



CHECKOFF REMAINS FISCALLY RESPONSIBLE THROUGH SOUND INVESTMENTS

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Chuck Myers
USB Chairman





Farmer-leaders of the United Soybean Board (USB) and the soybean checkoff met recently to set funding priorities for the 2010 fiscal year. USB directors from across the nation reviewed soybean checkoff programs, discussed strategic approaches for 2010 checkoff programs and set funding levels to protect soybean farmers' investments well into the future.

An early highlight of the meeting was the unveiling of the 2008 annual audit results. This audit gave the checkoff a clean bill of health on USB financial records for the 2008 fiscal year, which ended Sept. 30, 2008. The independent audit's objective is to test the financial records of the board to determine if the financial position and activities of the board are fairly presented. Such annual audits of the board have been done since USB's inception.

"The outstanding audit results reflect the seriousness with which our dedicated volunteer checkoff farmer-leaders take their responsibilities," says Chuck Myers, USB chairman and soybean farmer from Lyons, Neb. "The entire board takes great pride in these results and remains committed to spending farmer-invested checkoff dollars in the wisest manner possible."

Another highlight of the meeting included Gary Williams, Ph.D., of the Tex-

as Agribusiness Market Research Center at Texas A&M University, presenting the results of USB's return-on-investment study that is performed every five years. The independent study showed the soybean checkoff program returns \$6.40 in additional profit to U.S. soybean farmers for every checkoff dollar invested.

According to the study, the checkoff has increased the size and profitability of the U.S. soybean industry since its inception. The checkoff has supported soybean and product prices each year by an average of 2 percent above what the prices would have been without the checkoff program.

"The results of this study should reaffirm for every soybean farmer the importance of their checkoff investments," Myers says. "Every checkoff dollar being invested is done with the most forward thinking in mind, and it's obvious that our board continues to be effective and efficient in the way we do business."

At the board meeting, John Becherer, USB CEO, presented a summary of industry-leveraged funds for fiscal year 2008. The figures showed, in addition to the total 2008 checkoff program funding of nearly \$79 million dollars, there was an additional \$40 million leveraged from industry and other entities.

"Our industry partnerships play a critical role in leveraging additional

funds to support checkoff efforts to create demand for U.S. soybeans," Becherer says. "Bringing our industry partners to the table has allowed for greater collaboration in research and promotion through checkoff programs."

During the meeting, checkoff farmer-leaders evaluated the long-range strategic priorities of each program area as well as the ability of each program to impact the market.

- Efforts by the checkoff will continue in areas such as the development of industrial uses for soy.
- The checkoff will remain focused on expanding the inclusion of soy into Asian, North American and European markets.
- Checkoff efforts will also focus on supporting the domestic livestock and poultry industries to drive education of the importance of these industries to the U.S. economy and soybean industry.
- Supporting the demands of the food industry will remain a top priority in the next fiscal year, with particular emphasis on the edible soybean oil market.
- An ongoing commitment to production research and improvements to compositional quality rounds out priorities for 2010.

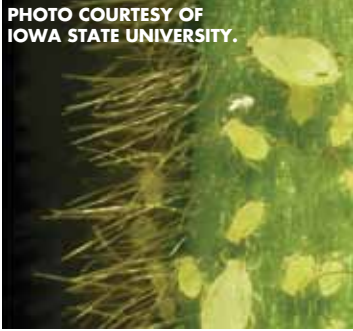


PHOTO COURTESY OF IOWA STATE UNIVERSITY.

SOYBEAN APHID: New Tools will Help Control the UNPREDICTABLE PEST

by Karen Simon

By the time insecticide-spraying airplanes and ground applicators can be seen swarming over soybean fields, it's too late. The time to plan for the next aphid infestation is now.

In the past, the soybean aphid has been a fairly predictable pest. But with a surprise aphid infestation this past year that debunked prediction models, all

bets are off for any advanced notice of future outbreaks. With the breakdown of the prediction models, scouting becomes a much more important tool for growers. However, there are some promising new weapons in the aphid arsenal, according to Matt O'Neal, assistant professor of soybean entomology at Iowa State University.

"I'm a bit of a pessimist about the aphid scenario," O'Neal says. "With more frequent outbreaks, I don't know

how predictable this pest will be. Farmers need to be aware that they need to scout because, at this point, anything goes."

