Proceedings of the 2000 Program of the Research Center Administrators Society January 30-February 2, 2000, Lexington Kentucky

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WELCOME TO KENTUCKY

Dr. C. Oran Little University of Kentucky Lexington

We are pleased to have the Research Center Administrators back in Kentucky. Your group has been at the grassroots of the change that we are now experiencing in agriculture. And I know that each of you have had to make decisions based on the mission and needs of your clientele to affect that change. I would like to address the things we are now experiencing in Kentucky and how we are changing.

How do we do things today with so many differentials? Kentucky is a state that has 120 counties, and each expects to have a very active extension program based in that county office. You will find a state that includes a 50% rural land area, and as a result county judges are still a big part of the political picture. Our state contains 85,000 farms, rather a large number, whereas in most states the number is going down. This is an agriculture that is based on small farms. It is a state that has a real resource base, considering the kind of geography we have, and for these reasons we face a constant challenge in education and research to provide the appropriate outreach in shaping the future.

Our workforce today has only 3% in production agriculture. Another 20% is in Ag-related businesses. These people are responsible for a 1998 farm income of \$4 billion. This translates into a \$16 billion contribution to the state's economy with an economic multiplier. The latest census shows we have over five million acres in row crop production and eight million acres in pastures. Agriculture is still a major force in Kentucky.

I tried to put together a Power Point presentation that summarizes some of these things that are happening in Kentucky. I don't know how many of you get Doanes Agricultural Newsletter each week. The issue in the first week in January stated that the number one influence on American agriculture were the land-grant universities. The land-grant universities are expected to produce needed information and the public has high expections, and they are increasing. Trying to function in this environment means that our programs must closely coordinate all of these stakeholders. The land grant university is an investment that is going to pay off in dollar and cents. This is our justification for the future.

We are all part of this land grant university system. One thing that makes this paticular meeting each year, when we all come together from the Southern region, is the landgrant university concept that provides the real strength and concept of what we have to do. Each land grant university started from three pieces of legislation. First we started from the Morrell Act. It established this instructional effort, to provide special education. There was then a 25-year time span. Second thing was the Hatch Act that provided the experiment station for research. Another 25 years along, came the Smith-Lever Act that established the Cooperative Extension Service. It was designed to deliver information. Taking those things that were happening in our research labs, on campuses, and put those things out there realizing that education is a lifelong learning process.

As we look as education in general, our legislation is in session right now, and our governor came out with his budget requests this past week. I have spent 99% my time with them. We were

getting feedback that one of our legislators in one of the key spots was committing to some of our cliental that you are not using the money being sent to you for its intended purpose. I went to see him, he said, "We talk about daycare centers, feeding the welfare cases, etc". He sends the money to us for agriculture. I reminded him that some of these things that we have taken on have come as federal mandates. That really narrows down these three land grant functions. This was what our function was based upon including fiber. When you look at agriculture, fiber included, it is also crops and livestock. Those kind of things dealing with soil and water. It is people in communities and economic impact. I hope that we keep in mind that soil, water, plant and animal end up out here as economic impact factors. Alot of this is looking at us on how we continue to develop that economic impact of agriculture and our rural begins. Agriculture in Kentucky is our number one industry in relation to the number of areas of land and resources invested. Kentucky has 5 million areas of cropland. This is our base resource where alot of the development likes to take place. How are we going to use that as an economic effect? The second component is the 8 million acres of pastures and forages. This is one of those resources that isn't going to change that much, we need to manage it. Technology has brought about change that allows us to manage better. This is what we are doing today in Kentucky.

Our mission is to develop our human resources, create knowledge and transfer technology. It is the core of our business and by staying with this mission we will continue to serve our clientele. Our priorities include having agriculture participate in a global economy, producing a safe food supply, having healthy well nourished families and producing this food in a sustainable environment.

In achieving these goals, 60% of our faculty has received national recognition and 24% are recognized national fellows in their respective disciplines. In 1998 the college was awarded % million dollars in contracts while in 1999 we received 6 million dollars. Together with 17.9 million dollars in outside gifts and grants, we have made a large stride towards keeping abreast of needed research. These monies also have resulted in economic impacts in many differing areas.

Some examples are in no tillage systems, 120 million; control of contagious equine meningitis, 211 million; fescue toxicosis, 600 million; tobacco, 20 million; water quality, health care and youth leadership development, priceless! These are the traditional areas of impact but we have a host of alternate crops that may represent the future. These fruits and vegetables and the increase per acre are cabbage, 966 dollars; egg plant, 1107 dollars; cauliflower, 1231 dollars; winter squash, 1500 dollars and cantaloupes, 2200 dollars per acre. Quite an impact for production agriculture, but technology also is making an impact on site specific, precision farming. The custom made crops being yielded by biotechnology will have significant impact in the future. Being able to reduce plant stress tolerance to the environment and insects will also become more important as we continue to improve.

What about the future? We continue to improve our facilities on campus. We are moving into a new animal sciences complex at a cost of 11 million dollars. We opened bids for a plant sciences complex for 18.5 million, we have asked for 12 million to build specialized greenhouses to augment our biotechnology program. Together, these facilities will allow us to concentrate on animal/plant systems for future production. Our crop production processes will need information for transition to these newly created crops. Information technology will be developed to prepare processors and consumers for these new methods and services that will carry us through the 21st century.

Each of us has the responsibility to show our clientele that we can deliver cost effective research and work together to reduce our cost constraints. This public perception that we are not good stewards will take all of our efforts to educate the public. This means that every player has an important role from the administrators to faculty to the staffs at our branch stations. By working together, we can achieve our goals and keep the land grant system flourishing.

Thank you for coming to Kentucky and I hope you enjoy your stay in the Bluegrass State.

QUESTIONS AND ANSWERS REGARDING GMO'S

Dr. Emerson D. Nafziger, Professor of Crop Production Ext. Dept. of Crop Science, University of Illinois, Urbana

We'll accept some offers for selling part of Southern Illinois to add to Kentucky's crop land if Dean Little is interested. Actually, I'm not representing the state, but am an extension specialist at the University of Illinois in its Crop Sciences Department. The big bomb that hit last spring from ADM was to tell farmers that AIf you don't have seed that's approved for export to Europe... that corn we really don't want. ADM in Illinois is our biggest processor in Decatur, about 50 miles southwest of Champagne-Urbana, where I'm located. This struck people and farmers for the first time in history that somebody said that you might be growing something that we might not want. You could call it corn. We have something our European customers don't want. We process it into ethanol and produce good feed that is mostly exported. We don't direct it towards Europe but the biggest concern was in processed products at that time. Some farmers returned the seed that they had bought. Roundup seed was the primary seed that concerned producers because it is not approved by the European Union for export or import into the union. There are some BTs that are approved. One of the Liberty Link events are not approved, those weren't approved then, and aren't going to be soon. Illinois farmers who had Roundup corn made up three or four percent of the total area of Illinois. Farmers asked the question AIf you are not going to take this now, what are you going to take, and then how are we going to keep these separate@? This is having an impact on farmers. I spent the last three or four months talking in general about this.

What are GMO crops? The companies have said that we should call then genetically enhanced instead. Some have said that we are not going to call them this because they are not enhanced. This is the battle that has occurred. Monsanto is the primary banner carrier for this technology at this point because of Roundup-Ready soybeans which was on half of our land area last year. They are the ones that really put their eggs in the basket and were going with it. Of course, they own Roundup-Ready everything. The patent is going off of Roundup, so they wanted to capture some additional value, and used this technology on soybeans, and sold farmers the seed. Farmers paid up happily, and didn't much care what kind of soybean that they got. It was three years ago that our acreage started to go off. The other odd thing about these GMO crops is that they are not new. We are now going into our fifth season of production with these. Only in the last year have these objections been raised. The European Union approved Roundup-Ready soybeans and BT corn readily in their first forms. Now we see them back-peddling and that is primarily driven by consumer requests and demands that were fueled by headlines in newspapers in Europe. This grew to a fever pitch from about a year ago to about three or four months ago. It is probably dying down a little bit. GM crops include only crop cultivars, and contain genes or DNA from their own species rater than from other crop species. That is the simple definition.

Transgenics would probably be a better term for them. We are kind of stuck with this. In our case in Illinois, the crops that we are working with are just those of Roundup-Ready and BT events of their different forms that include Liberty Link and combinations of these. This is all that we've got right now that can be labeled as GMO. This does not include mutations. No matter how nasty a mutation might be that you could breed into a crop it is not a GMO because you found it in the crop. It doesn't matter what you did to get there. Are there any other stated genetic specie finds? In defin-

ing the technology we look at this thing as kind of our official stance. People have said that trying to defend the technology means that everything goes to genetically modified. Of course it is. This is not the same ball game that is going out into the world's corn production. This throws the doors wide open, and you can basically put anything in that plant that you want to. We are hearing issues such as: If your dietary restrictions say that you can't eat pork, but say you have a soybean that you transformed using the pork gene to change the make-up of the oil.... When you eat that soybean are you eating pork? Think about this. If you put a human gene such as insulin in a corn plant, grow it, and some pollen gets in another corn field are you eating humans?

This is why the ethicists have gotten involved in this. You see what the problem is. Man is mentioned in referring to them. The biotechnology field has been accused of playing God. In a way, this is probably true. As I said, the doors are wide-open, and you can put anything in that plant. I truly believe that we are going to be able to move genes anywhere we want to, and make them work at the levels that we want them to. The amount of money and effort being put into it right now show that. I don't see much alternative to that. This is what worries people. The concern is not much on what is out there now, but groups are going to town on this. Environmental groups and others are having a hay-day with this in fund-raising. The products that we have out there right now that include Roundup-Ready are pretty innocuous. We would say big deal, we brought it out, you can put different herbicides on, and what is the problem? Part of the problem is that companies brought these products out with grand pronouncements and great coupons without being quiet about it. The world took notice, and said, "What if we don't want that?" That is exactly what has happened. It is not what we have in the present that is the great problem, but it is the potential of what is in the future. Who is going to be in charge of approvals in Europe? We have had few press descriptions about Frankin-Foods in the U.S. but they have been common within headlines in Europe.

A general distrust of governmental regulations and the approval process grew when the government sat there, and said that this mad cow thing is not a big problem and not to worry about it too much. It eventually became clear that humans could catch this illness from meat. This didn't happen a lot. There were Dioxins and PCBs in the feed supply in Belgium. Some of the blood supply in France had AIDS in it, and in all cases it had HIV. These things were being promoted or set by the regulators. Generally, the European public have gotten a general distrust derived from the regulation processes in Europe. I don't think their regulation processes are as good as in the United States. You can understand why the average consumer is that way because the only real thing that he is hearing concerns the possibility of being dangerous. That is the only information that they had to react to. If you reach consumers by saying that we only put this certain gene in there then this is not going to help much. What benefit do they get from this? Flavor-Saver tomatoes didn't go very far because I guess consumers like them green and hard. When that came out, the market was so high priced that the market really wasn't there. We went through this after it happened. Its purpose was only to extend its shelf-life, not for nutritional purposes. Now we are talking about things that will be nutritionally better, and will have better acceptance. The first things that we came out with in large quantities were not herbicide and insect resistance. This doesn't mean very much to the consumer. You didn't make corn and soybean any cheaper by doing that because they were already cheap to begin with. There are GREEN organizations in Europe. The issue is probably important because you like to adjust your supplier when you can. This was just an effort to do this, and the companies came back to ADM to say that we don't want that. ADM had to scramble to make steps to revive what they wanted with campaigns to sell their technology. The campaign has not gone well in Europe. The major European companies like Novartis and other companies who have been major players in this, are trying to play ball until something more positive hits the market. European grocery stores, European food processors, Japanese food processors and grocery stores are now asking for Non-GMO foods. They are not distinguishing whether it is positive, negative or neutral, but saying that they don't want it at all. There are labeling requirements in the European Union and Japan and that is a big potential issue with the United States. The Secretary of Agriculture said last week that he doesn't expect us to be labeling here. I don't expect to hear the end of that real soon. Some processors are promoting non-genetically modified crops. Brazil, from our soybean standpoint, is trying to be the non-gene supplier of the world. They are not going to be able to do that very well because they have a lot bigger problems and they are willing to admit Roundup-Ready soybeans into their country. It is illegal to spray Roundup-Ready soybeans with Roundup, but it is happening. A campaign occurred in December towards farmers by being asked to tear up their planted crop if they found out it was Roundup-Ready, and replace it with non-Roundup-Ready. Farmers probably didn't do this. They don't have the luxuries of technology, and they have cheap generic Roundup that comes form Argentina. Argentina is not the country with the largest percentage Roundup-Ready soybeans.

Are there any yield concerns? As we see in Illinois this year, farmers are moving away from BT corn. This is the one that they have the most difficulty with based on the standpoint of not being sure what questions the elevator is going to ask this fall, and the fact that there has been no European Corn Borer problem the last two years. This is the reason that farmers are looking at the two choices, and they are saying that maybe I would be well off by going with all Non-BT. We have some leading farmers in Illinois, who were quoted as saying that they are also decreasing their amount of Roundup-Ready soybeans as well. There is no mystery to the reason for that decision. Monsanto is concerned about this as well as the other companies. Farmers are kind of voting with their seed buggies. We are not going to drop to zero acres of BT. I'd not be surprised if we went from 30%-35% last year to 20% or less this year in BT. Some farmers believe that genetically modified crops produce less. Early on, we were willing to take anything that was Roundup-Ready, soybeans included, and there were some poor varieties that were one-year wonders. That number got used once, and was retired. That is always a good clue that something is not right. The other point that I made there was that Roundup-Ready and BT are some of the highest yielding cultivars in soybeans. That is particularly true in corn, but we have a little less direct data. Our University of Illinois variety trials for corn are planted in twelve locations. I have management responsibilities for those as well. Some data follows this for one of these that can be seen on the lab testing web-site. This is the first time that you can download our results onto a spreadsheet, and do some manipulation with them. I try to encourage people not to change it with their editor. I would like it if you would not sort the whole thing. This includes the pop-up yields to keep the variety names attached to them. Taking the data from that, this is a comparison of Roundup-Ready/non-Roundup-Ready soybeans that is run as separate trials in Illinois. Most are in the same field, but I was not concerned about making this comparison. The bottom line is that Roundup-Ready/non-Roundup-Ready soybean yields are average in our variety trials. We found pretty much the same thing with corn (conventional and BT). We took this in the number of entries in each of the regions of Illinois, each of these is three location averages. When you looked at the whole state, one fourth of the trial was BT or corn hybrids. Roundup-Ready was the smallest sample.

To conclude, on average in a year when we didn't have corn borers the yields were essentially the same. I'm putting out the message that you can not just brand a variety or hybrid because its got this genetic modification, as being low yielding. Some farmers still feel that way, but I think this feeling is fading because they certainly are not rejecting the technology based on that. I just took the central east where Urbana is located, and saw the highest and lowest range on these. You could see that your BT and Non-BT yielded about the same, about thirty bushels for this particular region. The range for the Non-BT was actually larger than the BT. You can say that the best varieties were not all BT either.

