

AFTERNOON SESSION (1:24 p.m.)

MR. ROMINGER: Welcome back. We're ready to start the afternoon session. Secretary Glickman is testifying on the Hill and will be back here as soon as he finishes up on the Hill. Now, we want to talk this afternoon about the issues that are on -- you have then on your agenda, about how the USDA can best improve food safety through the FSIS organizational changes or regulatory reforms, or more reliance on user fees, effective resource allocation and other means.

Before we go on to that though, I do want to ask if there is anyone who didn't get a chance to speak this morning who wants to make some comments on legislative process and possibilities of legislation? Is there anyone that wants to speak on that subject before we go on to the afternoon subject?

MS. MUCKLOW: Can I just make one comment with respect to a legislative issue that might be part of legislation? This is Rosemary Mucklow, National Meat Association. One of the concerns that we've had for quite some time and we raised it when we came -- Phil Olson raised it on the last day of the September hearings -- was inspector accountability. And under the Federal Meat Inspection Act and the Poultry Products Inspection Act, there's a very rigid standard for people in the industry to meet in order to be in a position of responsibility in a company under a grant of inspection. And if those people are guilty of more than one misdemeanor violation of the law in connection with food, or if they are a convicted felon under any provision of felony violations of the law, they may not be holding positions of responsibility in a meat or a poultry company.

Unfortunately, the other side of the table, which is the people in positions of responsibility in those plants for the USDA, are not held to the same standard. And I've had two instances in the last several years now, where we have had inspectors, kill line inspectors, who are indeed, convicted felons. And one was for drug peddling charges, the other was sexually molesting his own underage daughter. And in both

cases it took a great deal of effort when their behavior in the plant continued to be of the nature that the felony violation was, in order to get the Agency to do something about this.

And what did the Agency do? The Agency move them to another plant. They are still, both of them, in the service, carrying on the responsibilities of a law that has criminal penalties to it. And I think we need to address that issue in legislation. There needs to be a better level of accountability and certainly a matching of the standard to be met by people in positions of responsibility, whether they work for the company, or whether they work for the Agency. I'd just like that to be a matter of record here for legislation for the future.

MR. ROMINGER: Thank you. Any comments on that, or any other legislative topic? Okay, if not, I would ask Mike Taylor for his opening comments for the issue that we want to discuss this afternoon. Mike?

MR. TAYLOR: Thank you. I think this morning's discussion really foreshadowed pretty well the issues we suggested for this 1:00 to 2:30 timeblock having to do with resources. A central element of the strategy that we're pursuing to improve our program and improve food safety, is centered around this issue of how we can both ensure that we have adequate resources to do our job, and then make the best possible use of those resources to improve food safety.

And we consider HACCP to be a framework that will move us in that direction by as I mentioned this morning, we also see a very critical need to look at our institution, top to bottom -- bottom to top as you like -- and really consider some very major streamlining changes, very major redefinition of roles within our Agency, all aimed at ensuring within a HACCP framework, we are making the best possible use of our resources to improve food safety. And I think we've been very candid, and I think the materials that have been generated by the top to bottom review have certainly revealed that there is substantial room for improvement in

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the way in which we use our resources. And we feel, again, being successful on this is as important as being successful in the rule-making that will create a regulatory framework within which we can make better use of resources to improve food safety.

The issues we raised include the short-term problem, or I should say, the immediate problem we have of inspector shortages, and I mean, there is real stress in our program in the field today meeting our current inspection obligations with resources that frankly, are not up to it, aren't adequate for it. And we're, as we transition to the system of the future, there is no question that -- and with the budget constraints that exist in the Federal Government, we're going to be in a strained environment, and strained within our Agency. I think it clearly imposes strains on the industry which is, in many cases, dependent upon the presence of our inspectors to operate.

And that subject, we certainly think deserves and could use some airing this afternoon. But then we also just appreciate the input and views on, in terms of where we are in the top to bottom review and suggestions/thoughts about how, in general, we can be making the best possible use of our resources, both near-term and long-term. And then we of course, you can count on us to raise the user fee issue, which is a longstanding and difficult one, but it is very hard in today's budget environment, not to come to grips with, or be forced to come to grips with, the issue of alternative sources of revenue to support an adequate inspectional program.

So those are the questions. It really revolves around best use of resources. I look forward to your input.

MR. ROMINGER: Thank you, Mike. Who wants to start the afternoon discussion? Okay, Steve.

MR. KRUT: Steve Krut with the American Association of Meat Processors. In a review of the Agency's bottom to top or top to bottom concept, and looking at itself

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and redefining its mission, I've heard a lot of discussion this morning about the need for improved training. And I think what I read into the top and bottom review is that they're training prosecutors and not inspectors. I think the Department has had a very strong adversarial role with this industry, and I think that this just seems to foreshadow that this is going to be the area that will be enhanced without a lot of emphasis on specialized areas such as microbiology or sanitation.

We strongly advise against that. I think the Department has had a good Compliance Division that has been effective. I think there's a role for the marketplace in there to think part of that contributing factor to good compliance. But at the same time I think it's incumbent upon the Agency to use its resources wisely, and we don't need a new battery of lawyers wearing regulator or inspector uniforms. I think they really need to be inspectors.

One of the issues regarding user fees, I think this has been debated probably every year for the last decade or so, is the appropriateness if you will, of should the plant that is inspected pay for inspectors. In much of the discussion this morning I think there were a lot of points brought out that dealt with the concern that we want a third-party. We want a third-party that is not necessarily obligated to that plant, or in a sense, financed by that plant. And our concern here is that you can't have it both ways. You can't pay for your inspector, at the same time and expect them to fill a role that is totally distant from that plant.

So those are the concerns I would like to share with you, and again, the issue of total reliability being put on the industry itself and removing all liability from USDA, whether it's fear of lawsuits or whatever it may be, I think the key here is that the Department has a role in improved food safety that goes hand-in-hand with the role of the operator of a plant. You can't point the finger at one or the other. I think it has to be a team effort. I think things like the joint training aspects in HACCP and improved safety inspection, they do go together, and again, I would hope

that as the Agency looks at this top to bottom review, building on an adversarial relationship is an incorrect way to follow.

Thank you.

MR. ROMINGER: Thank you. Mr. Lochner?

MR. LOCHNER: Jim Lochner with IBP. I want to comment specifically on the inspector shortages and explain to the Administration what happens when, for lack - the root cause is the hiring freeze and the lack of inspectors in some particular plants. If there's a combination of vacancies, coupled with vacations, coupled with routine call-ins, all of a sudden there is insufficient inspectors to staff the line for the line speeds that we are anticipated running.

We've had several situations over the last several months, and they are occurring more and more frequently, but the scenario is, we're expecting for example, to run 900 hogs an hour. There's insufficient inspectors, the IIC's in the line, all the processing aides are in the line, and every available inspection personnel in areas in the line, but to fulfill the requirements in the regulations, there's only sufficient numbers to run 500 head an hour.

Now that creates a tremendous situation for us. The most important one is customer service. If you were expecting to put product out, we don't build inventory, we try to move the product out. Most of our plants essentially hold less than one day's inventory because we try to move it, get it on the road and get it down to the customer. So all of a sudden we have to deal with customer service disruption. And we have livestock issues. We were targeting certain producers to deliver on certain days and all of a sudden we create backups, so we create short-term situations on livestock oversupply in certain areas.

Our scheduling people, who work long days anyhow, all of a sudden are in there half the night trying to figure out how to move orders around. And the long and the

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short of it is, we cannot exist for this undetermined interim period until we address this issue. We either have to change the regulations to accommodate the situation, or come up with a short-term plan, because we cannot continue to have what I call, these fire drills, that we put a variety of management people through as well as inspection management.

And then I feel tremendously sorry for the inspector-in-charge who has to try to deal with all of this, and we're talking to his supervisor, the circuit supervisor, we're talking to the area, and we're talking to the region, and we're talking to Dr. Reed's level, and I've written several letters to the Secretary's level. And this has been going on for several months. It has to be corrected. We cannot continue to have this disruption of customer service. Furthermore, I think it must be recognized that when all the inspectors are on the kill floor in a plant, that other duties are not getting done, and we are putting the inspector-in-charge in a situation where he cannot have his staff perform essential functions. I'm pleading for a short-term resolution on this problem before major budgetary issues are resolved.

MR. ROMINGER: Thank you. Stan?

MR. EMERLING: Stanley Emerling, representing the National Association of Meat Purveyors. Some of the things we've talked about may require legislative action, but it's been my experience that FSIS can improve its oversight anytime that it really feels it's necessary or is pushed into it. Examples are things like going into nutritional labeling or safe food handling labels, all of which had impacts into retail food service and consumer areas, where FSIS used to like not to tread. They stayed away from them saying they lacked the authority, but when the occasions came up they found a way to exercise it.

And I think once resources are better deployed once HACCP is in place, and some of the programs eliminated that are in this top to bottom review situation, an

if the personnel is spread out more evenly across the whole spectrum, I don't think that you will have a problem, either with dollars or manpower, and maybe that's assuming that the dollars would stay the same. But there certainly wouldn't be any inspector shortages so I don't think that you need to worry about filling that hole if all the other things come together properly.

And then with respect to inspectors, maybe it would be good to have a system where we threw out -- where they had to be more technically sufficient. And I think when you look at filling the ranks and doing it, that you should take a look at finding people who will really fit the needs of a modern food inspection system that goes on into the future in the 21st Century.

And I guess now I'd like to verify my reputation as a radical. I would like to talk about user fees. I don't believe that they are really necessary or appropriate in a general oversight types of system that we have. That's designed for the public good and should be underwritten by public funds. But there is a situation when you come in under progressive enforcement actions, where additional inspection oversight needs to be given to plants who for some reason, have failed to meet their obligations, and that does happen. We hope it does happen too often and the incidents of it aren't great, but they're there, and it's one of the things the consumers are worried about.

I guess it's going to be one of the things that is a focus of this press conference tomorrow, and we heard was alluded to here previously. So what I'm going to suggest is that we make any of those operations which fall and properly, that's it's been validated that they properly fall under progressive inspection that needs more oversight, that they be required to pay for it. Now, if you want to call that a user fee, that's a user fee and I'll call it that. But if I were an establishment that was having some problems and I thought I was going to have to pay to make myself whole so I could stay in business, that would be as big a market incentive as

I would need, not to be in that situation, plus the public relations fallout that could my business and put me out of business. So I would think if that was a possibility, if we could come to a realization of that kind of handling of the situation, I'd be for a user fee in that respect.

And that would be the end of what I had to say and hope I come out of here alive.

MR. ROMINGER: Okay. Thank you. George?

MR. BERAN: I would like to direct a number of comment toward the top to bottom review. First of all, I would like to urge that among the options that are variously presented in the top to bottom review, that guidance always be by the fact that FSIS must be proactive and must take responsibility. As we have commented, Government roles should inspect meat and not just records. I would like to urge that the responsibility of inspection services extends to continuous professional examination of animals and birds at levels that are commensurate with risk, presented in slaughter plants and through the processing of meat and poultry products.

Secondly, I would like to note that the HACCP system is preventive, not retroactive, and that FSIS involvement with HACCP programs in the packing plants and processing plants, must focus at that point. We are not seeking a system in which we find out what went wrong after it went wrong. In other words, we don't close the barn door after the horse has escaped and run through the flower garden.

And I would like to state a number of points in connection with that. First of all, that FSIS at local level, needs to review HACCP plans, basically prior to their real initiation. Secondly, the need for training for both the inspection and industry in HACCP, preferably together, certainly involving comparable coverage in the training. Thirdly, I would like to see the HACCP system in a plant and the FSIS inspection in a plant, that these be interactive, and that if a plant is going to have

reduced level of inspection where they are dealing with uniform animals and birds and young animals and birds, as compared to cull animals and spent breeding stock, that that needs to be interacted with the HACCP system in the plant rather than independently, so that they do fit together.

