



# NAICC NEWS

Official publication of the National Alliance of Independent Crop Consultants

Volume 6, Number 7

The Voice of the Professional Crop Consultant

July 1992

## Independent Consultants Are Cost-Effective

By Jackie Flaum, Contributing Editor

In spite of all the computers, the bio-engineering and ag chemicals with multi-syllable scientific names, the most cost-effective modern advancement on the farm is a human being.

Not just any human being—a trained independent crop consultant.

A Minnesota farmer figures his crop consultant saved him enough in fertilizer alone to justify the fee.

In Texas, farmers who hire NAICC member **Jay Smith** of Idalou may qualify for a quarter percentage reduction in their loan interest rates at the Security Bank of Idalou. Mike Mauldin, president of Security Bank, is quoted in *Progressive Farmer* magazine as saying he believes in rewarding farmers who follow a sound management program directed by a qualified ag consultant like Smith. "It's not a huge amount but it helps the grower pay for my services," said Smith.

NAICC member **Mark Kottmeyer** of Central States Agronomics in Kearney, Neb., who has been a crop consultant since 1978, said his company helped farmers reduce the amount of nitrogen they had to use.

When he learned the groundwater in the area had a high nitrate content, Kottmeyer advised his clients to curtail use of nitrogen. Excess nitrates lead to early stalk rot in corn.

By using the nitrate in the groundwater and reducing the nitrogen put on the soil, Kottmeyer's clients achieved greater corn yield.

One of the challenges of the future is to increase crop yields per acre without increasing costs. A study by an entomologist at the University of Minnesota Extension shows one way of meeting this challenge is to hire a crop consultant to provide nutrient and pest status information.

Ken Ostlie is coordinating the three-year study on the effectiveness of crop consultants. His preliminary conclusions indicate crop consultants help farmers:

- By decreasing the amount of P and K applied;
- By reducing the use of purchased nitrogen and preventing the over-application of manure;
- By targeting the right herbicide for weed problems so that the need for chemical and mechanical weed control is reduced;
- By reducing soil insecticide use by 25 percent and possibly more; and
- By pinpointing specific insect problems early to reduce yield damage.

Ostlie's research is still under way, but he says indications are that trained human beings can make a farm more profitable.

"Yields were maintained at the same levels, but we saw a reduction in herbicide and insecticide use and soil nutrient costs, and an increased return on overhead," he said.

## Soil Quality: How to Measure What Can't Be Tested

By Mark Flock, Brookside Laboratories

The recent dramatic interest in "sustainable agriculture" as the future of farming raises a fundamental problem: how to evaluate what can't be tested.

Today many soil scientists are trying to develop the technology and skills necessary to evaluate soil quality. If good soil quality indicators (tests) can indeed be defined and performed, then a sustainable system can be better defined and monitored.

Presently there are many soil tests available to aid in measuring soil quality. The more common tests are organic carbon, fertility status, cation exchange capacity (CEC), texture, water holding capacity, and pH. Monitoring changes in these parameters under various management and cropping systems could aid in the evaluation of soil quality. But this type of trend testing can be time-consuming and long-term.

Caution is needed when using these tests to evaluate soils of different regions. A soil with 2 percent organic carbon might be considered high for one type of soil indicating excellent organic carbon management, but for another soil 2 percent may be very low, indicating poor management, erosion, etc.

Today, more emphasis on testing soil biomass and soil aggregation for indicators of soil quality is evident. More scientists are suggesting that microbial-biomass carbon could be used as an indicator of the early changes in soil organic matter brought about by management practices such as tillage and residue management.

Soil biomass C represents the active fraction of the soil organic matter. Much of this active fraction consists of polysaccharides (a gummy slime produced by certain bacteria) which serve as waterproof glue that binds soil particles together to make soil aggregates.

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## PRESIDENT'S MESSAGE

### Be There

Bill Blair, NAICC President



As this issue of the newsletter goes to press, I have just gotten my first look at the draft program for our annual meeting in Washington in November. The importance of a large cross-section of our membership attending that meeting is so critical, all other ideas for columns went immediately out the window.

Why should you be there? The first reason is personally compelling. No other meeting in the country is so totally geared to the needs of independent crop consultants and contract researchers, who will have their own track of meetings and seminars much of the time. That segment is being put together by Dr. **Grady Coburn**, so feel free to call him with your ideas and suggestions.

