," Reinholt explained. "We've got three projects that will be addressing White Mold, including the breeding aspect, and resistant varieties."

White Mold spores, which actually survive in the soil, infect the soybean plant through the flower, eventually infecting the stems of the plant, and seriously reducing yields. In many cases, the mold can actually kill the plant.

Reinholt says that White Mold has become a common problem in southern and central Michigan, as well as Ohio, Indiana, Illinois and Wisconsin. "We're hoping that as more university researchers get involved, we'll get this issue resolved quicker through resistant varieties, and/or sprays that will lessen the infestation," he said.

Soybean Cyst Nematode research at MSU also received \$19,000 in funding for 1994. MSU researchers Fred Warner and Dr. George Bird, have been conducting research on this growing problem for the past several years, and will continue efforts this year to identify methods for control and testing, according to Reinholt.

In addition to several agronomic type research projects at MSU, Reinholt said the committee made a \$9,060 research allocation to Western Michigan University for additional soy ink research and a \$1,000 allocation to Michigan Technological University for a new soy uses product for road dust control.

"We had several demonstrations last summer that indicated this new uses product for soybean oil byproduct was effective in dust control, but we need to continue researching it," Reinholt said. "We have to do some environmental impact studies and we need to assess the supply and demand of such a product."

To receive funding, researchers must first submit a research proposal within a given time frame. The proposals are all forwarded to the Research Department of the American Soybean Association (ASA) for comparison with other research projects elsewhere in the country to avoid duplication of efforts, Reinholt said.

ASA then returns a two-page evaluation on each proposal to the Michigan Soybean Promotion Committee, where directors then have a chance to interview researchers.

"Directors then pretty much ask the researchers point blank how their respective project is going to help soybean growers in the state of Michigan," Reinholt said. "The directors then rank each project in terms of importance and dollar impact, before making their final allocations based on the total available budget."

1993-94 Approved Michigan Projects

Since 1976, Michigan soybean producers have opened the door to further research of their crop. Members of the Michigan Soybean Promotion Committee have approved funding for projects over the years with the goal of improving the soybean farmer's bottom line. Nearly \$200,000 of funds have been appropriated.

Weed Control Research

- * "Field Evaluation of WEEDSIM Weed Management Model in a Corn-Soybean Rotation in Michigan" /\$7,263
- * "Weed Control in Glyphosate Tolerant Soybeans in No-Till and Conventional Tillage Production Systems" /\$9,228.
- * "Using Reduced Rates of Postemergence Herbicides in Drilled and Row Soybeans" /\$7,350
- * "Wild Carrot Management in Michigan No-Till Soybean Production" /\$8,118
- * "Value-Added Recycling: Evaluation of New Soybean-Based Adjuvant for Use With Postemergence Herbicides in Soybeans" /\$6,000

Disease/Insect Research

- * "Practical Strategies for Managing White Mold in Soybeans" /\$11,800

- * "White Mold in Soybeans: Development of Resistant Varieties, Testing of Varieties for Resistance and the Testing of a Resistance Inducing Chemical" /\$16,520

- * "Management of the Soybean Cyst Nematode in Michigan" /\$19,000

- * "Phytophthora Root Rot of Soybean: Factors Controlling Infection and Symptom Expression" /\$10,500

Michigan Specific Breeding

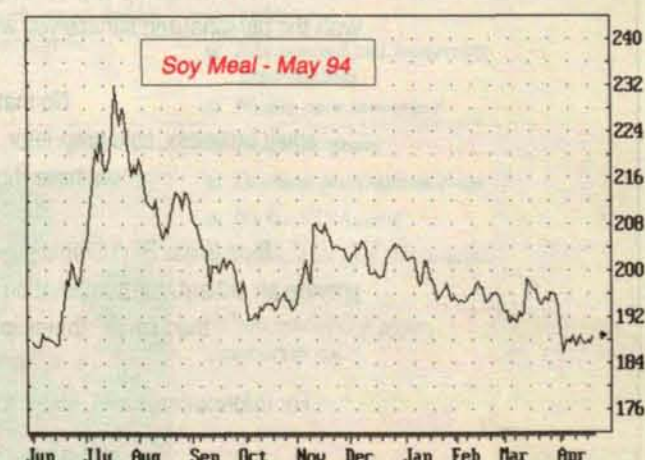
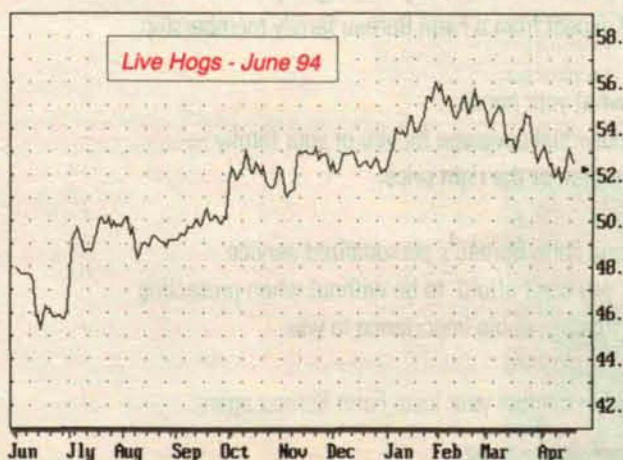
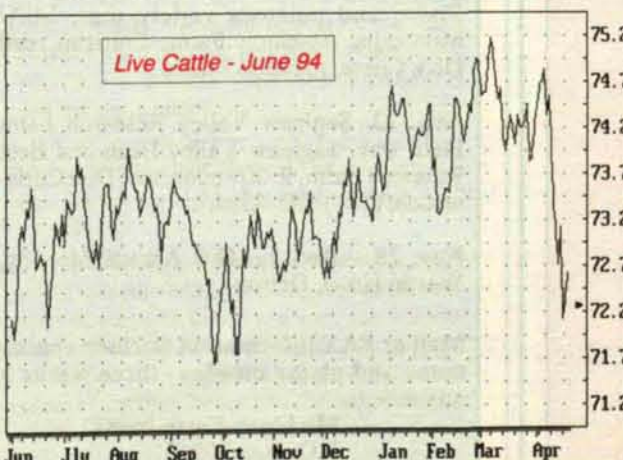
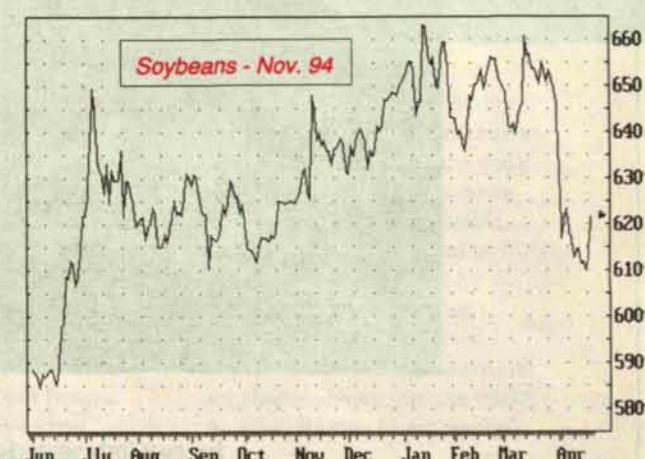
- * "Genetic Diversity of Northern Soybean Lines Using RAPD Markers" /\$4,950
- * "Breeding, Testing, and the Development of Specific Use Soybean Varieties for Michigan Environments" /\$26,250

Variety/Tillage Studies

- * "Increased Soybean Profitability With Reduced Tillage Practices," /\$9,920

Extension Service/ Soil Conservation Service

- * "Soybean Plots/Educational Projects, Gratiot County" /\$2,400
- * "Reduce the Use of Chemicals in a No-Till System Using Narrow Rows, Band Spraying, and Mechanical Cultivation in the River Raisin Basin Demonstration Plots" /\$435



Charts Provided by Knight-Ridder Financial

8 Take Time for Safety This Spring Planting Season

No matter how busy you are, take time for safety and proper training on your farm. It will always be a worthwhile investment -- because you'll experience fewer errors, higher productivity, and a reduced risk of accidents. So take time to:

- Make safety and health a priority. They are necessary for success in farming and in life.
- Follow safety and health recommendations in operator's, owner's, or instruction manuals and product labels.
- Know how to prevent farm injuries and illnesses. And put your knowledge into practice.
- Be prepared for each thing you do during your day. Have the right tools, equipment, and supplies at hand. Know and respect your limitations as well as your strengths.
- Inspect all equipment and facilities for hazards. Correct them without delay and know how to cope with hazards that can't be eliminated.
- Maintain your equipment. Make sure all PTO shafts, V-belt drives, and augers are protected by properly installed and operating shields and guards. Don't allow your employ-



ees to operate equipment without safety devices in place.