And fourthly then, that FSIS should monitor and verify that HACCP operations within a plant, but that that not be retroactive, that that be right up from the very front and continuing all the way through. Some of these are in the top to bottom in various ways, but I am concerned where options are put forth, that would change that type of philosophical approach. Thank you.

MR. ROMINGER: Thank you. Lee?

MR. JAN: I'm Lee Jan, representing the National Association of State Meat and Food Inspection Directors. I'd like to address two things here, the inspector shortages --and what I'm going to say is way out of the box and should be considered, or may be considered, but you may have to give it some thought before you go that way -- and I'd also like to address Dr. Beran's remarks about FSIS approval of HACCP plants.

On the inspector shortages, it's a reality that the plants, industry has to deal with, as a reality USDA has to deal with, it's a reality that States have to deal with. It seems to me that a possible solution -- and listening to Mr. Lochner at IBP concerned about an inability to provide or meet his customer demands because of the inspector shortage -- I believe there may be enough room in the current legislation to allow a plant that needs more inspectors than FSIS can supply, to employ individuals to be then consigned and appointed by the Secretary, to work as inspectors under the supervision of FSIS inspector.

So let's say a plant has a need for 10 inspectors to meet the needs of the plant but resources only allow eight or seven, resulting in a 75 percent reduction in the ability of the plant to produce what they want. Our concern, FSIS's concern, should

be public safety and the speed that the plant should be allowed to operate is at a rate that the inspectors can provide the inspection necessary to ensure the safety. If the plant has a need to go faster to meet their production standards and the profit which is a legitimate motivation for them -- you know, they have to have profit -- but if that's what it takes, it may be to their benefit to employ the individuals to then be appointed by the Secretary to act as inspectors, and even though the plant's paying for them, they would be consigned to the FSIS supervisor, or inspector-in-charge.

That would give the plant an opportunity to produce at the speed they need to. It would provide the protection, and it would be a form of user fees. I mean, with user fees you pay the Government to pay for the inspector. In this case, they'll pay directly to the inspector on the payroll. And you know, I know it looks like maybe some conflict of interest, but I wanted to throw that out as at least a possible solution to think about as another way.

The FSIS could also contract with States to provide some of these inspections within, State inspectors side-by-side with the Federal inspection. Contrary to some comments heard here today, State inspectors get the same training as FSIS inspectors, in the same school side-by-side. So you know, you'd already have that. If you did consider having industry-employed individuals to inspect, of course a requirement would be that they go and receive exactly the same training at FSIS schools or equivalent, whatever FSIS deems to be equivalent.

The other issue regarding FSIS approval of HACCP plans before they're put into place. I have concerns with that for a couple of reasons. I think it would delay HACCP to a point where it would just be unmanageable, because the numbers of plants out there and the number of plans. The other thing, if you have an individual or a team or someone approving plans and they're sitting in an office somewhere or maybe come to the plant and they really don't know the plant's operations, and if

they approve a plan that doesn't work, it's always a nice way to say, well you know, it was approved, it must work. I think it would be better to have the HACCP plan validate itself through production of data and from verification tests and monitoring plans.

Thank you.

MR. ROMINGER: Thank you. Down at the end. Okay, Paul Korody.

MR. KORODY: I'm Paul Korody with ConAgra. On the question of inspector shortages we share IBP's concern. We are beginning to see that in various parts of the country. Also, I have to commend the inspectors on the scene of trying to do the best job they can in filling the shortages. But I'd like to ask Dr. Reed or someone from the Administration, as I understand it now, we're in the 13 percent shortage. Looking at the short-term of the next six months, are going to remain static or do you see that level falling below 13 percent? And if that's not a fair question, I apologize.

MR. ROMINGER: Who wants that? Which one of you here?

MR. TAYLOR: Let me make a general observation and Dr. Reed, who manages this, can elaborate. We are in the midst of evaluating what our practical options are to manage through 1996 given the appropriation. One decision we need to make and will be making soon is, is what kind of relief if any, can we provide for the in-plant inspection hiring? We put a freeze on all hiring subject to just emergency exceptions, late in the summer. That freeze will certainly remain on all hiring outside of the plant, but there is a question and we're going to make a decision very soon, about what relief if any, we can provide given the appropriation for in-plant hiring.

But I think in any event, you know, as I said earlier, we're going to remain under stress, and so it's a question of not removing the stress, but there may be some room for us to slightly reduce it. Dr. Reed?

DR. REED: I think Paul mentioned a figure of 13 percent vacancy rates in slaughter. It may be actually more than that. And what we're doing is, we're taking resources out of the processing areas, putting them into the slaughter areas, and we'll do that as long as there are enough resources to take.

MR. KORODY: If I may, we appreciate that. My question is, have we hit the floor, or do you think things will get worse or will things get better if Mr. Taylor's process works? For our planning purposes is why I'm asking, or if you prefer --

DR. REED: I think we've hit that floor.

MR. KORODY: Okay.

MR. ROMINGER: Okay. David?

MR. CARNEY: Dave Carney, National Joint Council. To take off on what Dr. Reed says, the input that I'm getting from the field, not only from the inspectors but from Veterinarians, is that we haven't hit the floor. After the first of the year we're going to hit the basement. There's a lot of inspectors out there and Veterinarians that are waiting until after the first of the year to retire. I've told Mr. Taylor several times that we're at a crises level right now as far as being regulatory inspectors and staffing plants. But morale is at its lowest, inspectors are fed up with the way things are going. So I guarantee you, after the first of the year you're going to see a lot more inspectors bail out.

MR. ROMINGER: Okay, thank you. Carol?

MS. FOREMAN: Thank you. Carol Tucker Foreman, and I assure you that my comments here are only for myself. What I've heard since we started this discussion is that -- really since this morning -- that there's pretty heavy agreement about wanting continuous inspection to continue at least for the near future. So we want continuous inspection but nobody wants user fees.

Second, I understand that people want the USDA and the inspected plants to be teammates, not adversaries, but we don't want user fees because that would give the impression that USDA and the industry are teammates and not adversaries.

There is, trying to think creatively, another couple of alternatives. One is that we could have the industry establish a private non-profit corporation to do inspection. Under those circumstances, industry could hire, fire inspectors, set any standard it wishes for inspector intelligence, training, educational requirements that the industry wants. Industry could set any standard for public safety that it wants, and the only requirement would be what the industry felt was necessary to maintain the industry's market. And we've heard again and again today that that market is a powerful master. Why not let that market rule.

There would be a public benefit from this. First of all, we could abolish that Federal seal of inspection which drives me crazy, and then the public wouldn't be misled by having the Government guarantee that a product is wholesome when we all know that the product is contaminated -- may be contaminated with pathogenic bacteria. The public would know that they bought at their own risk. And in the process, the public could save \$500 Million plus per year, contribute to reducing the Federal deficit, and we'd also save several thousand Federal employees, making I think, everybody in the world happy since everybody thinks there are too many Federal employees. I think that's not an unreasonable thing for the Department to consider. I'm not really joking.

Another possibility there might be to have a publicly chartered private corporation in which the public, the American people, would decide that there is some level of food safety they want, and the industry could have some backup that the system promised the people, some basic level of sanitation in safety and would therefore have some market protection.

The fees could be paid into the privately chartered corporation and a system could be devised in which you might have some public members of the Board of Directors of that private corporation. Once again, clearing up a lot of the problems that we have with lack of funding and what I think is clearly going to be a continuing problem with getting sufficient appropriations. Once we switch to a HACCP system and it is in place and actually works, I think we're all going to have a very, very, very hard time suggesting that as there is a greater and greater need to cut the Federal spending, that we have to continue to have all those line inspectors.

I think we're all in agreement that once HACCP is in place and is demonstrated to work the way that we anticipate that it will work and that public safety can be protected, that you would assign inspectors at least to do different kinds of jobs than they do now. I think that there's a good chance that Congress will respond to that by saying, the hell you say, we're not going to assign them to do those different jobs. We're going to take this opportunity to save money and save slots.

So one way that we might think about doing that is to come up and craft a publicly chartered, private, non-profit corporation to see if it might reasonably do this job the way we want it done. Thank you.

MR. ROMINGER: Thank you. Rosemary and then Roiner.

MS. MUCKLOW: Thank you, Mr. Rominger. Just as we talked this morning about taking a law that was the first mandatory law, but as Carol pointed out, not the first meat inspection law that's been around for 90 years, so we take an Agency whose mission and activities have changed over even the least 30 years since the 1967 law. For awhile it was known as the Consumer and Marketing Service before its regurgitation and divorce from other activities. And if indeed, you look at what the Agency does, it includes a variety of things in addition to food safety issues.

And one of the discussions that we should be having maybe is, what are the activities that it's doing that really don't apply to food safety, and are those things

that ought to be broken off and managed in some different way. And I think we touched on this in the September meetings when we talked about things like label approval, blueprint approval, chemical approval, equipment approval, there may be a lot of other pieces that are not directly meat and poultry safety issues, that need to be evaluated as being part of the basic mission of food safety inspection service. Always an argument for everyone that it ought to be there because it's an ancillary piece, but is it an ancillary piece in such a way that it would be better funded differently than basic meat and poultry inspection which, I think if we were to put that out to a vote, people would still say, we need the Government there doing that.

Dr. Jan raised some interesting thoughts. I know in California, and Rich you'll remember this because I think you were there when some of it got started, the licensing of individuals to conduct inspection activities in some of the State plants. That may be something akin to what Dr. Jan was suggesting and would certainly be worthy of investigating to see if that could help to address some of the vacancy positions, particularly where you have many inspectors in a plant and you may have the ability to use some intermittent people such as even the AMS uses. So there may be some other opportunities there and I would think that that could be suggested.

While I have the microphone I do need to address the suggestion of my good friend, Mr. Emerling, and he has a lot more faith than I do in the fact that every time that the Department decides, or the local inspection people decide that somebody's progressive enforcement plant, that they're right. Until I would have a much greater assurance of the consistency of applications of those progressive enforcement rules to make sure that inspector A through Z all apply them pretty much on the same standard, I would be very, very uncomfortable agreeing that there might be a way in which we would make those people, in addition to all the other hardships they go through, pay for the additional inspection. So I would want to -- that would have to be subjected to a lot of investigation before it moved forward from my view.

Thank you.

MR. ROMINGER: Thank you. Mr. Mueller?

MR. MUELLER: Thank you. My name is Rainer Muller. I'm here from the organization called STOP, and I'd like to just add a point to Carol's point about the two different ways that we can go. I can add a third way to go. One that I don't think any of us in this room would like to see. And that is, consumer groups declare American beef, American meat is unsafe. What will happen then? The consumers won't buy it, and if the consumers won't buy it, it doesn't matter if we don't have 13 percent inspectors or 15 percent inspectors, or 20 percent inspectors less. We're not going to need them at that time. And I don't think anybody in this room would really like to go for that.

The other thing I suggest is, that we don't have to reinvent the wheel in this country. We're not the only country that eats beef, we're not the only country that eats poultry, we're not the only country that eats. All other countries are doing that too. Other countries are facing the same problem. Scotland is facing this problem, England is facing this problem, Australia is facing this problem. And I think we should take a look to see what those governments are doing for their people. In fact right now, the government in Australia is in some sort of trouble with E. coli O111 instead of E. coli O157.

Two years ago this week, my 13-year-old son died after eating his favorite food, a cheeseburger, at a fast-food restaurant in Southern California. I've met with President Clinton, I've met with Vice President Gore, I've given testimony several times already this year here in Washington. At my own expense I've flown out from California to do this thing. My problem with this is, this has been two years now it's been since my son has died. We haven't done anything. We have done absolutely nothing. We've talked an awful lot, but nothing's been done.