Dr. **Clyde Sartor** and his program committee have put together a broad-based program that truly offers something for everyone. Topics range from business issues ("Initiating a Good Working Relationship with New Clients"; "Dealing with Problem Clients"; "The Economic Importance of Client Retention"; plus workshops on computers, report forms, and field equipment utilization) to technical issues—such as new developments in Integrated Crop Management, broken out by crop; an expansion of last year's popular workshop on soil fertility; pesticide resistance management; status of pyrethroid resistance management and the development of biological insecticides—to policy issues. You'll hear speakers from USDA, EPA, and environmental groups explain their agendas so you'll have a clear picture of what may be coming down the pike. And you'll have the opportunity to have "breakfast chats" with Congressional representatives and staffers from your geographic region to get your ideas into their legislation development hoppers.

With all that going on, you might wonder how there would be time in a three-day meeting to tackle broader topics. That's another way the planning committee has served you well. There will be more concurrent sessions than ever before, so there's no chance of wasting time on a topic that doesn't interest or concern you. That programming efficiency will enable all of us to make maximum use of our time and attention.

Believe it or not, the business meeting and other policy sessions will be among the most important aspects of our annual gathering. NAICC has achieved an almost unbelievable amount of exposure and credibility in recent years. High-ranking policy makers and powerful members of Congress know who we are. More importantly, they understand and support our mission. We are being asked more and more often to make statements about where the Alliance stands on various issues. Your officers and Board grapple with these requests

and make a conscientious attempt to represent the membership. You need to let us know if we are reading your beliefs and concerns accurately.

Because we have the strongest and most compelling "case," as the public relations jargon goes, independent crop consultants and contract researchers have the greatest chance of any agricultural constituency to seize the reigns of what happens with our industry in the future. Congress has asked for, and heeded, our advice. Government regulators seek our wisdom. The only concern manifested by all of them, and it is a valid one, is that our numbers are too small to make the kind of difference that needs to be made. The annual meeting in Washington is our chance to demonstrate that we are serious about ourselves as professional practitioners, and we are serious about our national organization as our voice.

You can make no more important investment of your time or your money. Come to Washington and participate completely in the annual meeting. Call our headquarters and sign up now and urge other professionals in your area to do the same. Bring your clients so they can see what you are doing for all of agriculture.

This is the year your profession can come of age, but we can't do it without you.

As they used to say on the old TV program, "Be there."

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### Soil Quality

*continued from page 1*

Microbial binders do not last long and must be continually replenished if stable aggregation is to remain, especially if soils are tilled extensively.

Unfortunately, testing soils for soil biomass is tedious and time consuming. Several approaches have been utilized in attempts to estimate the quantity of biomass in soil. These tests include counts for total microorganisms and measurements for metabolic activities. Daily changes in such things as sample temperature and moisture make it very difficult to get biomass estimates based on microbial counts.

Measurement of O<sub>2</sub> uptake and CO<sub>2</sub> production have been widely used as measures of microbial activity, but the values obtained cannot be interpreted easily in terms of microbial mass.

Fumigating a soil with chloroform and determining CO<sub>2</sub> production after inoculation with non-sterile soil is another method.

Soil enzyme activity has also been correlated to soil biomass activity.

For routine application, most of these methods are cumbersome, time consuming, and require expensive equipment. Incubation of samples for days, weeks, and longer makes these tests unappealing.

Extensive research has been done in biomass testing in Germany, France, and China. U.S. scientists are beginning to study some of these techniques. It is likely in the near future there will be more rapid, easy techniques to measure soil biomass and other so-called soil quality indicators.

Ideally, a simple rapid test, or set of tests, which can be performed at the soil testing lab level is needed. Consultants will use these indicators in making management decisions. Such things as when and where best to perform tillages, apply sludges/manures, use crop rotation, and apply fertilizer may be influenced by these soil quality indicators.

With more credible measuring devices for sustainability, consultants will likely be called upon to help develop sustainable farming systems in their areas.

## NAICC BUSINESS NOTES

### Call for Speakers; Looking For Slides

NAICC wants to educate the public about the type of work crop consultants do.

And you can help.