- Make sure all family members and employed workers are properly trained and equipped for their jobs.

- Protect children, the elderly, and others in your care. For example, don't let children ride on farm equipment -- and give them only work suitable for their age and development.

- Follow label directions and take all recommended precautions when handling and apply-



ing chemicals. Keep them stored in original containers away from children. Dispose of unused chemicals and empty containers as recommended by label instructions or according to EPA guidelines.

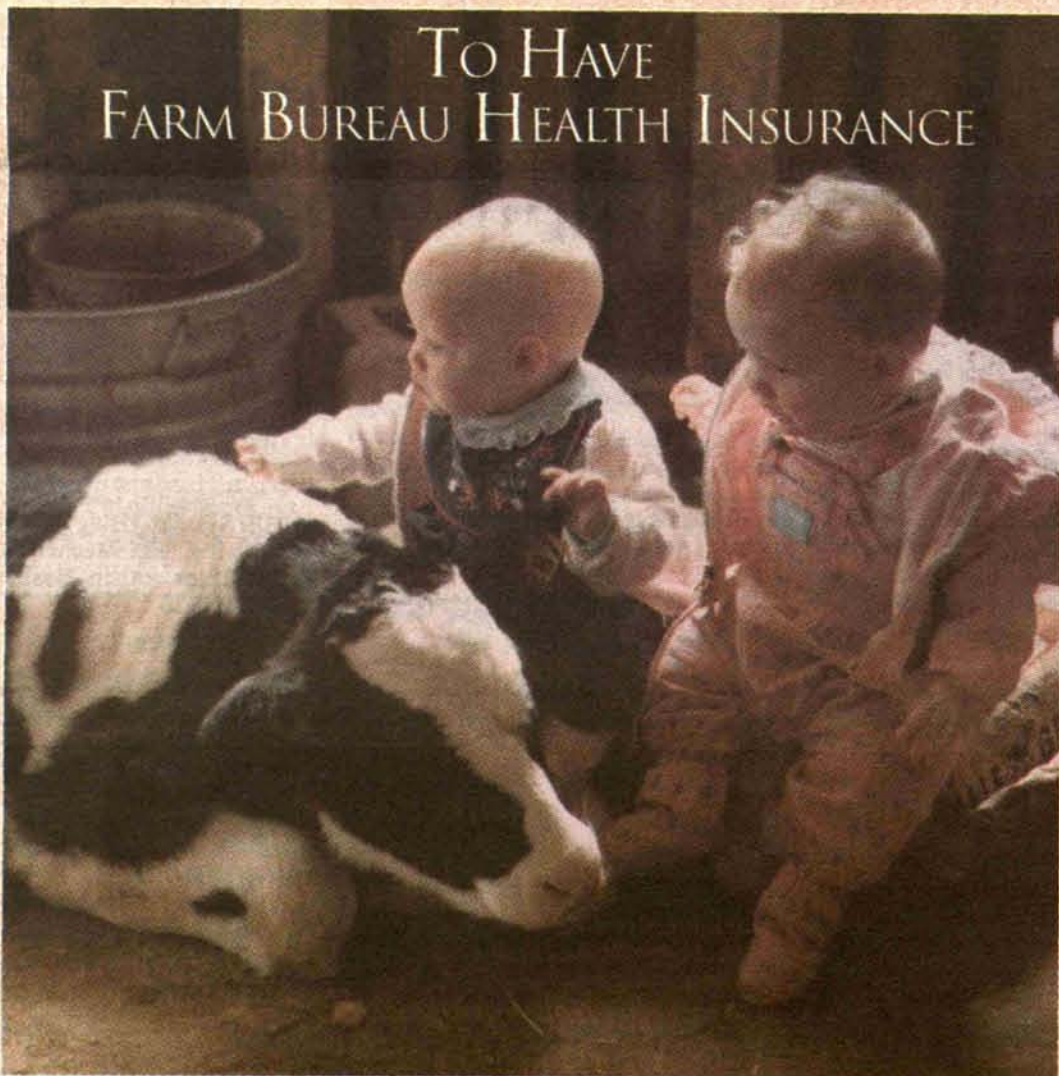
- Provide proper protective equipment -- including appropriate masks, gloves, and clothing -- for yourself and any workers who handle hazardous products or work under conditions that require extra protection.

- Care for your health. Stay fit, eat properly, and avoid crash diets. Exercise to maintain fitness, muscle tone, and agility.

- Be prepared for emergencies. Learn first aid and CPR. Post emergency numbers at every phone. And learn the procedures for notifying local authorities of a hazardous materials exposure or accident.

A FEW SMALL REASONS

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Calendar of Events

May 23 - 24, National Agricultural Biotechnology Council, MSU Kellogg Center, call Eddie Hansen, (517) 355-0123.

May 28 - 29, Michigan Horse Drawn Vehicle Association Clinic and Show, Barry County Fairground in Marshall, contact Bernadine Kams, (616) 781-5515.

June 20-24, Young People's Citizenship Seminar, Aquinas College, Grand Rapids, 1-800-292-2680, ext. 3234.

June 22-24, College Week, Michigan State University.

June 29, MSU Weed Day, Botany and Plant Pathology Farm, East Lansing, call Jim Kells, (517) 355-2173.

July 19-21, MSU-AG Expo, Michigan State University.

July 20, Summerfest, MFB Center, Lansing.

July 23, Forage Field Day, Lake City Agriculture Experiment Station.

July 26, Plant Problem Diagnosis Field Day, Michigan State University, call Jim Kells, (517) 355-2173.

July 27, MSU Muck Research Farm Field Day, Laingsburg, 1 p.m., call Darryl Warnke, (517) 355-0210.

July 29 - 31, ASA Soybean Expo 94, Kansas City, Mo. Contact the American Society of Agronomy Office, 1-800-688-7692

Aug. 5-7, Llamafest, Kalamazoo Fairgrounds, Kalamazoo. Fourth annual meeting includes workshops, demonstrations, show and sale for Llamas, call Leah Bird (616) 657-6379 for more information.

Aug. 17 & 18, Potato Field Day, Pig/Beef Roast, and potatoes variety tour, MSU Montcalm Research Farm, Entrican, call Dick Chase, (517) 355-0206.

Aug. 23, Saginaw Valley Research Farm Field Day, Saginaw Valley Bean and Beet Research Farm, 9:30 - noon, call Don Christenson, (517) 353-4594.

Nov. 28 - Dec. 1, MFB Annual Meeting, Westin Hotel, Detroit.

Mail or FAX information (include contact name and phone number) three weeks in advance to:

Michigan Farm News
P.O. Box 30960
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FAX: (517) 323-6793

Evaluating Your Alfalfa Stands? Count Stems!

9

The life of a productive alfalfa stand varies considerably – from one to seven years – and is affected by several factors including traits of variety, geography and soil type, fertility, pH levels, weather extremes, and the presence of insect or disease conditions. Any of these factors can help prolong or shorten stand life.

How can you tell if your alfalfa stand is past its prime? Researchers and growers have wrestled with the determination of this critical "point in time" for years. Several evaluation methods and theories have surfaced, but only recently has an accurate and easy-to-use method emerged.

Accuracy is Key

"Historically, most states have recommended making decisions on alfalfa stands based on plant count," says Dr. Dan Undersander, University of Wisconsin forage specialist. This method involves physically counting crowns of surviving alfalfa plants in a square-foot area, while evaluating age of the stand, plant condition, and stand uniformity. Recent research shows this may not be a reliable method of estimating yield potential.

"Stem count now appears to be a more accurate method of estimating yield potential of an alfalfa field," Undersander continues. "If you count only the crowns, you don't get the whole picture."

Dr. Marvin Hall, forage specialist with Pennsylvania State University, agrees. "We're now looking at stem count as a better method of evaluating stands," he says. "Mature alfalfa crowns can actually compensate for fewer plants per square foot by producing more stems, or shoots, per plant. The plant count method doesn't take this into consideration."

Research Supports Stem Count Method

Research conducted the past three years at the University of Wisconsin shows a direct correlation between stem density and yield potential. Studies conducted in 20 fields near Madison and River Falls, Wis., showed little relationship between plant count and actual yield, thus supporting the accuracy of the stem count method.

