Proceedings of the 1998 Program of the Research Center Administrators Society

Little Rock, Arkansas February 2-3, 1998

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WELCOME TO ARKANSAS

Dr. Milo Shult Vice President for Agriculture University of Arkansas Little Rock, Arkansas

First of all welcome to our state, we are very pleased to have you here and I am especially pleased that I was asked to give a few words of greetings to this group.

This is the group that I think brings a lot of richness to the meetings. We had a good discussion yesterday, banning the board meeting, about some of the things that are important in the meetings that this group has. One of the most important is the opportunity to get around and see some things that go on in the various states. So what I would like to do is just give you about a five minute or less overview of some of the things that go on in Arkansas agriculture.

I guess I'd start off by saying that if you like agriculture, you'll love Arkansas, because we are very much an agricultural state. We are a state that is about 1/5 the size of Texas, but our whole state population is slightly less than the city of Houston. It doesn't take long for you to figure out that we remain a rural state, agriculture is still a major part of our economy and it is a pleasure to be a part of a university system in a state where agriculture is appreciated.

We have good support from our elected officials as well as leadership within the agricultural industry. This is a very important thing for us and you would recognize this in your states. Recently one of our research and extension centers was moved from Mississippi County down to Jefferson County. We have four research and extension centers in the state, one in Mississippi County and in Arkansas County, the Rice and Research and Extension Center, Monticello in Concert with the University of Arkansas at Monticello and Hope. In addition to that, there are seven stations located across the state. You have heard some of the folks that are involved in these from everything to the vegetable station and fruit station on the west side, then coming on across the state we get more into row crop area. The state itself, through the Division of Agriculture has people everywhere. We walk around with logos saying that Arkansas is our campus because we have offices in every county. There are seventy-five counties in Arkansas and we have eighty-four county extension offices. I have mentioned the research and extension centers that we have, in addition, we have faculties that are headquartered around the state at the University of Arkansas, Monticello, University of Arkansas, Pine Bluff and the University of Arkansas, Fayetteville which is where the headquarters for the experiment station is located. The Cooperative Extension Service Headquarters is in Little Rock and we have faculties outside the university system headquartered at Arkansas State; so we've got an opportunity to have people around the entire state. They say if you were going to travel around the state, I think most of you would recognize the Upper Delta Region, Coastal Plains, Wachita Mountains and the Ozark Mountains, once you take a look at that terrain, topography and climate you would see that we have a very diverse agriculture in the state. You would also pretty well be able to depict what type of crops and activities that we have out there. Our gross receipts in agriculture run a little more than five billion to almost 5.5 billion dollars, which again for a state our size, farms gate receipts, say that agriculture is important.

We just recently ran a review to look at how much of an impact we had on the gross state product. It runs about 15%, which is higher than the average for both the southern region and the rest of the United States. If you take a look at the rankings in terms of the crops that we have, obviously Arkansas is number one in rice, we produce about 42% of the domestic rice production. We are number one in broilers, with a little more than a billion and I know the Alabama folks are working hard at that, but that is a friendly competition we keep all the time. These are the two commodities that we do rank first in. Then on down the line we do rank in the top ten in about twenty-two commodities that are produced in the state.

It is a diverse agriculture and it is one that I would say to you, that our capacity to be out in the state, in research and extension centers and on our experiment stations is absolutely critical and vital to what we do. The three of us that sort of work in the experiment stations, extension service and my job for the whole division are a little bit unique. Dave Foster, Charlie Scifres and I, all three have experience, in fact Charlie and I both started a research and extension center. That was about the first seven years of my career, the one in Texas. We have, sort of, what I would call a unique appreciation of what happens at research and extension centers and the importance of the things that you are involved in. A few of the things that I talked about just a little bit ago; the primary rice area which you will be going into the heart of, on your field trips you will get to see the Germ Plasm Enhancement Laboratory and I assume we are going to show them the shabby headquarters as well. Like all center directors, you pick them up in the oldest vehicles you've got so you can show them that you need new ones.

This is where the bulk of the rice is produced in the state so I think when you see the opportunities for the entire rice industry; not just Arkansas, what the addition of the new Germ Plasm Evaluation Enhancement Center is going to bring and it is co-located with our Research and Extension Center in Stuggart. I believe that represents one of the major things that have happened for the rice industry in the recent times.

In other crops you can see that wheat production is spreading a little bit up the Arkansas River Valley. Soybeans are very much the same way; we have about three to three and one-half million acres of soybeans. We were running about 1.2 in terms of our rice, now about a million in cotton. The cotton area is where you would predict. We produce a fair amount of cotton in the Red River Valley. We were pleased when the group of folks in Louisiana went into the Boweevil Eradication program. Those of you that keep up with that, we have voted for participation in this program here in Arkansas with the exception of four counties here in the northern part. We suspect that would couple with the boot hill up in Missouri. I think that everything about the Boweevil Eradication Program in this part of the world hinges on what happens with Louisiana, because they have to come in before we can begin doing anything. I am told that the governor has indicated support and is going to be providing resources for the next go round.

If you move away from our cropping system, to our livestock situation in the state, dairy operations are more in the northwest and across the northern part of the state. Dairy numbers just as yours and other states have done, have been decreasing gradually over time, but we run a total of about two million head in beef cattle. As you would expect, and I didn't even do a visual on the broiler industry, but there is a very good correlation in a state like Arkansas with our broiler industry. Our beef industry has a lot of folks, but if you are in the broiler business, if you are a contract grower, then you also have cattle out there, it's sort of a marriage between the two. The last thing is our swine industry, again a distribution more into the western side of the state, shows, not quite a million head. We are experiencing and I think Oklahoma is experiencing a little bit of the same thing, we are not sure where that industry is going to go as we look at environmental regulations and some of the things that are going to be impacted. These are really our major set of activities, but what I didn't show, is that we have a small but healthy horticulture industry in the state, table grapes, in addition to some vegetable production. As I said, Arkansas is a very diverse state, and one that it is really a lot of fun to be in with the university system. We try to run our outfit, as like to use the term, a singular organization, so that you can't tell when you get research and extension together. Somebody can talk to one of our people and they may or may not know where they draw their paycheck. That's kind of the way we like to do business. So with that, I will let my folks here answer all the specific questions, when you go on the tour.

But first let me say again that we are really pleased to have the entire meeting here in Arkansas. I am especially pleased to have this group here and I hope you enjoy your stay and tours and will come back to see us.

Thank you

EVALUATION OF A BEEF CATTLE HERD: RANCH TO RAIL PROGRAM

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ARKANSAS STEER FEEDOUT PROGRAM 1996-1997

Introduction

The University of Arkansas Cooperative Extension Service Steer Feedout Program is an information feedback system that allows producers to learn more about their calf crop and the factors that influence value beyond the weaned calf phase of beef production. It is not a contest to compare breeds or breeders, and it is not a retained ownership promotion program. It creates an opportunity for producers to determine how their calf crop fits the needs of the beef industry and provides the information needed to determine if changes in genetics and/or management factors are warranted in order to be competitive in beef production.

Steer Management

During the week of October 7, 1996, entries from 109 ranches (1,097 head) were placed on feed at Randall County Feedyard at Amarillo. Steers came from Texas, New Mexico, Oklahoma, Arkansas and Florida. Arkansas had 140 of the 1,097 steers (13%). The Steer Feedout Program was held in cooperation with the Texas A&M Ranch to Rail program in order to compare Arkansas steers with steers from other states and because of the easement of carcass data collection. Upon arrival the steers were eartagged, weighed and processed. Each steer was assigned a per hundredweight value based on current local market conditions by Federal-State Livestock Market News Service personnel. This served as a basis for calculating theoretical breakevens and the financial outcome of the program. The steers were sorted into eleven feeding groups based upon weight, frame, flesh condition and biological type. Management factors such as processing, medical treatments and rations fed to the steers were the same as the other cattle in the feedyard. Individual animals were selected for slaughter by the feedyard manager when they reached the weight and condition regarded as acceptable for the industry and market conditions. The cattle were sold on a carcass basis with premiums and discounts for various quality grades, yield grades and carcass weights. Feed, processing and medicine costs were financed by the feedyard. All expenses were deducted from the carcass income and proceeds were sent to the owner.

Detailed financial performance and carcass summary reports are in three sections. The first section is the summary of all the steers (1,097 head). The second section compares the performance of the Arkansas steers (140 head) with the remaining steers (957 head), and the third section is an in-depth summary of only the Arkansas steers.

Overall Summary (1,097 Head)

Financial Results

The range in average returns per ranch varied from +\$168.63 to -\$286.72 per head for the cooperating 109 ranches. Ninety percent of the ranches had a positive net return. Profitable entries were characterized by high rates of gain, low medicine costs and high grading, lean carcasses. Ranches that had large negative returns generally had a death loss or received substantial carcass discounts.

The budget below shows the average net return per head sold.

Income	\$776.38
Expenses	
Feeder Steer Value	\$373.29
Feed	288.38
Medicine	4.51
Processing	10.47
Death Loss	6.20
Fee's	1.40
Interest	7.25
Freight	4.50
Insurance	.64
Total	\$696.64
Net Return	\$79.74

1996-97 Ranch to Rail Summary Financial Results

These figures do not include trucking cost to ship the steers from a ranch of origin to the feedyard. They also do not reflect interest on steer value or an opportunity value. These two costs generally run \$6-\$8 per cwt. These factors and others need to be considered when determining the profitability.

Performance Information

Weights used to determine gains were off-truck arrival weight and sale weight (final weight less a 4% pencil shrink). Average arrival weight was 621 pounds, and average sale weight was 1,148 pounds. The steers were on feed for an average of 184 days. The average daily gain for all steers was 2.86 pounds while the range for the ranch entries varied from 1.35 to 3.54. Thirty percent of the entries gained more than 3.0 pounds per day while 14

percent gained 2.5 pounds per day or less. Most of the low rates of gain were due to death loss in a ranch entry since total sale weight minus total off-truck weight divided by total head days was the method used to calculate the performance of each ranch group.

Feed consumption for each steer was determined by dividing total pen consumption by total head days for the pen, and each steer was assigned its prorated share based upon its days on feed. This is based upon the assumption that all steers had equal access to feed. To help assure this, steers of similar size and type were placed in the same pen. Steers that gained faster had a more desirable feed cost of gain since feed cost was divided by net gain to calculate feed cost of gain. The average feed cost of gain was \$54.76 per cwt., and the range varied from \$45 to \$149 per cwt. Total costs of gain (including feed, medicine, processing, etc.) per cwt. averaged \$60.22 and ranged from \$50 to \$185.

Carcass Information

When the feedyard manager determined steers were in their optimal market condition, they were sold on a carcass basis to IBP-Amarillo. Steers were sold in ten marketing groups, and prices were established each week based upon current market demands. Choice Yield Grade 3 served as the basis with premiums for Yield Grades 1 and 2 and discounts for Select, Standard, and Yield Grades 4 and 5. Yield Grades 2 and 3 were split into A and B groups. (Ex. 2A ranged from 2.0 to 2.49 and 2B was from 2.50 to 2.99). Standard carcasses were discounted \$.03 per pound compared to Select carcasses of the same yield grade while Prime carcasses received a \$.05 premium to Choice carcasses in all marketing groups. Carcass prices remain relatively constant throughout the feeding period. The spread between Choice and Select ranged from \$.04-\$.06. Carcasses over 950 pounds and those under 550 pounds received discounts as well as those that were dark cutters. Carcass weights averaged 740 pounds and ranged from 490 to 1,018 pounds. Eighty-three percent of the carcasses were in the weight range 650 to 850 pounds which is generally regarded as being acceptable by the industry.

Thirty-five percent of the carcasses graded Choice, 54% were Select and 10% graded Standard. One percent were dark cutters and were not assigned a quality grade. Dark cutters are caused by depletion of muscle glycogen due to stress. This generally is associated with excitable cattle and weather changes. The percent Choice was lower than generally anticipated for steers on feed for this length of time (148-224 days). More days on feed may have achieved higher grading carcasses, but the cattle were marketed as soon as they were considered ready due to feed costs.

Seventy-two percent of the carcasses were Yield Grades 1 and 2 and received a premium over the 26% that were Yield Grade 3's. Two percent were Yield Grades 4 and 5 and received discounts for being overly fat.

Fat is one of the major factors that influences yield grade. Average fat thickness over the ribeye was .39 inches. The range was .08 to 1.28 inches. Some of the extremely fat carcasses were the result of overfeeding and the genetic predisposition to accumulate fat. Carcasses that are extremely lean often do not possess adequate marbling and are more prone to produce cuts that are too tough due to cold shortening. Carcasses with .20 to .45 inches of external fat are more optimal. Ribeye area is a primary indicator of carcass muscularity and lean meat yields. The average ribeye area was 13.0 square inches. The range varied from 8.6 to 20.8 square inches. Extremes in ribeye size present problems in fabricating cuts. Ribeyes that range from 11.0 to 16.5 square inches generally have more utility in the beef industry.

Ribeye area is greatly influenced by carcass weight since heavier carcasses tend to have larger ribeyes. Ribeye area per 100 pounds of hot carcass weight provides a measure of relative muscling. The average was 1.77 square inches per cwt., while the range was 1.13 to 2.62 square inches per cwt. Higher values indicate increased muscling, but production related factors such as calving ease necessitate not selecting for extreme muscling. Those steers with over 2.2 square inches per cwt probably have more muscling than necessary and those with less than 1.8 square inches/cwt. could benefit from increased muscularity to enhance lean meat yield.

Railed Steers

Steers that were sold prematurely due to poor performance or in order to salvage their value due to conditions such as chronic bloat or water belly are referred to as railers or realizers. They accounted for a total loss of \$3,525.93. This includes their initial value, processing cost, feed and other expenses incurred prior to sale. Nine head were railed (0.8%) at an average loss of -\$391.77.

Death Loss

Thirteen steers died for a 1.2% death loss with an economic impact of \$6,722.38. Shown below are the diagnosed causes of death. Most of the deaths were due to pneumonia, and they occurred in the first month on feed. This indicates they didn't have adequate resistance to viruses and bacteria upon arrival.

<u>Diagnosis</u>		Head
Pneumonia		6
Peritonitis		2
Bloat		2
Enterotoxemia		1
Downer		1
Twisted Intestine		1

The health status of steers in the feedyard had a major impact on performance and profit. The average medicine cost above processing was \$4.51 per head. The range for the ranch averages varied from \$0 to \$36.76 per head. Twenty-eight percent of the ranches incurred no medicine expenses and an additional 56% had an average of \$10 or less while 8% of the entries had average medicine costs in excess of \$15 per head.

Healthy steers returned \$86.16 more than steers that got sick. Steers that got sick averaged 600 pounds upon arrival at the feedyard. To recoup the difference in net return, they should have been priced \$14.36 less per cwt. when placed on feed. Medicine costs averaged \$25.34 for the sick steers which is a significant factor since 19% of the calves

required treatment for respiratory disease. The remaining difference of \$60.82 (\$86.16 - \$25.34) was due to reduced performance, increased feed cost of gain, higher interest expense and lower quality grades. Cost of gain for sick steers was 20% higher, and they produced a lower percent Choice carcass and had more Standard grade carcasses. This vividly points out the need to adhere to a sound health management plan. By implementing a sound vaccination program at the ranch of origin, product value increases consistency and predictability of calves, and calves have the opportunity to express their genetic potential.

This variability in health is built into the calf market. Buyers factor this into what they are willing to pay since they buy calves as a commodity. There are cattle feeding operations that are willing to pay relatively more for properly immunized, properly backgrounded cattle of good quality. The amount they can justify is dictated by the increase in value. It benefits them and the volume of similar cattle available to be able to manage them as a unit.

Arkansas Steers' Performance Compared With the Remaining Steers

Financial Results

On the average, Arkansas steers had a higher net return (\$22.71 per head) than the steers from Texas, New Mexico, Oklahoma and Florida. The range in average returns per Arkansas ranch varied from \$60.11 to \$159.04. No Arkansas ranch experienced an average negative net return. The budget below shows the average net return per head sold for the Arkansas and the remaining steers.

	STEER	
	Arkansas	Remaining
	Steers	
Income	\$770.72	\$777.21
Expenses		
Feeder Steer Value	352.70	376.30
Feed	286.93	288.59
Medicine	3.61	4.64
Processing	10.46	10.46
Death Loss	3.71	6.56
Fees	1.40	1.40
Interest	7.20	7.26
Freight	4.50	4.50
Insurance	.64	.64
Total	\$671.15	\$700.35
Net Return	\$99.57	\$76.86

1996-97 Steer Feedout Summary Financial Results

Performance Results

The average off the truck weights for the Arkansas and remaining steers were 599 pounds and 624 pounds. The average daily gain for the Arkansas steers was 2.95 pounds per day (range = 1.61 to 4.14). Feed cost per steer was the same for the Arkansas (\$54.79 per cwt.) and the remaining steers (\$54.76 per cwt.) which resulted in similar total cost (\$60.25 per cwt. and \$60.22 per cwt.).

Carcass Results

	STEERS		
	Arkansas	Remaining Steers	
Quality Grade:			
Choice	43%	35%	
Select	48%	54%	
Standard	7%	10%	
Yield Grade:			
1	22%	22%	
2	53%	50%	
3	23%	26%	
4 and	52%	2%	
	38	.39	
Fat Thickness(inches)	13.3	13.0	
Ribeye Area			
(sq. in.)			
Ribeye Area/Cwt.	1.82	1.77	
Hot Carcass Weight			

A summary of the carcass data is listed below.

The values reported in the above table are averages. There is very little difference in carcass traits between Arkansas steers and remaining steers. There was a tendency (P < .08) for the Arkansas steers to have a higher percent grade Choice than the remaining steers. The higher percent grading Choice was probably the major reason for the better net return of the Arkansas steers (\$99.57 vs. \$76.86).

In-depth Look at the Arkansas Steers Calf Breed Type

The breed type of each calf was separated into a percent English, percent Exotic and percent Brahman. Many times it is recommended that the ideal feeder calf should be at least 50% English, no more than 50% Exotic and less than 25% Brahman. The Arkansas steers were separated into two groups. The steers that satisfied all three breed type requirements and those that did not. The following table summarizes that data.

	Fit the	Did Not Fit	Significance
an a state da a da se	Requirement	the Requirement	
Percent Grading Choice	73%	32%	P < .01
Yield Grade	2.54	2.38	NS
Ribeye Area	12.4 sq.	13.7 sq. in.	P < .001
REA per 100 lb carcass	in.	1.86	P < .001
Weight	1.72	2.90	P < .01
Average Daily Gain	3.19	64.1%	NS
Dressing Percent	63.7%	.35	P < .001
Backfat	.47	\$.56	P <.01
Feed Cost Per Gain	\$.49	\$105.98	NS
Net Return	\$117.68		

Performance and Carcass Data of Arkansas Steers That Fit the Breed Requirement¹ and Those That Did Not Fit the Breed Requirement

Although not significant, the net return was \$11.70 per calf higher for the calves that fit the breeding requirement as compared with those that did not fit the breed requirement. After reviewing the data, there appears to be enough evidence to support the at least 50% English, no more than 50% Exotic and less than 25% Brahman recommendation.

Sire Breed Differences

The calves' breed of sire was evaluated for quality grade, yield grade, ribeye area, ribeye area per cwt. carcass weight, average daily gain and profit. English sired calves had a higher (P < .01) percent grade Choice (65%) than Exotic (29%) and Brahman (20%) sired calves. There was not enough Brahman sired calves to get a good average estimate for yield grade, ribeye area, ribeye area per cwt. carcass weight, average daily gain and profit. Therefore, only averages from English and Exotic sired calves will be presented.

	English	Exotic	Significance
	Sired	Sired	
Yield Grade	2.61	2.18	P <
Ribeye Area (sq. in.)	12.6	14.1	.0001
Ribeye Area Per Cwt.	1.70	1.99	P <
Carcass Weight	3.11	2.76	.0001
Average Daily Gain	\$120.16	\$76.03	P <
Profit			.0001
			P < .01
			P < .08

Carcass Traits Based Upon Breed of Sire

Factors Affecting Net Returns

There were seven significant (P < .01) factors that affected steer net returns. These factors are listed below in the level of importance.