The range for BT actually went lower. The lowest yielding BT hybrid out-yielded 12 of the lowest yielding Non-BT hybrids. I am not making statistical statements about that, but farmers need to be very careful with this if rushing to Non-BT by just taking a hybrid out there that doesn't have BT in it. They could lose their market advantage very quickly that they thought they had. Crop purity is another big problem. This is one thing that farmers are worried about. They hear a lot of coffee shop stories about people that didn't plant any Roundup-Ready soybeans on the farm, but some loads got rejected because of the presence of the Roundup-Ready gene. Tests vary widely and are applied differently to grain in Illinois. I think there is not going to be much testing because the elevators don't want to pay for it. This business of testing and segregation is a real mess. Many of the smaller elevators that are receiving the grain, corn and soybeans in Illinois don't want to deal with it because they have no desire to tell, or ask the farmer the makeup of the truck. Farmers will get nervous about this by saying they didn't remember the makeup of the truck, say that its not BT corn from a particular field that they had been in, or say that they harvested it at night. An example, if an elevator is segregating, and a guy brings in a semi-load that is supposed to be Non-BT but forgot that the elevator is not testing. What is going to happen to that silo of Non-BT corn, and who is going to be responsibly for storing samples to make sure the person is not at fault. The first time a farmer gets hit with a \$0.12 a bushel penalty on a whole barge-load of corn that got ruined by someone else's semi-load, plus legal fees, and other assorted expenses, that will be big news. I really don't want to predict this is going to happen, and most farmers are not going to get a reward for Non-BT corn this year. The only reward is not worrying after they show at the elevator, or at the terminal elevator by being asked what they have got. They can say with confidence that they didn't plant any BT seed. The system is not prepared to test for the presence nor separate grain types received, or storing it separately because our system is not designed to do this. So far, I think that few buyers seem prepared to pay for identity reserve separation. This is going to be the watch-word to come. Japanese are going to be the ones most willing to pay for that. Most are building up their supply, but we're not talking about billions and billions of bushels.

The problem that we've got with this test is its sensitivity, and the tolerance level for a lot of people is zero. One guy that didn't clean out all his augers on his soybean combine from one field to the other can ruin a whole shipment. Farmers want to deliver identity reserve if possible, but all of this corn looks alike. I have just simply suggested the difficulties of separation, but it could be a popular option for some. This would be mostly for corn. There were very few farmers last fall (less than 5% of the truck-loads) that were asked at the receiving points for grain, but more will probably ask this year. This will be hard for farmers to deal with. We do suggest treating outside corn rows of genetically modified, and if you know the adjoining field is genetically modified. This is common sense. With soybeans, there is some question of seed supply and with which ones to switch to. There are not many acres of non-Roundup-Ready seed even if we wanted to. You can pull Roundup-Ready seeds out of the bin now and you can buy Roundup in many forms. Monsanto was supposed to police the situation by making sure that farmers only bought Roundup with the seed that they bought. This is not going to work anymore. Farmers should not be doing this based on the seed quality.

What's the future for crops? A lot of amazing products, nutritional enhancements, and vitamin enhancements are on the way that look more positive. The big one that people are waiting forward to are pest resistence for such things as root-worm in east central Illinois and the big problem of western corn blue worm that has learned to lay eggs in soybeans. This wasn't a problem with corn/soybean rotation for the past four or five years in the entire corn belt until now. As a result, virtually every farmer in our county, counties north and east of us are using soil insecticide at this moment. This would be a wonderful environmental benefit, but is going to be hard to sell. I don't know the out-

come of the regulation process, but I hope it lets it come in. All the questions about resistence management are going to be raised again. Farmers have cause to be a little worried because they are supposed to be keeping a good resistence management program for BT, and are only supposed to have 20% Non-BT hybrid planted on their farm. Some of these farmers are not doing this. and this would probably be true in other states. For example, the EPA could have a problem with approving management resistence programs for root-worm for a farmer if he hasn't followed a good management program. The farmers are probably going to pay as much for this in the beginning. This is actually an altered BT product that you have not heard much about. The native BT are only effective against certain insects. As crops go, we will eventually have Roundup-Ready everything. This is currently under development. The ones that we will probably be interested in are alfalfa. Wheat could be one or maybe not. In the future, consumer positive products will help some, but consumer resistence will increase in the United States and around the world. We have people working on this problem right as we speak. This boils down to seed company problems as a result of consumer resistence. It doesn't matter if Europe approves Roundup-Ready corn because people will not buy it. Some grocery store chains in Europe, especially in England, have a thermometer on their front window showing how much percent GM free that they are that day, and keep moving it up each day till it reaches 100. There are no dead bodies around soybeans. It is hard to see the outrage, though the product hasn't changed. The approval process will be examined, and corn root will be the next one. Companies will likely settle back with acquired improvements that carry some clear advantages. Many of you have heard about the vitamin A contained in rice that is being developed. This is a very positive one, and the people that eat rice in the world are not going to protest very much. They will protest the taste of it before they'll protest against it being genetically modified. This is a thing that is going to benefit people in rice eating countries. I don't think Europe will protest either, but they could be accused of not caring about people if they do. The work has gone to the Swiss Federal Institute, by the way. I don't think the power of the technology could undermine the utilization in other areas, and will probably take the pressure off of crops.

Questions:

What do think the changes are of the backlash in Europe and what do you think are the chances of it happening in America?

I think that they are higher here than I would have said six months ago. Major fund-raising efforts have been mounted here by the organic growers. Their first target was BT not because of its resistence, but because of the outcry over U.S. organic standards saying that you can't have any genetically modified crops. These kind of decisions are sort of subtle. Right now, if an average consumer was asked in Chicago or Louisville about genetically modified crops being good for you or poor for you, they would probably say that they are not very good for you because that is all that they have heard. An article that ran in the Chicago Tribune about a week ago referred to some farmers in Illinois, some of whom I knew, stating that they were pulling back on genetically modified crops. This sends a strong signal to consumers that these things must not be great if you can go back and not use them. There is going to be a major campaign with hundreds of millions of dollars spent in the United States to convince people that this probably was a bad idea, and that the regulation process was not as good as you thought. I don't think that they will be unapproved at this point. I think the three regulator agencies involved in this are going to look bad if they have to change their standards.

HOW THE URBAN / RURAL INTERFACE IS AFFECTING THE TYPE RESEARCH WE DO

Dr. Peter Schultz, Director, Virginia Tech Hampton Roads Agric. Res. & Ext. Center, Virginia Beach

I'm going to give an overview of our center by focusing on its history. Those people of history, like Jim Smith, learn from the mistakes made from history. Our center is located in Virginia beach; as far east as one can get. It is one of 12 agriculture research and extension centers located throughout our state that focus on particular commodities central to that location. Our station, called that by me, only because its been a center for seven or eight years, but I've been there for 26 years. Our center is the one that has the nursery and landscape turf responsibilities. Some of this work is done on the main campus to form the teaching aspects of the research.

I'll talk about the history and how our program evolved. I'll talk about the urbanization around our center, our changing state colors, and changing program delivery that all blend together. Programmatically we have gone through 5 name changes; that says a whole lot about what's gone on at our center. We started out in 1907 as the Virginia Truck Experiment Station. I was offered the position in 1973, and had no idea the place that I was being housed at the Truck & Ornamentals Research Station. These terms didn't seem to go together to me. I believe that South Carolina or Clemson still had a Truck Experiment Station. That was the only one that I could find in the Agriculture Workers of the United States in 1973. In 1967, we became the Virginia Truck & Ornamentals Research Station as the result of a wise director with a doctorate from Yale, that had the vision that vegetables would be growing in this area for ever, and that perhaps it was time to switch the emphasis over to ornamentals. We merged with Virginia Tech in 1985, up until that time we had been a separate agency, and became a part of the Ag. Experiment Station. The Director of Extension took a little exception to the fact that extension was not mentioned in our name. With the new dean and current dean, we became a research and extension center, and at that same time became a program of graduate teaching with the offering of a masters degree in horticulture with our resident faculty .

I enjoyed doing the preparation for this presentation because it allowed me to go through our safe that hardly ever gets opened at our center. I found a 1940 newspaper that had all sorts of interesting bits and pieces in it. First of all, we found out that the truck farm originated in the mid-1800s by some folks that came down from New Jersey. Here is a term that you are probably familiar with. This term is called truck crops or *trocay*(a French word), to carry to market. We got into a smite about the way our lease was written to our property because a nursery man was clear to mention that he still carries his azaleas to market on a truck. Therefore truck farming does include azaleas and rhododendrons. However, in 1940, it was big business in the Norfolk area, the primary growing point in that time period for vegetable crops, to ship to Washington, Philadelphia, New York, Boston, etc. by barge. It is an area that had good climate, sufficient rainfall and good soils that rendered it the vegetable basket of the east coast. Florida, of course, was still swamp lands and mosquitoes. Here are some figures that are showing 4,000 acres of snap beans, 450 acres of beets, 2,700 of cabbage, cucumbers, lettuce, green peas, Irish potatoes, spinach, strawberries, watermelons and other such crops to ship out of there.

In Norfolk, there was a very large produce company, by the name of Southern Produce Company,

that was concerned over the location of a land grant college 300 miles west of there in the middle of the country, so they purchased 58 areas of land, later increased it to 70, for the purpose of running an agriculture experiment station or truck experiment station. These pictures show the land after it was purchased by the Southern Produce Company, and how it looked a few years later with a represented time line across the top. One picture shows an old wooden basket. The station was operated independently until 1920 by using its profits, and had a board that included people from the USDA, the truck experiment station and the Board of Agriculture. During the summer, they would bring people down from the place that the present day Pentagon is located to work at the station on truck crops. In 1920, the operation was deeded to the state, however the land remained in control with the Southern Produce Company. It was deeded for 99 years with a lease that was renewable forever. I just love that lease. The bottom half of that same picture shows insect control in its primary days or IPM.. In those days, there was a horticulturist, entomologist, a pathologist and a plant physiologist that gradually became a weed scientist. The station got a lot of publicity in 1957, as seen in this picture. In the mid-1960's, the housing development came across at the end of our property, as seen in this picture from the roof of the administration building, and created some problems. The program evolution addressed it by moving to the ornamentals area, as we saw the Norfolk, Virginia area expanding into the surrounding counties, and the vegetable industry was moving to the eastern shore. There were not any odors and pesticides, other than the three mules for plowing the land because of no animal production. We have, on occasion, been called on the phone by the elementary school because of a strange smell in the air. There is , of course, an industrial park nearby that throws all sorts of stuff in the air, however they call us because they say that we spray all of those toxic pesticides. I explain to them that roundup doesn't have much of an odor and it is used in small quantities. The biggest concern was the increase in land value, purchased in 1907 for \$50/acre and other considerations, that was now assessed by the city government at \$30,000/acre. The city has the right to zone land as they choose, and did this by zoning us as commercial/industrial in the 1960's without asking. There are realtors that are friends with the Lt. Governor, and will attach their business cards to request him to look into this valuable piece of property in Northern Virginia Beach. Some of the data shows that in 1988 and 1989, environmental horticulture is the fastest growing segment of U.S. agriculture in raising cash receipts for over a decade. The growth in environmental horticulture receipts in North Carolina over the past decade has been 8% a year. I co-authored a grant with a colleague at NC State that wrote this part. We don't have as much data as they do in North Carolina. This seemed like the place to go, but in 1972, as they said in Europe in 1939, "the storm clouds were raising," the governor issued a management study that we weren't proud of. Here is an old slide of a copy of a letter written to the honorable governor over the management study. "I am writing you to bring you up-todate on some of the background on House Bill 1030 and House Bill 1031. Number one, eliminate the Virginia Beach Station, and number two, sell the site of the Virginia Beach Station." The patron of this bill, Jim Jones, was the delegate that represented the tobacco area. They wanted a new research station. The deal was to sell the Virginia Beach Station, for the purpose of a tobacco station at Camp Picket, now Jim Jones's directive. In August of 1972, the eastern shore growers say that they are being ignored by the researchers. The reason was because the state was putting undue influence into trying to close the station. Then, the newspapers give word of the proposed sell. The city may get a part of truck station. They see warehouses with access to utilities(water and sewage) along the main road, of course there was no running utilities on the station. It was safe in 1972 because of a deal made to put the sale off. The reason was that the governor could not do it by executive order, but had to go to the legislature. The legislators form the Norfolk and eastern shore cut a deal for them to leave it alone, but a part of it was sold. This money was put in a special account for capital projects for the Virginia Beach and eastern shore stations, which were separate at that time.

This is our mission today. Since 1967, with the addition of education, we provide leadership and

vitality for the environmental horticultural industries. We consider this commercial nurseries, commercial greenhouses, landscape management and landscape contracting. You can make a lot of money doing this. The vision was to continue the outstanding applied research and extension, graduate instruction and continuing education programs in horticulture. I want to talk about the information that we delivered to the state in my beginning at the station. These included agrochemical sponsored functions, county dinner meetings and commodity production meetings, all still going on. They all can be lumped into those Thursday night dinners the companies paid for, and each faculty or specialist talked ten minutes about pesticide or fertilizer rates for the upcoming year. We had agriculture writers for the newspaper. I haven't seen one of those in a while. We were also the location for producers to come for answers. These involved herbicide or insecticide recommended rates. The station was involved in the county fair, as well. After changing to ornamentals, we had great difficulty because producers, nursery men and home owners were growing the same crop. In the past, we might have a person to come for help with 120 acres. We now had 120 visitors with one acre of azaleas that knew that we worked on azalea. We had a problem that overwhelmed us. The agriculture writer, a retired man from Smith-Douglas Fertilizer, had the basic knowledge of agriculture before he became the garden writer. He was the one that now addressed current question and answer columns in the newspaper. By using a local cable tv station, we starting running a three minute section, broken into four or five segments on Saturday, showing some of the projects going on at our center. Home & Garden TV is a cable channel that has only gardening and house related topics was found as a delivery. We found a new delivery at the Lawn & Garden Show in Virginia Beach, a big winter type activity in Philadelphia and Richmond, to have a display for the word to get out that we are here to help. The other problem at the center was the phone ringing on Mondays. There was a direct correlation on how many phone calls we got on a Monday, and the previous weekend being pretty or not. We had to have a plan to address home owners. People were dropping off soil samples and Twigs with insects on them during their errands from five and 30 miles away. The center had to address site visits to the properties, as well. We didn't mind going out to the 80-acre nursery in Suffolk that grew thousands and thousands of plants, but didn't want to go down the street to see folks that a few azaleas that didn't look good. High ranking retired naval officers, for example, had the idea that we would be right there. First, we put visually appealing research along the roadway. This would do a reverse effect as described in this statement by two plant pathologists, never plant watermelons or cantaloupes close to the road because kids will steal them, but plant trials in the middle of the farm. A person was hired for phone calls and people coming in during lunch, and referred people to the county extension office. There has always been a problem with a research station and county extension in the same locale. It is the same local telephone exchange, and people want to go as high up in the pyramid. We established a policy of no site visits. Doctors don't make housecalls, for example, but if it is someone that you know, that is another issue. On a big table, we put forms on it, and hired a 16-year-old high school girl to put address labels on each of the forms so we didn't have to call the person. The problem would be analyzed over time, and mailed back to them. We assigned a person to handle those samples, initially not the faculty member, but the technician that was knowledgeable in horticulture crops. I mentioned that our visually appealing research goes beyond the research to the extension area, and we created the Virginia Tech art display to remind the 350,000 in Virginia Beach and equal number that live in Norfolk that we are a part of Virginia Tech. We are using All-American selections at a number of stations. Griffin is one of these. Putting this along the road was a very good plan. As far as a staffing plan, a receptionist during lunch hour was a key thing, an extension associate hired at the master level to work with county coordination agents and ag. agents throughout the state that don't have any horticulture expertise. The ag. agents are beginning to be asked these questions as their counties get popular. Also, our faculty had 100% research appointments after it became the ag. experiment station, but tenure and promotion has been rough because 1/3 has been dealing