Undersander mentions that yield potential, as projected by stem count, does not equal actual yield. "Actual yield will probably be less than the yield potential," he explains. "The potential shows all that is possible, but actual yield is dependent on favorable growing conditions and grower management programs including soil fertility levels and insect and disease controls."

Varietal selection is another important component of grower management. Continuous, intensive research conducted by America's Alfalfa makes it possible for growers to select alfalfa varieties based on dormancy rating, winter-hardiness, and disease and pest resistance. These traits can dramatically impact the persistence and yield potential of an alfalfa stand.

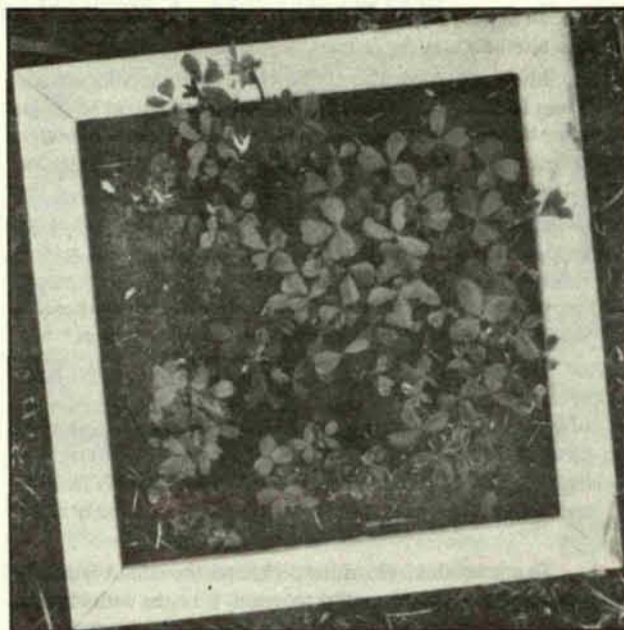
Evaluation is Simple

For quick assessment using the stem count method, Undersander recommends growers construct a square box or outline (approximately 1.4 feet by 1.4 feet). Walk the field and place the box on the ground in three to four widely separated locations.

Count the stems within the box, divide by two to get average stems per square foot, and then evaluate stand density. If the stem count is 55+ average/square feet, there is no change in yield potential; 40-55 average/square feet, there is some yield reduction; and 0-39 average/square feet, there is extreme yield reduction/consider plowing stand under.

Use these figures as a guide, but also consider yield history of the field and other alternatives for hay or haylage production, Undersander advises.

To further assess health of the stand, Undersander recommends growers dig alfalfa plants to examine roots for crown and stem rot. If a root shows evidence of crown rot extending over two inches into the root, or if root discoloration spreads over four inches into the root, the plant is likely to die within the next year. He says this evaluation is helpful in making a final decision on the future of a field.



These steps are consistent with Hall's recommendation of a pro-active approach to alfalfa management. "If you wait to make your stand evaluation or replant decision until yields drop, it's too late," says Hall. "You must make your

time during the growing season. He cautions that spring counts should not be made until alfalfa has grown at least six inches.

"The optimum time for evaluation would be in late summer," Cosgrove says. "This gives

Evaluate Your Stand

Use a square box or outline measuring approximately 17 inches x 17 inches, for counting stems in three or four different locations in your field. After counting the number of stems in the box, divide by two to get the average stems per square foot. Evaluate stand density based on the following:

If stem count is: (Avg./sq. ft.)	You can expect:
55+ =	No change in yield potential
40-55 =	Some yield reduction
0-39 =	Extreme yield reduction/consider plowing under

decision before you start getting those low yields."

alfalfa growers time to assess their findings and make plans for spring planting."

Timing is Flexible

Dr. Dennis Cosgrove, Extension forage specialist with the University of Wisconsin, says that in their research, stem counts did not change from one cutting to the next. This means stand evaluations may be made any

Management Made Easier

time during the growing season. He cautions that spring counts should not be made until alfalfa has grown at least six inches.

Proper stand evaluation is essential to profitability of a grower's operation. But Undersander says an evaluation technique can't be effective if growers don't use it. "Our goal is to establish a method that is accurate and easy to use. The stem count method is quicker than counting crowns and it's easier since you don't need to get down on your hands and knees," he says. "After you've done a few evaluations and get your eyes calibrated, you can actually look at a field and visually make your evaluation."



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10 Preying on Insects: A Form of Pest Control

The corn borer wasp parasitize borers by inserting their eggs into borer larvae. As the wasps develop, they feed on the corn borer larvae, ultimately killing them.

Photo: Kurt Stepnitz



In nature, predators stalking their prey is a way of life. It can also be a way for farmers to combat crop pests.

Michigan Agricultural Experiment Station Researcher Doug Landis, assistant professor of entomology at Michigan State University, is studying ways to increase natural predators of insect crop pests, and an answer may be in the landscape.

"Predators and parasites frequently need different resources than the pests they attack," said Landis. "While the crop fields may be ideal for the pest, unfarmed areas such as fence rows, stream banks and fallow fields are vital for natural enemies to survive. Farmers should not discount the benefits they could be getting from some of these natural areas."

Landis believes the imported European corn borer is the second biggest field crop pest in the Midwest, causing millions of dollars in yield decreases each year and more damage in the past 10 years than the corn rootworm. The borer is not affected by crop rotation because it can fly to any field to lay its eggs, and chemical control has not proven to be completely effective.

To control this and similar problems, the USDA launched a classical biological control program. It began with visits to the pests' countries of origin to find their natural enemies.

Through this program, about 25 natural enemies of insect pests were imported and released. The corn borer wasp and the seven-spotted lady beetle became established in the Midwest.

Corn Borer Wasp



Photo: Kurt Stepnitz

The wasps parasitize borers by inserting their eggs into borer larvae. As the wasps develop, they feed on the corn borer larvae, ultimately killing them. Though the current year's yield may not be saved, the borers do not live to produce another generation.

Landis has found that the wasps are more successful in parasitizing the borers along fence rows or wooded field edges, rather than in grassy edges or field interiors.

"A field may have from 5 to 25 percent of the corn borers parasitized," Landis said. "Along wooded field edges, it will be from 20 to 40 percent. We set out to determine if we could increase levels of parasitism across the entire field."

The answer may be in the fence rows. The wasps need a cool, moist climate and a sugar source to survive, and the nectar of certain flowers growing in fence rows provides this sugar.

In June, when the corn plants are small, a cornfield can be a hot, dry environment. The wasps seek out their food sources in the cool dampness of neighboring trees and fence rows. Later, when the corn is taller, the wasps have all the resources they need in the field because the corn provides a more moderate climate.

Those unfarmed areas provide shelter for another beneficial insect: the lady beetle, or ladybug. Unlike the corn borer wasps, lady beetles are frequently generalists, preying on almost anything that's smaller than they are. Michigan has many native lady beetles, but the European seven-spotted lady beetle is now common in Michigan.

"We want to keep lady beetle populations high," Landis explained, "so they can move into the corn fields when the corn borers are laying their eggs. Studies have shown that lady beetles will eat many egg masses before they hatch."

The beetles also feed on aphids, which are found on a wide variety of crops.

Landis explained that the seven-spotted lady beetle is more abundant in diverse agricultural environments because it appears to need several kinds of plants and aphid species.

Some species of lady beetle can live for extended periods on plant pollen, but the seven-spotted lady beetles need prey. Without alternative food sources, the beetles would not survive.

A number of studies at the Kellogg Biological Station, in Hickory Corners, Mich., indicate that lady beetles never over-winter in crop fields because they don't provide much shelter and are often plowed.

Instead, the lady beetles spend their winters in fence rows and grass tussocks and under tree bark. In the spring when the adults emerge, they need to find aphids to eat.

They look for them in plants in fence rows, crops such as alfalfa or poplar trees, which provide early-season habitats for aphids.

"This is an example of how natural enemies need different types of resources in their environment," Landis said. "They need sheltered places to spend the winter, access to alternative foods -- which might be nectar and pollen -- or prey to sustain them when the insect pest they normally attack is not available."

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11 Proper Rinsing Critical to Recycling Pesticide Containers

Pesticide containers that are disposed of improperly can contaminate our environment. When pesticide containers are taken to approved landfills, the container material still is not reused.

Container disposal is also becoming more difficult with the number of approved landfills declining. Open burning of pesticide containers is not legal in Michigan.

Recycling allows the container material to be reused, which saves resources, reduces demand for landfill space, and shows all of Michigan that you, as a pesticide applicator, are concerned about the environment.