We have an expression on the farm. You've either got to get off the pot. I think all the rest of you know what that expression is. I think we need to get off the pot here and really start getting some action. With that, I want some action started.

MR. ROMINGER: Thank you. Caroline?

MS. DEWAAL: Caroline Smith DeWaal. Thanks. On behalf of the Center for Science in the Public Interest. In a sense I see this as problem of the Department's own making. HACCP has been long-advocated for reforming the system of meat and poultry inspection. In 1985 it was first recommended by the National Academy of Sciences and there's been numerous studies and reports from very reputable bodies since that time. We are now at the 11th hour. We are now at the point at which resources are being withdrawn from the Department and yet we do not have a new system ready to go. We do not have a new system ready to go into these plants.

There is a short-term and a long-term solution. I think we need to separate those two out. From the standpoint of the consumer group that I represent, and I think many other consumer groups around this table, we do not want to see a change in the carcass-by-carcass inspection program which is currently done by Government inspectors. There are some proposals in the top to bottom or bottom to top review, for having less of the actual manual work of inspection done by in-plant inspectors. And I don't have a problem with that. Getting the inspectors hands off the meat and having the employees at the plant to do more of the actual slicing and preparing the product for inspection is fine. But the actual inspection still very much needs to be done by Federal employees. There is a lack of trust which continues and which has a very long and strong history for why consumers do not trust the meat industry to do this job themselves.

In the short-term I would really urge the Department to find the money to fund the program. I've seen figures recently that says that USDA spends \$700 Million on agricultural research, and \$545 Million on the food safety and inspection service.

Well, we may not need that much research, and I don't know what that research is on, but we have a critical public health function which is not being adequately addressed. And I would urge the Department to find the money, or to go back to Congress and ask for supplemental appropriations.

I have a tremendous concern, which I have shared with the Department, that if you try to change too much at once, in three years from now when we have worse problems than we have today, we won't know why. We won't know whether it's because HACCP didn't work, or whether it's because the inspectors were taken out of the plants too early. We won't know. And that is very unfair, both to consumers who are relying on this Agency to make this problem go away, but also on the industry and on many of the proponents of HACCP who have long advocated that HACCP is the solution here.

We need to put this in place with the existing consumer protections in place, and not strip away those protections prior to knowing that the HACCP system, as the Department is designing it, actually works to produce safer products. In the long-term I think that we're all reasonable people. I hate to say that but I think we are, and you know, in the long run if there is not a need for Federal inspectors to do all the jobs they're currently doing, we'll know that. But let's see education in illness let's see some of the problems go away first, and not rush to make the changes before we see that the new systems actually work and actually deliver safer, cleaner products to consumers.

Thank you.

MR. ROMINGER: Thank you. Dane.

MR. BERNARD: Thank you, Mr. Secretary. Dane Bernard, National Food Processors Association. I think Ms. DeWaal included me in that group that's reasonable. At least I hope so. My question is very simple and it's a clarification

from some things that were said this morning but it's very germane to the subject that we've been discussing for the last hour or so.

Within the current statutes, does the Agency have the authority to take, for example, an inspector or not do the degree of inspection right now, say in a canned beef vegetable soup plant, to take that inspection force and put it in what might be termed a higher risk sector, and go to an inspection as needed basis in those what might be considered low risk areas? Thank you.

MR. ROMINGER: Mike, you want to answer that?

MR. TAYLOR: With respect to processing plants, the statute as we understand it, and I think this is a fairly widely held and settled understanding of the statute, anticipates, creates an obligation for us to maintain daily inspection in processing plants. We have flexibility with regard to the intensity of that inspection and we can move some resources around as we do, taking into account hazard with respect to what we do when we get to the plant and the intensity of the oversight. But there is a core statutory obligation that we take seriously and make the best effort we can to meet, which is a daily inspection.

MR. BERNARD: If I may follow up, then?

MR. TAYLOR: You may.

MR. BERNARD: Thank you, sir.

MR. TAYLOR: You must.

MR. BERNARD: Otherwise I can't go home. What you've said then is that, even though there are latitudes that you now utilize in interpreting the statute, the statute does prevent you from, what I would consider to be a full utilization of your inspectional force in those areas where I think most of the discussion has centered the greatest need exists. And if so, then I would assert that possibly that should be something that should be addressed in legislative change, if the statute is that binding. And possibly that needs to be addressed.

Thank you.

MR. ROMINGER: Thank you. Is it Dwane?

MR. SWIGER: My name is Dwane Swiger. I'm with the West Virginia Department of Agriculture Meat and Poultry Inspection Program. And I think it's a pretty obvious fact that there's a big manpower shortage within USDA. And State programs run into that somewhat too. And I'd like to lead into a possible, or at least a suggestion that might help alleviate part of that problem, but to lead up to that I'd like to comment on a couple of things that were addressed earlier this morning.

It was stated by someone, I'm not sure who, that State and Foreign systems of meat inspection are not as good as Federal. Well, the Foreign programs I'm not sure about, but the State programs, I think that's stretching the fact a bit. And the reason I say that is because State inspectors are trained in Federal training centers or they're trained by Federal USDA FSIS certified trainers, State trainers. They use the same materials that do the Federal trainers in College Station, and they use the same methods because they're actually taught to do that in training sessions of their own.

Thirty-five percent of the State inspectors in West Virginia would be totally unacceptable to be untrained. We have no State inspectors that are not trained. That's just totally unacceptable to us to have even one.

Another point that maybe I could bring up is that the laws for the various State programs must be at least equal to the Federal. Those things are not written and the States don't just state the fact that these are equal. These are sent to FSIS and they're determined to be equal to, and not by the State but by USDA themselves. So I think there's another reason.

On the statement that each State program being determined at least equal to, they're determined equal to on a routine basis by comprehensive reviews, in-plant reviews and reviews of records in the State offices themselves by USDA FSIS

officials. There again, I think, if they were found not to be at least equal to, there would some drastic action taken on the part of USDA. That's provided for.

Again, on the equal to, someone said that equal to should be same as. Well, I disagree with that also and maybe we should make a point of the fact that same as would apply to the Federal as well as the State, because you can go from region to region within Federal program, or area to area and it's not the same as. It's equal to but it's not the same as. There are policies that come out of each region that are written by those regional authorities that are different from region to region, and those are based on circumstances that exist in those regions or areas themselves. That's the same thing we do. Exactly the same thing we do in the State programs.

And now to, I guess, my suggestion to maybe help alleviate some of the shortages as far as inspectors go, in the Federal program. I think, it's been touched on numerous times this morning but I'm not sure anybody's just come out and said it. To give an example, in West Virginia there have been numerous plants, small, simple fabrication, slaughter and processing plants that have opted and obtained Federal inspection in the past several years. The only reason that they elected to that mainly, was for interstate shipment. Had State programs been allowed interstate shipment years ago, a lot of those plants that you're staffing now and our inspectors are passing on the road and could be staffed by our people because we already have them next door, we already have them in the areas, we can take care of those things with support from Federal. Financial report, technical support and so forth.

That wouldn't be a problem for us. As a matter of fact, I think it would be a good idea. Now, we're not wanting to take the large plants like IBP and ConAgra. I think you fellas are much more suited to do that than we, but the small plants, I think it's been determined that the Federal system doesn't work as good as the State system does in those type plants. The larger ones it does, there's no question about

it. We wouldn't even want those things. We'd take them if we have to, but we don't want them, we don't desire those.

But I think that would help nationwide -- and West Virginia would be a small drop in the bucket -- but I think nationwide, should all those small, Federal plants that now exist, be given back to the State programs, or if interstate shipment were allowed to exist or to come about, a lot of those plants will probably go back to State programs. Your inspectors won't have to staff those small, simple plants that you have difficulty with. They have to travel miles and miles to get there and do all the things that you do in the larger plants. You can use your resources on a risk basis again, where they're needed more. Like I say, we're already there. We can take care of them. The support.

And one other thing I might make mention of is the fact that the training facilities that USDA has now, I think are being cut back drastically. It's a real shame because that's a facility, I think even when it was used to its capacity -- well, it's never been used to its full capacity. It's something that has a real potential and it's just not being utilized.

And I thank you, sir.

MR. ROMINGER: Thank you. Nancy's next, and then we have a couple down at this end.

MS. DONLEY: Thank you. I'm Nancy Donley from STOP, Safe Table Our Priority. I'd like to make one comment and then I have a question. My comment is, I also feel the same way as Caroline that, where we need to really kind of see how we can find some money somewhere. We all know that there's an awful lot of waste going on and there's got to be some places where we can get some much-needed dollars. And I'm going to throw something out. In Chicago we have what's called a head tax and I know that's a real nasty word in this town, but wherefore the City of Chicago taxes a company per employee, that type of thing, just to generate some revenue.

Regarding user fees, you know, sometimes you've got to spend money to make money. And I really feel that anything that the industry can do, I'd like to remind industry, it's your product, but anything that you do will pay for itself if it helps restore consumer confidence in your product. So if you have to kick in and start paying a little bit more to get the inspection that is very sorely needed, it will translate into increased revenues.

My question, I don't know who to even address it to. Other agencies that have inspection or regulatory functions of some sort, is there something that we can learn from them as far as ways to address the shortages issues, as a for instance? Have they run into these things in the past and how have they addressed the problem? Instead of trying to come up with the solution ourselves here, is there someone we can turn to?

MR. ROMINGER: That's a good question and we'd like to have any of you that would like to address that, certainly I think there -- probably most of us can come up with some inspection programs in other commodities or other industries where they have different means of paying for those inspections. So I'd like to hear any comments that you have. I certainly --

MS. FOREMAN: The reason it works in Chicago is that they have a tax on all the dead people who vote.

MS. DONLEY: Of course, all our business is moving out of the city and into the suburbs, too, but that's another story.

MR. ROMINGER: Okay. On the corner down here. All the way in the corner. I couldn't quite read the name. Repeat your name please, okay, and then we'll get --

MR. PARMER: Okay. I'm Dan Parmer and I'm with the AVMA Council of Public Health Food Safety Committee. In our portion here, we sort of have our own little specialties. I've kind of been waiting for our friend Carol Tucker Foreman to say something about what I was about to talk about but she didn't mention it when she

talked. We have met before. I know how she feels about the consumer as a part of it, and this happens to be my interest.

I was formerly the Director of the Food -- not only the Food Safety but at the Disease Outbreak Control Center in Chicago Health Department, and I've had a little experience with Food Safety. What I'm concerned about too, in addition to this, and really didn't even know how to mention it because we're going in a direction that seems to stop at the plant, which is fine and it's all well and good, but I've got new: for you. If you think doing a HACCP program or any other type of program that's going to alleviate your problems, and if you stop with the plant and you don't really take it from the farm to the fork, so to speak, you've got a problem, because you're going to get recontamination and retail outlets that has nothing to do with the producer, the plant or anything of that type.

So it's an important situation that we've got to work with here, that the Federal Government, even though the City Health Departments, State Health Departments do the retail in that area, there has to be uniform rules and regulation: throughout the United States so that New York, Los Angeles, Chicago, all the other cities, are doing relatively the same thing, and that would have to come under FSIS control along with the FDA with the warehousing and what have you.

But I think, and I'm not trying to throw another fly in the ointment so to speak but the thing is, we're going along here with this idea that we get a few inspectors, shore up our inspection service and raise our friend Mr. Taylor's salary and a few other little things, this will just go away. Well, it's not going to go away unless we take it all the way. And I'm very serious about this, and I believe that Ms. Tucker will agree with me, that we've got to be concerned about things that are happening in the retail place.

