At PressTime...
Schuette to Resign MDA Post
Bill Schuette, director of the Michigan Department of Agriculture for the past three years, announced on Jan. 6, that he will be resigning his Cabinet-level post as of Feb. 25. He plans to return to the Midland-based law firm of Currie & Kendall, P.C. where he worked in the early 1980s.
In making his announcement, Schuette thanked Gov. Engler, the Michigan Ag Commission, farm groups and farmers for their support during his tenure.
As director, Schuette helped to secure funding for the $70 million Animal Livestock Initiative at Michigan State University, and implemented a series of environmental policy initiatives, including the Michigan Groundwater and Freshwater Protection Act.

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Expect colder than normal and heavy snowfall............. page 4
Market Outlook:
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Group Risk Plan
Learn more about GRP and whether you should use this new insurance alternative............. page 7
BST Management Aspects:
Learn more hands-on management tips as you consider BST use on your farm............. page 8
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Group Risk Plan Crop Insurance - Is It For You?

Corn and soybean farmers in 37 Michigan counties have another crop insurance product to consider in 1994, that could cost only 50 to 60 percent of conventional Multi Peril Crop Insurance (MPCI), and save a tremendous amount of paper work in the process, while providing catastrophic loss protection.

The Group Risk Plan, more commonly known as GRP, grew out of a recommendation of the Commission for the Improvement of Crop Insurance, commissioned by Congress in 1988. MFB President Jack Laurie served on the commission.

GRP is an old crop insurance concept, however, this is the first time it will be sold on a widespread basis in the U.S. The product is intended to complement existing insurance products, according to MSU Ag Economist Roy Black.

"Farmers basically have three different crop insurance products to choose from, that most agents in Michigan can sell," explained Black. "We have the Hail and Fire products, as they've always been sold; the multi-peril product with indemnities based on shortfalls in the individual farmer's yields; and the new multi-peril product known as GRP, with indemnities based on shortfalls in county yield. If your yield history has trended well with the expected county yield, regardless of whether it's higher or lower, then GRP may be for you."

GRP is based on the premise that when an entire county's crop yield is low, most farmers in that county will also have low yields. GRP only pays when the yield of the county drops below the expected county yield set by the National Agricultural Statistics Service (NASS). Payment is based on the percentage of decline below the expected county yield, the coverage level the farmer selected, and the amount of protection purchased.

Farmers can select their own coverage level of 90, 85, 80, 75, 70, or 65 percent of the expected county yield. For example, suppose the expected county yield for soybeans is 40 bushels and a farmer chooses a coverage level of 90 percent. The trigger level then is 36 bushels. Anytime the county yield was below 36 bushels, the farmer would receive a payment.

Farmers can also select any protection level per acre up to a maximum that is established as 150 percent of the expected county yield times the indemnity price. This feature should attract farmers with yields higher than the county average according to Black.

Continued on page 12...see
"GRP - Is It For You?"

Ag Jury Still Out on School Finance Reform

After record breaking debate lasting until noon on Dec. 24, and several hundred amendments to nearly 20 different related bills, the Legislature put the fate of school finance reform back in the laps of Michigan voters and state agencies to determine just what it all means, according to MFB Legislative Counsel Ron Nelson.

"The effort now is to look at the new body of law, piece it all together with existing law and then analyze how that will affect agriculture," Nelson explained. "It's important to understand that there is a relationship between the new bills and current law, which means we need to have the Michigan Department of Treasury's interpretation."

Nelson doesn't expect a final analysis to be available until February due to the complexity of the issue and the sheer number of bills sent to the governor.

Of major interest and concern to agriculture is the "homestead" definition. There's still not a definitive answer, and the final outcome could have a big impact on net tax savings for farmers, according to Nelson.

"Under the bill, as passed, homesteads may include all unoccupied property classified as agricultural, which is adjacent and contiguous to the home of the owner, unless that land will be leased or rented by the owner to another person," Nelson said. "I say 'may' because there are other criteria in current law that further limit that homestead to just the residence where the individual lives and the five acres on which that residence is located."

In general, Nelson expects that agriculture will see a lower property tax rate, but perhaps not to the extent originally anticipated. However, with the approval of the ballot proposal, and an increase in sales tax, adjustments to the income tax, he questions the change to net tax liability.

The following chart summarizes the current law, the statutory plan, which would be the basis for funding K-12 education if the ballot proposal fails, and finally a brief summary of the ballot proposal if approved by voters on March 15.

<table>
<thead>
<tr>
<th>Property Taxes</th>
<th>Current Law</th>
<th>Statutory Plan</th>
<th>Ballot Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homestead</td>
<td>36-mill average</td>
<td>12 mills</td>
<td>12 mills</td>
</tr>
<tr>
<td>Non-homestead</td>
<td>36-mill average</td>
<td>8 mills</td>
<td>8 mills</td>
</tr>
<tr>
<td>Voc ed. &amp; ISD taxes</td>
<td>3 mills</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Property Transfer</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Income Tax</td>
<td>4.6%</td>
<td>4.0%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Pers. Exemption</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Ranter Credit</td>
<td>17% of rent</td>
<td>20% of rent</td>
<td>20% of rent</td>
</tr>
<tr>
<td>Sales/Use Tax</td>
<td>4.0%</td>
<td>3.5%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Cigarette Tax &amp; Other Tobacco</td>
<td>25 cents/pack</td>
<td>40 cents &amp; 16%</td>
<td>20%</td>
</tr>
<tr>
<td>Interstate Phone</td>
<td>4%</td>
<td>4%</td>
<td>4%</td>
</tr>
</tbody>
</table>

*Property tax on homes includes 6 mills statewide and 0 local mills under a ballot plan and 12 mills under the statutory plan.
*Property tax on non-homestead property includes 6 mills statewide and 16 locally under the ballot plan, or 12 mills at the state level and 12 at the local level under the statutory plan.

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2

In Brief...

1994 Farm Economy – Net Cash Income Expected Up

The farm sector entering 1994 is more cost-efficient, better capitalized and positioned for improved returns as compared to 1993, according to USDA. Net farm income will rise from 1993's $878 billion, or 2 to 3 percent, to $928 billion, or 5 to 6 percent in 1994. This near doubling of the real value of farm assets is as virtually the same level as in 1962. During this 32-year period, the inflation-adjusted level of farm debt has increased about 15 percent.

Farm business assets are projected to rise $16 billion during 1994, less than 2 percent, while the general rate of inflation is expected to exceed the growth rate in asset values giving an overall decline in 1993 and 1994 in the real value of farm assets.

New Year Brings Giant European Trade Bloc

The new year will usher in a giant new European trading bloc – the European Economic Area, which links the European Community and the neighboring European Free Trade Association, according to a Reuters story.

The EEA, the world’s biggest trading zone, will extend the EC’s single market to five out of seven of the EFTA nations – Austria, Finland, Iceland, Norway and Sweden. Although it is expected to bring real economic benefits in an area stretching from the Arctic to the Mediterranean and covering 372 million consumers, it is seen by four of the five EFTA nations as being a stepping stone to full EC membership.

Russian Farm Woes Continue

Russian farmers lost more than 30 percent of their 1993 harvest due to weather, financial and infrastructure problems, reports Knight-Ridder. Russia’s agriculture ministry reports a harvest of 100 million metric tons compared with 107 million tons the previous year. Meat production was reduced 75 percent from 1992 to 1993. The real value of farm assets is virtually the same level as 1962. Lower meat output is expected to reduce some of the demand for grains.

Analysts report Russia’s winter grain crops are 4 million hectares smaller than in 1992. Russian farmers purchased 50 percent less fertilizer in the three planting months ending in November. The country’s farmers were also short 400,000 tons of seed, roughly 5 percent of their total needs.

The United States will not decide what action to take on future aid to Russia until after President Clinton returns from his scheduled visit to Moscow in mid-January. In preparation for the Russian visit, the U.S. is exploring several aid possibilities including efforts to press the International Monetary Fund to relax its monetary policy standards to aid in the release of the remaining $1.5 billion from an earlier aid package; more help from the Group of Seven industrial nations and more direct U.S. food aid.

Canada May End St. Lawrence Seaway Fees

Canada is considering a U.S. proposal calling for an end to the tolls on the seaway for the Seaway on the Seaway have fallen by 40 percent since reaching a peak in 1979, reports the Chicago Tribune.

The U.S. abolished all tolls on its two locks in 1986, but Canada maintains the tolls on 13 locks under a 1954 law. As a result of the 40 year old law, any negotiated end to the tolls must be approved by the Canadian Parliament. Hearings on the proposed toll changes are scheduled for February.

Removal of the tolls could generate greater Seaway grain shipments and lower shipping costs. The bulk of U.S. export grain now moves down the Mississippi River to ocean-going ships in New Orleans. The current negotiations call for a freeze on tolls in 1994, followed by a general phaseout of all fees.

Elton Smith Receives Honorary MSU Degree

Elton Smith (second from right), who served as MFB president for 22 years, received an honorary degree from Michigan State University during MSU's December program. Fred Poston, Dean of MSU's College of Agriculture and Natural Resources, called Smith "a giant in Michigan agriculture."

"I can't think of anyone more deserving of an honorary degree from MSU than Elton Smith, based on his leadership and accomplishments across the span of 40 years in agriculture and natural resources in Michigan," Poston said. "He has almost single-handedly put our state on the map with one of the most productive agricultural programs in the nation. Even in retirement, Elton continues to exert a great influence on Michigan agriculture."

Machinery Prices Up in 1994?

An Ohio State University agricultural economist says the need to replace aging, worn out equipment will help drive farm equipment prices above the national inflation rate in 1994.

Economist Allan Lines is optimistic about farm purchases, partly because inflation is expected to stay under control at a national rate of 3 percent or less. He said farm machinery prices are likely to see the greatest price increases, with the rate depending on the kind of equipment.

He predicts tractor prices will rise about 5 percent, while the cost of other machinery will jump by 6 percent to 7 percent. Pickup trucks, he said, will see the biggest increase, between 7 percent and 10 percent.

Midwest Governors Organize Big Push for Ethanol

Iowa Governor Terry Branstad is organizing a Midwest governors’ lobbying effort to push for final acceptance of the 30 percent ethanol mandate in the oxygenated fuels. According to an Associated Press story, Branstad is organizing the campaign to coincide with a Jan. 14 hearing on the proposal in Washington.

Branstad and Nebraska Gov. Ben Nelson plan to testify at the hearing. They are seeking the added support of governors from Illinois, South Dakota, North Dakota, Wisconsin, Indiana and Minnesota.

"While there is broad support for the proposal throughout the Midwest, there is still significant opposition. That makes the lobbying push important. We don’t want to take any chances," Branstad said. The latest EPA proposal requires 30 percent of the oxygenated fuels to come from renewable energy supplies, such as ethanol. The cities targeted for the 1995 clean air programs represent roughly one-half of the gasoline sold in the United States.

Rotational Survey for Horticulture Survey Coming

In January, the first Michigan Department of Agriculture triennial survey of the horticulture industry will begin. The project will examine Michigan’s Christmas tree growers, and nursery stock producers and retailers. This is the third phase of the Michigan Rotational Survey cycle, which surveyed fruit in 1991 and vegetables in 1992.

Data collected from respondents by the Michigan Agricultural Statistics Service (MASS) will be summarized to produce estimates at the state and district level. A bulletin will be published containing statistics documenting the size and breadth of this segment of agriculture in the Great Lakes State. Every report returned to MASS is kept strictly confidential, and as a federal statistics agency, MASS reports are exempt from the Freedom of Information Act.

Producers receiving this questionnaire are encouraged to complete and return it using the postage paid envelope. Those not responding by mail will be contacted by telephone or personal enumeration.

December Farm Prices Up 5.1 Percent from 1992

The index of prices received by U.S. farmers for their products in December was unchanged from November, but rose 5.1 percent from a year earlier, USDA said Dec. 30. Price increase for tomatoes, corn, wheat, and strawberries were offset by declines for oranges, hogs, cattle and lambs. The year-to-year increase was caused by higher prices for corn, soybeans, milk and woolgarn, which more than offset declines for cattle, lettuce, apples and hogs.

U.S. Soybean Prices Ride Argentina’s Problems

Soybean futures rose above the $7 per bushel figure on news that Argentine farmers are facing problems caused by excessive moisture. About 20 percent of the Argentine soybean crop remains unplanted, reports the Wall Street Journal.

Much of that country’s growing region received 3-5 inches of rain on already saturated fields. The wet fields are delaying planting and hurting germination on recently planted fields. The markets are responding to the South American problems, along with the poor U.S. harvest.

Third Annual MASA Meeting Jan. 29 in Mt. Pleasant

The Michigan Agricultural Stewardship Association will be holding its third annual meeting Jan. 29, at the Mt. Pleasant Holiday Inn, starting at 9 a.m. and concluding by 2 p.m. Participants can attend one of several breakout sessions during the meeting portion of the program. Topics include: Organic Truck Farm Vegetables; Dairy Manure Composting; Chestnuts as an Alternative Orchard Crop; Rotational Dairy Grazing; and Reduced Tillage/No-till Sugar Beets.

The afternoon portion of the program will feature keynote speaker Fred Kirschenmann, a manager of a 3,100 acre grain and cattle farm in Medina, North Dakota. Kirschenmann will share his experiences on sustainable agriculture and the impact on the future of agriculture.

For more program information and/or registration, contact MASA President Jerry Wirbel, at (517) 689-3857.
Michigan has made significant progress in agriculture, and the Michigan Farm Bureau’s Agricultural Stabilization and Conservation Service (ASCS) State Committee has been instrumental in these efforts. The committee has demonstrated its commitment to supporting qualified candidates who will address the agricultural issues of today, while ensuring that farmers are well-represented in government. The Michigan Farm Bureau (517) 323-7000 is an excellent resource for information on how to get involved.

The Michigan Farm Bureau is committed to promoting the interests of farmers and ensuring that they are represented in government. They have a rich history of working for agriculture's future, and their efforts have been recognized in various programs and initiatives. The Michigan Farm Bureau is an important part of the agricultural community, and they are committed to making a positive impact on the lives of farmers and the communities they serve.
Michigan Farm News

30-Day Forecast – Continued Cold and Wetter Than Normal

Following milder and drier than normal weather for much of November and the first three weeks of December, winter finally arrived in Michigan just before Christmas, courtesy of a marked shift in the jet stream which allowed several air masses of arctic origin to move through the Great Lakes regions.

Mean temperatures for December generally ranged from one to three degrees above normal, due mainly to abnormally mild minimum temperatures early in the month.

Precipitation for the same period was generally much less than normal, with the notable exception of the lee shores of lakes Michigan and Superior, where several outbreaks of lake-effect snow late in the month brought precipitation to above normal levels and left some areas of extreme southwestern lower Michigan with the deepest snow cover in the lower 48 states outside of the western mountains by year’s end.

Outlooks for the coming weeks are somewhat contradictory. The official National Weather Service (NWS) 30-day outlook for January calls for somewhat of a continuation of recent weather, with temperatures expected to remain below normal but for precipitation to increase to above normal levels. The NWS 90-day outlook for January through March is less winter-like, calling for temperatures near normal and precipitation above normal during the period to average out near normal across most of the state.

Michigan ASCS Personnel to Assist in Flood Ravaged States

In an effort to speed the delivery of disaster assistance to victims of flooding this past spring and summer, almost 60 United States Department of Agriculture county office employees from Michigan will be travelling to Iowa, Minnesota, Missouri and Wisconsin in January to help process thousands of applications for disaster benefits.

These applications have been filed by farmers with the Agricultural Stabilization and Conservation Service (ASCS) for special disaster benefits approved earlier this year by Congress after record flooding in midwestern states.

"With farmers in these states harvesting record low production from what they did manage to plant, and no production from fields that didn’t survive the floods, this will be a very cold winter for farmers in much of the midwest," said Jim Byrum, Michigan Executive Director of the ASCS.

Although the rivers crested about six months ago, flooding left homes and buildings destroyed, crops devastated, and in some cases, up to four feet of sand on top of what used to be productive soil. Life may never be the same for farmers and others affected by this natural disaster.

"Our ASCS personnel in Michigan have been asking if they could help in these other states for months. They knew there would be delays in getting payments to farmers, and they wanted to help speed up the process," said Byrum.

"Secretary of Agriculture Evans has encouraged us to be innovative in how we approach problems. Asking for volunteers from our ASCS ranks to help these other areas makes sense," Byrum continued. "Our people know these programs and will be able to ‘hit the ground running’ to help get checks to farmers without further delay!"

The Michigan contingent will travel to several county offices in all four target states, and stay for a period of up to two weeks beginning Jan. 3, 1994. They will be joined by 40 ASCS employees from the states of Illinois, Indiana and Ohio.

"The objective of this entire effort is to help get disaster benefits paid to farmers as soon as possible. We believe that we can at least help them make a dent in their backlog," said Byrum.

"I am extremely proud of these people who have made the commitment to leave their homes and family during the first part of the new year to help others in need. That demonstrates how deeply these ASCS volunteers believe in what they do, serve farmers," said Byrum.

County office employees volunteered for these assignments, and will work in offices based on their work backlog.

"Some of these offices have more than 2,000 applications pending, and without help, they wouldn’t see the end of the pile until spring," concluded Byrum.