Why Rinse Containers?

Rinsing containers immediately and adding the rinsate to the spray mixture reduces environmental risks. It also ensures that all the pesticide that you paid for is used to control pests.

Some pesticides will solidify and become difficult to remove if not rinsed from the container immediately. Proper rinsing is also required by state and federal regulations.

Various pressure rinse nozzles.



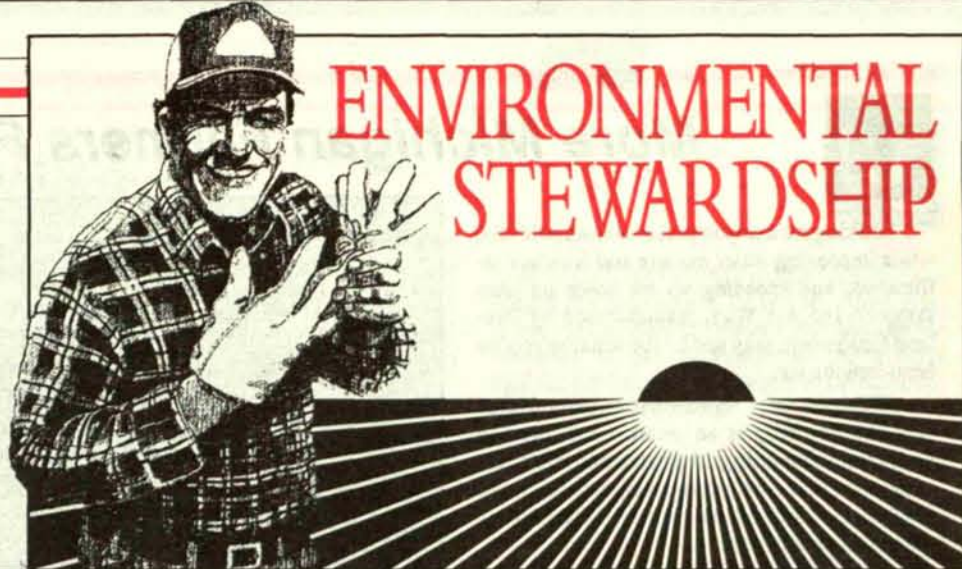
Two Ways To Rinse

There are two approved methods of rinsing pesticide containers: triple rinsing and pressure rinsing.

Triple rinsing:

Triple rinsing can be used with plastic, non-pressurized metal and glass containers. To triple rinse properly, do the following:

Photos: MSU Pesticide Education Office



- Remove the cover from the container and empty into sprayer. Once the container has been emptied, let it drain for 30 seconds.
- Fill the empty container about 1/4 full with water and replace the cap securely.
- Shake the container to rinse all inside surfaces.
- Remove the cap, pour the rinsate into the tank and let it drain for 30 seconds or more.
- Repeat the above steps two more times.
- Inspect the container to make sure it's clean.

Pressure Rinsing:

Pressure rinsing forces remaining pesticide from containers by using a special nozzle attached to the end of a hose. It may be faster and easier than triple rinsing and it can be used with plastic and non-pressurized metal pesticide containers.

To Properly Pressure Rinse:

- Remove the cover from the container and empty into sprayer. Once the container has been emptied, let it drain for 30 seconds.
- Insert the pressure rinse nozzle by puncturing the lower side of the container.
- Hold the container upside down over the spray tank with the cap removed. Allow pressurized water to clean the inside surfaces while the rinsate flows into the spray tank.
- Rinse the container for at least 30 seconds making sure to rotate the nozzle so that it rinses all the inside surfaces.
- Inspect the container after rinsing to make sure it is clean.

Triple rinsing and pressure rinsing remove over 99 percent of the pesticide residues in a container. A properly rinsed container contains no visible residues on the inside or outside.

Remember to rinse containers immediately for best results. Always wear protective clothing while rinsing pesticide containers.

When you bring containers to a recycling collection site they should be:

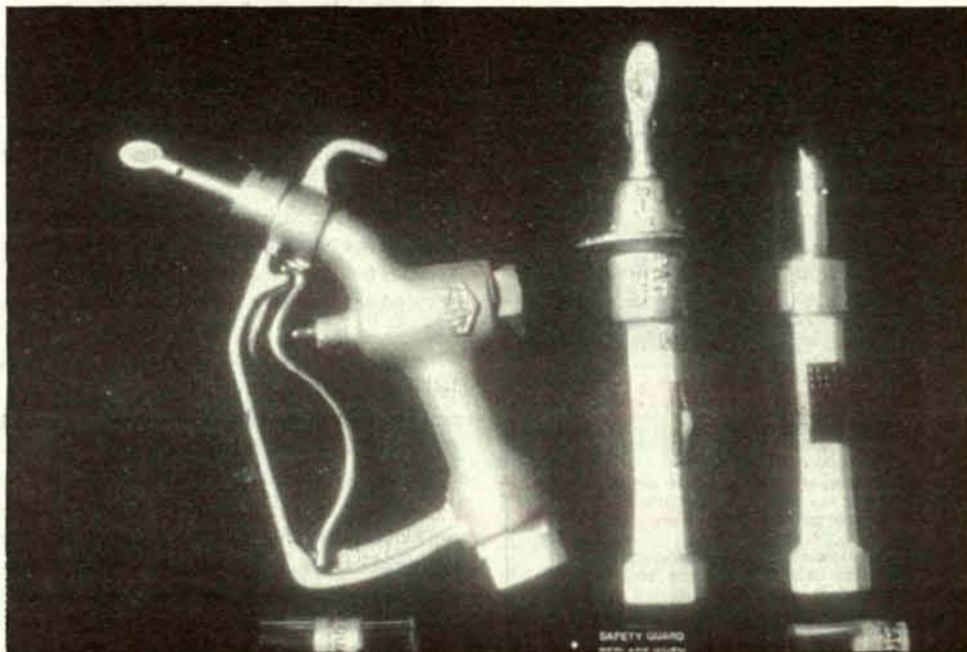
- * Pressure or triple rinsed.
- * Completely clean inside and out.
- * Caps removed (the plastic is different and cannot be recycled).
- * Remove all paper labels, sleeves and foil seals from containers

Remember To...

- Read and follow all label instructions.
- Wear appropriate protective clothing and equipment when working with pesticides.
- Never reuse a pesticide container for any other purpose.
- Recycle and/or dispose of all pesticide containers properly.
- Use a back-flow prevention device when filling spray tanks or rinsing containers.
- Only properly rinsed containers can be recycled.
- Rinsing pesticide containers is the law.

For more information on recycling pesticide containers, call the Michigan Department of Agriculture at (517) 335-6838 or your county Extension office.

Reprinted from MSU's "Rinsing and Recycling Pesticides Containers" literature



Pesticide Container Recycling

continued from page 1
32,000 containers that were delivered," Cabbage said. "This last year, the rejection rate was just 9 percent on 72,000 containers, so that's a very positive aspect of this program."

Vicary suggests that growers wanting to participate in the program, utilize large plastic bags, available through participating dealers, to store the containers once they're cleaned and dried until their local recycling date.

The program will be accepting plastic one gallon and 2-1/2 gallon agricultural containers (pesticides, herbicides, additives, surfactants etc.), and five gallon pails from agricultural uses only. Vicary said that although 30 gallon and 55 gallon plastic drums from agricultural purposes will be accepted after passing normal inspection, the larger units do require additional staff time and special grinding arrangements. "We would like to encourage producers to shift to reusable/returnable program on the larger units," he said.

Most of the ground up plastic will be sent to St. Louis, Mo., for use in waste energy recovery, such as cement manufacturing, since the product is considered a high BTU energy source. Industry efforts continue on a national basis to find alternative uses for the product to help underwrite the costs of container recycling.

Nationally, chemical manufacturers committed \$1.75 million to cover the cost of the recycling program last year, which averages approximately 65 cents per pound of plastic recycled. Costs of the program are charged back to chemical manufacturers based on the percentage of their containers on the market.

"We're looking at uses such as plastic pallets, which could eat up 5 million pounds of plastic in a hurry, if that were proven to be a workable process," Vicary explained. "If we can take a service and product costing a \$1.25 per pound and make it into a resaleable and profitable product, then we've changed the cost equation of this program considerably."