You know, just because the guy in the plant goes to the bathroom, doesn't wash his hands, or if he does do it, it does not change the situation with the guy that's in

the grocery store in Chicago that goes to the bathroom and doesn't wash his hands. So recontamination -- and then in the end all that's been mentioned about the cooking situation, that also applies. We're going to have to have little, simple things like putting chlorine on your washboard after you've got through cutting your chicken up before you cut your salad. All these things are important and it's got to be an across-the-board situation that we have to work at. And I think there has to be one leader in the field and that field appropriately would be the United States Department of Agriculture Food Inspection Service.

And another thing, it's one of my pet peeves, that we ought to consider too is that we stopped in Chicago. There's no more inspectors in Chicago. Inspectors inspect buildings, inspect streets, sewers, whatever you want. Sanitarians do work that has to do with medical problems. And I think one of the things you should do is get your people properly named as to what they are so they can have some respect in what they do. And I don't think it would require any Congressional -- maybe it would, I don't know, being as it's Washington -- but I don't think it requires a Congressional situation to change them from inspectors to sanitarians, and that's what they are.

So that's my little piece for this.

MR. ROMINGER: Thank you. Mike wants to comment.

MR. TAYLOR: Just to make a couple of observations. First of all, the issue of what happens at retail and including what happens as a result of food handling at retail is a topic that we set aside time for later. It's clearly a very important topic and you know, how do we educate, how do we train people to not introduce hazards at that stage is a very important question.

The issue of going beyond the plant, again, is very much a part of the strategy the so-called farm to table strategy, and indeed one reason why the resource issue is so compelling and so difficult is that, at a time of serious fiscal limitations, we

do see our job being broader. It does go beyond the plants, it does involve significantly enhancing what we do within the plants, but it also involves looking at transportation and storage and trying to work more creatively and effectively with the States at retail. And that's part of what creates this resource challenge that we're discussing.

MR. ROMINGER: Joe, in the back of the room?

MR. MUELLER: Don't we need to start somewhere, though? I mean, there's going to be a start somewhere.

MR. TAYLOR: That's what the HACCP initiative is about. I mean, it is about addressing that starting point within the plant to reduce pathogens, and the question is, how do you keep product cool, how do you prevent cross-contamination and re-contamination down the line? You have to look at every phase, and we are starting in the in-plant environment.

MR. ROMINGER: Okay. Joe Maas.

MR. MAAS: My name is Joe Maas. I'm with -- can everybody hear me yet? Joe Maas. I was going to talk about what the gentleman that spoke before me just brought up. I was going up to bring up the 'why'. I mean, the question is, is how can USDA best improve food safety? And I contend that they can do that best by following the products after they leave the USDA plants. And sometimes when I hear people talking today and at several of these meetings I've been at, it kind of sounds like we're debating as to whether we should institute regulations where there currently are none.

You know, we have a, should we inspect meat products? It sounds like that a lot of times. Should we implement the HACCP and so forth, in order so that we then have inspection of meat. And I just want to remind everybody, the saying goes that the meat industry is third behind nuclear plants and mining. I don't know that to be absolutely true, but I believe that we're one of the most highly regulated industries

in the country and there's a stack of regulations that in my opinion today, ensure the production of safe food, if the regulations are enforced and if they're followed by the meat plants.

But the point is, once it leaves my plants, after I've refrigerated the rooms, used sanitizers, hairnets, gloves, smocks, the whole nine yards, and I'm educated in what I'm doing, after I've done all these great things with stainless steel and the whole nine yards, and once it leave my plant, if that continuum of care is not carried out at retail or in restaurants or otherwise, then you know, I've just wasted an awful lot of time and money and food safety will suffer as a result of that.

Thank you.

MR. ROMINGER: Thank you. We had Michael down here next.

MR. ROBACH: I'm Mike Robach with Continental Grain Company. And I'd just like to make a couple of comments based on the discussion this morning and some of the comments this afternoon.

First of all, I think I'd like to congratulate everyone for thinking outside of our paradigm. I think that's where we need to be thinking. We've got to look for ways to allocate resources as effectively as possible. I think what I heard this morning, people talking about focusing based on risk. It's an extremely important issue and I think we're all in agreement that that's the direction we need to be headed.

The issue of training, joint training between the industry and the regulatory agency I think, is paramount to making this all happen. HACCP has been talked about. We talked about the introduction of science into the regulatory process. I think that can be done through the implementation of HACCP. HACCP includes a hazard analysis and a risk assessment. It defines critical control points, it focuses on food safety issues. Critical limits can be established. Criteria -- we can look at the difference between guidelines in raw product versus standards in cooked product, but we still can focus in on the issues of food safety.

We have to build safety into the process. We can't inspect safety, we can't inspect quality. It just doesn't happen. As Jim Lochner said, it has to be built into the process, and HACCP is the tool that we have that allows us to do that.

We also have to look at allocating the available Federal resources to provide oversight on this system. We can look at the ability of a plant to do sorting at the evisceration point under Federal oversight. We can have an inspector looking at product for finished product standards which already exist. We can then reallocate other resources to look at critical control points in the process, and again, let's look at the process all the way to the table.

The critical control point in any food process is a terminal step for the microorganism, and that implies cooking, in our current system. That is the critical control point. In a further process plant, it's the critical control point that we monitor and then we verify through microbiological testing. There are critical control points that go beyond the control of the plant, as was just mentioned. Product that is cooked in a food service establishment, in a restaurant, at the home is beyond the control of the producing plant. In our raw plants we produce a ready-to-cook product. In our further processing plants we produce ready-to-eat products. Big difference. Major difference. And it needs to be addressed, it needs to be understood.

With Federal reallocation of resources those other critical control points that are currently not being regulated in restaurants, in food service establishments, could be. They need to be. You do that and you're going to do more to reduce the incidence of food-borne illness in this country than any other thing you could possibly do.

Responsibility and accountability reside with the industry. We know that. I know that every single day. Like Mr. Maas has his plant in Cincinnati. I work for a company that has 10 plants. We produce well over a billion pounds of product every

year and we take that responsibility very seriously, and we remain accountable for our product as it goes through commerce.

But we also have to rely on our partners, through distribution, through storage through retail establishments and through food service establishments. There has to be shared responsibility through the system. Unfortunately, we can't do it all ourselves. As many customers as we can, we've tried to convert them to fully cooked product because I can control that process. But I can't control what happens to a raw product once it leave my plant. And that's an issue that everybody needs to understand.

I think there are ways to use existing resources more efficiently, focusing on risk, and I think that's the challenge of this group, and that's the challenge that Mr. Taylor has in looking at, where can we put the resources to best monitor the critical control points in the process of meat and poultry production. Thank you.

MR. ROMINGER: Okay. We have time for two more people I guess, that want to talk here and then we want to take a 5-minute break before we move on to talk about research. So Jim, I guess you're next.

MR. HODGES: I simply wanted to return to the issue of the immediate pressing problem of inspector shortages in the field. This is not something that can be put off, the decisions put off of how we manage it. Essentially, we only have two options. I say "we" -- the Government only has two options. One is to have additional resources at your disposal, which is not likely in the current scenario, or reallocate those resources. I think you're starting to do that, you're trying to do that. I would urge the Department to take all of the most aggressive steps that they can to change the allocation of your current staffing to be sure that those slaughter lines in our plants are fully staffed and can operate at their most efficient manner.

The second option is to change the way that you are current inspecting. Mike started to get out that a little bit. But if you're going to change the way that you

inspect, that is, change how you staff a line in lieu of a plant performing certain functions or certain duties, those decisions need to be made now. They need to be made as quickly as possible because we are at a crunch point.

I simply wanted to emphasize that, because we have had several calls from our member companies indicating that they are in problems and have had line slowdown as a result of the shortages. So I would urge the Department to move forward in these two areas as quickly as they can.

MR. ROMINGER: Okay. I would just comment a little bit. We've had several comments about moving funds around within the Department, and yes, Mike has made some reallocations within FSIS, but when we talk about moving from other programs, the suggestion was made perhaps from research to FSIS, the Secretary is restricted in being able to move large sum of money. We can move small sums but not large sums of money, and we have to get Congressional concurrence to do that. And so we've had, recently we've had instances where Congress has refused to allow us to transfer money from one program to another program. So we're under those kinds of constraints.

And I might just add that Congress for this year's budget, gave FSIS eight percent less than what the President asked for -- than what we asked for in our budget proposal. So those are the kinds of constraints we're under.

I guess Davis, you'll be the last one before we switch to the next topic.

MR. CARNEY: David Carney, National Joint Council. Mr. Rominger, I'm glad that you explained that, because that's working quite well into the question that I'm going to ask. Here's a copy of the 1996 FSIS budget, and there's two line items here one dealing with animal production food safety, and the other dealing with enhanced inspection. Now, in this budget there has been no money appropriated for these two particular activities, however there are still staffs being maintained, employees that continue to get those little green paychecks every two weeks. So what about

reallocating these resources in order to free up some staff here so that we can start staffing the plants and dealing with all of the concerns that industry has projected here?

MR. ROMINGER: Mike?

MR. TAYLOR: David, I think that what you're looking at is not literally line items in the budget as passed by Congress, but they are elements of a budget as prepared and then -- explaining spending plans. Within very much broader line item that actually appear in the budget. And you're right that we understand, although this is not reflected in any report language and in anything that binds us, we understand that in calculating our appropriating for fiscal '96, that there was no provision made for, specifically, the animal production food safety program, nor however, where we preclude it from spending money on that program.

And so one of the decisions we're making is how do we take that into account and make decisions about what resources, if any, to apply to that program. We are going to maintain some core effort in that area because we don't believe we can carry out our food safety responsibility without looking at that in some modest way at least, looking at that part of the food safety continuum.

On the other hand, what we had planned to spend on that program which was in the range of \$600 Million, we will come nowhere close to spending that. So we're clearly -- we are reallocating, we are making some very hard decisions within this budget.

MR. ROMINGER: Okay, thank you. Let's take a very short break. Just stand up and turn around a few times and we'll get a couple more people up here to the table and continue on.

(Whereupon, a brief recess was taken.)

MR. ROMINGER: Okay, we're ready to start the afternoon second session. We want to talk about research and education. We want to hear some discussion then,

on what the role is for the Federal Government in research and education and what the private sector role should be in this area. We're going to have two people here from USDA to start it off.

Karl Stauber is the Under Secretary for Research Education and Economics, and then Darwin Murrell who is the Acting Associate Administrator of the Agricultural Research Service. So Karl, would you start it, please?

DR. STAUBER: Thank you. My name is Karl Stauber. I'm the Under Secretary for Research Education and Economics. It's a pleasure to be with you today. This is a very important topic. We look very much forward to this conversation in a somewhat awkward room.

From my point of view we have two objectives in this discussion. One is to outline briefly some of the research that we have underway within both ARS and CSREES, and also to get from you a sense of the priorities that we ought to be pursuing in terms of both research and Extension activities. So we're going to try and do that in a -- we'll try and move through the first part of this fairly quickly. I'll have some handouts for you in just a minute that will provide some of this information.

But as we talk about the future needs for research, particularly public research, at the Federal level or within the Federal-State cooperative relationship, it -- like the conversation before, is in the context of flat or declining resources. We believe that science and education can assist in many of the critical issues that are out there, but to do that we need resources just like every other part of the system.

I'm going to talk broadly about what's going on within the partnership between USDA and the Land Grant community that falls under the broad rubric of what we call CSREES -- that's the Cooperative State Research Education and Extension Service -- and within our in-house research capacity, the Agricultural Research

Service, ARS. Darwin's going to talk, particularly, in more detail about some of the projects underway at ARS.

