

PESTICIDE REVIEW COUNCIL MEETING

MINUTES

November 1, 2006

UF/IFAS

North Florida Research & Education Center

155 Research Road

Quincy, Florida 32351

MEMBERS PRESENT:

Dr. David Johnson, Department of Health (FDoH)

Mr. Ed Irby, Environmental groups

Dr. Dennis Howard, Florida Department of Agriculture and Consumer Services (FDACS)

Dr. Christopher Saranko, Toxicologist

Dr. George Hochmuth, (rep. for Mark McLellan) Instit. of Food & Agric. Sciences (IFAS)

Mr. Richard Pfeuffer, South Florida Water Management District (SFWMD)

Dr. Mel Kyle, Agricultural chemical industry

Mr. Rick Hicks, (rep. for Jerry Brooks) Department of Environmental Protection (FDEP)

Mr. Bobby W. Newsome, Grower representative

MEMBERS NOT PRESENT

Mr. Dave Eggeman, Florida Fish and Wildlife Conservation Commission (FFWCC)

Dr. Wendy Graham, Hydrologist

Mr. Jerry Brooks, Florida Department of Environmental Protection (FDEP)

Dr. Mark McLellan, Institute of Food & Agricultural Sciences (IFAS)

OTHERS PRESENT:

Mr. Andy Rackley, FDACS

Dr. Davis Daiker, FDACS

Dr. James Cooper, FDACS

Mr. Max Feken, FDACS

Mr. Roger Durham, FDACS

Mr. Al Amleh, FDACS

Mr. Steve Bedoski, Levine Fricke

Mr. Eddie Ingram, Bayer Crop Science

Mr. Adam Basford, FFB

Mr. Nathan Bailey, DEP

Mr. James Dodson, FDEP

Ms. Patty Lucas, FDACS

Mr. Thomas Eberhart, FDACS

Dr. Ashok Shahane, FDACS

Ms. Marie Lopez, FDACS

Mr. Paul Rygiel, FDACS

Mr. James Dodson, FDEP

Ms. Mary Hartney, FFAA

Mr. Butch Calhoun, FFVA

Dr. Dennis Tierney, Syngenta

Ms. Marian Berndt, USGS

Ms. Cristy Crandall, USGS

Dr. Richard Sprinkle, IFAS

Mr. David Young, FDACS

Mr. Roger Jackson, KMG Bernuth

Dr. Richard Lewis, HSA

Dr. Robert DeMott, Environ

Dr. Michel Eldan, Luxpam

Opening Remarks:

Dr. Dennis Howard, Chair, called the Pesticide Review Council (PRC) meeting to order at 9:05am, noting that this is a public meeting and the Council welcomes input; those who wish to speak should fill out a speaker request form. Dr. Howard invited Mr. Andy Rackley, Director of Agricultural Environmental Services (AES) in the Department of Agriculture & Consumer Services (FDACS) to provide opening comments.

Mr. Rackley stated that, at the last Pesticide Review Council (PRC), he had just joined the FDACS. After that meeting, he had a chance to look at the role of this Council. He has concluded that this Council is very important and needs to continue. As an agency that regulates pesticides, the Department can bring up issues to this Council. Further, Mr. Rackley would like to see discussions from the Council benefit from the skilled background of each member.

Agenda Review and Modification:

Dr. Howard outlined the agenda and asked if any revisions were needed. No amendments were suggested.

Review of Draft Minutes from, January 19, 2005, Meeting:

Mr. Richard Pfeuffer suggested amending the minutes to include the whole names of chemical compounds where abbreviations are used as this will be a public document. Also, a change was needed to correct Mr. Pfeuffer's affiliation from South West Florida Water management District to South Florida Water Management District. Dr. Mel Kyle made a motion to accept the minutes with the suggested changes; Mr. Ed Irby seconded. The motion passed unanimously.

Old/New Business:

There was no old business noted; however, the next election of officers was slated for spring of 2007.

Agency Status Reports:

FDACS, Agricultural Environmental Services, Mr. Andy Rackley:

Legislative Report

Mr. Andy Rackley, Director of the Division of Agricultural Environmental Services, remarked on the upcoming legislative session. The election on November 7th will shape the next session. We know of some items that will involve the Department and thus the Council needs to be aware of them. First, all state agencies must go through a “sunset review” meaning that each agency must prove their validity and benefit to the citizens of Florida. The Department of Agriculture and Consumer Services is first to go through this process. This is good for the agency because it requires us to take a hard look inward and account for what we do; however, this process has a short time limit.

At the same time, the Department must undergo a legislatively mandated regulatory program review. The legislation states that any regulatory program must cover its own cost and be self sufficient. Within the Department of Agriculture and Consumer Services, much of what we do is regulatory by definition, where we charge a fee to give permission for some entity to do business in this state. However, much of what we do is also geared toward protection of human health and the environment, but still considered regulatory by the definition. Mr. Rackley stated that we can anticipate some changes coming out of the regulatory review, such as adjustments in

fees. The position of the Department is that the programs need to continue; however, the legislature will not contribute funds to these programs under this legislation. This process is good in that it will help reveal some things that we did not know about the Department, and that knowledge, in turn, can be used to make us more efficient.