 Dressing Percent – Dressing percent is determined by dividing the hot carcass weight by the slaughter weight times 100. Dressing percent is a function largely of fill and fat; thus, the fatter Prime cattle will dress from 63% to 66%. Muscling, however, can also affect dressing percent. Thickness, depth and fullness of quarter, and width (without excessive fat) of back, loin and rump are indications of muscling. Muscling or natural fleshing is inherited through the sire and dam.

The current USDA Feeder Cattle Grades utilize three muscle thickness scores (1 = slightly thick or thicker, 2 = narrow, 3 = very narrow). Thickness is related to muscle-to-bone ratio and at a given degree of fatness to carcass yield grade. Thicker muscled animals will have more lean meat. "Double-muscled" animals are included in the Inferior grade (unthrifty animals). Although such animals have a superior amount of muscle, they are graded U.S. Inferior because of their inability to produce acceptable degrees of meat quality.

The ideal calf should be Feeder Cattle Grade U.S. 1. Number 1 is thrifty and slightly thick throughout. They show a full forearm and gaskin, showing rounded appearance through the back and loin with moderate width between the legs, both front and rear.

2. Quality Grade – Cattle that graded Choice, Select and Standard had net returns of \$143.19, \$92.22, and \$48.40, respectively.

Marbling is the main factor that affects a calf's ability to grade Choice, and there are three main factors that affect marbling. These factors are: (1) a calf must have the genetic ability to marble; (2) the maturity or the physiological age, not the chronological age; and (3) diet. Some cattle breeds report marbling EPDs in their sire summary. Carcass traits such as marbling are highly heritable; therefore, selecting high marbling EPD bulls can impact the marbling ability of their progeny. Breed type can also influence a calf's ability to grade Choice. Most of the time, a calf with at least one-half English breeding has an increased ability to grade Choice.

Cattle are more likely to grade Choice when fed a high concentrate ration versus a high forage diet. Successful feedlots know how to feed cattle; therefore, the cattle's diet is not a factor.

3. Average Daily Gain – Feedlot average daily gains were the third most important factor affecting net returns. Average daily gain should be above 3 lb./hd/day. Average daily gain can be improved by selecting sires with excellent yearling EPDs. This selection process should infuse additional growth potential resulting in a faster growing calf. Selecting bulls with high yearling EPDs will also increase birth weight and frame size. If calves are smaller than a medium frame size (frame score 4 to 6) then increasing frame size would be necessary.

Calves that are over conditioned (fat) when they enter the feedlot phase generally have lower average daily gain than calves in moderate body condition. This is one reason why fat stocker cattle are discounted. Many times these over conditioned calves are early maturing and short framed. In addition, calves also have a lower feedlot average daily gain than yearlings.

- 4. Percent English Breeding As the percent English breeding increased profits decreased. Steers can get too much English breeding which may be linked to increasing backfat (see number 6). What also may be occurring is as English breeding increases, the advantage of hybrid vigor is being reduced.
- 5. Medicine Cost Healthy calves outperformed sick calves. A good preconditioning vaccination program will not guarantee a healthy feedyard calf, but it is the best management tool available.
- 6. Backfat Backfat is the number one factor that determines yield grades. Cattle that are short and have .8 inches or more backfat at slaughter are going to be discounted. Cattle less than 42 inches tall (at the hip) at seven months of age are too small.

The "frame score" is determined by measuring cattle standing naturally on a flat, firm surface, legs squarely under the body, and head in a normal position. Measurement should be made directly over the hooks or hips. This can be done with a device consisting of a cross-arm (with a bubble level) attached in a 90-degree angle to an upright. The upright contains a rule or gauge for measuring.

Frame score is a convenient way of describing the skeletal size of cattle. The current USDA Feeder Cattle Grades utilize independent evaluations of three frame sizes (Small, Medium and Large). These USDA Grades define a Medium Frame feeder steer as projected to finish at 1,000 to 1,200 pounds. Frame score 5.0 slaughter steers are estimated to average 1,150 pounds at slaughter. Therefore, USDA Feeder Cattle Grade Medium is equal to frame scores 4 through 6, Small at frame scores 1 through 3 and Large at frame scores 7 through 9.

The ideal calf should be between frame scores 4 through 6. That means at 7 months of age, the calf should be between 42 and 46 inches tall at the hip. It is much easier to produce frame score 4 to 6 calves from frame score 4 to 6 cows.

7. Feed cost per gain – Feed cost per gain is negatively related to average daily gain. That is to say as average daily gain increases, feed cost per gain decreases.

	Bottom 25%	Average	Тор
Number of Steers	34	137	34
In Weight	580	600	595
Value/cwt.	\$59	\$59	\$59
In Value	\$344	\$354	\$349
Muscle Score	1.5	1.6	1.6
Frame Score			
Large	71%	64%	50%
Medium	29%	36%	50%
Final Weight	29%	36%	50%
Average Daily Gain	2.4	2.96	3.46
Gross Income	\$685	\$778.76	\$854
Hot Carcass Weight	665	735	796
Dressing Percent	63.7%	64.2%	65%
Interest	\$7.61	\$7.22	\$7.07
Medicine	\$7.29	\$3.03	\$.72
Total Feed Cost Per	\$300.66	\$288.48	\$284.47
Head	\$332.63	\$315.78	\$309
Total Expense	\$9.11	\$109.23	\$196
Net	194	185	182
Days on Feed	.66	.54	.46
Feed Cost Per Gain	.74	.60	.49
Total Cost Per Gain	12.9	13.3	13.7
REA	.30	.38	.40
Backfat			
Quality Grade	0%	.7%	3%
Prime	15%	43%	74%
Choice	62%	48%	21%
Select	18%	7%	3%
Standard	6%	1%	0%
Dark Cutter	2.2	2.4	2.6
Yield Grade			

The Performance of the Bottom 25%, Average and Top 25% Steers Based Upon Net Return

Bottom 25% Based Upon Profit

There were five significant (P < .01) factors that caused steers to fall into the bottom 25% based upon net returns. They were feed cost, quality grade, dressing percent, medicine cost and percent English breeding. These calves had high feed and medicine cost, low dressing percent and failed to grade Choice.

Top 25% Based Upon Profit

There were only three significant (P < .01) factors that placed steers in the top 25% based upon net returns. They were yield grade, average daily gain and quality grade.

The steers that graded Choice had a net return of \$143.19 compared with the net return of \$81.81 for those steers that did not grade Choice (P < .0001). Ninety-six percent of the Arkansas steers had a yield grade of 3.5 or better, and 99% of the steers had a hot carcass weight of between 550 and 950 lbs. The steers within the carcass range had a net return of \$110.72 as compared with a net return of -\$44.03 of those that fell outside the acceptable range (P < .01). Comparing the steers that fit all three criteria (39%) to those that did not fit all three criteria, those that did fit had an average net return of \$144.62 and those that did not fit had an average net return of \$84.61 (P < .0001). Therefore, steers that did it all – graded Choice, yield graded 3.5 or better and had high average daily gains – had the highest return.

Summary

Extremes in net return, health costs, performance factors and carcass parameters among the Steer Feedout reflect the variability that exists in the beef industry. A producer's goal should be to reduce these variables and produce a product that meets the needs of all segments of the beef industry. Ranchers need to assess their operations and implement cost-effective management factors and adjust the genetics of their herd to make sure they are on target. Value-based marketing at all levels of the industry is rapidly becoming a reality. Ranchers that produce a product that meets the demands will be competitive in the marketplace. The purpose of the Arkansas Steer Feedout Program is to provide information to producers to allow them to make decisions to enhance their production efficiency, profitability and contribution of a satisfactory product in the beef industry.

STRUCTURE OF THE STATEWIDE RESEARCH AND EXTENSION CENTER PROGRAM IN CALIFORNIA

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INTRODUCTION

Thank you for the opportunity to present to you the "Structure of the statewide research and extension center system in California." I hope you find the next half-hour informative as I cover the organizational structure and operations of the California Research and Extension Center System. To set the stage, I would like to begin by giving you a brief overview of the importance of agriculture to the state of California.

With more than \$22 billion in farm value, California is the Nation's leading agricultural state where more than 250 different commodities are produced. The 82,000 California farms cover approximately 30 million acres. California farmers produce over half of the Nation's fruits, vegetables and nuts from approximately 3% of the country's farmland. Eight of the Nation's top ten Ag counties are in California. Agriculture supports 1.4 million California jobs - nearly 10% in the state. Agricultural exports generate approximately \$11 billion annually and for every \$1 billion in exports; 27,000 jobs are created. Agriculture and related industries account for about 9% of the gross state product.

DIVISION OF AGRICULTURE AND NATURAL RESOURCES

Research conducted in the University of California's Division of Agriculture and Natural Resources contributes significantly to the economic well being of the state's agricultural industry. DANR's mission is "to serve California through the creation, development and application of knowledge in agriculture, natural and human resources."

Under the direction of the Vice President for Agriculture and Natural Resources the Division is housed in the Office of the President in Oakland. The Division is the major land grant arm of the UC System and is based on three campuses - Davis, Riverside and Berkley - and 50 regional and county-based offices throughout the state. As in most universities, the System is composed of both AES and CE. DANR also houses 20 statewide projects, 30 sites in the natural reserve system and 10 researches and extension centers.

The University of California Agricultural Experiment Station is composed of 50 departments throughout the 3 campuses housing about 650 researchers. Typical AES appointments are 60% research and 40% teaching. The UC Cooperative Extension is composed of approximately 430 academic appointees. These include statewide specialists located on campuses and farm advisors in county offices.

UNIVERSITY OF CALIFORNIA RESEARCH AND EXTENSION CENTERS

The University of California Research and Extension Center System was begun in 1912 with the creation of the Meloland Field Station (now known as the Desert Research and Extension Center) in Imperial County. The REC system is composed of 10 centers arranged throughout crop production areas and varying climatic zones. These zones range from the high desert with cool summers and very cold winters to the low desert with moderate winters and very hot summers. Coastal, foothill and Central Valley climates are also represented. Elevations range from 4,000 feet above sea level at the Intermountain Center to 60 feet below sea level at the Desert Center. As in other states, each of the centers provide facilities and sites for research to advance the knowledge and understanding of agricultural and natural resource systems and to support the mission of DANR.

UCREC's purpose is threefold. They provide UC researchers with the opportunity to conduct research in varying climatic zones and commodities; to research solutions to important regional problems; and to extend research results to regional clientele.

With a budget of approximately \$5 million, the REC System occupies about 12,000 acres, 425,000 square feet of physical plant and employs 120 professional staff. The System also contains numerous specialized facilities including a feedlot/feedmill at the Desert Center, a post-harvest facility at the Kearney Ag Center and a fully automated citrus packing line at the Lindcove center. The range in elevation and climatic zones, and specialized facilities enable more than 200 project leaders to conduct in excess of 500 research projects per year at our Centers in areas such as tree and vine crops, field and vegetable crops, urban horticulture, range and natural resources, and livestock management. The variety in climates and diversity in crops grown at our Centers enables UC researchers to work on any of the 250 crop commodities grown in the state. A complete list of the centers, their locations and types of commodities is contained in Table 1.

REC ORGANIZATION AND RESPONSIBILITIES

The REC System is administered through the Office of the Vice President of the Division of Agriculture and Natural Resources. Center management is divided into two broad categories - operations and programs.

The overall responsibility for the operations of the 10 centers is under the direction of the Director of the Office of Facilities Planning and Management (OFPM). The Director reports to the Assistant Vice President for Administration. She or he is responsible for the overall planning and management of the centers and directs administrative operations including facilities and equipment management, business and finance, and personnel management. The OFPM Director also provides leadership to encourage the use of REC's to advance field research and administers other DANR-wide programs such as environmental health and safety and the capital improvement program.

Responsibility for Center programs falls with the particular Cooperative Extension Regional Director (there are four Regional Directors) in which the center is located. This is accomplished through the Research Advisory Committee (RAC) process. The Regional Director provides leadership for the coordination and review of all research and educational programs conducted on centers. She or he appoints RAC membership and is the approving authority on RAC advice for the allocation of land, labor and facilities, as well as the appropriateness and academic merit of research projects.

Responsibility for the operation and maintenance of individual centers resides with the Center Superintendent. She or he administers budgets, business services, personnel matters, construction projects and environmental health and safety programs. The superintendent monitors research projects conducted on the center for adherence to original proposal and represents the University to local and regional groups. Several of the superintendents are also required to develop individual research programs.

RESEARCH ADVISORY COMMITTEE

The appropriate CE Regional Director appoints a Research Advisory Committee, composed of UC researchers and administrators, for each center. These committees vary in size and composition. Membership in a Center's RAC is representative of the particular center's research goals, capabilities and users. Some but not all center RAC's contain a member or members external to the University. Members serve three-year appointments with one third of the committee rotating annually. RAC's meet once or twice yearly depending on the cropping cycles of the particular center.

The Center's RAC is responsible for reviewing the project proposals which have been submitted to that center for scientific merit and appropriateness. They recommend approval of projects and the allocation of center resources including land, labor and facilities. They also recommend the need for additional research as well as monitor the progress of research projects. From time to time they are called on to mitigate disputes.

PROCESS FOR USING CENTER RESOURCES

Land, labor and facilities of the REC System are readily available to UC academics holding AES or CE appointments. USDA research personnel also have access to center resources. UC academics not holding AES or CE appointments, as well as academics from other college campuses or from federal or state agencies may apply to use center facilities with some restrictions.

Each center has an annual "call for proposals" at which time researchers wishing to utilize a particular center's resources submit research proposals with appropriate documentation. Those proposals are reviewed by the center's RAC. Evaluation criteria vary slightly among centers but generally include:

Academic/Scientific Merit Relevance/Significance to local or statewide problems Suitability of the project to that particular center Uniqueness from other center projects Transferability to local or state agriculture Approved projects receive an allocation of land, labor and facilities based upon the recommendation of the Center Superintendent. Labor hours are assigned to approved projects and the hours expended by Center employees on each individual project are recorded daily and compiled. Quarterly labor hour usage reports are sent to each PI. At fiscal closing labor hours are reconciled. Those projects using more hours than assigned are recharged for the overage at the rate mandated by the Vice President's Office. Upon completion of the project, an annual report and a three-year summary are submitted to the center's RAC.

CONCLUSION

The University of California Research and Extension Center System is an essential component of the University's commitment to extend the benefits of research to the State's citizens. REC activities have had a strong impact on many of DANR's most successful programs including but not limited to:

- The integrated hardwood range management programs at Sierra and Hopland
- The strawberry varieties developed at South Coast, which provide for 15% of UC's total annual return from patents
- The most widely used alfalfa variety used in the world developed at Desert
- The pioneering work done at Intermountain on ice-minus bacteria
- The mini-campus atmosphere at Kearney with 25 faculty in residence
- The strong industry partnerships at Lindcove and Shafter.

As we look toward the future the research and extension center system will play a vital role in connecting an ever increasing urban clientele with research-based information that can help them improve their quality of life and enhance their environment.

A Comparison of Intellectual Property Management Among Southern Agricultural Experiment Stations

by Everett R. Emino and Richard L. Jones Florida Agricultural Experiment Station University of Florida, IFAS Gainesville, FL 32611

The purpose of this paper is to share some results of a survey of Southern Agricultural Experiment Station Directors and present opinions and discussion on Florida. In 1995 the Florida Agricultural Experiment Station adopted a new UF/IFAS policy for distribution of royalties derived from released cultivars protected by Plant Variety Protection (PVP) Act certificates and Plant Patents (Joyce, Emino, and Jones, 1995). Utility Patents were not included in this policy as it only encompassed cultivar breeding and development.

Increasingly, the FAES investment in molecular genetics results in patented genes or plant processes that impact directly on the FAES plant breeding and development program. The University of Florida, Of Additional Index Words. Cultivars, varieties, plant breeding, plant development, genetics, plant patent, utility patent, plant variety protection, trademark, proprietary license, royalty.

Abstract. In 1995, the Florida Agricultural Experiment Station adopted a policy for program support and royalty distribution from cultivars released from its plant breeding and development programs. This policy covers Plant Variety Protection (PVP) Act certificates and Plant Patents but does not include Utility Patents. The results of a survey among fourteen Southern Agricultural Experiment Stations indicated that most Stations managed PVP's, half-managed plant patents and only four managed utility patents. A comparison of royalty flow showed all received a share of the royalty from PVP's, eleven from plant patents, and ten from utility patents. Distribution of royalties ranged from zero to 100 percent in various distribution categories of the University or Experiment Station. Department, inventor, and administration were other distribution categories. Qualitative fice of Technology Licensing (OTL) has the responsibility for patenting and licensing for utility patents at the University of Florida. FAES retains a nonexclusive right to use these genes or processes in the development of FAES cultivars. On a case by case basis, FAES and UF/OTL develop an agreement on the use of patented technology. In some cases, the technology will not be used in the FAES program and UF/OTL can develop an exclusive license. However, in other cases, the plant breeder/developer will be working in a research team with molecular geneticists developing new intellectual property that is covered by both a utility patent and PVP or plant patent as the trait is expressed. Thus, FAES faculty can have intellectual property fall under two policies, one supporting the mission of FAES and the other potentially conflicting with the mission.

Materials and Methods

Based on the above policies and the concerns experienced as a result of these policies, a survey was conducted among fourteen Southern Agricultural Experiment Stations to determine the status of intellectual property as PVP Act, Plant Patents and Utility Patents. To those Experiment Station directors who did not respond, follow-up telephone calls were made, data summarized, and individual responses were returned to each Director for verification. Summarized data was distributed to the Directors as a group at a meeting of The Southern Association of Agricultural Experiment Directors (SAAESD) for discussion.

Results and Discussion

Question #1 asked "Are license agreements for the following intellectual properties managed by the Agricultural Experiment Station or a central University office?" The responses are presented in Table I.

Table I. Management of PVP's, Plant Patents, and Utility Patents by the Agri- cultural Experiment Station (AES) or a central University (Univ) office.				
State Experiment Station	PVP	Plant Patent	Utility Patent	
Alabama	AES	Univ	Univ	
Arkansas	AES	AES	Univ	
Florida	AES	AES	Univ	
Georgia	Univ	Univ	Univ	
Kentucky	AES	Univ	Univ	
Louisiana	AES	AES	AES	
Mississippi	AES	AES	Univ	
North Carolina	AES	Univ	Univ	
Oklahoma	AES	AES	AES	
Puerto Rico	Univ	Univ	Univ	
South Carolina	AES	AES	AES	
Tennessee	AES	Univ	Univ	
Texas	AES	AES	AES	
Virginia	Univ	Univ	Univ	

For PVP's, most Experiment Stations manage these within the Experiment Station office. This is probably due to the fact the Plant Variety Protection Act of 1970 and 1994 amendments are derived from seed law and administered by the United States Department of Agriculture. Plant Patents and Utility Patents were found to be mixed in manage-

ment with half of the plant patents with the Experiment Station and half with the central University. Four Experiment Stations managed utility patents. Both types of patents are administered by the Patent Office of the U.S. Department of Commerce and are derived from the industrial patent model. The Plant Patents Act of 1930 protects vegetative propagation of plants. Prior to 1990, FAES made only public releases of clonally propagated cultivars. However in 1990 'Windy', 'Snowflake' and 'Miramba' blueberries were patented by the University of Florida, Division of Sponsored Research. In 1992, 'Sweet Charlie' strawberry was released by FAES and the Florida Foundation Seed Producers Inc., obtained a plant patent on behalf of FAES. All clonally propagated plants that are protected are now released by the latter method.

All utility patents produced by FAES faculty go through the University-wide Office of Technology Licensing.