A slide presentation and a list of speakers is being prepared to tell the public what crop consultants do. But members need to contribute some pictures and names.

Since the slide show is designed to educate people about the important contribution crop consultants make to the production of food and fiber, any field photo of members in action would be appropriate.

Included in field shots would be members in trucks, looking over a field, talking with a client, working in a lab—anything that shows consultants at work.

**Brent J. Stombaugh**, chairman of the public relations committee, would like the photos identified by name of contributing consultant, name of those in the photo, name of crop in the photo, and brief description of activity.

The list of speakers would include anyone in the field who is comfortable talking on a given subject.

In the future, farm associations and other groups who ask for speakers will be able to call NAICC to get a list of speakers and their topics.

Stombaugh said often such talks carry an honorarium.

To contribute slides or put your name on the speakers' list, contact Stombaugh at Brookside Laboratories (419/753-2448) or Tabitha Glenn at NAICC headquarters (901/683-9466).

### Communicator of the Year Award Announced

Applications are due September 1 for the NAICC Communicator of the Year Award. This award honors a crop consultant who has demonstrated outstanding accomplishments in publicizing the crop consultant profession.

The award, sponsored by *Agri Finance* magazine, will be presented at the NAICC national convention in November in Washington, D.C. Any voting member of NAICC may apply.

Judging will be done by a panel that includes a representative of the farm media, a crop consultant, and a producer-client.

Additional application forms are available through the NAICC office in Memphis, or through Diane Haas, *Agri Finance* magazine, 6201 Howard St., Niles IL 60714, 708/647-1200, ext. 320.

### Keeping in Touch

NAICC is starting a list of members who publish newsletters and want to exchange publications with other members.

Newsletters are one good way to keep in touch with fellow NAICC members and to learn what kind of work is being done in other parts of the country.

If you publish a newsletter and would like to participate in this exchange, please send your name and address to NAICC headquarters, 5050 Poplar Ave., Suite 2218, Memphis, TN 38157

### Traveling Exhibit Promotes NAICC Benefits

A traveling tabletop exhibit is available for workshops, seminars, exhibitions, agricultural shows and other events where people need to know about NAICC.

The tabletop exhibit explains the purposes and benefits of NAICC. It is free to any member.

If a fee is required for putting up the exhibit, write NAICC and explain the importance of the show or workshop. The public relations committee will consider all requests for exhibition fee payment.

## TECHNOLOGY

### New Technology Aids Crop Consultants

By **Todd Williams**,  
NAICC Technology & Communications Chairman

A new generation of computers is emerging—rugged, water-proof, shock-resistant, hand-held, and compatible with existing PCs.

These little units are designed for real "field work." They are currently being used by surveyors, foresters, utility crews, geologists, mechanics, inventory personnel, researchers, and others to collect and analyze data in the field.

They can be equipped with all kinds of accessories such as printers, mass storage devices, bar code readers, extra memory modules, and a variety of carrying cases.

They can even be equipped with GPS (Global Positioning Systems) to keep track of exactly where you are in the world

through the use of satellite technology.

Currently, their use in agriculture is primarily for research purposes. The price range for these units is between \$1500 and \$6000 each, depending on the manufacturer, configuration, and accessories desired.

Research on a few of these units shows NAICC members can put them to good use in the consulting business. I looked into the Pyson, Polycorder, CMT, and Husky systems.

The two favorites are the CMT (Corvallis Microtechnology) MC Series and the Husky Hunter and FS/2 computers.

These two units provided the most power, flexibility, and compatibility for the dollars spent.

Warning: there are some professional software packages designed to collect research data for these units, but almost NO software is available for collecting scouting type information. Doing this type of data collection will involve some custom application development.

The CMT is the most cost-efficient unit. It uses a CMOS 80C88 at 5Mhz or 10Mhz processor and comes with 128KByte ROM operating system (CMT-ROSII or DOS); 384KByte battery-backed RAM standard; expandable to 896KByte w/ ROM/EPROM/RAM modules. Optional 1 MB RAM disk is available. Two RS-232 interfaces are standard. A choice of language modules is available; GWBASIC, dBASE III Plus, or Lotus 123 compatible software modules are also available. Microsoft 'C' and other DOS compatible languages may be used as well.