This year, we will propose legislation for moving from an annual to a biennial pesticide registration cycle. With over 13,000 registrations needing to be renewed, this will save time and effort for the registrants as well as the Department, while holding fees at the current annualized level. Biennial registrations would not become effective until January 1, 2009 to allow companies adequate time to budget the new fees. The proposed legislation would also assess a late fee of \$25 per month per product if renewal payment is not received by January 31st.

Mr. Rackley stated that it is a fact that you cannot farm in Florida without the use of fertilizers & pesticides. As Florida becomes more populated, there will be more development. This will bring more inquiries and complaints by home owners wanting to know what is being used adjacent to them. This brings to the forefront the issue of education and knowledge of how to use these products. We will need to emphasize more stewardship in this area over the next few years.

Mr. Ed Irby, commenting on his past experience with program reviews, sees a few problems we may encounter with the legislature. First, there may be difficulties in being able to document operating costs at the necessary level. Second, there may be inherent conflicts in programs that receive state funding, such as mosquito control programs that the Department also regulates. Third, a problem with federal matching funds may occur; if you cannot get funds to match the federal funds, those monies will not be available.

Mr. Rackley stated that the Department's role in pesticide regulation is important, just as the use of pesticides is important to crop protection and protection of human health (e.g., mosquito control). These arguments can be difficult to make in the short amount of time afforded for the review process and when committee members may not be fully briefed on background information.

FDACS, Bureau of Compliance Monitoring, Bureau of Pesticides

Compliance activities

Dr. Dennis Howard informed the Council members of an update (handout) from the Bureau Compliance Monitoring. Also distributed was an updated report from the Pesticide Registration Evaluation Committee. There were no presentations or questions about these materials.

Florida Department of Environmental Protection (DEP), Mr. Rick Hicks

Chipola River Monitoring Program (Nutrient and Pesticide Accounting in the Chipola River/Floridan Aquifer System)

Mr. Rick Hicks, (FDEP) provided the Council with a handout on the Chipola River/Floridan Aquifer project, which is being conducted by United States Geological Survey (USGS) with funding by FDEP. He suggested that the Pesticide Review Council may want to invite the USGS to make a presentation about the project at an upcoming meeting.

A large portion of the Chipola River Basin is a karst plain, prone to sink holes and numerous springs. Sandy soils cover the limestone, promoting a great likelihood of groundwater and surface water interaction. The area includes Jackson County into Alabama and

south where it discharges into the Apalachicola River. This basin includes predominantly agricultural lands that can impact groundwater quality and numerous private wells. To date, more than 700 private wells in the basin that have been contaminated. Spring systems are also being impacted by nutrients. For example, Jackson Blue Springs has the second highest nitrate content in the state in its category. In the basin, what goes into the ground has a distinct possibility of getting to the groundwater and therefore, into the springs.

As an important step to protect the Floridan Aquifer and Chipola River, we need to establish a hydrologic framework to describe groundwater/surface water linkages, identify the most significant sources of nitrate and pesticides in the ground water and river and to quantify the transport and fate of nitrates and pesticides. A groundwater flow and tracking model will be used in conjunction with a geochemical model to track contaminants along selected flow paths.

The study will focus on three main objectives: (1) identify significant nutrient and pesticide inputs in the Chipola River and Floridan Aquifer system based on existing water quality data and selected reconnaissance and source water data; (2) define and quantify contaminant transport and degradation rates by characterizing the hydrologic and geochemical processes along the flow path; (3) use the model to test one or two hydrological scenarios (the first of which will track nutrients and the second, pesticides or a proxy organic compound.) These efforts will evaluate the effects of urban and agricultural practices or changes in nitrate concentrations in the Chipola River and Jackson Springs systems at 3 to 5 locations.

Ms. Christy Crandall of USGS described the plan for the Chipola River/Floridan Aquifer System project. The USGS first will gather all the current modeling data, land use information, climate & geological data. Next, the USGS will evaluate 30 sites in the Chipola/Jackson Spring system where high levels of nutrients occur or where land use indicates we may find these

compounds. This will give us leads on the selection of sites that will provide a good profile of the river system. Eventually, ten sites will be chosen for in-depth study. The flow model will be able to backtrack the source of contaminants into the river.

This study will be beneficial in monitoring the ground water, springs and river in a needed area. The Bureau of Pesticides may participate by providing pesticide analytical services.

South Florida Water Management District (SFWMD), Mr. Richard Pfeuffer

Caloosahatchee River Monitoring Update

The Caloosahatchee River is a major river in Florida which originates at Lake Okeechobee and empties into the Gulf at Ft. Myers, with many tributaries and canals contributing along the water way. A water quality monitoring project was triggered when FDEP considered listing the river as being impaired for pesticides. The SFWMD wanted to obtain some data from tributaries to evaluate the quality of the water entering the river. Included in the report was a historical summary of data that SFWMD has been sampling at three locations for many years.

FDEP has chosen several tributaries to monitor in addition to the three sites on the river. The Townsend Canal is a tributary that produced data similar to the results of SFWMD historical samples. This helps to determine the extent to which SFWMD samples reflect the quality of the water. The monitoring project did not reveal any new compounds. Some of the sites did produce some high values, but did not exceed any levels of concern. The project is going well and we are pleased to see that there has not been an indication of new or high detections in the river.