with public type inquiries. Subsequent appointments have had 35% extension or more. They don't spend all of their time answering questions, but can develop those programs that people have concerns about. Virginia Tech or any other land grant institution has the commitment to have it accessible to all. It is a land grant institution. It is now including all urban city dwellers by wide range partnerships and technology. Now, we have a new person interested in the Hampton Roads Agriculture Research Extension Center, and the other parts of the university. These are the college of engineering, college of architecture, arts and science to use our facilities in some form. The reason is because of the 1,500,000 people that live by the university, and it is still in a rural area. This is called the urban crescent of Virginia because of Northern Virginia, Hampton Roads, and Richmond. The military and 80% of the world's shipping lines call this area home. There are lots of people in the military that retire early, change careers and take second jobs. I don't know where it's going. It use to be cantaloupes, watermelons, spinach and kale, but now it is azaleas, ornamental grasses, oak trees and such. I do see us having graduate courses through this delivery, and opportunities for secondary school administrators that want to be principals with doctoral degrees in education by using our classrooms. We are happy to cooperate with the university, but you might have to pay us for this or build us a new building. One thing is for sure that this will not turn into a soccer park, but it will always be an ag. experiment station.

SHIFTING DEMOGRAPHICS AND ITS IMPACT ON AGRICULTURAL EXPERIMENT STATIONS

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Shifting demographics have affected American agriculture for more than 75 years as our population in the United States shifted from primarily an agrarian society to one centered in our cities. The small family farm virtually disappeared. An increasingly larger proportion of the U.S. population has no direct contact with farming and production agriculture. Although a large proportion of our population remains involved in agribusiness either through the processing, transport, or retail marketing of agricultural products, they neither fully realize, comprehend, nor appreciate the continued impact of agriculture on their personal, as well as this country's, economic well-being and security.

During this shift from the farm to city, agricultural experiment stations in virtually every state continued to provide resources for agricultural research and the development of objective, unbiased, research-based information for their users and clientele. After all, the growth and success of American agriculture in the latter part of the 19th century and for the entire 20th century can be largely attributed to the vision and foresight inherent in Morrell Act, the Smith-Lever Act and the implementation of this legislation by individual states.

The Georgia Experiment Station

One such experiment station was established in Georgia in 1889. The Georgia Experiment Station began operation on a small farm outside of the city limits of Griffin. The Station, which is now properly called the University of Georgia College of Agricultural and Environmental Sciences Griffin Campus, remains on that original tract of land. It has added far more land, scientists, and programs since its start. It was once located in unincorporated Experiment, Georgia, along with a couple of textile mills and associated housing. However, all are now within the corporate limits of Griffin.

Griffin and the Georgia Experiment Station are located 45 miles south of the Atlanta city limits. The Georgia Experiment Station is, thus, an excellent example how urbanization, urban sprawl, and shifting demographics impact agricultural experiment stations. And, I will use Atlanta and the Georgia Experiment Station as a model for how shifting demographics can affect agricultural experiment stations.

What is Atlanta?

Metro-Atlanta, as with any metropolitan area in the country, is much more than the City of Atlanta. The Atlanta Regional Commission embraces 10 counties in their definition of Atlanta. These are Dekalb and Fulton counties (which contain the actual City of Atlanta), the adjacent Gwinnett, Cobb, and Cherokee counties to the north, Douglas County to the west, Rockdale County to the east, and to the south Clayton, Fayette, and Henry counties.

The U.S. Environmental Protection Agency adds three additional counties to this number. These are Forsyth to the north, Paulding to the west, and Coweta to the southwest. The EPA adds these three because of the failure of these 13 counties to meet federal clean air standards.

The U.S. Census Bureau defines Metro-Atlanta as a 20-county area called the metropolitan statistical area. This adds Barrow, Walton, and Newton counties to the east, Pickens and Barton counties to the north, Carroll County to the west, and Spalding County to the south.

Griffin and the Georgia Experiment Station are located in Spalding County in the southern portion of the metropolitan statistical area. Over 50 percent of Georgia's population lives within a 65-mile radius of the campus. This provides a number of challenges as well as a number of opportunities for the Georgia Agricultural Experiment Stations.

The Growth of Metro-Atlanta

The most comprehensive statistics on Atlanta's growth are from the Atlanta Regional Commission and are, therefore, limited to the 10-county area that the Commission recognizes as Metro-Atlanta.

In 1990, the 10-county metro area was home to 2.6 million people and 900,000 jobs. By 1999, the same area was home to 3.2 million people (a 25.3 percent increase) and 2.8 million jobs (a 29 percent increase). The U.S. Census Bureau noted that Forsyth County to the north and Henry County to the south were the second and fifth, respectively, fastest growing counties in the nation in 1999. By 2020, it is estimated that the area's population will be nearly 4.2 million, an increase of more than 1.6 million since 1990.

The associated sprawl is gobbling up about 50 acres of land a day. The Urban Land Institute (Washington, DC) states, AAtlanta has been called by some the most rapidly expanding settlement in human history. The metro-area was 65 miles end to end from north to south in 1990. By 1997, it had almost doubled in size and was 110 miles end to end. Atlanta is also one of the nation's least densely populated urban areas. Only 16 percent of the area's total population lives within the City of Atlanta.

Just over 71 percent of the total Metro-Atlanta population is white and non-Hispanic. The area of Southern Fulton County and Dekalb County, primarily the City of Atlanta, is greater than 70 percent blacks. The black population is generally less than 20 to 25 percent of the total population in most other counties in the metro-area.

The population of residents over the age of 65 years has grown 23 percent since 1990. However, this growth has kept pace with the growth of the area. The proportion of residents over 65 years old has remained unchanged since 1990 (7.6 percent). This probably reflects the observation that a large proportion of the growth is the result of immigration into the area for jobs and employment opportunities. In fact, the Milken Institute recently ranked Atlanta as the top city in the U.S. drawing domestic migration from 1990 to 1998.

This population growth and urbanization has impacted the Georgia Agricultural Experiment Stations and the College of Agricultural and Environmental Sciences. Simply put, the College and the Experiment Station have acquired a large number of new clients. These new clients are increasingly becoming more and more concentrated in Atlanta and the other metropolitan areas in the state. For example, in 1998, over 42 percent of Georgia's total population lived within the 10-county metroAtlanta area. Just 5 years earlier (in 1993), only 39 percent of the state's population lived in the same area.

As a result, the Experiment Station and the College are challenged with (1) addressing the continuing needs of traditional clients in the traditional agricultural sectors of the state, while (2) addressing the needs of a growing urban and suburban clientele. An even greater challenge is to do so with an even or shrinking funding base.

As land is consumed by development associated with urbanization and urban sprawl, the amount of prime agricultural land diminishes, competition for limited water resources rises, and restrictions on traditional farming practices increase. The casual observer would assume that agriculture in these urban and urban fringe areas is nonexistent and, thus, does not merit the attention or resources of agricultural experiment stations and agricultural colleges.

Agriculture in metropolitan areas is often associated with vegetables, fruits, herbs, and other spinoffs that are produced in backyards, small plots, pots, and raised beds. Agricultural experiment stations and colleges have largely addressed these specific needs through traditional horticultural research and education programs.

However, in Atlanta, the food processing industry and the urban agri-business sector are big business and are expanding. Here, urban agri-business includes the production, marketing, installation, and management of ornamental landscape plants, floricultural plants for interior scapes and landscapes, and turfgrasses. It also includes Georgia's structural pest control industry. The Georgia agricultural experiment stations and the College must address the needs of these industries and their users/consumers.

In addition, it should be noted that in urban and suburban watersheds, pesticides are often detected more frequently and at higher concentrations than in agricultural watersheds. Most compounds are associated with use of turfgrass and landscapes including golf courses, sports fields, and residential lawns. In fact, the second highest level of chloropyrifos and methoxchlor detected in bottom-feeding fish in the nation came from the Chattahoochee River flowing through the western part of metro-Atlanta. Thus, agricultural experiment stations and colleges must address several environmental issues through research and education programs.

Water-use issues are critical throughout the U.S. Georgia is no stranger to this controversy. Again, agricultural experiment stations and colleges should be addressing such issues and policies in order to protect traditional agricultural interest and provide for new agricultural enterprises, as well as supplying water needs for a growing population. Agricultural research and education must play a pivotal role.

An additional impact of these shifting demographics applies to the political arena (= political support and funding). As a greater proportion of the state's population chooses to reside and work in the large metropolitan areas, so will a shift occur in where voters and their legislative districts are located. Increasingly more legislators will be elected by urban and suburban dwellers. Of additional concern is the impact that changes in the composition of legislation committees may have, especially those dealing with appropriations and budgeting.

Colleges of agriculture also must be cognizant of how this new clientele obtains research-based information. In a recent survey of Georgia homeowners, only 38 percent of those polled sought infor-

mation from the Georgia Cooperative Extension Service. Of that 38 percent, these individuals were predominantly older, retired, and had lived in Georgia an average of 36 years. Thus, we must develop/ implement new modes of reaching our new and young clientele.

An assessment of programming at the Georgia Experiment Station in Griffin shows some shifts in response to these changing demographics in Georgia.

<u>Table 1.</u>		
Percentage of total programs on Griffin Campus directed		
to broad areas of research and educational emphases		

Program Emphasis	1990	2000
Horticultural/Agricultural Production	49%	19%
Food Safety and Processing	22%	25%
Environmental	4%	12%
Landscape and Turfgrass	23%	37%
Other	2%	7%

The preponderance of research scientists on the campus in 1990 worked entirely (or primarily) on research directed to agronomic or horticultural crop production (49 percent). Another 22 percent worked on food processing and food safety. Twenty-three percent worked with ornamentals, floricultural crops, and turfgrasses (urban agriculture). Only 4 percent worked on environmental issues.

Currently, we can identify 37 percent of the faculty on the Griffin Campus working on ornamentals, floricultural crops, and turfgrasses (urban agriculture). Increases in programs involved in environmental issues can be directly attributed to urban watersheds and management of nonpoint source pollution. Only 19 percent of the faculty on the campus now work on horticultural and agronomic crop production.

In closing, urbanization is occurring across the entire nation, but the southeastern states appear to be a major target of growth within the next two decades. These shifting demographics are already impacting the Georgia Agricultural Experiment Stations and The University of Georgia's College of Agricultural and Environmental Sciences. Our involvement in assessments, development, production, management, marketing, research and outreach are critical to the economic viability, efficiency, and success of many agricultural enterprises in our urban and urban fringe areas.

WHAT PRODUCERS EXPECT FROM US PANEL DISCUSSIONS WITH TWO FARMERS GROWING ALTERNATIVE CROPS

Led by Mark Reese, Scott County Agricultural Extension Agent Univ. of Kentucky College of Agriculture

Being from the south, most of you know what tobacco production means in Virginia, North Carolina, Kentucky, and to a smaller extent in Tennessee. You are, also, aware of all the cuts and changes that have been taken place. There are concerns, as well, of the labor force that are in most agricultural enterprises. If you don't have an adequate labor force, migrant labor in our case, there could be a problem. Labor and production has to balance out.

Research, today, has to be for the most part practical, oriented research towards the needs of todays' consumer. I had the opportunity to be in graduate school to pursue a masters degree, and do some research in the process. This was back in 1978. Being involved in that, there are some good research that goes on, as well as some abstract research. Also, there is some research that is not based towards the needs of the farmer that needs to be done. I felt like, when I was in graduate school, that a lot of the research that went on was not tied to basic needs of the Kentucky producer. You've heard a couple of talks on changing demographics and political structure. Bill is going to be taking you on a tour of the UK farm, and there are some basic changes taken place from selling some of the land. We are running into political roadblocks in this, as well. So, you have to have research out there that is tied into what is going on. In Kentucky, we are facing the declining hog industry, dairy industry, tobacco industry, and a sheep industry that produced less than \$3 million in sales last year. Yet, we are still trying to keep basic research going on in those areas, but have to go to the legislature and individual legislators to show that basic research is really going to help the present agriculture climate. Farmers are hurting because of this. The public and the people controlling the finds are looking for research that is going to help 20 or 25 years down the road, but want research that is going to help today. The gentleman that runs the experiment station up at Quicksand and I were talking about Terry Jones, and the good basic research that we get out of him, as in relation to any other research that we have going.

The topic says alternative crops, but basically there is not alternatives. In Kevin's situation, these crops are his total basic income. In John's case, who's on a traditional beef cattle and tobacco farm, he is looking for ways to add to the total dollar volume as he farms with his dad and sister. John is also looking at the traditional labor problems. Kevin has moved, both have had some experience in the farmer's market, and both are heavily involved in a vegetable cooperative that we have going on right now. This will now be turned over to Kevin and John. John is going to talk first.

As Mark said, I'm a fourth generation full-time farmer from Scott County near Lexington that has farmed with my grandfather, father, and sister. We run about 800 acres with predominantly cattle and tobacco. Most of the land is owned, some is on my grandfather's farm, and some is rented. Presently, we'll calve out 240 cows between this winter and next fall. This past year, we raised about a hundred-thousand pounds of burley tobacco, but might only be 50,000 pounds this coming year. We have probably some 20 acres of vegetables that are on raised beds that are laced with mulch, and another 30 or 40 acres that is bare ground for sod planted vegetables. This is an overview of what we are, and where I coming from.