Michigan Farm Summary

Weather

Michigan Major Commodity Area
Extended Weather Outlook

<table>
<thead>
<tr>
<th>Commodity</th>
<th>B</th>
<th>N</th>
<th>A</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. Corn Belt</td>
<td>B</td>
<td>N</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>E. Corn Belt</td>
<td>B</td>
<td>N</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>Scr. Wheat Belt N</td>
<td>A</td>
<td>N</td>
<td>A</td>
<td>N</td>
</tr>
<tr>
<td>Pac. NW Wheat A</td>
<td>N</td>
<td>A</td>
<td>N</td>
<td>A</td>
</tr>
<tr>
<td>Delta</td>
<td>B</td>
<td>N</td>
<td>B</td>
<td>N</td>
</tr>
<tr>
<td>St. Joseph</td>
<td>B</td>
<td>N</td>
<td>B</td>
<td>N</td>
</tr>
<tr>
<td>San Joaquin</td>
<td>A</td>
<td>N</td>
<td>A</td>
<td>N</td>
</tr>
</tbody>
</table>

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

Michigan Weather Summary

<table>
<thead>
<tr>
<th>Location</th>
<th>Temperature</th>
<th>Precipitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpena</td>
<td>30.3</td>
<td>0.44</td>
</tr>
<tr>
<td>Bad Axe</td>
<td>27.0</td>
<td>0.1</td>
</tr>
<tr>
<td>Detroit</td>
<td>31.5</td>
<td>0.3</td>
</tr>
<tr>
<td>Escanaba</td>
<td>25.8</td>
<td>0.27</td>
</tr>
<tr>
<td>Flint</td>
<td>28.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Grand Rapids</td>
<td>28.6</td>
<td>1.3</td>
</tr>
<tr>
<td>Houghton</td>
<td>22.9</td>
<td>2.6</td>
</tr>
<tr>
<td>Houghton Lake</td>
<td>27.1</td>
<td>3.3</td>
</tr>
<tr>
<td>Jackson</td>
<td>26.8</td>
<td>0.7</td>
</tr>
</tbody>
</table>

Normals are based on district averages.

Jeff Andresen, Ag Meteorologist, MSU

Since its beginning in 1971, Michigan Farm Radio Network’s only objective has been to serve Michigan’s farm families. This dedication to 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:

** WABJ Adrian 1490 5:45 am 11:50 am
** WGHN Grand Haven 1370/92.1 5:45 am 12:15 pm
** WDOW Dowagiac 1440 6:05 am 12:15 pm
** WTKA Ann Arbor 1050 6:05 am 12:05 pm
** WATZ Alpena 1450 5:30 am 11:30 am
** WYKA Ann Arbor 1050 6:05 am 12:05 pm
** WEWE Bad Axe 1340 6:30 am 12:30 pm
** WHFB Benton Harbor 1340 6:30 am 12:30 pm
** WKYO Caro 1360 6:15 am 12:15 pm
** WTVB Coldwater 1590 5:45 am 11:45 am
** WDOW Dowagiac 1440 6:05 am 12:05 pm
** WGHN Grand Haven 1370/92.1 5:45 am 12:15 pm
** WFLB Greenville 1390 6:15 am 11:45 am
** WBCH Hastings 1220 6:15 am 12:30 pm
** WCSR Hillsdale 1340 6:45 am 12:45 pm
** WHTC Holland 1450 6:45 am 12:45 pm
** W1VB Coldwater 1590 5:45 am 11:45 am
** WCRZ Kalamazoo 590 ** 11:30 am
** WJIM Lansing 1240 5:05 am 11:50 am
** WWGZ Lapeer 1530 ** 12:15 pm
** WCAP Owosso 1090 6:15 am 12:15 pm
** WHAK Rogers City 960 12:15 pm
** WSJ St. Johns 1580 6:15 am 12:15 pm
** WJL St. Louis 1540 6:25 am 12:25 pm
** WSG Saginaw 790 5:55 am 12:20 pm
** WMIC Sandusky 660 6:45 am 12:45 pm
** WSCS South Haven 940 6:45 am 12:45 pm
** WJKC Tawas City 104.7 12:45 pm
** WLKM Three Rivers 150/99.9 6:15 am 12:15 pm
** WTCM Traverse City 580 5:55 am 11:20 am

Some stations carry additional market reports throughout the market day.

1/15 1/31 1/15 .3/31
Soy Ink More Environmentally Friendly

by Michelle Strautz

Thanks to producer-funded research, new uses and new markets for soybean products, including soy ink, have added up to a market for more than 10 million acres of soybeans per year, according to the United Soybean Board (USB).

More than $277,000 has been allocated toward soy ink research at the national level during the 1993 fiscal year with money from the national soybean checkoff program. According to estimates from the USB, that $277,000 commitment by soybean growers has meant that additional contributions of more than five million dollars have come from the printing industry and the USDA.

Soybean-oil based printing ink was formulated by the Newspaper Association of America in 1985, in response to a shortage of imported oil which threatened many industries dependent on petroleum-based chemicals.

Soy ink has actually been available on the commercial market for a little over four years, but already, oil from about nine million bushels of soybeans is currently being used by approximately 75 ink manufacturers and 1,600 printing and publishing companies in the United States.

The nation's largest circulation newspaper, the Detroit Free Press, uses 100 percent soy ink, which equals 1,000 bushels of soybeans daily, while some Michigan newspapers, including the Detroit Free Press and the Greenville Daily News, have also incorporated soy ink into their printing shops.

News Web Printing, the printing facility at the Greenville Daily News, located in Montcalm County, which also prints the Michigan Farm News, began using soy-based inks five years ago and currently does 100 percent of their printing with the product, according to General Manager Kendall Martin.

"We began using soy-based ink because it's environmentally friendlier than petroleum-based ink," said Martin. "We believe that it provides a sharper, brighter color, and we also feel that we use less ink with the soybean application than we did with the petroleum-based ink. It's just a lot cleaner to use."

Micky Marter, print manager of the Detroit Free Press Riverfront Plant, said they began using soy ink eight years ago and currently do about 13 percent of their printing with the soy-based product.

"We started using soy ink because it performed better with our system and we felt as though it gave us better print quality," said Marter. "It gives us brighter colors and the pictures seem to stand out more. It's also more environmentally friendly and is made in the USA, which does give us a back-up if we ever get into another petroleum crunch."

Marter added that the soy-based ink seems to lay down better on the press and works better with the mechanics of the press, with workers having much better control over the soy-based ink because it flows better than the petroleum-based ink.

Bill Bogle, manager of Farm Bureau's in-house print shop, is currently using 100 percent soy ink to print county newsletters and other materials.

According to Bogle, soy-based black ink costs about $11 less per five pound can than petroleum-based black ink, and the colored soy ink is priced comparatively to the petroleum-based colored inks.

Keith Reinholdt, executive director of the Michigan Soybean Promotion Committee, said the committee continues to fund research with other funds. "The soy-based ink is going to increase grower's profits," concluded Reinholdt.

Soybean Referendum Set for Feb. 9

Where the USB Spends Money

Almost half of the soybeans grown in the United States are spent on marketing activities, and in 1993, approximately $8 million of national check-off money was used for international marketing promotion in more than 40 marketing projects. For example, the USB spent about $900,000 in Germany to defend a $900 million market for U.S. soybeans. In Japan, it spent about $200,000 to defend a $800 million market.

It's important to note the USB leverages checkoff dollars with other funding. Because of the checkoff dollars invested, in 1993, international programs received an additional $12 million from the Foreign Agricultural Service of the USDA, and another $8 million from other industry segments - manufacturers, crushers, etc.

While international marketing is one of the major areas where the USB puts checkoff dollars, developing new uses for soybeans accounts for another large portion.

SoyDiesel market development activities lead the new uses parade. Now moving out of the test stage, where dozens of EPA and engine manufacturers' tests took place, to the market creation stage, SoyDiesel shows promise to use a significant portion of the U.S. soybean oil surplus.

Checkoff dollars fund numerous other soybean research projects: polymers that can replace disposable plastic bottles, shopping bags, etc., toilet paper, music cassettes, the shell life of fruits and vegetables; next textile fabrics; and medical research. The USB funds hundreds of research and development projects annually.

What do these publications have in common with Michigan Farm News?

They're all printed with Soy Ink!

In fact soy ink is used to print over 3,000 U.S. newspapers and is used by over 12,000 commercial printers. Soy ink could potentially utilize the oil from 41 million soybeans annually.

That's over 85 percent of Michigan's production.
Market Outlook...

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

CORN

As I sit here writing, my crystal ball seems very cloudy. As you know that will have the benefit of the final Crop Report and quarterly Stocks Report which were released Jan. 12. If you have not seen them, look them up; we will discuss them in the next issue.

The Stocks Report gives us an indication of full feed store positions. If there are, we have had some very cold weather through the Midwest which may increase feed use. Also, the Hogs and Pigs Report seems to indicate a few more hogs being fed through the second half of the crop year than previously expected. These factors should benefit corn prices.

Exports keep rolling along near expectations considerably below last year at a rate which should reach USDA projections. We have exported 40 percent of projections up to this point, and last year, we had exported 40 percent of the total by late December. We will need to export about 23 million bushels of corn a week through August to reach expectations.

Both corn basis relative to March corn futures and March cash corn bids indicate the market is willing to pay off storage on-farm until March. Opportunity costs are 1-2 cents per month, depending on the interest rates you face. Futures are offering 6-10 cents for the 2-month storage.

Off-farm storage payments are hard to justify. The spreads after March tell the market it is not willing to pay storage beyond March.

WHEAT

Wheat prices have gone beyond any expectations, but that hasn't made pricing decisions a whole lot easier, other than the worry that you can price any remaining wheat at today's high prices. There are both positives and negatives in possible price scenarios lurking in the future.

Up to this point, wheat exports have been a positive and it appears that will continue a little longer. Check the Supply/Demand Report released Jan. 12 to see if the USDA increased their 1993-94 wheat export projections. However, it also appears that Australia will harvest their best crop since 1984-85; this could pressure prices. But, Argentina is having a lot of rain and fungus may force 20-30 percent of their production away from food consumption.

On the production side, the USDA released the winter wheat plantings on Jan. 12. What did they say, more acres or less acres? Are they setting requirements the same as a year ago? Also, what affect will this cold snap have on unprotected wheat? Nobody ever said it all thought out pricing decisions were easy.

Be watching for new crop wheat pricing opportunities.

CATTLE

The Dec. 1 monthly USDA 7-State Cattle-On-Feed Report released Dec. 17 showed 5 percent more cattle on feed than last year. November marketings were about the same as last year, but had been expected to be 3 percent higher.

This shows we are probably not current. Along with this, slaughter in December, while up 2-3 percent compared to last year, has not been high enough to use up much of the extra cattle on feed, and this is on top of weights being up significantly compared to a year ago. And this situation is likely to continue into early February.

Strategy: The bottom line is to keep current, feeding these fat cattle more expensive feed is clearly not the answer. Is there anything optimistic? The answer is yes, exports have been going well and that is likely to continue with the new trade agreements, but that is longer term.

EGGS

Henry Lazzerle, Dept. of Agricultural Economics, MSU

Egg prices at year-end were about 5 cents a dozen above last year. These somewhat better than expected, with ingredient costs about 4 cents per dozen above year earlier levels.

In the first quarter, egg prices will likely average in the low 70s in New York at wholesale for Grade A. A large white eggs in cartons. By the second quarter, prices will slip into the 60s. Since Easter is the first

Sunday in April in 1994, Lenten price strength will be weaker in most of April.

On Dec. 1, the number of layers in production were 2 percent above the comparable date a year earlier. Both total and the egg production figures in November were also 2 percent above Nov. 1992.

The egg-type chick hatch in 1993 was above 1992 levels in each month except May. The layer-type eggs in incubators on Dec. 1 were 6 percent below that figure in 1992. That was the first sign of moderating egg production by the summer of 1994.

MICHIGAN DAIRYING – AN EXCITING 1994?

Sherill B. Nott, Dept. of Agricultural Economics, MSU

If you enjoy change, you’ll find dairying in Michigan very exciting. As we start 1994, milk prices to be received will benefit from the better than expected Minnesota-Wisconsin-Michigan (M-M-W) levels.

Milk production was down 4.5 percent in Minnesota and down 8.2 percent in Wisconsin in Nov. 1993 compared to Nov. 1992. If this trend continues, it will have a positive effect on the M-W price.

We may hope the factors that are reducing cow numbers don’t make it across Lake Michigan, but we’ll accept the near term because we need the strength they foster. USDA predicts 1994 farm-level milk prices will drop below 1993 levels, but hastens to add that uncertainty about both supply and demand conditions may make a mockery out of any price projections.

Early February could see the start of BST purchases. But, the New York Times reported on Dec. 24 that a foundation will fulfill its mission by seeking to block sales in the U.S. History shows existing technology is likely to surround the introduction of new technology.

SOYBEANS

My crystal ball for soybeans looks the same as the one for corn and for many of the same reasons. Like wheat, the Southern Hemisphere is quite willing to throw in some supply just to get the price up.

The Brazilian soybean crop looks as good as ever, timely planting and timely rains point to a lot of competition in the export markets in the spring. However, the picture in Argentina is much different, heavy rains have delayed plantings in many areas and the crop overall does not look good.

The demand side for soybeans is also cloudy. Soy oil content is low which means either projected oil use will drop or crushing will have to increase, or some combination.

Exports are running at only 37 percent of projected tonnage. The year we were near 40 percent by now. While it does appear we will meet projections, it is unlikely bullish information will come from this area.

Strategy: The basis and cash bids for March delivery are telling us the same story as for corn. If you have on-farm storage, use it. If you don’t want to stay in the market, use a basis contract or a minimum price contract if you want less risk. As with corn and wheat, start watching for 1994 soybean new crop pricing opportunities.

HOGS

The USDA quarterly Dec. 1 Hogs and Pigs Report released Dec. 29, 1993 was somewhat better than anticipated, as both hogs and pigs were up. And that is kind of how the markets opened that very next day, up some in nearby futures and neutral to down through the summer futures.

The report showed that there were 2 percent less hogs in inventory than the same time last year and 2 percent less being held for market, which after adjusting for the revisions in last year’s number, is slightly less than trade expectations.

However, since Dec. 1, hog producers have become less current, so look for a slight seasonal increase in prices through January before picking up some in February.

Strategy: At this point the key is to keep very current. It does not appear it will pay to wait and sell heavy hogs, especially at today’s corn prices.

Leasing Farmland a Popular Trend

Recent USDA statistics reveal that nearly half of all agricultural land is leased. One and a half million land owners lease about 332 million acres. In 1980, leased agricultural land totaled 30 percent; in 1988, it had increased to 45 percent. Leasing is viewed as an one strategy of farmers to increase their income, the use of land for purposes other than agriculture.

The lighter weight market hogs, under 60 pounds on Dec. 1, are 4 percent below last year. High feed prices really dropped off last year as we were near 40 percent by now. While this does not mean we will meet projections, it is unlikely bullish information will come from this area.

Longer term it appears the breeding herd liquidated some, down 1 percent this fall, and that was before corn prices really shot up. Hog prices really dropped off last year as we were near 40 percent by now. While this does not mean we will meet projections, it is unlikely bullish information will come from this area.

Strategy: The basis and cash bids for March delivery are telling us the same story as for corn. If you have on-farm storage, use it. If you don’t want to stay in the market, use a basis contract or a minimum price contract if you want less risk. As with corn and wheat, start watching for 1994 soybean new crop pricing opportunities.

Food Prices Expected Up – Little to Reach the Farm

The Consumer Price Index for all food in 1994 is expected to rise to 2 to 4 percent. Restaurant prices are expected to increase 2 to 4 percent. Competition among fast food outlets will continue to keep price increases moderate. The farm value of food, the cost of farm food in 1994 will continue to rise to 2 to 4 percent. Competition among fast food outlets will continue to keep price increases moderate. The farm value of food, the cost of farm food in 1994 will continue to rise to 2 to 4 percent. Competition among fast food outlets will continue to keep price increases moderate. The farm value of food, the cost of farm food in 1994 will continue to rise to 2 to 4 percent. Competition among fast food outlets will continue to keep price increases moderate. The farm value of food, the cost of farm food in 1994 will continue to rise to 2 to 4 percent. Competition among fast food outlets will continue to keep price increases moderate. The farm value of food, the cost of farm food in 1994 will continue to rise to 2 to 4 percent. Competition among fast food outlets will continue to keep price increases moderate. The farm value of food, the cost of farm food in 1994 will continue to rise to 2 to 4 percent.
Most of you are familiar with hail (HCD) or multiple peril crop insurance (MPCI). These products are designed to reduce the financial risks that occur when you have significantly below normal yields due to hail or due to drought, excess moisture and other "Acts of God." The goal is to transfer this risk from the farm to the "insurance pool." You pay premiums each year so that if you have a poor year, you will be compensated by the insurance pool up to your deductible.

In 1994, the Federal Crop Insurance Corporation/USDA added another product to the crop insurance toolbox—the Group Risk Plan (GRP). The plan offers higher coverage (lower deductibles), minimal paperwork and lower premiums compared to their Actual Production History (APH) plan.

The plan does not guarantee that you will receive a payment if you have a yield shortfall. That’s because the losses upon which indemnities are based are shortfalls in county yields, not individual farm yields.