During a question and answer session about the Chipola and Caloosahatchee River projects, Dr. Howard asked about the duration of the latter project and Mr. Pfeuffer responded that sampling will continue through December 2006. Dr. Howard asked if other pesticides in the data raise concerns in the Chipola River. Ms. Crandall responded that no pesticide data from the USGS National Water Quality Assessment Program exceeded the maximum contaminant level.

Mr. Rackley asked if any work has been done to predict where the land use changes contribute to ground water contamination. Ms. Crandall stated that that was the goal of the project and they will be implementing flow models to predict that source.

Dr. George Hochmuth (IFAS) asked for clarification on the working group and its function for the Chipola River. Working groups in other basins have been very effective in informing people in the area to better understand what is going on in the river. Working groups include the agricultural industry and government and they seek out stakeholders to participate in the group.

Dr. Ashok Shahane asked Mr. Pfeuffer about the dilution effect in the data presented for the Caloosahatchee River. Most drainage derives from tributaries, not from Lake Okeechobee except in extreme conditions.

Dr. Howard mentioned that Ms. Jane Foos (FDACS) had recently passed away. Ms. Foos provided significant input on the design and scientific rigor of this project, among many others. Her contributions to the state will be missed.

Presentation: Triazine Registration Update & Water Quality Monitoring in Florida

Dr. Dennis Tierney, Syngenta

Dr. Tierney presented the Council an update of atrazine monitoring programs, triazine registration status, and simazine prospective groundwater study in Florida.

A flowchart of the process of risk assessment was presented to indicate the process for considering protection of water quality. Dr. Tierney provided background information on the registration history for triazine herbicides, the most recent action for which was publication by the U.S. Environmental Protection Agency (USEPA) of the cumulative risk assessment for the chlorinated triazine pesticides (atrazine, simazine, and three chloro-triazine metabolites) in 2006.

A memorandum of agreement has been signed by USEPA, the Justice Department and the registrants under the authority of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). Under this agreement, if the terms and schedule are fully implemented, EPA will not initiate cancellation or suspension for issues addressed in the agreement.

As a result of EPA's reregistration process, the following decisions were reached: atrazine and simazine are eligible for re-registration; atrazine is classified as not likely to be carcinogenic to humans; risk mitigation measures are to be implemented for atrazine and simazine; pesticide labels must be amended for certain uses of atrazine and simazine so that continued uses do not pose risks inconsistent with standards for re-registration.

Federal reregistration also requires mitigation and stewardship with community water supplies monitoring for atrazine and simazine, ecological monitoring for atrazine, watershed-based stewardship programs for atrazine and simazine, and label conditions (setbacks) to protect groundwater and surface water.

EPA intends to hold three scientific advisory panels in the third or fourth quarters in 2007 to review mammalian cancer classification, review of amphibian studies, and a review of aquatic eco-monitoring program.

Dr. Tierney displayed a map representing the major use states of the U.S. for atrazine and simazine. California and Florida use almost 99% of the total stock for simazine. The Environmental Protection Agency, Office of Water (EPA-OW) set the MCL in 1993 for atrazine and simazine through the Safe Drinking Water Act (SDWA). These standards include 3 ppb for atrazine, 4 ppb for simazine, which must be met by community water Systems (CWS).

Dr. Tierney reviewed the national usage patterns for atrazine and simazine, information on the applicable regulatory concentrations for drinking water, and water quality data for Florida. Ground water, surface water and other sources were all well under the 4 ppb maximum contaminant level for simazine. Data taken from 1,868 community water systems was used to estimate population exposure; it is dominated with non-detections.

Dr. Tierney indicated that because atrazine, simazine, and propazine and the three chloro-triazine metabolites operate via the same toxicological mechanism, they must be considered collectively in a cumulative risk assessment under the Food Quality Protection Act. The cumulative risk assessment excludes propazine, since no exposure via drinking water is expected. The cumulative risk assessment indicates that there is no need for an intensive monitoring program for atrazine or simazine in Florida, but EPA is asking that the registrants conduct a confirmatory program here with four community-based water supplies.

Dr. Tierney reviewed the atrazine monitoring program (AMP), which is being conducted in states where more intensive sampling is conducted (EPA did not identify any watersheds in Florida as needing to participate in the AMP). As of June 1, 2006, 136 CWS in 10 states were participating in the AMP.

The simazine monitoring program (SMP) is similar to the AMP, but less extensive. As of June 1, 2006, seven community water supplies in four states were participating. Florida is not

included in the SMP, but 4 community water systems here (Punta Gorda, Belle Glade, Peace River, Lee County Regional Water) are contributing to a confirmatory monitoring program that will start mid-November.

In the federal regulatory process, actions can be taken if the annual average is greater than 2.6 ppb total chloro-triazines. Atrazine is prohibited if the total chloro-triazine (TCT) 90-day rolling average is greater or equal to 37.5 ppb in two separate years within a five year period. Watershed areas are subject to prohibition of the product at the sole discretion of EPA after discussion with registrants. To mitigate after the first detection of greater or equal to 37.5 ppb TCT, a plan must be submitted and implemented within 90 days. After the second exceedance, use will be prohibited in the watershed.

