



NAICC NEWS

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NAICC Cooperates on Joint Education Workshop

NAICC and several other agricultural organizations will conduct a workshop on the future of education for agricultural practitioners as part of the annual American Society of Agronomy (ASA) meeting at the Cincinnati Convention Center, Cincinnati, Ohio, in November.

The workshop is one of the ways NAICC is building bridges with its cooperative members and other groups in the agricultural community.

ASA is one of the first cooperative members to join NAICC. Cooperative members are not-for-profit organizations that support NAICC goals and activities. NAICC exchanges memberships with these groups to work toward

accomplishing common goals.

Founded in 1907, ASA says in its mission statement it is "dedicated to the development of agriculture enabled by

"A young person must have a multi-disciplinary education to work in the field today."

science and in harmony with environmental and human values." ASA is autonomous, but shares office space and general goals with the Crop Science

Society of America (CSSA) and the Soil Science Society of America.

ASA has more than 12,600 members in 50 states and 115 countries. ASA serves the professional growth needs of the membership through its various publications, seminars, career development, and placement services as well as its annual meeting.

The Agronomic Practitioners Division of ASA is a group from private practice, industry, Extension, or federal service that have in common the integration of different disciplines and the practice of crop and land management. One of the major concerns of this

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NACA Developing Standardized GLP Field-Data Book

By Milton C. Ganyard, Jr.

A working group of the National Agricultural Chemical Association (NACA) is developing a standardized Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) Good Laboratory Practices field-data-book format specifically for raw agricultural commodity residue chemistry studies. The project came from field investigators who complained of difficulty in dealing with the multitude of data-book formats provided by their various corporate sponsors. EPA has taken a supportive attitude.

The Process

About a year ago Carol Ely of Rhône-Poulenc proposed to NACA that an effort be made to develop a standardized GLP field-data book. Ray McAllister, director of regulatory affairs

for NACA, took the idea to the NACA Crop Residue Working Group, which endorsed the concept. Subsequently, the NACA Registration Committee approved the establishment of a working group to pursue the development of the standardized field book.

The first meeting of the Field Data Book Working Group took place in a conference room in Washington Nov. 12, 1992. Represented were 15 NACA member companies and the USDA's IR-4



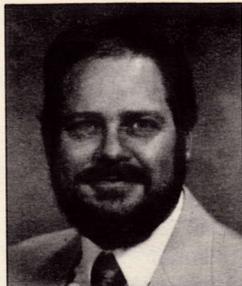
Dr. Ganyard weighing out grass samples.

Program. At this initial meeting Jerry Baron of IR-4 agreed to prepare a first draft of the proposed field book based

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With Age Comes Wisdom

Bruce Nowlin, NAICC President



These columns are coming around with disgusting regularity. Now that the busy season is upon me, I need to write one that will not

generate the amount of phone calls that the last few have. Not to say I do not enjoy the calls...

There has been a lot of discussion about ethics recently. I am not feeling particularly ethical *Or* very independent right now. I turned 41 today. My birthday present was a hernia. I go in tomorrow for surgery. I guess that is what you get for your birthday when you become middle-aged and are a bad boy.

The timing is definitely off. I need to be in the field right now. I was told it may get worse if I try and put off the operation. One or two months from now would be worse timing, so I said "Let's do it."

Recovery time is vague. I have heard some horror stories already. From two weeks to a year. Wide range. Of course, horror stories are the only ones you can find when you are looking.

I think some optimism is in order here. I would guess that within a week I will be leaping tall buildings in a single bound again.

But if not, I may be willing to do something unethical to get well faster. I do not know what that might be, but I will be ready to listen by then.

Maybe I will be feeling better by next month.

I just hope that doctor DOES GOOD WORK!

Workshop

(Continued from page 1)

division as well as NAICC has been the educational preparation of those who practice in a number of different disciplines. NAICC and ASA have noted there is a need for a multi-disciplinary approach to college education for those who want to become agricultural practitioners such as crop consultants.