The level of your yield vs. the level of the county yield is not important. Within reason, you choose the amount of protection you want to purchase. That can be up to 1.5 times the county’s expected yield.

Tracking is what is important. If you have a poor year, the county needs to have a poor yield. That’s coming down to what skilled commodity marketers would call basis risk if this were a corn or soybean market. If the risk of poor tracking is small relative to the variability in your yields, GRP is worth considering.

Do My Yields Track the County Yield?

That’s an easy question to answer. MSU county extension offices, crop insurance agents selling GRP and some farm management consultants have graphs of corn and soybean yields in your county over the 1962 to 1992 period.

Table 1 depicts the GRP coverage and rate table for corn in Jackson County. Table 3 is the GRP indemnity calculation worksheet. Suppose the county had a yield of 60 bu/acre. The percent loss relative to a 20 percent coverage policy would provide the floor on cash flow you need. Further, suppose that your yields were high enough and more variable than the county yields to warrant scaling by 30 percent. You would buy about $300 protection.

Table 2 is a worksheet showing all the steps in calculating farmer premium/acre. We’ve assumed 100 acres of corn in the county — to provide an easy number for calculating.

How Are Indemnities Calculated?

Table 3 is the GRP indemnity calculation worksheet. Suppose the county had a yield of 60 bu/acre. The percent loss relative to a 20 percent coverage policy would provide the floor on cash flow you need. Further, suppose that your yields were high enough and more variable than the county yields to warrant scaling by 30 percent. You would buy about $300 protection.

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Summary

GRP is easy to understand. It has minimal paperwork. How many acres? How much protection? What deductible do you want? It’s a product worth considering if you don’t have the financial capacity to take a big hit or if you would like more stability in your revenues — providing your yields track well with the county yield.

<table>
<thead>
<tr>
<th>Michigan Farm News</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 15, 1994</td>
</tr>
</tbody>
</table>

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**Table 1: GRP County Coverage and Rate Table for Corn in Jackson County**

<table>
<thead>
<tr>
<th>County Yield</th>
<th>Maximum Protection</th>
<th>Maximum Subsidy</th>
</tr>
</thead>
<tbody>
<tr>
<td>103.7 bu/acre</td>
<td>$342/acre</td>
<td>$336/acre</td>
</tr>
</tbody>
</table>

**Table 2: GRP Premium Calculations**

<table>
<thead>
<tr>
<th>State: MICHIGAN</th>
<th>County: JACKSON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Premium due from Grower</td>
<td>Lesser of:</td>
</tr>
<tr>
<td>Gross Premium</td>
<td>$366</td>
</tr>
<tr>
<td>Premium due from Grower</td>
<td>$88</td>
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The preliminary payment yield will be released on November 30. The final payment yield will be released on April 15 following the insured crop year. Any final payment due you will be made within 30 days.

---

**Table 3: GRP Indemnity Calculation Worksheet**

<table>
<thead>
<tr>
<th>Value/Calculation Result</th>
<th>Protection/A x % Loss</th>
<th>Trigger Yield bu/A</th>
<th>Realized Yield bu/A</th>
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<td></td>
<td>$200 x 27.7% = $383.10</td>
<td>100</td>
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**Figure 1: Jackson County Yields**

**County Yields**

- Actual Yields
- Expected Yields

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<td>Expected County Yield</td>
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</tr>
<tr>
<td>Unsubsidized premium rate, $/$100: 0.70</td>
<td></td>
</tr>
<tr>
<td>Indemnity/A</td>
<td>Net Acres: 100</td>
</tr>
<tr>
<td>Gross Premium</td>
<td>$366</td>
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BST Management Aspects to Consider

What will Posilac cost? At what point in the lactation do you begin to use it? What production level is required? What’s the shelf life? How does Posilac affect reproductive performance?

Milk Yield Response to POSILAC in Michigan

<table>
<thead>
<tr>
<th>Farm Roll</th>
<th>Milking Head Av.</th>
<th>Milkings /Day</th>
<th>Herd Size</th>
<th>Cows on Trial</th>
<th>Before Due</th>
<th>Increase</th>
<th>No. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16,149</td>
<td>2</td>
<td>222</td>
<td>72</td>
<td>56.1</td>
<td>15.2</td>
<td>27.1</td>
</tr>
<tr>
<td>2</td>
<td>17,641</td>
<td>2</td>
<td>148</td>
<td>50</td>
<td>63.8</td>
<td>8.6</td>
<td>13.5</td>
</tr>
<tr>
<td>3</td>
<td>17,712</td>
<td>2</td>
<td>250</td>
<td>79</td>
<td>65.6</td>
<td>13.0</td>
<td>19.8</td>
</tr>
<tr>
<td>4</td>
<td>20,605</td>
<td>2</td>
<td>189</td>
<td>59</td>
<td>66.6</td>
<td>12.0</td>
<td>13.0</td>
</tr>
</tbody>
</table>

12 weeks of POSILAC supplementation on commercial farms

Milk Composition

Swenson told the group that Posilac is a protein not a steroid, meaning that it’s digested when consumed orally. BST does not affect the composition of milk according to research results. Despite the apparent differences shown in the table below, they are not statistically different, Swenson said.

Breeding Performance

<table>
<thead>
<tr>
<th>Days Open</th>
<th>BST</th>
<th>BST</th>
<th>BST</th>
<th>BST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>118</td>
<td>119</td>
<td>112</td>
<td>131</td>
</tr>
<tr>
<td>Med -Low</td>
<td>97</td>
<td>96</td>
<td>98</td>
<td>97</td>
</tr>
<tr>
<td>Med -High Production Level</td>
<td>101</td>
<td>105</td>
<td>106</td>
<td>103</td>
</tr>
<tr>
<td>High</td>
<td>117</td>
<td>115</td>
<td>109</td>
<td>113</td>
</tr>
</tbody>
</table>

Reproduction Impact

In regard to reproduction performance, Swenson said that research has shown no difference between BST and non-BST treated cows at similar production levels. He was quick to point out, however, that higher producing cows are generally open longer than lower producers.

Milk Production Increases

Production increases due to BST ranged from 5 pounds per day to 15 pounds, with an average of 9 pounds per day, said Swenson. Twice a day versus three times a day milking showed no difference in increases.

Milk Composition Comparisons

<table>
<thead>
<tr>
<th>Component</th>
<th>Posilac</th>
<th>Non-Posilac</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fat</td>
<td>3.67</td>
<td>3.76</td>
</tr>
<tr>
<td>Protein</td>
<td>3.24</td>
<td>3.32</td>
</tr>
<tr>
<td>Lactose</td>
<td>4.81</td>
<td>4.85</td>
</tr>
<tr>
<td>Ash</td>
<td>73</td>
<td>73</td>
</tr>
</tbody>
</table>

Feed Intake

The most important aspect of Posilac management, according to Swenson, is making sure the cow is fed to her higher production level. "You have to keep feed available at all times, and be ready to increase your rations," he said. "Dry matter intake increased generally six to seven weeks after BST use was initiated, in second lactation cows."

According to Swenson, as a general rule of thumb, herds on a total mixed ration will require an additional four pounds of feed for every 10 pound increase in milk. In non-TMR herds, plan on increasing concentrate levels by one pound for every three pounds increase in milk production.

Mastitis Frequency

Swenson explained to the advisory committee that the highest period for new infection in a cow occurs early in the dry-off period, hence the use of dry-cow mastitis treatment. Posilac use is started in the ninth week of lactation, which coincidentally is the lowest opportunity for new mastitis infection.

Increased milk production has been demonstrated to increase the incidence of mastitis," Swenson said. "The bottom line, however, is that BST research has shown that producers can expect an additional case of mastitis per cow over 10 lactations, because of the higher production.

A FEW SMALL REASONS TO HAVE FARM BUREAU HEALTH INSURANCE

For over forty years, Farm Bureau and Blue Cross Blue Shield have teamed up to provide quality health care at competitive group rates with the personalized service you would expect from a Farm Bureau family membership.

No matter what your needs — small business, sole proprietor, or individual coverage for you or your family — we have the right plan at the right price.

Blue Cross Blue Shield quality and Farm Bureau's personalized service provide an unbeatable combination that you can't afford to be without when protecting the "small" things in life that are of big importance to you.

For information, call 1-800-292-2680 or contact your local Farm Bureau agent.
To introduce Posilac, Monsanto is using the "Try it Right" program, which means producers can make a qualifying purchase of Posilac equal to the number of cows in their herd for $5 per dose, for an infinite period of time, according to Monsanto's BST Product Manager Robert Powell. Posilac will normally be priced at $6.60 per dose for a daily cost of 47 cents.

Monsanto is also using a voucher system, that will allow a producer using Posilac for the first time to get $150 worth of free veterinarian consultation services. Powell thinks that producers will quickly realize the economic pay-off of BST, once they put pencil to paper.

"The beauty of this product is that it allows a producer to make a substantial increase in production, without a large capital outlay," he said. "It will also provide a better return on current capital investments. In many cases, using the nine pound average increase, a producer could expect a net of $80 per cow per lactation."

In addition to spreading overhead and optimizing existing facilities, Powell said producers can extend the profitability of a long lactation with problem breeders, and if so desired, a producer can maintain current production levels with less cows.

---

### BST Economic Aspects to Consider

<table>
<thead>
<tr>
<th>Posilac Price Worksheet (Example assumes 100 cows treated for 245 days/lactation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk Response (lbs/cow/day) .................. 6 pounds</td>
</tr>
<tr>
<td>9 pounds</td>
</tr>
<tr>
<td>Milk Value ($/cwt.) .................................. $12.50</td>
</tr>
<tr>
<td>$12.50</td>
</tr>
<tr>
<td>Milk Income ($/day) .................. $0.315</td>
</tr>
<tr>
<td>Posilac Price (14 days) .................. $6.60</td>
</tr>
<tr>
<td>Posilac Costs ($/day) .................. $0.47</td>
</tr>
<tr>
<td>Feed Costs ($/day) .................. $0.785</td>
</tr>
<tr>
<td>Total Incremental Costs ($/day) .................. $0.34</td>
</tr>
<tr>
<td>Net Profit ($/cow/day) .................. $1.715</td>
</tr>
<tr>
<td>Profit Opportunity (100 cows/lactation) .................. $8,330</td>
</tr>
</tbody>
</table>

* Assumes feed costs of 3.5 cents/pound increase in milk.

According to Powell, Monsanto is offering a generous credit program, that allows a producer to order Posilac the first of the month, with billing occurring on the 20th of the following month.

"This will allow a producer to actually receive the benefits of Posilac prior to incurring charges for the product," Powell explained. "However, as soon as the cow increases her feed intake, the producer will start to experience incremental costs. The same could be said for labor charges too."

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### Monsanto Facts

- 500 mg. of BST/dose in individual syringes, complete with 5/8" 16-gauge needle.
- Start using during the 9th week of lactation right up to dry-off.
- Monsanto advises use of Posilac on healthy cows only.
- Inject under the skin every 14th day in the depression on either side of the tail head or behind the shoulder blade.
- Five to 15 pound/day increase in milk production, with an average 9 pound increase expected.
- "Try it Right" introductory offer of $5 per dose. Normally priced at $6.60 per dose.
- No drug withdrawal period for milk or meat is required.
- 36-month shelf life for Posilac.
- Posilac must be refrigerated.
- Buy direct via a 1-800 phone number.
- Used syringe disposal program allows producers to send used syringes back to Monsanto for disposal.

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### Michigan Milk Production Down Slightly in November

Dairy herds in Michigan produced 424 million pounds of milk during November, 4 million pounds less than a year ago, according to the Michigan Agricultural Statistics Service. Milk per cow averaged 1,250 pounds, down 10 pounds from last year. The Michigan dairy herd was estimated at 339,000 head, down 1,000 head from November 1992. The preliminary value of milk sold averaged $13.60 per hundredweight (cwt.) in November, $.30 more than last year.

Mid-month October slaughter cow prices averaged $500 mg. per cwt., $2.30 less than the previous year.

Milk in the 21 major states totaled 10.0 billion pounds, 2 percent below production in these same states in November 1992. Production per cow averaged 1,237 pounds for November, unchanged from Nov. 1992. The number of cows on farms was 8,08 million head, 152,000 head less than Nov. 1992 and 10,000 below Oct. 1993.
You're invited to a dairy seminar.

No one should miss this informative seminar on stray voltage and the latest in dairy facilities planning. Jointly sponsored by the Michigan State University Extension and Consumers Power, the seminar explains the causes and effects of stray voltage, how to recognize it and how it can be corrected. We'll also highlight the characteristics of healthy, well-managed dairy facilities. This seminar is coming to your area soon, so watch your mail for more information. We're sure you'll want to attend. If you think you have a stray voltage problem, call Consumers Power's stray voltage specialists immediately at 1-800-252-VOLT.
The deep-tillage operation is equally effective when done in the fall or spring and may represent a positive system for soil erosion control. Combined with other conservation practices like strip cropping, terraces, and rotations, 15-30 percent residue levels can provide adequate erosion control. Adding the 15-30 percent category to conservation tillage acres, more than 170 million acres or 61 percent of the 278 million planted acres in the U.S. utilized some form of crop residue management system.

Regional/State Highlights
- **Regions with the greatest conservation tillage acreage are:** Corn Belt - 37 million acres, Northern Plains - 24 million acres, and the Great Lakes States - 9.5 million acres.
- **The largest no-till state is Iowa with 6.9 million acres, followed closely by Illinois with 6.3 million acres.**
- **Mulch-till is the strongest of the conservation tillage types in the Southern Plains, Mountain and Pacific regions.**

National Survey Shows Conservation Tillage Putting the Plow to Rest

According to the survey, this soil-protecting and labor-saving practice has been adding an average of about 9 million acres for the last two years and is now less than 11 acres away from the number of acres that are clean tilled.

Survey coordinator Jerry Hytry, executive director of the nonprofit Conservation Technology Information Center (CTIC), predicts the acres of conservation tillage will overtake the number of acres clean tilled next year.

"Economics are driving this transition and I fully expect conservation tillage to exceed clean tilled acres in 1994," says Hytry.

The survey, which includes more than 3,000 counties nationwide, shows conservation tillage accounted for over 97 million acres or nearly 35 percent of total cropland acres planted last year. About 39 percent or nearly 108 million acres are being clean tilled, leaving little or no residue.

Mulch Till Leads the Way

Mulch-till is the largest among the conservation tillage categories, adding 1.6 million acres this year for a total of almost 59 million acres. No-till continues to post the largest annual increases in the conservation tillage categories, growing more than 6.7 million acres this year to encompass almost 35 million acres in 1993. Ridge-till grew by 100,000 acres this year, to now account for about 3.5 million acres, nearly 1.5 million acres.

The survey includes a 15-30 percent residue category which is not a form of conservation tillage but may represent a positive system for soil erosion control. Combined with other conservation practices like strip cropping, terraces, and rotations, 15-30 percent residue levels can provide adequate erosion control. Adding the 15-30 percent category to conservation tillage acres, more than 170 million acres or 61 percent of the 278 million planted acres in the U.S. utilized some form of crop residue management system.

- **Ridge-till’s top state is Nebraska, with nearly 1.5 million acres. Minnesota, a distant second, has 600,000 acres.**
- **Ridge-till is most practiced in the Northern Plains with 1.9 million acres, followed by the Corn Belt with 700,000 acres, and closely behind are the Great Lakes States with 600,000 acres.**

Crop-Related Highlights
- **No-till corn has more than doubled in five years from 7 percent to 17 percent of all planted acres in 1993.**
- **No-till full season soybeans have increased over five times in the last five years, from 4 percent of total planted acres to 22 percent his year.**
- **Use of conservation tillage for full season soybean production now exceeds 47 percent of planted acres, half of which is mulch-till.**
- **No-till cotton has increased more than three times in the last three years, with Tennessee, Alabama, Georgia, North Carolina and Mississippi leading the way.**

Slicing Through To Zone-Till: The Rawson Zone-Builder from Unverferth

Eliminating the yield limiting effects of hardpan is the first step toward successful adoption of the Zone-Tillage soil management system. Only the Rawson Zone-Builder deep till implement from Unverferth is designed specifically for this purpose.

The Rawson Zone-Builder deep-till implement features automatic seedbed preparation benefits of no-till and ridge-till, without sacrificing yield. The shanks can be positioned to work directly under the rows, or between them, to a depth of 26 inches.

The Zone-Tillage soil management system combines the seedbed preparation benefits of conventional tillage with the conservation compliance benefits of no-till and ridge-till, without sacrificing yield. Rawson Zone-Till products are manufactured and marketed through Unverferth Mfg. Co., Inc., a leading manufacturer of quality agricultural wheel systems, grain handling, seed handling, tillage equipment, and the Brent line of products.

For more information about the Zone-Builder deep till implement, the Zone-Tillage soil management system, and the entire line of Rawson Zone-Till products, contact Unverferth Manufacturing Company, Inc., P.O. Box 357, Kalida, OH 45833. Telephone 1-800-322-6301, fax 419-532-2112 or fax 419-532-2468.
With the 40-bushel yield, and a $5.75 indemnity price for soybeans, the maximum protection level would be $40 x $5.75 x 1.5 x $151.80. If the county yield dropped to 20 bushels per acre, that represents a 44 percent shortfall (36-20/36). The percentage shortfall is multiplied by the protection level to derive a payment figure ($44 x $345 = $151.80). Each farmer with this contract in that particular county would receive a payment of $151.80 per acre.