Over the years, we have come to rely heavily on the university and its extension and research, and have found that having this access to academic research has created more value in our farm. We sought the research after I came back to the farm, and increased acreage. Therefore, it added diversity and value from the extension providing research for those sources. Basically, the information that is provided by extension and research has been the single greatest asset in our survival on the family farm in Kentucky. I have a few suggestions of what this says. Horticulture in central Kentucky has not been very big, in terms of the number of farms or acreage grown. Therefore, when we started to grow vegetables, there was only basic information for the basic crops. As more people are looking for vegetable production, among other things as a source of income, I believe horticulture is mostly underfunded and understaffed in my area. The department does excellent work, Secretary Jones and I have talked about Quicksand, but it only can cover a small area and a small number of crops at a time. Both new varieties and new suggestive production factors are being introduced faster than the horticulture department can determine the ones that are applicable to my area, and have not been able to do any discovery research, intervention, or creative research.

Very few of us control enough land to run enough cattle, and make a living totally on minimal margins in Kentucky. The geography and terrain of our state commands that we do utilize livestock. There has been misleading research on all of the things that we can to do to make more pounds per cow, calves per cow, and more pounds per acre. The fact is, that most will not take the time to do all of these things properly. This would include rotational grazing, and we all know the result of not doing rotational or intensive grazing properly. To me, if we are going to do it half way, then what is the most efficient method. Along with that, our farm use to have a grazing rotation between sheep and cattle, however there is not much research out there that is current on a multi-species farm of four or five different types of livestock. The most efficient and productive manner to rotate two, three or four different pastures is another concern.

In marketing, we have increased our production for added value over the years to maintain our standard living on the farm. There seems to be a real backing of the research in our area of added value in this aspect. Agriculture marketing is no longer grain futures and contracts, but shifting to putting people on the farm that will give reputable retail chains capturing consumer dollar sales by them. In North Dakota, durham wheat farmers found out now that the COOP turns wheat into the population and sells it. Farmers involved with that COOP made two to three times more a bushel last year than farmers in a competing town. We started a COOP in my area of Georgetown with some state, federal money, and all the personal time that was invested. There is nothing more exciting than to watch my bank accounts with a limited number of decimals, and that allows its investors to get their commodities prepared for the wholesale market. There is no value addition, but it is just divided into what it takes to get the particular products on the wholesale market. We have information on the production and commodities related to the COOP, what it takes to form one, and how to produce the commodities. It was fairly simple in setting up the packing facility. We basically copied from other facilities around the country, and didn't do it very well. Since we worked on it from scratch, the utilization of ag-engineering and the use of our research institutions should of been applied to have the efficiency of a cutting edge packing facility. This is two different areas of value added in marketing. Another example of deficiency of value added in marketing areas is Kentucky's chickens. Right now for example, if I'm not Tyson or another chicken company, there is no way that I can slaughter and sell the meat of chickens within Kentucky because there is no inspection of the slaughter houses or inspectors provided. Granted, this is more a political issue than a research issue. They have made too much focus on the special relationships of the big boys in agriculture in my personal observations in ag-research in general. Since the great revolution, agriculture in the U.S. has revolved around the

increase in production of the major basic food crops. I believe that the emphasis needs to change because the starvation around the world is more of a transportation problem than a political problem. The food being produced is not being delivered, and there is a political situation. If what we have been told, the historical countries have increased their protein by moving their diet up the food chain. Why in this day and age, nation wide, are we still basing our ag. industry on cereal grains? My point being, that if you read agriculture publications on research, it is still based on corn and small grains of GMO crops. If you look at it however, the population of the world is moving away from consuming those products. The other question, by studying some economics in school, I know the advantages of specialization and economics of scale, but my soil doesn't understand that. I wonder, why did people down the road of specialization not put some input into production agriculture? The green revolution started with hybrid seed and fertilizer, and baby steps have been taken ever since then. It seems that the more we input, the more we have to ensure that GPS and IPM will allow inputs to an absolute minimum of what is required. We need to put more time and effort into more input of farming systems, crops, livestock, soils, rotation, but less effort in production.

We might not have problems that we had a few years back, and I'm not so sure that a vibrant and almost self-sufficient production system can't be managed on our farms. If we are not looking at yields, then what specific inputs does it take to do it now, and then consider the impact and input of those crops and cows on next year's crops and cows. There are a lot of inter-dependents with this, but if we stop and understand, there would be lower inputs and higher income using agriculture. By doing this, it requires more management to the diversity that you have on your farm, whereas specialization mixes it up. We would have more time to manage inputs a little less. In summary, I have a whole list of specific research that I would like done, as in relation to the problems that I have on my farm. Generally speaking, we need to have value added in farm type agriculture instead of farming a crop.

We've got a small family farm that consists of 175 acres, but 10 to 15 years we were running over 1000 acres on top of that with cattle. Our basic operation was beef cattle, tobacco, and we sold a lot of alfalfa hay to horse farms around us. The same way with the Atlanta situation, maybe not as bad, but we could not rent land with a reasonable cost that you could call a return. So, we started about specializing and diversifying into different crops. About six years ago, we started to get into horticulture by raising vegetables on a small scale. Then, we started going to farmer's markets, and did some truck farming. That progressed, and we planted an orchard. We wanted to get away from our tobacco dependence because we thought that we had all of our eggs in one basket, so to speak. We had already lost a big percentage of income by pulling all of our cattle into one farm, so we had to reduce cattle numbers. This year was the first year without tobacco on the farm. Our next major thrust was experimenting with vegetables. The way our farms are laid out, five to ten acres of crop in our area is a big crop because of un-level land. This was diversifying for us, our cattle numbers kept dropping, and we're this year without tobacco. We think that we are headed in the right direction to keep the farming operation running, and I'm the only one that has to produce some income off of the farm. I rent it from my parents, and they get a percentage of that income. We don't have a big family that has to live off of this income, so that has helped. As far as research, it was tough to find information out there as we started out. We were having to experiment with different varieties, methods, and learn how they grew in our particular environment and in our soil conditions. The majority of the research in the past was for beef cattle, tobacco, sheep, and forages. I was moving into an area that was at the bottom of the list, and it was our biggest obstacle. We called the horticulture departments on research, but it was not readily available. The biggest problem that we are faced with right now is finding practical research. I need that research done by the university on pesticides and fungicides,

right now. I also rely heavily on the farmer because he probably does half the job of what you all do. We have trouble spending that much time. Anything I grow has to be able to take care of itself to a certain degree. This makes it difficult after I look at research to see the yields that I'm going to get, and the input that has to be put into those plants. It is valuable information, but it is hard to be applied for an average farmer.

Another big problem is going to universities and being able to change our focus, in the case of our tobacco situation. We realized that we had to do some other things, research was going to have to be in different areas, and I know that is all politics by protecting its home turf. The Internet is invaluable to me as far as me being able to check the University of Tennessee, North Carolina, or Purdue to see what grows or what they are doing there. I can only pull so much information from that. I really need to see how to grow it in my soil conditions, my elevations, and where I am. I think that would be the most valuable information for me. As John said, I would like to see some value added, some different types of research that is on the cutting edge, but I know the hardship of the availability of money for a lot of those experiments. We are changing out at our farm on a yearly basis, and we are experimenting with all of the different vegetables, retail marketing, and find a mix to maintain that farm. So, we can continue to farm, and have enough income to live comfortably. This is where I see the biggest focus.

The consumer today drives things far differently than ever before. It is very difficult to keep up with what the consumer wants. This might be blaspheme to say, but we are expecting the farmer to retool at this moment. If a business changes, we expect a worker to change. They tell us that we have to adapt as county agents, to what is happening out here, right now. I can't hardly remember a university professor reassigned from one area to another area, retool in one area or another. Folks, we are going to have to change our focus and direction. We don't have a labor specialist at the University of Kentucky because there kind is hard to find. John has an HTA labor question, and I don't know where to go. This is what I'm saying, why can't a position within the college be retooled to meet the needs of the farmer at this time. These are some basis things that I think need to be done.

Discussions:

What kind of vegetables are you growing?

Kevin: In our wholesale market, we do bell peppers, egg plants, tomatoes, and pumpkins. We are moving into cabbage, and John does some squash and similar things. I thought that some of this was coming along, and wanted to develop a relationship with a wholesaler or retailer. We wanted to have someone locked in. Partially, the reason that we got into this was with pumpkins originally because we can transport them cheaper to the South than someone out of northern Illinois or from some other place. What we felt like that we have to capitalize on is our location, and the folks in south Florida are still going to eat bell peppers, tomatoes, melons, squash, and things like that in July and August. They can't grow them down there, and we can at that point in time. We felt like it is cheaper for us to get them down there than from California. We need some of them to join us so that have enough volume that runs the math, and on the other hand, a few publications said that a flood of tobacco by growers will put them out of business. My neighbor said that we need volume now.

John: We have about 40 acres. It is still small acreage of cabbage, bell peppers, pumpkins, and maybe tomatoes this year. The smallest is probably an acre. Most people are still feeling there way with this, but I'll have plenty of calls to come out and talk to folks this year about growing some different crops this time. This is part of tobacco's downfall. We are just expanding the late season for vegetables instead of tobacco farming. 90% of the workers are migrant labor that come for the

tobacco because its their season, and they run through it. Most of ours comes straight up through Texas, part of Georgia, and North Carolina.

I feel like that we need to do some reallocation of resources. For example, tobacco is a big crop in Kentucky, but we got systems in place to compensate farmer for growing experimental tobacco plots for us. If John or Kevin grows an experimental pumpkin crop, it could come out of their pocket. Another thing for example, do you think that the Toyota plant in Georgetown spends all of their time designing a new Camry that comes out this year, of course not. They are working on the Camry that comes out 5 or 10 years from now. We spend all of our time right here instead of being out in front to where we need to be. This year the farm tour went to California. I toured some of that big area. What happens out on the coast is going to come to the mainland, and I think that we need to be looking at grapes and wineries a little bit more. If it is popular out there, sooner or later is going to be here.

I'll make one comment on that. The hardest groups to deal with are the existing ag groups. For example, the Farm Bureaus are intrenched in that. I can go to the state's Chamber of Commerce, and get more support for agriculture as well as different types of agriculture than from the existing farm organizations. If you look at this folks, our change has to be within as much as on the outside.

As a grower, the Kentucky Vegetable Growers Association makes horticulture count as a vote to make recommendations for Quicksand's research and UK as a farm in south Lexington to do vegetable research. They do good work, but is such a small acreage that we prioritize for the newest varieties, herbicides, and fertilization rates to be performed. This is pertaining to the very basics, and there is a list of the top ten things that need to be accomplished. They try to find time to do three or four. I fear that it is going to go from production ag., in terms of quantities, to urban ag. It is going to get skipped because retired Navy captains are going to have more money and influence to get it researched than a small truck farmer. It is going to go from corporate farm research to research for retired people that have the money to influence. I have great fear of this. They didn't get the tomato research that they needed. Within the university system, it is very slow, but we need to watch to what is happening in the real world. We are going to lose because of slowly shifting, as in the past. The political support is going to be lost, but if we can convince master gardeners that we need this across the board for agriculture, then we will have support for all segments of agriculture. If we lose support, then we won't have any funds for anything.

We do need to look somewhere else. We need the support of the university because we're a small organization at the COOP that doesn't have the funding to hire a hired gun. I have a hired gun that is searching for someone right now. He is not really a hired gun, but he is still making his services available to us.

WATER QUALITY ISSUES Ms. Roberta Parry, Sr. Agriculture Analyst Office of Policy at the U.S. Environmental Protection Agency, Washington, D.C.

My concentration has been exclusively during this time on livestock and water quality in agriculture because it seems to be the hottest area. I'm going to talk generally about other issues as well. Every two years under the Clean Water Act, the EPA has to submit a report to Congress that is called the National Water Quality Inventory. The last one was in the fall of 1996. The report came out in1998. The next one will come out later this year. This list that you see does not change very much, but the percentage of water evaluated does change. The importance of the pollutants don't change from year to year. We can't make any trends because states evaluate their water in a different way, and evaluate waters in different years. We really can't have any competence in the numbers, however we do have competence in the significance of problems. The EPA has a hard time dealing with nutrients, entering lakes, rivers and streams, but we are starting to work on this problem. We have not even begun to think about the bacterial issue from an agricultural standpoint. The oxygen depleting substances is typical the thing that the EPA puts standards on. Pesticides deal specifically with water quality issues that they are setting the standards for. In Estuaries, the problems are much the same, but the toxic chemicals are a little different than in lakes and rivers. Nutrients and bacteria are at the top of the list, and the sources are different. The sources are the places that people look at, and agriculture is looked at as one of these sources. Year after year and report after report, agriculture comes out as the most dominant source of remaining water problems in the United States. By far, agriculture is the harshest industry. This is why that we look at agriculture as an industry and because we are a regulatory agency that regulates industry. Municipal point sources deal with the varied type programs for those point sources and waste water treatment plants. Agriculture and other non-point sources such as atmospheric deposition, and modifications are those things that we have a hard time dealing with.

The reason for this is that we are dealing so much with point sources. We are going to have to start concentrating more on these sources that are causing water quality problems. Agriculture in Estuaries falls down to the bottom of the list. There is a big problem in the estuaries in the northwest. I'm surprised that the ground water data from states is not very good. The reason for this is because it is more of an estimation than anything else, and shows a little more suspect of agriculture. The EPA controls these problems with four major programs that look at agriculture sources that are independent of the pesticides. These are included in the water quality criteria, the backbone of the Clean Water Act. They are Total Maximum Daily Loads, TMDLs, the Concentrated Feeding Operations. and our Non-Point Source Program. The water quality criteria tells us how clean the water bodies should be. For nutrients, those states have set faulty criteria along the lines that water should not smell and should be bacteria free. These led to many standards being set across the country. We are in the process of setting quantitative standards for levels of nitrogen and phosphorus in water bodies across the country. For nitrogen and phosphorus, we realized that water bodies respond very differently to where they are in the country, the type of water body they are, and natural back ground. All of these factors will be crucial to this process. So, we have developed a valuable set of criteria and standards based on a region wide type of water body. For example, the shallow lakes in the southeast might have different quantitative standards than the Mississippi River. We have just put the nitrogen supplement on the web site. They are groups formed to help water quality specialists to try and reset these standards. This was a basis for deciding if water bodies are clean enough. The Total Maximum Daily Load that is part of the of the Clean Water Act has been there since its inception. It basically

says that our technical standards are not enough for a water quality standard. This act said that we needed something more. Part of the act involved us suing states over environmental problems, and was started three or four years ago. There have been lawsuits in at least thirty states, and we have lost every one of those lawsuits. So, we are not fighting anymore, but a law will be set across the country to care for water bodies on the basis of nutrient level.