"It is no longer enough for a consultant to have a bachelor's in agronomy or a master's in entomology. A young person must have a multi-disciplinary education to work in the field today," said **Dan Bradshaw**, NAICC member and ASA member who helped bring the workshop together. "We hope this workshop will pave the way for colleges and universities to accept the idea of offering a Doctor of Plant Health degree that cuts across such studies as entomology, botany, agronomy, and horticulture."

One of the proposals Bradshaw, others from NAICC, and other practitio-

ners are suggesting is to have an adjunct professor teach the applied side of agriculture to students from various academic disciplines.

This year members of NAICC, ASA, USDA, American Agricultural Economics Assoc., Entomological Society of America, and the American Phytopathological Society, another cooperative member of NAICC, will work together on a two-day seminar called "New Pathways in Agricultural Education." The seminar will be part of the ASA annual meeting Nov. 7-12. The seminar will be from 1 to 5 p.m. Nov. 10 and 8:30 to 10:30 a.m. Nov. 11.

The focus of the seminar is to redesign the post-secondary education systems for training agricultural practitioners. Among the speakers are Bradshaw of Crop Aid in El Campo, Texas, former NAICC president; **Mark Otto** of Agri-Business Consultants, Inc. in Lansing, Mich.; Dennis Keeney, president of ASA; Vernon Cardwell, president of CSSA; and Terry Moore, ASA A-8 (Provisional) Division chair.

Field-Data Book

(Continued from page 1)

on what USDA had done to date.

A small subgroup met Dec. 10, 1992, at Environmental Technologies Institute Inc. in North Carolina to review and revise the first draft. Baron then prepared a second draft. In January that second draft was sent to a larger group of NACA member companies and cooperating researchers for comment. Baron's subgroup considered the feedback and incorporated it wherever possible.

On June 8 the full working group met again to review the third draft. From the comments made during this meeting Baron is currently preparing a fourth draft. A fourth draft will be circulated to NACA member companies and cooperating researchers for further comment in August.

During September or October Baron's subgroup will meet again to consider and incorporate these August suggestions. Representatives from EPA

will also be invited to review the field book at this time. A final version of the book will be finished by November or December and available for use in the 1994 cropping season.

Flexibility has been retained so each sponsoring company can revise some of the forms required by the members of the working group and add other forms in the final section of the field book for items not considered essential. The field book will, however, always retain the same structure.

Advantages

The working group believes the standardized data book should:

- Provide field investigators with a uniform system for reporting GLP field data collected in crop residue chemistry trials.

- Improve the quality, efficiency, and consistency of work conducted by field investigators.

- Provide for all of the GLP field data required by EPA guidance information.

What Do You Do For a Living?

Do you work in cotton? Done any consulting in green peppers? Ever been called to take a look at some low-producing banana trees? Anybody help make wine?

Whatever you do for a living or just as a hobby, NAICC wants a part of it. And we want to raffle it off to raise money for Congressional information sessions, scholarships to the next generation of consultants and contract researchers, and other events sponsored by NAICC.

The raffle will be one of the events at the NAICC annual meeting in Memphis, Jan. 26-30, at the Peabody Hotel.

Many consultants and contract researchers are busiest this time of year, but it would be helpful for the NAICC staff to know what you plan to donate to the raffle. Items that go

under the gavel might include a bottle of wine, a sack of oranges or grapefruit, a Mr. Potato game, a week at your beach house, a trip to South America or anything else that directly relates to your consulting work or your part of the world.

The NAICC raffle proved to be a hit with members at the 1992 annual meeting and is being brought back by popular demand...also at the request of NAICC president **Bruce Nowlin** whose good Sunday tie was hacked off his neck and pieces sold to satisfy the raffle mania at the annual meeting banquet last year.