The discussion at SAAESD ranged from frustrated resignation from those whose programs were centrally managed to astonishment from those who had AES control that others did not operate as they did. Conflict of mission was the central theme of the discussion.

Question #2 asked "Does policy allow for AES to receive royalty income arising from the following intellectual property?" (PVP, Plant Patent, Utility Patent).

Table II. Royalty income from Intellectual Property shared with AES for programs

State Experiment Station	PVP	Plant Patent	Utility Patent
Alabama	YES	YES	YES
Arkansas	YES	YES	YES
Florida	YES	YES	NO
Georgia	YES	YES	YES
Kentucky	YES	YES	YES
Louisiana	YES	YES	YES
Mississippi	YES	YES	YES
North Carolina	YES	NO	NO
Oklahoma	YES	YES	YES
Puerto Rico	YES	YES	YES
South Carolina	YES	YES	YES
Tennessee	YES	NO	NO
Texas	YES	YES	YES
Virginia	YES	NO	NO

¹In all cases where AES controlled intellectual property, they received the royalty.

With the exception of North Carolina, Tennessee, Virginia, and Florida, all other Experiment Stations surveyed shared in the royalty from patents. All Stations shared in royalty from PVP's. Florida, however, was unique in this group in that plant patents are treated similarly to PVP's, such that all scientists involved in plant breeding and development are treated the same irrespective of plant propagation method or intellectual property protection method. The three other states were distinguishing by patent vs. PVP.

Comparing Tables I and II shows that in most cases where intellectual property is managed by a central University-wide office, royalty is shared with the Agricultural Experiment Station.

Table III. Comparison of several Experiment Stations distribution of income to Experiment Station projects			
State Experiment Station	PVP Patent	Plant Patent	Utility
Florida	70%	70%	0%
Arkansas	50%	50%	50%
Georgia	60%	60%	60%
Louisiana ¹	40%	40%	40%
Texas	42.5%	42.5%	42.5%
Virginia	100%	0	0
North Carolina	100%	0	0

¹In some Experiment Stations above a graduated income level the percent to programs would increase and the share the inventor received would decrease.

Georgia is an interesting situation where the central University manages all intellectual property but returns 60% of the royalty to the Georgia Agricultural Experiment Station for all classes of intellectual property. Virginia and North Carolina do not share in any royalty stream from the central University.

The last question in the survey asked about the relationship between marketing a utility patent for either a gene or process and use of the gene or process in a cultivar. The response was diverse and not useful for a table but gave a sense of a broad range of possibilities. In our view, the best arrangement from a management viewpoint was those State Experiment Stations that own and manage all their intellectual property, such as Texas, South Carolina, Oklahoma and Louisiana, who have complete flexibility to manage in the best interest of the mission of the Station. Others had no policy or policy under development. Some were in case by case negotiation. Although the survey results on this question were not as informative, the discussion at SAAESD provided more information. The discussion tended toward a frustration that the negotiation was one sided in favor of the University. One response indicated that their Experiment Station was treated as an outside organization.

The Florida situation is comparable to those other Experiment Stations that control its intellectual property for PVP's and plant patents and is somewhat in the middle of the possibilities for utility patents. The issue of utility patents for genes and plant processes that interface with the plant breeding and development program at the Florida Agricultural Experiment Station and University of Florida is complex. The problems for PVP's and plant patents have been solved as previously reported (Joyce, Emino, and Jones, 1995). Advances in plant molecular genetics will result in new creative methods for developing cultivars, and the relationship between utility patents and other intellectual properties for cultivars will continue to evolve.

Figure I, FAES Policy for first \$1,000,000 in royality



Recently the University of Florida revised its Intellectual Property policy. Figures I, II and III present the Experiment Station, old UF policy and new UF Policy for royalty distribution for the initial royalty graduated distribution.

¹ Retained by Florida Foundation Seed Producers, Inc., to administer the program.

Figure II, Old UF policy for first \$100,000 in royalty



Figure III, New UF policy (July 1, 1997) for first \$500,000 in royalty



The new policy from our viewpoint does not address the complex relationship of utility patents for genes and processes with programs in plant breeding and development. Fortunately, on a case by case basis, a reasonably acceptable solution has been developed. When we are included early in the process, these solutions are generally better than when we become involved near the end of negotiation or after the fact. However, royalty return is unsatisfactory considering the Experiment Station's investment in development of the intellectual property.

Although the University has increased the amount of royalty going back to units, it is doing it on a model that does not fit well with the FAES situation. For example, in the case wherein a plant pathologist at a Research and Education Center developed a gene for disease resistance that was patented and licensed, and generated a royalty of \$100, no royalty would come to the Experiment Station. Under the new policy, the Department of Plant Pathology would get \$7.50 and the College of Agriculture would receive \$7.50 rather than the Center or FAES. The 10% program support would go to the faculty member's program.

In comparison with other Experiment Stations throughout the Southeast we have an excellent policy for plant patents and PVPs. For utility patents we are not comparable to other stations with major breeding programs. Within the University of Florida, the relationship of utility patents to our plant breeding and development program is on a case by case basis. However, the current royalty distribution for programs from utility patents is unsatisfactory. Agricultural Experiment Stations at land-grant universities must strive to evolve policy consistent with the mission of the Experiment Station with public plant breeding and development programs and advances in science.

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RELATIONSHIPS BETWEEN LARGE BIOTECH COMPANIES AND PUBLIC RESEARCH CENTERS A PRIVATE INDUSTRY PERCEPTIVE

Mr. Roger Malkin, CEO Delta and Pine Land Company Scotts, MS

I've been a native of Mississippi forever, but I have only been a resident, devoted citizen and taxpayer for the last seven years. As a way of background introduction, I was born in Brooklyn, and went to the first Land Grant College. I'm a graduate of Dartmouth, which was established in 1769 with the expressed purpose of educating Indians in farming and cultural activities. Though Dartmouth has long since decided not to be a land grant college, we started that way.

I've been involved in agriculture for thirty years. During my career, five years of which was in Bakersville, I was the Chief Executive Office of Superior Farms for Kimberleena. I've been the Chief Executive Office for Delta Pine for the last twenty-one years. I'm here today speaking as an interested party, actual friend and a bigger friend of the land grant system. I can also say that for those of you, who don't know Delta Pine, we are fighters; when we are not permitted to participate we take action. I can tell you folks from California that we have been trying to get our varieties approved by the California cotton planning board for the last fourteen years. It got so tough we said to heck with it and we stopped our breeding program in California, but more importantly we said if we can't get in California we are going to take the best out of California. I think we've taken at least three if not four professors or extension service people from the University of California. The National Cotton Council took Anna Marona, who was your extension specialist for cotton. If California decides to make peace with Delta Pine and Land, we will stop hiring people away from them.

The most important thing that I think we all have to recognize is; that we; all of us together are sitting on top of one of the great technology revolutions, probably the first great technology revolution of the 21st century. I assume some of you read the Wall Street Journal, but in case you don't, I've arranged for a reprint of an article that appeared in last Thursday's addition. This was the feature article on the front page and talked about Agriculture and Biotechnology in Agriculture as being the next Silicon Valley of U.S. economy. A very profound statement that we happen to believe is actually true.

For those of you who don't know anything about Delta and Pine Land, we are actively involved in the introduction of transgentic technology to farmers. Cotton was the first seed that introduced transgentic properties of a Bt gene, but we introduced it commercially two years before it was introduced in corn. Right now we are at 27% of the cotton acres in the U.S. that was planted with Folgard Bt Technology. Probably around 6% of the acreage was planted with herbicide resistance or Roundup Ready, and as a company, our plans anticipate that by the year 2000, 2001 at the latest, 80% of all cotton planting seed in the United States will be transgentic. This is a major change, faster than anybody anticipated but it's here and it's happening.

I was pleased to be asked to come by and talk to you because I think we are looking at something that is occurring; the train is leaving the station and we should all get on in the

club car, not a coal tender or a caboose. Delta and Pine Land is the largest cottonseed breeding company in the world. Our revenues have grown from 2 million dollars in 1979 to around 185 million dollars this year. We certainly anticipate revenues to be up to 400 million dollars by the year 2000. Effectively, the farmer will be looking for the seed to provide many of the technologies that he now sprays on the plant or sprays on the soil. We are also actively involved as a seeker of technology. We don't have the capabilities ourselves to produce all the technology we need. We don't have the human capital you people have, nor do we have the financial capabilities to follow all the research we need. In addition to working with Monsanto, Dupont, Zenica and Dow, along with a couple of others three years ago; we commenced to undertake a cooperative program with the Agricultural Research Service of the USDA. The results have been spectacular, we have already filed for two patents, and we've been advised that we will be awarded one patent within thirty days. This is a major technological breakthrough.

We are actively seeking to do research work with the land grant system. We have a team who is going out to call on the Land Grant System Universities and you should all be visited sometime within the next six months to see how we can work together. We want you to know that though some people have said that charging \$32 an acre for Bolgard or Bt and \$8 an acre for patent rights then seed companies must be getting very rich. We are all in the learning stage and hope to get very rich, but sometimes along the way we stall. Our annual report will show that our earnings were down last year from the year before. This is due to restructuring and the problems that we had not counted on because of the unusual success of transgenic technology. We have had to close facilities, layoff people and handle some inventory of conventional seed by writing it off. We thought we could sell it however, we don't think it's going to be sold in the next two years. We are effectively sweeping the stable getting ready for the new technology.

As I said earlier, with our visits to the Land Grant System, we are looking for partnerships. We are thankful that we are now at a stage, in the relationship of Agribusiness with the Land Grand System that we have to agree; that we should not be fighting with each other anymore. We should be working on a fully cooperative basis and the actual partnerships where you will be rewarded through your research are in the development of technology. I have been preaching for the last four years that a change has to take place, because one of the great-unrecognized resources in America is the science of the Land Grant System. You no longer have to go cup in hand to the legislature to fight your budget wars, but you have to recognize that the nature of agriculture is changing and in a way the historical perspective of the land grant system, which was to provide technology to agriculture without charge. Patent licensing was offering it to anyone that wanted it. This has to change and I think that the average farmer today realized that the technology they need is going to cost them something. Frankly, if the provider of the technology charges too much, the farmer is not going to use it, so the farmer does have a choice. As was pointed out in the presentation a moment ago, all too often, when a product is given at no cost to the marketplace, the marketplace does nothing to promote it. The technology advancement withers and unfortunately the developer of the technology, the institution and the individual are not appropriately rewarded for its efforts, I'm proposing, as I proposed in Mississippi, that you consider looking at partnerships or other arrangements with commercializers of your products so that you can generate your own revenues to fund your research, rather than do battle every year or every other year with the legislature to get your programs funded.
I don't know whether this story is an apocrypha or not but it was told that the University of Wisconsin Foundation is generating revenue from it's agricultural patents and technology developments that are now equivalent to an endowment of one billion, four hundred million dollars. I understand we generate more than a hundred million dollars a year in licensing or profit-sharing revenues and that can fund a lot of research. I think the Land Grant Systems in the north have been much more active in developing these additional funds verses state revenues. I think it's very important for the farmer because they need your technology. But it's also very important for the farmer because you are really the fountainhead of most of the new technologies that are being developed and commercialized in the United States today. It is a shame that you can't grow it yourselves and see the rewards of your efforts captured for real people. In this source of sharing with the inventor some of the rewards, with the advances taking place in agriculture, your people will be continually taken from you by agribusiness. For a long time that was assumed the normal course of events. I don't particularly think that has to be the normal course of events.

I think there should be a system where you can see the fruits of your efforts come back to you from the marketplace. In other words if a farmer is prepared to pay for technology because it is of value to him, you should look upon the valued creation of your own technologies as being worthy of being paid for by him. Nobody appreciates anything that they get for nothing. I am talking to you as someone who is on your side of the table or maybe a three-sided table, the university systems, the agribusiness and the farmers.

There is a system and it is called the marketplace that can share those value-added traits appropriately. I think that the number one goal of Delta and Pine Land over the next ten to fifteen years, in research and introduction of new technologies, will be in cross production. I think that we have seen dramatic examples of the new world, which is the world of agriculture. After the Farm Act of 1996, where the marketplace is ruling and some people are getting hurt; some people are doing very well by the marketplace and interestingly enough the people that are getting hurt are beginning to walk the walk and not simply talk the talk.

I was at the National Cotton Council Convention in San Antonio and on Friday after the markets closed, the NCC announced the results of its survey of planting intentions for cotton. Just to give you an idea of what's happened, two years ago there were 16.9 million acres of cotton planted in the United States, three years ago, it was 14.9, last year it was 13.7, and the planning attentions for this springs sowing were announced at 11.8 million. All that land has been switched to corn or soybeans so the farmers can make more money and take advantage of higher prices and this means that the system is working. However it is tough for people who are committed to the cotton business like we are.

When this was on a slide projector in a darkened convention hall, as soon as the acreage was announced, people were falling all over themselves in the dark to get to telephones, because this was something that no one had counted on. In other words there should be a dramatic increase in the price of cotton in the next three or four days because there is not going to be enough cotton grown in the United States to meet the demand that is anticipated.

The system is working and as long as the system is working, we should aid and abet it and not try to fight it. The aiding and abetting, as far as the Delta and Pine Land is concerned, is what we think is critically important. If there has been a unique coupling of farm programs from specific products, the old model of a breeder, yield, yield, are the first three important characteristics of a new product. The three most important criteria of a real estate developer are location, location, location. The reality is in agriculture now, yield is still important. If we can reduce the cost of production while maintaining the same yield, which is actual cost obligated, by one hundred dollars, the farmer is certainly better off. In that regard the market has also spoken in the same fashion. Seven years ago in Georgia, there was 370 to 390 thousand acres of cotton, two years ago it was a million six, last year it was a million and five hundred thousand acres and the growth is primarily related to the effective introduction of the Boweevil Eradication Program. In the joint test, Mississippi State and the University of Georgia conducted last year, results showed that because of the Boweevil Eradication Program, the cost of production for an acre of cotton in Georgia was a hundred dollars less than in Mississippi. And in the estimate for the next year, the Georgia estimate was down, 4% and the Mississippi estimate of acres were down 21%. We are now talking about Georgia, which will be the second largest acreage of cotton in the United States after Texas. We think that because of these technologically driven economic changes, we think that there will be two million acres of cotton in Georgia by the year 2000. Things are happening within the marketplace that are related to market driven happenings, and I would like to suggest to you that you take active steps to combine your activities in some fashion. That will permit your knowledge and the people that work with you and for all you, to have an expanding budget for them to work with. By taking steps to combine your activities, either through licensing or joint ventures, capture some of the value you have created in order to enhance the programs you have so diligently worked on all these years.

It is taking place in many locations, Florida is an example, and they didn't patent anything until the year 1990. They should patent everything they have developed, and protect it for the University. This should have been done as soon as the law changed in 1970. These are opportunities that have been missed and I don't think you can afford to miss them anymore. I think you will find that the agribusiness industry is willing to work with you and would find you, your people and your technologies of great interest to us, where you will also be rewarded in the sharing of the marketplace valuing.

The Relationship Between Large Biotech Companies and Public Research Centers: A Public Research Center Prospective

James W. Smith Head, Delta Research and Extension Center Stoneville, Mississippi

As Head of the Delta Research and Extension Center in Mississippi I am witnessing technological breakthroughs in agriculture that are revolutionizing the way we farm and do research. Many of these advancements involve large bio technical companies developing biological engineered plant varieties and the chemistry to use with these varieties. These developments are causing many of us here today to reevaluate our relationships with these companies. I hope to share with you my perspective on these matters.

The Delta Research and Extension Center, part of Mississippi State University, is located at Stoneville, Mississippi, and is composed of the Delta related parts of the Mississippi Agricultural and Forestry Experiment Station (MAFES), the Mississippi Extension Service (MES), and the college of Veterinary Medicine (CVM). The research center is located on the campus of the Delta Branch Experiment Station. This station was established in 1904 by an act of the legislature when a group of Delta farmers bought 200 acres of land and deeded it to the University to establish a Delta research station. At this time, the research center consist of approximately 1,500 acres of plot land, aquaculture ponds, and building sites. There are also 2,600 acres of hardwood research forest at the Delta Branch Experiment Station. Located at the research center are approximately 90 state and federal research scientists, area Extension specialists, and over 200 support personnel.

Stoneville is located in the heart of the Yazoo-Mississippi Delta, and area of intensive agricultural enterprise. This Delta area, which covers approximately 18 counties on the western side of the state, is a natural flood plain of the Mississippi and Yazoo Rivers. The Delta is approximately 6,000,000 acres in size or 23% or the entire state of Mississippi.

Because of the topography, the deep fertile soils and the mild climate, the Delta is ideal for growing many corps. It is also an area that severely challenges agriculture because it is ideal for producing severe infestations of insect and weed pests and plant diseases. For these reasons we are never lacking agricultural research challenges.

The Delta Research and Extension Center shares its campus with the ARS, USDA, Jamie Whitten Delta States Research Center. Approximately two-thirds of the scientists located at Stoneville are ARS scientists. The working relationship between state and federal scientist is excellent and both groups work together as teams to solve problems. This teamwork and sharing of facilities, land and equipment goes back more than sixty years and make the work experience at Stoneville special. Because of the reputation of Stoneville research, and the importance of agricultural productivity in the area, more than a dozen private agricultural research stations are located at or near Stoneville. These include the headquarters of the major cotton seed companies of the country. This has resulted in a close working relationship between the public sector and private industry in the Delta area. The research at Stoneville is focused on cotton, soybeans, rice, catfish, and corn. Cotton research at Stoneville is multidisciplinary with programs in production systems, breeding and genetics, control of weeds, diseases and insect pests, soil fertility, and plant growth regulators. Cotton has traditionally been the most important research area at Stoneville and has a well-established research team. Cotton researchers interact continually with private industry, especially plant breeding companies and companies producing agricultural chemicals. Some of the companies that cotton researchers are now interacting with are becoming increasingly bio technical in nature. This offers new challenges to our traditional research programs. Consequently, our place in the research picture is not as certain as in the past.

Many of the tools for producing cotton in the Delta area were developed at the research center at Stoneville. Some notable recent developments have been the parabolic subsoiler, the minimum till subsoiler, and the deep placement fertilizer rig. There also has been great successes in the area of cotton breeding; for example there is genetic material from the research center at Stoneville in 95% of the Midsouth cotton cultivars. This DES genetic material is characterized as fast fruiting, early maturing with superior yields. During the last several years, as biotechnology has somewhat dominated the headlines in cotton variety development, our scientists have been involved but have not forgotten the need for traditional plant breeding. As a testament to the continued success of our program the research center is in the process of releasing a new variety, DES 607 to a major seed company with a strong biotech interest. This new variety i high yielding smooth leaf with lower micronaire than the comparable varieties grown today. The plant breeding companies that obtain our new varieties will certainly insert transgenic traits such as Bt and Roundup resistance into these varieties. To take on these activities ourselves is clearly beyond our scope at this time. However, we hope to continue working closely in evaluating and improving these technologies. The exchange of breeding material and information between our public scientists and the researchers working for private plant breeding companies and bio technical companies is critical to the public acceptance of these new products. A partnership will maximize the benefits of these new technologies to the agricultural community.

Soybean production is another important research area at Stoneville. The soybean research effort has long been led by the federal scientists of the USDA, ARS Soybean Research Unit. Dr. Edgar Hartwig who was the leader of this unit for many years is credited with developing the varieties that revolutionized Southern soybean production. Today great improvements in soybean production are taking place. The soybean research effort at Stoneville has continually developed and released to the public improved soybean germ plasm that has in many cases been used by the private seed companies. New early-maturing varieties and improved farming methods have also increased yields significantly over the past several years. Soybean research is certainly a fertile area for public and private sector partnerships.