This refers to the amount of pollution a water body can absorb, and still meet water quality standards. This is based on how much pollution is coming from point sources, to estimate how much is coming into non-point sources, to see some variation in the margin of safety or natural background levels, and identify those sources. In response to the lawsuits, the EPA has proposed changes to our regulations. We have put this out for review, and a public commentary was proposed on January 20. We are going to read all of the comments at that time. Basically, we are making the program more regulated, and making the states develop these lists of a recommended pair of water bodies called a to-do list. We are developing TMDLs for pollutants and chemicals that are changing the water quality. The Clean Water Act gave us the authority to protect from chemicals, physical segregates, and biological segregates in our Nation's water. We are starting to look more at biological segregates, but physical segregates are much more of a problem because of zoning and other things. We really have not moved in that direction, and TMDLs are not going to change that much. The thing that we are changing is requiring states to have a public review of their water quality. The states have to publish a fifteen year schedule developing this TMDL, and start with the highest priority. It will be a listing based on science rather than on politics. They have to make implementation on how it is going to be done, in order to accomplish the TMDL tests, and achieve those water quality standards at the end of it. The implementation plan does not say specifically what you have to do, but what should be included at the moment. You have to give assurance to the EPA that you are going to do this. It can be a law degree program with adequate funding, and what are you doing to prove that the water bodies are being monitored. If its not working, then how do you go back, and change the TMDLs to make sure that progress is actually being made. I do not know how long that it is going to take to look at the submissions, and we are under a lot of pressure in dealing with the time lines. Some of the time lines range from eight years to thirteen years.

Question:

Will you give some insight into safety standards that concern water quality?

I suggest that you go to the web site. We are giving a lot of flexibility to the states and the regional offices. On the first point, You are expected to incorporate a ten fold margin of safety, and how good is the science in light of that standard. How do to you protect against pathogenic organisms that are part of the problem? The reason is because we don't have a cheap way to test for them, and this makes for caution. This is the fraternal debate for water quality and air quality that causes the error being made. Economics comes into play with these two topics. We will never face up to the fact that you never have to much outside of caution. The EPA has set a minimum federal law ,and we encourage states to go above that law. We will never say to the states not to be too cautious.

The states determine the function of the water body. The states can not determine the function of a water body as a place for waste disposal. Some of the functions are related to a water body being fishable, swimable, as well as used for drinking water. Water quality standards, if they say that there going to be set on a water body type of episode, could be set differently, for example, in the red waters of the Colorado River as it travels towards the salt of the sea. This is determined by the different uses of that water body.

We are referred to as land-grant researchers. Most of us are running research farms, and integrate a lot of bits and pieces of research to help agriculturalists put systems together to work on their farms. Sometimes we think that we get kicked from both sides. My concern is that you know that silt gets into streams, and killed 5.5 million acres of corn in Indiana last year because of erosion. Yet, we have a new technology coming along called roundup ready corn and soybeans that produce residue on the surface and reduce runoff. We then get hammered by the anti-technologists that would threaten this new technology. How can the USDA help us counteract that problem, and do you see roundup ready technology as a step forward in improving water quality?

This is serious problem. A lot of farmers know that there is progress to be made. The science was done 20, 30, 50 years on how to control erosion. We are not doing everything that we can to prevent it. I think that there is a lot of things on the farm that can be done now without science in mind. There is a debate and issue in Congress right now over the safety of GMO products. It is not the job of the EPA to prove to society that they're wrong in their stance. If somebody wants to sell a product and somebody wants to buy it, it is not the EPA's job to make them buy it. It is the job of the science community educating the population to demise these concerns. We all know that science will not go away. There could be backlash and risks to educating people on these issues. The EPA is not about to step in with that kind of political risk.

THE FOOD QUALITY PROTECTION ACT

Dr. David Bridges, Weed Science University of Georgia Georgia Agircultural Experiment Station Griffin

I want to talk a little about the FQPA. I don't know how many of you keep up with this issue, but I keep up with it intermittently at times. I want to tell the purpose of FQPA. What did it replace and was it a good trade? Then, I want to talk about the essential elements of FQPA, and problems associated with agriculture. In the previous talk, it reflected on the impact of agriculture, but everyone is impacted. I also want to talk about the opportunity of research and extension that may come about as a result of the FQPA.

What is the FQPA? It is the Food Quality Protection Act of 1996. This act had to be done and it solved some problems. Historically, from about the 1940s to the 1970s, pesticides regulation in U.S. was quite different than it is today. It was very consumer protection oriented under the USDA. The registration of pesticides was principally done for the purpose of protecting the consumer, the person using the pesticide. For example, if Dow Chemical sold you a product, and said that it would control cockroaches, the principal interest of the USDA was to determine if it controlled cockroaches. This was the principal consideration for standard registration. Over the period from the 1940s to the 1970s, there were a lot of changes in pesticide regulation, and you could say that they progressed to a higher level of regulation. All bureaucratic organizations get larger and larger, and never shrink. If they lose their mission, we just create another organization. Pesticide regulation has changed direction many times. In 1970, the regulation authority was shifted from the USDA to the EPA, and the whole concept of registration changed because it moved from consumer oriented, protection for the person using it, to a more safety and public protection mode. Through 1996, tolerances for pesticides were effectively set under a standard that required the tolerances be adequate enough to protect the public health. Along the way, we developed some conflicts and difficulties in the management of standards, with respect to registration. There evolved this dual track of tolerance.

This could be described as if you were talking about an essential raw agricultural commodity or processed food. Once that you got into processed foods, you got into the 418 and 419 sections and tolerances that became known as the Delaney Clause of the 1990s. It wasn't a great situation, and turned out to be, in defense of the EPA, as an absolute untenable situation. As Ms. Perry indicated earlier, after being sued so many times and losing, it causes you to throw your hands up and do something different. We finally reached a point in the mid to late 1990s because of the numerous suits, with respect to Delaney, that we could not go anywhere. So, everyone looked for a solution. The solution was the Food Quality Protection Act of 1996. My take on the FQPA is a compromise. It is something that everyone will accept, but no one really wants. This describes it, but is probably better than what we had. It is also proving equally difficult to implement. As I said, the standard for registration has changed from being one of adequate protection for public health to one that has a guaranteed certainty of no harm will result from aggregate exposure. The devil is always into details, and the details have proven to be the problem.

I want to talk about problems in agriculture that is purely form the standpoint that they are going to require substantial change. I not passing a moral judgment on whether these issues are good or

bad. This is reflected from changes that were needed from an environmental protection standpoint and a public health standpoint. I not passing judgment on what the impact would be in terms of a socially or quantitative way to what they will be. The new act on the surface provided some important features that were consistent and protection oriented. There is only one standard now, whether you like it or not. The single based health standards for the registration of pesticides provides special provisions for infants and children. This part of the act is hard to argue, in regards to infants and children. For example, a congressman mentioned that it is hard to talk about a little cancer in public policy during a debate over the Delaney issue, and it is hard talking about the protecting of infants and children. There are provisions for expedited approval of safer pesticides, and this has become a real quagmire because everyone's pesticide has become one of those safer ones. This is compared to us having IPM on 75% of our crop land by the year 2000, however we just bastardized it. I knew that, the minute it came out of the administration's mouth that it was accomplished, even though it was a failure. So, they redefined it any way that they could, to make it a success. This safer pesticide has turned out to be the same thing. It provided for screening for all compounds that have potential carcinogen effects. This is a very hot issue that has some pros and cons, and some scientific merit suggests that we should collect more data. Another issue is the reevaluation of tolerances. So, the provision to provide a single health based standard really did eliminate the problem that existed with the Delaney paradox.

How did it deal with it, and did it pay off? In my opinion, the reason that we got FQPA is that it provides for more environmental friendly regulation. As a whole, agriculture was not behind FQPA except to the extent that maybe it cleared up some existing problems. However, there were some agriculture groups that pledge their support towards the end, and this is the reason that it got passed. The truth is that these provisions insured the support of the environmentalists. I want to talk specifically about the issue of aggregate accumulative risk, and how that is going to impact us in agriculture. We are going to talk about the essential elements of the new verses the old. The heart of the standard is tolerances.

In the past, we set tolerances based on the set characteristics under an individual pesticide. The opponents would argue that you set standards in a vacuum without considering everything else that is going around you. We now consider aggregate exposure, and consider all sources of exposure. All sources of exposure include food, water, and non-occupational exposure. For a given pesticide, we have to consider all routes of exposure. In addition to that, were are going to consider simultaneously all pesticides that share a common mode of toxicity. So, we are going to look at all routes of exposure for an individual compound, and look at all compounds that share a common mode of toxicity at one time. What is the impact of that? If you keep up with this, everyone talks about the risk cup. We are going to look at the risk cup, and literally, think of this as a cup or a bowl. So, how big is the cup? This is the first question that you ask. The definition of a cup is described as an equal amount of risk for seventy years without expecting adverse health effect as established by laboratory studies and research. Ordinarily, we would apply somewhere between a hundred and a thousand degree safety factor, but with the provisions in FQPA for infants and children, you have to blow that up another order of magnitude. This winds up being a safety factor in the thousand to ten-thousand range. This depends on the compounds that you are talking about, where its used, how its used, and what the aggregate exposures are. The safety factors could literally be anywhere between a hundred to tenthousand. For example, you have one pesticide that has a particular mode of action, a particular mode of toxicity, there is nothing out there like it, and it is fully understood to how it works in mammals and in its environmental phase. If it doesn't go on a food crop, it may have a hundred degree safety factor. This is something that you don't understand, kids eat it, and you move to the other end. So, we talked about what the cup is. What is the problem with the cup? The first problem, you are sitting here holding the cup, and there are to many tea pots pouring in the cup because of all the people standing around. This causes aggregate risk because you have food; drinking water; non-occupational exposure, like walking across your lawn to get your newspaper on Sunday morning; and pesticide use in your home. The aggregate pieces are all pouring into the cup, as well as the commutative pipes. Now, you have a pipe pouring in, if your talking about OPs, for every OP as well as every carbanish. Therefore, they all share a common mode of toxicity. In some cases, the OPs and carbanates, you have an infinite number of pipes dumping into this cup, and it fills up fairly quick. Figuratively, the cup keeps shrinking because we considered special provisions for infants and children. So, it is a very good likelihood the cup will get smaller after a reevaluation of tolerances that were set years ago. There is also a problem of endogren effect that can effect the size of the cup, or could make it disappear. So, what do you do after the cup is full? For example, what does a registrant do if they have a pesticide, and are told that the cup is full, so to speak.

These are my solutions. The first one reflects the point of view that no one wants to undertake it, yet. The solution is to make the cup bigger. However, we could make the cup leak. There are always loopholes in politics, and this may be the best solution by making the cup leaky. We have all kinds of leaky cups in regulation, so make this one leak by taking a big chunk out of the bottom of it. It will never fill up. Another solution, you could make yourself another cup. For example, I been telling one company for two years, as a consultant, to get their own cup, and spend the money to do the research by proving the case that this particular pesticide does not share a common mode of toxicity with these others that are presumed to be in the same group. If you can definitively prove this, you can get your own cup. In reality, the solutions have been reduced contributions to the cup. In most cases, you won't bloody your head doing it this way, but you could lose some money or markets. In reality, this is the easiest way, and unfortunately, right or wrong from a social perspective, this has the most impact on agriculture.

What are you supposed to do if you are a registrant with a cup to full? Which pesticides are you going to eliminate? First of all, you are going to probably eliminate the one that makes the least amount of money, the least margin. An example of this, you got an old material that has a low margin, and everyone that's has a bathtub is making it and selling it. You are not making any money. The next one, for example, is a minor crop market that tells of you being the only chinese bochchoy grower in the America. If there was one pesticide that was labeled for that one, it would be gone. All of your minor uses are in serious trouble, and you're probably going to eliminate those that are associated with the biggest pipe. This is the best thing to do. In other words, if you have one that is contributing a lot of cumulative or aggregate risk, the big pipe may go. This is the outcome that your going to see in some of the OPs in my opinion. I think that we're going to see some of the nonoccupational exposures gone because they are big pipes. These include residential uses of diazinon and chlorpyrifos. They are putting a lot in the cut right now, or you going to have try to reduce the exposure. We may see some changes in such a way that some pesticides in non-agriculture uses are limited to professional use. Maybe, the only use of chlorpyrifos that is left is for structural termite pest control by professional users. You might not be able to go down to Wal-Mart and buy Thiodan or inspectricide. So, some of those uses will probably go by the wayside. One of the problems, as we start down this path, is that you haven't heard a lot about this even though its been around since 1996. We haven't done a whole lot because the EPA has been writing regs and figuring it out. As I pointed out, the registrants would drop the fruit and vegetables, residential uses, and you can bet that they are going to drop things used on minor crops for infants and children foods. For example, you need to go to the grocery store, walk down the aisle with Gerber Food, and look at what you see. I'll

be shocked if there is a fungicide use left in spinach if we fully implement this. They're going to drop minor use products with high exposure, and the ones that they don't make money. The other problem of registrants is that all tolerances are to reassessed by 2006, and many were due to have been in 1996. Many crops and uses are going to suffer because they're too costly to support in the big scheme of things. If you look at the tolerance reassessment schedule that was supposed to be accomplished by the late summer of 1999, insecticides are the ones that are a major issue. These include the OPs and Carbanos. In my discussions with the EPA, it seems to me that they have been bogged down in trying to figure out the situation over OPs and Carbanos. We are going to see some significant loses in the fungicide arena. These are the first four herbicides to be evaluated, and the real impact in round one will be insecticides and fungicides.

The problem with agribusiness is that the EPA has failed agriculture. The reason I say this is because they didn't have anything to do with the passage of FQPA. Congress handed it to them, and they had to deal with it. In the past three to four years, they have not done anything with respect to pesticide regulation. They have stopped and worked on writing rigs, and haven't registered anything. The Triosines were put into special review in 1994, and we still do not have a report. The answer is clear by saying that they have convened on SOPs and foreign SOPs, but this hasn't been revealed to the public. The reason for this is because the EPA would take a beating by the environmental community over the Triosines. The evidence is there to support they're continued uses, but there is going to be some changes that is related to BMPs and water quality. However, this has not happened yet. New registrations are unheard of, and the mode of operation that the agency has to tell the registrant to get a registration is to acquire a Section 18. The EPA will deny saving this, but it is said a lot. The Section 18 mechanism has been the vehicle for getting a registration because there is no other way. Industry is left guessing, because they are waiting for the EPA to come out, and say how we are going to manage this. This is almost an unmanageable task, and I feel sorry for them. They are redirecting R&D funds on a speculative basis, so we are moving money over here to address this from a research standpoint because we think this is going to happen. They are trying to establish priorities on what they want to do, but they're all based on guessing. So, what are our opportunities of the land-grant system in terms of research and extension? Assessment, in my opinion, is one of the areas that we haven't done a good job in historically. We need to develop a robust documentation on current uses near impact. Most people would not care about the reason that we are doing this, but we better be able to provide some balance in argument. The best argument against absurdity is more absurdity on the other side. For example, if a person is taking an absurd position on the left, the best way out is to take an absurd position on the right. We need to identify possile alternative control practices, and hopefully something that our farmers can use. We need to determine the impact that will occur if alternatives are used, and need to cooperate with the health and medical community to try to come up with some perspective on what the health and public health benefits are, if we make these changes. There is a presumption that if we make these regulatory changes that there is going to accrue some benefit in terms of public health, but I don't see any data to really support that. Alternatives, we need to look at the use of existing pesticides that will reduce exposure and risk as well as the alternative uses of current registered pesticides that are underutilized. This means that their cup is not yet full. Non-chemical pest management and truly safer pesticides would be a good area. There is a provision for funding minor crop pesticide research, but I don't know of a new program that has emerged among that provision. With our support, it might sub in some more dollars. This says that there is a provision for supporting the development of minor crop pesticides, but where is the vehicle. We better keep working on host plant resistence, high yielding and well adapted cultivars, and competitive cultivars. My suggestion is that we in the public sector should quit chasing this herbicide-tolerant crop and pest resistant transgenic crop state, and let industry take that one and run with it. We better

protect the object that brought us to the dance, and this is not happening right now. In closing, I would like to ask two rectorial questions. The first question that I'm going to ask, has FQPA been implemented? There is a presumption that it will be implemented, however I'm not sure its possible to implement. I'm not sure that the EPA can figure out a way to handle this without getting sued by people on both sides of the argument. This a highly controversial piece of legislation, so don't go out running and screaming because it will put us out of business. If it is implemented, how high will the casualties be? The implementation of it, as it is currently written, will cause casualties to be high, and lose a large number of pesticides. As the old saying says, no piece of work is done till the paper work is done, which reflects my guess that Congress is going to do some paper work down the road. I don't think that it can be dealt with. This is my slant on this issue.