Just fill out this form and send it to **Tabitha Glenn**, NAICC associate administrator, at NAICC headquarters in Memphis. Remember, if you don't respond, your tie or your scarf could be the next to be sacrificed.

Name:

Telephone number:

I will donate:



- Facilitate QA and EPA audits and reviews.
- Provide a common organization to the collection of field raw data.
- Help to control GLP compliance costs.
- Provide for much smoother communication between study directors and field investigators.

Potential Problems

At the beginning of the effort, the working group noted the following "potential" problems—some of which have been resolved already:

- Not everyone in the industry agrees with the concept of a standardized GLP field-data book.
- It is not easy for a large group to agree on a common organization for the field book.
- Every NACA member company has a different perception as to what is required by the EPA.
- How will late protocol amendments be handled?
- Miscellaneous forms and blank sheets would still need to be used where

standard forms are insufficient or lacking.

- The amount of detail required by EPA is unclear and undergoes change.
- The field book will have to cover a wide variety of crop residue studies.
- The standardized forms might leave too much decision-making to the field investigator.
- The industry must buy into the concept of a standardized data book.
- Decisions have to be made about when to design the field book for the benefit of the study director and when to design it for the benefit of the field investigator.

Conclusion

To date the process of creating a standardized field-data book has worked extremely well. Some organizations still reject the concept. However, due to a highly cooperative attitude by working group members and hard work by Baron and his staff, the original ambitious schedule is reasonably intact.

The working group has taken a positive attitude in coming together on

areas where philosophies differ. As members of the group have commented: "It requires letting go of one's pride to give up ownership in one's own data book." Such compromise is necessary, however, to come together with a common data book. I am firmly convinced that our objective will be met and that in future years the data book will be further revised, improved and, of course, will incorporate new requirements from the EPA as they evolve. We are contemplating an annual revision process, based on each year's field experience and input from users. We hope it will also inspire data books for other types of field studies such as field dissipation, etc. We may even become sophisticated enough to reach standardization of protocols and report formats. EPA has expressed support for this too.

(Dr. Milton Ganyard, Jr., of Environmental Technologies Institute, Inc., in Research Triangle Park, N.C., is a voting member of NAICC and chairman of the NACA Crop Residue Working Group.)

Extension Representatives Define Role in CCA Program

By Elbert C. Dickey

Given the wide array of perceptions relative to the Certified Crop Advisor (CCA) program sponsored by the American Society of Agronomy (ASA), there are differing opinions about the role and expectations of and from Cooperative Extension. To clarify these roles and expectations in their area, Cooperative Extension Agricultural and Natural Resources program leaders in the North-Central region formed a six-member committee to address the issue.

CCA was developed by ASA in cooperation with agribusiness retail dealers, cooperatives, and manufacturers, state and national trade associations, the USDA, and independent consultants. Its purpose is to provide base standards for certification for anyone who provides crop management recommendations to farmers.

The internal and external expectations of Extension ranges from a "hands off" approach to an approach where Cooperative Extension is viewed as the only provider of education for the CCA program. Included within this range of expectations is a feeling from some people that the CCA program should require a one- or two-day training session to establish basic competencies to meet the ASA state and national performance objectives, while others think that it should require a bachelor's degree.

Given this array of expectations, Cooperative Extension roles may include:

- identification of educational resources and reference materials for self-study;
- development and delivery of review sessions to help individuals prepare for state and national examinations;
- a link with commercial interests or other educational entities to jointly develop and deliver review sessions;
- development and delivery of in-depth educational programs to establish basic competencies to meet performance objectives;
- development and delivery of continuing education programs to maintain and enhance basic competencies to meet continually evolving performance objectives.

Within this framework, continuing education is the most critical aspect of these roles. In the short term, Cooperative Extension has the capabilities to provide review sessions or can link with others to help provide these initial educational opportunities. Also, in most states, Cooperative Extension has ongoing educational programs that provide opportunities to help individuals establish basic competencies. Examples include crop protection clinics, in-depth soils schools, nitrogen-water management workshops and integrated pest management training.