Power management is a key benefit of the CMT. Battery life is about 140 hours under typical usage. Screen size is 8 line x 21 characters (8192 pixels). It is water-tight, shock-resistant, and operates in temperatures of -40° to 129° F. It is also impervious to water, alcohol, oil, dust, and other contaminants. The standard unit costs \$1450 and with the 1MB RAM disk installed, it costs \$2375.

A new unit that has just been released this spring is the Husky FS/2 by Husky Computers, Inc. This unit can easily be operated with one hand. It is a very rugged unit possessing similar environmental specifications as the CMT. It uses a NEC V25+ at 8Mhz and comes with 512K RAM expandable to 4MB, MS-DOS 3.3, GWBASIC, and two RS-232 interfaces. The screen is a major benefit of this unit. It is an 8 line x 40 character (240x64 pixels) screen that can operate in many different modes. This includes a 25 line x 80 column mode, although it can be difficult to read the data when in this mode.

Battery life is about 30 hours under typical usage. The standard unit with 512K RAM costs \$2495. The standard unit with 1.0MB RAM costs \$2895.

Each computer has slight advantages over the other, but either unit can be used effectively in a crop consulting business. We have been using the CMT-MC-V for the last two years in our research work with good success. We download our weather stations, collect research data, and connect to a portable scale to collect fresh weight readings. We bring the

unit back to the office and download the data to our main PC where it can be analyzed.

If anyone would like more information about these units, feel free to contact Crop Pro-Tech, Inc. I can be reached in any of the following ways: Phone 708/420-2999, Fax 708/355-1581, or Econet E-Mail to 'twilliams.'

## The Future Belongs to Generalists

By Dan E. Bradshaw, Past NAICC President

The effects of a modern agricultural operation extend past the farm gates. Today the positive effects are most often overlooked and the negative effects are magnified.

The result has been increased oversight and regulation by government agencies. But the varying conditions of farming operations make it important that specific situations at a particular location be dealt with on a case-by-case basis rather than in the inflexible nature necessitated by regulations alone. This is especially true in the area of technology use.

Technology or any extraneous input—fertilizer, pesticides, animal drugs, mechanical devices, biotechnology or any other—must be managed properly. Integrated crop management, integrated pest management, integrated resource management, and best management practices are all ways to maximize the positive and minimize the negative effects.

Management is the key and that management must take into account the variation created by local conditions and consider each farmer's capabilities.

The problem is that our agricultural education system has not been attracting and educating enough individuals to understand and integrate the essential elements of a successful sustainable agricultural system. Most have had to learn on their own the essential elements of this approach.

University emphasis has been on educating specialists to teach and do research, then granting them PhD degrees to recognize their efforts. This system has ignored training and similar recognition for the general practitioners who must understand and implement appropriate research from all essential disciplines.

Our system has developed sophisticated disciplines of agronomy, entomology, ag engineering, ag economics, plant pathology, weed science, and ag ecology that are essential parts of the production system.

Advanced degrees in these disciplines recognize individuals who are trained in these very narrow and highly specialized lines. The present PhD training programs themselves were created to instill this narrowly focused analytical mind-set essential in research.

As with highly purified inbred lines, this approach has limited value in integrated, real world production agriculture.

The challenge to our educational system is to develop similar programs to prepare and recognize general practitioners who put all these disciplines together. With this new paradigm of viewing the whole system as the ultimate, a tremendous power of hybrid synergism can be unleashed to show the benefit to agriculture, society, and the environment.

Agriculture is moving away from the eras when mechanization, genetics and, most recently, agrichemicals, brought great progress. We are entering the era when information and management can make the same kind of dramatic progress. The same emphasis should be given to prepare us for this opportunity. This is the best hope we have for remaining competitive in a global agricultural economy.

We can no longer rely on cheap land and labor. Even the products and advances in technology we use have been commercialized globally. The competitive edge we need for the future is a trained core of professionals who can use technology first and best.

A profession of well trained, unbiased, highly qualified individuals responsible to individual farmers is essential if we are to prevent our technological resources from being legislated and regulated out of existence.

Also essential is a professional commitment to a moral and ethical standard that considers agricultural sustainability and societal and environmental effects. Such professionalism will help reduce or at least be more realistic about government demands for limiting access to technology.