**Available in Limited Counties**

GRP will be offered for corn and soybeans only in those counties with 15,000 or more acres of those commodities. GRP coverage must be purchased in the county where the acreage is located.

**Black predicts that if the GRP concept takes off, that acreage figure could be reduced to 10,000 acres meaning that more Michigan counties could participate in GRP.**

**Why GRP?**

With GRP, we now have a mix between free disaster assistance and the current multi-peril crop insurance program. "I would be real surprised, however, if the acreage cut-off went below 10,000 acres meaning that more Michigan counties could participate in GRP."

"It has the potential of providing protection against catastrophic yields. With GRP, we now have a mix between free disaster assistance and the current multi-peril crop insurance program."

Between fiscal years 1980-86, the net cost of the U.S. crop insurance program averaged $489 million per year. However, the average $489 million per year for crop insurance was only 24 percent of the total net cost of U.S. government disaster assistance programs over the period. The remaining 76 percent was for free disaster assistance payments and low interest loans.

According to Skees, research using 3,000 soybean farms has shown that two-thirds of these farms would have reduced their risk considerably less paper work, and in many cases it will cost much less than conventional MCPIC. There is, however, a downside to GRP, he cautions. "If your yields don't track well with county yields, then you're not going to achieve your objective of having an indemnity payment in those years when you need it the worst," Black said. "It's conceivable that you might have a severe yield loss in your part of the county, and still not get paid. However, it's also possible that your yields don't track well with county yields, then you’re not going to achieve your objective of having an indemnity payment in those years when you need it the worst, Black said.

"We had too many farms in some markets that were collecting year in and year out — something clearly wasn’t working very well," Black said. "During the Bush administration, OMB (Office of Management and Budget) started looking very aggressively at GRP as a way to provide a reasonable amount of protection for many farmers. They would absolutely like to get out of the disaster program business, and secondly, be able to offer more flexibility in their insurance programs."

According to the FCIC, Michigan’s loss ratio for corn, wheat, and soybeans averaged 2.48 from 1981-89. That fact alone, got Michigan selected as one of several states to participate in GRP. "Michigan, as a whole, has taken a lot more out of the insurance pool than it has put in," Black concluded.

"With GRP, we now have a mix between free disaster assistance and the current multi-peril crop insurance program."

"I would be real surprised, however, if the acreage cut-off went below 10,000 acres meaning that more Michigan counties could participate in GRP."

If your yields don't track well with county yields, then you’re not going to achieve your objective of having an indemnity payment in those years when you need it the worst, Black said. "It’s conceivable that you might have a severe yield loss in your part of the county, and still not get paid. However, it’s also possible that your yields don't track well with county yields, then you’re not going to achieve your objective of having an indemnity payment in those years when you need it the worst, Black said.

**Continued next page see "GRP"**

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**Michigan Farm News**

January 15, 1994

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**High Yield Investment.**

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This superior hybrid can produce top yields. Exceptional standability means easier harvesting. It has excellent drought tolerance, adapting to a wide range of harvest densities. Adapted to reduced tillage to help you get the most from every acre. Northrup King N4242.

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**N4242**

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**High Yield Seed Corn.**

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**Hybrid Seed Corn.**

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**High Yield.**

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**High Yield.**

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**High Yield.**
Farm Bureau Insurance Agents to be Trained for GRP Sales

The following Farm Bureau Insurance agents will be going through training meetings for the months of January and February, in preparation for GRP sales in the 37 selected counties. Training dates and locations:

Jan. 25, Lansing
Jan. 28, Kalamazoo
Feb. 4, Atlanta
Feb. 16, Mt. Pleasant
Feb. 18, Lapeer

According to Jim Gallagher, manager of Community Service, Agriculture Company, the company that provides for Farm Bureau Insurance agents, the agents will receive training and materials to aid their farmer clients in deciding whether or not they should participate in GRP in 1994. For more information and assistance, call your nearest agent before the April 15 sales closing date.

City Name                Phone
---                   ---
Allegan, Dennis Smiechewski (616) 673-6581
Allegan, David Carlson (616) 895-3231
Allendale, Robert Willard (616) 895-3830
Alton, Ron Anyte (517) 652-4589
Alpena, Jim Mangelton (517) 356-4582
Alpena, Margaret Schultz (517) 356-4581
Bad Axe, James Leonard (517) 269-6520
Battle Creek, Tom Cain (616) 963-4214
Battle Creek, Scott Hizer (616) 976-3337
Bay City, Joe Davis (517) 892-9771
Bay City, Paul Jefts (616) 796-7697
Berrien Springs, Marty Rudlaff (616) 775-0126
Big Rapids, Paul Jefts (616) 796-7697
Breckenridge, Jim Cooper (517) 842-3220
Cadillac, Leon Bigelow (616) 644-0001
Canton, E.J. Harris (517) 584-3589
Centreville, Larry Finstdorf (616) 467-6308
Charlotte, James Camp (517) 339-3222
Charlotte, Dave Simpson (517) 543-5501
Chesaning, Robert G. Sundin (517) 845-7909
Dundee, Larry Brosia (313) 529-3939
Elkton, Frank Klager (517) 375-4588
Escondia, Daniel Veessor (866) 786-4756
Escondia, Dwayne Kain (866) 786-4756
Escondia, Rick Jensen (866) 786-4756
Fennville, Warren Wilkinson (616) 561-2514
Fenton, Steve Keswick (313) 629-1507
Flower, Tom French (517) 593-3104
Frankenmuth, Carl Gustafson (517) 652-6411
Frankenmuth, Dale VanFleet (517) 652-6411
Fremont, Ben Landheer (616) 524-4000
Gladwin, Duane Simpkins (517) 428-4813
Grand Rapids, Dale Johnson (616) 940-6181
Grass Lake, Charles Tobias (734) 666-4122
Harrisville, Alvin Sharp (517) 724-6424
Hilldale, Noble Bertalon (517) 437-7393
Hilldale, Douglas Miller (517) 437-7393
Hilldale, Duane Sanford (517) 437-7619
Hopedale, Terrace Anderson (517) 566-4342
Ida, David Brown (313) 269-3275
Imlay City, Dan Duncan (517) 734-4407
Ionia, Robert Sheldon (616) 527-3960
Ionia, Dan Groel (517) 545-5555
Iron Mt., Tony Demboski (906) 770-1774
Jackson, Robert Nelson (517) 782-0485
Jackson, Robert Cowing (517) 784-1166
Kalamazoo, Robert Vleetstra (269) 381-2311
Kawkawlin, Ed Samborn L-Anse, Roland Sweeney (906) 524-6229
Lerwick, Todd Lincoln (616) 322-6069
Lakepier, John Welke (313) 464-4926
Laumur, Martin Ogren (517) 366-3700
Marlette, Jack Walker (517) 635-7600
Michigan Farm News
March 25, 1994

251x1046

O fallow the Farm Bureau Insurance agents will be going through training meetings for the months of January and February, in preparation for GRP sales in the 37 selected counties. Training dates and locations:

Can Our Annuity Save Your Retirement?

In his autobiography, Groucho Marx tells how an annuity helped him at a crucial point in his career. The annuity, he said, gave him such a feeling of security that he was able to pursue his career with a lighter heart and more confidence.

An annuity from FB Annuity Company may not save your career, but it can save your retirement. Our IRA annuity guarantees you a lifetime retirement income - a check every month for as long as you live.

Consider the tax savings, too. You may qualify to deduct up to $2,000 in deposits each year from your taxable income. And your interest earnings are tax deferred, protected from taxes until you take your money out.

An IRA from FB Annuity Company currently earns

5.70% Effective Annual Yield
And guaranteed to never fall below 4%

You can’t replace the secure feeling of an IRA. Call your Farm Bureau Insurance agent today.

Michigan Farm News
March 25, 1994

13

City Name                Phone
---                   ---
Petoskey, Thomas Gambrall (616) 347-6051
Petoskey, Dick Schaeffer (616) 347-6051
Pigeon, Bill Weezel (517) 453-3334
Pigeon, Jim Armbruster (513) 453-2502
Port Huron, Carl Tice (513) 394-5500
Portage, Clayton Hizer (616) 342-0212
Reed City, Michael Burke (616) 632-3263
Rogers City, Dan Gabara (517) 734-2689
Romeo, M. John Pearson (313) 763-3554
Sandusky, Max Karger (313) 648-2800
Sibleyville, Ann Davis (516) 672-9300
Spring Lake, John Queen (616) 846-6600
St. Johns, Michael White (517) 224-3255
St. Johns, Don Kain (517) 224-3255
St. Johns, Dale Felpausch (517) 224-3255

---                   ---
Standing, Marvin Schwab (517) 846-6323
Stephanson, Edward Johnson (906) 753-6620
Three Rivers, Loren Carlisle (616) 273-9551
Union City, Ralph Strong (716) 741-7383
Unionville, Ted Balizer (517) 874-8817
Wayne, Maye Patterson (313) 729-2012
W. Branch, Darrel VanPamel (517) 345-0230
W. Branch, Vern Clements (517) 345-1447
W. Branch, Mary Kartes (616) 644-0001

"GRP - Is it for You?" continued from page 12

eriable that you would have to have a normal crop year and still collect, because the county yield, as a whole, was below the expected level." One other big factor that Black expects to weigh heavy on farmer participation is the fact that GRP does not pay based on quality. That could be a bitter pill for many to swallow with the high quality of 1992 corn crop still fresh in their minds.

Another obvious shortcoming of GRP is the lack of coverage for many of the specialty crops grown in Michigan, including fruits and vegetables, due to highly fragmented and specialized regions of the state. Black does expect, however, that the drybeans, wheat and sugar beets will be eligible for coverage in the future if GRP proves to be a useful product for corn and soybean farmers.

See page 7 for more GRP details, complete with a worksheet example from MSU's Roy Black. Signature deadline date is April 15.

Michigan Farm News
March 25, 1994

7.25% Effective Annual Yield
And guaranteed to never fall below 4%

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Michigan Farm News
March 25, 1994

5.70% Effective Annual Yield
And guaranteed to never fall below 4%

You can’t replace the secure feeling of an IRA. Call your Farm Bureau Insurance agent today.

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March 25, 1994

5.70% Effective Annual Yield
And guaranteed to never fall below 4%

You can’t replace the secure feeling of an IRA. Call your Farm Bureau Insurance agent today.
Michigan Farm News

January 15, 1994

--- Michigan Farm News Classifieds ---

**Farm Machinery**

1984 FIELDBOSS 4th farm tractor with all equipment. Less than 600 hours. All attachment $10,000. Call 1-313-793-4750.

1 UNION Special Model 8000E Sewing Head with Thread Cutting Wheel. 1 King Line Model 520 (Union Special Look-Alike) Sewing Head with Thread Cutting Wheel. Excellent condition! Ready to run. Contact: Harrington Seeds, Inc. 2566 Bradleyville Road Reese, MI 48757 517-855-4750.

JOHN DEERE 45 combine for sale with 243 corn head and 10' grain head. Also, MM ear corn sheller with drag chain. Call evenings, 1-616-574-5361.

**New and Used Irrigation and Manure Spreading Equipment**

- Pumpers, Trailers, Attachments, PVC and aluminum Manure lines.
- For sale. 1-517-766-2446.
- FROZEN TARY CHERRIES: 4/4 $3.00, 244's, $18.00, Dried cherries, maple syrup.
- Buy Line/Daily:
  - Winners.
  - 15-31 32 33 34 35 36

**Farm Commodities**

ALFALFA: 1st and 2nd cutting, square bales. Lakeview, Call 1-517-365-7549 or 1-517-272-9497.

**Livestock**

- Service Age Cattle.
- All health requirements met.
- Reasonable delivery rates anywhere in Michigan.
- Ellison Farms 1-517-524-6220.

**Agricultural Services**

- BIRD FERTILIZER SERVICES. 1100 N Irving, Greenville. Fertilizer, chicken, cattle, seed, lime, feed, Soil testing, broadcast spreading and custom spraying. Call 1-616-594-5964.


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Get Your Fall Tillage Parts at Group Purchasing Rates!
Michigan Farm News

January 15, 1994

15

February: Taxation ann 1894: "Animal Agriculture Initiative"

1994 is the year that the agricultural industry is beginning to see real progress toward completion of the $69 million Animal Agriculture Initiative at Michigan State University.

The funding will be used to renovate an Animal Hall, the Dairy Plant, the Meats Lab and the farm facilities. It will be used for new research farm facilities, including a swine barnaring farm, grower/finisher facilities and a new horse barn. It will also be used to maintain a "good neighbor" policy with the environment.

Kirk believes it is possible for cattle and consumers to co-exist in an urbanized, environmentally-conscious state like Michigan.

"The farmers I’ve talked to who are expanding their livestock operations are very aware that the expansion won’t be successful if state neighbors can potentially push them out of business tomorrow," Kirk said.

"As a result, farmers are being very open and professional in approaching their neighbors, discussing potential conflicts and makingsure they can make sure that they can all get along after the expansion." In addition, the farmers are paying close attention to the Right-to-Farm guidelines to protect their livestock investment and the environment, according to Kirk.

This revitalization of Michigan’s animal agriculture industry will benefit all sectors of the state’s agricultural economy. For example, it will allow more farmers to diversify their operations by taking advantage of Michigan’s unique environment for livestock production.

The project will also expand local livestock grain markets, and help reduce the need for costly "out of state" grain shipment. With some estimates, the extra demand for corn and soybeans created by this livestock expansion could boost prices by 25 to 30 cents a bushel.

A growing livestock industry is also expected to add additional jobs and income from the processing and distribution industries, and as the impact of this expansion of livestock, it could produce over $625 million a year in direct and indirect value for the Michigan economy. Within a decade, this amount could exceed a billion dollars a year.

All-in-all, the long-awaited beginning to the Animal Agriculture Initiative should help make 1994 a memorable year for Michigan farmers.

Michigan Livestock Producers Encouraged to Complete January Survey

The January Agricultural Survey was conducted the first two weeks of January to collect information on inventory of cattle, sheep, and goats on farms in Michigan. This is the only major survey conducted each year to collect such livestock information. Nearly 1,300 farm operators in the state will be contacted and asked to complete the survey which requests detailed information about their livestock operations.

This information will be used to estimate inventory by class for cattle, sheep, and goats, respectively, for the state of Michigan. Published estimates from this survey will help keep producers and other users informed equally about the livestock industry.

Use of these statistics include farm operators, farm organizations, government agencies, farm supply firms, food processors, agricultural exporters, and transportation firms. Major reports based on the January Agricultural Survey will be compiled for March and April.

Farm operators receiving a January Agricultural Survey in the mail are encouraged to complete and return it promptly. This helps to keep the cost of the survey to a minimum. Operators participating in the survey will receive a free copy of the results as published in Agriculture Across Michigan.

Farm Household Incomes Depend on Off-Farm Jobs

Farming is no longer the dominant source of income for most farm operator households. Three-quarters of U.S. farms are very small businesses having less than $50,000 in gross sales.

Farm operator household income from all sources averaged $40,000 last year, about the same as the average for all U.S. households, $39,000. Farm income was only $4,337 or about 11 percent of household income. Most off-farm income comes from wages and salaries of a non-farm business.

The larger the farm, the less likely the farm operator is to have a major occupation off the farm. Economic development in rural areas is probably most important to non-commercial farm households to improve their off-farm earnings.

Place your ad for 6 months, get phone number in red. Place your ad for 1 year, get phone number or name in red and also save $1.00 per ad. Call 1-800-968-3129 for details.

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FOR DISPLAY AD INFORMATION CALL 1-800-292-2680 EXT. 320
The Caring Program for Children, funded primarily through private donations, provides free preventative health care coverage to eligible uninsured Michigan children, Fleming explained. "The program, sponsored in partnership with the Michigan Department of Social Services and the federal Health Care Financing Administration, does not include inpatient hospitalization."

The Caring Program does, however, provide basic, preventative care at no cost to the family, including office visits, diagnostic tests, emergency care, outpatient surgery and prescription drugs.

Children meeting the following requirements are enrolled into the Caring Program as funds become available.

- The child must be an unmarried son or daughter, stepchild, legally adopted, or otherwise under your full-time care and living with you. College students living away from home may be eligible. Children under age 19 living independently from their parents may also apply and should contact the program for further details.
- The child must be a resident of Michigan.
- The child must be under 19 years of age.
- The child cannot be eligible for any other private insurance (including co-pay through an employer) or government-sponsored health insurance, including Medicaid or Medicare.
- Parents or guardians' yearly income must be below the level that would qualify for Medicaid or some other public health insurance program, and below the Caring Program maximum. Parents or guardians income cannot exceed:

<table>
<thead>
<tr>
<th>Family Size</th>
<th>Caring Program Income Maximum</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>$17,445</td>
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<tr>
<td>2</td>
<td>$21,996</td>
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<td>$26,547</td>
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<td>$49,302</td>
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<td>9</td>
<td>$53,853</td>
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According to Fleming, BCBS is donating all administrative resources. The actual health care services are financed by donations to the program - from the general public and from BCBS employees.

"The Caring program can mean two different things to Farm Bureau members," Fleming said. "There may be members whose children would qualify as Caring Program participants, and there may be Farm Bureau families who would be willing to make financial contributions to the program as well. Every penny of your tax deductible donation will go directly to providing basic health care to children."