The soybean aphid is a relative newcomer to Midwest soybean fields, first appearing in 2000. In most areas, the aphid appeared at an economically damaging threshold every other year. Last year, despite indications aphids wouldn't be a problem in most areas, the Midwest was hard hit by the pest,

RELATIONSHIP BETWEEN YIELD AND EXPOSURE TO APHIDS CUMULATIVE APHID DAYS (CAD) FOR A RESISTANT AND RELATED SUSCEPTIBLE SOYBEAN VARIETY.

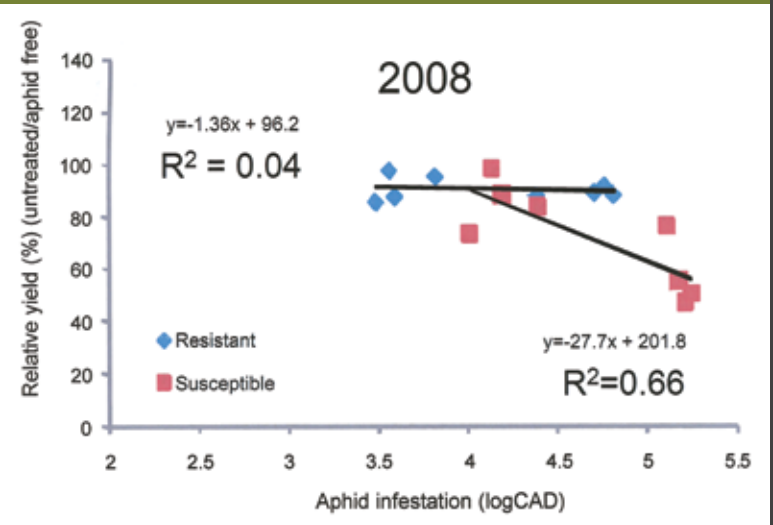


PHOTO COURTESY OF MICK LANE.



PHOTO COURTESY OF MICK LANE.

surprising many and throwing the established prediction models out the window.

O'Neal says since scientists aren't sure why the pattern of infestation has changed – whether it is weather, increased corn planting, increased insecticide use that results in killing beneficial insects or all of the above – it's impossible to predict if this trend will continue.

However, there are some positives to consider. There are a growing number of methods by which soybean growers can fight this unpredictable pest.

Scout and Spray

First, spraying an insecticide when aphids have reached a threshold of 250 aphids per plant has proven to be effective. However, proper scouting techniques are crucial to keeping tabs on whether spraying is needed. For tips on speed scouting, go to www.iasoybeans.com/productionresearch and click on the *Speed Scouting for Aphids* publication.

Brian Kemp, a grower from Sibley, Iowa, sees aphids in his soybean fields every year. Scouting is a way of life for him.

“I use the speed scouting method to monitor my fields, starting the third week of July,” Kemp says. “My advice, however, is to keep scouting. I think I lost 6 or 7 bushels per acre last year in fields that weren't sprayed because I didn't scout later in the season. I have learned that every year is different. I think that the fields I scouted and decided not to spray reached threshold later than expected. The pest was more challenging to manage in 2008.”

A recent survey conducted by researchers at the University of Minnesota measured farmers' awareness and use of integrated pest management for soybean aphid control. According to this survey, more than 70 percent of the respondents said the frequency with which aphids should be treated for profitable control depends on aphid counts, weather conditions and plant growth stage. In addition, more than half of the farmers surveyed consider the lowest aphid density for profitable aphid control to be 250 aphids per plant.

Sheila Hebenstreit, crop consultant with West Central Cooperative near Jefferson, Iowa, says a great deal of progress has been made in educating growers about the importance of proper scouting and adherence to economic thresholds. However, while spraying is an effective solution, not everyone is thrilled with it.

“Applying insecticides over large areas and indiscriminately killing insects works, but is a problem,” Hebenstreit says.

Ideally, she would like to see multiple modes of action to fight the pests, including biological control and resistant varieties.