CSREES does have a food safety research and education program. It operates primarily through formula funds. The linkage between USDA or the Federal Government and the Land Grant community is really the original Block Grant program within the Federal Government. But unlike most that go to the Governors, this one goes to the Deans, Experiment Station Directors and Extension Service Directors within the various states. There's 76 Land Grant institutions spread throughout the United States. We work with all of them, and we use these formula funds as a way of providing support to them.

The areas that relate to food safety are Hatch, Smith Lever, Evans Allen and the Animal Health and Disease Acts. These really cover the continuum -- you know, whether you want to use the farm to fork statement or gate to plate or whatever little anachronism. Under the Hatch Act, in addition to work being done in single states that occur at the discretion of the Directors of those single states, there are also regional research programs that are involved in this area. And I'm just going to cite a few examples.

We have a regional research program involving 11 states and ARS on the occurrence of mycotoxins and the implications to animal and human health. Another one that involves 21 states, ARS and FDA, deals with improvements of thermal processes for food. A third one in 14 states, focuses on assuring food safety through control of food-borne disease agents. And the fifth example I will give focuses on 19 states and the Economic Research Service, and is entitled, Private Strategies, Public Policies and Food Systems Performance. This also includes costs associated with food -- analysis of costs associated with food-borne disease and consumer willingness to pay for safer foods.

Those regional research projects focus primarily on the Land Grants but also involve a wide range of other cooperators. Within specifically the Land Grants, we have a series of special research projects underway, Special Grant Programs underway, and I'll just cite a few examples.

For example, Iowa State has a major effort underway on food irradiation. Penn State has a major effort underway on milk safety. Kansas State has a major grant from us to focus on pre-harvest food safety, and the University of Florida, another grant related to aquatic products food safety and quality. Another area that is related to the Special Grants is the National Research Initiative Competitive Grants Program. This was established in 1991.

In 1995 it received 86 proposals related to food safety. We had the resources on hand to fund 15 of those for a total value of \$2.33 Million. More than a third of the funds was awarded for pre-harvest food safety research. This represents a significant shift from previous years where the research had, prior to this time, primarily focused on post-harvest food safety.

In addition to both of those areas, an additional 13 percent was allocated to pathogen detection methods development. We've also got a number of projects under that underway, related to specific pathogens that have been identified to us by Federal and State health agencies.

The CSREES-administered funds are also highly leveraged. 1993 is that last year for which we've got good data on this right now. We had \$30 Million being spent by our partner institutions on food safety issues, on 472 research projects. Forty-two percent of that funding came from Federal agencies. Forty-two percent of that funding came from State, and approximately 16 percent came from other sources, primarily private sources.

I want to stop talking about CSREES but I do want to add one more thing. This year we have created for the first time, a multi-disciplinary food safety team

within that agency that brings together biological scientists, engineers and social scientist, to start to better coordinate food safety activities, identify priority areas, develop new initiatives, and identify opportunities for cooperation in food safety among USDA agencies and between USDA and the Land Grant University System.

Let me move briefly to ARS and then Darwin will talk about that in more detail. In FY95, ARS had approximately \$44 Million in research on food safety underway at 15 locations throughout the country. Those 15 areas and that \$44 Million fell into four broad areas; pathogens in meat and poultry, we've got \$16.5 Million of research in that area; chemical residues, \$9 Million; mycotoxins, \$14 Million; and poisonous plants, an additional \$4 Million.

ARS has in place a complex of facilities spread throughout the country that are designed to respond in a holistic manner to food safety problems and other emergent problems that are of importance to agriculture. Just a few examples. Facilities and expertise that we have right now, focusing on reducing pathogenic microorganisms in meat and poultry, includes food safety research primarily on animal production and slaughter and processing plants that are spread throughout the country.

ARS is also developing methodology to help control chemical residues. This methodology for drug residue detection in edible tissues is less expensive and time consuming. We hope it will be more user friendly as will generate fewer wastes that will also -- those wastes also produce significant environmental concerns.

ARS has underway a research program designed to prevent mycotoxin contamination in major plant commodities. The goal of this effort is to eliminate mycotoxins as practical problems in major plant commodities. Specifically right now we're looking at peanuts, corn, cottonseed and wheat.

We've also got a plant toxins effort underway on western ranges. Toxins including heavy metals and plants and particularly range plants may cause serious problems in cattle and sheep grazing in the west.

Finally, we have underway a program designed specifically to meet FSIS needs ARS research programs addressing chemical residue with pathogen problems, these are based on priorities that have been set by FSIS. In FY96 we estimate that these programs will have a value of about \$19.8 Million. Our goal is to use the permanent capacities that exist within ARS to respond in a timely and appropriate manner to the needs of our primary internal customer, FSIS, and to our array of customers from other Federal agencies and then within the industry and the general citizenry.

I ask Darwin now, to talk in more detail about some of the activities we have underway at ARS.

DR. MURRELL: Thank you, Karl. It's probably a genetic impossibility for a scientist to talk about anything without slides, and you can imagine my panic a couple of days ago when I found out we were going to be here because I didn't have any. So what we've done is prepare some handouts. I'm going to -- if you would over there -- pass these up and down the table. I think we have enough but if we don't there are extras. They're going to bring some in the room in a few minutes. They'll also be on the table outside, so that if you feel you can't live without this handout, you'll be able to get it.

I would like to introduce someone who's with me, Dr. Jane Robens, sitting here to my right. Jane is the National Program Leader and Coordinator for the Agricultural Research Service in Food Safety, and she is the subject matter technical expert within the Agency on the whole national program. So if some of your questions get me in hot water, Jane's here to rescue me and give you the information you need to have.

I'm going to, just again, present highlights of what's in this handout. I certainly don't want to take a lot of time and go through this verbatim, so I'm going to go through it reasonably quickly, just highlight some of the points that I think we ought to make, and certainly answer any questions that you may have.

In just sitting here for a few minutes this afternoon, one can get a little intimidated by all the difficulties and the obstacles of the challenges that are out there in this area. But I think, hopefully, when I'm finished there will be a little bit of optimism that maybe some of the problems that we're facing can be solved, and that there are some solutions. And I think it's going to come through research. I guess for that reason I particularly would have concerns about moving money out of research. I know, certainly inspection has serious needs, but I think in the long term, some of those problems that inspection is having to deal with, are only going to be solved by new ways of doing business, and I think that research is the way to get those new technologies out there.

As Dr. Stauber mentioned, our Food Safety program covers four basic areas, but I'm going to talk only about pathogens in meat and poultry. That's our highest priority program. In FY96 the amount of research there is about \$19.6 Million. FSIS is our primary client, our primary customer for this research. We have a very strong interaction with FSIS in the planning and the determining of the priorities and what those projects are.

We have another partner in this work and that's industry. Over the last few years, our partnership with industry in developing work that can solve real-world problems that are relevant to the real world, we've gotten excellent input and help from industry on that. Secondly, as you will see in some of the examples that I cite industry is involved in paying for a lot of this research. So we really have, sort of a

tripartite partnership in many ways with much of the research that I'm going to mention.

The other overreaching point I want to make before I start on some of the specific projects is that, and I think this is why ARS is able to effectively address a lot of these needs, is that we're able to bring a multi-disciplinary scientific expertise to these problems. Most of these locations where this work is going on has a wide spectrum of expertise, everything from engineering to physicists, microbiologist, food technologists. And I think that gives us some important advantages in carrying out that work.

So I think I'll turn first to discussing with you just briefly, some of the post-harvest intervention research. This is the work that postmortem that is going on. And the first one I'd like to mention is the work that's going on at the meat animal research center at Clay Center, Nebraska. Their primary focus there has been on surface contamination issues, much of the problems in the slaughter phase has to do with fecal contamination, particularly surface contamination. So they have concentrated their work on that issue.

They have explored, basically, three major approaches at this point, to try and reduce that surface contamination. That is, using hot water wash, either as a hand applicator type or in a commercial carcass-washer, steam pasteurization, and steam vacuum sanitizing. And so I've listed here on those bullet statements, some of the key results of that research to this point. And I think it's interesting that one of those is that, for the purposes of their studies, that the reductions in the generic bacterial levels reflect also and parallel well, the reduction in the pathogenic species of bacteria. That's important from a research methodology standpoint.

Another important finding is that the washing steps are really compromised if there's not an attempt to remove as much of the visual contamination as possible.

that obvious contamination's there, the washing steps are really compromised and it's difficult to be effective with those.

Another, I think maybe this is the bottom line, is that the washing step itself when done properly, is about as effective as any of the other methods. Probably the most effective, though, is a combination of steam vacuuming and hot water treatment. They're able to achieve better than a 3 Log reduction in microflorae or contamination with that. And so the work is proceeding in attempting to develop that further.

Much of this work is difficult to do in a commercial plant because of the circumstances that are there. So what we've done at Clay Center is, we've fabricated or built, a slaughter line that mimics commercial conditions as close as possible. So we're able to do this work under those conditions. One of the drawbacks over the years has been that work done under laboratory conditions have not always been relevant or extrapolatable directly to the slaughterhouse environment. So at Clay Center we do have facility for that, and we think that's been a big advantage and a help to us.

Currently, in addition to that work on the carcass washing, they're also looking at organic acids in the wash, and also an area that's been neglected, and that is the ecology of these microorganisms after these treatments. They're looking at Day Zero and intervals after that, out to Day 21, as to what happens to that microflorae in terms of its growth, its population dynamics, what regulates that. And that's an area that's just not been explored enough and it is an important one.

They're also working with a commercial company to further develop the immunodiagnostic tests that they developed for E. coli. They have a test, it does work but for its application in a slaughterhouse it needs to be more rapid and perhaps more sensitive and specific. They're making strides in that, and they're now, through a cooperative research and development agreement with a company,

they're attempting to get this developed to the commercial point, and that seems to be moving along well.

More recently, the Department has signed an MOU with the Department of Energy to allow to work together with them to draw on some of the expertise and technologies that they've developed in those energy labs. And one of those is in the areas of lasers as detection instruments, and so Clay Center has entered into an agreement to collaborate with Sandia and Kansas City to look at combining laser technology with neural networks to use this as a detection for microorganisms on carcasses. And that work is in the early stages. It's going to be long-term work, but I think in the long run if this paid off, it may be truly 21st Century Technology.

Okay, I'd like to speak then, for a moment about the Eastern Regional Research Center, but before I do that, are there any questions about this work? If not, I'll continue on and then maybe we can answer all the questions at the end.

MR. MUELLER: The animals that you use at Clay Center Nebraska, now do you determine that they are E. coli infected?

DR. MURRELL: Some of those are inoculated artificially to make sure. Good question.

Okay, at Eastern Regional Research Center which is another primary center for food safety research -- this is at Philadelphia. It's in the suburb of Wynmart. There are three units there performing research. The Microbial Food Safety Research Unit -- this is a rather fundamental or basic science group. They're hoping to take some basic research on what regulates and determines the growth of microbial populations and apply that in the form of predicting models. One of the problems that we have in this field is that there are so many combinations and variations on the use of temperatures, PH's, other organic agents that are used in the whole food technology spectrum, that you almost have to study what happens to microorganism under those specific conditions.

If we could develop some predictive models, then perhaps we could short-circuit that and we can learn a lot more about what may be the outcome of changing any methodology on microflorae populations. And they're using some very sophisticated statistical techniques to do that, and that work is coming along well. They don't have those models yet, but I think in time they certainly will.

Another major project for them, they started initially with a swine slaughterhouse, was to look at the water reuse, that's an issue. And what they found, that with proper treatment of the water conditioning, that reuse water can be used as useful and just as effective as potable water. And that's worked out well enough now that they're extending this in cooperation with a poultry slaughterhouse in Delmarva peninsula, and they're looking at this same technology for poultry houses.