Either way, Fleming suggests that interested MFB members contact BCBS at 1-800-543-7765 for more program information. Once an applicant submits the necessary paperwork, the application is processed in the order it's received. Enrollment of approved applicants will occur as funds become available. When the coverage actually goes into effect, each eligible child will receive an identification card and benefit booklet.

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While you're busy farming, Farm Bureau is on the job in Lansing and Washington, D.C. protecting your interests. Our experienced and highly respected team of lobbyists are there working for you.

With the thousands of bills introduced on the state and federal level, Farm Bureau lobbyists work full-time aggressively supporting legislation that benefits farm families while seeking to defeat measures detrimental to agriculture.

Farm Bureau - always there and proven effective...
MASA News Notes

Reaching out to share a vision

In this issue of Michigan Farm News, the Michigan Agricultural Stewardship Association (MASA) is reaching out beyond its membership to tell its story to the 45,000 farm families who are MFA readers and who will see this special 12-page section.

This insert combines the MASA quarterly newsletter and the 1993 Report of the Michigan Sustainable Agriculture Project. Each year, about 25 MASA farmers, with technical and financial support from the American Farmland Trust, conduct on-farm research and demonstration projects and publish the results. Those results are presented in this publication beginning on the next page.

MASA members are motivated to find practices that work on their farms but cost less or reduce the impact of their farming efforts upon the environment. These practices are considered "sustainable." As the MASA mission statement puts it, sustainable farm practices are those that are economically feasible, agronomically sound, and environmentally safe.

They are also motivated to help other farmers find better ways to farm so that they can do well financially using methods that have fewer adverse impacts on the environment or on people who look to farmers for their sustenance.

We hope these goals and ideals shine through as you read. We invite you to join us. These farmers who are trying to meet the future with better methods—better for farmers, better for consumers, better for the environment, better for everybody.

MASA Annual Meeting January 29
In Mt. Pleasant. Details Inside

MASA will sponsor

ANSR University Week program

Again this year, MASA will be a sponsor of a day-long program, sponsored by Michigan State University's ANSR week, March 7-12. The program, from 10 a.m. to 4 p.m. Wednesday, March 9, in the Plant and Soil Sciences building, is titled "Managing for soil quality as a basis for sustainable agriculture."

MSU soil scientist Ernesto Franco starts the session by defining soil quality and telling how it is measured. Then Richard Harwood, who holds the C.S. Mott Endowed Chair in Sustainable Agriculture, will tell how diversity and timing of crop residues is a primary determinant of soil quality.

A panel discussion on cover crops will be moderated by Joe Scrimger, with Bio Systems in Marlette. The MASA-sponsored lunch will be in the Plant and Soil Science greenhouse, where there will be a poster session on sustainable farm systems, on-farm research and local food systems.

In the afternoon, Ben Skinner of Ohio State University will talk about managing soil biota and organic matter for enhancement of nutrient cycling and soil quality. The day ends with another panel discussion on farming systems management for soil quality and sustainability. It will be moderated by Roger French from Dawnera Farms near Kalamazoo, French, a dairyman and MASA board member, is a key contact person in MASA's network of on-farm research.

Want to do on-farm research?

If you would like to participate in the MASA-sponsored Michigan Sustainable Agriculture Project for 1994, by doing an on-farm research or demonstration project, contact Roger French at his home at Dawnera Farms, 3004 Stad- dium Drive, Kalamazoo 49009, or call (616) 375-0658. Let him know what you would like to discover (objectives) and how you plan to do it (procedures).

Deadline for project applications is March 1.

The Road To Sustainable Agriculture

By Dick Lehnert

The term "sustainable agriculture" carries with it some "hype." To some farmers, it smacks of a plot by government and environmentalists to deprive farmers of the pesti- cides and fertilizers they use to farm.

Some think it advocates a return to an old style of farming that could rob them of their ability to produce food abundantly and inexpensively.

But the farmers who founded the Michigan Agricultural Stewardship Association in 1991 are pursuing a new future in sustainable agriculture, and they wanted to get involved. A lot was happening.

The C.S. Mott Foundation had funded an Endowed Chair in Sustainable Agriculture in the Crop and Soil Sciences Department at Michigan State University. The chair was filled by Richard Harwood. The department was looking for farmers who wanted to try more sustainable farming techniques and work with the researchers.

MASA members are an important constituent of that program.

The American Farmland Trust, founded in 1980 to protect the nation's agricultural resources, had developed a sustainable agriculture agenda as well. It has provided leadership and funding to MASA from its inception, and to other sustainable agriculture groups in other states.

The Americana and the C.S. Mott Foundations have provided funding for AFT's and MASA's work in Michigan since 1991.

The W.K. Kellogg Foundation has developed an Integrated Farming Systems program, and it is now funding projects. MASA now is the lead agency in a proposal called MIFSS, the Michigan Integrated Food and Farming System, which is now under consideration for funding by Kellogg.

The U.S. government created, in the 1985 farm bill, a provision called LISA—low-input, sustainable agriculture. That name has been changed to SARE—Sustainable Agriculture Research and Education. For the past two years, it has been headed by MSU Nematologist George Bird, who took leave to go to Washington, D.C.

SARE also provides funding for sustainable agriculture projects. Bird is now back in Michigan, and is on the advisory board of MASA.

With all this going on, the need in 1991 was a group of farm- ers who, interested in making agriculture more sustainable, would take advantage of what was growing up about them.

In January 1991, 100 farmers were invited to a meeting at MSU's Plant and Soil Science building. From 100 farmers who attended, 40 volunteered to assume the leadership tasks of forming a new organization and setting its agenda. From the beginning, the group has worked closely with crop scientist Oran Hesterman, who chairs the group's advisory board, and specialist John Darling, who serves as the group's coordinator.

While not everybody agreed with all that sustainable agriculture might entail, most MASA members would probably agree with the Food and Agriculture Organization of the United Nations, which uses this definition of sustainability: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Last December 9 and 10, the MASA board met for a leadership development seminar and to meet with its advisory board. Jerry Wirbel, a cash crop farmer from Hope in Midland County who had been MASA's president from the start—including its first year as an ad hoc entity—reviewed its accomplishments, some of which include:

- Development of an organizational structure, including a mission statement, bylaws, non-profit corporation status, and funding.

- Development of leadership (Continued on page 11)

Shteler wins first Land Steward Award

Kalakaska County dairyman George Shetler has won the first-ever Land Steward Award, created by MASA last year. The award was given December 10 at the Michigan Association of Conservation Districts annual meeting in Lansing.

Shetler won the recognition for his efforts to convert his dairy herd from drylot feeding to intensive rotational grazing. Along the path, he has kept careful records and participated for three years in the Sustainable Agriculture Project sponsored by MASA and the American Farm- land Trust. Shetler's report on his 1993 research appears elsewhere in this publication.

The Land Steward Award was created last year by the Michigan Agricultural Stewardship Association (MASA). The Soil Conservation Districts in Michigan were asked to nominate farmers they thought exemplified the spirit of sustainable agriculture. Eight nominations were re- ceived, and Shetler was chosen by a judging committee of three MASA board members: Suttons Bay fruit grower Larry Mawby, Imlay City cash crop grower Richard Lauwers and Hillman cow-calf operator Marlin Goebel.

"My basic motivation is to farm more safely, producing meat and milk without chemical inputs," Shetler said. "Family health and economics were also primary reasons for changing to a more sustainable system."

He said the changeover to intensive rotational grazing for his dairy herd has been a blessing. "I wasn't happy," he said. "Now, I've found time for my family, time to relax. I'm not chasing hay, or fix- ing equipment and chasing parts so I can chase hay. Instead, I spend about an hour a day moving elec- tric fences."

"My personal health is better. I walk, I observe nature, the pasture, the cattle. The cows seem healthier, too. They have no hoof problems."

(Continued on page 11)
Environmental issues are a growing concern for most Americans. Urban residents want a healthy, yet plentiful, food supply. Rural families want clean water for their own communities. Business and industry compete to see who can be the "greenest" producer of goods and services, and they use environmental responsibility as a marketing tool.

Farmers are taking inventory of their operations in an effort to eliminate farming practices that have the potential to degrade land and water resources. There is a growing awareness in a way that is less damaging to the environment. It has caused a revolution of sorts in many agricultural communities, with farmers adopting new production techniques at an unprecedented rate. The trend toward renewed environmental responsibility is commonly referred to as sustainable agriculture.

Sustainable agriculture is perhaps best defined by the way farmers use component practices to develop farming systems that are practical, profitable and environmentally responsible. For example, success with a simple practice like nitrogen reduction often leads an individual to experiment with other alternative practices, like the use of cover crops. Success with cover crops can lead to modifications in tillage and pest management. Each subsequent success leads to modification and adaptation, creating a new, improved system that is continually evolving.

No one decides to become a "sustainable" farmer overnight, but when a producer makes the decision to become a better steward of the land, and accepts the challenge that he can always do a better job of conserving natural resources, the die is cast.

Farmers who embrace the concept of sustainability believe in long-term care of the land. They understand that there is a fine line between using the land and abusing it. They are keenly aware that how they manage the farm today will have a lasting impact on the quality of life for future generations.

Since 1991, with funding support from the C.S. Mott Foundation, American Farmland Trust and the Michigan Agricultural Stewardship Association have been working with Michigan farmers who wish to experiment with and adopt some of the component practices of sustainable agriculture.

The 1993 Michigan Sustainable Agriculture Project established 25 on-farm research/demonstration sites at locations throughout the state with cooperating producers. These on-farm plots were designed to address farm management problems with an emphasis on reducing impacts to water quality, preventing soil erosion and improving farm profitability.

The information presented in this publication was collected from farmer participants throughout the project year. Its purpose is to give an idea of what sustainable management means when component practices are applied in actual farming operations. It is also hoped that the examples presented here may encourage other producers to experiment with similar practices on their own farms.

One final note: Any new practice or farming system should be applied incrementally. If something in this publication appears feasible for use in your operation, don't go out and convert everything overnight. Try it first on a small scale (a couple of acres or less) before proceeding further. Experiment, evaluate and make decisions that are right for your own farm. Bryan Petrucci, Director

**AMERICAN FARMLAND TRUST**
Center for Agriculture in the Environment
P.O. Box 987, DeKalb, Ill. 60115
(815)753-9347 (phone) - (815)753-2305 (FAX)

American Farmland Trust is a private, nonprofit membership organization founded in 1980 to protect our nation's farmland. AFT works to stop the loss of productive farmland and promote farming practices that lead to a healthy environment. Annual membership is $20.

**FARMER’S FAWN MEADOW FARM**
7301 Milo Road
Delton, Mich. 49046

The Michigan Agricultural Stewardship Association is a statewide, nonprofit educational organization committed to the development and use of sustainable farming systems.

**The 1993 Michigan Sustainable Agriculture Project is a cooperative effort of the Michigan Agricultural Stewardship Association and the American Farmland Trust. Funding for this project was provided by the C.S. Mott Foundation.**

**INTENSIVE ROTATIONAL GRAZING IN A DAIRY OPERATION**

**The Shetlers are looking for profit opportunities by spending less on purchased inputs--chemicals, fertilizers, machines, electricity, feed.**

**BLYAN PETRUCCI, DIRECTOR**

**SUSTAINABLE AGRICULTURE RESULTS OF THE 1993 SUSTAINABLE AGRICULTURE PROJECT**

**ELECTRICITY CONSUMPTION**

<table>
<thead>
<tr>
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**MILK PRODUCTION (DHIA RHA)**

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<td>Pro.%</td>
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**SUPPLEMENTAL FEED COSTS**

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**RELATIVE VALUE OF PRODUCT**

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<th>1991</th>
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* Based on 1991 prices of $13.54 milk and $0.11 butterfat differential.

**INCOME OVER FEED COSTS**

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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Season</td>
<td>average $5.83</td>
<td>$6.55</td>
<td>$6.31</td>
<td>$6.58</td>
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* Based on 1991 feed prices of: Grain mix - $145/ton; Dry hay - $50/ton; Corn silage - $25/ton; Haylage - $40/ton

**LABOR AND MACHINERY COSTS**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Season</td>
<td>average $2.89</td>
<td>$2.35</td>
<td>$1.89</td>
<td>$2.35</td>
</tr>
</tbody>
</table>

**SUSTAINABLE AGRICULTURE**

Conventional Intensive Grazing

Haylage harvest 44.25
Dry hay harvest 36.97
Manure spread 18.38 C.2
Pasture clipping 15.67
Fertilizing 3.05
Manual labor 2.65
(fence moving)

Seeding (no-till) ** 9.90
TOTAL $99.60
$34.34
* includes as a 1 year cost
** Rates per MSU Extension Bulletin E-2131 "Custom Work Rates in Michi
genian Acreage"
Jim LeCureux, Huron County

Changing Tillage Practices at the Tip Of The Thumb

The Saginaw Bay Watershed has been studied and monitored by a number of agencies, and the conclusion is inescapable: Water in the rivers and the bay contain sediments, nutrients and pesticides—and much of that comes from farmers' fields as surface water run-off. Last year, Huron County farmers, working with the Huron County CES, began to look at ways to reduce nutrients, pesticide, and sediment loading of the county's surface waters.

Since surface water movement has been directly linked to the amount of crop residue and cover crops in place on fields, the Huron County CES and farmers targeted high-residue tillage systems as a key means of water movement control. Historically, Thumb farmers have used conventional clean tillage, especially for dry beans and Thumb farmers have used conventional clean tillage, especially for dry beans and sugar beets. These were zone tilling, trans-tilling, and conventional tillage. Zone tillage uses a coulter configuration that till strips several inches wide to prepare a seedbed in an otherwise undisturbed field. Trans-till is similar to zone tillage but is done as a separate field operation rather than as the front part of the planting unit. It can be done any time before planting. Conventional tillage is tillage as usually accepted, including moldboard plowing, disking or field cultivating and finishing.

In 1993 conventional tillage out-performed the other tillage systems in nearly every instance. As would be expected, the conventionally tilled plots required higher input costs due to more trips with equipment. These costs were offset, however, with higher yields. Differences in net income for the sugar beet plot amounted to nearly $70 per acre. The net income difference on the corn ground was less striking. And on the dry beans, net income was slightly higher on the minimum tillage plots. This may be because dry beans are planted later and soil temperatures are less a factor. Cool, wet weather led to poor weed control and lower soil temperatures that hurt the high-residue plots.

But the idea for the first year was to get different kinds of equipment and planters into the fields, see how they performed, and make adjustments, said Jim LeCureux, Huron County Extension Agricultural Agent. As technique improves, yield differences may disappear.

The innovative farmer committee has recommended several changes for next year. All plots will be moved to two 40-acre fields, committed to the project for five years, where four replicated and randomized tillage programs can be carried out. These include fall plowing, fall chiseling, zone tilling and trans-tilling. The farmers felt they needed to reduce the uncontrollable variables associated with fields located some distance from each other. This will enable growers to view the varied tillage plots side by side. Soil types, equipment, and weather conditions will be less a factor with centralized demonstration site. And all the work will be done in a timely manner; on farms, the plots received lower priority than did regular fields.

The farmers will be involved in the design of the study. There is also new commitment to address sociological factors that can stifle change. Banks, equipment and fertilizer dealers and sugar companies are being informed and involved. The economic and environmental issues of the community demand that farmers continue to strive for reduced production costs and environmental risks. It is important that all the institutions that influence the decisions farmers make become partners as farmers make changes.

Don Cordes, Montmorency County

Composting Manure on a Commercial Dairy Farm

The Cordes farm has had no chemical fertilizers or pesticides applied for several years, and Don is trying to incorporate new systems into the farming operation that will allow the farm to better use on-farm resources. One of these systems is manure composting.

Don Cordes, his wife Katherine and son Tom operate a 50-cow dairy in Montmorency County. They own 300 acres, 250 devoted to corn, alfalfa, and oats for the dairy herd.

Manure that used to be spread and bailed daily is now windrowed on a small field near to the barns. These windrows are turned, usually every few days, to aerate and heat the manure and produce compost.

Properly composted manure is light, crumbly, virtually odorless and looks much like topsoil. Composted manure will increase soil tilth and organic matter content while providing slow-release nutrients.

Don adds straw to the freestall barn— and is considering newprnt. The straw makes the manure handle easier and compost better.

This is the second year that the Cordes farm has participated in the Sustainable Agriculture Project. In 1992 the Cordeses applied a biological "compost starter" to select manure piles, thinking it might reduce composting time and increase uniformity.

In 1993, the Cordes farm purchased four different compost starters. In addition, a homesteader starter was applied to one pile and fallow soil from an old, unused barnyard was applied to another to compare their effectiveness as sources of compost-forming bacteria.