Resistant Varieties

New aphid-resistant soybean varieties have been developed. While O'Neal says it's not likely an aphid-free variety will be developed, there is evidence that current resistant varieties retain most of their yield even when covered with aphids – see chart at left. He believes once the varieties are shown to be effective in controlling or reducing the impact of

aphids, the resistance genes will be made available in more maturity groups and by more seed companies.

Biological Control

O'Neal sees biological control methods like *Binodoxys communis* to be part of a long-range solution. While *Binodoxys*, a pinhead-size stingless wasp, is the first to be introduced, one or two other biological control methods will be submitted to U.S. Department of Agriculture for consideration.

“I see these biological controls succeeding in organic crops,” O'Neal says. “Once we get a sense for the potential, we may be able to convince growers to use them as a way to reduce the use of pesticides. Ultimately, it would be ideal if resistant varieties and the use of biological controls could allow growers to reduce the amount of insecticide they use to fight aphids. Hopefully in the future, by using all these tools, aphids will become a less pervasive problem.”

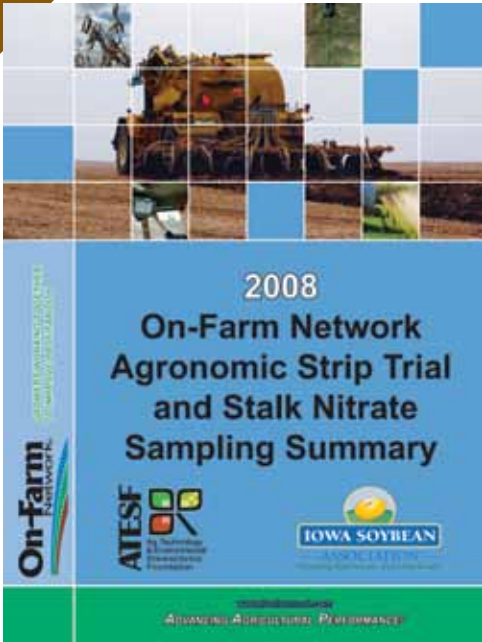


PHOTO COURTESY OF PURDUE UNIVERSITY.



On-Farm Network® Report

2008 On-Farm Network® Strip Trial Summary Available Online and in Print



- Use of nitrification inhibitors for fall-applied anhydrous ammonia and liquid swine manure.
- Routine applications of fungicides and insecticides and their additive effects on crop yields.
- Herbicide systems comparing pre-emergence plus glyphosate a post-emergence glyphosate.
- Various products designed to improve plant nutrition, seed treatments.
- Different tillage practices.

Corn stalk samples were gathered on nearly 1,000 fields across the state, and nitrate tests results for these were posted by county at the On-Farm Network Web site, www.isafarmnet.com.

“Even though we conducted a record number of trials and different types of trials in 2008, we could not get as many trials out as we planned because of weather,” says Peter Kyveryga, senior research associate with the On-Farm Network. “Also, a large percentage of trials were lost during the harvest, again mostly due to weather.”

Due to weather in the fall of 2007, a limited number of manure trials were conducted. The trials were established to study different timing, forms and rates of manure applications.

The most important factors were where the trials were located in the state, the weather patterns and soil characteristics. In some cases there was a significant yield increase where an extra 50 pounds of N was added on top of manure applications. But there were also trials that didn't respond to additional commercial N. On the average, the extra 50 pounds of nitrogen increased yields by 9 bushels per acre, on first year corn and 15 bushels per acre on second year corn.

Thirteen trials in the “Normal minus 50” category were set up to test where and at what conditions producers can reduce their normal nitrogen rates by a third. Six of these trials were corn on corn. In some cases, it saved the producers money to reduce N rate without yield loss, but in many cases producers had negative yield impacts with the reduced rate in 2008. This needs to be analyzed on a case-by-case basis.

Weather factored into the 2008 trials in another way, also. “The effect of weather was huge on nitrogen losses and responsiveness of corn to N fertilizer,” Kyveryga says. “At first glance, 2008 was not an ordinary year. It is what statisticians would call an outlier year. At the same time, however, the data from this year is really valuable because it helps us

by Chet Hollingshead

During the 2008 growing season, producers put out more strip trials than ever before in the history of the Iowa Soybean Association On-Farm Network®. When you consider the kind of year producers had, this was a tremendous accomplishment.