In the long-term, Cooperative Extension must address the continuing education need. Cooperative Extension has direct access to research and the

new information being generated, and has the responsibility of incorporating this information into part of the CCA program. Cooperative Extension should develop a curriculum that helps individuals maintain and enhance the basic competencies needed to meet continually evolving performance objectives.

Continuing education will probably be a cooperative effort among various educational entities. This is necessary to ensure that individuals have the widest possible opportunity to obtain the necessary education relative to integrated crop production and resource management.

To make efficient use of limited resources, Cooperative Extension in adjoining states should consider cooperating to develop common curricula and educational materials. In addition, adjoining states may wish to develop similar performance objectives for the state or regional CCA exams. Further, Cooperative Extension representatives, as members of state or regional CCA boards, may be requested to provide input to ensure similar CCA exams within the same geographic area.

(Elbert C. Dickey is at the University of Nebraska Cooperative Extension. His committee studying CCA included representatives from such universities as Missouri, Wisconsin, Purdue, Ohio State, and Kansas State.)

Could This Be You at the Next Annual Meeting?

As a rule NAICC members are a peaceful lot. But when they smell a raffle something snaps. Last year at the annual meeting banquet NAICC president **Bruce Nowlin** was attacked by raffle-maniacs wielding scissors. His good (and reputedly only) tie was cut off his neck and pieces of it sold to raise money for NAICC. Members are warned to contribute items to the annual meeting raffle or hide their neckwear.

Participants in the annual meeting raffle cut-off are, left to right: Bill Peele of Washington, N.C., Bob Ascheman of Des Moines, Iowa, Dick Jensen of Washington, La., and Dwayne Coulon of Port Allen, La.



Ethics

Is Taking a Chance the Same As Taking a Bribe?

An NAICC member from New York recently got a letter in the mail from an ag chemical company representative that the member felt worth passing on to the membership. The names have been withheld, but the NAICC member wonders what his fellow consultants would have done—or if other NAICC members around the country consider the representative's offer an unethical proposition.

The letter, addressed "Dear Soybean Herbicide Dealer", said the representative was sponsoring a contest. Anyone who called and asked a question about his company's product would automatically be entered in a drawing for three \$150 certificates from a leading clothier.

The offer was tempting, said the member, because he had recently noticed how worn his favorite turtle-neck shirts looked.

The representative's letter went on to say winners would be announced as part

of a product bulletin answering the 10 most frequently asked questions about the company's product.

The member wrote back to the representative: "I received your offer for the certificate today. I won't take you up on your offer to try for the gift certificate, but I will call you when I have questions about your products. Also, please call me when you have new information to share on your products. Your predecessor did a nice job keeping me informed and I look forward to working with you."

The New Yorker wonders what would have happened if he'd called the manufacturer to complain. Probably nothing, he said. The reply most likely would be that "independent" consultants have participated in the past and, therefore, must be interested.

The member now is curious to know what other consultants think: did he pass up a chance to replenish his wardrobe unnecessarily?

Slide Those Slides Over

NAICC members need to see themselves in clearer focus—especially in a slide show **Bill Barksdale**, a commercial member, and **Daney Kepple**, administrative director, are preparing.

Please take a camera into the field with you and get a slide photo taken of yourself at work, then send the slide to NAICC headquarters.

The slide show will be used to educate potential members and for general public relations purposes.

Chemical Companies View Consultants' Independence

By Jackie Flaum

Independence in crop consultants is a double-edged sword for ag chemical companies, said several spokesmen.

On the one hand independence is valued in researchers who test products for ag chem companies. Independence is also valued in consultants who scout fields and use interdisciplinary skills and experience to locate trouble that may or may not be related to the company's product.