1994 Michigan Pesticide Container Collection Sites

City	Facility	Phone	City	Facility	Phone
Adrian	Cutler Dickerson	(517) 265-5191	Litchfield	Blondes Farm Supply	(517) 542-2996
Ann Arbor	Vigoro Industries	(313) 426-4787	Lowell	Total Ag Service	(616) 967-7293
Ann Arbor	C.F. Braun	(313) 662-9400	Marcellus	Countrymark Cooperative, Inc.	(616) 646-5115
Applegate	Terra International	(810) 633-9345	Marlette	Marlette Farmers Co-op Elevator	(517) 635-3578
Auburn	Ittner Bean & Grain	(517) 662-4461	Marshall	Hoffman & Sons Elev.	(616) 781-2245
Bad Axe	Terra International	(517) 269-9929	Martin	Terra International	(616) 672-5567
Bear Lake	Grower Service Co.	(616) 864-2636	Mason	Mason Elevator Company	(517) 676-1016
Benton Harbor	Grower Service Co.	(616) 944-1411	Melvin	Vigoro Industries, Inc.	(313) 387-3345
Birch Run	Berger & Company	(517) 624-9321	Mendon	St. Joe Valley Seed	(616) 496-2565
Blissfield	Grower Service Co.	(517) 486-4391	Merrill	Berger & Company	(517) 643-7293
Breckenridge	B & W Coop, Inc.	(517) 842-3104	Mt. Pleasant	Brown Milling, Inc.	(517) 433-5335
Bridgewater	E.G. Mann & Sons	(313) 429-7127	Munger	Vigoro Industries, Inc.	(517) 894-2821
Britton	Britton Elevator, Inc.	(517) 451-8001	Napoleon	Napoleon Feed Mill	(517) 536-8311
Brown City	Terra International	(810) 346-3160	Nottawa	Cropmate Fertilizer Co.	(616) 467-7293
Caledonia	Green Valley Ag.	(616) 891-0075	Nunica	Groeninks Elevator	(616) 837-7391
Carson City	Harvey Milling Co.	(517) 584-3466	Owendale	Berger & Company	(517) 678-4321
Cassopolis	Community Mills, Inc.	(616) 445-2401	Pinconning	Mueller Bean Co.	(517) 879-4222
Chesaning	Terra International	(517) 845-6144	Pinconning	Berger & Company	(517) 879-2511
Coleman	E.R. Simons Co.	(517) 636-7708	Rapson	Thumb Farm Service	(517) 269-7957
Conklin	Reisters Grower Service	(616) 887-9689	Richmond	Farmers Elevator	(313) 727-3025
Croswell	Berger & Company	(313) 679-3565	Richville	Star of the West	(517) 868-4186
Deckerville	Berger & Company	(313) 376-2415	Rosebush	Superior Fertilizer	(517) 433-2956
East Lansing	Michigan State University	(517) 353-6677	Ruth	Ruth Farmers Elevator	(517) 864-3311
Edmore	Bird Fertilizer, Inc.	(517) 427-5471	Saline	Saline Valley Fertilizer	(313) 429-2300
Fairgrove	Berger & Company	(517) 693-6145	Schoolcraft	Schoolcraft Farm Service	(517) 679-5226
Fowlerville	Klein Fertilizer	(517) 223-9148	Shelby	Cheevers, Inc.	(616) 861-2526
Freeland	Berger & Company	(517) 695-2521	Shepherd	Shepherd Elevator	(517) 828-5985
Gagetown	Cooperative Elevator, Inc.	(517) 665-9975	Sparta	Wilbur-Ellis Michigan	(616) 887-8333
Girard	Cropmate Fertilizer Co.	(517) 278-4624	Sparta	Grower Service Co.	(616) 887-7877
Gobles	Mans Farm Supply	(616) 628-2305	St. Louis	Mueller Bean Co.	(517) 681-2129
Grant	Klein Fertilizer, Inc.	(616) 834-5689	St. Johns	Zeeb Fertilizer, Inc.	(517) 224-3234
Hamilton	Mans Farm Supply	(616) 751-5856	St. Johns	Vigoro Industries	(517) 593-2099
Hemlock	Hemlock Elevator Co.	(517) 642-5291	St. Johns	Countrymark Cooperative, Inc.	(517) 224-2381
Henderson	Berger & Company	(517) 725-7933	Traverse City	N.W. Horticultural Station	(616) 946-1510
Hudsonville	Vriesland Growers Coop	(616) 669-3120	Vermontville	Citizens Elevator	(517) 726-0514
Ida	Ida Farmers Co-op	(313) 269-3325	Vestaburg	Berger & Company	(517) 268-5100
Imlay City	Lapeer County Co-op	(313) 724-4915	Watervliet	Wilbur-Ellis Michigan	(616) 944-1401
Ionia	Bird Fertilizer, Inc.	(517) 527-1870	Watervliet	Helena Chemical	(616) 463-6767
Kinde	Farmers Coop Grain Co.	(517) 874-4200	West Branch	West Branch Farmers Co-op	(517) 345-0428
Lapeer	Lapeer Grain Co.	(313) 664-2987	Williamsburg	Grower Service Co.	(616) 264-8316
Lennon	Berger & Company	(313) 621-3320	Woodbury	Mueller Bean Co.	(616) 374-8859
Linden	Cygnat Enterprises, Inc.	(810) 735-7910			

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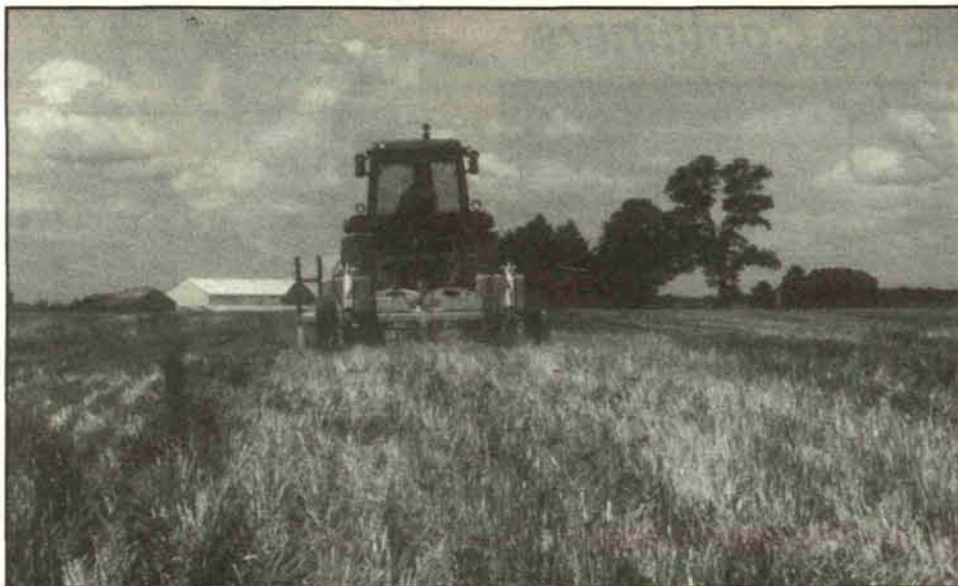
More Michigan Farmers Finding Aer Way is a Better Way

Looking for a way to preserve residue levels, while improving water manure and fertilizer infiltration, and speeding up rot down on crop stubble? The Aer Way, manufactured by Holland Equipment, may just be the solution you've been looking for.

Michigan sales representative Jerry Neyer says the Aer Way is an aeration tool used in no-till, minimum till, and pasture and hay stand renovation. The tool's design helps to aerate and remove compaction from the upper eight inches of the soil profile.

The tool, which looks like a rotary hoe at first glance, is set up with eight inch blades mounted to a rolling gang similar to a disc. Each gang can be swung from zero degrees of angle to 10 degrees to increase the aggressiveness of the tool, depending on soil conditions and desired cultivation.

"As each knife enters into the soil, it causes a fracturing action that shatters the soil structure and allows air and water to move both into the slit and laterally into fractures," Neyer explained. "That way your fertilizers, water, and air uptake is more natural and enhances the soils natural activity."



In his first two years of selling the Aer Way, Neyer says most are being used in minimum till, no-till and in orchard operations to relieve compaction in heavy traffic areas. More and more livestock operations are finding a use for the Aer Way to increase liquid manure application rates, without experiencing ponding and run off, while

also meeting minimum residue requirements for farm program benefits.

Livestock Operations

"When the ground is loosened up a full eight inches deep, and there's no hardpan like you would encounter with discing, manure absorp-

tion and application rates are comparable to conventional tillage methods," Neyer said. "With the Aer Way, you're going to lose less than 10 percent of the current residue with one pass, which leaves you a number of options to go either minimum till or no-till."