The cost, consistency, and application rates of the starters vary greatly. The product costs expressed below reflect product costs per ton of fresh manure.

```
<table>
<thead>
<tr>
<th>COST OF COMPOST STARTERS</th>
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<tbody>
<tr>
<td>$/ton Application</td>
</tr>
<tr>
<td>Treated Rate/ton</td>
</tr>
<tr>
<td>Colloidal Phosphate</td>
</tr>
<tr>
<td>$1.75</td>
</tr>
<tr>
<td>Floristem</td>
</tr>
<tr>
<td>7.20</td>
</tr>
<tr>
<td>BioActivator</td>
</tr>
<tr>
<td>8.3</td>
</tr>
<tr>
<td>B-D Starter</td>
</tr>
<tr>
<td>2.90</td>
</tr>
<tr>
<td>Fallow soil</td>
</tr>
<tr>
<td>N.A.</td>
</tr>
<tr>
<td>144#</td>
</tr>
</tbody>
</table>
```

The year 1993 was wet. None of the compost piles dried down as well as in 1992 when there was a substantial difference between the quality of the compost and the fresh manure. The following table states in pounds per ton and dollar value the difference in the two manures as tested in 1992.

<table>
<thead>
<tr>
<th>COMPARISON OF COMPOST FROM VARIOUS TREATMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensil 1 2A 2B 2D 2E 2F 6</td>
</tr>
<tr>
<td>Moisture (%) 75.6 72.7 73.2 74.7 70.4 74.6 80.2 57.0</td>
</tr>
<tr>
<td>Nitrogen (N/%) 12.7 10.0 11.2 9.8 8.6 10.4 8.9 2.8</td>
</tr>
<tr>
<td>P.O. (P)/% 5.4 10.0 9.0 7.3 7.7 10.4 9.8 28.8</td>
</tr>
<tr>
<td>K.O. (K)/% 11.9 7.2 8.5 9.3 7.1 8.0 9.4 9.3</td>
</tr>
<tr>
<td>Fresh-Fresh manure 1=1-B Brand Starter 2A=Control 2B=Floristem 2D=Fallow Soil 2E=BioActivator Brand 2F=Homesender 6=Colloidal Phosphate and BioActivator</td>
</tr>
</tbody>
</table>

Don was 47 years old. He had a biological "compost starter" to select manure piles, thinking it might reduce composting time and increase uniformity.

In 1993, the Cordes farm purchased four different compost starters. In addition, a homesteader starter was applied to one pile and fallow soil from an old, unused barnyard was applied to another to compare their effectiveness as sources of compost-forming bacteria.

The cost, consistency, and application rates of the starters vary greatly. The product costs expressed below reflect product costs per ton of fresh manure.

```
<table>
<thead>
<tr>
<th>VALUE OF PRODUCT</th>
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<tr>
<td>(DRY MATTER BASIS)</td>
</tr>
<tr>
<td>Fresh Composted</td>
</tr>
<tr>
<td>Nitrogen 40.0 8.80</td>
</tr>
<tr>
<td>Phosphate 18.2 3.28</td>
</tr>
<tr>
<td>Potassium 42.6 5.11</td>
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<tr>
<td>Total Value $17.19</td>
</tr>
</tbody>
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The Cordes herd produces about 4,100 pounds of manure per day. The cost of handling in a conventional system is $40.64 per day, or $19.82 per ton. The cost of handling in the compost system is $48.67 per day, or $23.74 per ton.

```
<p>| Tom Semans, Shiawasse County |</p>
<table>
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<th>A Death in the Family</th>
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<tbody>
<tr>
<td>Tom Semans, a Laingsburg farmer who carried out on-farm research projects in 1991 and 1992 as a member of the Michigan Agricultural Stewardship Association, and was working on a project in 1993, was killed in a freak farm accident last summer.</td>
</tr>
<tr>
<td>MASA and the American Farm Land Trust wish to remember him.</td>
</tr>
<tr>
<td>Tom and his wife Barbara operated a 100-cow, 1,000-acre dairy and cash crop farm. He was an avid no-tiller. In 1991, his on-farm research looked at the effect of cutting back on soil-applied corn rootworm insecticide. In 1992, he found an economic advantage in cutting rates of starter fertilizer on corn.</td>
</tr>
<tr>
<td>Tom was well known to Michigan farmers. He was active in the Shiawasse County Farm Bureau (past county president), the Michigan Milk Producers Association president, and was secretary of the Shiawasse County Soil and Water Conservation District for several years. He was hauling a load of logs behind his tractor when it hit loose gravel, lost the road and overturned, killing him.</td>
</tr>
<tr>
<td>Tom was 47 years old. He will be greatly missed.</td>
</tr>
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</table>

Sustainable Agriculture 3
Bernard Wall and his wife Delores farm 40 acres near Coleman. The Walls have a small herd of 14 Simmental brood cows. In 1992, the Walls put in the fencing required to form pasture paddocks and use intensive rotational grazing.

Bernard chose intensive grazing because he believes that an acre of pasture managed properly can be more productive than two that are not. This year was the second year of this demonstration, and Bernard feels that last year’s experience served him well. “This year we began grazing earlier than we did in 1992. I also reduced the size of the paddocks, utilizing the feed in each paddock more efficiently and reducing quality losses.”

The cows were put out on pasture May 11 and kept grazing until November 5, when they were returned to confinement feeding. The measure of the success of a cow-calf operation is pounds of calf weaned at the end of the grazing season. Calves are weaned between 1.5 and 6 months and had been averaging 500 to 525 pounds at weaning. Last year, the calves averaged 580 pounds. This year the calves were weaned at 625 pounds in 170 days. This represents an average daily gain of 3.1 pounds. These calves received no creep feed. Bernard credits the exceptional weight gains to increased milk production by the cows. He reports that, for the first time in memory, the cows were not being completely milked out, indicating an abundance of food for the calves—with no supplemental grain for the cows beyond calving.

Pasture paddocks were grazed three times, some four times. Pastures yielded about 2,860 pounds of dry matter per acre.

Investment in wire and posts was minimal. Two spools of polywire and about 100 posts were purchased for less than $100. No watering equipment was purchased; the cows and calves returned to the barnyard for fresh water.

Bernard believes intensive rotational grazing offers landowners a low-investment alternative, one that can make use of marginal land and conserve soil under perennial sod. What is needed is high quality pasture crops that will produce Michigan winters and crops that extend the grazing season and reduce the need for making winter feed. Last fall, he planted winter wheat for early spring grazing and made an experimental seeding of Sanfoin and Small Burnet, two legumes grown in Colorado for late fall pasture. The success of these crops is yet to be determined.

Mark Crumbaugh, Gratiot County

Soybean Varieties Tested Under No-Till

Mark Crumbaugh and his wife Dawn farm 475 acres near Ashley. Mark grows corn, soybeans, dry beans, wheat, and alfalfa, and also helps with his father’s farm, bringing the total acreage to about 1,500.

An advocate of no-till, in 1993 he put in an extensive no-till soybean variety test plot. Mark believes no-till is one way farmers can become more sustainable without making drastic changes in production practices. Soil erosion and the subsequent nutrient and pesticide loading in surface waters can be detrimental not only to the environment but to a farm’s ability to be sustainable.

All soybeans were planted in standing rye cover. The rye cover was burned down with 12 ounces of Roundup. At that rate, the rye was not completely killed and a wide applicator pass was necessary.

The variety plots received two separate nutrient treatments. Most of the field received 700 pounds of 2-10-51. The remaining third received 18,000 gallons per acre of liquid hog manure. All the beans were sprayed post-emergence with 4 ounces of Pursuit.

Yields varied from 34.5 to 51.3 bushels per acre. A potpourri mix of the varieties was planted on a manure-covered portion of the field and produced 52 bushels per acre. Two unnumbered Pioneer varieties were tested with and without inoculant. Total input costs (less seed, which was variable) for the fertilizer plot was $68.76. Input costs for the manured plot was $117.90 per acre on cherries and $191.20 per acre on apples.

IPM is becoming a routine management tool on the Elzer farm and Arnold plans to continue to learn more about the procedures of fungicides to keep disease and pests in check. This helps growers prepare for an infestation outbreak that is traveling with the weather. Arnold found these meetings helpful.

Yields on the Elzer farm were pretty good in 1993. Tart cherries produced 8,000 pounds per acre. The apple orchards, which yielded exceptionally well in 1992, did not produce as well this year.

The year 1993 required numerous applications of fungicides to keep disease and mildew problems in check. While the 1992 growing season saw drastic reductions in the amount of material that had to be applied, differences in pesticide costs between an IPM system and the Spray Calendar system were not as great in 1993. Still, cherry pesticide costs in 1993 were about $42 per acre less with IPM; apples about $26 less with IPM. Even in years that require extensive spraying, IPM can be an economic benefit.

In 1992, pesticide cost reductions using IPM amounted to $117.70 per acre on cherries and $191.20 per acre on apples.

IPM is for an infestation outbreak that is traveling with the weather. Arnold found these meetings helpful.

In 1992, a pest scout provided through the Grand Traverse County and Agricultural Conservation District was employed to monitor conditions in the orchard. Arnold became extremely interested in the procedures of scouting and “tagged along” as the scout made his rounds. He purchased books to help identify pests. This year, Arnold was able to handle the scouting himself. “There is no substitute for time spent in the orchard,” Arnold likes to say. He believes it is very important that growers learn pest scouting themselves. Scouting is of best use when the farm is visited or a regular schedule and other conditions are factored in.

This interest in pest monitoring led Arnold to participate in a Code-A-Phone seminar offered by the Northwest Michigan Horticultural Research Station. Growers can call a recorded message and receive information on weather and pest conditions in the area. Growers are advised on potential pest outbreaks so that they can begin watching for threshold numbers. Information on recommended treatment for pests is also available. Arnold felt this service was a great help.

Another service offered growers in Grand Traverse County is a Soil Conservation District-sponsored weekly grower meeting. These meetings provide a forum where growers discuss current pest problems and controls. This helps growers prepare for an infestation outbreak that is traveling with the weather. Arnold found these meetings helpful.

Yields on the Elzer farm were pretty good in 1993. Tart cherries produced 8,000 pounds per acre. The apple orchards, which yielded exceptionally well in 1992, did not produce as well this year.
Testing the Best Conditions for Growing American Chestnut Trees

A. Rader Farm near Hillman.
B. The plot is in its second year and is not a direct comparison of yields, but rather the first of several years' demonstrating various cultivation practices---irrigation, mulching and fertilizing—in this chestnut planting.
C. American chestnuts were once dominant forest trees in the eastern United States. Most of them were killed by chestnut blight early in this century. In recent years, a few resistant trees have been discovered, and these are being propagated by growers, like Coultier, interested in these majestic trees and the unique nuts they produce.
D. Chestnut trees should remain productive for 50 to 60 years, he said, and provide an orchard crop that breaks up pest cycles in dense orchard areas.
E. Five different treatments were applied, each containing 5 trees laid out in a randomized pattern. Five treatments were replicated five times in the orchard. These treatments include:

- Fertilizer, no mulch, trickle irrigation
- Fertilizer, no mulch, no irrigation
- Fertilizer, mulch, no irrigation
- Fertilizer, mulch, no irrigation
- No fertilizer, mulch, no irrigation

The trees were planted into an alfalfa field. Trees were 20 feet apart with 25 feet between rows. All trees are grown in weed-free beds that receive a herbicide application of Roundup and Prinect in the spring. All trees are grown in "tree shelters" made of corrugated plastic tubes 6 inches in diameter and 48 inches tall. Ten of these tree shelters is about $3 each.

Bands of weed control are about 10 feet wide. The alfalfa between rows is harvested by a neighbor for hay. Trees receiving mulch are mulched with one garbage bag of leaves from the local landfill per tree.

Chestnut trees will not produce fruit until at least the fourth year of growth. Tree growth was measured as the benchmark for comparison. Trees were measured for height and stem diameter.

Soil temperatures were taken in the root zones of both mulched and non-mulched trees. Temperatures were generally 5 or 6 degrees cooler under mulch in spring, but remained warmer longer in the fall, when most root growth occurred.

Grass control has been so important it appears possible that quickgrass may be toxic to chestnut trees. Broadleaf weed control does not seem to be as important. The trends established in 1992 continued in 1993. The tree growth in tube tree shelters seems to justify the expense, but other differences in cultivation are becoming less obvious. The greatest advantages can be expected in younger trees.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Height (in.)</th>
<th>Diameter (in.)</th>
<th>Per acre costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fertilizer, no mulch, irrigation</td>
<td>69.2</td>
<td>.51</td>
<td>$97.83</td>
</tr>
<tr>
<td>2. No fertilizer, no mulch, no irrigation</td>
<td>63.6</td>
<td>.48</td>
<td>34.85</td>
</tr>
<tr>
<td>3. Fertilizer, no mulch, no irrigation</td>
<td>68.4</td>
<td>.46</td>
<td>70.31</td>
</tr>
<tr>
<td>4. Fertilizer, mulch, no irrigation</td>
<td>75.2</td>
<td>.58</td>
<td>85.61</td>
</tr>
<tr>
<td>5. No fertilizer, mulch, no irrigation</td>
<td>71.8</td>
<td>.55</td>
<td>50.15</td>
</tr>
</tbody>
</table>

Herbrucks Poultry Ranch, Ionia County and Ken Rader, Montcalm County

Shifting Nutrients by Using Composted Poultry Manure

Herbrucks Poultry Ranch shifted thousands of tons of poultry manure that were "wastes" to be disposed of to farmers who, having no livestock, had to buy fertilizer nutrients.

The Herbrucks family—father and four sons—operates a large, commercial laying chicken farm in Ionia County. The corn, soybeans and wheat raised on their 700 acres falls far short of supplying enough to feed the nearly 1 million birds. The operation's size (170 employees run the production, packing, and food processing facilities) also requires that the Herbrucks develop a way to handle the huge volume of manure on their own cropland could not use. The Herbrucks chose composting as a way of making the manure salable.

Herbruck Poultry Ranch built a new composting building near Saranac. The 63,000-square-foot facility is vented with air ducts in the floor to ensure adequate air flow to the composting manure. Ventilation fans and a series of compost pile temperature probes are computer monitored to maintain quality control of the compost. The piles are turned with a large commercial tractor to produce a consistent quality compost. The farm uses some of the compost, but more than 3,000 tons are produced annually for sale. Most is sold to farmers in bulk form but some is screened and bagged for sale in the lawn and garden market.

Bulk material prices vary but retail prices are about $35 per ton.

Ken Rader farms in Montcalm County near Lakeview. He grows cash crops including potatoes, snap beans and carrots. Ken used Herbruck compost in addition to a commercial fertilizer program on snap beans in 1993. A ton of concentrated poultry manure contributed the following nutrients: nitrogen, 40 pounds per ton; phosphoric acid, 100 pounds per ton; potash, 60 pounds per ton; and calcium, 200 pounds per ton.

Ken applied one ton per acre of the compost to a new field of snap beans. All production practices were identical on the two plots, except for the added compost, which cost $37 per acre for the ton of compost and its handling.

The beans that received the compost yielded about one-half ton per acre better, an increase in income of $37.50. Ken believes the compost contributed more than just the NPK to the soil. He believes that additional bacteria and organic matter were in part responsible for the increased yields.

The Rader Farm will be applying composted poultry manure again next year. In this situation, a concentrated livestock operation is able to provide manure to a cash crop operation to the economic and environmental benefit of both.

George Perkins, Montmorency County

Organic Producer Wins Customers with Quality Produce

George Perkins and his family operate a small, organic vegetable crop operation near Fostoria. His small family farm he and his family now operate. What George began as a hobby and educational tool turned into a thriving sector of the family business.

An avid gardener, George became interested in organic production, an interest that gradually expanded to become the produce farm he and his family now operate. Three acres and two greenhouses are devoted to vegetables. George considers their small operation a hobby and educational tool, but their customers should not, the Herbrucks chose composting as a way of making the manure salable.

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Sycamore Creek Water Quality Program

Three farms participating in the MASA/AFT Sustainable Agriculture Project are involved in the Sycamore Creek Water Quality Program (SCWQP), established by the USDA in 1990 to serve as a model for watershed management. Farming technologies promoted by the SCWQP are considered to be sustainable agriculture practices, which is to say they:

- Take advantage of and enhance biological relationships and natural processes that exist on farms.
- Use management skills and information to reduce costs, improve efficiency, and maintain production.
- Emphasize agricultural diversity.

The participating MASA farms (Chellisons Farm, Hawkins Homestead, and the Lyons farm) are all successful farming enterprises able to adapt sustainable practices into mainstream production.

Extension agricultural agent Jack Knorek has provided invaluable service to MASA and the producers in the SCWQP with his interest in making Michigan agriculture more sustainable.

Testing Fertilizer Rates on Corn

Hawkins Homestead, the family since 1862, is farmed by Sid and Carol Hawkins, their daughter Jeanine and her husband Tony Igl. The farm consists of 2350 acres in a corn-corn-soybeans-wheat rotation. The Hawkins Homestead uses IPM, regular soil testing, and conservation tillage practices. The farm is diversifying into feeder steers.

In 1993, they tested the effect of various rates of anhydrous ammonia with and without 120 pounds per acre of 18-46-0 at planting. Herbicide treatment for all plots was the same, with one quart Dual applied pre-emergence and one pint Marksman applied post. Tillage was the same for all plots.

Fertilizer costs varied from $8.44 to about $25 per acre with no appreciable increase in yield. The resulting yields are listed below.

<table>
<thead>
<tr>
<th>RATE</th>
<th>YIELD (bu/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120# N + starter</td>
<td>134.0</td>
</tr>
<tr>
<td>75# N + starter</td>
<td>135.1</td>
</tr>
<tr>
<td>120# N - starter</td>
<td>133.5</td>
</tr>
<tr>
<td>75# N - starter</td>
<td>137.5</td>
</tr>
</tbody>
</table>

Chellisons Farm, Ingham County

Interseeding Clover in Small Grains

Chellisons Farm (Hall Brothers) is a 70-head dairy operation run by Nolan, Phil, Pete and Mike Hall. The Halls farm approximately 800 acres near Mason. Standard crop rotation on the farm is corn-com-soybeans-wheat. They also raise alfalfa.