Aquaculture, specifically pond-raised catfish, is an area that has grown tremendously in the Mississippi Delta during the past 25 years. Catfish sales have gone from 5 million pounds in 1971 to 500 million pounds just 26 years later in 1997. Mississippi produces about two-thirds of the pond-raised catfish produced in the United States. During this developmental period of the catfish industry, Stoneville researchers have been at the forefront. Today the Thad Cochran National Warmwater Aquaculture Center, a 32,000 square foot research center, is located at the Delta Research and Extension Center. The aquaculture research team works in may areas to improve catfish production. One area relevant to this presentation is the development of new catfish strains. Newly developed strains are now being evaluated and will soon result in releases of genetic material to the catfish industry. These superior strains increase the possibility of interactions with bio technical companies that are interested in catfish production. Again, it is important that the public and private sectors work closely together to maximize the benefit of this genetic material to the industry.

Another commodity that represents a major area of research at Stoneville is rice. Our rice research program is based on variety development. The rice research team consists of weed scientists, entomologists, pathologists, fertility specialists, and agricultural economists. They are all striving to maximize the benefits that will be received from the new genetic material developed through our breeding program. The Delta Research and Extension Center has recently released two new rice varieties. Although these releases have been public releases, there certainly could be relationships with bio technical companies especially in the area of herbicide resistant varieties.

Biotechnology, especially in the area of transgenic plants and animals, is moving at a tremendous speed to revolutionize agriculture. The amount of money spent by bio technical companies is staggering. Research at most public institutions has not kept pace with that of the private sector. But, it is important for the public sector researchers especially those with our state experiment stations to make strong effort to be partners with these new bio technical industries. An example of the collaboration that can take place is a partnership that developed this past growing season when problems occurred with transgenic cotton on some farms in the Mississippi Delta. Teams were formed that included researchers from Delta and Pine Land Company, the cottonseed developer; Monsanto, the supplier of the transgene that promotes Roundup Ready cotton; and scientists at the Delta Research and Extension Center. Our researchers who had long term experience in these areas aided the private sector researchers in attempting to solve these problems. All the participants in this problem solving effort realized the importance of a diverse team and certainly the public sector researchers gave creditability to the effort.

The agriculture industry as a whole is very interested in adapting new technology. Growers see this new technology as a possible way to cut costs and increase profits. It has generally been thought that the faster this new technology can be developed and transferred to growers the better. Several problems or perceived problems during the last growing season have caused concern among growers over the future of privately developed technologies. This presents several challenges to us here today. Should we be competing with private industry? Should we form partnerships with private industry and place our scientist in support roles where appropriate? I believe partnerships are the answer and not necessarily with the public sector in the lead role. To this end the Delta Council Advisory Research Committee adopted a resolution in August 1997. This resolution encourages commercial companies and public sector scientists to cooperate jointly in validating major growth and yield characteristics during the experimental phase of variety development. This would create a higher level of confidence and consistency of plant varieties under a wide range of field and environmental conditions. Certainly, this is a goal that we at the Delta Research and Extension Center will strive toward. We realize that it will not always be easy. The private and the public sectors share many common goals but view the situations from different perspectives. Certainly both groups wish to benefit agriculture. Public sector researchers must try to understand the goals of the private companies. Public sector and private sector researchers must communicate. Many have been quick to criticize things they do not completely understand. We hope private industry will continue to include or public sector researchers during their planning and evaluation processes. I hope as public sector researchers we have something to offer to make the system work better. I believe if we all work together, the system will work better.

AGRICULTURAL RESEARCH STATIONS NEW ROLE IN THE DISTRIBUTED EDUCATION SYSTEM?

Charles J. Scifres Dean, Dale Bumpers College of Agricultural, Food and Life Sciences, University of Arkansas-Fayetteville, Associate Vice President for Agriculture-Research, Division of Agriculture, University of Arkansas System

As distance education technologies progressively emerge and the opportunities for "regionalization" of teaching become greater, faculty located off-campus will be called upon to accept teaching assignments. We in University of Arkansas System are working toward creating a network through the College of Agricultural, Food and Life Sciences with twoyear educational institutions in the State. This network is operating through the Arkansas Consortium for Teaching Agriculture (ACTA), and the faculty at research and extension centers are extremely important to its potential for success. Because of the differences among the partners of the consortium, there are a number of mechanical, reward and support issues to be addressed. However, it has been agreed that the most effective solution for faculty is to change the assignment to include teaching as a part of the annual job description and expectations so that the annual performance evaluation will include the teaching obligations. Regardless of the outcome of this experiment, teaching is expected to become an increasingly important part of the mission of research stations.

Introduction

For the purposes of this paper, agricultural research station refers to any off-campus field research unit within a state experiment station system. I make this generalization because a once relatively simple field research system, largely characterized by "branch stations," has, like everything else in our system, become more complex. The Research and Extension Center concept has been adopted in most states, but most also have retained branch stations, field stations, research fields and the like.

Discussions of the role and future of field research installations has been of continuing special interest for some time. However, these discussions have become especially common during the past 20 or so years as the land grant system has been stressed by constrained resources and increased expectations relative to accountability. As a result, individual institutions have engaged in reorganization and retrenchment of various kinds and proportions. Invariably, such stresses stimulate confirmation or redefinition of mission. Additionally, the off-campus faculties and facilities begin to feel vulnerable. I have had the pleasure of addressing this group in years past on this topic.

In addition to the management dynamics brought about by resource constraints, changes in available technologies brought about by industrialization of biotechnology applications and the integration of technologies into packages (as opposed to selling conventional practices) by industry have impacted the role and scope of activities pursued at field research locations. Other changes include relationships among states relative to policies concerning variety development and hence the exchange of germplasm. Yet, in the face of these changes, I continue to predict that field research locations are destined to become increasingly important components in the state agricultural experiment system.

More recently has been the emergence of distance education technologies. The opportunities associated with these technologies once again will likely involve change in the role of research stations and the faculty who are stationed on them.

Faculty located at off-campus facilities in many states now have routine teaching responsibilities. This is especially true in states where Colleges of Agriculture have networked with two-year colleges and other state institutions with the capacity to offer resident instruction in agricultural, food, life and natural resource sciences. We in Arkansas are working toward creating such a network, and the faculty at research and extension centers are extremely important to the idea. In addition, field research sites often offer facilities for implementation of distance education technologies, which are generating increasing interest among students who wish to complete at least a part of their educational requirements before coming to the "main campus."

As I discuss distance education, the process, not the specific technologies, will be addressed. The mode of delivery should be matched with optimum format at the point of delivery and may actually include a mix of technologies. Realistically, availability of technology drives delivery format, especially in the early stages of distance education. But compressed video, satellite delivery, world wide web, e-mail and conventional platform (on site) all may have roles, depending on the needs of the recipients and the nature of the subject matter to be delivered.

Regionalization to Achieve Normalization

Regionalization of teaching is being sought for many of the same reasons given for regionalizing research (minimizing duplicity, taking advantage of individual strengths, etc.), but in Arkansas' case there are other important reasons. We have sought regionalization in and effort to achieve normalization of course work in the agricultural, food and life sciences. We have six four-year institutions in Arkansas and 22 two-year institutions; four of the four-year colleges and most of the two-year institutions offer courses in agriculture, from a few courses to full courses of study.

Arkansas Consortium for Teaching Agriculture (ACTA)

I would like to take this opportunity to introduce our new program in Arkansas, the Arkansas Consortium for Teaching Agriculture (ACTA), and to address some of the anticipated changes for faculty (and our approach to dealing with these changes) as expectations for teaching off-campus increases. The Dale Bumpers College of Agricultural, Food and Life Sciences has partnered with six two-year colleges to form ACTA for the purpose of providing true equivalency of course work and, hence, a truly seamless transfer into the programs in Bumpers College. We also believe that ACTA will allow us to share expertise to create a stronger associates level degree program.

We understand that the strengths, market demands and needs of each of the two-year schools are somewhat different. ACTA was formed with the objective of tailoring the programs at each partner college to best fit their needs but to do so such that there is standardization with the curriculum in our college. The partners in the consortium are working to achieve goals in the best interest of each and all other partners.

ACTA is organized into an Administrative Council and a Faculty Advisory Council. As implied in the titles, the administrative council is composed of the chief academic officer (or his/her designee) of each partner and is charged with addressing the administrative management issues. The faculty advisory council is composed of department heads and other faculty who address specific curricular needs and arrangements. Agreements for curricula in animal science, poultry science, horticulture, agronomy and others are being crafted. We expect to develop curricula for a number of other disciplines and areas of study.

ACTA was formed on the principles that it (1) is a statewide program that addresses common goals and objectives of the partners; (2) recognizes and capitalizes on the unique strengths of each partner; (3) simplifies the bureaucracy associated with movement of students among the partners, (4) will increase the probabilities for student success and (5) will increase the educational level and enhance economic development in the areas of agriculture, food and life sciences.

We plan for ACTA to be implemented using both on- and off-campus faculty. Questions arise regarding incentives and rewards. The first question asked normally is; since this represents increased duties for off-campus faculty, are you going to pay them more? This is usually followed by questions about faculty evaluation and related matters.

Faculty Issues

During the initial discussions, the two-year colleges asked that the faculty be paid to teach the courses at the two-year rates and in the evenings "when it doesn't interfere with their regular duties." However, all of us know that teaching demands more time than that spent on the platform; we also know that preparation of lectures and exercises is going to interfere with our "normal" duties during the daytime hours. And we know that research work is continuous and that our evenings are many times more valuable than the daytime hours.

So, it is my view that for work done through the ACTA partnership, we have to change the faculties' job descriptions to include a teaching assignment. Their administrative supervisors will be expected to evaluate them at the end of year based on their teaching performance as well as research performance. The ACTA organization will be entertaining the issue of the evaluation procedures; but it seems to me that our teachers will have to be evaluated on the same basis as other teachers in the partner institution, and the administrative supervisor will have to work with the administrators at the partner institution to fairly assess performance.

If we accept the above as a working premise, then the reward issues begin to take care of themselves. We have already hired our first off-campus scientist with a teaching expectation built into the job description. This essentially makes evaluations of the off-campus faculty the same as for those on-campus with teaching and service responsibilities.

If this idea works, the system is essentially taking on a greater work load. We will have to look at supporting faculty with stronger teaching resources base (we are considering creating a teaching resources center) and we will have to consider increasing the faculty numbers at certain locations to assure that both the research and teaching are covered.

In summary, the role of faculty on research stations will be broadened considerably during the next decade. As distance education technologies become more widely accessible and, in some states, the networks of colleges is strengthened, teaching for faculty offcampus will likely become a routine part of their duty assignments.

Use of a Popular-Format Magazine to Promote Research, Extension and Teaching Programs in Arkansas

Howel Medders

Associate Head for Communication Services, Department of Agricultural and Extension Education Agricultural Experiment Station and Bumpers College of Agricultural, Food and Life Sciences, University of Arkansas

Arkansas Land and Life is a four-color, 28-page magazine published three times a year by the University of Arkansas Division of Agriculture and the Dale Bumpers College of Agricultural, Food and Life Sciences. Articles, photos and layout for the magazine are provided by the communication units of the Experiment Station, the Extension Service and the College. We print 17,000 copies that are distributed at no charge to a mailing list of about 15,000, with the remainder given to individuals by Division of Agriculture and College faculty and staff. The first issue was in the spring of 1995.

The primary target audience is opinion leaders among the general public in each Arkansas county and people who have a direct interest in the Division and the College, including members of the College alumni society. It also goes to schools, libraries, dentists offices and other places where several people are likely to see a single copy.

The content is feature articles and color photos about Arkansas people and their farms, industries and communities and how they are affected by the research and extension programs of the Division of Agriculture and the teaching programs of the College.

Arkansas Land and Life is primarily an instrument for marketing the Division and the College. The basic editorial philosophy is to focus as much as possible on the people we serve in articles that also provide information about our programs and our accomplishments. For example, we have so far avoided using photos of our faculty on the cover.

We seek to strengthen the bond between ourselves and Arkansas agriculture and our other stakeholders by presenting them in a favorable light. In addition to promote the importance of agriculture and related industries and activities to our state's economy and culture, we also promote the fact that all Arkansans benefit from our programs. The topics we feature that involve this broad clientele include, among other things, quality-of-life issues of an economic, social and environmental nature on the level of the individual, the family, the community and the state. This broader connection includes programs that relate to landscaping and gardening, food safety and nutrition, financial management and entrepreneurship, youth and family development, natural resource conservation, and supporting agriculture-related industries that provide jobs in the manufacturing and service sectors of the state's economy.

These objectives are consistent with the basic concepts that drive the overall marketing efforts of the Division and the College. These basic concepts have been articulated by University of Arkansas Vice President for Agriculture Milo Shult as visibility, accountability, reaffirming the mission, and unity. Dr. Shult is head of the Division of Agriculture, which includes the Cooperative Extension Service and the Agricultural Experiment Station.

As the land grant university system has evolved, each of the three missions has been institutionalized in the College, the Experiment Station and the Extension Service. Each has its own identity, administrative structure, working structure and culture. The fact that each component is a strong organization on its own merits is good. But the differences in these component units, and the complexity of the administrative structure in which they operate, provides opportunities for problems. Without describing the kinds of problems that can occur, I would simply suggest that realizing the land-grant system synergism that makes the sum of the whole greater than its parts requires a concerted effort to promote unity and a sense of common purpose within the system.

By featuring extension, teaching and research programs in *Arkansas Land and Life*, we are promoting unity within the organization, we are communicating to our stakeholders that we value unity, and we are providing examples of the benefits of the synergism resulting from supporting efforts in the three areas.

Dr. Shult elaborated on the basic marketing concepts mentioned earlier in a letter about the use of a Division of Agriculture logo to unit heads, as follows.

"VISIBILITY: We have a tremendous number of programs in both research and extension across Arkansas and even beyond our borders. There is a tendency for stakeholders to identify only with that program or part of the Division that touches their lives most directly. It is important that we be able to have the total efforts of the Division recognized and appreciated as we seek both public and private support.

"ACCOUNTABILITY: I believe everyone in our organization must recognize that we live in a world where accountability is increasingly important. State, federal and local governments, as well as the private sector, are not going to continue to support our efforts if we cannot document and communicate results that are meaningful and relevant to the needs of society. The accomplishments and successes of our faculties must be linked to the Division so that our supporters can clearly appreciate returns on their investments in us.

"REAFFIRMING THE MISSION: The best way I know to describe the overall mission of the Division is that we discover new knowledge through research, teach knowledge to students in the classroom and use extension education to help citizens put knowledge to work in their daily lives. That mission needs to be communicated frequently and well, both inside and outside our organization. It remains the basis for the success of land grant universities. Agriculture, in its broadest sense, can and should be the leader in fulfilling the land grant promise.

"UNITY: When I came to the University of Arkansas five and one-half years ago, one of the greatest concerns among our supporters was that the Division was not unified as it should be. The perception was that we responded to changes and challenges by circling the wagons and firing inward. One of my main priorities has been to work toward greater unity within the Division.

The catalyst for Arkansas Land and Life was provided by Charles Scifres shortly after

he began his duties in the Spring of 1994 as Dean of the College and Associate Vice President for Research. He determined that the resources devoted to the Experiment Station's journal, *Arkansas Farm Research*, should be redirected into a magazine with a more readerfriendly format and the editorial philosophy and purposes I have described for *Arkansas Land and Life*.

His decision was consistent with the commitment of Dr. Shult and David Foster, Vice President for Extension, to work toward greater unity within the Division and to devote more effort and resources to the job of marketing the Division and the College.

The Land and Life mailing list was compiled from the Arkansas addresses on the Arkansas Farm Research mailing list and addresses provided by the Cooperative Extension Service office in each county.

The Arkansas Farm Research (AFR) journal superseded by Land and Life had been published since 1952. It included reports on research projects written by faculty scientists.

A short article in AFR Vol 1, Number 1, under the heading "Prompt Research Reporting" stated the purpose of *AFR*.

"To be certain that what may appear to be new facts actually are facts and are dependable, may require the repetition of experiments in different locations or over a succession of years. Thus a considerable interval of time may intervene between the first favorable indication of a material or a procedure new in agriculture, and its final recommendation. Any reduction of this time interval would seem advantageous.

"The purpose of the publication of *Arkansas Farm Research*, which will be issued quarterly, is to make the results of research more quickly available to the farmers of Arkansas than has been possible in the past."

"The results of more nearly completed experiments will continue to be presented in Bulletins or in the Report Series."

Since discontinuing publication of *Arkansas Farm Research*, the Experiment Station continues to report research results that make a meaningful contribution in externally peer-reviewed Research Bulletins. Another numbered Station publication, the Research Series, is used for publishing annual or periodic updates on continuing research projects involving a particular commodity or a topic such as soil fertility research.

Of course, AFR was also used as a marketing tool, with an emphasis on research.

Station Director Lippert Ellis wrote in the Winter 1952 issue that, "Expenditure for agricultural research is an investment that has returned remarkably high dividends." He then gave examples of higher crop yields and increased gains per pound of feed consumed by farm animals.

"These marked increases are due to advances in agricultural know-how. We have better varieties of crops and animals, we know more about soil management and farm management. This better knowledge is based on agricultural research--the application of science to agriculture."

Over the years, AFR articles became more like short scientific journal articles, with more details on experimental design and statistical analysis. The topics of Experiment Station research became more complex and often dealt with issues of a more basic scientific nature which had less direct application to the crop fields, livestock pastures and chicken houses of Arkansas producers.

The basic AFR editorial philosophy changed from one of providing a preview of preliminary research results to the publication of verified research results that represented important contributions to the body of knowledge. An AFR editorial board was established, and articles were rigorously reviewed to assure that the results reported were based on sound science and represented a significant contribution. This made it difficult to report preliminary findings, but it did give AFR readers an opportunity to see research findings that they would not normally have access to unless they subscribed to a list of professional scientific journals.

Research results are still reported in staff-written articles published in *Arkansas Land and Life*, but it is done within the context of articles that are written for a broad audience.

In conclusion, use of the popular magazine format is a marketing strategy for the University of Arkansas Division of Agriculture and the Bumpers College of Agricultural, Food and Life Sciences. This approach is an effort to adapt to the changing expectations of the public for information delivery and to compete for the attention of a broader audience.

TECHNIQUES FOR SECURING EXTRAMURAL FUNDS TO MAINTAIN EFFECTIVE PROGRAMS AT RESEARCH CENTERS

Will E. Waters, Center Director Gulf Coast Research and Education Center Bradenton, FL 34203

Many agricultural colleges across the USA are currently experiencing budget cutbacks, reorganization and downsizing of programs and personnel. In order to maintain highly productive research and extension programs at the Research and Education Centers and other field Experiment Stations located away from the main college campuses, aggressive, innovative and positive procurement procedures for extramural funding are essential.

Before proceeding with any additional discussions on extramural funding, a brief description of the Gulf Coast Research and Education Center (GCREC) will be presented as the setting and for background information from which this discussion is based.

The GCREC, a unit of the University of Florida's Institute of Food and Agricultural Sciences (IFAS), has research units at Bradenton and Dover, where scientists from various academic disciplines participate in interdisciplinary team approaches to agricultural research, extension, and teaching programs.

The primary mission of the GCREC at Bradenton and Dover is:

- To develop and disseminate new scientific knowledge and technology on commercial ornamental, strawberry, and vegetable crops which will allow Florida agriculture to remain efficient and economically competitive with regions of the world.
- To assist the Cooperative Extension Service, IFAS campus departments, and other research centers with extension, undergraduate and graduate student training, and cooperative research for the benefit of Florida's consumers, producers and students.

Program Areas Emphasized at GCREC are:

- 1. Plant breeding, genetics, new cultivar development, and cultivar evaluation.
- 2. Biology and pest management in bacteriology, entomology, nematology, mycology, virology, and weed science.
- 3. Agricultural soil and water management and natural resource protection.
- 4. Production, culture, management, and pre- and postharvest physiology of ornamental, strawberry, and vegetable crops.
- 5. State extension programs in floriculture, vegetable crops, entomology, pathology, and water management.
- 6. Graduate student training and selected undergraduate courses.
- 7. Advancement of fundamental knowledge of disciplines of the faculty.