Neyer speaks from experience, since his father Dave, brother Brian and uncles Bill and Tim use a 16 foot model ahead of their 3,000 and 6,000 gallon liquid manure spreaders, on the family's 300 cow dairy operation.

The operation switched from manure stack to liquid manure, and needed something to replace the 12 foot chisel plow they had been using. They found the chisel plow was simply too rough on the axles of their large spreaders. With the Aer Way, Neyer says they've been able to maintain absorption rates, while maintaining a smoother soil surface and higher residue levels.

Cropping Application

Many no-tillers use the Aer Way ahead of their planters to help incorporate residue, fertilizers, herbicides, plus save wear and tear on the planter. Since the Aer Way comes with weight trays, many no-tillers use it to carry herbicides or 28 percent to supply the planter, plus add weight to the machine.

"Since the Aer Way is not a power-driven tool, we depend on weight to keep the machine in the ground in severe compaction situations," Neyer said. "With the extra weight, you can also speed up the machine, without it riding out of the ground."

Typically, Neyer recommends 50 to 100 pounds per working foot. Average operating speed is 6 miles per hour, requiring five to 8-1/2 horsepower per foot depending on the angle setting.

The Aer Way is a low maintenance tool, with just two bearing per roller, and knives that generally outlast other tillage parts. Neyer says that the family's 16 foot model has easily gone over 2,000 acres without knife replacement.

Adjustments are a piece of cake too, since only two pins have to be pulled to adjust the degree of the gangs, according to Neyer. "It takes longer to get off the tractor than it does to make the adjustment," he said.

A zero degree setting allows just a slight fracture of the soil, while a five degree setting makes an ideal setting for pasture and hay stand renovations. A 10 degree setting will actually start to bury residue and is commonly used in minimum till and no-till operations.

Orchard Application

Orchard operators and blueberry growers are also finding a use for the Aer Way to alleviate compaction due to sprayers, and harvest equipment in their orchards. But more importantly, says Neyer, orchard operators are finding that it reduces irrigation costs considerably.

"The Aer Way, as opposed to a disc, allows deeper penetration for water, so they're not running their irrigation systems nearly as much," Neyer said. "They also find that their fertilizer isn't stuck in the top two inches - it's now moving down into the root zone, ultimately costing less and making better use of nutrients."

Pasture and Hay Renovation

Many farmers wanting to maintain and/or improve pasture or existing hay stands use the Aer Way to alleviate compaction, while also opening the surface up for possible overseeding applications either in the fall or spring.

"Generally, in pasture or seeding renovations, farmers will spread their alfalfa, clover, or grass, in combination with their fertilizer application," Neyer explained. "Then they'll follow up with the Aer Way set at a five degree angle to loosen the ground, followed with a chain harrow to help incorporate their seed and fertilizer."

The Aer Way is available in 6-foot, 8, 10, 16, 20, 24, and now 30-foot widths. A three point hitch is standard; however, a trailer kit is available that can be bolted right onto the three point hitch, and is a pretty good idea for models over 16 feet, says Neyer.

For more information, call Neyer at (517) 644-3647.



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At Alamo, we want to make every rental a pleasure. Now you can enjoy \$10 OFF any rental of three days or more or \$20 OFF an upgrade on rentals of two days or more with Alamo's Association Program. And as always, you'll get unlimited free mileage on every rental in the U.S. In addition, you'll receive frequent flyer mileage credits with Alaska, Delta, Hawaiian, United and USAir. Alamo features a fine fleet of General Motors cars and all locations are company-owned and operated nationwide to ensure a uniform standard of quality.

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D61B

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- This certificate is null and void if altered, revised or duplicated in any way. In the event of loss or expiration, certificate will not be replaced.
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U22B

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Corn Soil Insecticides: When are They Needed?

Doug Landis & Mike Haas,
MSU Entomologists

One of the first pest management questions corn producers must answer each season is: Should I use a soil insecticide? To help answer the question, it is useful to first think about the pest(s) you are targeting. Typically, growers say they want to control corn rootworm, European corn borer, cutworms, wireworms, seedcorn maggot and anything else that might be out there. While this is certainly a comprehensive approach, it is probably not a realistic one. In order to approach the decision more systematically, let's break it down by insect.

Corn Rootworms. Western and Northern corn rootworms are considered the number one insect problem by Michigan corn growers. However, they are only a pest where corn follows corn in a rotation. **Approximately half of the corn acreage in Michigan is rotated annually and does not require insecticide for corn rootworms.**

However, even where corn does follow corn, not every field will need to be treated with an insecticide. Scouting data from 1991-1993 indicate that only about one in 10 second-year corn fields will require the use of a corn rootworm insecticide. For fields that are third-year corn, about 50 percent will require a rootworm treatment. The number of eggs laid in a field the previous year, how many survive to become larvae, and how well the plant tolerates root damage all interact to determine the impact of a rootworm infestation.

Determining if a field is at risk from corn rootworm is accomplished by scouting for the adults in late summer. If a field exceeds an average of one beetle per plant, then the following year it should be rotated to a crop other than corn, or a rootworm insecticide should be used.

Other factors should also be considered. Has past experience shown that corn rootworms are a problem in your area? There are parts of the state that do not have problems with corn rootworms. What's your soil type? Rootworm larval and egg survival is lower in sandy soils than it is in the heavier soils. Also, hybrids differ in their ability to regenerate new roots to replace the ones that were destroyed by rootworm feeding.

By choosing a hybrid that has good root regeneration capabilities, a higher level of rootworm feeding may be tolerated. Finally, insecticide cost is also a major consideration. Costs will vary with the product and the rate used.

European Corn Borer. A 1992 survey of Michigan corn growers indicated that many are applying soil insecticides with the assumption that they will also be controlling first-generation European corn borer (ECB). However, entomologists agree that currently registered soil insecticides applied at-planting do not provide reliable protection against ECB.

We will be conducting a field trial in 1994 to provide Michigan growers data regard-

Percent of Fields Scouted That Require a Corn Rootworm Insecticide if Planted to Corn in the Following Year

Need Insecticide in 1991		Need Insecticide in 1992	
All Fields (3,765 acres)	21%	All Fields (3,481 acres)	12%
1st year corn in 1990 (2,711 acres)	11%	1st year corn in 1991 (2,586 acres)	6%
2nd year (or greater) corn in 1990 (1,054 acres)	47%	2nd year (or greater) corn in 1991 (895 acres)	31%
Need Insecticide in 1993			
All Fields (3,380 acres)	23%		
1st year corn in 1992 (2,647 acres)	5%		
2nd year corn in 1992 (448 acres)	72%		
3rd year corn in 1992 (285 acres)	100%		

Evaluations based on scouting 3,000 acres of corn in each of the last three years by Dr. Vernon Meintz, Agribusiness Consultants, East Lansing, Michigan.

ing this question. The experiment will examine both at-planting and post-plant applications of insecticides recommended for control of corn rootworms as well as products registered for ECB control. The results should be known by early August.

Cutworm. On a small proportion of acres in Michigan, cutworms can be a regular problem which some producers target with a soil insecticide. However, most cutworm infestations are unpredictable and best controlled by post-plant applications when scouting indicates that populations are high.

Wireworms and White Grubs. Both of these pests are typically a problem when corn follows a grass pasture, set-aside or a heavy grass weed infestation. The adult females for both of these beetles prefer to lay eggs in the soil in dense stands of grass. Infestations seldom occur in a normal corn, soybean, wheat rotation.

Seedcorn Maggots. A minor pest that is most troublesome in cool, wet springs when corn germinates slowly. Fields with green plant material incorporated into the soil just prior to planting are most susceptible to seedcorn maggot infestations. If seedcorn maggots are considered a threat, the most economical way to control them is with seed treatment at planting.

Once the risk of the various target pests have been identified, the most appropriate product and rate can be used to manage them. The subject of reduced rates of soil insecticides has generated much interest in both the university and private community over the past several years. Prompted by this interest, we have conducted trials comparing full and three-quarter rates of soil-applied corn rootworm insecticides for the past five years.

In our trials, soil insecticide performance at reduced rates was evaluated only for corn rootworms. Performance was determined by examining root systems for corn rootworm feeding and assigning a damage rating from one (no damage) to six (three or more nodes of roots eaten to within 1.5" of the plant). This rating system is referred to as the "Iowa" one to six scale.