Dr. Tierney outlined an ecological monitoring program for aquatic life in surface water. The objectives of the EPA-initiated program are: (1) to identify the magnitude and duration of exposures that potentially adversely affect aquatic communities and/or ecosystems; and (2) to develop a tiered watershed monitoring and mitigation program in coordination with Total Maximum Daily Load programs and other watershed based remediation programs. Dr. Tierney described the current draft aquatic life criteria for atrazine. He also explained a comprehensive aquatic systems model (CASM) that is used to predict effects of atrazine on the aquatic ecological food chain. The model assesses potential impacts on biomass production, community structure, integrated direct/indirect effects, and it indicates community structure recovery.

The scope of the eco-monitoring program includes flowing water bodies represented by 40 sites in corn-sorghum use areas, and static water bodies represented by CWS monitoring data in corn-sorghum areas, and sugarcane use areas started in Louisiana 2005, and Florida 2006. Florida has one site located just southeast of Lake Okeechobee.

In summary, monitoring and mitigation plans reflect a coordinated effort between the EPA Office of Pesticide Programs (OPP) and Office of Water (OW). The atrazine level of concern determined by OPP is the same as the draft aquatic life criteria developed by OW, and this value will determine where watersheds are exceeding the effects-based thresholds. The 40 monitoring sites selected as being representative of the most atrazine-vulnerable will provide information to help evaluate 1172 vulnerable watersheds. If needed, mitigation would be developed in a process coordinated with states, regions and EPA-HQ.

Regarding future groundwater studies for simazine, the Reregistration Eligibility Decision's modeled drinking water concentrations did not exceed the drinking water level of comparison (DWLOC). EPA is discussing with registrants their concern whether TCT concentrations in rural wells may exceed levels of concern. The Agency is also taking into consideration comments and data that FDACS has provided regarding simazine's fate in groundwater under Florida conditions.

Mr. Hicks asked Dr. Tierney about the relative proportions of parent compounds and degradates in water samples. Dr. Tierney said that in spring runoff conditions in the midwest, generally the parent compounds occur in higher concentrations (90-95% of total). Later in the summer, under base flow conditions, the degradate contribution increases. In the SFWMD monitoring data, both the parent and degradates occurred at relatively low levels. Mr. Pfeuffer asked why the Belle Glade community water supply had been chosen to evaluate atrazine, since the source is Lake Okeechobee, where there is little direct contact with agricultural drainage except for unusual instances when back pumping is needed to replenish low lake levels. Dr. Tierney indicated that the site had been negotiated with EPA, though he suspected that given the water flows and past sampling, there was little likelihood of detecting significant concentrations

there. Mr. Pfeuffer noted that the results of intensive surface water sampling by Syngenta at a storm water treatment area in the Water Conservation Area compared well with years of quarterly sample data obtained by the SFWMD.

Presentation: Organic Arsenical Herbicides

Dr. Davis Daiker, Florida Department of Agriculture & Consumer Services,

Dr. Davis Daiker, Environmental Administrator with the Bureau of Pesticides, presented the Council with an update on the registration review of the organic arsenicals herbicides. As part of EPA's reregistration process, the Agency released a draft risk assessment in April 2006 on MSMA (monosodium methane arsenate), DSMA (disodium methane arsenate, DMA), and CAMA (calcium acid methane arsenate). It considers new research on the toxicity and carcinogenicity of the organic arsenical herbicides and their degradation in the environment. The 60-day public comment period closed June 5th 2006.

The risk assessment evaluates multiple exposure routes: food, soil, drinking water, occupational and residential in both acute and chronic exposure scenarios. An assessment was made on cancer and non-cancer endpoints for the organic and inorganic arsenical forms.

In their reregistration assessment, EPA questioned (1) whether arsenical herbicides could increase the amount of total arsenic in the soil, how to mitigate this effect, whether the mitigation would be effective and would it impact use practices; (2) whether the use of organic arsenicals will lead to an increase in total arsenic in surface and ground water, how to mitigate this effect, whether the mitigation would be effective, and would it impact use practice; (3) whether homeowners will be exposed to unacceptable risk from arsenic in a residential setting, what form will mitigation take (restricted use pesticide designation or requirements for reduced rates); (4)

will arsenical herbicide use lead to exceedances of total arsenic for non-target organisms, how to mitigate this risk, and whether mitigation measures would impact use practices; and (5) whether there is additional information about organic arsenical herbicides that should be considered.

For occupational exposure, the risk assessment found no unacceptable risk for any of the products considered. For post-application exposures in occupational settings, all risks are acceptable except DMA use in turf renovation. All residential applicator risks were considered acceptable.

Most residential post-application exposures were acceptable with the exception of acute, oral exposure to DMA and the aggregate (dermal, inhalation) exposure from DMA and CAMA. The assessment found no unacceptable risk associated with post-application residential exposure to MSMA or DSMA. The acute dietary risk assessment found that all exposures were below levels of concern. Chronic dietary exposures were also below levels of concern.

With respect to risks to ground water, no assessment was conducted, since the arsenical herbicides are not expected to contribute significantly to the arsenic in ground water, except in highly vulnerable situations. However, EPA estimated that unacceptable concentrations of arsenic could be expected in surface water following use of arsenical herbicides.