AN OVERVIEW OF CALIFORNIA AGRICULTURE

Paul Sebesta, Superintendent Desert Research & Extension Center El Centro, California

A lot of you went out to the station in the San Joaquin Valley in Southern California, however, we are the other extension center. We are the ones that do the good work with an adequate budget. So, what I'm going to get into today in the course of this presentation is to talk about agriculture in California in general. This will include some statistics about the course of agriculture and a little background about our research and extension center.

However, I'm going to move into the programs at the research and extension center, and this is where I've been for the last five years. I gave this presentation to some foreign visitors that come to California, and their always impressed by some of the statistics. For fifty consecutive years, we have been the number one food and agriculture producer in the United States. California is the nation's top ag. state, topping more than \$26 million in farm value; 350 commodities produced by our farmers; 82,000 farms cover over 30 million acres; produce over half the nation's fruits, vegetables and nuts. One note, our state's population is going to have a tremendous increase in the next twenty years, and our farm land is in jeopardy of urban development. The nation's top ten ag. counties are in Californias'. Imperial county, the place that I'm located at, is the tenth county. Across the state, one in ten jobs are related to agriculture, and it is one in three in the Imperial Valley as the leading economic force. There is agriculture scattered throughout some of these valleys, but you'll notice that the Central Valley, Sacramento Valley, and San Joaquin Valley were a big part of where the agriculture had been. You were in this general area, and saw the intensity of the agriculture and operations in Lindcove, Kearney, and went by West Side. We are the other valley in California that has some agriculture, and there is also some agriculture production in the Bay area and the Salinas Valley. They do some significant lettuce production and other vegetables. If you go to the grocery store to pick up almonds, dates, figs and raisins, they are grown exclusively in over 95% of the acreage in California.

In the Imperial Valley of Southern California, we are located 120 miles east of San Diego, there are 500,000 acres devoted to agriculture, and we are bordered on the north by the Salton Sea. We are trying to get Federal funds to clean up the salt in the sea. It is bordered on the south by Mexico. The Imperial Valley with the absence of water was termed by the earlier settlers, almost always inhospitable, as only land fit for the dead. This refers to the Imperial County as well. We get less than 2.95-inches of rainfall a year. The temperatures are a little misleading because of the annual mean temperature of 72° , maximum mean temperature of 92° , and the lows of 53° during the winter time.

The Dunes System that is out to the east part of the Imperial Valley is the place where General George Patton launched his tank training during WWII. Colorado River water supports agriculture and life in the Imperial Valley. It forces its way through the All-American Canals from 82 miles at the Arizona/California border. It is illegal to cross the Mexican/US border at the All-American Canal to get into the United States. The border patrol are always sticking cars, motorcycles and people at the All-American Canal. It doesn't look like it but that water is running very fast. This water has transformed the Imperial Valley into one of our Nation's top ag producers with 500,000 acres. Water was first brought into the Imperial Valley in 1901 through a series of canals and drainage that the settlers

made. They, however, forgot to put a check dam on it, and huge rains came down and caused the Colorado River to come through the valley. This formed the Salton sea. The All-American Canal has been in existence since 1940, and covers seventeen-hundred square miles of irrigation brought to farms. It has to be maintained, and in addition to that, we have 1,800 miles of irrigation ditches that take the runoff into the salty sea. The Salton Sea, as well, has to be maintained. Because of the water shortages and the need for water in San Diego and Los Angeles, we are now in the process of concreting all of the irrigation ditches. Processors in the Valley produced over 40 crops that made over \$1 million each in gross. Imperial Valley is the seventh largest food producing area in the world, and in North America it is the largest year-round irrigated area with crops that include vegetables, small grains and alfalfa. Growers in the Imperial Valley and surrounding areas of Calipatria, a little bit to the north, and Winterhaven, a little bit to the east, produce about 80% of our nation's fresh winter vegetables. We are called the nation's winter salad bowl, and each vegetable is produced in the Imperial Valley. The cheese at the top refers to the fact that we have a cheese plant that is supplied from our dairies. This next part can give you idea of how much acreage the different commodities had and their value. 1970's statistics showed that the most premium crops, melons and vegetables; commanded \$416 million; field crops, our largest acreage, \$331 million; and then we have livestock, fruits and nuts, and seeds and nursery. Livestock is our leading economic agriculture commodity. Livestock in the Imperial Valley shows \$162 million gross value. Cattle produced \$162 million, and sheep and wool both show around \$10 million each. We have an aquaculture in the Imperial Valley producing shrimp, talapia, small amounts of catfish, and have some miscellaneous species showing \$110 million. Alfalfa is our leading agricultural field crop commodity that produces about 24% of the state's total alfalfa crop. Alfalfa was the first major commodity grown in the Imperial Valley in terms of the last century. It is our leading commodity, and occupies about a 1/3 of our agricultural acreage in the Imperial Valley. We have about 165,000 acres, and get nine cuttings per year with an average yield of eight tons per acre. Alfalfa is worth about \$132 million. Lettuce is our leading vegetable commodity at \$81 million, and have about 30,000 acres. All of our carrots grown in the Imperial Valley are taken to Bakersfield to be processed into smaller carrots. We have broadleaf cabbage, about 10,000 acres of asparagus that is picked every day during the season, broadleaf tomatoes, peppers, a little bit of potato production, and have had some peanut production in the past. Cotton has been reduced, but once was a big producer. A 100,000 acres of wheat is produced annually. In the Imperial Valley, we produce Durum wheat with yields of three tons/acre. Durum is used to produce spaghetti and pastas, and as a sideline, each of us eats 20 pounds of pasta per year. So, we need to eat a little bit more to support the durum industry. We, also, do sugar beet production, and have about 80 growers under contract with our local sugar beet plant. There are about 35,000-40,000 acres of sugar beets that produce about 1.3 million tons, and our growers get about \$42 million for sugar production. Beet harvest begins in April and runs through July, and those dates are significant because of a research project that I'm involved in.

White Flies came into the Valley in the early 1090s, and they essentially devastated agriculture production. The statistics that came off of this came from a 1993 pamphlet, but I did see a recent article that said White Fly loss caused \$310 million to date. So, it has totally devastated crops. We used to have melons and cantaloupes in the fall, but don't do them any more. We don't do a lot of tomatoes anymore, all because of White Fly loss. We've had \$10 million in crop loss that is equivalent to 172 million in pepper sales, the loss of 3,000 jobs, and \$25 million in personal income as to the date of that pamphlet. We still have them to date, but they are not as bad.

It has come to our attention that one of the 10 centers that make up the Research and Extension System in California is going to sell the center that is devoted to urban agriculture in the Bay area. We have one other urban agriculture site; four that service the southern San Joaquin area; we have

two livestock units, Hopland and Sierra; the Intermountain up on the Oregon border; and one in the desert that is south of us. The active Research and Extension System in California, even though composed of those ten centers, the acreage of those centers is small compared to a lot of research centers that you occupy. Our largest Crop and Horticulture Center is 330 acres; Westside is 320 acres; and our two animal units, Hopland and Sierra, are over 5,000 acres each. This happens to be their research specialities, or what their research emphasis is. Our Bay area center is the smallest with 17 acres. It's problem is land use because a mall is right across from it. So, it is essentially gone. Our urban folk area is South Coast, and its in the L.A. area with 200 acres. It is made up of strawberries, citrus and avocados. Our system, as compared to some of your systems, is probably not as well funded. We operate off of a system of research of around \$500 million. We have 120 professional staff at our 10 research extension centers, 12,000 acres in our system, and 25,000 sq. ft. of physical plant. Most of our centers are not resident faculty, but at Kearney, our largest, has 25 resident faculty. We operate over 200 projects with over 200 project leaders within the University of California System. We have had a complete organizational structure that has been implemented, and have a new management position called the associate vice-president. Our boss, Director of the Operating Facilities and Planning Management, reports to the associate vice-president, and he reports to the vicepresident. Regional operating directors have been taken out of this because we now operate from center operations and programs. A lot of you know about the way we do our business, we are a granting agency that takes our budget, and rolls it out through a grant process. There is a call for proposals that is reviewed by our advisor committee. Labor hours that are assigned to each project are tracked on a per project basis by mailing quarterly reports to all of our fiscal investigators. The projects that use more hours than they were allocated by a research advisory committee are sent a bill for that labor at the mandated rate. For example, if I overrun a project of 100 hours, I get a bill for 100 hours at \$11.94/hour. So, this is a good way for research scientists, that haven't developed research sources yet, to get started, and get a grant to do research there. Researchers that provide a yearly summary and a three year summary are now beginning to post their research on our center's website. The little research center in which I operate in Southern California, one of ten, is the oldest research and extension center in the University of California System, and we were established in the 1910-1912 era. So, some of the buildings from that era need to be renovated. We have 255 acres, and are considered an interior desert valley. The interesting part about our center is that we are 60 feet below sea level. As you go down from the Mexican border towards the Salton Sea, you are going downhill as you all know. By having this, there is a small town in the northern part of the Imperial Valley that takes great pride in that the ball of their flag pole is precisely at sea level and that flag pole is 220 feet tall.

Our organization includes an assistant superintendent that is going to start soon, physical plant people, field support people, and other administrative people. Our research program is coordinated by our Research Approval Committee, and the research emphasis is, naturally, desert agriculture. This includes field crops, alfalfa breeding, vegetable crops, irrigation and fertigation management, livestock and feedlot management, and have some alternative crop research going on now. We, as well as Jimmy, have a water treatment plant, a domestic water treatment system, that we treat our water up to municipal standards. So, we have to go through permits, sampling and those kind of things. Also, at our research and extension center, we have residents that live on the station by paying rent. This rent money goes to support that program, and provide some nice housing for some of our research scientists and support staff. We have people that use our facilities from all over the University of California System and from up North. These people come down from the Cooperative Extension, at Davis and Riverside because of where we are located, and we continue our work with North Dakota State. We have done seed increase work with Ag Canada and Alberta Ag, as well as, Australia. I have been told by our animal science nutritionists that we have one of the largest university research feedlots facilities in terms of ten replications per feeding treatment. We have 116 pens and a 700 head capacity. Our feedlot is not near as nice as some but it seems to be functional. Our facility is termed a shared research facility because it is not simply dedicated to our resident animal scientists and nutritionists but to anyone that wants to do work here with a research proposal. We do research in feedlot management for low deserts, feed, feed additive evaluations. Graduate scientist training, and visiting scientists come from around the world to work. Some past visitors are from China, Venezuela, and Chile.

During presentations to students, I show the blown up picture of a Silverleaf White Fly from one of our published pamphlets. It was done by our ag. communication specialists, as well as other slides done in this presentation. Because of this problem, developing White Fly-resistant alfalfa is a major portion of our research program in the Imperial Valley, and we now have a new alfalfa variety. The things that White Flies do to alfalfa are feed on it and exude a sticky mixture. So now, our plant breeder has developed screening mechanisms has developed the White Fly resistant alfalfa. His funding came from our Global White Fly Committee by generating funds off of checkoff water. Now, we have that new variety in seed production by using some of the members of the White Fly Committee. We also have insecticide studies for White Fly controls on several crops, based on integrated pest management, and have parasite research because there are some White Fly parasites out there. Our forage research includes: alfalfa breeding in genetics, participating in regional alfalfa evaluations and Sudan grass production. However, we are looking for alternative production for the summer because the heat causes few crops to be grown, and the majority of the land during the summer is being prepared for vegetable production, alfalfa and Sudan grass. Producers will have only these two production choices. We will be looking at alternative forages that can be produced in the heat of the summertime, and doing irrigation management in search of that. Carrot research is big at our research center, and we have a cooperative project with USDA at Wisconsin and UC Davis at our research center. We are getting to do some integrated pest management; some artichoke breeding that is very interesting; lettuce, cole crops, melon entomology; and melon plant pathology. There is a microorganism in some soils that attacks melons, and when you harvest these melons, they just wilt. They are trying to control this problem in parts of the desert. We have some herbicide registration that we do there, an IR4 project, and natural irrigation management. I participate in the Small Grain Breeding Program as a plant breeder with the folks at Davis in a joint project. We are using some genetic resistance selection and traditional breeding methods, breeding nurseries in 12 regional assistance programs, and number 3 is salt tolerance research. I am the principle investigator in our alternative crops project, and this happens to be Teft. Teft is a plant that is home to Ethiopia. It is used to produce a flour that is used to make a bread, and as a forage for livestock. We are looking at it as an alternative summer forage because it grows well in our subtropic, but it will not produce seed with the flower. However, it doesn't work in Tampa, South Dakota or Minnesota. So, this slide shows the small test plots in July of 1998.

At the end of July, everybody is laid off to help operate the sugarcane plant till the end of the crop year in April. If I could extend the amount of product that I could process in my plant, then I could generate income from it and be more efficient in my operation. So, we are working hard at evaluating production sugarcane in the Imperial Valley. The first year of the sugarcane stand it averaged 50 kilos/acre in our trial. So, it does fairly well, but takes a lot of water. The other problem is the harvesting process because it is very labor intensive. So, we have a sugarcane project that we are evaluating production in the low desert, we have 22 cultivars, and are looking at 27 more. We are taking Florida preliminary data, yield data, have an agronomic study going on, and are getting into

future experiments. Sugarcane planting in a production field is done typically without the alleys, as here in our trial, with two canes in a lathe, the joints are lathed, being planted beforehand so that you get growth throughout the stand. This shows that it is very labor intensive because you can't just start dumping the seed. The various acreage, the wheat acreage, and the Bermuda grass acreage 4 fields of 10,000 acres each are burned every year in the Imperial Valley. Along with the burning, it causes smoke to go towards San Diego and Los Angeles. This has caused us a big problem with being able to burn our agriculture products. The problem with sugarcane, where it is produced, is the burning in most areas of the world because of several reasons. They burn the sugarcane because it stops the leaves to prevent them from sprouting later, and causing the sugar to run off to various areas. If this happens, it will cause your sugar yield to be lower. By burning, the hand crews have an easier time because you have eliminated all of those leaves that are serrated. The third thing is that burning runs off all of the animals to provide a safer environment for the harvesters. These would be mice, rats, snakes and bugs. You can see the tremendous problem that it causes with pollution. So, we have been told by our agriculture officials that we must control this problem. When people come to visit from Australia, they say that our environment is exactly the same as their production area.