The Halls use a liquid manure system. They have also seeded red clover for a cover crop for many years. Phil feels clover provides tremendous benefits to the following corn crop.

The Halls use IPM pest scouting services to determine if and when to use pesticides. Regular soil testing, cover crops, manure spreader calibration and manure analysis ensure fertilizer cost effectiveness.

In 1993 the Halls compared wheat and oat production when seeded with a cover crop of red clover to the small grains seeded with no cover. The Halls believe a corn crop following these crops benefit from the nitrogen the clover supplies. But does the small grain benefit?

Both wheat and oats had similar yields. The wheat with clover cover yielded 41.2 bushels per acre; the wheat with no cover yielded 41.4. Both produced 40 bales of straw per acre.

On oats the crop with clover cover yielded 60.0 bushels per acre and the crop with no cover yielded 61.5. Oats with clover produced 30 bales of straw per acre; oats with no clover produced 40.

The establishment costs were about $20 per acre higher for the crops with clover, a cost to be recaptured in future crop yields.

Leigh Lyons, Ingham County

Using Ryegrass as a Nitrogen Scavenger

Leigh Lyons has farmed for more than 30 years on his 300-acre farm near Mason. His preferred rotation is corn, soybeans, wheat.

In 1993, he began a study on his farm (1) to see if the addition of annual ryegrass planted in July in growing corn would depress corn yields and (2) to see if the annual ryegrass would take up enough nitrogen during its late-season growth to pay for the costs of seeding it and burning it down with herbicides the following spring. Lyons believes that the ryegrass provides other benefits, providing erosion control and added soil organic matter.

The first step of this two-step experiment was done in 1993.

Leigh Lyons seeded ryegrass into standing corn to capture nitrogen.

Farmers toured corn plots at the Hawkins Homestead as part of a larger tour of the 20 farms participating in the Sycamore Creek Water Quality Program.
Richard Lauwers, Lapeer County

Comparison of Ridge-Till and No-Till Soybeans

Rich Lauwers and sons Mark and Mike farm nearly 2,500 acres. The cash crop operation grows sugar beets, wheat, corn and soybeans using no-till and ridge-till systems. Rich is a director of the Michigan Agricultural Stewardship Association.

The Lauwers changed their style of farming on this cash crop operation several years ago and began moving toward ridge-till. Not entirely happy with the results, 1993 looked like a year to see if ridge tilling could produce the kind of yields that would compete with solid seeded (drilled) soybeans.

The Lauwers' farmland is heavy, wet ground that dries out and warms up slowly in the spring. Ridge building has been an attempt to overcome these problems. Weed control has been an issue the past couple of seasons. "It seems that the weeds are harder to get under control since we reduced tillage," explained Richard.

Gale McNitt, Muskegon County

Foliar-Applied Fertilizer in Corn

Gale McNitt and his wife Marilyn farm 500 acres near Ravenna. The farm supports a 40-cow dairy herd and provides excess grain for sale. Crops are corn, hay and small grains.

Gale hoped to determine the cost-effectiveness of additional foliar fertilizer (17-18-18) applied to corn when the plants were about 18 inches tall. In addition to the foliar fertilizers, a natural growth hormone, called Symspray, was applied to one replication. According to the manufacturer, this growth regulator reduces the energy the plant uses for foliage and puts it into grain production. The growth regulator was donated to the project and was applied with an application of fertilizer, so no additional costs were attributed.

The three replications received identical herbicide and tillage treatments. Corn was planted after tillage with a SoilSaver.

He planted corn on June 13, after plowing and disking down a hairy vetch stand that was planted after wheat in 1992.

The plots differed only in that manure application occurred late. Yields were nearly the same in all three treatments, so the extra cost of the added foliar fertilizer and the growth regulator were not recovered.

Still, Gale believes that foliar-applied fertilizers have a place on his farm. Timing is the critical factor, he says. If weather conditions or other field operations prohibit a grower from making the fertilizer application at the proper time, yield response will be reduced and costs will not be recovered.

The environmental advantage of foliar fertilizers is obvious to Gale. Leaching on his sandy-loam soil would be practically eliminated, but the farm has not had yields that would warrant a switch to all foliar materials yet.

The entire plot was covered with municipal sludge in the fall of 1991. This sludge contributed the following: nitrogen, 136 pounds per acre; phosphorus, 30 pounds per acre; potassium, 4 pounds per acre; calcium, 594 pounds per acre.

No sludge was applied to this field since 1991. Gale continues to use sludge on fields that meet phosphorus, soil type, and slope criteria.

The McNitts would like to develop rotations for more effective nitrogen management. But, they say, USDA programs are not yet compatible with the need for cover crops and rotations that facilitate nutrient or herbicide management. This is one area that will have to be addressed if widespread acceptance among farmers is to occur, they say.

Bob Fogg, Ingham County

Can Hairy Vetch Alone Produce Enough N for Good Corn Yields?

Bob and Joann Fogg farm 335 acres near Leslie. Since 1986, the farm has been a Rodale Institute Midwest On-Farm Research Farm promoting sustainable agricultural production practices. Until recently, the farm operation included a 25-cow dairy herd as well as the organic cash crop system.

Since 1981, he has been using fewer chemicals, with no herbicides or chemical fertilizers used since 1986. He grows corn, soybeans, alfalfa, small grains and legume cover crops, including hairy vetch. The dairy milking operation has been phased out, and now replacement dairy heifers are being raised.

Fogg's goal in his research plot this year was to see if taking away dairy manure would hurt corn yields. He planted corn on June 13, after plowing and disking down a hairy

Date | No manure | Manure
--- | --- | ---
Aug. 92 | Plant hairy vetch 40/#/acre | Spread 5 tons manure/acre
May 93 | | 
May 28 | Moldboard plow entire field | 
June 3, 8 | Disk entire field | 
June 13 | Cultimulch and plant entire field with 95-day corn | 
June 21 | Rotary hoe entire field | 
July 5 | Cultivate | 
July 15 | Cultivate | 
Dec. 17 | Hand harvest plots, no difference in yield |
Larry Mawby, Leelanau County

Mating Disruption for Codling Moth Control

Larry Mawby, a member of the MASA board of directors, operates a 30-acre vineyard in Leelanau County and a 40-acre apple orchard located in the Upper Peninsula's Delta County. This apple orchard has been the focus of three years of research conducted in cooperation with Michigan State University. The study focuses on pheromone disruption of codling moths.

Cultivating moths are serious pests, causing the proverbial worm in the apple. Effective control has to date been through repeated applications of chemical insecticides. Reasons are emerging to look for new control possibilities: cost of chemicals, insect resistance and increased public pressure to reduce agricultural chemicals that may result in residue on their food. A most important reason is that the chemical control methods used for codling moth tend to suppress natural enemies that would otherwise tend to control other pests in the orchard. For these reasons, mating disruption is being tested for control of codling moths. Mating disruption works like this: Synthetic copies of the pheromone released by male moths to attract male moths are released into the orchard. The idea is to place enough artificial sources of pheromone into the environment to disrupt the "scents" and prevent male moths from locating females. If mating can be prevented, the risk of damage to fruit by codling moth larvae is eliminated. Plastic dispensers allow for long-term controlled release of the pheromone during the growing season. 

MSU entomologist James Johnson worked with Mawby testing this disruption for three growing seasons. Two eight-acre mixed variety apple blocks were chosen for the study. In 1991, the back block was managed with mating disruption and the front block used conventional insecticides. In 1992, both blocks were managed with mating disruption. Effectiveness of the control methods were determined by monitoring with codling moth pheromone traps and evaluating fruit damage. Fewer trap catches indicate mating disruption (males can't find the traps well in the pheromone-saturated orchard).

Disruption appears to work, but costs of this method are currently prohibitive, Mawby says.

### Trial Results

<table>
<thead>
<tr>
<th>Year</th>
<th>Code</th>
<th>Trap Catches</th>
<th>Fruit Damage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>Disruption</td>
<td>0</td>
<td>5.3</td>
</tr>
<tr>
<td>1992</td>
<td>Control</td>
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<td>-</td>
</tr>
<tr>
<td>1992</td>
<td>BACK BLOCK</td>
<td>0</td>
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<tr>
<td>1992</td>
<td>Disruption</td>
<td>59</td>
<td>-</td>
</tr>
<tr>
<td>1992</td>
<td>FRONT BLOCK</td>
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<td>1992</td>
<td>Disruption</td>
<td>43</td>
<td>-</td>
</tr>
<tr>
<td>1993</td>
<td>Control</td>
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</tr>
<tr>
<td>1993</td>
<td>BACK BLOCK</td>
<td>36</td>
<td>-</td>
</tr>
</tbody>
</table>

Control represents catches in traps in trees in adjacent areas.

Paul Guenther, Washtenaw County

Interseeding Medic in Corn for a Fall Cover Crop

Paul Guenther's research sought to determine whether there is a yield reduction from interseeding medic in corn at last cultivation. Medic is a legume plant that grows well during the cool days of fall, scavenging fertilizer left from the crop in which it was planted. The goal is to produce nitrogen, provide ground cover and prevent erosion during winter and spring. It dies over winter and releases nutrients to the next crop. When planning to interseed medic, choose corn varieties with upright leaves and match medic variety to your soil type, Guenther says.

Following soybeans in 1992, Guenther planted corn using ridge-till methods in 1993. He sprayed Roundup May 20, cleaned the ridges May 27 and on May 29 planted corn, applying fertilizer and band-applying Dual and atrazine. On July 2, he cultivated he seeded four pounds of Cyprus medic between the rows in 12-inch bands on half his corn plot, none on the other half. The six randomized and replicated plots were harvested Dec. 9. Yields were statistically identical, 154.6 without medic and 154.0 with medic.

### About This Publication

Several people were instrumental in the compiling the material in this publication.

Kalamazoo dairyman Roger French worked with farmers in southern Michigan as they designed their experiments and carried out their on-farm research. He helped them collect and compile their data.

Russ LaRowe, district manager of the Kalkaska Soil Conservation District, worked with farmers in northern Michigan, helping them design their experiments, collect and compile data and write narrative descriptions of their farm operations.

Bryan Petrucci, Director of Sustainable Agriculture Programs for American Farmland Trust, worked with French and LaRowe and visited with farmers to observe their experiments.

The farmers themselves must be given credit for devoting time and effort to constructing scientifically valid experiments. In some cases, simple side by side comparisons were made; in others, plots were replicated four to six times and set up in random order. Use of product names does not imply endorsement.

The material was edited by Dick Lehnert.

### Comparison Results

<table>
<thead>
<tr>
<th>NH3</th>
<th>NH3 + Manure</th>
<th>Manure</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.95</td>
<td>22.95</td>
<td>22.95</td>
<td>22.95</td>
</tr>
<tr>
<td>8.35</td>
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</tr>
<tr>
<td>37.13</td>
<td>37.13</td>
<td>20.35</td>
<td>20.35</td>
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<tr>
<td>31.86</td>
<td>31.86</td>
<td>31.86</td>
<td>31.86</td>
</tr>
<tr>
<td>100.29</td>
<td>100.29</td>
<td>69.25</td>
<td>83.51</td>
</tr>
</tbody>
</table>

| Yield (bu/acre) | 161 | 144.2 | 147.2 | 141.0 |
| Gross ($/acre) | 418.60 | 374.92 | 382.62 | 366.60 |
| Net return | 318.81 | 268.89 | 293.37 | 283.09 |

Larry Mawby and John Densmore, Leelanau County

Poultry Manure Compared to Commercial Fertilizer

John Densmore and his wife Kathy farm about 1,000 acres near Ithaca. The cash crop rotation includes soybeans, dry beans, and wheat for seed. John had access to poultry manure from his brother's nearby farm. Interested in determining what source of nitrogen would most efficiently supply needed N for corn production, John set up this demonstration to test the possibilities. Four combinations were used. Anhydrous ammonia with manure, ammonia and no manure, no ammonia and no manure (control), and no ammonia with manure. All plots received 100 pounds of starter at planting and 150 pounds per acre of potash pre-plant. Plots were given identical herbicide treatments and planted in a conservation-tilled field.

John farms good sandy loam soils and can get yields of 150 bushels per acre consistently (weather permitting). This year was a relatively good growing season in central Michigan.

Highest net return in 1993 were on plots receiving only ammonia. This is different from 1992 results, when manure outperformed the anhydrous. Input costs, including machinery and labor, were higher on the anhydrous plot. But the plot yielded nearly 14 bushels per acre better and corn prices were slightly higher, resulting in the economic advantage.

Production costs (excluding land and harvest costs) are listed in the table below.
Dale and Sally Stuby, St. Joseph County

Reduced Rates of Soil Insecticide in Seed Corn

Dale and Sally Stuby farm 770 acres near Constantine. Most of their land is planted to inbred corn lines that are crossed to produce commercial hybrid seed. Because these inbreds are more sensitive to stresses, production systems rely heavily on irrigation, conventional complete tillage, high levels of fertilizer and insecticides. Because of the investment in irrigation, fields tend to be planted to corn year after year.

The soils in the county are sandy, easily eroded by wind and cover a vulnerable aquifer that causes serious concern about degradation of water quality from fertilizer and pesticides.

For several years, the Stubys have looked at more sustainable strategies: conservation tillage, field scouting, use of cover crops, rotations with soybeans and wheat, reduced chemical applications, reduced nitrogen applications, irrigation scheduling, under-center-pivot-height windbreaks, and rotational manure application. They raise 2,000 head of market hogs farrow to finish each year, and inject liquid manure into the soil.

In their 1993 research, they compared four rates of Counter 20G insecticide applied to the soil at planting to combat corn rootworms. The test covered 36 acres in which each treatment was replicated six times and the results averaged. The field was in corn in 1992, with a wheat cover crop in place during the winter between crops. In this study, yields improved as the rate of insecticide used increased. Of the three years with replicated research trials, 1993 was the first in which the full rate of insecticide produced higher yields than the three-fourth rate.

After three years of research, the Stubys shifted to the three-quarter rate on all their seed acreage.

\[
\begin{array}{cccccc}
\text{Counter 20G rate (lbs/a)} & 0 & 3 & 4.5 & 6 \\
\text{Counter cost ($/a)} & 0 & 4.92 & 7.38 & 9.84 \\
\text{Gross income ($/a)} & 48.4 & 56.0 & 58.2 & 61.3 \\
\text{Root ratings} & 2.55 & 2.53 & 2.32 & 2.43
\end{array}
\]

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Henry Miller, St. Joseph County

Seed Corn Grower Tries Lower Input Rates

Henry Miller's primary crop is seed corn, with corn following for three or four years. In 1993, he grew 750 acres of corn for seed, 50 acres of soybeans, 90 acres of snap beans, 60 acres of oats and 60 acres of alfalfa.

"I am always looking for ways to reduce my inputs and farm for maximum efficiency or greatest net return instead of maximum yields," he said. In his on-farm research, he has been trying to determine how much nitrogen is applied. In this research, it was arrived at by the following results:

Trial 1--Rootworm reduction by spray application.

The Wengers believe that yield can be increased and herbicides and fertilizer rates reduced if manure applications and follow-up cultivations are timely. The 1993 field results support this conclusion.

Tom Wenger

Using Hog Manure To Sidedress Corn Worked Out Well

Tom, Ron, and Larry Wenger farm 500 acres, along with their wives and children, in a partnership created in 1977. They grow corn, hay, small grains, and soybeans and also have about 115 sows, feed pigs and finish about 100 head of beef. They also keep a brood cow herd.

The farm began a ridge-till system a few years ago. The brothers wanted to reduce herbicide use by banding. They also wanted to find ways to better use the liquid manure from the hog operation. Part of this demonstration was to reduce the amount of nitrogen applied to the corn crop while maintaining yields. To facilitate liquid manure applications in standing corn, a special manifold was built to direct manure between the rows.

Herbicide treatment was a broadcast spray of Roundup before planting and then a banded application of Dual at planting. This banding allowed only 25 percent of each acre to be treated. All plots received the same herbicide treatment. All the corn was cultivated twice.

The Wengers believe that yield can be maintained and herbicides and fertilizer rates reduced if manure applications and follow-up cultivations are timely. The 1993 field results support this conclusion.