FDACS provided the following comments to the EPA in response to their assessment.

- (1) *Do the organic arsenical herbicides persist in the environment and can they be converted to the more toxic inorganic form:* FDACS agrees with EPA's assertion that arsenic from pesticides is not lost but redistributed and transformed throughout the environment and that the organic arsenical herbicides may convert to more toxic forms (supporting references provided).
- (2) *Assess the human health risks at sites that received multiple years of use such as residential settings, golf courses, or athletic turf:* Arsenic in its inorganic form does not metabolize and

evidence indicates that it may build up in soil over time as applications are repeated. EPA's assessment suggests that a single application would result in soil levels > Soil Screening Level (SSL) of 0.4 mg/kg. (3) *Assess the long-term (chronic) risk from use of organic arsenic herbicides in post-application, residential scenarios. If organic species are persistent or can be converted in the environment to more toxic forms, should this chronic scenario be evaluated?* (4) *The risk to groundwater should be assessed.* In certain vulnerable circumstances in areas with low background arsenic, application of organic arsenical herbicides may lead to an increase in total arsenic in ground water. Florida has a shallow depth to water, sandy soils with low clay and organic matter, more than 50 inches of precipitation per year and has an arsenic background concentration of 0-4ppb. FDACS further stressed the need for EPA to evaluate the risk to groundwater. Approximately, 90% of Florida citizens receive potable water from ground water sources while many continue to rely on private wells. Also provided by FDACS were citations of conditions shown to mobilize arsenic from soil-bound states. Changes in soil pH, clay and organic content, chemical state of iron, aluminum, magnesium and calcium all have effects on arsenic in soil. Irrigation, flooding, addition of phosphates and drying of soil can also contribute.

Dr. Daiker stated that other comments to the risk assessment can be found on the internet from MAATF, golf course superintendents, Wood Preservative Science Council, FDEP, and numerous stakeholders at: www.regulations.gov

On August 9, 2006, EPA released the RED document that considered the public comments. These comments included refining the assessment of risks to non-target organisms, the agency's decision on the regulatory eligibility, and provided a 60-day comment period. The RED identified unacceptable risks under the following scenarios: occupational, post-application

from DMA; post-application, residential from DMA; aggregate, residential risk from DMA & CAMA and; drinking water (surface) for inorganic arsenic.

The RED document estimated drinking water concentrations following application to both turf and cotton. The concentration exceeded the 0.02 ppb target level which corresponds to an increased 1×10^{-6} cancer risk. It also concluded that the organic arsenical herbicides were not eligible for reregistration. This decision was made after evaluating the risk to non-target organisms, mitigation measures and the availability of alternatives.

Currently, FDACS and other stakeholders are awaiting the release of EPA's final re-registration decision (the original comment deadline of October 9th has been extended to December 13th, 2006).

Dr. Daiker gave an update on the prospective groundwater study being conducted with the Monomethylarsonic Acid (MAA) Task Force and FDACS. As of June 7, 2006, FDACS and the MAA Task Force's consultant had visited at proposed site near Haines City (Polk County). The approximately 5 acre site (2.5 acres of which are usable) is primarily sand scrub vegetation and with evidence of active gopher turtle burrows. On July 13th, FDACS recommended further characterization of the site and requested resolution of outstanding protocol details. On July 27th, the MAATF requested approval of the site and asked that all communications to be channeled through the Task Force. On August 25th, FDACS asked the Task Force of their intent regarding the EPA-RED decision and the need to resolve outstanding study details. As of October 13th, the MAATF and FDACS agreed to a 1-acre test plot. On October 23rd, FDACS provided Phase II site characterization information to the Task Force.

During follow up questions, Dr. Chris Saranko asked about the nature of EPA's ground water risk assessment. Dr. Daiker said that the Agency did not assess the potential for ground

water. Dr. Saranko noted that he was having trouble following the reasoning that led EPA to a 0.02 ppb target level (e.g., the value was based on a more conservative slope factor than EPA typically uses; EPA assumed 100% of drinking water is from surface water, whereas in Florida, most drinking water is derived from groundwater). Dr. Daiker responded that EPA's risk assessment is nationwide, rather than Florida-specific. Dr. Saranko followed up by noting that Florida's arsenic standard for class III non-drinking water surface water bodies is 50 ppb, which is considerably higher than EPA's target concentration of 0.02 ppb. Dr. Daiker said he thought the EPA Office of Pesticide Programs would be receiving comments on the fact that their target value is less than the Office of Water's 10 ppb maximum contaminant level for drinking water.

Dr. Howard asked Mr. Doug Jones, Chief of the Bureau of Waste Management at DEP, to join him in updating the Council on responses by FDACS and DEP to EPA's decision that organic arsenicals were not eligible for reregistration. Dr. Howard said that while FDACS was still drafting comments, the Department notes that EPA has taken more seriously the concerns we previously raised about water quality. FDACS acknowledges that there are uncertainties about sources of arsenic in Florida ground water, but there is also ample data compiled by various agencies in the state to indicate a strong pattern of elevated arsenic in soil or groundwater in areas where use of arsenical herbicides might be expected. We recognized early on that the most direct way to determine if arsenical herbicides were contributing to unacceptable concentrations of arsenic in ground water was to conduct a prospective ground water study. In 2003, the MAA Task Force agreed to do a study, and although there have been some mitigating circumstances; this study is taking an unusually long period of time to begin. Hence, we do not have data regarding water quality concerns that could have otherwise enlightened our comments to EPA

According to Dr. Howard, the MAA Task Force has indicated that EPA's recent decision has not altered their intention to continue with the Florida study. He also noted that a recent laboratory study by researchers in Texas, using Florida soil samples, reported that EPA may be underestimating the risks of exposure to inorganic arsenic after application of organic arsenicals. FDACS will be mindful of this type of information when we provide our comments to EPA.