"An honest opinion of the product"—that's what Wade Cook, manager of technical services for **Miles, Inc. Crop Protection**, Ag Chem Division, likes about the independence of crop consultants.

He also feels a recommendation of his product from an independent consultant is particularly valuable. Farmers know consultants are on their side and their livelihood doesn't depend on product sales.

Ag chem representatives all made a

point of saying the business of helping farmers raise safe, quality crops is big enough for all segments of agriculture.

James Wargo, technical support manager for **Sandoz Crop Protection Corp.**, said dealers are more independent from ag chemical companies than most people realize.

"They make a professional judgment for the farmer based on what's best for him or that dealer doesn't get repeat business," Wargo said.

Wargo said his company values the third-party crop consultant for his overall knowledge. "A lot of times a grower who uses our herbicide has a problem—and we get called even if it's not our herbicide that caused the problem," he said. In situations like those, especially, he values an independent crop consultant who can go into the field, consider all the factors at work in that field, and give the grower an unbiased, professional opinion.

"We consider independent consultants to be important members of the agricultural industry," said Nina Wilson, segment manager at **FMC Corp.** "The reason we support NAICC activities is that, as members of the same industry, we feel it is important that we all work together to benefit agriculture as a whole."

The future of agriculture means professionalism and cooperation, added one ag chem representative.

"Profit is not a dirty word and wanting to make a profit does not diminish a professional's technical expertise or ethics," said Larry Wee, of **Dow Elanco**, and chair of the NAICC Allied Industry Committee, which is composed of sustaining members.

"The future is not going to allow people who are not professionals to exist," Wee said. "You can't make a profit at the expense of the environment or the buyer and stay in business."

Profile

You're Busy Now, But What About Next Month?

By Jackie Flaum

John Christian of Raymondville, Texas, has been consulting more years than he cares to remember—since shortly after he graduated from Texas A&M University in 1955. But he does remember wondering lots of times during those years: what do I do in the off season?

Keeping busy in the Rio Grande Valley during the off season wasn't always a problem, Christian said. He consulted on a large acreage of vegetables and there was no off season. In cotton, however, he and other consultants found time on their hands and no money coming in their pockets.

In 1990 he and his son-in-law Frank Krupala, who used to work for Christian as a summer intern, listened to **Larry Emerson** of Sealy, Texas, and joined South Texas Ag Research, Inc. as contract researchers. Today Christian consults during the cotton season and helps Krupala during the off season.

"Consultants really do need to find something else to do in the off season," he said, adding that many consultants used to teach in public schools when they weren't consulting, but that isn't always viable anymore.

In the winter, he said, consultants might pull soil samples and attend meetings like the NAICC annual meeting in January to improve their knowledge. That won't pay the rent, however.

Instead, Christian suggests consultants do what they do best: help farmers. A consultant might set up programs to educate farmers on the new Worker Protection Standards or the techniques involved with IPM. Or, he suggests, work with farmers to organize their list of workplace chemicals so when the USDA comes around to inspect the list is in order.

He doesn't advise consultants to follow his lead and become a contract

researcher unless they have money, land, and a lot of patience with paperwork.

"We actually started contract research to keep busy in the off season," said Christian. "But every year now there are a few more things to be added to each test.

There were a few SOPs when we started and now we have two big notebooks full." Starting today in contract research as something to do in the off season requires too many up-front costs, too many regulations, and too many seminars and educational programs that would require his attendance.

Like many contract researchers, Christian wishes there weren't so many variables between companies he works for and the tests they require. "It would be nice if everything were standardized. It's been discussed quite a bit," he said. "At least things are more similar than they were a few years ago."

When Farmers Have No Money, Will Your Business Survive?

It's raining again in parts of Minnesota. Along the rivers in Iowa people are visiting neighbors in rowboats. And farmers can't get in the fields.