Major Commodities Under Investigation at GCREC:

Food Crops	Ornamental Crops	
Tomato	Caladium	
Strawberries	Gladiolus	
Pepper	Bedding Plants	
Crucifers	Poinsettia	
Cucurbits	Chrysanthemum	
Herbs	Lilies	
Melons	Lisianthus	
Specialty Vegetables	Greenhouse Floral Crops	
	Misc. cut flower	

The Bradenton staff currently is composed of 12.9 state supported and 2 grant supported research positions (representing 10 discipline areas), 2.1 state extension specialist positions, 44 state supported and 5.5 grant funded career University Support Personnel, and approximately 35 temporary personnel. At Dover there are 1.8 state supported research faculty positions and .2 extension specialist positions, 7 state supported and 1.5 grant supported career University Support Personnel, 2 temporary personnel and several contract pickers during harvest season. Programs at Dover deal primarily with strawberries.

The facilities at Bradenton and Dover include 60 buildings and 200 acres of land, and 10 buildings and 20 acres of land, respectively.

Faculty hold affiliate appointments in their subject matter department at the University of Florida in Gainesville. This interdisciplinary team approach, combining several research disciplines and a wide range of industry and faculty contacts, is more productive than could be accomplished with limited investments in independent programs.

In general, the Bradenton GCREC Director reports directly to the Research Dean and has primary management responsibilities for all faculty, local programming, personnel, business affairs, budgeting, facilities improvement and grants and gifts development for the Center.

Many potential sources of extramural support exist, especially for research, from companies, organizations, governments or individuals with concern or interest in the unit's mission. Some of these general sources of extramural support utilized at the GCREC are outlined in Table 1.

TABLE 1. GENERAL SOURCES OF EXTRAMURAL SUPPORT

- 1. GIFTS
- 2. INDUSTRY GRANTS
- 3. CONTRACTS
- 4. COMMODITY BOX TAX
- 5. ROYALTIES (PATENTS, PVP'S)
- 6. GIFTS IN KIND
- 7. SERVICES (EQUIPMENT, LABOR)
- 8. SURPLUS PROPERTIES
- 9. FOUNDATIONS
- 10. INDIVIDUALS (WILLS, TRUSTS, ETC.)
- 11. CENTER SALES AND RENT
- 12. VARIOUS GOVERNMENTAL AGENCIES

Extramural support may be received at IFAS at the University of Florida through three methods, depending upon the nature or type of support, as follows:

1. Grants and contracts - through IFAS Office of Sponsored Programs.

2. All Gifts - through the UF Foundation and IFAS Office of Development.

3. Non-Monetary Items - through Center Director or unit leader's office with notification of IFAS Office of Development.

Many types of grants have been received which usually are generated with a grant proposal and followed by formal documentation. Some of the types and sources of grants utilized in the past are outlined in Table 2.

TABLE 2. GENERAL TYPES OF GRANTS

- 1. COMMERCIAL COMPANIES
- 2. AGRICULTURAL COMMODITY GROUPS
- 3. FOUNDATION BOARDS
- 4. INTERNAL COLLEGE GRANTS
- 5. FEDERAL AGENCIES
- 6. STATE AGENCIES
- 7. DISTRICT BOARDS
- 8. COUNTY/CITY GOVERNMENTS
- 9. INDIVIDUALS

Gifts are differentiated from grants and contracts in that they are outright gifts to the unit or to a specific program and do not require formal reporting to the donor. They are handled through the IFAS office of Development (SHARE). Also, representatives of this office extend excellent leadership in development of significant gifts. The general types of gifts with which we have dealt are outlined in Table 3.

TABLE 3. SOME TYPES OF GIFTS

1. MONEY	6.	ASSISTANTSHIPS
2. EQUIPMENT	7.	BUILDINGS
3. MATERIALS	8.	LAND
4. LABOR	9.	WILLS
5. SERVICES	10.	OTHERS

An excellent source of extramural support for the GCREC has been surplus property. including such items as vehicles, tractors and farm equipment, small buildings, construction supplies, office and laboratory furniture, equipment, large generators, and miscellaneous supplies.

Some sources of surplus property which have been utilized by the GCREC are listed in Table 4.

TABLE 4. SOURCES FOR SURPLUS PROPERTY ACQUISITIONS

- 1. FEDERAL SURPLUS
- 5. COUNTY SURPLUS

- 2. STATE SURPLUS
- 3. UNIVERSITY SURPLUS
- 4. CITIES SURPLUS

- 6. CORPORATE SURPLUS
- 7. INDIVIDUALS

The procurement of new buildings or maintenance of existing facilities is a major challenge for most Research Centers and other field units in the U.S. In Florida, several sources or avenues for submitting building fund proposals for new buildings, renovations, or major maintenance, are available and these are outlined in Table 5.

Like grant and gift proposals, success with these is variable. However, facilities improvements, maintenance, and overall appearance are essential components for a successful Center.

TABLE 5. FLORIDA BUILDING FUND SOURCE FOR FLORIDA RESEARCH CENTERS

- 1. SPECIFIC LEGISLATIVE APPROPRIATION
- 2. STATE MATCHING FUND PROGRAM (FOR GIFTS OVER \$100,000)
- 3. UNIVERSITY OR COLLEGE BUILDING BUDGET REQUEST
- 4. PECO UTILITY TAXES (FLORIDA)
- 5. POLLUTION ABATEMENT FUNDS
- 6. FACULTY/CENTER COST SHARING
- 7. OUTRIGHT GRANTS FOR BUILDINGS/ RENOVATIONS

Overall, extramural fund management is an important aspect of repeated funding. Some techniques employed in utilization or purchasing with extramural funds are outlined in Table 6.

TABLE 6. UTILIZATION TECHNIQUES FOR EXTRAMURAL FUNDS

- 1. ASSIGN FUNDS TO THE GENERATING FACULTY FOR PROGRAM USE
- 2. REQUIRE FORMAL PURCHASE REQUEST AND MONITOR (ACCOUNT NO., PROJECT NO., JUSTIFICATION, SIGNATURE)
- 3. REQUIRE BIDS-ACCORDING TO UF RULES-MONITOR
- 4. ALWAYS USE PURCHASE ORDERS
- 5. CONFIRM RECEIPT OF GOODS
- 6. USE INDIVIDUAL AND CONSOLIDATED BUYING
- 7. FOR LARGE ITEMS-TEAM BUYING BY RESEARCHERS-UNIT-COLLEGE
- 8. ALWAYS ASK FOR EDUCATIONAL DISCOUNT

In summary, some important elements for successful procurement of extramural support include:

- 1. PRINCIPAL INVESTIGATOR(S) MANAGE AND UTILIZE THE FUNDS
- 2. UNIT LEADER'S INTEREST, SUPPORT AND ENCOURAGEMENT
- 3. USE INTERDISCIPLINARY FACULTY TEAMS ON PROPOSALS
- 4. HIGHLY PRODUCTIVE AND SUCCESSFUL FACULTY WITH PROVEN TRACK RECORDS
- 5. ALWAYS SUBMIT INTERNAL PROPOSAL OPPORTUNITIES
- 6. CAPITALIZE ON CURRENT EVENTS (PESTS, STORMS, MAJOR EQUIPMENT FAILURES, ETC.)
- 7. PROMPT REPORTING TO CONTRIBUTORS AND ADMINISTRATION FOR GRANTS
- 8. RECOGNITION TO BOTH CONTRIBUTORS AND SCIENTISTS
- 9. PUBLICATION OF RESULTS, ACKNOWLEDGMENTS, ETC. (ESPECIALLY IN BOTH TRADE AND SCIENTIFIC JOURNALS)

REDIRECTING RESOURCES AT RESEARCH CENTERS

George V. Granade, Superintendent College of Agricultural and Environmental Sciences, Griffin Campus, University of Georgia 1109 Experiment Street Griffin, GA 30223-1797

Before discussing how resources have been redirected at The University of Georgia, College of Agricultural and Environmental Sciences (CAES), lets first examine the infrastructure and organization of the college. The CAES has three main research campuses, Athens, Griffin, and Tifton, with five branch stations and one research farm. The college administration consists of a dean and director, four associate deans, including one each for research, extension, and academic affairs and two assistant deans, one each at Griffin and Tifton. There are department heads for each academic unit with a research, extension, and instruction coordinator for each division at the Griffin and Tifton campuses. The three main campuses have research scientists housed on them, while the branch stations have support staff. These branch stations are found across the state in various geographic and climatic locations. The branch stations' operational budgets are 65 percent or more, depending on location, generated from the sales of crops and/or cattle with a limited amount of state funding. All personnel, both full-time and part-time employees, on the branch stations are funded by the state.

In 1990 Georgia elected a new governor, Zell Miller, who began to "downsize" or "right size" the different departments and agencies in state government. Governor Miller did this to replenish the reserves for the state which had been depleted by the previous governor. In 1991 and 1992, the CAES took significant budget cuts which resulted in the loss of both positions and operational resources. From 1993 to 1995, budgets for the college were fairly stable. When Governor Miller was re-elected for a second term in 1994, he issued an order to "establish a base budget and then redirect five percent of their total state funds annually for all state departments and agencies for the next three years." This redirection also included a reallocation of staff or program elimination. As Governor Miller said "Redirection is not a simple budget cut. Rather, it is a process of more efficiently and effectively using existing funds to provide government services." Due to redirection from 1996 to 1998, the CAES has had more budget reductions which has resulted in the loss of both operational budget and personnel.

How has all of this affected the CAES? The CAES has theoretically lost approximately \$7.81 million for conducting research since 1990. Another way of looking at this was addressed by Dean and Director Gale A. Buchanan on July 8, 1997. In a statement he made to the Georgia House and Senate Joint Study Committee he said, "in the experiment stations a total of 121 EFTs has been lost since 1990. This includes 37 EFTs in Athens, 6 EFTs in the Branch Stations, 49 EFTs at the Georgia Station, and 29 EFTs at the Coastal Plain Station." As one can see, with losses of this magnitude research programs and branch stations had to redirect resources and find a different means of conducting business.

As a result of these budget reductions, the structure of the CAES has changed. In 1994, the Director of the Georgia Agricultural Experiment Stations (GAES) retired. When the Dean of the CAES decided to step down shortly after the Director's announcement, the decision was made to have only one individual as Dean and Director. The number of associate directors in the CAES system was reduced to four. The directors at the Griffin and Tifton campuses were changed to Assistant Deans. Other changes are the Griffin and Tifton campuses now include extension and teaching as part of their mission in addition to research. Centers are being and have been formed at all three main campuses to include multidisciplinary, multi-functional teams to approach research endeavors. Academic departments are now led by one department head with research, extension, and instruction coordinators on the Griffin and Tifton campuses.

Changes are also occurring for the branch stations. The mission of these locations in the past has been mainly research, but now they will begin to include education. Although operational budgets have not been as significantly affected at the branch stations due to the generation of funds through production sales, they have been affected by the loss of personnel. Superintendents have had to become more creative to accomplish daily tasks in order to perform the quality work that has been done in the past. The image of well maintained research areas and buildings has been diminished, due to the lack of manpower to accomplish these jobs. The number of research scientists doing investigations at the branch stations has decreased. This decrease is due to two reasons, (1)the loss of faculty and (2)the reduction of funds for the researcher to travel and accomplish his study. One superintendent that I talked with said that an animal scientist had them produce calves in a breeding study, but now does not feel he, the researcher, has the money to feed the calves out. When research projects are done, station workers are being required to do more work than in the past. The increased work load has led to some decrease in morale among the workers.

With the operational budgets being tight, this has prevented upgrading vehicles, tractors, and other equipment. The majority of the tractors and equipment at most stations is over 15 years old and needs replacing. The age and condition of this equipment affects the quality of the job being done for the research scientist and becomes less cost effective.

One branch station has made some major operational changes, due to the loss of 25 percent manpower with a 25 percent increase in land to develop and maintain. These operational changes include discontinuing all row crop production other than research plots and no longer maintaining a purebred bull program. The cattle that were in this program will become steers requiring much less labor to maintain. The land being used for producing crops has become pastures for the cattle. These two areas contributed significantly to the operational budget. The superintendent now feels with the reduced work load, a quality job can probably be done with the existing research projects.

Changes are also being made at other locations. An urban agricultural center is being developed at the Griffin Campus. Research at the campus is making a slow shift from row crop agriculture to ornamental and horticultural studies and an expanding turfgrass program. A Research and Education Garden is being developed on 60 acres. The committee developing this garden includes faculty from agricultural economics, crop and soil sciences, entomology, horticulture, and extension service personnel.

The University is budgeted for major repair and renovation (MRR) and minor repair, maintenance, operation, and utilities (MOU). Both MRR and MOU are based on the total square footage the university has in its buildings. Although the square footage includes

the two main campuses as well as the branch stations, rarely has the money gone to these locations. These locations have had to use their own operation money to make roof repairs, painting and any other maintenance to their facilities. With the past three years of redirection, several stations have buildings that need new roofs, restrooms brought into ADA compliance and general maintenance. This year the Dean has requested that MOU moneys be put into the GAES budget for Fiscal Year 1998 - 1999.

Redirecting resources is the result of several years of budget reductions for The University of Georgia, College of Agricultural and Environmental Sciences. The reduction of manpower is dictating what research will be performed at the branch stations. If a research project will require a lot of manual labor, then the scientist will need to be sure the location he chooses will be able to support him. In the past, this has not been a problem because there was plenty of labor. Research emphasis is shifting depending upon the location of the research campus. For example, Griffin is approximately 40 miles south of Atlanta. With the growth of Atlanta and the Piedmont region not well suited to row crop agriculture, the "green industry" has become more important.

In summary, there has been a reduction in personnel and funds supporting research programs, facilities, equipment needs and grounds maintenance. We are being asked to do "more" with "less" and superintendents are having to find ways to maintain high employee morale. While it is important to recognize the efforts that are being put forth to support CAES programs it is critical that support staff salaries continue to be increased. Although we have used an innovative approach to the lack of funds and personnel, there are many challenges to be met in the coming millennium.

PROS AND CONS OF UTILIZING PRODUCT SALES TO FUND RESEARCH PROGRAMS

Gerard T. Berggren, Jr. Resident Director Louisiana State University Agricultural Center Central Stations/St. Gabriel Research Station

In Louisiana, most branch research stations have research by-products (grain, livestock, horticultural crops, etc.) which are disposed of according to state law. The principle disposal method used is to sell the product on the open market. The annual projected sales of these commodities becomes a part of the fiscal budget of the unit, and can be spent in categories designated by the unit head. The commodities are generated through several means, which can include: by-product of the research area (i.e. unused crop remaining following research harvest), borders and fill-in areas (edges of fields, unused ponds and return canals), and production acreage (land set aside for crop production purposes).

The question arises... "Why sell commodities produced on a branch station?" The first and most obvious reason is to increase income for the station. The second reason is to improve overall farm management and efficiency, by utilizing an entire area once research plots/trials are established. A third reason is related to the others in that it allows for facility upgrading, care and maintenance (primarily through revenues generated).

What do we sell at the Central Stations? Some of the commodities/services include:

- Grain crops (corn, soybean, wheat, etc.)
- Sugarcane
- Pecans
- Livestock
- Crawfish/finfish
- Animal Care
- Heavy Equipment Service
- Vehicle Rentals

Other branch stations in Louisiana sell additional commodities such as horticultural crops and rice.

By increasing income, the unit head realizes increased budget flexibility. He can utilize the additional funds for the overall good of the station. By improving efficiency, more resources can be made available to the research scientist and the farm operation as previously noted. The upgrading of facilities through the use of product sales includes better maintenance of equipment, grounds and facilities, and the ability to purchase new equipment for use in the total farming operation (i.e. combines, tractors, field preparation and maintenance equipment). This also benefits the researcher. Some items to consider in the sale of research station generated products include: Who gets the money? What are the spending constraints? What is the time frame for spending? How does income affect other sources of funds? What is the limit? All of these questions must be addressed in considering product sales.

In Louisiana, the unit generating the funds usually is given permission to spend them. State purchasing laws, rules and regulations must be followed. For most self-generated revenue, spending must be completed within the same fiscal year. There are, however some areas where monies can be held into another FY (revolving livestock accounts). One of the dangers of having the ability to generate revenue through product sales is that, in difficult budgetary times, cuts in state appropriated funds may be replaced by increased sales. Historically, when state funding improves, the money cut in pervious years is not restored.

The last item deals with sales limits. In Louisiana, for example, the state legislature puts a sales cap on self-generated revenue for each agency funded by state government. Money generated over that cap, by state law, must be returned to the state general fund for use as seen fit by the governor's office. The cap for the LSU Agricultural Center is approximately \$5 million.

Another method we use to increase our operating funds without having sales counted against our annual projection is through what is labeled "internal sales". An example of this would be producing corn at the plant science farm and selling it to one of the departments or units that regularly purchases corn from outside vendors. This is accomplished by an internal transaction document and does not reflect in cash sales. In addition, the use of *per diem* income is practiced in several areas. In this situation, a daily fee is charged for a service (animal care, vehicle or trailer use). The *per diems* are charged monthly and are handled with an internal transaction document.

There are several negatives related to having product sales at a branch research station. The most obvious and serious is the competition with research for land, labor and equipment. The second and also serious concern is the competition, or at least perceived competition, from local producers. That competition can be divided into two areas: nonperishable goods and perishable goods. The non-perishable goods, such as corn, soybean, wheat, sugarcane, etc., livestock, crawfish/finfish, etc. generally are not a problem. Occasionally, producer groups that fund research question a large sales volume in a given year, but usually this is not a repeated situation. Local seafood markets are contacted to bid for aquaculture by-products assuring that there will not be a saturation of local markets.

A more serious problem exists where perishable products, such as strawberries, citrus and vegetables are available from research areas. Due to the sensitivity of local producers, these goods are generally considered direct competition by producers and have generated several discussion sessions between growers and branch station resident directors. In reality, the volume of perishable goods produced on Louisiana Agricultural Experiment Station property is a very small percentage of the total for any given commodity in that area.

The "bottom line" for branch research stations in Louisiana is that for the majority, survival of a branch research station for an entire fiscal year without product sales would be extremely difficult, and in some instances impossible.

LET ME SEE YOUR POCKETBOOK

George B. Clark, Superintendent Central Crops Research Station

North Carolina has an excellent agricultural research program, but we like some of you, are having to deal with a decline in financial resources. I would like to give you a brief overview of the structure of our system, explain some of the financial hardships we are now facing and offer some solutions that we are putting in place.

Agricultural field research in North Carolina is performed on 18 outlying research stations, 6 of which are funded through NC State University, 12 through the NC Department of Agriculture. All 18 research stations answer to one Director who has a joint appointment with the North Carolina Department of Agriculture and NC State University. We also have some other agricultural facilities referred to as University Field Labs, which are apart from outlying stations. Unlike the organizational structure of some of your research facilities, our role at the research station is strictly management of research projects, be it crop or animal and maintenance of physical resources. Specifically, our role or mission is to provide the resources in the form of expertise, labor, fertilizers/chemicals, animals, feed, equipment, buildings, utilities and so forth to the project leaders working on our stations. Most research faculty (project leaders) are located on the campus of NC State University which is in the center of the state. However there are a couple of exceptions where faculty are located on one of the research stations at each end of the state. Historically, for the majority of our agricultural research faculty, there has been no out of the pocket cost for them to conduct field research on an outlying research station unless specialized equipment is needed to support a single project which is then the responsibility of the researcher.

Research Station operating funds come from state appropriations. Those appropriations that are provided by our state legislative body can only be increased through special bills which cover base operating expenses, capital expansions and special repair and renovation projects. As I have previously mentioned, we have some stations that are funded through the NC Department of Agriculture and some through NC State University and therefore each governmental agency has separate appropriations and budgets. Receipts from the sale of crops and animals are part of the authorized budget, but represent a very small portion of our total budget. Animals and crops are not produced just to generate receipts; however we can and do sale those crops or animals that were involved in a study if it is profitable. This places the station emphasis on research versus crop or animal production for profit.