Another group at the Eastern Regional is the Food Safety Research Unit. They have both a microorganism project and also one looking at non-microorganism food safety issues there, and I won't go into that. But the primary one is on food irradiation. This has been a pioneering lab in looking at food irradiation initially in poultry. Since the E. coli outbreaks in ground beef have occurred they have taken that on as a major focus. It turns out that E. coli in ground beef are very susceptible to radiation at reasonably low levels, and that has worked quite well. Much of that data has been published.

One of the charges to this group, one that's a priority for FSIS, is developing some means of indicating when food has already been irradiated and they are working on indicator systems that would tell you that, if for some inadvertent reason, food was to be re-irradiated, that that would not happen. It would prevent that from happening. And so that work is going on.

Another project in this group is again, to develop an immunodiagnostic procedure that could perhaps be used on-line in a slaughterhouse, and what they hav

found is, they can prepare magnetic beads in a certain fashion and get the antigens of E. coli for instance, salmonella, to bind to that. That forms an immunosorbent or excuse me, they can put monoclonals on the beads. That in turn then, will pick up the antigens of the microbial organisms in tissue extracts. And so that work is proceeding. It's a long way from being used in the slaughterhouse, but they've been able to get the monoclonals to bind to those magnetic beads and that's a major step.

The third group at this center is the Engineering Science Research Unit, and they're looking again, at trying to improve the process for surface decontamination. And they have a rather different approach to this in which they would like to put product, or chicken carcasses into a chamber, evacuate it, create a vacuum, and then pump in superheated steam and then vent that very quickly. And the idea here is that you could get proper heating of the surface of the carcass, kill the bacteria, but not get cooking. This has been a problem in trying to take this approach, is that it takes so long of exposure that you start cooking. But the initial experiments with this method have been successful and they now patent that, have a patent on it, and are working with a company to try to develop a prototype for this.

Finally, in the post-harvest area, the Beltsville Agricultural Research Center has a rather large project on attempting to develop an on-line technology for detecting carcasses, particularly poultry, with aceptocemic -- these are obviously dead birds, cadavers. They're using spectro-radiometry to do that, using very sophisticated sensing equipment and statistical procedures to try to develop an on-line method. Now, they have a prototype and they've been using that in slaughterhouses, have had some success with it. In a most recent trial they had about a 97 percent accuracy in picking up birds that were known to have contamination. Now, that requires a 2-second inspection and whethe

that's going to be practical or not I don't know, but at least it's a beginning and that's where that research is certainly going to be aimed.

Now I'd like to turn to the pre-harvest. As someone mentioned a little while ago, this food safety issue is not just one part of that food spectrum, but it's from the farm to the fork, and so we have quite a bit of research in ARS looking at what we can do at the farm level to reduce the occurrence of these pathogenic microorganisms and try to control them at that level also.

One of our chief locations for that is the Food and Feed Safety Research Unit at College Station, Texas. One of their major programs is to attempt to develop probiotics, and this is a biological control in a sense, for a particular salmonella in poultry. It capitalizes on the principle of competitive exclusion. It's been known for some time that intestinal bacteria, there is competition among different species for nutrients, and that if you can load up the intestine with naturally occurring bacteria, but if you can favor their growth, they may then exclude pathogenic bacteria because they will outcompete for the nutrient.

So they've been studying this for some time, have had some excellent success with this. The key technological breakthrough is to develop a defined probiotic, or defined beneficial bacterial product that could be fed to those birds. To do that, I guess the important technological breakthrough really was, was to adapt a computerized chemostat culture system that allowed them then, to define these bacterial populations that had these beneficial effects and how to grow them properly so you could get plenty of product. And that has worked out very well, as you can see from the data I've included in this. They've had some good field trial results, the method has been patented, it's been licensed to a company, Milk Specialties in Dundee, Illinois, who is now in the process of trying to set up a pilot plant to produce this probiotic material. So we think that this is very promising an

it would be a useful adjunct to attempt a sort of holistic control strategy for pathogens.

A second project in this group which I think also has great promise, and that is to give poultry much greater resistance themselves to these pathogenic organisms. And so they've been experimenting with inoculating 18 day old embryos in the egg with immune cytokines. These are the new magic bullet in human immunology. These are the cytokines that you've probably been hearing a lot about, interleukens, things of that sort. These enhance the bird's ability to respond immunologically, to foreign microorganisms. And in their preliminary work on this it seems to work very well by immunizing them in this way, and so that work will continue.

I then want to turn to the Russell B. Research Center in Athens, Georgia. This group has been working with DuPont under a cooperative research and development agreement to develop a technology that they need to do their work in epidemiology. One of the needs that we have is an ability that when we identify microorganism contaminants, whether it's in the finished product in the supermarket or it's at the slaughterhouse or wherever, we need to understand where it came from so that we can trace it back and begin to understand where the weaknesses are, how to intervene.

And the difficulty has been in doing that, in trying to do this serologically which is the traditional way, is it's not discriminating enough. However, Ribosomal-DNA is probably the best fingerprint that you can get for this purpose. But in order to do this on a scale it needs to be done, the present lab techniques for it are just not adequate.

Well, DuPont has developed a robotic system to do this, and through working with this group at Russel, and in fact, you may see something coming out soon in the press about this, there's going to be some press releases on this very shortly. So we're quite excited by this and we think this will give this group the tool they need

to do that epidemiologic work to get a better handle on where this contamination occurs and perhaps suggest some alternative interventions that we haven't thought about.

Now, some of this epidemiologic work that they have done has paid off already. They identified the hatchery as a primary source of contamination, and within the hatchery, the hatching cabinet itself was a real hotbed of infection, a lot of cross-transmission contamination occurred there. They developed a management plan using chemicals and the right methods for applying it, and in the industry now this is being used. And over the last five years in those that they've been able to survey the number of positives that they can find has dropped from 75 to 25 percent. So we think that method is going to have a real impact and is having impact.

They too, have been looking at this probiotic approach and they've had some success. They've developed theirs in a little different way, but it is doing well. They've had some success in field trials and I've indicated that in the handout. They've licensed their product to a commercial grain company, they hope that if FDA approves this -- we hope in both cases for College Station and Athens, that hopefully the FDA approvals maybe next year. Jane, if I'm not overly optimistic about that -- and the companies may be shortly thereafter, be able to get out on the market with some of this material.

Finally, I'll mention again, at Beltsville we have the primary work in the Agency on two parasitic pathogens, toxoplasmosis, primarily in swine, and trichinosis, again in swine. And that work has developed very well over the years. Now there is, in the case of trichinosis, we're working very closely with FSIS in a HACCP approach to try to eradicate trichinosis at farm level. And that's going on in a number of areas in the country, and FSIS has been a partner in working on the toxoplasmosis problem. We've just finished some large on-farm work in Illinois.

We think we understand what the risk factors are now, and now it will be a matter of devising interventions for that.

So, rather hurriedly, but you have -- all that information's in the handout, so I think Richard, we can answer questions if that's what you intend.

MR. ROMINGER: Okay, good. I'll ask Mike first, if he wants to comment on that before we go? Okay, we have two over here to start with.

MR. TAYLOR: I think this gives you an overview of the kind of work that the Department is directly supporting. One of the elements of our strategy has been to stimulate innovation in the industry, as well as hopefully stimulate investment in research to improve food safety, and I think we've seen really enormous effort being made by a number of companies in the industry to really invest in developing technologies that can improve food safety. I think the dehairing technology was mentioned earlier, that the Muntford's developing the steam cabinet, the technology the steam vacuum. I mean, real efforts are being made which we strongly support. I mean, we do believe that technology, coupled with the kind of careful process control that embodied in HACCP, will contribute significantly to reducing risk.

I think one of the questions I suppose it would be good to have some discussion in light of this description of what the Department is supporting is, what is the best interaction between what's happening in the Government and what's happening in the private sector in terms of investment in research and development of innovative technologies. I know that FSIS has a role to play and we've talked about our interest in being sure that our regulatory processes don't delay the introduction of innovative technologies, but stepping back a stage, how do we be sure that there's optimal effort being made in the developmental stage and the research stage and what's the right interaction between public and private efforts to development new technologies. We'd welcome some thoughts on that.

MR. ROMINGER: Thank you. Well, sounds like we do have some exciting technologies coming along here. We'll start with Nancy and then Rosemary.

MS. DONLEY: Thank you. I'm Nancy Donley from STOP and I have two questions, and also a comment. Number one, my comment is -- actually what I'm hearing here is really to my mind, quite exciting. I want to preface it by saying I'm not a biologist, microbiologist, or pseudo-microbiologist. But what --

MR. MUELLER: (Inaudible)

MS. DONLEY: I have a great memory but it's very short, so Rainer, don't confuse me. Two questions. Number one is, probiotics that are being used. Are these being used on animals, or being tested on animals, that have been fed antibiotics beforehand, number one. So I think, if I understand the competitive nature of bacteria, that what we've done is by throwing off the balance to begin with by one set of treatment, we're now using another treatment to bring it kind of back in sync. That's my real simple way of looking at it.

And also, if I can state just the second question at the same time. Number two is, is any research currently being done for E. coli O157:H7, the same type of probiotic approach?

DR. MURRELL: Jane may want to join in this -- well, in a way, going back to your first question, in a sense that may be what happens. We feel that this probiotic approach has a place and perhaps is an adjunct to, or maybe reducing a need for the same levels of antibiotics that may be used now. And in fact, this work now is being extended to swine and cattle. We don't know how this is going to come out. We certainly understand how the system -- we think we understand how the system of competitive exclusion works in poultry. Certainly, if the antibiotics are there to control certain things such as salmonella, if the probiotics can do that, then maybe that would reduce a need for antibiotics.

It's not clear yet, but probably what has to happen is, we need a sort of a multi-prong attack on this in a very holistic way. We need to look at the use of this for controlling microorganisms from every angle -- antibiotics, replacements for that, how we rear the animals, the management systems that they're raised in, and all of those factors. And so I'm not sure where it's going to come out in the end, but certainly if you think about it, if probiotics work well, then there may be less need for antibiotics. I wouldn't predict that at this point, but it's possible.

Jane, would you want to add anything to that?

MS. ROBENS: No. I would like to second your thoughts. We will not be using the antibiotics in the future I think, when probiotics are more widely -- become widely available. There have been some tests carried out with different antibiotics and some can be used with this particular probiotic group of bacteria. Others just cannot be. So there has been very specific research in that area.

I'd like to add, one of the reason for using the probiotic is to allow the young chick that is just newly hatched with very little bacteria in the gut, to have the benefit of the flora and bacteria from an adult chicken. And that gets them a great deal of protection at the most susceptible period of their lives.

DR. STAUBER: The second question, do you want to respond to that?

DR. MURRELL: That was -- remind me again. I have a short memory too.

MS. DONLEY: Mine is excellent, just short. Is any of this being done for E. coli O157:H7 specifically, and it would also then lead into emerging types of pathogens too. Are we looking at it to address emerging problems in the future?

DR. MURRELL: I'll let Jane answer that.

MS. ROBENS: No, we have not done --

MR. ROMINGER: Jane, would you pull the microphone closer, please?

MS. ROBENS: We have not yet started any work with E. coli, with probiotics. The next place after the chickens is going to be swine with the salmonella, and I

think if we are successful there then we will go on and make a concerted effort with cattle. With the large -- I mean, calves, cattle are large. They're very expensive to work with. We started with chickens because they're a smaller unit, we can have statistically significant results much easier with much less expense there.

MS. DONLEY: May I finish up with a comment? And that is, is that we've been hearing things all day today as far as even in the inspection program of addressing areas of the highest risk type of things, if we're going to have to be doing cutbacks. I'd just like to make a comment saying that where salmonella is a very large problem, a very universal type of problem, that I just want to kind of go on record saying that as far as risk goes and the virulence of bacteria, O157 is certainly of much bigger concern.