"When farmers don't have money, consultants don't have money," said **Maggie Alms**, president-elect of NAICC and owner of Blue Earth Agronomics in Lake Crystal, Minn. Outside her house she could still hear thunder in early July and see water standing from what many people are calling the "120 year" flood—rain that comes once every 120 years.

The answer to surviving hard times, say consultants who have made it through disastrous farming years, is to diversify and to provide existing clients with a new kind of service.

David Harms of Crop Pro-Tech, Inc. in Naperville, Ill., learned the importance of diversification the hard way. In 1983 when the federal program Payment In Kind (PIK) went into effect he lost a lot of acreage—and income. "One day we had a farm with 1,000 acres and the

next it was gone," he said.

Now only 50 percent of his business is in scouting, he said. About 30 percent is in contract research work. But it's the other 20 percent that involves some creative thinking. He works for other companies in management, does research planning for other agricultural firms, has dabbled in international consulting, and reviews ads for advertising agencies who want to impress agricultural chemical companies. His work for advertising agencies, for example, includes advising whether the cover of a proposed brochure for a pesticide has the right pest pictured.

Most important, Harms said, is to look at what can be done to salvage something from the disaster. For example, if it is a flood, check with an insurance company to see if they need someone to accurately assess damage claims or estimate losses. Or, he said, work with clients on loss management and perhaps recommend short-season crops they might not consider other-

wise, but might generate some revenue.

"Look hard at a disaster and there is opportunity there," he said.

Robert F. Miller of Crop Guard Systems in Glenville, Minn., is advising clients to plant sudan grass as fodder for cattle when the water recedes off the fields. Sudan grass will stand a lot of water, he said, and provides some income.

Miller, who says the waters are so high he's given up traveling in a rowboat and now rides in a steamboat, sees his role as loss-management expert. He estimated he's lost 15 percent of the 30,000 acres he normally consults on. But he added that clients who stay with consultants in the worst times find the investment pays off in better years.

Actually, consultants are the last expense cut by farmers in his area, said **Jay D. Johnson** of Prairie Crop Pro-Tech in Waterloo, Iowa. "We can help them survive by keeping them from

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The Boundary Layer: Why Some Chemicals Work

By Robert H. Fulton

Have you ever wondered why or even how a fungicide like maneb possesses insecticidal or miticidal ability to control citrus rust mite or pear psylla populations? After all, a fungicide is not supposed to kill bugs, just fungi.

Understanding more about how some ag chemicals work with the boundary layer of the plant will help you advise clients on applications. In some cases, understanding how the boundary layer works with chemicals in their vapor phase will lead to reduced applications.

This boundary layer consists of a thin layer of static air completely surrounding all aerial plant surfaces. This layer represents a transition zone of air motion/temperature differences between plant surfaces and open-air space.

Within this boundary layer itself are various amounts of water vapor, oxygen, carbon dioxide, minute flows of exchanging air—to put it another way, it's a true microclimate zone next to plant surfaces. The thickness of the boundary layer is influenced by the

shape and size of the plant part—whether it's a fruit, leaf, stem, etc.—the speed of the winds, and solar radiation. For example, a citrus fruit up to 4 inches in diameter may have boundary

It helps pesticides work more effectively.

layer depths from 500 to 1,000 microns.

Not only does this boundary layer help fungicides work on pests, but it helps pesticides work more effectively. In most cases, a pesticide that gives off a vapor can be applied less often, thanks to the boundary layer.

During degradation, a fungicide like maneb gives off killing vapors of hydrogen and carbon disulfides from its spray residues. But if we assume that these vapors go right up into the air from the sprayed plant surfaces, how do the vapors move to, touch, or even envelope the pest for killing to occur?

In reality, the released vapors do not flow straight off crop surfaces, but are entrapped within the boundary layer. Once the vapor phase of a pesticide or fungicide hits one wall of the boundary layer, it automatically is spread to all the walls, thus giving an even coating and trapping in the killing force of the chemical applied. For the pests in the boundary layer, the chemical is particularly deadly.