Appropriations provided to the Department of Agriculture are earmarked for the Division of Research Stations whereas the appropriations received by the College of Agricultural and Life Sciences at NC State University are not earmarked. These separate and different appropriations can cause inequities in funds available to the two groups of research stations.

Since appropriations received by the College of Agriculture and Life Sciences are not earmarked, the Director of NCARS at the University has the flexibility to disburse appropriations, at his discretion, to the various departments within the College of Agricultural and Life Sciences and University Research Stations. The problem that we are faced with is that funding has not been not been adequate to meet all needs. In the last 10 years, operating funds have continually decreased for the 6 NC State University funded research stations. In 1996 alone, we took a 10% cut. This year our initial operating budget at Central Crops Research Station was equivalent to the budget received in 1984. These cuts have had a significant impact on the management and operation of the research station. Even before budget cuts were realized, when operating budgets remained stagnant with respect to inflation, we were forced to find alternate means of providing those resources needed in support of the many research projects at our station. Additionally the shortage of funds has had a negative impact on attracting and retaining quality personal; employee starting salaries are low and salary increases resulting from reclassifications and equity adjustments have not been sufficient. Number wise, we have experienced a 100% turnover since 1993, predominately as a result of low salaries.

In view of these declining budgets, the obligation that we have to provide resources and support for the 65 research faculty working at our station has not been reduced. Hence, how have we at Central Crops Research Station managed?

Some remedial actions and repercussions are as follows:

- 1. Monetary supplements by project leaders. We began to request that project leaders cover the cost of some expensive cultural practices such as solid fumigation with methyl bromide and assistance in maintaining equipment like compressors at our seed storage facility for example.
- 2. Prioritizing station needs. As our operating budget began to decline in the late eighties and early nineties, major emphasis was placed on getting the crops planted, on fertilizers and chemicals. Equipment replacement became low priority, temporary employee labor (which are so valuable in the summer months) was eliminated and facility and equipment maintenance was minimal.
- 3. Scrutinizing research projects more closely in terms of required resources. No research project requests were accepted that required excessive resources unless the project leader could cover the monetary cost and sometimes labor requirements. Some projects were relocated to the Department of Agriculture Stations where funding was at a higher level.
 - 4. Cost sharing with private industry. At our swine facility, we made the unprecedented step of cost sharing with private industry. Arrangements were made with private industry to perform nutritional and pharmaceutical research beneficial to them as well as producers. This arrangement provided that the station furnish the facility and labor while industry furnished the pigs and covered all costs associated with the research effort. Also, they would receive the receipts from the sale of these pigs. Thus far this arrangement has been mutually beneficial to all.
 - 5. User fees. In an effort to continue to manage with declining funds, user fees were assessed project leaders on a per acre basis for those crops used in their research at

Central Crops in 1997. The assessment fee for some crops were higher due to increased production or research costs (such as tobacco and vegetable crops). These monies were to be used for short term help to cover the cost of utilities, fuel and some needed supplies. No equipment replacement or facility maintenance costs were considered. This was the first time that a charge was levied to researchers conducting field research in North Carolina since agriculture research began in our state in 1877. We were unsure how this would be perceived by our faculty or just where it might lead. We knew that the College of Veterinary Medicine and University Field Labs were charging for animal research, but this was a first for outlying research stations. From the feedback received by our research faculty with regard to the implementation of user fees, there was 100% support. However, these fees were extremely low. Should user fees continue to be implemented in the future, especially at higher rates, it remains uncertain if those research faculty with the most money will have a land resource advantage. Nevertheless, it was beneficial to us at Central Crops.

In closing I would like to say that budgets constraints in the last decade have placed me, as a station superintendent, in a position of having to decide whether or not we can support research at its current level or whether we must cut back to a level we can afford. Sacrifice and prudence on the part of the stations, some unprecedented financial steps, the continuing willingness of project leaders to share in research cost and help from private industry has allowed us to maintain a viable research program at levels approaching those of the past instead of making more serious cuts.

SKIING THROUGH AN AVALANCHE: SURVIVING AS AN ADMINISTRATOR IN A CHANGING EDUCA-TIONAL ENVIRONMENT

JACK HEIDLER DIRECTOR OF PERSONNEL SERVICES UNIVERSITY OF FLORIDA GAINESVILLE, FLORIDA

As research center administrators, you are all in the unique position of operating under your university's directives while carrying out your center's unique research and education mission. Your center's particular focus and philosophical orientation may differ from your governing university's philosophy, and you need to exercise caution when developing and administering your agendas. Just like skiing in an avalanche, administrators must pay constant attention to and demonstrate proactive behavior toward the rapidly changing environmental terrain. Because of the changing nature of the educational environment as a whole, constant awareness of and sensitivity to the university's political environment is essential to your success as a research center administrator.

This approach applies not only to universities, but to any type of organization. Thus, regardless of the type of organization you represent, it is important that the administrator has an innate sense of the governing political environment. By political environment, I mean the organization's basic philosophy that is established by the chief executive officer and trickles down through the organization.

While the CEO establishes the overriding philosophy, the politics are dependent on the actual players. As players come and go, shift teams, and develop new strategies, the politics constantly fluctuate. If the administrator is in sync with these political fluctuations and proactive in accommodating environmental shifts, he or she will successfully survive change.

Successfully surviving change involves proactive measures toward sensitization to new politics and philosophies. Proactive sensitization to environmental change can limit conflict within organizations. In a survey sponsored by the American Management Association (Lippitt, 1982), chief executive officers, vice presidents, and middle managers revealed what they consider the principle causes of conflict within organizations: misunderstanding (communication failure), value and goal differences, substandard performance, differences over method, responsibility issues, lack of cooperation, authority issues, frustration and irritability, competition for limited resources, and noncompliance with rules and policies. If administrators actively seek to understand changes in values and goals, performance standards, methodology, rules, and policies, they will be operating in accordance with the organization's political environment and can therefore limit the destructive consequences of conflict within organizations.

How can administrators become proactively sensitized to their organization's political changes? Research through networking, reading, and information gathering is the most effective method administrators can use. They should seek answers to the following four main questions: 1) What are the obvious factual changes in policy, procedure, and admini-

istration? 2) What are the underlying emotional changes in philosophy, values, and goals? 3) Who are the new key players and what are their professional histories? 4) How do these changes affect the organization's current mission and dominant philosophy?

Knowing the answers to these questions is crucial to success in surviving an organization's changing environment. When conducting your research on the new leaders, networking is your most valuable tool. By contacting associates in your communication network, you will gain insight from people you know and trust. At the same time, you will strengthen your informal professional relationships that are so important in gaining and maintaining status in today's changing educational environments.

According to organizational communication scholar Rosabeth Moss Kanter (1989), "informal interpersonal relationships and communication networks are the most dynamic sources of power in organizations today. The reason is . . . related to the turbulent business environment" (Eisenberg & Goodall, 1993, p. 9). By networking and relying on your informal relationships to learn about the organization's new leaders' professional histories, values, and goals, administrators will gain the insight necessary to anticipate changes and respond to new demands appropriately.

If administrators are in sync with changes in the organization's political environment, their sensitivity will result in successful hiring and effective leadership. New employees must be indoctrinated in the organization's philosophy so that they are not counter-productive. As an administrator, you have a responsibility to ensure productive work efforts toward the common goal of the organization. If you are not sensitive to changes, your entire organization risks tension and disagreement typically associated with conflicting actions and goals.

Although I am advocating playing the game of follow the leader, there are also techniques administrators can use to successfully promote personal agendas that may differ from the organization's main goals. If you know the leading organizational philosophy, you can develop strategies which will facilitate and market your agendas. I recommend two main techniques: 1) Remember that strength is in numbers and get others on your side. Although it is easy to say no to one person, it is difficult to turn down three people working toward the same goal; 2) Target your appeals to the philosophical and political interests of the leaders to attain their support. Use the knowledge you gained from careful research and present your agendas so that they appeal to your leaders' interests. Work toward developing a compromise, and both sides will win.

As research center administrators, you all are experienced in overcoming external environmental changes. Each of you has helped your research center survive potentially devastating challenges such as new plant diseases, animal illness, and dangerous weather conditions. Although the technical and practical methods you used to overcome these environmental dangers differ in methods you would use to survive internal administrative dangers, the basic approach administrators should take to survive changing organizational environments is the same.

Administrators must constantly be cognizant of their organization's environment and watch carefully for all fluctuations. Administrators must also always be proactive, anticipate change, and strive to adapt differing agendas to the organization's overriding philosophical perspective. Two key directives will enable you to successfully ski through the avalanche of organizational change: proactive rather than reactive behavior, and knowing the environmental terrain in which we work. Like skiing in an avalanche, working through changing educational environments is exciting, exhilarating, and fun, but we have to take personal responsibility for avoiding pitfalls--we should never stop to smell the roses on the slopes.

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Awards Other Than Salary Increases to Maintain Employee Morale

Dr. Phil P. Hunter Research Center Administrators Society Little Rock, AR February 24, 1998

For several years the station superintendents in Tennessee had been dissatisfied with our inability to recognize outstanding employees within the existing system for the Institute of Agriculture. In the awards given by the Institute, our secretaries were included in a clerical award that covered a fairly small group. However, our field employees and research associates were considered with several hundred other employees on the main campus. Because only one award was presented each year, it was very difficult to get a station employee recognized. During a discussion at our fall, 1994 meeting, we developed the program I will describe to you today.

Two awards are given. The first recognizes outstanding non-clerical, non-exempt support staff. This group includes anyone from the level of unit manager or farm foremen and below. These individuals must be administratively responsible to the Agricultural Experiment Station, have a minimum of 5 years experience and be classified as non-exempt. The second award recognizes outstanding professional staff. In Tennessee, this group includes research assistants and research associates who have responsibility for various areas on a station--crops, beef, dairy, etc. These individuals must be administratively responsible to a particular station, have a minimum of 3 years experience and be classified as exempt.

The selection committee was originally specified to be chosen by a quorum of the superintendents at our fall meeting. In practice, it has been one of the duties of the RCAS state representative to chair the committee. The two other members are generally superintendents who had winners the previous year. This usually prevents a committee member from having a nominee. Dr. Ike Swell, Associate Dean with responsibility for experiment stations, also serves on the committee. He is a non-voting member. His office receives the nomination packages, duplicates them and sends them to the committee members. The committee members rank the nominees and send their rankings to Dr. Swell. He summarizes these and provides the chairman with the results. This procedure provides a measure of objectivity to the process. More importantly, it allows the committee to function by phone and fax without having to meet.

Nominations are requested on April 1 each year with a May 1 deadline. The selection process is completed by June 1. This allows a superintendent to make the award along with service pins and other awards given at the end of the fiscal year. The timing of the presentation varies from station to station. All superintendents are made aware of the winners in June, but no public announcement is made until all awards have been presented. The superintendent publicizes the award locally and the communications department sends out a news release.

The contents of the nomination package is left up to the superintendent. Most often this will be information from the superintendent outlining the qualifications of the nominee and letters of support from co-workers and staff members. A maximum of four supporting staff awards can be given each year. Due to the deserving nature of two nominees and the retirement plans of one of these, five awards were given in 1996. The supporting staff award recipients receive \$400.00 and a plaque. One professional staff award is given annually with the recipient receiving \$400.00 and a plaque.

Funding for the awards is provided by the ten superintendents. At our 1994 meeting, \$200.00 per superintendent was chosen as the amount that would make the program work on an annual basis. However, some superintendents have given additional money from time to time as a part of their annual giving commitments. Also, other individuals with strong ties to the stations have contributed. In some cases the money is a part of the annual giving of a superintendent. The monies are deposited in a restricted account set up specially for the award and disbursed through the payroll system using an accompanying B account. One problem we have experienced with this system is that taxes are taken out of the check. Some adjustment needs to be made in the system so that the recipient receives the full amount. Also, we have lost one superintendent position through the consolidation of two stations, so we may have to raise the suggested gift level to keep the program solvent.

This program began operating in 1995. Since that time, we have given 13 supporting staff awards for a total of \$5200.00. The pool for the support staff awards is approximately 175 employees. We have given three professional staff awards totaling \$1200.00. The pool for the professional award is approximately 40 employees. Both awards have been given to employees on eight of the ten stations.

MANAGING AGRICULTURAL WASTE & WORKER PROTECTION (PPE)

JAMES SHUMATE HAZARDOUS MATERIALS SPECIALIST UNIVERSITY OF ARKANSAS, FAYETTEVILLE

HAZARDOUS WASTE MANAGEMENT

With the economic and technology booms of the post-World War II, our society has made numerous advancements with chemicals used in agriculture and industry for the better of man-kind. Chemicals have definitely increased our standard of living and our life span. Unfortunately, with these advancements and benefits have come negative sources such as the degradation of the environment from pollutants of the manufacturing environment. Our air, lakes, rivers and drinking water supplies were becoming contaminated with toxic chemicals. The Clean Water Act and Clean Air Act made significant advances in the cleaning-up of our air and water, requiring industries to remove hazardous substances from air emissions and water discharges. The Clean Water Act and Clean Air Act had guidelines for the disposal of sludge and debris generated by air and water pollution control equipment, but there were no regulations. The Solid Waste Disposal Act which was originally passed in 1965, was amended in 1970 to require the investigation of hazardous waste activities in the United States. Since the United States was cleaning up it's air and water discharges, there was then a need to address the management of these wastes to prevent additional contamination of the environment. Disposal of hazardous waste in impoundments and land disposal posed a threat to groundwater and drinking water supplies.

On October 21, 1996, Congress replaced the Solid Waste Disposal Act with the Resource Conservation and Recovery Act, also known as RCRA. The focus was on the management and handling of hazardous waste at currently operating or future facilities and the proper disposal of such waste. Inactive and abandoned facilities and sites are not addressed by RCRA. The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) was passed in 1980 to address those issues. There are five major elements of hazardous waste regulations under RCRA. The identification and classification of solid and hazardous waste, a cradle to grave tracking system using manifests, enforcement through a notification and permitting system, standards for generators, transporters and facilities that treat, store or dispose (TSD facility) of hazardous waste and the authorization of state programs to operate the hazardous waste program in lieu of the federal program, although the Environmental Protection Agency (EPA) retained oversight authority. RCRA has been amended many times since its original passage with the most extensive in 1984 which was known as the Hazardous and Solid Waste Amendments of 1984. These amendments established additional regulations such as land disposal restrictions, used oil management, underground storage tanks and waste minimization. Additional amendments included a two year demonstration program on the management of medical wastes with a mandatory report to congress on the environmental issues surrounding medical waste management.

The Code of Federal Regulations (CFR), volume 40 contain the Environmental Protection Agency's environmental regulations. Parts 260 through 279 contain the hazardous waste regulations. Parts 280, 281 and 282 contain the Underground Storage Tank regulations and Part 259 addresses the standards for the medical waste demonstration program. The regulations that effect most generators are found in Part 261, the identification of hazardous waste, Part 262, the standards for generators of hazardous waste and Part 268, Land Disposal Restrictions of hazardous waste. Part 272 lists the states that are authorized to enforce the hazardous waste programs. Arkansas received it's authorization in 1980, one of the first states to receive federal authorization. States can have additional requirements for the management of hazardous waste, but they must be at least as stringent as the federal program. The State of Arkansas' Department of Pollution Control and Ecology regulates the management of hazardous waste under Regulation 23, the Hazardous Waste Management Code. Examples of additional requirements by the State has been tracking and reporting of PCB waste, a Toxic Substance Control Act waste, as hazardous waste and the required transporting by permitted transporters of exempted small quantity generators which is not required under federal regulations to use a permitted transporter.

In order to properly manage hazardous waste and abide by the regulations, one must first be able to identify solid and hazardous waste. To be considered a hazardous waste, one must first determine if the material is a solid waste. A solid waste is "any discarded material that is not excluded by regulation or excluded by variance granted under regulations and are discarded, abandoned, recycled or considered inherently waste-like." Solid waste can be in the solid, liquid or gaseous states. Examples of wastes that are excluded are household hazardous waste, agriculture irrigation return water, NPDES discharges and mining waste.

To be excluded by variance one must petition the administrator of EPA and using scientific evidence that the waste does not cause harm to the environment or human health. If the material is a solid waste, then one must determine if the waste is a hazardous waste by testing or knowledge of process. There are two types of hazardous waste, characteristic or listed. Characteristic hazardous waste are listed by the D numbers. If a waste has a flash point of 140 degrees F or below, then it is considered a D001 ignitable waste. If the waste has a pH of 2 or less or 12.5 or greater, then it is considered a D002 corrosive waste. If the waste is reactive or shock sensitive, then it is a D003 reactive waste. If waste has concentrations above one of the 43 constituents based on the Toxic Characteristic Procedure (TCLP), then the waste is assigned a D number corresponding to the constituent. Constituents include some heavy metals, organics and pesticides. What the TCLP does is determine the fate of the waste if it was placed in a landfill. The test involves tumbling the waste through a mild acidic solution to see how much of the toxic substance will leach out into the environment. Other waste are identified as hazardous by being listed by chemical name or the process generated by. F listed waste are from non-specific sources such as mixtures of solvents or still bottoms of distillation process. K hazardous waste are from specific sources such as wood treating operations. P and U listed hazardous wastes are from discarded commercial chemical products, off-specification species, container residues and spill residues of these products. In addition, P listed hazardous waste are considered acute toxic due to low LD50s and have stricter reporting requirements (etc. 1kg). Material Safety Data Sheets (MSDS) can be used to determine the hazardous ingredients in the product and compare to the list of hazardous waste listings. Once one determines that they generate a hazardous waste, one must determine the generator status they follow under to see which regulations govern the management of their waste. There are three categories of waste generators.

If one generates less then 100 kilograms of hazardous waste a month, then they are a Conditionally Exempt Small Quantity Generator and only have to identify and properly dispose of their hazardous waste and use a permitted transporter. As long as they do not accumulate more than 1000 kilograms or one kilogram of acute toxic waste (P wastes), then they stay in that category. If one generates between 100 and 1000 kilograms and less then one kilogram of acute hazardous waste, then they are a Small Quantity Generator (SQG)and can store waste on site for 180 days. No more then 6000 kilograms of hazardous waste a month, then one is a Large Quantity Generator (LQG) and can store on-site for ninety days. Large Quantity Generators have the most regulatory requirements. Both SQG and LQG must notify and receive an site specific EPA Identification number and submit annual reports on generation rates.

Regulations on transporters are found in 40 CFR Part 263. A transporter must also have an EPA Identification Number. A Generator can only offer their waste to a licenced transporter. The manifest used is a key to the RCRA hazardous waste system, cradle to grave tracking. The generator, transporter and Treatment, Storage and/or Disposal facility must sign the manifests upon receipt with final copies going back to the generator and regulatory agency. The Department of Transportation's (DOT) hazardous material regulations must also be followed when transporting hazardous waste. The hazardous material regulations are found in 49 CFR Parts 171 through 180.

40 CFR Parts 264 and 265 list the requirements for Treatment, Storage and Disposal facilities. These facilities are required to have a hazardous waste permit before operating which is a long and expensive process. Facilities are required to have waste analysis plans for incoming waste, security, training and contingency and emergency response plans. There are specific standards for incineration, land application, surface impoundments, land fills and other disposal technologies. Groundwater monitoring is required of the sites and investigations of past Solid Waste Management Units must be initiated. Financial assurances must be made so the facility will be able to properly close the facility without leaving any environmental contaminates behind. A pre-written closure and post closure monitoring plan must be submitted. These TSD facilities are monitored very closely, sometimes having on-site regulatory inspectors.

The Resource Conservation and Recovery Act has made great strides into reducing toxins released to the groundwater and the environment. Although hazardous waste will always be generated in todays industry environment, there must be ways to reduce the amount of hazardous waste generators. Generators should have a Waste Minimization Plan that outlines ways to reduce the generation of these toxins. Avenues for waste minimization include better inventory control and operations, substitution for less toxic compounds and Best Available Treatment Technologies to reduce the disposal of hazardous waste. Not only will these waste minimizations help better protect the environment, they will be cost effect due to reduced regulatory oversight and disposal costs.