MR. ROMINGER: Thank you. Rosemary was next.

MS. MUCKLOW: Like Nancy Donley, I'm not a scientist, but a few more meetings like this and I want to be conferred with a degree in political science. I appreciate Mike's --

MR. ROMINGER: Microphone, Rose?

MS. MUCKLOW: Oh, I'm sorry. Rosemary Mucklow, National Meat Association. I appreciate Mike Taylor's comments about the progress that the industry has in fact, made, and it is encouraging to know that the sister agency here at USDA is in tander in trying to address some of these very complex new problems that we seem to face every year. And I hope that everybody can take note of that because there is some sentiment that nobody's done anything, and there's really a great deal going on, and both the Department and many people in this industry are to be commended for having got that done.

One of the things that fascinated me and I don't understand this, we've been fussing about not having funds, all day, and I hear you patenting and licensing people

to do this. Do they pay you money then, they pay the Department money, and which pocket does that one go into? I assume that goes into an ARS budget and helps to seed future funding. Could you just give us two sentences on that?

DR. MURRELL: You may recall in 1986, the Technology Transfer Act enabled us to actually receive royalties through these licenses, and in fact the scientists, and inventors themselves, get -- what is it, 20 percent now -- of the royalties from this, and the remainder goes into ARS. Now, we've had to create -- to be honest about this -- we've had to create an office of technology transfer to handle all the patent issues and the licensing issues, and to get that information out to the industry so they know about it and express an interest in it.

So the money -- most of it is used to support that activity. But in time, as those licensing fees begin to increase, we expect to see more of that going right back into the research program. That's our long-term strategy.

MS. MUCKLOW: How much is it right now? I mean, how much do you get a year roughly? I mean, is it in the millions or the thousands?

DR. MURRELL: Oh, I would say it's less than a million right now. It's probably right around that.

MS. MUCKLOW: Interesting.

MR. ROMINGER: Okay, thank you. Let's see, we had -- Caroline was next and then Barry back there. Barry, why don't you move up the table?

MS. DEWAAL: Hi, Caroline Smith DeWaal with the Center For Science in the Public Interest. First of all, Dr. Stauber, what is the total budget for research, education, and economics?

DR. STAUBER: Total budget is \$1.8 Billion.

MS. DEWAAL: \$1.8 Billion? How much of that is on research?

DR. STAUBER: Part of this will be a debate about what is research. Some people don't consider the work that the economic research service does as research

National Ag Statistical Service is research. If you're talking about biological research, that equates to, I would guess, \$1.2 Billion, roughly.

MS. DEWAAL: Okay, you're screwing up all my numbers so you have to give me a minute.

DR. STAUBER: Sorry about that.

MS. DEWAAL: That's all right. I had seen a number of \$700 Million, so that's -

DR. STAUBER: That's the ARS's budget.

MR. ROMINGER: He's

is talking about the money that goes to the Land Grant Universities as well, added onto that.

MS. DEWAAL: Okay, I would love --

DR. MURRELL: Well, within that, ARS is 700.

MS. DEWAAL: Okay, so let's work off the \$700 Million, although really I'd like to get the new figures and I'll try to calculate them and get them into the record. So out of \$700 Million you are investing, for your total food safety program, \$43.8 Million. And that's about 6.2 percent of your total budget.

DR. MURRELL: Could you repeat that again? I'm not sure I caught -- 33 you said was --

MS. DEWAAL: \$43.8 Million, this is on the first page of your background. Out of a \$700 Million budget that's 6.2 percent of the ARS budget. On pathogens in meat and poultry, it's \$16.5 Million.

DR. MURRELL: This year it's 19.8. Last year it was 16.5, right.

MS. DEWAAL: Okay, working out of what's in your handout, \$16.5 Million, that's 2.4 percent of your total budget. Now, if we looked at the entire budget, the \$1.2 Billion, clearly those percentages would go down.

DR. STAUBER: If you looked at the 1.2, there's another approximately \$45 Million that's within the Land Grant system, so I don't know whether those numbers would do down or up on a relative basis.

MS. DEWAAL: Okay, but we can figure that out. But we're talking somewhere in the neighborhood, somewhere between two and five percent?

DR. STAUBER: Right.

MS. DEWAAL: Okay, I'm looking at a handout. This is the most recent count that we have from Safe Tables Our Priority. They get information to us much faster than CDC so it's the best information that we have available right now until CDC's numbers come out. These are cases and outbreaks from E. coli O157:H7 reported to Safe Tables Our Priority. This year. We have 40 sets of either outbreaks or cases. I believe this pathogen's probably strong enough to have each one considered an outbreak, but that's a matter of definition.

Forty outbreaks this year. Comparative data for 1994 were 30 outbreaks and sets of cases. Reported to STOP for 1993, that's the year of Jack-in-the-Box, there's 20 cases and outbreaks. And these are broken down by where in the country - and then we have of course, the data from 1982 to 1992 which Jack-in-the-Box happened and that was 20, during that 10-year period. This problem has been defined as an epidemic.

Now, can you just tell me -- you know, if something was 2.5 percent of my little budget for my food safety program at CSPI, I would not consider that a major priority. I mean, something that's 2.4 percent just isn't a big priority in my budget. Can you tell me what are your big priorities?

DR. STAUBER: We've got five major priorities. Food safety is one of them.

MS. DEWAAL: And that's -- 6.2 percent of your budget is on that one priority?

DR. STAUBER: I don't know the answer to that. I know what our five priorities are and I have the breakdowns but I didn't bring them in this way. I'd be happy to ge

them to you. The five priorities that are laid out in the President's 1995-96 budget are food safety, economic viability for American agriculture, increased environmental benefits from American agriculture, rural development opportunities research on nutrition. Those are the five -- we've got them worded more eloquently than that, but those are the five priorities.

MS. DEWAAL: Well, you know, those are great priorities. I'm just wondering why one of them -- I mean, if you've got five priorities you would think that 20 percent of your budget went to each priority, but that's clearly not happening here. So, you know, just from a management standpoint, I just -- I'm trying to understand this. You know, you've got an epidemic, we're trying to deal with it, we'll all trying to figure it out, we've got industry here, we've got consumers here, we had families here. I mean, how does the Department make decisions on what its priorities are, and how do we get to the point where we have 2.4 percent of one of the biggest pots of money available here, going towards one aspect?

And a lot of this is going towards swine. Beth must be a fabulous lobbyist because you've got a lot of activity going to swine, which are probably totally appropriate. However, you know, it's going to the whole range of hazards, and I'm just wondering where is the public dollar going, why is it going there, who is making the decisions, is it just that we don't have a good enough lobby? I mean, is that the problem, that we're just not good enough at our job that the money's just not going to address the problem? Help me to understand because I just don't.

DR. STAUBER: Well, I think part of it is -- there are portions of the total package that we have control over and there are portions of the total package that we don't have control over. A significant portion of the priorities for the Agricultural Research Service are set by Congress. We have proposed different priorities for the Agricultural Research Service the last three years. We have been less than successful in getting those adopted. So that's kind of piece one of it.

Piece two of it is, there is a long history of interaction between ARS and certain key customer groups. And our first set of customers are the agencies with the Department of Agriculture. It is only in relatively recent years that we have had a strong and positive relationship at the senior policy level between what's going on in FSIS and what's going on within Research. Hopefully that will continue in that direction.

The third answer is, many of the other activities -- if we were to look at the whole question of threats to human health, not just food, but threats to human health -- my guess the number would be above 20 percent. We have a major research program on cryptosporidium underway right now. That's a major threat in drinking water. We have a number of major efforts underway that relate to people in the farm worker community and exposure to certain kinds of pesticides.

So there is a significant portion of the total research budget that relates to the broad dynamic of human health. At this point, the current number I would say represents a confluence of history, internal dynamics, and instructions that we get from Congress. Some of those we have control over, some of them we have influence over, but we don't have control over the total package.

If I were to decide as the Under Secretary tomorrow, to reprogram \$20 Million I can assure you that the wrath of significant numbers of members of Congress would end up in my lap right away. Because the only way we're going to reprogram \$20 Million is to take \$20 Million from other important research efforts. We've asked for significantly more money in this area. We have not been successful in getting significantly more money in this area. We could use your help. I won't make a judgment on whether you have been or haven't been successful advocates, but we could certainly use your help.

MR. ROMINGER: Okay, thank you. Barry was next.

MR. MARSHALL: Thank you, Under Secretary Rominger. I would actually just like to address two issues. One, I'd like to respond to Nancy who had made a comment before the break, and I'd then like to address a question to Dr. Murrell.

MR. ROMINGER: Barry, others have told us what organizations they represent.

MR. MARSHALL: I'm sorry. It's -- yes, I'm leading up to that. Barry Marshall from New Zealand. First of all, New Zealand has approached this issue a number of years ago, and we've approached it from the front end. We have mandatory requirements that we'll only slaughter animals with a -- whether it be sheep, deer, cattle, pigs, goats, whatever -- if they're clean at the time of slaughter. So this means animals actually have to be cleaned up by the companies or by the -- or sent in for slaughter in a clean condition by the farmer.

On that basis we make sure that, because they're actually clean, the actual basis bacterial loading on the carcass, once you take the hide off, that sterile surface becomes contaminated with normal microflorae and also pathogens within 30 seconds or so. So the whole idea is to minimize the bacterial loading on these carcasses. We then have a whole sequence of events which is incorporated into this pathogen reduction program, and I must say -- and I forgot to and I apologize -- that certainly New Zealand is totally behind what this Agency is trying to do and if there's any help we can give from our experiences, we certainly have offered them and we're available to help wherever possible. We certainly believe in producing safe food and minimizing problems to the consumer.

Being a major exporter, we're totally aware of this and in fact, the programs that we've operated for a number of years now have -- were not so much for food safety but they're actually longevity of the productivity or the shelf life of the product. And it was by implementing these procedures back in the 70's that we actually also picked up the pathogens, and as a consequence, we have not sort of been exposed to the same sort of problems this country has.

However, that aside, not only slaughtering clean animals and having hygienic dressing procedures and the standard operating procedures or processes that are being considered here, the hygienic envelope presumed free hygiene systems, but also this whole issue about maintaining or getting the temperature of the meat down to a level whereby whatever microorganisms are going to be on there -- and it will never be sterile -- but the level, the temperature will be such that it will actually suppress the growth of the organisms that are actually going to create the problems. If that can be done, then the product can be maintained through the food chain, whether it be in holding facilities, cutting and processing, and transport industry, then I think we're all collectively going to achieve something.

So in this respect, we in New Zealand have tended to focus at minimizing or trying to eliminate wherever possible, the contamination going on in the first instance, rather than trying to get it off at the other end and putting interventions to wash, sterilize, sanitize, or radiate or do anything else.

And this is where I actually would now like to address a question to Dr. Murrell. Certainly as far as New Zealand's concerned, we are not tending towards the antimicrobial interventions that have been considered because we want to get it right in the first place. However, Dr. Murrell brought up this whole issue about competitive exclusion, and that's why I'm talking. It's quite interesting that with these antimicrobial interventions that are actually being considered, many of these procedures are exactly going against exactly what you're proposing for the live animal, which I think is a very good idea. Using probiotics.

A classical example is, some of the interventions being considered or suggested are organic acids. Now, it's just quite ironic that organic acid, assuming acid conditions actually select out four specific organisms, and of course in the recent E. coli outbreak, recently here in the United States and certainly in Australia

with the O111 situation, it occurred in fermented sausages in both instances, and that's under acid conditions.