One of the pests attacking citrus fruit is the citrus rust mite, which reaches a height of about 50 microns. Given the size of the mite and the size of the boundary layer, it is easy to see how the mite can be completely immersed in the boundary layer and spend its whole life there. For those familiar with citrus rust mites, the typical damage to the peel of the fruit is concentric rings merging out from the individual fruit's "sunspot" zones. Rust mites cluster about these exposed "sunspots" since the flow of water vapors and temperature gradients help mite growth, feeding, and reproduction. Vapors trapped in the boundary layer from a fungicide actually "smother" the mite.

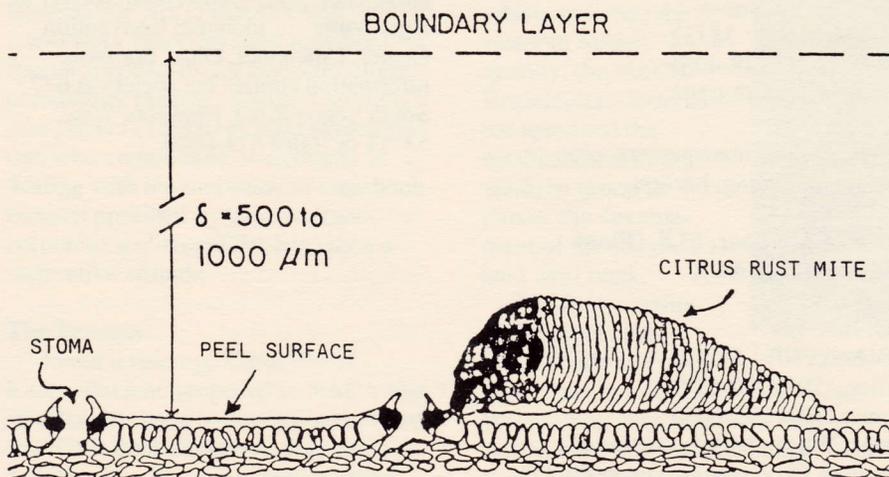
But the boundary layer also performs another function. It serves to "trap" on plant surfaces scents that attract pests.

A characteristic of the boundary layer is the accumulation of scents (semiochemicals) given off through the stoma that attract varied insect pests. Petroleum oil residues on such plant surfaces encapsulate these scents, nullifying attraction. We know that moths easily zero-in on corn in the black of night because of semiochemical releases. Could this be negated by the use of petroleum oils? Or, would the use of another nontoxic biochemical that chelates or overpowers the original semiochemical be the answer? In the past we've favored the petroleum oils.

Understanding the boundary layer will be of help in understanding pest management at the target site.

(Robert H. Fulton of Ful-Cor, Inc., in Miami, Fla., is a voting member of NAICC.)

The depth of the boundary layer on spheres (citrus fruit) of 1 to 10 centimeters in diameter (0.4-4.0 inches) and with wind velocities of 0.5-10.0 m sec. is in the range of 500 to 1,000 microns. The citrus rust mite, only 50 microns high, is thus completely immersed in the boundary layer for its entire life.*



* J.C. Allen and J.P. Syvertsen, "The World of Citrus Rust Mite: A Microclimate Prediction Problem," IX Congress of Plant Protection, (Washington, D.C., 1979): 138-140.

Members in the News

Cotton Farming Quotes NAICC Experts

NAICC members abounded in the pages of *Cotton Farming* magazine in February, March and May.

In February **Roger Carter** of Clayton, La., was quoted on working with EPA, while **Cecil Parker** of Clayton, La., was featured on a page called "Consultants' Corner." **Ray Young** of Wisner, La., who was part of the Seedling Disease Seminar in San Antonio in December, was pictured giving his talk at a chalkboard.

In March, **Mills Rogers** of Boyle, Miss., talked about working with a farmer new to the idea of narrow row cotton. Also in March was **Raymond Nabor's** article about boll weevils.