Mr. Doug Jones noted that he had first come to the PRC several years ago to discuss this issue because DEP field staff were finding arsenic at concentrations exceeding cleanup target levels in areas where organic arsenicals were apparently being used. In other words, the legal use of a product seemed to be causing a health risk greater than would normally be tolerated under waste discharge requirements. Rather than pursuing this as an enforcement issue, DEP brought this matter to the attention of FDACS and the PRC where it could be addressed through the pesticide registration process (e.g., consider label changes, registration revocation, etc). Given all that has transpired since then, Mr. Jones said that DEP has reached the point where they support EPA's decision that organic arsenicals are not eligible for reregistration. DEP's basis for this is their concern that herbicide applications may be creating hazardous sites around the state, and that with the conversion of agricultural sites to residential land uses, there is a risk that subdivisions and water supply wells could be located in arsenic-contaminated sites. In closing Mr. Jones also noted DEP's concern that the organic forms of arsenic can convert to inorganic forms; DEP has seen evidence of this in various research reports.

Dr. Mel Kyle asked about replacement products, if organic arsenicals were removed from the market. Dr. Howard said that EPA has been receiving many comments on that question, particularly from the turf industry and cotton growers. There is no one drop-in replacement for MSMA and some alternatives are more expensive. The cotton industry is concerned that organic

arsenicals are needed to economically control weeds that are becoming resistant to glyphosate in “Roundup-Ready” cotton fields. When Dr. Johnson asked if FDACS was still reviewing the data prior to commenting to EPA on the RED, Dr. Howard replied that that was so. He added that his personal preference at this point was to support EPA’s decision, based on the continuing uncertainties and the persistent nature of arsenic. Mr. Rackley said that the Division would regret seeing the loss of a product that is relied upon by the golf and turf industry as well as cotton growers, and there may be some information forthcoming that will help enlighten us before EPA’s comment period closes. However, presently, the biggest concern is the potential build up of arsenic accumulation in the soil. Until EPA reaches a different conclusion or we learn of evidence that would support a different conclusion, we have no alternative but to support EPA’s decision.

Presentation: Organic Arsenical Herbicides

Dr. Michal Eldan, MAA Task Force and Dr. Robert DeMott, Environ

Dr. Michal Eldan was invited to address the council on the MAA activities. Dr. Eldan commended Dr. Daiker for his presentation. She affirmed that indeed, the Task Force stood behind its commitment to conduct a Florida study. Dr. Eldan stated that the Task Force obviously opposes EPA’s RED decision, that they believe that many of EPA’s facts are wrong, that the assessment needs to be revised, and that they plan to submit comments to the Agency, including their response to comments submitted by FDACS and FDEP. The Task Force believes that their products will be around for some time, and to help the PRC understand why that is so, she asked Dr. Robert DeMott (Environ), a consultant to the MAATF to describe their plans to respond to EPA.

Dr. Robert DeMott, with Environ, was asked by the MAA Research Task Force (MAATF; Task Force) to present to the PRC EPA's proposed decision to cancel the uses of the organic arsenical herbicides, as well as the Task Forces' intents and plans. Since Dr. Daiker (FDACS) gave an accurate description of EPA's decision, Dr. DeMott skipped this part of his talk. Dr. DeMott explained that EPA's proposed decision was based on the results of EPA's modeling of the exposure potential for inorganic arsenic in water.

The MAATF plans to submit a response during the comment period which is scheduled to end December 13th, 2006. The major challenges to EPA's approach were: (1) EPA estimated the risk based on the toxicity of inorganic arsenic although the RED specifies that organic forms of arsenic are much less toxic than the inorganic, and would not create a concern. (2) EPA's decision was based on an overestimated transformation to inorganic forms, allowing for reliance on the toxicity value of inorganic arsenic, and (3) the toxicity value that EPA uses for inorganic arsenic is being challenged, with the argument it must account for the threshold nature of the response. There is a growing recognition among researchers, that the response of inorganic arsenic has a threshold. A recent Arsenic Review Panel (ARP) for EPA Science Advisory Board (SAB) acknowledged that although the exact mechanism of action of inorganic arsenic has not been clarified, all possible modes of action should have a threshold. EPA's current risk computations assume a linear (non-threshold) response; which means that some risk remains no matter how low the exposure is. The values used by EPA were derived from old epidemiological studies with populations exposed to very high levels of inorganic arsenic. The difficulty comes in applying the values from the high exposure levels to low-dose exposures. This difficulty is obvious when looking at the alternative values used by EPA: there is inter-

office inconsistency in applying their risk-based computations, and different offices use different values.