Only tests having untreated plots with significant root damage (root rating equal to or greater than 3.0 on the "Iowa" scale) were included in this summary. It's generally accepted that an insecticide that keeps rootworm feeding damage below a rating of 3.0 will provide adequate root protection, while root ratings of 3.0 or more may affect yield depending on environmental conditions.

In five years of full and reduced rate studies, average root ratings for insecticides applied at full (10 tests) and three-quarter (eight tests) rates at-planting in a T-band were checked. **It is clear that when averaged over several years, all of the products keep rootworm damage to an acceptable level at either rate.**

While Michigan State University currently does not recommend the use of below label

rates of corn rootworm insecticides, it is not illegal for producers to do so. However, producers should be aware that the manufacturer is not responsible for claims against product performance if label directions are not followed.

MSU recommends that rotation is still the best way to avoid problems with corn rootworm. If rotation is not possible, then fields that will be corn-on-corn should be scouted to determine the need for a rootworm insecticide at planting.

For those growers wishing to try a reduced application rate of corn rootworm insecticide, several guidelines have been suggested:

- First, calibration of granular insecticide applicators becomes even more critical if application rates are lowered. Under-application due to mis-calibration is more likely to result in loss of control at the three-quarter rate than at the full rate.
- Producers may wish to first try reduced rates on a limited portion of their acres.
- Also, check-strips of full rate and no insecticide should be left in the same field for comparison. If check-strips are not present, it is impossible to interpret the results of the experiment.

Producers are not advised to go lower than three-quarters of the full labeled rate. Also, we would not suggest using phorate (Thimet) at less than the full rate, since it has not provided as consistent control as other products.

Reprinted from MSU Field CAT Alert

Maximize your Sugarbeet productivity with

Roots To Profitability

ACA on Sugarbeets

ACA applied preplant incorporated or in-furrow has shown improved productivity of sugarbeets. ACA applications can be made with fertilizer or water as the carrier.

Identifiable Performance Parameters on Sugarbeets

The following are frequently observed plant responses from soil applications of ACA on sugarbeets.

Visual Response

Vigorous early growth.
Darker green more erect leaves and full canopy
More extensive hair roots

Observation Timing (Stage of Growth)

• Spring - From emergence to 4th true leaf stage
• Row Closure
• Row Closure

The identified performance parameters typically result in:

- Increased uptake of soil nutrients
- Increased utilization of sunlight in photosynthesis
- Increased uptake of soil moisture
- Increased productivity (recoverable sugar per acre)

Yield Information

Soil application to Sugarbeets (1993)

- 34 total evaluations (University and grower studies)
- 3.7% increase in extractable sucrose (224 pound extractable sucrose increase/acre)
- Return on ACA investment of \$25.68 (1/2 pint/acre) or \$22.64 (1 pint/acre)
- 1/2 pint ACA per acre broadcast [Sugar at \$.13/lb (grower net) x 224 lb increase/acre = \$29.12 - ACA investment of \$3.44/acre (1/2 pint/acre) = \$25.68 R.O.I./acre]
- 1 pint ACA per acre broadcast [Sugar at \$.13/lb (grower net) x 224 lb increase/acre = \$29.12 - ACA investment of \$6.88/acre (1 pint/acre) = \$22.24 R.O.I./acre]

Application Techniques/Procedures

Test results have shown that ACA can be applied either broadcast incorporated or in-furrow. ACA can be broadcast incorporated into the soil using water or a fertilizer solution as a carrier. The incorporation or movement of ACA into the soil profile can be by tillage, rainfall, or irrigation. This will position the ACA near the developing root system of the plant.

Methods of Application

ACA mixes easily with and fits into the following fertilizer programs:

Soil Applications

- Soil broadcast applied with liquid fertilizers
- Soil broadcast applied with dry blended fertilizers
- Soil broadcast applied (weed & feed herbicide/fertilizer solution or dry)
- Band application with liquid fertilizer
- In-furrow application with liquid fertilizer

(Contingent on local sugarbeet company recommendations)

Other application methods:

- Soil applied broadcast with water as the carrier, with or without a herbicide
- Direct injection of undiluted ACA in-furrow



Application Rates

The application rate for ACA soil broadcast is 16 fluid ounces (1 pint) per acre. With in-furrow injected applications, apply at 8 fluid ounces (1/2 pint) per acre.

Contact your local
Clean Crop Dealer
or call 1-800-292-2701
for additional information on
THE ACA ADVANTAGE

Wood Michigan Farm Bureau's April Volunteer of the Month Winner

Ollie Wood of Sanilac County received honors as April's MFB Volunteer of the Month for his efforts in membership and spearheading an information meeting on Proposal-A.



Wood and his wife Dorothy operate a dairy farmer near Marlette. Between the two of them, they have written 12 new Farm Bureau members, 11 of which were regular (farmer) members. Wood also serves on the Sanilac County Farm Bureau Board of Directors, and has been very active in local affairs by meeting with the county road commission, drain commission, MSU Extension and county commissioners.

14 - Michigan Farm News Classifieds -

01
Farm Machinery

5 WOOD BALE kicker wagons. Choice, \$700 or all for \$2750. Also, have approximately 15 other pieces of equipment. Call for flyer! 1-517-834-2576.

01
Farm Machinery

CROW FOOT Cultimulchers, International Vibra wing disks, spreaders, grinder-mixers, large selection tillage and haying equipment. Call 1-517-773-5374, after 1pm. Dan Reid.

01
Farm Machinery

DUETZ IRRIGATION engine for sale. 6-cylinder with Bertley pump, approximately 5,000 feet of 6" aluminum pipe, Remlinger 600 M fitting tool. Call 1-616-746-4648.

01
Farm Machinery

IH-463 CULTIVATOR, spring and S tine with rolling shields, \$700, OBO. JD rotary hoe, \$300. OBO. Ston Stoltzfuz lime spreader with 28" booms, \$1200. Badger 6 knife chopper w/corn and hay heads, \$300. Ferguson 3-point PTO rake, \$250. Unverferth 2 ton fertilizer spreader, excellent condition, \$1400. Call 1-616-258-8216 anytime or leave message.

FOR SALE: 1979 F-250 super cab with topper. 46' John Deere elevator. 9' Brillion culti-packer. Internation Cyclo 400 8 row corn planter with liquid fertilizer. Oliver 6-16 semi mount plow. 1-517-762-5206

FOR SALE: Friday shaker double incline trunk shaker, \$2900. Also, 10 cherry tanks, \$30 each. Call 1-616-834-7040.

FOR SALE: Harely, Model A rock picker and 20' rake. Excellent condition! Call 1-517-874-5408.

FOR SALE: IH 800, twelve bottom plow. Good condition! \$5,500.

Sackett Potatoes Mecosta, 1-616-972-2005

150 BUSHEL gravity box for sale with John Deere Wagon. \$550 or best offer. Call 1-616-754-5386 anytime. Leave message.

9700 FORD with factory duals and front mounted 8' snow plow. Nice condition! \$15,900. Call 1-810-384-6620.

HAHN HI-BOY: Model 300. Good! \$5200. Owner is retired. Call 1-313-439-2771.

H&S 8x16 steel throw bale rack on Gehl gear. Very nice setup! \$1800. Seven bales of 9000' plastic baler twine, \$15 each. Call 616-636-8449.

IH-133 CULTIVATOR, like new, \$1,000. 4-section harrow, \$150. JD 8-20" cultivator, \$600. JD 3-point rotary hoe, \$500. 1956, 5/6 Ford stakes, \$600-\$900. Don, 1-313-453-6139.

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JOHN DEERE BALER 336 with hydraulic thrower. Like new! Excellent condition. Also Lilliotier, 13 1/2'. Call 1-517-879-3603.

LILLISTON BEAN Combine. Sun pickup elevator, cup leg, variable speed. Works great! All spare parts included. Totally reconditioned last season. Excellent quality producing machine. Call 517-328-2110. Ask for Lee or Greg.

MASSEY-FERGUSON, 110 manure spreader. Like new, \$1100. Call 1-517-770-4501 after 6pm.

NEW AND USED irrigation and manure spreading equipment. Pumps, travelers, agitators, PVC and aluminum pipe. Call for listing. We deliver!

Plummer Supply, Inc. 1-800-632-7731.

RAIN CONTROL Manure, drip and sprinkler irrigation systems. New and used available. For free product catalog, contact us at 1-517-263-5226. Fax, 1-517-263-6153. Adrian, MI.