Agriculture cannot expect government to do this work. Government should empower the private sector to fill this need. Individuals could then be expected to offer services in crop production agriculture to a wide range of clients just as veterinarians do in animal production agriculture. This could provide a sizeable number of jobs in rural areas. It would also help assure access to all size farmers, not just large operations that can afford it now for their own closed operations.

But it is not realistic to expect the government to empower the private sector to perform this type of service without some expectations. Nor is it realistic to expect the public to allow the continued use of pesticides, fertilizers, and other materials that can be dangerous if used incorrectly.

Just as they wanted assurances medical doctors who diagnose problems and recommend the use of hazardous drugs were separated from the manufacturing and dispensing of these drugs, so the public will expect no less scrutiny in agriculture.

**Plan to attend the NAICC  
Annual Meeting Nov. 4-8  
in Washington D.C.**

## Biocontrol Is an Attitude

By **Larry J. Stowell**, Pace Consulting

Biocontrol is not a product or process, it's an attitude. You can't buy it, you do it.

The more conventional definition of biocontrol refers to the release or introduction of beneficial organisms (microbes, nematodes, arthropods, mites, etc.) that reduce the damage caused by pest organisms.

Unfortunately, if we consider their share of the total pesticide market, biocontrol technologies have gained very limited user acceptance.

Moreover, we have been bombarded with promises that new, safe biocontrol products will provide alternatives to synthetic chemical pesticides. Despite these promises, there has been only one universally successful class of biocontrol products, the *Bacillus thuringiensis* (B.t.) alpha-endotoxin insecticides.

Most products are based on old technologies with a few new twists. For example, Mycogen Corp. has genetically engineered a different bacterium to produce the B.t. endotoxin that results in a "biocapsule" with somewhat longer field persistence. Ecogen Inc., on the other hand, has combined multiple toxin genes into a single bacterium thus providing a greater range of insecticidal activity.

The problem with both technologies lies in the field performance of B.t. toxins. They are still inferior to chemical pesticides and more difficult to use.

It is important to recognize that current biopesticides are less-toxic alternatives and, accordingly, we should not expect equivalent field performance when compared to chemical pesticides. We have set our expectations too high as a result of listening to research Pollyannas and industry dreamers.

So where do we go from here? Are the current B.t. products the best the industry will offer in the next five to 10 years? Is the success of biocontrol strategies tied to the success of an industry that produces biocontrol products? How can we as independent crop advisers improve the implementation of biocontrol practices?

Biocontrol is an attitude involving thoughtful crop management and the cautious use of targeted chemical pesticides, modified planting and harvest times, improved application procedures, and the use of less toxic materials, including biopesticides.

It is an integrated approach with focus on manipulating the biological components of the system.

The responsibility of developing and implementing integrated biological management systems falls on the shoulders of crop advisers, not with the industry that provides pest control products.

Alternatively, if we focus on the narrow view of biocontrol as the use of organisms or their low-toxicity byproducts, we will experience the same limited success with biocontrol in the

next decade that we have experienced in the past.

We need to break this trend.

An intimate understanding of the environment, the crop, and the pest is needed before any biocontrol system will effectively limit pest pressures.

For example, the impact of many diseases is greater when plants are nutritionally stressed. Proper soil nutrition will limit diseases that take advantage of a stressed plant. Likewise, stressed plants are more easily damaged by insects and less capable of competing with weeds that have adapted to environments with inferior soil nutrition. Therefore, the first step in a biocontrol program is to monitor cultural practices to insure that the soil and crop are as healthy as possible.

The next step is to control the environment to reduce the impact of pests. For example, avoid planting when pest pressures are going to be limiting, or plant pest-resistant varieties.

But wait—you are already doing your best to limit damage caused by pests and you still need synthetic chemical pesticides to control yield- and quality-threatening pests. However, if you were more careful, gathered more data, scouted fields more frequently, and communicated with other advisers in the region, you might further reduce inputs and still control damaging pests.

Agricultural pests are regional problems that we have tried to control on a field-by-field basis. Using this strategy, we will never be able to successfully use biopesticides, which are less effective than synthetic chemical pesticides, to limit pests below an economic threshold.