Because of our winter climate, we do some seed stuff. Throughout the Valley, we have a lot of canola seed production that is shipped up north to Canada and North Dakota. We do a lot of environmental work at our research stations with involvement in earthquake detection within a cooperative program between the USGS and Cal State. You can get on the earthquake website to find out the place where the earthquakes are throughout the state. We have our irrigation programs that are like some of yours, and we also participate in the ultra-violet beam monitoring program with the USDA and Colorado State. This is done by collecting data everyday and transferring that data on a daily basis. Outreach was talked about in our breakout session. We are doing more and more outreach to generate funds for research by enhancing our reputation. This has been done by having career days and science fairs, and we are having a bird festival at our research center in conjunction with the local bird watchers. We do outreach and tours for school kids, and put a display up at the California mid-winter fair about our research and extension centers. In addition to that, we put together a vegetable display about facts and statistics of vegetables here. By doing this, we took all the labels of all the producers in the market. So, if you're ever in a grocery store at College Station, Texas and see a Nicky label, it was produced in the Imperial Valley. We also cooperated with our local ag. students by having ag. teachers to demonstrate certain things. Even though most complain about generating funds to support ag. research, I have not heard one person ever complain about generating funds to support education programs. We have 33% unemployment in the Imperial Valley, the highest unemployment in the state, and the poorest county in the state of California. Agriculture is our most important asset in the Imperial Valley. Somehow, agriculture has to be shown to kids as being a desirable career. I hoped that you enjoyed my presentation.

RESEARCH CENTER ADMINISTRATORS SOCIETY

Fall Executive Board Meeting September 26 & 27, 1999 Stoneville, Mississippi

President John Robinson called the meeting to order at 1:00 p.m. at the Delta Research & Extension Center.

Those in attendance included: Brian Gamble, Randall Rawls, Alabama; Ed Colburn, Larry Earnest, Mike Phillips, John Robinson, Neil Rutger, Arkansas; Bob Roth, Arizona; Paul Sebesta, California; Ed Hanlon, Florida; George Granade, Georgia; Robert Dunker, Illinois; Lyle Lomas, Kansas; Jere McBride, Al Nipper, Louisiana; Ned Edwards, Jim Smith, Alan Wier, F.T. Withers, Mississippi; Joe Hampton, Carl Tart, Denny Thompson, North Carolina; Mike Bourne, Merritt Tayor, Oklahoma; Jack Davis, Ben Kittrell, South Carolina; John Hodges III, Phil Hunter, Tennessee; Tim Davis, Joe McFarland, Texas; and Jim Jones, Pete Schultz, Bill Wilkinson, Virginia.

Welcome

Jim Smith welcomed the group to Stoneville and gave a brief overview of the Delta Research & Extension Center. Each member then introduced themselves and told where they were from.

Minutes

Carl Tart circulated minutes of the January 31, 1999 executive committee meeting and the February 1, 1999 annual business meeting. It was moved by George Granade and seconded by Jim Jones that the minutes be approved as corrected. Motion carried. Ed Hanlon suggested that the minutes be posted on the RCAS web page.

Treasurer's Report

Jere McBride presented the treasurer's report. He reported a balance of \$6,625.57 and a net gain from the 1999 annual meeting of \$425.65. Jere also expressed appreciation to Carl Tart for publication of the proceedings by the North Carolina Print Shop which has improved the financial position of the RCAS. It was moved by John Hodges and seconded by Jack Davis that the financial report be approved. Motion carried.

Newsletter

Improving the effectiveness of the newsletter was discussed. It was suggested that the newsletter should go out in December in order to highlight the annual meeting that would be held in 2000. State representatives were encouraged to send news to the newsletter editor. Sending the newsletter to prospective members in all states was recommended.

Program Planning for Winter Meeting

Denny Thompson, program chair for the 2000 annual meeting which will be held in Lexington, Kentucky on January 30 - February 1, stated that the Hyatt Regency would be the site of the RCAS meeting. The executive meeting will be held on Sunday, January 30 from 1-5 p.m. Denny then went around the room and asked each person present to suggest potential program topics for the annual meeting. Many good ideas were selected from which Denny will develop a program.

Carl Tart gave a report of hurricane damage in North Carolina. The meeting adjourned was adjourned at 4:20 p.m.

September 27 Meeting

The meeting reconvened on September 27 and was called to order by President John Robinson at 8:00 a.m.

Those in attendance that were not present on the previous afternoon included: Jim Pitts, Alabama; Dave Langston, Arizona; Findlay Pate, Florida; Phillip Utley, Georgia; Donnie Davis, Kentucky; Ron Robbins, Louisiana; Clifford Hampton, Reuben Moore, Joey Murphey, Mississippi; Ray Cartee, Utah;

Welcome

Vance Watson, Mississippi Agricultural Experiment Station Director, welcomed the group to Mississippi and congratulated RCAS on becoming the premier organization within SAAS.

2000 Fall Meeting

Ray Cartee invited the group to have the 2000 fall meeting in Utah. It was moved by Ben Kittrell and seconded by John Hodges to have this meeting in Logan, Utah on July 29 - August 2, 2000. Motion carried.

RCAS Expansion Committee

Ben Kittrell indicated that RCAS plans for future expansion include addition of members from states outside the southern region. Ben informed the group that Paul Sebesta would be presenting a poster about RCAS at the National Agronomy Meetings in Utah later this fall.

Financial Committee

Jim Jones reported a balance of \$6,625.57 in the checking account and a net gain of \$425.65 from the 1999 annual meeting. Jim expressed appreciation to Carl Tart for publication of the proceedings by the North Carolina Print Shop and indicated that RCAS was in good financial shape.

Proceedings Committee

John Hodges reported for the Proceedings Committee on behalf of Chairman Dennis Onks who was unable to attend. John reported that submission on manuscripts by speakers was the biggest problem encountered in assembling the proceedings for publication. John also indicated that Dennis would like to have some assistance with preparation of the proceedings for publication. Merritt Taylor volunteered to assist Dennis with this task. Carl Tart indicated that he would look at the possibility of revising the RCAS logo which might be printed on the proceedings cover.

Membership and Internet Service Committee

Jim Smith reported on the status of the RCAS web site and circulated printouts with names and addresses of RCAS members in each state for state representatives to correct. Photographs were also made of members present for posting on the web site. Joe McFarland reported on the status of a resource guide that will be developed for the RCAS web site and the list serve that is currently up and running.

Awards Committee

John Hodges reported that a nomination recommended by the Awards Committee had been approved by the executive committee. The name of the nominee was not revealed since they were present at the meeting. It was moved by John and seconded by Joe Hampton that this nomination be approved. Motion carried.

Nominating Committee

Findlay Pate reported the nominating committee had proposed the following slate of officers for the upcoming year:

President	Denny Thompson
Vice-President	Carl Tart
Second Vice-President	Lyle Lomas
Secretary	Bill Peterson
Executive Treasurer	Jere McBride
Proceedings Editor	Dennis Onks

It was moved by Findlay and seconded by John Hodges that this slate of officers be approved. Motion carried.

Lexington Meeting Arrangements Committee

Donnie Davis reported on local arrangements for the Lexington meeting on behalf of Bill Peterson who was unable to attend. Donnie indicated that the tour would definitely include the new animal science facilities at the University of Kentucky. Other possibilities would be a stop dealing with acquisition of excess property, a distillery, an agricultural history museum, the Toyota plant, and a horse farm. The banquet will likely be held at Spindle Top Hall.

The meeting was adjourned at noon.

Recorded by, Lyle Lomas, Secretary

RESEARCH CENTER ADMINISTRATORS SOCIETY

Executive Board Meeting January 30, 2000 Lexington, Kentucky

President John Robinson called the meeting to order at 4:00 p.m. at Patterson Room E at the Hyatt Regency Hotel.

Those in attendance included: Randall Rawls, Alabama; John Robinson, Arkansas; Jimmie Ross, Paul Sebesta, California; Robert Dunker, Illinois; Lyle Lomas, Kansas; Bill Peterson, Kentucky; Ron Robbins, Louisiana; Jim Smith, F.T. Withers, Mississippi; Mike Bourne, Merritt Taylor, Oklahoma; John Hodges III, Phil Hunter, Dennis Onks, Tennessee; Joe McFarland, Texas; Ray Cartee, Utah; and Pete Schultz, Virginia.

Minutes

Lyle Lomas circulated minutes of the September 26 & 27, 1999 executive board meeting which was held at Stoneville, MS. It was moved by Joe McFarland and seconded by Phil Hunter that the minutes be approved as printed. Motion carried.

Treasurer's Report

Bill Peterson presented the treasurer's report which was sent to him by Executive Treasurer Jere McBride who was unable to attend. He reported a balance of \$6,252.63 on January 1, 2000. It was moved by Dennis Onks and seconded by John Hodges that the financial report be approved. Motion carried.

RCAS Expansion Committee

Paul Sebesta indicated that there had been pre-registration from Illinois, Indiana, Michigan, and North Dakota as well as the states that had participated in RCAS previously.

Financial Committee

No financial committee report was given due to the absence of chairman Jim Jones.

Proceedings Committee

Dennis Onks indicated that the proceedings had been printed and were in North Carolina. Since Carl Tart was not expected to attend the meeting due to adverse weather, the proceedings would be circulated later. North Carolina printed the proceedings at no charge. Dennis indicated that perhaps RCAS should provide paper or make a contribution to offset some of the printing expenses. Dennis indicated that photos of officers and state representatives would be included in future proceedings.

Membership and Internet Service Committee

Joe McFarland reported on the status of the RCAS web site and requested input from the group on the topics that they would like included in the resource guide. The possibility of using the Web site for meeting registration, meeting notices, and posting of the newsletter were discussed. It was mentioned that notice of RCAS meetings could be posted on the American Society of Agronomy A-7 Web page.

Awards Committee

John Hodges reported that a nomination recommended by the Awards Committee had been approved by the executive committee. The name of the nominee was not revealed since they were present at the meeting. The awards recipient will be recognized at the banquet on Monday evening. Jere McBride will mail the plaque to the recipient.

Nominating Committee

Findlay Pate reported that the nominating committee had proposed the following slate of officers for the upcoming year:

President	Denny Thompson
Vice-President	Carl Tart
Second Vice-President	Lyle Lomas
Secretary	Bill Peterson
Executive Treasurer	Jere McBride
Proceedings Editor	Dennis Onks

Local Arrangements Committee

Bill Peterson indicated that the tour would include the new animal science research facilities at the University of Kentucky and a distillery. The stop at the horse farm was deleted due to time constraints. The banquet will be held at Spindle Top Hall and will feature an after dinner speaker and an awards presentation.

Program

Dennis Thompson, program chairman, was not present at the meeting due to inclement weather. Several program speakers canceled due to the weather and suggestions for substitutions were made by those present.

Summer Meeting

Ray Cartee distributed a proposed schedule for the summer meeting which will be held in Logan, Utah from July 30 to August 3 and told of arrangements that had been made to accommodate the group.

It was moved by Lyle Lomas and seconded by Dennis Onks that the meeting be adjourned. The meeting was adjourned at 5:30 p.m.

Respectively submitted, Lyle Lomas, Secretary

RESEARCH CENTER ADMINISTRATORS SOCIETY

Annual Business Meeting February 1, 2000 Lexington, Kentucky

President John Robinson called the meeting to order at 10:30 a.m. at Patterson Room C at the Hyatt Regency Hotel.

Minutes

It was moved by Ben Kittrell and seconded by Phil Hunter that the minutes from last year's meeting in Memphis be approved as printed. Motion carried.

Secretary's Report

Lyle Lomas, secretary, gave a brief report on the board meeting that was held on Sunday afternoon in Lexington. Lyle indicated that there were 46 members and nine spouses present at the meeting. There were 51 that signed up for the Monday afternoon tour and eight spouses registered for the tour on Tuesday. There were cancellations by 15 members and four spouses related to weather conditions. Attendance was approximately 2/3 of what was anticipated due to adverse weather in many of the southern states. Registration information was sent to approximately 360 individuals.

Treasurer's Report

John Robinson presented the treasurer's report which was sent to him by Executive Treasurer Jere McBride who was unable to attend. He reported a balance of \$6,252.63 on January 1, 2000. It was moved by John Hodges and seconded by Phil Hunter that the financial report be approved. Motion carried.

Financial Committee

No financial committee report was given due to the absence of chairman Jim Jones.

RCAS Expansion Committee

Ben Kittrell indicated that RCAS was truly on its way to becoming a national organization as there were participants at this meeting from Arizona, California, Illinois, Indiana, Kansas, Michigan, North Dakota, and Utah as well as the states in the southern section. He encouraged members present to reach out to other states and asked for comments from participants from states that had not previously participated in RCAS.

Membership and Internet Service Committee

Joe McFarland reported on the status of the RCAS web site and requested input from the group on the topics that they would like included in the resource guide.

Directory

Phil Hunter indicated that he would again be responsible for publishing the RCAS directory and that the cover would once again be orange. He requested that state representatives provide a list of members and a map of their states showing research center locations.

Proceedings Committee

Dennis Onks stated that he was the proceedings editor and that Merritt Taylor was the assistant editor. Dennis indicated that the proceedings had been printed and were in North Carolina. Since Carl Tart was not expected to attend the meeting due to adverse weather, the proceedings would be circulated later. Dennis indicated that photos of officers and state representatives would be included in future proceedings.

Summer Meeting

Ray Cartee distributed a proposed schedule for the summer meeting which will be held in Logan, Utah from July 30 to August 3 and told of arrangements that had been made to accommodate the group. It was moved by John Hodges and seconded by George Granade that the summer meeting be held in Utah. Motion carried.

SAAS Board Meeting Report

John Robinson gave a report on the SAAS board meeting that he attended earlier that morning. He indicated that attendance at the SAAS meetings was 2/3 as large as expected and that they were going to be \$8,000 to \$9,000 short of meeting expenses. There will be a \$10 increase in SAAS dues effective next year which will make them \$40. John indicated that there is a schedule conflict with the SAAS and RCAS board meetings on Sunday afternoon and suggested that future RCAS board meetings be scheduled earlier in the afternoon to alleviate this problem.