SURGE 2" PIPE line milker. Gehl 7200 flail chopper. JD 3960 farage harvester, 3 head. New Holland blower, #28. New Idea 325, 2-row corn picker. JD 1600, 12' hydra swing. 1-517-269-8843.

01
Farm Machinery

TWO BADGER BLOWERS, \$300 each. Badger chopper #2600, both heads, \$2,000. Badger manure spreader, 149 cubic foot, \$1,000. Deutz square baler. Excellent condition! \$3,000. 1-616-832-5975 1-616-832-5977.

TWO HORSE BOB SLED: Perfect condition! 11.2-38 Firestone field and road tractor tire, 70% tread. Call 1-810-727-2452.

USED VALLEY CENTER pivots and other makes with related equipment. Call any time, toll free. 1-800-248-8589

02
Livestock Equipment

MANURE SPREADERS: New and used, Balzer Betten-Bilt parts. UPS daily. Also grain dryers and handling equipment.

Hamilton Distributing Co. 1-800-248-8070

03
Farm Commodities

ALFALFA TIMOTHY round and square bales, first and second cutting. Delivery available! Call 1-517-866-2301

FOR SALE: 1993 Shelled corn 22-24 percent in harvest. Will deliver anywhere reasonable.

Irish Farms 1-517-770-4342

HARDWOOD TREES & SHRUBS: For conservation and reforestation. State inspected! Order for Spring planting. Price list, 1-616-624-6054. Conservation Resource Center, 61591 30th Street, Lawton, MI 49065.

HI-MOISTURE 1993 shelled corn, 22-26 moisture. Will deliver! Call 1-517-743-3803.

RUSSET NORKOTAH seed for sale. B size from certified seed. Call 1-517-734-2045 or 1-517-734-4401.

05
Livestock

ANGUS BULLS Schneider Farms since 1934. Call 1-616-947-8098.

EMU AND RHEA - the livestock of the future. Now hatching and taking orders for chicks. Mid-Michigan Llamas & More. Call 1-517-662-2165

FOR SALE: Registered polled hereford breeding age bulls, heifers, cows. Rocky Banner bloodlines. MSU performance tested. Call Rye Hereford Farm, 1-517-734-3005.

05
Livestock

FREE CATALOG: Wholesale prices. Broiler and pedigree laying chicks, turkeys, ducks, guineas, goslings. Reich Poultry Farms Marietta, PA 17547 Call 1-717-426-3411

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LLAMAS: Pet males. Halter trained! Also available weanling and adult female breeding stock. Great wool for hand spinners! Call 1-616-582-7473.

Horton Bay Llamas Charlevoix, MI

MODERATE FRAMED for easier calving. Polled Simmental bulls, performance tested. Dark red Sired Incumbent and Poliflock. William Garvey, Charlotte, MI. Call 1-517-543-2938.

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• Beat Spring Price Increase
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800-999-0065
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07
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08
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11
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BIRD FERTILIZER SERVICES. 1100 N Irving, Greenville. Fertilizer, chemicals, seed, lime, feed. Soil testing, truck spreading and custom spraying. Call 1-616-754-3684.

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12
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13
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10 ACRES, IRISH HILLS: Rolling water frontage, private drive. Choice of 4, \$25,000 each. Terms! F-858-11, 12, 17, 19.
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Adrian
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36 1/2 ACRE Christmas Tree Farm, Hillsdale County. Gorgeous building sites! Owner financing. Possible splits. \$52,000. F-853.
Faust Real Estate
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36 BEAUTIFUL ACRES, north of Howell, Byron Schools. Older farm home, open floor plan, needs updating. Two out buildings, 30x70 hut, pond site. \$124,900. **Century 21,** Laura, 313-229-2913 or Tom, 517-349-8105.

80 ACRE WHOLESALE NURSERY growers of Evergreens, Trees, Shrubs, Perennials. Complete setup includes house, 3 barns, Air-Stream office, 15 polyhouses, equipment, nursery stock, marketing system. Terms! Great location! Southwest Michigan for 27 years, major highways, large cities nearby. Appointment to see how "money grows on trees". Michigan Farm News, Nursery Business, P.O. Box 6, Stanton, MI 48888.

17
Auctions

K & K AUCTION SERVICES
Providing auctions statewide for:

ANTIQUES BUSINESSES FARM HOUSEHOLD REAL ESTATE
We also purchase Antiques, one piece or full estates. CALL NOW for spring and summer sales.

18
Antiques/Collectibles

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Call 1-616-754-8892.

19
General

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INTRODUCTORY OFFER: \$60 per ton; animal bedding made from recycled newspaper, chopped not shredded. More absorbent-less flies-less odor. 70# bales.
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19
General

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General

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General

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16 New Restrictions on Cyanazine (Bladex)

Jim Kells, Michigan State University, Crop & Soil Sciences

In late 1993, EPA approved new restrictions on all cyanazine product labels. These changes affect all cyanazine products including Bladex, Extrazine and Cycle. The new restrictions fall in two categories:

- (1) application rate and
- (2) set-back requirements.

Application Rates

The new label restricts cyanazine application to a maximum annual rate of 6.5 lbs. active ingredient/acre on all soils except those classified as highly erodible (by the Soil Conservation Service) with less than 30 percent residue cover.

On highly erodible land (greater than 30 percent cover), the maximum annual application rate is 3.0 pounds ai/acre. These maximum rates are generally higher than typical application rates in Michigan.

Therefore, these new rates should not require significant changes in cyanazine use rates for weed control in corn.

Set-Back Requirements

The new cyanazine labels require buffer zones identical to those on atrazine labels:

1. The labels prohibit mixing and loading within 50 feet of wells unless conducted on a properly constructed impervious pad.

2. Application is not allowed within 200 feet of lakes or reservoirs. Farm ponds are exempt from this set-back requirement if they meet the following three criteria:

- They are totally within the landowner's property,
- They are not used as a source of human drinking water, and
- Does not discharge directly into a perennial or intermittent river or stream.

3. A 66-foot set-back is required from points of entry (including standpipes) into perennial or intermittent rivers or streams. On highly erodible land, the buffer strip must be planted to a crop or cover crop.

There are several strategies that growers can consider to comply with the 66-foot set-back requirement. The following are a few ideas.

Establish a grass waterway at least 132 feet wide and 66 feet long from each point where

surface water exits the field into a river, stream, or major drainage ditch.

This would be a logical alternative in fields with a small number of well-defined points of surface water runoff. Check with the county ASCS office for cost share programs for filter strips or grass waterways.

Plant a crop other than corn along the field border. Several crops may be feasible options including soybeans and small grains. One option that appears to be an excellent system for many situations is to establish alfalfa in the 66 foot (or wider) area along the field border (provided the topography will allow hay harvest).

Plant a 66 foot (or wider) strip along the field border with a cover crop. This alternative may be particularly desirable on sites that have many points of surface water runoff. In the future, these buffer strips may be eligible for government reserve (set aside) programs.

Select a herbicide program for the set-back area which does not include atrazine or cyanazine. This may be a reasonable short-term solution; however, if other herbicides have similar restrictions in the future, this option will become less feasible.

Beef Industry Council Sets Priorities

Advertising campaigns and consumer education received consideration and a substantial budget recommendation from a number of Beef Industry Council (BIC) committees responsible for promotion, consumer information and research. Directors met recently to approve programs and budgets for the 1995 fiscal year. Included in the budget are:

* A promotion budget of \$33.8 million to continue the "Beef - It's What's for Dinner" advertising campaign, supported by recipe distribution and partnerships at retail and foodservice levels.

* A consumer information budget of \$7.1 million.

* A budget of \$7.3 million for research to build on existing knowledge, including in-depth market research of beef's target audience; work in product technology area to improve the safety of beef; introduction of the Nutri-Facts program and other research knowledge to position beef as part of a healthful diet; and meat science research to provide consumers with value-added products.

The BIC is a federation of 44 state beef councils and a division of the National Live Stock and Meat Board. Michigan is represented by Wanda Cooper of Oceana County, and Pam Bontekoe of Montcalm County.

Bontekoe represents Michigan as a beef director on the BIC. She was the previous executive vice president of the Michigan Cattlemen's Association and has been active in the Michigan Milk Producers Association and Michigan Farm Bureau.



Cooper serves on the BIC board as co-vice chairperson of the Veal Committee and is on the Deli/Prepared Meats and the BIC Budget Committees. Cooper works in veal production and has participated in several veal industry organizations. She's a previous secretary of the Michigan Veal Growers Association and is currently secretary of the Michigan Veal Committee.



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