The Imperial Valley, Calif., whitefly situation is a classic example of growers and advisers forced to use alternatives to chemicals because the chemicals proved ineffective. The whitefly management strategy described here was proposed by the California Agricultural Production Consultants Association (CAPCA)—not the industry that provides pest control products. It relies on beneficial insects, cultural practices, careful application of pesticides, a regional perspective, and effective communication between advisers. It is an example of using a biocontrol attitude and represents the future of pest control.

CAPCA strategy focuses on alfalfa as the best reservoir for native beneficial insects.

The following strategies can be used to maximize the benefit from this crop to help reduce whitefly populations:

- Use pyrethroid insecticides only in emergency situations, such as cutworm infestations. Use Section 24(c) for permethrin bait if available;
- Use ground applications of pesticides when possible to keep pesticides on target areas and use lower rates;
- Use integrated pest management to preserve native beneficial insects in alfalfa. Use lower rates, wait for economic thresholds, and use pesticides with least impact on beneficial insects;
- Develop harvest strategies to keep beneficial insect populations high. Leave an uncut strip on each side of borders in several places in the field;

- Develop management strategies to prevent whitefly from building up in alfalfa, harvest after two irrigations, and use fields for grazing in the fall and winter;

- Investigate the possibility of non-native beneficial releases in alfalfa.

Communication within the region is also being improved through meetings to determine how to monitor movement of the whitefly during the year. Individual fields are still the focus of control procedures but the strategies for control of this pest are expanding to encompass the entire region that is affected.

Combining carefully targeted synthetic chemical pesticide application, modifying planting and harvest times, improving application procedures, and using less toxic materials is as close as we will come to biocontrol in the near future. These techniques are more appropriately called bio-management, than biocontrol. Regardless of the terminology, the focus is on the "bio" component of the agricultural production system.

The future of biocontrol lies in our hands. Biocontrol products will be available but they will have extremely limited efficacy when compared to synthetic chemical pesticides. The possible exception comes from the biotechnology industry and its researchers. They proclaim that we will see new products and plant varieties that will control diseases and insects with the same efficiency of chemical pesticides.

However, until these products reach the marketplace, we need to better understand regional pest management strategies and move toward integrated pest management and away from integrated chemical management.

The major advances in less-toxic pest control in the next 10 years will result from improved crop adviser information exchange, and real-time field monitoring that identifies pest "hot-spots" that can be selectively managed before widespread damage occurs. Reservoirs of pests should be eliminated and reservoirs of beneficial organisms preserved. Cropping systems that encourage buildup of pests should be discouraged.

If these efforts are realized, the agricultural industry and the economy within the region will become more sustainable, predictable, and profitable.

You can be a part of it if you want to, but you will need to work with your neighbors and colleagues to effectively stabilize pest pressures within your region.

## B.T. Cotton Resistance Management Strategies

By **Roger Carter**, Agricultural Management Services and **Grady Coburn**, Pest Management Int., Inc.

Development of B.t. cotton appears to be ahead of anticipated schedules, so it may be time for cotton consultants to think about how they will manage such cotton to reduce or prevent insect resistance.

One dozen cotton consultants were canvassed throughout

the Cotton Belt on ways that they would implement resistance management once B.t. cotton is available to their producers.

Answers were very similar, but most said that they did not know enough about the product to comment. Evidently, education will be an important factor in determining acceptance and successful implementation of such an innovative concept.

Most consultants feel that it is Monsanto's responsibility to institute the initial resistance management program from data that they are currently generating.

Consultants feel that only after observing the product under their particular field conditions with their producers in their ecosystems with various production practices can they build a base of data for determining how to handle the resistance question.

In other words, adjustments in the program must be made as experience builds. In the meantime, we must rely on the program that Monsanto will promote.

A technical advisory panel, consisting of researchers, Extension personnel, and a consultant, and a resistance management panel, consisting of the leading insect resistance theorists and researchers, have been established to aid in the development and management of B.t. cotton.

The resistance management program developed by Monsanto includes the following:

### **Short Term (Implemented at Commercialization)**

- High dose expression of B.t. in cotton plants to control insects heterozygous for resistance alleles;
- Refugia as hosts for sensitive insects provided through non-B.t. cotton or non-cotton hosts;
- Agronomic practices that minimize insect exposure to B.t.
- Integrated pest management; and
- Insect populations watched for susceptibility to B.t.