<u>NOTE</u> - Most of this information was taken from writer's personal knowledge, <u>experiences and review of the federal regulations</u>. To ensure compliance with the regulations, one should seek their own research since regulations change daily.

WORKER PROTECTION STANDARD

The United Stated Environmental Protection Agency (EPA) determined that the record of illness and injury incidents resulting from occupational exposures of agricultural employees to pesticides used in the production of agricultural plants and the undisputed inherent acute and delayed-onset toxcitity of those agricultural pesticides supported the Agency's conclusion that such agricultural employees are subjected to unreasonable adverse effects from pesticide use across the broad range of agricultural sectors. Therefore, the EPA issued the final rule for the Worker Protection Standard on Friday, August 21, 1992 (Federal Register Volume 57, Number 163, pages 38102 to 38176). The effective date was October 20, 1992. The provisions of the revised Worker Protection rule are directed toward the working conditions of two types of employees; those who handle agriculture pesticides (mix, load, apply clean or repair equipment, act as flaggers, etc.) and those who perform tasks related to the cultivation and harvesting of plants on farms or in greenhouses, nurseries, or forest. There are three types of provisions intended to eliminate or reduce exposure to pesticides. Mitigate exposures that occur, provide personal protection equipment and inform employees about the hazards of pesticides. The federal Worker Protection Standard is found in 40 CFR Part 270.

Some states have additional worker protection standards and one should check with their state regulatory agency such as the State Plant Board.

Provisions to eliminate or reduce pesticide exposure include application restrictions. use of personal protection equipment, entry restrictions and notification of applications. Exposure to pesticides can be reduced by excluding workers from areas treated with pesticides, prohibiting handlers from applying a pesticide in a way that will expose workers or other persons, and protecting handlers during handling activities. Application restrictions include application techniques to prevents others from being exposed, exclusion of workers in application areas unless they are trained and wearing appropriate personal protection equipment and visual or voice contact for workers handling a pesticide with a skull and cross bones label. Use of Personal Protection Equipment (PPE) is required for workers and handlers exposed to pesticides. The pesticide label on the container specifies the PPE to be used. When workers enter a treated area before the expiration of a restricted entry interval (REI) who will contact anything that has been treated, they must wear PPE as specified in the labeling for early entry. When the labeling requires PPE, the employer must provide the required PPE to each worker or pesticide handler, ensure the PPE is clean and maintained correctly, make sure that each handler or worker wears and uses the PPE correctly, prevent workers or handlers from wearing home or taking home contaminated PPE and take action to prevent heat stress if the work and PPE might cause heat stress.

Entry restrictions are to limit access to pesticide treated areas after an application while the pesticide may still present a hazard. In general, a 48 hour REI is established for any product containing an active ingredient that is in toxicity category I (most toxic) because of dermal toxicity or skin or eye irritation. The REI is extended to 72 hours in arid areas if any such active ingredient is an organophosphate and the product is applied outdoors. A 24 hour REI is established for any product containing an active ingredient that is a category II (moderate toxic) because of dermal toxicity or skin or eye irritation. A 12 hour interval is established for all other products. To help workers avoid inadvertent
exposures to pesticide treated areas, employers must inform workers where pesticides have been applied on the agricultural establishment. All agricultural employees who may come near a treated area must be notified, either orally or by posting treated areas with warning signs, of pesticide applications and areas under an REI on agricultural establishments. For selected pesticide products for which inadvertent early entry could be especially hazardous, treated areas must be posted with warning signs and oral warnings must be given to workers. For outdoor uses where workers will not be within 1/4 mile of the treated area, there are no notification requirements. All greenhouses must be posted with warnings.

Provisions to mitigate exposure include providing an ample supply of water for washing splashed or spilled pesticides off workers or handlers and for washing after the pesticide handling activity is complete. Workers entering treated areas where within the last 30 days a pesticide has been applied or an REI has been in affect must provide washing facilities. Emergency assistance information must be posted which includes the name and location of nearest medical facility, the acute effects of the pesticide and transportation must be provided for the poisoned worker.

The employer must provide pesticide safety training for all workers and handlers. This includes providing a pesticide safety poster at a central location, access to labeling information or a Material Safety Data Sheet (MSDS) must be provided, access to productspecific information, and access to information about what pesticides have been used at the establishment. All agricultural workers must have basic pesticide safety training. All handlers must have basic pesticide safety training, training on the handling of pesticides and training on the use of PPE.

RESOURCES FOR WORKER PROTECTION STANDARD

Federal Register, Friday, August 21, 1992 Volume 57, Number 163, pages 38102 to 38176

40 CFR PARTS 156 & 170

The Worker Protection Standard - How To Comply, July 1993, EPA Pub. 735-B-93-001

Agricultural Worker Protection Standard Interpretive Policy March 15, 1995 EPA Worker Protection Guidance EPA January 1994

RESOURCES FOR HAZARDOUS WASTE

EPA Hazardous Waste Hot Line 1-800-424-9346

40 CFR PARTS 260 to 279 - Hazardous Waste Regulations

40 CFR 261.5 - Conditionally Exempt Small Quantity Generators

40 CFR 262.10(e) & 262.70 - Farmers generating waste pesticides

EPA or State Guide For Small Quantity Generators of Hazardous Waste

Minutes Research Center Administrators' Society Executive Board Business Meeting Sheraton Civic Center Hotel, East Room L Birmingham, AL Sunday, February 2, 1997

The Executive Board of the Research Center Administrators Society met in the East Room L of the Sheraton Civic Hotel, Brimingham, AL on February 2, 1997 at 3:00 P.M. President Withers called the meeting to order and welcomed the group to Birmingham. Twenty three members were present.

Dr. Jere McBride introduced Dr. Larry Rogers, Director of the Louisiana Agricultural Experiment Station. Dr. Rogers stated that he had been a member of RCAS for a number of years in the past and that he always enjoyed the annual meetings and the interactions with his peers. He said that Research and Extension Centers and the Branch Stations were one of the most important components in carrying out the Land Grant Mission.

Minutes of the Fall Executive Board Meeting:

Dr. John Robinson read the minutes of the Fall Executive Board Meeting. No corrections or additions were made. The minutes were approved by acclamation.

Financial Report:

Dr. Jere McBride reported that we were in sound financial shape and that as of 1/31/97 the balance in the RCAS account was \$6,801.38. He stated that the 1996 Annual Meeting could have been a financial disaster for RCAS since many members could not attend because of the snowstorm. He complemented Carl Tart on his negotiating talents and his ability to secure outside funds to help cover the meeting costs.

Convention Reports:

Registration: Dr. John Robinson reported that 73 members and 8 spouses had preregistered for the 1997 Annual Meeting.

Program: Dr. Ben Kittrell stated that the program was in good shape. He had a request from one of the speakers to cover part of his travel expenses. A discussion followed with the consensus being that this would have to be handled on a case by case basis.

President Butch Withers made a suggestion that the program committee be given a budget for the annual meeting. A discussion followed. The group decided to discuss this topic in more detail at the 1997 Fall Executive Board meeting.

Tour and Banquet Schedule: Mr. Jim Pitts discussed the tours and banquet schedules. He said our schedule was tight and encouraged everyone to be on time.

Committe Reports:

Membership Services: Dr. Joe McFarland stated that with the help of his Area Director, he had sent out 80 packets to prospective new members. He informed the group that the list server, RCAS-L, is about setup and that he was working on the web-site. He indicated that we need to decide if the list server was going to be open or closed. A discussion followed. The consensus was that the list should be open and see what happens in the future.

Dr. Ben Kittrell asked when do we consider a state or private industry a member of RCAS. A discussion followed. The group decided to discuss this issue at the fall meeting.

Proceedings: Dr. Dennis Onks stated that he and Mr. Carl Tart were working on the proceedings from last year. He indicated that several presenters had not sent in their talks and as a result the 1996 Proceedings were extremely short.

Dr. Dennis Onks made the motion that the 1996 and 1997 Proceedings be combined. Dr. Lyle Lomas seconded the motion. Motion passed unanimously.

Awards: Dr. John Hodges stated that the Awards Committee had met and that Dr. Joe Musick was the 1997 recipient of the Distinguished Service Award. He indicated that the award and plaque would be presented at the final business meeting

New Business:

- 1. President Butch Withers initiated a discussion on dues vs. registration fees. A general discussion followed. The consensus was to discuss this topic at the fall meeting.
- 2. President Butch Withers stated that we need to look at innovative ways to structure the annual meeting, the proceedings, the invited speakers and the newsletter so that we can be more responsive to our present membership and use these as tools to recruit new members.
- 3. New state representatives were recognized:

Mr. Malcomb Pegues - Alabama

Dr. Joe McFarland - Texas

Dr. Steve Verkade - South Carolina

Meeting adjourned 5 P.M.

MINUTES RESEARCH CENTER ADMINISTRATORS SOCIETY ANNUAL BUSINESS MEETING SHERATON CIVIC CENTER HOTEL BIRMINGHAM, AL TUESDAY, FEBRUARY 4, 1997

President Butch Withers called the meeting to order at 10:00 A.M. He thanked the Alabama Agricultural Experiment Station and Auburn University for hosting the meeting, Program Chairman, Ben Kittrell for the excellent program and the RCAS Executive Board for their input. He stated that there was no formal program planned and asked for comments from the floor. Dr. Joe High thanked the California and Minnesota delegations for their attendance. President Withers stated that this was an indication that RCAS was expanding. Dr. John Robinson reported that 84 members and 10 spouses were in attendance.

President Withers reported on the SAAS executive Board meeting. He stated that dues would go up to \$20.00 per year and that the Board would set the dues each year. He also indicated that because of the size of the annual meeting there was considerable discussion on whether the annual meeting should go to different states each year or to rotate between three or four major cities within the region.

Dr. Phil Hunter stated that the process of putting the directory together was getting easier and that he would continue to do it for another year. He asked each state rep to make corrections on the state pages and UPS them to him.

Dr. Joe McFarland told the group that with support from his Area Director he had mailed out 80 packets to prospective members. He indicated that the list server was in the final stages and that the web-site would follow. He indicated that we could put the proceedings on the web but that would be up to the Executive Board. Dr. Jere McBride made a motion that we have a RCAS business page on the web. Mr. Bill Peterson seconded the motion. Motion passed.

Dr. Dennis Onks reported that the Executive Board had voted to incorporate both the 1996 and 1997 Proceedings into one issue. He indicated that he needed an electronic and a hardcopy of each presentation. He stated that Mr. Carl Tart had volunteered to publish the Proceedings at a minimal cost and asked for a motion to approve this action. Dr. Ben Kittrell so moved. The motion was seconded by Dr. John Hodges. Motion passed.

Dr. Jere McBride reported that as of 1/31/97 RCAS had \$6,801.38. \$1,830.00 had been collected at the meeting and the current balance was \$8,631.38. He moved that the report be accepted as read. Dr. John Hodges seconded the motion. Motion passed. Dr. McBride also volunteered to archive the RCAS Proceedings at the Red River Station.

Dr. John Hodges presented the RCAS Distinguished Service Award to Dr. Joe A. Musick for his hard work and dedicated service to RCAS. Dr. Musick was unable to attend this years meeting. Dr. Jere McBride accepted the award for Dr. Musick and indicated that he would present the award to him at a future LSU staff function.

Mr. Jim Pitts gave the Nominations Committee report. He presented the following slate of officers: Dr. Ben Kittrell, President; Dr. Findlay Pate, First Vice President; Dr. John Robinson, Second Vice President; Mr. Dennis Thompson, Secretary; Dr. Jere McBride, Executive Treasurer; and Dr. Dennis Onks, Proceedings Editor. Dr. John Hodges moved that the slate of officers be accepted by acclamation. Dr. Joe McFarland seconded the motion. Motion passed.

President Withers thanked everyone for their support and stated that it had been an honor for him to serve RCAS as its President. He turned the gavel over to Dr. Ben Kittrell. President Kittrell thanked Past President Withers for his excellent leadership of RCAS and presented him with a plaque of appreciation for this service as President.

President Kittrell made the following committee assignments: Local Arrangements: Dr. Mike Phillips, chairman, Dr. Ed Colburn, Mr. Larry Earnest and Dr. John Robinson; Awards: Dr. John Hodges, chairman, Mr. Carl Tart and Dr. Will Waters; Nominations: Mr. Butch Withers, chairman, Dr. Joe Musick and Dr. Dennis Onks; Membership: Dr. Joe Mcfarland, chairman, Dr. Phil Hunter, Mr. Randy Akridge, Dr. Mike Phillips, Dr. Gerry Berggren and Mr. Rick Matheson; Proceedings: Dr. Dennis Onks, chairman, Dr. Lyle Lomas and Dr. Ben Kittrell; Financial: Dr. Jim Jones, chairman, Mr. Bill Peterson, Dr. Jere Mcbride, Mr. Carl Tart and Dr. Dennis Onks. He reminded everyone that the Fall Executive Board meeting was in Jackson, MS on September 29-October1, 1997 and was open to all members.

President Kittrell thanked everyone for their vote of confidence and stated that he was looking forward to this year and the continued growth of RCAS.

Meeting adjourned.

Research Center Administrators Society

Fall Executive Board Meeting September 30, 1998 Raymond, Mississippi

Attendence: Alabama -Mr. Randall Rawls, Mr. Malcomb Pegues,

Mr. Jim Pitts Arkansas - Dr. Mike Phillips, Dr. Ed Colborne, Mr. Larry Earnest, Dr. John Robinson California - Dr. Paul Sebesta Florida-Dr. Findley Pate, Dr. Will Waters Georgia -Mr. George Granade, Mr. Dennis Thompson Kansas - Dr. Lyle Lomas Louisiana - Dr. Jere McBride, Dr. Jerry Berggren Mississippi - Dr. Jim Smith, Mr. Butch Withers North Carolina - Mr. Carl Tart South Carolina - Dr. Ben Kittrell Tennessee - Dr. Phil Hunter, Dr. Robert Freeland Texas - Dr. Joe McFarland Virginia - Dr. Jim Jones

Opening Remarks

The meeting was called to order by President Kittrell at 8 AM. Copies of the agenda were distributed. Dr. Kittrell stated the primary purpose of today's meeting was to discuss plans for the 1998 RCAS Annual Meeting and Business and Executive Board Meetings in Little Rock, AR. Mr. Withers was recognized by Dr. Kittrell.

Welcome

Mr. Withers welcomed the group on behalf of himself and Dr. Jim Smith to Hinds Community College and Eagle Ridge Conference Center. He officially welcomed the group on behalf of Dr. Vance Watson, Director of Miss. Experiment Stations, who was unable to attend and sent his regrets. Dr. Ron Brown was announced as the new Director of the Miss. Extension Service.

Mr. Withers discussed changes taking place in administration with the Miss. Agricultural and Forestry Experiment Station. The group was reminded of the overview of the Miss. Agricultural and Forestry Experiment Station following the Executive Board Meeting.

Minutes

Dr. Kittrell asked for a motion from the floor to dispense with the reading of minutes from the 9/30/96 Executive Board Meeting - Portageville, MO, 2/2/97 Executive Board Business Meeting and Annual Business Meeting 2/4/97 - Birmingham, Al. Mr. Tart made the motion wand was seconded. A unanimous vote by acclamation was made in favor of the motion.

Unfinished Business

Clarification of items from previous minutes were read by Mr. Thompson. Four of the five items were tabled until later in the meeting. From the 2/4/97 Executive Board Business Meeting, pg.2, 4th par. On Committee Assignments; Nomination Committee members were corrected as follows: Mr. Butch Withers - Chairman, Mr. Jim Pitts and Dr. Dennis Onks. A motion was made by Mr. Granade that the minutes be approved as corrected and was seconded. A unanimous vote by acclamation was made in favor of the motion.

Treasurer's Report

The treasurer's report was distributed by Dr. McBride. Dr. Kittrell asked Drs. Pate and McBride to follow up on refreshments at the Annual Meeting. Dr. McBride stressed the importance of making sure orders are clearly stated in a letter to the hotel. Dr. Kittrell said local arrangements can be a big help in following up on refreshments and other requests.

Committee Reports: Financial

Dr. Jones - Financial Committee Chairman reported a balance of \$5041.61 in the RCAS account as of 8/31/97. He said RCAS is in excellent shape and recommended no changes. Dr. McBride said the account has been as low as \$3000 in the past and the \$1200-\$1300/ year needed to pay for the proceedings had been reduced to \$-200/year thanks to Mr. Tart and the NCDA.

Dr. Robinson mentioned the 9/30/96 Executive Board Meeting Financial Committee Report and funds needed to do special projects, like recruiting members. He said RCAS needs and information packet for perspective members. Dr. Pate suggested to include in the meeting announcement and application for joining RCAS for those who do not plan to attend the Annual Meeting. Dr. McFarland said a web page can be used as a source of information and as a recruiting tool. Dr. Sebasta said in a survey of 68 centers in the Western U. S., 29 said they were interested in either forming a western group or joining with Southern RCAS. Mr. Withers and Mr. Tart clarified why SAAS registration, RCAS registration and banquet and tour are kept separate.

Mr. Tart made the following motion that was seconded: To charge a registration feed adequate to cover annual expenses for those attending plus offer \$20 dues for those who do not attend the Annual Meeting. A unanimous vote by acclamation was made in favor of the motion.

Proceedings

Mr. Withers said Dr. Dennis Onks is willing to continue to serve as Proceedings Editor for the present but needs a volunteer to serve as co-editor. Dr. McBride made a motion, that was seconded nominating Dr. Robinson as Proceedings Chairman. A unanimous vote by acclamation was made in favor of the motion.

Mr. Tart is having the final copy of the joint proceedings from the 1996 Greensboro, NC and 1997 Birmingham, AL RCAS Annual Meetings typeset. The group approved changing the color of the cover and including a cost statement in the proceedings. Mr. Tart said to let him know the number of copies of the proceedings each state needs.

Dr. McBride inquired about compensating Dr. Onks secretary for transcribing presentations at the Annual Meeting and referred the question to Drs. Hunter and Freeland. Dr. Onks told Mr. Withers about the problem obtaining papers from presentations. He stressed the need for the proceedings to be complete. The Proceedings Editor and Program Chairman should ask for a hard copy of presentations. Dr. Kittrell asked for a motion for him to empower someone to purchase a recording device for the Annual Meeting. Mr. Granade made the motion, that was seconded. A unanimous vote by acclamation was made in favor of the motion.

Membership

Dr. McFarland reported no one attended the Annual Meeting from the 80 packets he mailed to prospective members. He said a list server and web page may do a better job than other means. The technical difficulties have been worked out for the list server and web page.

Dr. McFarland asked for a volunteer to serve as a moderator for the web page to select and archive different topic areas for lasting value. Drs. McBride, Smith, Sebasta and Pate volunteered to serve on a Web Page Committee along with Dr. McFarland to help construct a web page.

Dr. Pate said RCAS has over 200 potential members. Dr. McBride said membership from private industry could be an important source of providing funds. Dr. McFarland was asked if he knew whether private industry was interested in providing monetary support. He said the individuals he talked to were not in a capacity to provide sponsorship. He said the biggest recruiting drive should come from within states.

Awards Committee

Mr. Tart on behalf of the Awards Committee made the motion, and was seconded, that Dr. Dennis Onks receive the RCAS Outstanding Service Award. A unanimous vote by acclamation was made in favor of the motion. Dr. Hunter made a motion, and was seconded, that the Outstanding Service Award be presented at the banquet. A unanimous vote by acclamation was made in favor of the motion.

Nominations Committee

Mr. Withers - Nominations Committee Chair placed into nomination, that was seconded the following slate of officers for 1998:

Dr. Findlay Pate - President, Dr. John Robinson - First Vice President, Mr. Dennis Thompson - Second Vice President, Mr. Carl Tart - Secretary and Dr. Jere McBride - Executive Treasurer.