Repeated observations from various studies indicate a threshold. The protective specification for the threshold appears to be around 150 ppb of inorganic arsenic in drinking water. Proposed mechanisms are also consistent with threshold mode of action.

With regard to the modeling of arsenic transport to drinking water used in EPA's re-registration eligibility decision (RED), the Task Force had the following comments: EPA's key rationale for projecting potentially elevated risks was based on EPA's modeled predictions of transport to surface water, using the basic PRZM model approach. The initial criterion specified by EPA for comparison to modeling results was the current MCL of 10 ppb and the arsenic levels that resulted from calculations using the basic PRZM model approach exceeded this criterion. The Task Force demonstrated to EPA that when using the latest updates of the PRZM model, there was a lack of concern at the 10 ppb level. EPA then changed the required limit to 3 ppb and finally to 0.02 ppb as the modeled calculations demonstrated the ability to meet the limits. EPA's ultimate model requirement is 500 times lower than the drinking water standard and 2500 times lower than the Florida surface water standard.

There are several flaws in the modeling assumptions. For example, the requirement to achieve sub-background levels so far below standards is in itself a burden. Also, EPA is "double-counting" the applied pesticides. The model assumed that 100% of applied pesticides is converted to inorganic in soil, and that 100% of this soil was transported to surface water through erosion. At the same time, it assumed that 100% of applied pesticides was adsorbed to soil and retained, leading to soil accumulation.

Finally, when proposing to cancel the uses of the organic arsenical herbicides, the EPA failed to acknowledge the importance of MSMA in its effectiveness and economics of the product. The analysis of alternatives and the product effectiveness was not completely reasonable. Pragmatically, there are no viable alternative products that have better cost differential or broad effectiveness.

In summary, EPA's proposed decision was based on inconsistent, outdated toxicity values for inorganic arsenic motivated by a switch to treating pesticides as inorganic forms. EPA will have to harmonize application of health protective goals and varying model requirements. The MAATF will continue to work with EPA in an active and engaging way towards conformity with agency guidance, and consideration of the importance of MSMA as a product.

In the ensuing discussion, Mr. Irby asked why the Florida prospective ground water study had not been implemented. Mr. Richard Lewis (HSA; a consultant for the MAA Task Force) replied that he felt both Florida and the Task Force had been working to get the study underway and that especially recently, there had been considerable progress. Mr. Irby followed with a question about the nature of the human epidemiological studies cited by Dr. DeMott, and whether EPA had commented on them. Dr. DeMott indicated that there have been extensive peer reviewed studies in the US and abroad covering a wide range of exposure situations. They were considered in several EPA review panels and to date, there has been general agreement that the Taiwan studies have limitations, but no one has pulled the trigger to say that they are ready to make a change. The answer has been that there's not enough evidence to make a change. In response to a question from Dr. Howard, Drs. Eldan and DeMott indicated, that in addition to the Task Force, other registrants of organic arsenicals are providing comments to EPA.

Mr. Rackley asked if, in the absence of information regarding safety, EPA customarily sets very stringent criteria. Dr. DeMott agreed, saying in the face of uncertainty, EPA makes protective decisions. Such decisions prompt those interested in the product to conduct or identify studies that can help to reduce the uncertainty and refine the decision. Dr. Saranko added that EPA has been undergoing a revision to its cancer assessment policy for the past 7-10 years. The old cancer guidelines did not change until 2005, and those original guidelines contained little acknowledgement for non-linear models for cancer induction. Since then, non-linear modes of action have been identified for many compounds and EPA is beginning to recognize such research: arsenic is in line for consideration of a greater degree of non-linearity, but it is a slow-moving, bureaucratic process. Mr. Rackley asked if EPA is willing to eventually accept such changes for pesticides. Dr. Eldan indicated that this was the case and Dr. Tierney replied that a non-linear model had been accepted by EPA for triazines. Dr. DeMott felt that there would be continuing pressure to reexamine the toxicity of arsenicals, not just because of the reregistration issue, but also because of drinking water issues for other arsenic compounds.

Council Discussion

In an open discussion by the Council on the purpose and future of the PRC, Dr. Howard gave an overview of the guidelines regarding the Pesticide Review Council. The Council has a broad range of powers and responsibilities. The PRC was established to be a statewide forum to coordinate pesticide-related issues and activities with an emphasis on eliminating redundancy between departments and agencies. The powers and duties include the ability to propose scientific studies for registered pesticides when there is evidence that a pesticide is adversely affecting the health to humans or damage to the environment. The PRC can make recommendations directly to the Commissioner about pesticides in the state of Florida. The

Council can also provide advice to appropriate governmental agencies, including the state university system with respect to activities related to their responsibilities to pesticides. The PRC can review biological and alternate control to reduce the use of pesticides. Any member can bring up recommendations or advice on pesticides when substantive data indicate that a pesticide is causing unreasonable adverse affects. Lastly, the PRC can assist the Department of Agriculture in the review of registered pesticides that are selected for special review based on potential environmental or human health effects.

Dr. Howard asked the Council that among those activities, what should the Council be placing emphasis on and what should the Council do or not do in setting up the meetings regarding the agenda or presentations.