### **Medium Term (Implemented Two to Five Years after Commercialization)**

- Continue all short term strategies plus;
- Combine two genes in the same plant. Both genes will be active on budworm/bollworm/pink bollworm and other targeted lepidopterans, but with different sites/modes of action.

### **Long Term (Implemented More than Five Years after Commercialization)**

- Continue all short- and medium-term strategies;
- Incorporate host-plant resistance traits into B.t. cotton as they are proved effective; and
- Incorporate novel proteins that provide effective control of lepidopterous pests.

Comments concerning resistance management strategies for B.t. cotton should go to Dr. Randy Deaton, Monsanto Company, 700 Chesterfield Village Parkway, St. Louis, MO 63198.

Monsanto is very concerned with resistance and is very receptive to consultants' views on resistance management. They are asking for our input. Let's not waste this opportunity.

## Seed Treatments Improve Corn Stands

A combination of solid matrix priming and disinfection with sodium hypochlorite is suggested as an alternative seed treatment to fungicides to improve uniformity and stand establishment in sweet corn as reported in the bimonthly *Journal of the American Society for Horticultural Science*.

The suggestion comes after a study conducted at the Vegetable Crops Department of the University of Florida. The study develops a solid matrix priming (SMP) treatment that would consistently improve emergence rate and total emergence of *sh2* sweet corn cultivars under varying field conditions. To effectively prime *sh2* sweet corn, SMP has to control seed-borne pathogens.

The researchers, Carlos A. Parera and Daniel J. Cantliffe, reported on a priming treatment that could eliminate the commercial problems associated with other methods.

The solid matrix priming sodium hypochlorite (SMPSH) treatment significantly improved germination in both cultivars compared to nontreated seeds. In both cultivars, the germination of seed treated with fungicide did not significantly differ from that of SMPSH-treated seeds.

An added advantage of the priming is that the SMP presowing treatment provides ideal conditions to deliver other products, such as biocontrol agents, to the seed. SH has been used successfully as a seed disinfectant in *su* sweet corn to control *Fusarium moniliforme*.

The SH and SMP treatments alone were not effective in cold test and field experiments. The addition of SH to the SMP treatment significantly enhanced seed germination and emergence compared to seeds only disinfected with SH or primed alone.

The results indicated that SMP is an excellent delivery system to include SH as a seed disinfectant.

Greater differences in seed and seedling performance between the nontreated seeds and primed seeds via SMPSH were measured under high (April sowing) or low soil temperature (cold test and fall). Rapid imbibition, increased seed leakage, and pathogen growth and development may contribute to rapid deterioration of the seeds under these stressful conditions.

Lower imbibitional rate and seed leakage had been observed in primed than in control sweet corn seeds. The disinfectant treatment of SH added after partial seed hydration in the SMP process may have contributed to a more effective control of seed-borne growth and development.

The researchers also found that the fungicide combination treatment was effective in increasing germination in the laboratory and field stand in Supersweet corn. However, it was necessary to combine four fungicides to achieve the same germination rate and field emergence reached with the SMPSH treatment.

SMPSH improved seed germination, emergence rate, final

field stand, and seedling vigor in *sh2* sweet corn cultivars compared with nontreated seeds. This is especially true when the cultivars have inherently poor seed quality and under stressful conditions.

The SMPSH treatment may be a practical replacement for fungicide seed treatments on *sh2* sweet corn cultivars.

## PROFESSIONAL ETHICS

### NAICC Ethics

By **Bill Craig**, Maxi-Yield Consultant Service, Inc.

Ethics is at the heart of our profession as it is in other professions, but I often wonder if we talk enough about it. By sharing our experiences we help others, and their experiences may help us. Perhaps we can help each other to avoid some pitfalls.

On two occasions I have been offered money to recommend specific products. One was a rather subtle approach while the other was quite direct. The subtle one cloaked it as a payment for field tests but required no reports. At the ethics session during the NAICC annual meeting in Kansas City, the speaker suggested that we ask ourselves this question: "Would we want our clients to know about this situation?" If the answer is no, then it is at best a questionable ethical situation.

Assuming that I made the ethical choice, does my ethical responsibility end there? Or am I bound to report this to the NAICC ethics committee? Should NAICC be aware of and act to prevent such problems? What do you think?