Growers working with the On-Farm Network put out a total of 475 replicated strip trials across the state, evaluating:

- Nitrogen (N) fertilizer and manure management practices.
- Variable versus fixed rate nitrogen fertilizer application.

A number of On-Farm Network participants looked at the ability of the GreenSeeker crop sensor technology to detect N deficiency and accurately predict N needs of the crop in a second year of studying variable rate applications.





While the weather hampered seeding and stand establishment for cover crop studies last year, many growers remain interested in studying their potential use in preventing the loss of soil and nutrients.

understand relationships that otherwise we could never observe in a year with less variable weather.”

The amount of N loss growers experienced varied across the state. Losses tended to be lower in northwest Iowa, where conditions were closer to normal, than in other parts of the state. And, when N losses showed up varied depending on timing and amount of rainfall.

To test whether weather-related N losses could be corrected by sidedressing on more fertilizer, growers set up seven “Normal plus 50” trials. One of these trials, located in Buchanan County, was on a field where spring rainfall was nearly double the rainfall reported on the other fields in this study. In this case, the extra 50 pounds of nitrogen resulted in 34 bushel per acre more than the yield on the strips left untreated in the field.

Input costs rose dramatically for the 2009 growing season, and variable rate applications could be a valuable management alternative. Yield responses to N show some spatial patterns, potential N management zones, within fields. But these management zones are often difficult to predict, and they are not stable over years. On-Farm Network participants completed 275 fungicide trials in 2008. Results were very much site-specific, with some significant responses in both corn and soybeans. The statewide average on corn, however, was only a 2.4-bushel per acre yield increase, which

was generally not profitable. For soybeans, however, the statewide average was 2.3 bushels per acre, which was break-even or better when beans sell for at least \$9 per bushel and product plus application costs is about \$20 per acre.

Twenty trials were established to test a pre-emergence herbicide in combination with a postemergence glyphosate weed control program against a two-pass postemergence program. Yield differences were negligible between the two programs, so growers need to weigh program costs and any weed control or timeliness factors in deciding which system to use.

With the support of a number of agrimarketers, growers also put out an assortment of trials intended to test the practicality of several seed treatments, soil amendments, and foliar and specialty fertilizer products. The number of replicated strip trials of the individual products ranged from just one to a handful. Some of these products worked effectively and some did not. Weather and soil type seemed to be factors in how effective some of the products were.

“We saw the biggest yield response on the poorest soils in the state using a Stoller plant nutrition product that is meant to increase N efficiency from a UAN (urea-ammonium nitrate) application,” says Tracy Blackmer ISA director of research.

Results of the replicated strip trials growers conducted through the On-Farm Network in 2008, as well as the summary of the statewide guided corn stalk nitrate survey for this year, are presented in the new 2008 On-Farm Network Agronomic Strip Trial and Stalk Nitrate Testing Summary, which is available now. The entire publication can be downloaded from the On-Farm Network Web site, www.isafarmnet.com. If you’d like a paper copy of the summary, write to the On-Farm Network, 4554 114th Street, Urbandale, IA 50322. If you’d prefer, you can request a copy by sending an e-mail to info@isafarmnet.com, or you can call 800-383-1423 and ask for Christine.

“Growers, as well as product manufacturers, have expressed interest in testing crop production products, practices, and some new equipment technology through the On-Farm Network,” Blackmer says. “We’re anticipating a number of new types of trials this year and will continue to study most of the products and practices we’ve evaluated in the past.”

If you are interested in participating in any of the ongoing On-Farm Network studies, would like to join, or to start a local group in your county, send an e-mail to info@isafarmnet.com or call the toll-free number listed above.



Shoot for Weed-Free Start to Season: *Early Action Can Combat the Toughest Weeds*

Soybean growers who are able to plant into weed-free conditions are likely to establish the best defense against losing money and a deterrent to weeds evolving herbicide resistance in 2009. Tough weeds today typically may have fewer effective herbicide options, which suggests an integrated approach to weed management involving multiple tactics is the best solution for weed control. Weed specialists say by choosing the

right integrated weed management approach, including using residual herbicides prior to or immediately after planting, controlling weeds that emerge later in the season will be more consistent. Management of the overall weed population will also be better, and weeds will be less likely to develop herbicide resistance.