Liquid manure analysis showed that 1,000 gallons of hog manure contained 22.9 pounds of nitrogen, 16.1 pounds of phosphorus and 18.5 pounds of potassium. Using this analysis, the manure supplied 137 pounds of N per acre. None of the plots yielded especially well but the return over input costs was best on the manure plot. Input costs and returns are listed in the table:

<table>
<thead>
<tr>
<th></th>
<th>High N Rate</th>
<th>Low N Rate</th>
<th>Manure</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Manure</td>
<td>24.05</td>
<td>24.05</td>
<td>24.05</td>
</tr>
<tr>
<td>Seed</td>
<td>26.77</td>
<td>23.85</td>
<td>15.07</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>28.87</td>
<td>28.87</td>
<td>34.61</td>
</tr>
<tr>
<td>Machinery &amp; labor</td>
<td>96.76</td>
<td>93.84</td>
<td>90.80</td>
</tr>
<tr>
<td>TOTAL</td>
<td>120.49</td>
<td>109.80</td>
<td>120.49</td>
</tr>
<tr>
<td>Yield (bu/a)</td>
<td>77.3</td>
<td>74.5</td>
<td>80.0</td>
</tr>
<tr>
<td>Gross income ($/a)</td>
<td>200.98</td>
<td>193.70</td>
<td>213.88</td>
</tr>
<tr>
<td>Net income ($/a)</td>
<td>104.22</td>
<td>99.86</td>
<td>125.18</td>
</tr>
</tbody>
</table>

* Production costs were calculated from MSU Extension Bulletin "Custom Work Rates in Michigan."
Alternative Methods of Controlling Weeds in Corn

Paul Wing and his son Tom farm about 600 acres devoted to corn, alfalfa and soybeans. They have a 65-cow dairy herd and feed about 30 beef steers.

Paul believes that sustainable agricultural methods include purchasing fewer off-farm inputs—pesticides, fertilizers and machinery.

For the past two years, the Wings have compared three methods of controlling weeds in corn: cultivation and rotary hoeing, only banded herbicides with cultivation, and broadcast herbicides with no cultivation or hoeing. This last year, they added a new treatment: cultivation and broadcast herbicides. Since they use only atrazine and Promul for weed control, costs at the full rate amount to only $11.40 per acre. In 1992 and 1993, the no-herbicide treatment was most expensive (higher machine and labor costs) and produced the lowest yields.

In 1992, yields were about the same when herbicides were used full rate or at half rate in bands with cultivation, but the two cultivations cost more than the savings in herbicide. Not so in 1993. The plots with banded herbicides yielded five bushels more than the plot with broadcast herbicides and one cultivation, and nine bushels more than the plot in which herbicides were broadcast and no cultivation was used.

The Wings plan to use more herbicide banding and cultivation. While the cost of cultivation is more than the savings in herbicides, cultivated corn yields the same and sometimes better than non-cultivated.

President Wirbel's Vision for MASA

What kinds of gains might farmers expect when they shift from conventional to more sustainable agricultural production systems?

A University of Missouri analysis by agricultural economists John Ikerd, Don Van Dyne and Sandra Monson came to these conclusions about what the shift could mean:

1. Reduce soil loss as much as 70 percent, bringing sheet and rill erosion down to "T" on all but the most highly erodible lands and below "2T" on almost all land.

2. Reduce total fossil fuel-based energy use by as much as 22 percent. Reductions in energy use associated with fertilizers and pesticides by far offset the smaller increases in fuel used for cultivation, they say.

3. Reduce direct production costs by as much as 17 percent, reflecting a 38 percent decrease in cost of crop chemicals, a 16 percent reduction in fertilizer costs, and a 7 percent reduction in fuel costs.

4. Reduce use of commercial herbicides by as much as 40 percent for corn and soybeans.

5. Reduce commercial nitrogen use by as much as 30 percent, primarily through more efficient nutrient management programs and increased use of crop rotations, specifically reducing the monocropping of corn and soybeans.

6. Increase crop labor requirements about 7 percent, although possibly increasing management requirements significantly and increasing the management to land ratio for reduced input conservation tillage programs.

Alternative cropping systems that incorporate reduced tillage, greater crop diversity and more efficient management of commercial pesticides and fertilizers are capable of improving resource conservation, reducing production costs and improving the overall sustainability of farming systems, the analysts said.

And, they added, these systems rely on practices, methods and technologies that are currently being successfully used on many farms and would probably be considered reasonable alternatives by farmers.
programs. MASA leaders have met with sustainable agriculture groups in Indiana, Illinois and Iowa and traveled to the field day at Dick Thompson's farm in Boone, Iowa. Thompson, a leader of the Practical Farmers of Iowa, which stresses on-farm research as a method of evaluating sustainable practices, is a member of MASA's advisory board.

--Development of the Sustainable Agriculture Project, in cooperation with AFT, and publication of results. Fifteen farms participated in 1991, looking at the effects of reduced fertilizer and pesticide applications, cover crops, intensive rotational grazing, and others. In 1992 and 1993, 23 farms cooperated.

--Demonstration farms also serve as hosts for field days or educational tours. Each year there are three to six field days, drawing about 300 participants. In addition, three or four winter workshops are held each year, in cooperation with Extension or Soil Conservation Districts.

--Establishment of the Land Steward Award to be given annually to a farmer who exemplifies the ideals of sustainable agriculture.

--MASA members receive a newsletter called The Land Steward, edited by Dick Lehnert, published quarterly.

Future goals call for membership expansion; expansion of the newsletter in size, frequency and circulation; hiring an executive director; expansion of on-farm demonstrations, field days, winter meetings and seminars; increasing linkages with other sustainable agriculture organizations, especially through the Sustainable Agriculture Working Group; creation of a sustainable agriculture hot line; and creation of a lending library.

Eldor Paul, chairman of the MSU Department of Crop and Soil Sciences, congratulated MASA for the way it has established itself. He said it was a model for other groups, and said the department plans to invite farm people with other specialized interests to meetings in March and April to look at department directions and discover what MASA can do for them.

George Bird congratulated MASA on its fine start, saying that sustainable agriculture techniques are "a major part of the future." He also endorsed on-farm research as a valuable farmer to farmer communication and education tool.

Jack Laurie, president of Michigan Farm Bureau and a MASA advisory board member, said MASA "has credibility to something that those on the farm had heard about and read about, but never figured quite how to fit into." The credibility comes from "having good farmers doing it," he said. "As long as you keep doing the show and tell, you're going to have an impact.

Certainly the organization has been helped greatly by having good farmers as leaders. Jerry Wirbel grows 850 acres of corn, soybeans, sugar beets, wheat and dry beans. His drive is to reduce the amount of fertilizer and pesticides that leave his farm, and no-till has been his primary tool for achieving that goal. He's a farmer, but at the same time has environmental interests and concerns. For example, he's a member of Pheasants Forever.

Deputy Secretary Tom Guthrie must also have crossed Laurie's mind when he made his comments. Guthrie, who runs a 1,225-acre cash grain farm near Delton in Barry County, was elected in early December to the position of vice-president of Michigan Farm Bureau and will serve as Laurie's right-hand man.

Become a MASA Member

Become a member of the Michigan Agricultural Stewardship Association (MASA) and get access to the key that opens the door to farming in the future. In this Information Age, the key is access to the kind of information you need.

MASA President Jerry Wirbel puts it this way: "Your membership reinforces and encourages the board of directors to fulfill the mission of MASA—to develop a process for research and dissemination of information about agricultural systems that are economically feasible, agronomically sound and environmentally safe."

MASA is a statewide, not-for-profit educational organization committed to the development and use of sustainable farming systems. Formed in 1991 by a group of innovative farmers and agricultural professionals, MASA works to:

• Increase awareness and educate the public on sustainable agriculture issues;

• Promote research that will determine the sustainability of alternative farming systems;

• Aid in the development of sustainable agriculture techniques for use on Michigan farms, and assist in their adoption by Michigan's farmers;

• Encourage cooperation between producers, agricultural researchers and government agencies for the development of sustainable farming systems.

Soil conservation, water quality and wildlife issues are also concerns of MASA members.

MASA believes that Michigan producers need access to practical, readily usable information on sustainable farming systems.

The organization holds field days, workshops and farmer meetings throughout the year to educate members about ways to reduce some of the negative ecological impacts associated with agricultural production and to farm more profitably.

The organization participates in the establishment of on-farm demonstration and research plots, designed by farmers and agricultural professionals to compare conventional and alternative production methods.

Members of MASA receive special mailings, including the newsletter The Land Steward, that keep them abreast of information on sustainable agriculture issues and events.

To become a member, fill out the application form below. You must be just in time to attend this year's annual meeting (see details next page), where you can meet and exchange ideas with other farmers who are looking for better farming methods.

In intensive rotational grazing, there are more fields each designed to be grazed briefly and regraded after recovery. This system uses livestock just like a mechanical hay harvesting system. Michigan State University Extension specialist Richard Leep estimates that livestock producers spend three hours per acre per year green chopping and seven hours making hay. With grazing, livestock do much of that work, plus hauling manure. The time and labor saved is available for other uses in the grazing program.

Grazing is beneficial to pasture plants, Leep said. Grazing stimulates growth by removing shade, but excessive grazing reduces root reserves. Ben Bartlett, the district Extension dairy and livestock agent from the Upper Peninsula, in his bulletin "Controlled Grazing," says grass/legume mixtures should be grazed when they are 10 inches tall and be grazed down to 3 inches, then rested for 30 days of growth. But, at Legno you can't make that always possible. In the spring, you must start grazing early when grass is only two or three inches high. Livestock must be moved often. During the cool season of high growth, you may need to "stockpile" for hot, dry days ahead.

That may mean cutting some pasture for hay. It may mean planting some fields to birdfoot trefoil, the tref of quality, which does not deteriorate as it matures, or to a warm season grass, like switchgrass, which starts later and provides grazing during the heat of summer when cool season grasses go through the doldrums. Shetler has made plantings of Matua, a grass grown widely for grazing in New Zealand.

Choosing the plant species you want to work with can be hard or easy. "Grazing what you have" is a good starting point, Leep said. Getting started means building fences to divide existing hayfields. Even quickgrass is a good forage to graze. Then, add species that help.

If you need a species that stockpiles in the field and provides summer grazing, trefoil is a good choice. If you have soil problems, tref tolerate wet, acid soils. Extending the grazing season also becomes a goal to consider. Planting rape, kale, turnips or other brassicas can provide grazing well into the winter. They are easy to establish, often no-till into pasture, and they are ready to use about 70 days after planting.

Two very helpful MASA bulletins on the subject are "Controlled Grazing" and "Grasses and Legumes for Intensive Grazing in Michigan."

Making Contact with MASA

The Michigan Agricultural Stewardship Association is a non-profit organization, the goal of which is to foster sustainable agriculture practices among farmers of Michigan. The official address is that of Secretary Tom Guthrie, 7301 Milo Rd., Delton, MI 49046 (Phone: 616-363-2373 or 616-258-3307; Roger French, Kalamazoo, 616-375-0658; Larry Mawby, Suttons Bay, 616-271-3522; Richard Lauwers, Imlay City, 313-724-2263; and Marlin Goebel, Hillman, 517-742-4505. Leadership Development Coordinator is John Darling, Michigan State University, 517-353-3209 (fax 353-5174). Advisory Board Chair is John Ohlwiler, MSU, 517-355-0264. Newsletter editor is Dick Lehnert, DeWitt, 517-669-9023 (fax: 669-2184).

MASA Membership Application

| Name | $25 - Individual |
| Address | $100 - Institutional |
| State | $50 - Student |
| City | Telephone |
| New member? | Renewal? |
| Are you a full-time farmer? | Major commodity? |

Volunteer for committee work or have a demonstration plot?

Mail completed membership form and check to:

MASA, 7301 Milo Rd., Delton, MI 49046
The third annual meeting of the Michigan Agricultural Stewardship Association will be held Saturday, Jan. 29, at the Holiday Inn in Mt. Pleasant.

At the meeting, a board election will be held, with the top three board candidates elected, and the top three directors elected. The meeting will be held at 9 a.m., followed by the business meeting at 9:30. Items of business include election of three directors to fill expired terms and, later in the day, election of a president of the entire board (see election story for information on the candidates). By-laws also need some revision to comply with MASA's legal status as a non-profit corporation.

From 10 a.m. until noon, six breakout sessions will be held. Visitors may attend two or three in the time allotted. The sessions include: composting dairy manures with Tom Cordes, Hillman dairyman, chestnuts as an alternative orchard crop with L.L. "Bud" Coulter of Eastport; intensive rotational grazing, with George Shetler of Kalkaska (first recipient of the new MASA-sponsored land Steward Award); reduced tillage and no-till sugar beets, with Jim LeCureux, Christopher Lufkin, and Greg Mood of the Tollgate 4-H Education Center; and farm consulting for TransNational Agriculture.

The keynote speaker will be Fred Kirschenmann, who will discuss "sustainable agriculture--its relationship to the structure of agriculture today and in the future." Kirschenmann left a career in higher education (he has a Ph.D. in religion and philosophy and was a college dean) in 1977 to begin managing a small farm on which he grew up. By 1979, he was a charter member of the Northern Plains Sustainable Agriculture Society and its president during much of the 1980's. He has been a member of the LISA administrative council for the north central region since 1989. In 1990, the Center for Science in the Public Interest gave him its "Safe Food Trailblazer" award. He has written and spoken extensively about sustainable agriculture.

At the annual meeting Jan. 29, MASA members will elect three to the board of directors and vote to choose a president. A nominating committee offers seven candidates for the three open board positions. Nominations for the board members from the floor will be accepted as well. The two candidates for president are Jerry Wirbel and Christopher Lufkin. The seven candidates for the board are Rich Bowman, Wendy Elsey, Robert Fogg, Jim LeCureux, Christopher Lufkin, Greg Mund and Sara (Sally) Stuby. The following are brief biographies of each candidate.

FOR PRESIDENT

JERRY WIRBEL--A farmer from Hope in Midland County, Jerry was a founding member of MASA, chaired the ad hoc committee that formulated its by-laws and mission statement, and became its first and so far only president.

He and his wife Pearl farm 850 acres devoted to sugar beets, corn, soybeans, wheat and dry beans. In farming, Jerry uses as little as possible of any inputs. He uses no-till and sugar beets, he uses some fall field cultivation to level ridges and no tillage in the spring.

He is a supporter of on-farm research, believing that farmers will try things they see their neighbors do successfully and profitably.

CHRISTOPHER LUFKIN--One of the founders of MASA, Christopher served as its first and so far only treasurer. He has worked to procure grant funding and non-profit corporation status. Christopher grew up on a small farm in Oakland County. He has degrees from Michigan State University in Crop and Soil Sciences (B.S.) and Extension education (M.S.).

Currently, he is coordinator of the Michigan Manure Management Project in Ionia. This multi-agency-sponsored project focuses on composting, nutrient management and milking center waste handling. He has varied experience: working for Bangkok Bank to set up a swine immunization program in Thailand; working in the Land Pavilion at Walt Disney World's EPCOT Center; coordinating science and agriculture programs at MSU's Tollgate 4-H Education Center; and farm consulting for TransNational Agriculture.

FOR DIRECTORS

CHICAGO LUFKIN--(see above)

GREG MUND-- Involved with MASA from the beginning, he was one of the original directors, has conducted on-farm research projects for three years, and is active as a member.

He farms in southern Oceana County, near Rothbury, growing asparagus, fruit and soil-building cover crops. About 300 acres of his 370 is woodland. A graduate of Michigan State University, he is a 19-year employee of the Soil Conservation Service, having spent the last 10 as district conservationist in Muskegon.

RICH BOWMAN--Rich is Michigan Farm Bureau's west Michigan regional representative. Before joining Farm Bureau, he was crops manager of a 2,500-acre cash grain and cattle operation near Williamston. While there, he worked with Richard Harwood, who holds Michigan State University's endowed chair in sustainable agriculture. Research centered on integration of crop rotations and livestock into sustainable systems.

A graduate of MSU in ag economics, Rich is one among about 30 collaborators working to create the Michigan Integrated Food and Farming Systems (MIFFS) Initiative, a proposal now seeking funding under the W.K. Kellogg Foundation's Integrated Farming Systems program.

ROBERT FOGG--Since 1986, the Fogg farm near Leslie in Ingham County has been a Rodale Institute Midwest On-Farm Research cooperating farm. Since 1981, he has been using fewer pesticides and is certified with these methods. Kirschenmann left a career in higher education (he has a Ph.D. in religion and philosophy and was a college dean) in 1977 to begin managing a small farm on which he grew up. By 1979, he was a charter member of the Northern Plains Sustainable Agriculture Society and its president during much of the 1980's. He has been a member of the LISA administrative council for the north central region since 1989. In 1990, the Center for Science in the Public Interest gave him its "Safe Food Trailblazer" award. He has written and spoken extensively about sustainable agriculture.

Last year, 75 farm operations were involved in demonstration projects and more than 40 plots were harvested for yield and economic analysis.

He also helped organize the first County Corn Growers Association in Michigan.

SALLY STUBY-Sara (Sally) Stuby and her husband Dale have been MASA members from its inception. They farm 850 acres, primarily irrigated corn for seed, in St. Joseph County. They also grow soybeans, wheat and alfalfa and produce 2,500 hogs farrow to finish.

For three years, they have participated in on-farm research looking at reduced rates of soil insecticides in seed corn. They have also conducted cover crop studies, tillage comparisons, nitrogen application studies, herbicide comparisons and studies in biological control and microclimates.

Sally is employed as Extension coordinator of the Interagency Integrated Pest Management Project in St. Joseph County.

The top three vote-getters will be elected.

KalmazooRogers French, a founding member of MASA, a coordinator of the On-Farm Research and Demonstration Projects, a member of the board of directors since its inception, has been a member of the board since 1983.

Bob Hoyt, a dairyman and potato farmer from St. Louis, has been MASA's vice-president since its inception.

For Room Reservations: Holiday Inn - 1-800-292-8891

Return with full payment to Russ LaRowe, 605 N. Birch, Kalkaska, MI 49646