Be prepared! We are imperfect beings in an imperfect world and we will be confronted by situations that challenge our ethics. However, by becoming familiar with the NAICC code of ethics, attending ethics seminars, and thinking and talking about ethics we will most likely have the right answer when the wrong situation arises!

## STATE NEWS

### Member Speech Yields Education Gift

Centrol Inc., a closely-held consulting firm in Minnesota, has made a \$500 donation to the NAICC Educational Foundation in honor of NAICC former president **Madeline Mellinger**.

Mellinger addressed the annual meeting of Centrol. Members of the Minnesota consulting association attended the annual meeting as the invited guests of Centrol.

Mellinger spoke on the certification of professional consultants and its importance to those in the field.

## NEW MEMBERS

### PROVISIONAL

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Office: 507/423-5423 Home: 507-734-2227

*Crops: Corn, soybeans, oats, wheat, and alfalfa.*

*Services: Crop planning, fertility management, soil sampling, weekly monitoring, tissue and manure sampling, and sprayer calibration.*

## REAP CERTIFICATION

**Robert Frederick Miller**, Glenville, Minn.

Crop Guard, Inc.

**Stanley Nemeč**, Snook, Texas

Nemeč Agriservices

**James Powell**, Lubbock, Texas

Powell Agricultural Consulting

**Mark L. Truster**, Franklin, Ind.

Ag Excel, Inc.

## CALENDAR OF EVENTS

July 31-August 6—**Annual meeting of the American Society for Horticultural Science**, Sheraton Waikiki Hotel, Honolulu, Hawaii. Topics will include "Postharvest Technology of Tropical Horticultural Commodities," "Drip Irrigation Scheduling for Fresh-Market Tomato Production," and "Recycling Water, Nutrients and Waste in the Nursery Industry." Speakers include Conrad A. Kelckner, president of the American Farm Bureau Federation. For registration contact the horticultural society at 703/836-4606.

October 25-30 and November 1-6 (repeat session)—**Herbicide Action**—Stewart Center, Purdue University, West LaFayette, Ind. An intensive course on herbicides in plants and the environment. For registration information contact M.E. Ocker, Division of Conferences, Purdue, at 317/494-7223.

November 4-8—**National Alliance of Independent Crop Consultants 1992 Annual Meeting**—Loew's L'Enfant Plaza Hotel, Washington, D.C. A chance for crop consultants and contract researchers to tell their story to the powers in Washington, and to exchange ideas and sharpen professional skills. For registration information contact Tabitha Glenn, NAICC, 5050 Poplar Ave., Suite 2218, Memphis, TN 38157 or call 901/683-9466.



**COMMUNICATOR OF THE YEAR AWARD**  
**sponsored by AGRI FINANCE magazine**  
**1992 Application Form**

This award honors outstanding accomplishments in publicizing the crop consultant profession. To enter, just complete this form. Use additional sheets if necessary. Attach samples of all literature (tear sheets, articles, seminar programs, etc.) where applicable. Applicants must be members of the National Alliance of Independent Crop Consultants.

Name \_\_\_\_\_

Title \_\_\_\_\_ Company \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

Telephone \_\_\_\_\_ Fax \_\_\_\_\_

**Communications Activities:** List all activities in which you have participated in the past year (Sept. 1, 1991 to Aug. 31, 1992 that promote the crop consultant profession to prospective and current clients, government agencies and/or the public in general. Please type or print legibly.

	Activity (article title, speech, show, etc.)	Location	Date
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____
6.	_____	_____	_____
7.	_____	_____	_____
8.	_____	_____	_____
9.	_____	_____	_____
10.	_____	_____	_____

**Points will be awarded as listed below:**

- Articles – both authored by and/or quoted in ..... 10 points each
- Speeches and/or panel discussions ..... 20 points each
- Newsletters sent to clients and/or prospects ..... 5 points each
- Advertising (including Yellow Pages) ..... 5 points per message
- Trade Show exhibits (including county fairs) ..... 10 points per show
- Additional points will be awarded for substance at the judges' discretion.

**PLEASE RETURN APPLICATION BY TUESDAY, SEPTEMBER 1, 1992, TO:**

Diane Haas  
 Agri Finance Magazine  
 6201 Howard Street  
 Niles, IL 60714