“Using a residual herbicide applied early preplant will give producers the greatest amount of protection against

yield loss from unnecessary weed competition,” says Mike Owen, Iowa State University Extension weed specialist. “Weeds compete readily for resources. Timely weed management tactics will enable producers to capitalize on the yield potential of the soybean varieties producers plant.”

Following is a list of weeds to watch in Iowa this year and tips for managing them.



Giant Ragweed

Keep an eye on the competitive broadleaf, giant ragweed. The weed has developed glyphosate resistance in four states in the Midwest and acetolactate synthase (ALS) resistance in Illinois, Indiana, Ohio and Iowa. Giant ragweed shows abilities to adapt to production practices and tillage methods and has even adapted by delaying its emergence to June and July.

TIP: Use an integrated approach, including herbicides with different modes of action and application timing or even implement cultivation. Avoid waiting for more ragweed to emerge in hopes of a single-pass herbicide application. The larger giant ragweed grows, the more difficult it is to control with any herbicide. The weed is highly competitive with soybeans.



Horseweed (Marestail)

Marestail spreads quickly and easily. Owen says the newest biotypes have become glyphosate resistant, making this weed “new” again to many soybean growers. Marestail’s adaptive capabilities already have challenged growers in southern Illinois.

TIP: Regardless of cost, make sure the species is under control before planting. Marestail is more problematic in no-till systems. If the weed emerged in the fall, then tillage or a fall herbicide application – i.e., 2, 4-D – will control it. Recognize that marestail also has demonstrated the ability to evolve multiple herbicide resistance. As with waterhemp, soil residual herbicide products with activity on marestail should discourage growth.



Waterhemp

Waterhemp’s growing list of herbicide resistance limits methods and options for control once emergence occurs in soybeans. Waterhemp spreads quickly and thrives because of its ability to adapt to agronomic practices. Herbicide-resistant biotypes, including those with multiple herbicide resistance, likely will expand their range.

TIP: Use soil residual herbicides that have been effective for your operation on this weed in the past.



Volunteer Corn

Soybean’s usual rotation companion, corn, has resurfaced as a challenge with increasing use of glyphosate-tolerant and glufosinate-tolerant corn hybrids.

TIP: Use tankmix partners with glyphosate or glufosinate such as the ACCase herbicides – i.e., Select. Some soil residual herbicides may suppress volunteer corn, but control is unlikely.





Checkoff Trans Fat Solution Efforts Preserve \$700M Market



When the U.S. Food and Drug Administration (FDA) mandated that trans fat must appear on products' nutrition facts labels, the United Soybean Board (USB) and the soybean checkoff, along with its industry partners, launched a long-term strategy to develop new healthier soybean traits. The results of these checkoff-funded efforts have lessened the blow many in the agriculture sector have felt by companies rushing to reformulate products to reduce or eliminate trans fat content.

"The soybean industry created a soy-based trans fat solution, called low-linolenic soybean oil, that changed the face of the market, and protected American livelihoods while delivering a healthier future from farm to table," says Chuck Myers, USB chairman and farmer from Lyons, Neb. "Without it, our economic analysis shows that food companies would have reduced their need for soybean oil by 894 million pounds. Soybean production would have dropped by 25 million bushels, and farmers would have earned 10.8 cents less per bushel. The analysis shows we prevented a cumulative lost income for U.S. soybean producers of \$703.2 million."

The loss would have affected farmers, but also the seed sector, grain elevators, edible oil processors and refiners, food manufacturers and many other aspects of the food industry. Food companies needed to take the trans fat out, and thanks in part to USB's leadership and the foresight of the industry, most products today are labeled with zero grams of trans fat.

"Soybean oil is a natural plant oil that is very important to the margarine industry," says Richard Cristol, president of the National Association of Margarine Manufacturers. "While the margarine industry began removing trans fats from its products well before the FDA labeling requirement, USB has been and continues to be a valued partner in developing and promoting healthful oils for the food industry, especially with regard to the reduction and elimination of trans fats."