Nominating Committee

Findlay Pate reported that the nominating committee had proposed the following slate of officers for the upcoming year:

President	Denny Thompson
Vice-President	Carl Tart
Second Vice-President	Lyle Lomas
Secretary	Bill Peterson
Executive Treasurer	Jere McBride
Proceedings Editor	Dennis Onks

It was moved by George Granade and seconded by Ben Kittrell to accept the nominations as reported and to cast a unanimous ballot for this slate of nominees. Motion carried.

Other Business

Bill Peterson was recognized for his efforts to help organize a successful meeting in spite of the inclement weather. John Robinson then handed the gavel over to Denny Thompson, incoming president. Denny thanked John and other officers for their service. He indicated that the 2001 meeting would be held in Ft. Worth and appointed Tim Davis to serve as local arrangements chairman. Denny thanked everyone for their support of RCAS.

It was moved by Jim Pitts and seconded by George Granade that the meeting be adjourned. Motion carried and the meeting was adjourned at 11:40 a.m.

Respectively submitted, Lyle Lomas, Secretary

BY-LAWS OF THE RESEARCH CENTER ADMINISTRATORS SOCIETY

Article I

Name

The name of this organization shall be "Research Center Administrators Society" and for the purpose of this document shall be frequently referred to as "Society".

Article II

Objectives

The objectives of the Research Center Administrators Society shall be to hold educational meetings; to provide opportunities for interaction with colleagues; and to enhance the profession within the scientific community.

Article III

Members

Section 1

The membership shall include superintendents, resident directors, center directors, and other individuals with various titles having administrative responsibilities involving a field station, branch station, research station, research center, or other branch research facility of a state agricultural experiment station or any other public or private agricultural research organization.

Section 2

The membership shall be composed of regular and active members. Any unit head of a branch research facility in any participating state shall be considered a regular member. Any individual, with administrative responsibilities involving a satellite research facility, who pays the designated membership fees shall be an active member with all rights and privileges afforded by the Society.

Article IV

Officers

Section 1

The officers of the Society shall be a President, a First Vice-President, a Second Vice-President, a Secretary, an Executive Treasurer, and a Society Proceedings Editor. These officers shall perform the duties prescribed by these By-Laws and by the parliamentary authority adopted by the Society.

Section 2

The officers shall be elected by the membership to serve for one year or until their successors are elected, and their term of office shall begin at the close of the annual meeting at which they are elected. The Executive Treasurer and the Society Proceedings Editor shall serve at the pleasure of the Executive Committee and the Society for a specified term announced upon the election of the officer. Additional terms may be served if deemed in the best interest of the Society.

Section 3

No member shall hold more than one office at a time, and no member shall be eligible to serve consecutive terms in the same office. The Executive Treasurer and the Society Proceeding Editor

may serve more than one term upon recommendation of the Executive Committee and approval of the Society.

Section 4

Duties of the President shall include:

- o Serve as overall coordinator of Society activities;
- o Preside at annual meeting;
- o Prepare letters for distribution to State Agricultural Experiment Station Directors requesting them to invite and to encourage attendance of membership from their state at annual meeting;
- o Appoint Nominating Committee in accordance with By-Laws;
- o Appoint Local Arrangements Committee Chair;
- o Serve as a member and attend Executive Committee meetings;
- o Appoint all other committees as needed;
- o Serve as Executive Committee Chair.

Section 5

Duties of the First Vice-President shall include:

- o Serve as Chair of the Program Committee;
- o Mail copy of program to Secretary-Treasurer of the Southern Association of Agricultural Scientists at designated time;
- o Mail copy of program to all Society officers;
- o Serve as a member and attend Executive Committee meetings.

Section 6

Duties of the Second Vice-President shall include:

- o Serve on Program Committee;
- o Perform other duties as President assigns;
- o Serve as a member and attend Executive Committee meetings;
- o Assist Secretary in registration at annual meeting.

Section 7

Duties of the Secretary shall include:

- o Following the annual meeting, report new officers to Secretary of S.A.A.S.
- o Responsible for registration at annual meeting;
- o Collect fees at annual meeting;
- o Prepare minutes of all business sessions; prepare attendance roster from registration cards; and send copies of each to incoming and outgoing President and Executive Committee

officers;

- o Mail programs and other appropriate information to membership;
- o Serve as a member and attend Executive Committee meetings.
- o Maintain contact with S.A.A.S. Secretary throughout the year on appropriate matters.

Section 8

Duties of the Local Arrangements Representative:

- o Survey assigned meeting room well in advance of annual meeting and decide if adequate;
- o Set up and arrange for banquet and/or social;

- o Arrange for coffee breaks at annual meeting;
- o Arrange for visual aid equipment and other needed equipment at annual meeting;
- o Coordinate all of the above with other Program Committee members;
- o Shall have the option to solicit additional assistance from the membership as needed;
- o Attend the Executive Committee meeting prior to annual meeting at the invitation of the President.

Section 9

Duties of the Executive Treasurer shall include:

- Maintain the Societies' banking accounts, fiscal records, prepare financial statements and provide such statements to the Executive Committee and the membership at the annual meeting;
- o Issue checks for payment of invoices as submitted by members of the Executive Committee;
- o Represent the Society when designated by the President;
- o Maintain current Membership List;
- o Maintain current copy of By-Laws;
- o Maintain liaison with S.A.A.S Secretary-Treasurer on matters of interest to the Society;
- o Serve as a member and attend Executive Committee Meetings;
- o Maintain past copies of Society Proceedings.

Section 10

Duties of the Society Proceedings Editor shall include:

- o In association with the First Vice-President, assemble all program presentations of the annual meeting and edit for publication;
- o Publish approved minutes of annual meeting and Executive Committee Meeting as provided by the Secretary;
- o Procure all needed publishing materials and report cost to the Executive Committee for approval;
- o Serve as a voting member and attend Executive Committee Meeting.

Article V

Meetings

Section 1

The annual meeting of the Research Center Administrators Society shall be held in association with the Southern Association of Agricultural Scientists, unless otherwise ordered by the Society or by the Executive Committee.

Section 2

Special interim meetings can only be called by the President in conjunction with the Executive Committee.

Section 3

Active members in attendance at any annual or special meeting shall constitute a quorum.

Article VI

Executive Committee

Section 1

The Executive Committee shall consist of current officers, the immediate past President, and one representative from each participating state.

Section 2

The Executive Committee shall have general supervision of the affairs of the Society between annual business meetings, make recommendations to the Society, and shall perform such other duties as are specified in these By-Laws. The Committee shall be subject to the orders of the Society, and none of its acts shall conflict with action taken by the Society or the Southern Association of Agricultural Scientists.

Section 3

The immediate past Society President shall serve as an advisor to the President and voting members of the Executive Committee.

Section 4

State Representatives shall be selected by the regular Research Center Administrators Society membership of their respective state.

Section 5

The Executive Committee shall meet at least twice annually. One meeting will be held during the summer or fall and one meeting will be held the day prior to the annual meeting.

Section 6

Duties of the Executive Committee Chair:

- o Preside over Executive Committee meetings;
- o Set date, time, and place of all Executive Committee meetings;
- o Establish program agenda;
- o Provide committee members with agenda 30 days prior to meeting;
- o Appoint Executive Committee sub-committees.

Article VII

Committees

Section 1

A Program Committee shall be appointed by the President to be headed by the First Vice-President and to include the Second Vice-President and the Local Arrangements Representative. The duties of the Committee shall be to plan the annual program of the Society and submit annual program to S.A.A.S.

Section 2

The President shall appoint a Nominating Committee consisting of three immediate past Presidents that are still active in the society. The Nominating Committee shall be appointed during the annual meeting. It shall be the duty of this committee to nominate candidates for the offices to be filled except for the office of Executive Treasurer and Society Proceedings Editor. The Nominating Committee shall report during the business session of the annual meeting and prior to the election of officers. Before the election, additional nominations from the floor shall be permitted. An Executive Treasurer candidate and a Society Proceedings candidate shall be selected by the Executive Committee prior to the annual meeting, and the appointment shall be recommended to the Society for approval. The Society may also make nominations from the floor.

Section 3

Special committees shall be appointed by the President as the Society or the Executive Committee shall from time to time deem necessary to carry on the work of the Society. The President shall be ex-officio member of all committees except the Nominating Committee.

Article VIII Parliamentary Authority

The rules contained in the current edition of "Robert's Rule of Order Newly Revised" shall govern the Society in all cases to which they are applicable and in which they are not inconsistent with these By-Laws and any special rules of order the Society might adopt.

Article IX

Amendment of By-Laws

Section 1 - Amendment by Active Membership

The By-Laws can be amended by a two-thirds vote of the active membership during the business session of the annual meeting. Notice of the proposed change must be given to the Society President and Executive Committee members one week prior to the annual meeting. The notice shall include the full text of the amendment and the President will make such amendment available to the entire membership at least 24 hours prior to the Annual Business Session.

Section 2 - Amendment by Executive Committee

The By-Laws can be amended by action of the Executive Committee provided strict procedures are followed. A member proposing the amendment shall provide the Executive Committee Chair with the full text of the proposed change. The Chair shall distribute copies of the full text to the committee members 45 days prior to the voting deadline. Voting may be by letter, telephone with confirming letter, or by roll call if taken during an Executive Committee meeting. State Representatives of the Executive Committee are to review the amendment with their respective delegation and cast one vote reflecting the delegation's view. A two-thirds vote of the Executive Committee members voting is required for adoption of an amendment. The Chair shall announce the voting results, and should the proposed amendment pass, revise the By-Laws to include the amendment and distribute the revised By-Laws to the Society membership.

Revised 10-1-85 Revised 2-5-88 Revised 2-6-92 Revised 1-29-95



2000 DISTINGUISHED SERVICE AWARD RECIPIENT

Mr. F. T. "Butch" Withers, Jr. Head, Central Mississippi Research & Extension Center Raymond, Mississippi

Mr. Withers is recognized this year by the RCAS membership for his distinguished service and support of the Society's mission to improve the administration of agricultural research units. This award has been earned by service as an officer and committee chair and by the promotion of the Society to the agricultural community. He began active participation with the Society with his membership in 1974. Prior to serving as an officer, he was the state representative for Mississippi and chair of the membership services and historical committees. He served as Secretary in 1994, 1st Vice-President in 1995 and President in 1996. He continues his participation as a member of the expansion and nomination committees.

Butch has spent his career working at Mississippi State University where he started as an animal scientist at the Pontotoc Branch Experiment Station in 1971. The following year, he became the Superintendent of the Pontotoc Station in 1972. He moved in 1978 to become the Superintendent of the Animal Research Centers for the University. In 1996, he was appointed Head of the Central Mississippi Research and Extension Center at Raymond, where he continues to serve.

Although Butch has ended his formal service as an officer, he continues to actively recruit for the RCAS and encourages any administrator who wants to become better in this occupation to join the society. It is because of the leadership of agricultural administrators like Mr. Withers who have contributed to the success that the society has enjoyed. The RCAS wishes to express its appreciation to Mr. F.T. "Butch" Withers, Jr., for his distinguished service to this organization.

RCAS COMMITTEE ASSIGNMENTS 1999-2000 LOCALARRANGEMENTS (LEXINGTON, KY)

Bill Peterson, Chairman Mason Morrison, Kentucky Donnie Davis, Kentucky

AWARDS

John Hodges, Tennessee, Chairman Randal Rawls, Alabama Dave Langston, Arizona

NOMINATIONS

Ben Kittrell, South Carolina, Chairman Butch Withers, Mississippi Findley, Pate, Florida

MEMBERSHIP AND INTERNET SERVICES

Joe McFarland, Chairman Phil Hunter, Tennessee Ron Robbins, Louisiana George Granade, Georgia Mike Phillips, Arkansas Merritt Taylor, Oklahoma Jim Smith, Mississippi Paul Sebesta, California Ray Cartee, Utah Ed Hanlon, Flordia

PROCEEDINGS

Dennis Onks, Tennessee, Chairman Carl Tart, North Carolina Merritt Taylor, Oklahoma

FINANCIAL

Jim Jones, Virginia, Chairman Jere McBride, Executive Treasurer, Louisiana Malcomb Pegues, Alabama Jim Smith, Mississippi Richard Crawford, Missouri Bob Roth, Arizona Jack Davis, South Carolina

RCAS EXPANSION

Ben Kittrell, South Carolina, Chairman Paul Sebesta, California Jere McBride, Louisiana Butch Withers, Mississippi Joe McFarland, Texas Findlay Pate, Florida Dennis Thompson, Georgia John Robinson, Arkansas Dennis Onks, Tennessee John Hodges, Tennessee Lyle Lomas, Kansas Carl Tart, North Carolina Jim Pitts, Alabama Jim Jones, Virginia Chuck Reid, Michigan Paul Nyren, North Dakota Jim Beaty, Indiana Ray Cartee, Utah Robert Dunker, Illinois

PAST RECIPIENTS OF THE DISTINGUISHED SERVICE AWARD FOR SERVICE, LEADERSHIP, AND OUTSTANDING CONTRIBUTIONS TO RCAS OVER AN EXTENDED PERIOD OF TIME.

YEAR AWARDED

RECIPIENT

1987	John Ewing
1988	Robert "Bobby" Moss
1989	Joe High, Jr.
1990	Wallace Griffey & Bill Webb
1991	Norman Justus
1992	Gene Morrison & Jere McBride
1993	William Loe & Howard Malstrom
1994	James Riley Hill
1995	Edward Worley
1996	Robert Freeland & Will Waters
1997	Joe Musick
1998	Dennis Onks
1999	John "Ike" Sewell
2000	F.T. "Butch" Withers, Jr.

PAST PRESIDENTS, RCAS

YEAR

PRESIDENT

1969 - 1970	Robert Moss
1970 - 1971	Preston Reed
1971 - 1972	Charles Douglas
1972 - 1973	Charles Douglas
1973 - 1974	D. M. Gossett
1974 - 1975	Henry Marshall
1975 - 1976	Tom Corley
1976 - 1977	H. Rouse Caffey
1977 - 1978	E. G. Morrison
1978 - 1979	Robert Moss
1979 - 1980	Joe High, Jr.
1980 - 1981	Julian Craigmiles
1981 - 1982	Freddy Peterson
1982 - 1983	Wallace Griffey
1983 - 1984	Bill Webb
1984 - 1985	Gary Elmstrom
1985 - 1986	Norman Justus
1986 - 1987	Robert Freeland
1987 - 1988	Jere McBride
1988 - 1989	Howard Malstrom
1989 - 1990	Bill Loe
1990 - 1991	Edward Worley
1991 - 1992	Will Waters
1992 - 1993	James R. Hill, Jr.
1993 - 1994	Joe Musick
1994 - 1995	Dennis O. Onks
1995 - 1996	Jim Pitts
1996 - 1997	F. T. Withers
1997 - 1998	Ben Kittrell
1998 - 1999	Findley Pate
1999 - 2000	John Robinson