Mel Kyle alluded to his discussion with Dr. Graham, in which he thought her question was whether the Council is continuing to do what the legislature had intended when the statutes were written mandating the Pesticide Review Council. Dr. Howard stated that when the statutes were created, there were many examples of duplication of work and non-communication among departments. He feels that the Council has succeeded in this regard and thus he raised the question, can we now use the Council to highlight additional pesticide-related activities among the represented organizations on the Council? For example, Mr. Pfeuffer has been actively updating the Council on pesticide-related activities at the SFWMD; however, since he represents all districts in the state, could Mr. Pfeuffer canvass thee other districts to see if they have any pesticide-related matters that warrant the Council's attention. There are also numerous pesticide-related research and education activites within the IFAS community; it could be useful to inform the Council on such activities. Are there other pesticide-developments that could be brought forward by non-agency members on the Council?

Dr. Kyle stated that a primary beneficiary of the Council's work is the Commissioner of Agriculture; does the Commissioner actually get recommendations that come out of the PRC?

Dr. Howard responded that it has been some time since the Council has sent a recommendation to the Commissioner. Dr. Ashok Shahane, FDACS answered that to his knowledge; in 1985 the Council recommended a ground water monitoring program for targeted pesticides in Palm Beach County. There have been some recommendations made in the recent past and can be found in the PRC records.

Mr. Bobby Newsome asked if anyone has left a Council meeting feeling we should have made a recommendation to the Commissioner. When meetings end, he feels that things are moving forward with respects to pesticides.

Dr. Chris Saranko remarked on the format of the PRC. We come and hear presentations, but there is not really an impetus to make recommendations; the meetings are more consumption- oriented. He feels the Council is not presented with any actionable items.

Dr. Kyle commented that perhaps the state of the PRC as it stands now is a testament to interdepartmental cooperation as it was intended to achieve.

Mr. Ed Irby stated that the creation of the PRC came out of a time in the 1980's when there was no cooperation between agencies and departments on the state and federal level. The governor and legislature got tired of this and created several Councils including the PRC to improve cooperation. Dr. Dave Johnson agreed that the communication has been greatly improved over the span of the Council. For example with the arsenic issue, we are all now informed and educated on the status of this pesticide.

Dr. Howard mentioned that as the Department is going through a review process, we should also determine if the PRC is a relevant group. Mr. Andy Rackley stated that the

presentations today have been beneficial to him and will assist with future decisions. He feels that the Council has not had a hot topic; however, the Council is in place in case any major issues arise. We are in a state that is dynamic where pesticide issues can become extremely difficult to regulate. Mr. Rackley stated that each member has or represents great talent and expertise. The expertise that this Council can potentially provide, and the relationships we now share are invaluable. Also, Mr. Rackley noted that in a previous discussion with Dr. McLellen of IFAS, the Department does not know what research projects are ongoing that could impact Florida and what the Department does. Mr. Rackley feels that given each member's background, we can bring new ideas and issues to the forefront of the Council.

Dr. Howard stated that the number of meetings is flexible and the Council can meet at the request of any member should an issue arise. For agenda development, we generally cast out to the members if there are any issues you feel are in need of discussion. Generally, there are few responses to that request and we turn to more agency-driven topics. Perhaps for the next meeting, members could take the agenda request and bring forth topics that the Department would benefit from.

A number of candidate topics for further consideration by the Council were mentioned. Mr. Irby suggested further exploring alternatives to organic arsenicals. Dr. Hochmuth suggested that the Council members could ask, when a decision ultimately is made on organic arsenicals, if the Council was as fully engaged as appropriate during the decision-making process. He also thought IFAS would be very interested in routinely informing the Council about its on-going pesticide research and education efforts. Referring to an earlier comment by Mr. Irby, Dr. Hochmuth suggested the PRC could examine the question of whether it is sufficiently proactive. Mr. Irby noted the increasing trend of development into agricultural areas and asked if enough

was being done to inform new neighbors about the nature of agricultural pesticide operations and thereby, reduce conflicts. Dr. Hochmuth noted that other states like Michigan are preparing information of just that nature; models are available. Mr. Hicks suggested a topic covering grower education on agrichemical usage/handling to avoid environmental contamination problems arising when farm property is being converted to development. Dr. Saranko added that the issue of conversion of agricultural land to other land uses is not well covered by current regulations...other states have been looking at the impacts of agrichemical handling and application of more persistent chemicals. Dr. Howard suggested that EPA's recent risk assessments on soil fumigants indicates that pesticide air quality issues and concerns for bystander safety and practical risk-mitigation will be of growing interest.

Dr. Howard stated that from this discussion, the Council appears to see a value in continuing with meetings, even those of a primarily informative nature. There are also opportunities for members to do more in the way of sharing information on emerging issues and being proactive in identifying areas that require attention to prevent problems from occurring. The Council can strive to make recommendations on pesticide-related topics, but in order to do that; we need to think about agenda topics that are important to the Commissioner and the state. Dr. Howard will send out the comments on this topic to the members and pursue how to proceed at the next meeting.

Comments from Audience

None

Adjournment:

The Council determined that the next meeting of the PRC would be in late May or June 2007 in Gainesville, Florida. An agenda would be forthcoming when the next date is set. Upon agreement, the meeting adjourned at 12:45pm.