Myers describes milestones in USB's trans fat leadership over the years, including:

- **Understanding trans fats' effect on human health:** USB was a significant contributor to early studies defining trans fats' effect on health, through research performed at the University of Massachusetts at Lowell and the U.S. Department of Agriculture.
- **Participating as a founding member of the Trans Fat Coalition:** From 1994 to 2006, this group invested in

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**Chuck Myers
USB Chairman**

new science, communicated findings to the public and provided timely information to government agencies, such as providing comments to the Dietary Guidelines Advisory Committees and responding to the FDA's requests for comment.

- **Mapping the soybean genome:** As early as 1995, USB funded research to map the soybean genome and use advanced techniques to improve the bean's fatty acid profile to produce oil without partial hydrogenation – the process that creates trans fats.
- **Working with the whole value chain to identify desirable traits**

for the future: USB assembled experts from all aspects of the industry in 1998 to get input on solutions that would meet their needs. A platform called QUALISOY™ emerged to accelerate the development and commercialization of enhanced-trait soybeans in the research pipeline.

As a result, food companies today can use low-linolenic soybean oil in light frying, sauces, rolls and pizza dough. Companies are also testing the next generation – increased-oleic soybean oil – for use in crackers, baked goods, margarines and shortenings. Beyond trans fat solutions, lowering saturated fat will support heart health and cholesterol reduction. USB's value chain analysis estimates high-oleic soybean oils to supply a \$780 million average annual return in income throughout the industry. Soybean farmers stand to gain nearly \$1.2 billion per year from the introduction of mid-oleic/low-saturate soybeans.





DISEASE MANAGEMENT IN IOWA IS ABOUT VARIETY SELECTION

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Soybean management practices have changed a great deal over the past 10 years. We are now planting earlier and using narrower row spacing. All this helps us maximize yield. In addition, our crop rotations are getting shorter to maximize economic return.

Unfortunately, these practices help develop optimum environments for many diseases. Diseases like brown stem rot (BSR), soybean cyst nematode (SCN), white mold and sudden death syndrome (SDS) prefer high-yielding environments. In addition, they can all survive in soil and stem residue for years without a host crop. Understanding the interactions between diseases, environment and management practices hold the keys to success.

One disease, which was quite common in northern Iowa in 2008, is a disease not many farmers are thinking about – BSR, caused by *Phialophora gregata*. We often forget about this disease because it does not have obvious visible symptoms. However, as we all know from managing SCN, absence of evidence is not evidence of absence.

BSR was first reported in Illinois in 1948, and today it is found in most of the soybean producing areas of the Midwest. Yield loss of 5 to 25 percent is common for susceptible soybean cultivars. Severity of BSR and yield loss is influenced by inoculum density.

Symptoms associated with BSR include browning of the vascular and pith tissues of the stem and root, internal symptoms, which may be accompanied by a sudden interveinal chlorosis, ne-



PHOTO COURTESY OF PALLE PEDERSEN.

It is often difficult to differentiate between SDS and BSR without splitting the stem. Both diseases are found in high-yielding environments, such as early planting and narrow row spacing, and need to be managed by variety selection.

crosis of the leaves and foliar symptoms, appearing approximately three weeks before physiological maturity.

Symptom severity is also modified by environment, variety and pathogen variability. The challenge with BSR is that we are dealing with different pathotypes, or genotypes, that cause both foliar and internal symptoms (Type I or genotype A) or internal symptoms with minimal if any foliar symptoms (Type II or genotype B).

After being in Iowa for six years, I have not seen a lot of foliar symptoms of BSR in the state, which could indicate that we have Type II or genotype B here. The pathogen prefers cooler conditions, and 2008's conditions were perfect for it. Few foliar symptoms were observed, but many stems had internal stem discoloration in northern Iowa.

Diseases must be considered along with insects, weeds, soil fertility and general crop management practices.

We are usually not confronted by one disease, but a disease complex involving several plant pathogens. Thus, options for disease management cannot stand alone, they must be integrated into the total management of a crop or crop rotation.

By knowing the history of diseases in a field, yield reduction from the most common diseases is manageable. However, certain plant diseases may be more problematic because of field location, soil type and drainage. Control of plant diseases requires a thorough knowledge of the pathogen, the host and a multitude of environmental factors that influence the interaction between pathogen and host.

There are no "silver bullets" that can manage all soybean diseases. However, the use of resistant varieties is a cheap and practical control for soybean diseases in Iowa. The problem is there are no varieties resistant to all diseases.