Arrangements

The 1997 Annual Meeting will be held at Little Rock Convention Center. The Excelsior Hotel is the primary hotel. Dr. Pate said the SAAS General Session has been moved to Sunday and would let the group know about the change in time. Dr. Kittrell said meeting facilities were in the Convention Center. Dr. Pate contacted Mr. Vernon Boggs about rooms. Dr. Phillips said room assignments had not been made. Dr. Waters suggested local arrangements visit the rooms prior to the meeting.

Program Planning

More than 25 different program topics and possible presenters for the topics were suggested by the group. Dr. Pate will select from the group of topics and plan the program.

Place and Date of 1998 Board Meeting and Annual Meetings

Dr. Sebasta made the following motion, that was seconded: The 1998 Fall RCAS Executive Committee Meeting be held in TN. A unanimous vote by acclamation was made in favor of the motion.

RCAS Annual meetings at SAAS will be held in Memphis - 1999, Lexington - 2000 and Ft. Worth - 2001.

Dr. McBride suggested for consideration having the RCAS Annual Meeting a different time of year and the RCAS Executive meeting. Mr. Tart said having the Annual Meeting a different time of year may pose a problem with Superintendents being away from their stations during a busy time like harvest season. Dr. Sebasta said Dr. Gary Lemme from MN attended the 1996 RCAS Annual Meeting and having the Annual Meeting a different time of year would give the Southern region an opportunity to visit other parts of the

U.S.

Dr. Kittrell asked for a motion to appoint a committee to investigate holding the RCAS Executive Committee meeting during the SAAS meeting and Annual meeting another time of year. Dr. McBride made the motion and was seconded. A unanimous vote by acclamation was made in favor of the motion. A report will be made in Little Rock.

Newsletter

Dr. Hunter discussed electronic verses hard copies of the RCAS Directory. He plans to update the directory after the Annual Meeting and thanked the group for help on their revisions. Dr. Kittrell expressed appreciation to Dr. Hunter for working on the director.

Dr. Hunter asked Mr. Thompson to double check with State representatives to make sure they receive information about the Annual Meeting.

Institutional Ag Business

Dr. Kittrell reviewed correspondence he received from the National Association of Institutional Agri-Businesses (NAIA). NAIA is affiliated with American Correctional Association and deals mostly with prison farms. Involving NAIA with RCAS at this time was tabled.

Other

Dr. Sebasta announced a position opening at the University of CA

Director of Research and Extension Centers/Office of Facilities Planning and Management, Davis. He said the CA group expressed their appreciation for attending the Birmingham meeting, and Dr. Harry Carlson wished to extend and invitation for RCAS to meet in CA.

There being no further business the meeting was adjourned at 2:30PM.

Dr. Ben Kittrell, President Dennis Thompson, Secretary

Research Center Administrators Society Executive Committee Meeting February 1, 1998 Little Rock, Arkansas

The minutes which follow have to be approved by the RCAS Executive Committee during the 1999 Annual Meeting

Attendance: Alabama-Mr. Malcomb Pegues, Mr. Randall Rawls, Mr. Jim Pitts, Mr. John Olive Arkansas-Dr. Mike Phillips, Dr. John Robinson California-Dr. Paul Sebesta Florida-Dr. Findlay Pate, Dr. Will Waters Georgia-Mr. George Granade, Mr. Dennis Thompson Kansas-Dr. Lyle Lomas Louisiana-Dr. Jere McBride, Dr. Jerry Berggren Mississippi-Mr. F. T. Withers North Carolina-Mr. Carl Tart South Carolina-Dr. Ben Kittrell Tennessee-Dr. Phil Hunter, Dr. Dennis Onks Texas-Dr. Joe McFarland Virginia-Dr. Jim Jones

Opening Remarks

President Kittrell called the meeting to order at 3 P.M. He opened the meeting by asking each member of the Executive Committee to introduce themselves.

Secretary's Report

A motion was made by Dr. McBride, and seconded, to dispense with the reading of the minutes. A unanimous vote by acclamation was made in favor of the motion. Mr. Thompson presented the Secretary's report which included seventy-eight including eleven spouses preregistered for the Annual Meeting. Seventy-two signed up to attend the tour and banquet.

President Kittrell and Dr. Onks noted a correction in the minutes. Dr. Robinson volunteered to assist Dr. Onks, Proceedings Editor, instead of serving as Proceedings Editor as stated in the September 30, 1997 minutes. The Proceedings Editor is an elected office and must be approved by the membership. President Kittrell asked if there were any further changes in the minutes. An addendum to September 30, 1997 minutes was made in which the RCAS Executive Committee voted to pay up to \$400 for a recording device. There being no further corrections, the minutes stand approved as read. Copies of the September 30, 1998 RCAS Fall Executive Board Minutes were distributed and the Executive Committee was asked to review for corrections.

Treasurer's Report

Dr. McBride was called on to make the Treasurer's report. Copies of the report were distributed. Dr. McBride noted the bank balance since October had declined a little due to bank charges. He has been unsuccessful in finding a way to reduce or eliminate the bank charges that last year totaled \$118.40. He asked the group for suggestions. Dr. McBride concluded his comments by saying the financial situation going into the meeting at Little Rock is as good as we have been in a long time.

RCAS Program

Dr. Pate thanked everyone for their help with the program. He asked chairs or moderators for speakers to provide copies of presentations for proceedings and encouraged them to be put on a diskette.

Mr. Thompson noted SAAS Program Corrections. Dr. Pate is program chair instead of Mr. Thompson. Dr. Pate is Section V.P. instead of Dr. Robinson. An officer form SAAS will be filled out and returned to Vernon Boggs by March 1. Dr. Kittrell discussed making SAAS aware of the list of officers, section chairs etc.

Mr. Thompson mentioned the RCAS Section Chair will be mailed a list of people that SAAS sends an announcement to. President Kittrell suggested designating one person to fill out the hotel contract etc. Dr. Onks said the original intent was for the President and Executive Treasurer to attend the SAAS Board meeting as voting members. The executive Treasurer would attend every year to provide continuity on an ongoing basis.

Local Arrangements

Dr. Phillips gave the report on local arrangements which included an overview of plans for the tour and banquet.

Awards

Dr. Hunter gave the Awards report on behalf of Dr. Hodges and said everything was taken care of. Dr. Hodges will present the DSA at the banquet.

Membership and Home Page

The Membership and Home Page report was given by Dr. McFarland. The committee took into consideration the pros and cons of RCAS becoming a national society is and working on the Home Page with Dr. Jim Smith. Dr. McFarland said ten have currently signed up for the list server and said he would like everyone to sign up. He can send the instructions to sign up or members can give him their e-mail address to sign up.

Dr. McFarland discussed membership and said no one attended from the eighty mailings he sent out last year which included copies of the proceedings and program. He suggested respective states contact potential members.

Directory

Dr. Hunter reported on the RCAS Directory. He asked the state representatives for their assistance in updating the RCAS directory by sending changes to his secretary. He will mail sufficient copies of the directory to state representatives for all station locations earlier than he has in the past. Dr. McFarland asked about adding all station locations across the United States as resource material. Dr. Hunter said he would follow up on Dr. McFarland's inquiry. Dr. Pate distributed a list of states with Branch Stations.

Proceedings

A report on Proceedings was made by Dr. Onks. He proposed including the 1997-98 minutes in the minutes that have not been approved. Doing this will stop the waiting until after the RCAS Fall Executive Committee meeting to publish the proceedings when the minutes are actually approved. There were no objections to his proposal. The proceedings will contain minutes from two years including, approved minutes for the past year and minutes which have not been approved at the time the Proceedings are published. He asked for the proceedings to be published and mailed by June.

Dr. McBride suggested RCAS purchase a gift for Dr. Onks' secretary for typing the Proceedings. Mr. Granade made the motion, and was seconded, that \$100 be allocated as a gift. A unanimous vote by acclamation was made in favor of the motion.

Newsletter

Dr. Robinson was recognized for doing a good job with the newsletter. Dr. Kittrell stated according to the organizations by laws the Second Vice President is responsible for preparing the newsletter.

Report of Committee on National Society

Dr. Kittrell reported on considerations the committee, appointed to study the feasibility of RCAS becoming national in scope, had during their meeting which was held prior to the Executive Committee meeting.

It was brought out RCAS presently functions as a national society, by name and membership it is welcome from other states. The committee considered the pros and cons of RCAS becoming a national society. The pros include; RCAS could continue to maintain ties with SASS but could have the national meeting at another time of year and have the meeting at a smaller location than SAAS requires. The cons include; SAAS has a organizational structure which can negotiate with major hotels, meeting rooms etc., RCAS may lose some of its southern members who may have to travel greater distances and desire to attend other meetings in conjunction with the SAAS meeting. In addition, it may pose an added burden on the planning committee.

A motion was made at the committee meeting on RCAS becoming national in scope that Tennessee relinquish the Fall Executive Board Meeting. Dr. Kittrell opened the floor to questions and suggestions before the Executive Committee. California and Kansas both offered to have the meeting at their respective states. Dr. Sebesta reiterated Dr. Harry Carlson's standing invitation to RCAS to have their group meet in California. Dr. Kittrell posed the question about being able to afford to go to Executive Committee meetings. Drs. Hunter and McBride and Mr. Tart made comments about how RCAS may evolve in becoming a national organization. Mr. Thompson asked about the exact dates for the Fall Executive meeting. Dr. Pate said the Fall Executive Board Meeting needs to be held before October 1 in order to get the program to SAAS. Dr. Pates asked for a show of hands of those who would attend a fall meeting anywhere in the west in which everyone responded by raising their hand. Dr. Hunter made a motion, and was seconded, the Fall Executive Committee Meeting be held in California in 1998 at a date specified by the Executive Committee. A unanimous vote by acclamation was made in favor of the motion. Dr. Sebesta said he would talk to the superintendents attending the meeting from California and would come up with a group of dates and places to meet. The Executive Committee suggested sometime during the last two weeks in September as the best time to have the meeting. Dr. Sebesta was told to expect 35-40 including spouses to attend the meeting.

Mr. Withers suggested a letter be sent to every Center Director. Dr. Onks suggested the President send a letter inviting representatives from other states and include a copy of the proceedings. Dr. Lomas suggested the letters be followed up by phone calls. Dr. Pate asked the present committee on RCAS becoming a national organization to continue providing information to the Executive Committee.

Other Business

Mr. Thompson asked for announced changes in retirements and new appointments by meeting Tuesday.

There being no further business the meeting was adjourned at 4 P.M.

RCAS Annual Business Meeting

February 3, 1998 Little Rock, Arkansas

The minutes which follow have to be approved by the RCAS during the 1999 Annual Meeting.

Opening Remarks

The meeting was called to order by President Ben Kittrell at 10:40 A.M.

President Kittrell opened the meeting by asking if anyone would like the minutes from last years meeting in Birmingham read, and if not to entertain a motion to dispense the reading of the minutes. The motion was made and seconded. A unanimous vote by acclamation was made in favor of the motion.

Secretary's Report

Mr. Dennis Thompson presented the Secretary's report which included seventy-three attending the sessions, seventy-seven attending the tour and banquet including eleven spouses. Dr. Kittrell said preregistration helps the people planning meetings and has improved since the past meeting.

Membership Committee Report

Dr. Joe McFarland, Membership Committee Chairman reported on membership and the RCAS homepage. The committee is now looking at expanding membership in other states. Dr. McFarland encourage members to go back to their state and tell those who did not attend we had a great meeting and will plan a program at the Fall Executive Committee Meeting to help encourage people to attend. Dr. Kittrell and Dr. Findlay Pate will contact other states and encourage them to get involved. According to the by-laws, anyone from any state and organization is eligible to join RCAS.

RCAS Homepage

Dr. McFarland passed out instructions for the listserver. He said if there were any problems with incompatibility etc; to contact him. He encouraged the group to keep messages brief and not to send documents to the homepage. Dr. McFarland said ideas are needed for the web regarding what do we as a society think the homepage should be.

Treasurer's Report

Dr. Jere McBride distributed the Treasurer's report. He discussed the program expenses for the meeting last year totaling \$3774.02. Approximately \$1300 less was spent this year because Mr. Carl Tart was able to arrange for North Carolina to print the proceedings at no cost. The group expressed their appreciation to Mr. Tart. Dr. McBride said as of 1/1/98 the balance was \$5019.95.

RCAS Directory

Dr. Phil Hunter asked state representatives to let him know if they had not received and e-mail message he sent about the directory requesting state address corrections, etc. He said if states wanted to submit color maps to send them to him and could make copies. Dr. Hunter said he would make hard copies and also put the directory on the webpage.

RCAS Proceedings

Dr. Dennis Onks discussed the following three changes in the proceedings. 1. Minutes will be published in the RCAS proceedings prior to the annual meeting with a disclaimer that the minutes have not been approved by the membership. 2. Because of the lack of full reporting for the 1997-98 meetings the proceedings are not complete. 3. The Executive Board has approved the purchase of a recording device. He asked the state representatives to send copies of the RCAS proceedings to their Dean and Director and library. The group recognized Dr. Onks for his efforts with the proceedings.

Report of Committee on National Society

Dr. Kittrell discussed the committee meeting. It was brought up RCAS functions as a national society with states outside the southeast participation. RCAS does not plan to dissolve its association with SAAS and will meet with SAAS next year in Memphis. The committee discussed the possibility of having the RCAS Annual Meeting during another time of year and will continue to look at pros and cons of RCAS becoming a national society. Dr. Kittrell said the organization will not change without a vote by the membership. SAAS is investigating the possibility of holding their meetings at three permanent locations.

Election of Officers

Mr. Butch Withers, Chairman of the Nominating Committee made the nominating committee report and recommended the following slate of officers for the upcoming year; Dr. Findlay Pate, FLA.-President, Dr. John Robinson, AR.-First Vice President, Mr. Dennis Thompson, GA-Second Vice President, Mr. Carl Tart, NC.- Secretary, Dr. Jere McBride, LA-Executive Treasurer. Dr. Joe Musick made the motion nominations of the Nominations Committee cease and elected by acclamation. A unanimous vote by acclamation was made in favor of the motion.

Other Business

Dr. Kittrell thanked Dr. Pate for his role as Program Chair and the Executive Committee who helped plan the program. Dr. John Robinson was recognized for his work on the newsletter and Mr. Thompson was recognized for his role as Secretary.

Dr. Kittrell turned the program over to President-Elect Dr. Pate. Dr. Pate recognized Dr. Kittrell for his hard work this past year. He told the group the Fall Executive Committee meeting will be held in California. He said the meeting is open to everyone and will extend an official invitation by letter inviting everyone to attend including Center Directors for the western U. S. Committee assignments for this year were distributed.

1998 Fall Executive Board Meeting

Dr. Paul Sebesta was asked to make comments regarding plans for the fall meeting. He told the group they are excited about the meeting in California and thanked Dr. Hunter and the Tennessee delegation for deferring the meeting to California. Dr. Sebesta presented to the group possible itineraries those attending the annual meeting from California had discussed.

There being no further business, the meeting was adjourned at 12 P.M.

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 <u>active member</u> 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.

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:

- Serve as overall coordinator of Society activities;
- Preside at annual meeting;
- 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;
- Appoint Nominating Committee in accordance with By-Laws;
- Appoint Local Arrangements Committee Chair;
- Serve as a member and attend Executive Committee meetings;
- Appoint all other committees as needed;
- Serve as Executive Committee Chair.

Section 5

Duties of the First Vice-President shall include:

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

Duties of the Second Vice-President shall include:

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

Section 7

Duties of the Secretary shall include:

- Following the annual meeting, report new officers to Secretary of S.A.A.S.
- Responsible for registration at annual meeting;
- Collect fees at annual meeting;
- Prepare minutes of all business sessions; prepare attendance roster from registration cards; and send copies of each to incoming and outgoing Presi dent and Executive Committee officers;
- Mail programs and other appropriate information to membership;
- Serve as a member and attend Executive Committee meetings.
- Maintain contact with S.A.A.S. Secretary throughout the year on appropri ate matters.

Section 8

Duties of the Local Arrangements Representative:

- Survey assigned meeting room well in advance of annual meeting and de cide if adequate;
- Set up and arrange for banquet and/or social;
- Arrange for coffee breaks at annual meeting;
- Arrange for visual aid equipment and other needed equipment at annual meeting;
- Coordinate all of the above with other Program Committee members;
- Shall have the option to solicit additional assistance from the membership as needed;
- Attend the Executive Committee meeting prior to annual meeting at the invitation of the President.

Duties of the Executive Treasurer shall include:

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

Section 10

Duties of the Society Proceedings Editor shall include:

- In association with the First Vice-President, assemble all program presenta tions of the annual meeting and edit for publication;
- Publish approved minutes of annual meeting and Executive Committee Meet ing as provided by the Secretary;
- Procure all needed publishing materials and report cost to the Executive Com mittee for approval;
- 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.

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:

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

<u>Section 1</u> - 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

1998 DISTINGUISHED SERVICE AWARD RECIPIENT

Dr. Dennis O. Onks Superintendent Middle Tennessee Experiment Station Spring Hill, Tennessee

Dr. Onks is recognized this year by the RCAS membership for his distinguished service and leadership towards enhancing the Society's mission of improving the administration of Agricultural research units. This award has been earned by service as an officer and committee member and by promotion of the Society to the Agricultural community. He began active participation in the Society with his membership in 1983. Prior to serving as an officer he served twice as the local arrangements chairman for the annual meeting. He was elected Secretary/Treasurer in 1991, Second Vice-Presidentin1992, First Vice-President in 1993 and President in 1994. During his tenure as President, the By-Laws were rewritten to simplify the Society's Officer responsibilities and reduce cumbersome procedures that impeded Society actions. He has served as Chair or member of committee assignments of membership, finance, local arrangements, proceedings and By-Laws. He has served and continues as Proceedings Editor since 1996.



Dennis Onks was born in East Tennessee and lived in Middle Tennessee through his teens. His association with his grandparents' dairy and the family beef herd led to his pursuing an agricultural career. He attended Tennessee Technological University and the University of Tennessee, Knoxville, where he earned a B.S. in Animal Husbandry. He continued at UT to earn the M.S. in Animal Physiology and Ph.D. in Animal Breeding. Since graduation, he has served as Superintendent of the North Missouri Center-Spickard, Missouri: the Highland Rim Experiment Station, Springfield, Tennessee and presently, the Middle Tennessee Experiment Station-Spring Hill, Tennessee.

Dr. Onks is a firm believer and strong promoter of the Federal Land-Grant System because this public research base has produced an astonishing record of technological discoveries. Should this system be replaced, America will lose their only unbiased source of public

information. He feels all members of the Agricultural community have the responsibility to maintain this vehicle of proven public information.

RCAS Committee Assignments 1998-99

Local Arrangement (Memphis)

Phil Hunter, Chairman John Hodges, Tennessee Dennis Onks, Tennessee Blake Brown, Tennessee

Awards

John Hodges, Tennessee, Chairman Randal Rawls, Alabama Bill Peterson, Kentucky

Nominations

Ben Kittrell, South Carolina, Chairman Butch Withers, Mississippi Jim Pitts, Alabama

Membership

Joe McFarland, Chairman Phil Hunter, Tennessee Jerry Berggren, Louisiana George Granade, Georgia Mike Phillips, Arkansas Rick Matheson, Oklahoma

Proceedings

Dennis Onks, Tennessee, Chairman Carl Tart, North Carolina Lyle Lomas, Kansas

Financial

Jim Jones, Virginia, Chairman Jere McBride, Louisiana Malcomb Pegues, Jim Smith, Mississippi Jake Fisher, Missouri

RCAS Expansion

Ben Kittrell, South Carolina, Chairman Paul Sevesta, 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

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 Hill
1995	- Edward Worley
1996	- Robert Freeland & Will Waters
1997	Joe Musick
1998	- Dennis Onks

PAST PRESIDENTS, RCAS

YEAR

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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