In May, **James Powell** of Lubbock, Texas was featured in "Consultants' Corner," Ray Young was back with information about areas of high-yield cotton, and **John Christian** of Raymondville, Texas, discussed the possibility of a late start for Rio Grande Valley cotton.

No Money

(Continued from page 6)

spending useless dollars," he said. He estimates his area will only be down 15 to 20 percent. But, he said, he knows of some farmers in the state who will have zero income this year. So he anticipates the land will change hands in many parts of Iowa. When it does, consultants may get additional work from new owners.

For her part, Alms is trying to branch out to keep her head above water. She is doing soil quality research work on a grant from the Northwest Area Foundation, and she is cutting expenses where possible. The problem there is that many expenses, like soil testing, were incurred before the flood waters came. She said she knows of other consultants in this flood who are working in water. She herself is doing water analysis for environmental purposes. One consultant, she said, got into the water softener and distilled water business.

New Members

Cooperative

Henry A. Wallace Institute for Alternative Agriculture
Contact: Garth Youngberg
9200 Edmonston Road, Suite 117
Greenbelt, MD 20770-1551
Office: (301) 441-8777
Fax: (301) 220-0164

Voting

Robert Edward Moore, Jr., M.Ag. (Entomology, Zoology) ESA, SCES
Agriservices, Inc.
2922 Kelletown Road
Hartsville, SC 29550
Office: (803) 428-5423
Home: (803) 332-7145
Crops: Cotton.
Services: Soil and nematode consultation, contract research, GLP.

Robert A. Peters, M.S. (Plant Pathology) MICCA, ARCPACS, CPAG
Prairie Ag Consulting, Inc.
394 N. Lakeshore Dr.
Glenwood, MN 56334
Home: (612) 634-4743
Crops: Corn, soybeans, wheat, potatoes, dry beans.
Services: Crop monitoring, soil services.

Dan P. Roach, B.S. (Business Administration) MWSS, MCCA, MACA, MRCWG, MFB
Rice Pest Control
1405 Deering Street
Cleveland, MS 38732
Office: (601) 748-4061
Home: (601) 843-0108
Crops: Rice.
Services: Crop management, crop planning, planting, harvest.

Cynthia A. Spoor, M.S. (Plant Pathology) NDACA
AGZONE, Inc.
P.O. Box 424
Newburg, ND 58762
Office: (701) 272-6199
Home: (701) 272-6345
Crops: Wheat, barley, sunflower.
Services: Crop monitoring; herbicide, insecticide, fungicide recommendations.

Jon D. Tate, B.S. (Entomology) MEA, MACA
Tate Agricultural Services, Inc.
313 Lee Street
Indianola, MS 38751
Home: (601) 887-4823
Crops: Corn, soybeans, milo, rice.
Services: Entomological, soil fertility, plant pathology, weed control, irrigation, crop termination.

Calendar of Events

July 20-23—International Workshop on Sustainable Land Management for the 21st Century—University of Lethbridge, Lethbridge, Alberta, Canada. For more information contact Conference Services at the university, 4401 University Dr., Lethbridge, Alberta, Canada, T1K 3M4.

July 24-29—American Society for Horticultural Science—Opryland Hotel, Nashville, Tenn. For more information contact ASHS, 113 South West St., Suite 400, Alexandria, VA 22314-2824.

August 14-19—"Precision Nutrient Management,"—1993 International Symposium on Soil Testing and Plant Analysis, Evergreen State College, Olympia, Wash. For more information and reservations contact the Soil and Plant Analysis Council, Georgia University Station, P.O. Box 2007, Athens, GA 30612-0007.

November 7-12—American Society of Agronomy—Cincinnati Convention Center, Cincinnati, Ohio. For more information contact the society at 677 South Segoe Road, Madison, Wisc. 53711 or (608) 273-8080.