So applying an acid spray or whatever, to actually soak or eliminate certain pathogens, while it may happen -- and might I say, will actually eliminate all the natural background microflorae that normally suppress or are likely to help suppress the growth of pathogens, these are the aerobes -- in actual fact they could be somewhat more of a selective pressure for the folks you actually don't want.

So in this respect I just wonder whether, with all the research going on, this whole issue of competitive exclusion of actually favorable microorganisms that may actually help prevent the pathogens multiplying, actually has been given consideration by ARS?

DR. MURRELL: Maybe I don't understand the question. The idea of enhancing competitive exclusion is to prevent, is to have colonization of pathogens.

MR. MARSHALL: I'm sorry. I might have been a bit ambiguous there. What I'm saying is, if you do apply the radiation or many of these interventions, you're actually going to get rid of the favorable bacteria which actually would help prevent the pathogens multiplying.

DR. MURRELL: Of course those interventions would occur in a non-farm environment. But the probiotics of course, would be produced and inoculated directly into the chicken. I don't think it ought to have a very big impact. Certainly theoretically it could, but I think practically, I don't see how that would have too much of an effect.

MR. ROMINGER: So Barry, you're saying that the acid wash may be selective and it will get rid of all the good bacteria that might inhibit the growth of the pathogens, is that --

MR. MARSHALL: You're right on the -- sorry, I'm not conveying my message. What I'm must saying is --

MR. MURRELL: Unify the selection but with organic -- I see.

MR. MARSHALL: I'm saying that, with all these interventions that are being considered by ARS, I just wonder whether you'd given thought that in actual fact, interventions may not be doing what you hope that it's doing, by getting rid of the pathogens.

MR. MURRELL: That's an interesting idea. We'll talk to some of the people who are doing this work and see if they've considered that.

MR. ROMINGER: Okay, thank you Barry. Gary Webber was next.

MR. WEBBER: Gary Webber with the National Cattleman's Association and I'm really pleased that Dr. Stauber and Dr. Murrell are here because I think throughout this past year we've interfaced with the production pre-harvest group on research on farm and have not seen the presence that we know is there, and so I'm glad that you're invited to this session. I think that's excellent. I think we need to applaud the efforts that ARS has done to get technology like steam vac approved or validated in the laboratory, and then now moving toward approval in the plants as well as a number of other interventions that are really providing us some avenues through this, and we support that.

I do think though, that -- and Dr. Stauber you know, we've met with you several times on the area of a couple of staff positions in the CSREES in the Animal Agriculture area, in Veterinarian medicine and Animal Science, and prefaced it about a year ago now, by saying this issue of food safety and animal health is one that we've got to have staff on hand to deal with. And having worked in the Department, know the challenges with setting budgets and all that, and I just want to encourage the agencies to keep moving forward on this and providing some leadership here across that continuum.

There's a large meat science sector out in the Land Grant system that also needs interface there. But again, we've got a couple of positions there I think that

would really help us keep in touch and work collectively here at the Federal level, and I want to encourage you to keep moving in that direction.

The other area that's kind of fascinating to me and you may not be able to address it here today, but I think it warrants some observation, discussion and dialogue, and that is that these pathogens not only colonize cattle and swine and poultry, but obviously also humans, can cause disease in people. And I've been fascinated to certainly see the Centers for Disease Control very active, very vocal, very visible in this arena, and yet I've not seen the references to NIH, the National Institutes of Health, the medical community. We have had meetings with them, but not very visible ones because we don't want people to perceive that we're saying, gosh we can't get rid of this so we want to look at the human medical side.

But we know that there's a lot of expertise there that could be brought to bear in understanding this. We found in the process of evaluating the data, that in a study in Canada, 21 percent of dairy farm workers had O157:H7 in their intestinal tract that was verified as the virotoxin producing strains. Had never been sick, had never complained of anything, no signs of any problem, and you have to ask the question, why? And maybe secondly, that or more importantly, why haven't we looked into some of those things? because if they're colonizing animals and not causing disease, and they colonize people and don't cause disease, there may be some really fascinating knowledge there that we're not gaining.

And I think we need to look at, somehow, somebody providing some leadership and interface between USDA scientists and NIH people. I understand that on the Congressional side there was an effort to acquire about \$700,000 for some work in this area at NIH. But it took one or two Senators or Congressmen working specifically within that budget to get that in, but the money wasn't even there for digestive diseases at NIH as well, which is also I think, of concern to all of us here.

So I guess I'd like to just close by saying, let's keep this a priority and let's fill those staff positions and try to focus as much research as we can. Bring in all the players -- meat science, animal science, veterinary medicine, engineering, epidemiology -- keep working in that area, bring us in and the consumer groups for more meetings like this, particular on this subject where we can talk candidly about the needs, and work with NIH and find out what's going on on that side that could add synergy here.

MR. ROMINGER: Okay, thank you, Gary. Marsha Echols is next.

MS. ECHOLS: Marsha Echols with the National Association for the Specialty Food Trade. NASFT is a Trade Association representing primarily small companies which produce processed products, the vast majority of the products made by the members are processed. I just have a few points.

One was the mention of a multidisciplinary food safety team, and I think, unless I missed something, you didn't explain what the team is doing, what issues it's covering, and I wonder what they are. Also on that team, you mentioned the disciplines participating. I didn't hear mention of business management, and I think that is one that should be involved in any multidisciplinary effort because much of what you do has to be applied by business. And I would include in that someone with a knowledge of small business management. If you can't have that discipline participating on the team, perhaps you can find a way to pull that information from outside.

On the question of new technologies, this sound fascinating. I think -- I hope that you will also consider how and whether those technologies can be used by small business and what the cost of small businesses would be, of using them.

Finally, outside -- perhaps outside the scientific research agenda, I hope that FSIS and USDA will do more to identify and understand the special issues for small businesses and for small businesses making processed meat and poultry products.

Much of the focus here is on the raw products, but there are many companies doing processing. There are several types of research that could be done in that area, perhaps outside ARS I'm not sure, but I think the Department needs to consider all of those.

Thank you.

MR. ROMINGER: Thank you. Karl?

DR. STAUBER: If I could just respond for a second. The food safety and multidisciplinary food safety team is a new effort within CSREES and it is at this point just working on the identification of priorities, development of initiatives with the Land Grant community which are our prime partners in this area. And so in terms of results from this effort, we don't have any results yet. It is early in the process and I would very much appreciate any suggestions that you and others here would have about the kind of things we should be focusing on.

The small business one is a fascinating area. It's not an area where we have expertise within -- in a very explicit way, within CSREES. We clearly though, do have that expertise within many of the Land Grant institutions. I was in Florida yesterday, near Florida A&M which has one of the best public business schools, it's rated as one of the top 10 public business schools in the United States. It's an institution that we have a close working relationship with on a variety of issues.

So I'm going to take that back and, even though we don't have it inside our particular shop, there are in fact, other parts of the Department of Agriculture, particularly rural development, where there are small business expertise, and within our partners. So that one is going to get plugged in right away. Appreciate it.

MR. ROMINGER: Okay, thank you. Roni, Roni Rudolph.

MS. RUDOLPH: Roni Rudolph, Safe Tables. I've listened to a lot of individuals this afternoon mention about the importance about food safety, and I'm encouraged

and I'm thankful, but I guess the question I would have -- Caroline Smith DeWaal has mentioned that why is it that this isn't looked upon seriously, and why is it that the problems of E. coli is given so little recognition? And I believe that until recently, the community was not aware of the existence of the power of the problem of E. coli.

And what I would like to suggest to you today is that, when the symptoms of E coli in the very beginning reflect so much of just innocent little flu symptoms, which was diagnosed in the case of my daughter and in Nancy's son, and I'm not sure about Roiner, but I think that in so many cases it's looked upon just as flu symptoms. And of course right away it's treated with antibiotics which we all know is not appropriate because it hides symptoms.

So how can you protect a community about something that it's not in existence about? Just recently in Idaho we had an outbreak of E. coli -- one of many, I might add. But the Public Health Department in Idaho decided, took it upon themselves and decided that they weren't willing to inform the community because in their words, they felt why tell the public about something that may cause complexities to the restaurant as long as they could take care of the situation and not alarm the community?

Well, that in essence is essentially what happened in San Diego. And very few people to this day are aware that we had the kind of problem that we had in San Diego, but because our Public Health Department at that time, not now -- because we have started a self-awareness committee down there, and we have individuals represented on that committee of the -- let's see, the Restaurant Association, also the Grocer's Association, we have a representation from the Public Health Department essentially, with preschoolers because of the secondary infection. We have -- and then with the Restaurant's Association, they're not real happy with

us, but they are participating because of the cross-contamination issue, as was present up in Idaho.

But the point, getting back to that is, that three years ago they would never have taken that kind of challenge. But a gentleman by the name of Dr. David Theno had told me, he says, in order for us to be successful against the fight against E. coli, we all have to work together as one working organism. I believe there was, there's been quite a few of us that have suggested that this isn't going to work unless we all work together. All of us together. Just like we do on our Public Health Department Awareness Committee.

It's much smaller scale than what we're speaking of here, but how dare people take it upon themselves to decide the fate of a community by not letting them know that they have a problem? And perhaps that the reason why, between 1982 and 1992, that they had 19 outbreaks, or epidemics as the word eluded me earlier -- as opposed to the 30 in 1993 and the 40 this year. And you and I both know that there are probably many more than that, but first you have to acknowledge the fact that E coli is a problem in your community. And when I first started this fight, myself and many others, with this business with E. coli, there were -- I didn't understand why they had such a problem acknowledging what was the problem with my daughter? And that was mainly because we had no reporting law in California. There were 11 reporting states in the United States of E. coli O157:H7. Now there are 36, and we're hoping that there will be many more after that.

But the point is that the reporting law is not going to be the answer, but it's a tool, it's a safeguard. And this is in essence, what I was bringing up earlier. It's a safeguard. There is a family in Ohio who lost their 2-year-old daughter because of cross-contamination between a hot dog and a hamburger. The father served the hamburger and cooked the hot dog. He rinsed the plate. He did not cook the meat totally and he did not rinse it in hot soapy water.

Well, our Public Health Department has started this awareness campaign where we're making sure that these things are being sent out to the schools and given to the parents so they can take notice of things that can be implemented to make sure that these safeguards are in place. I called this woman who called our STOP office -- her name is Barbara DeWitt -- and she is the woman who is the mother of this child, this 2-year-old child that died within four days after eating this hot dog. And can you imagine, once again, the horror of the father when he found out that because of something he did, he was partially responsible for his 2-year-old child's death?

Well, she said to me -- getting back to the safeguards -- I wish our Public Health Department had some kind of a safeguard where they could set up and let us know. We didn't know about the cross contamination. We didn't know about 155 degrees or more to cook our meat properly. Until we get a handle on the basic problem which is, the contamination in our meat in the first place.

But things like this, I think it's through awareness that we can help the people like the AMI, help the people at the USDA, help ourselves. Because if one person helps another person, in essence, we are helping ourselves. But this gentleman, because of things being said -- well if you had just cooked this it would have been just fine -- well, he couldn't handle it. And I think a lot of us already know that this distraught father committed suicide in September. Now, isn't this a complexity of an already complex and sad and horrible situation.

And one other thing and then I'm going to stop, and that is, that I want to tell you that when there is one victim of E. coli, one person who has E. coli, your whole family, anybody who loves you, anybody who cares about that individual, everybody suffers from it. There are children that knew Lauren in school that had a horrible, horrible time. Can you imagine being a child who has problems with anorexia at age

six? Because she knows that Lauren ate a hamburger so she doesn't want to eat anything because she's horrified.

These problems are far-reaching, and perhaps that's a bit far-fetched to some of us. But you see, we have to take responsibility for our lives. And all I'm saying is through safeguarding situations, through these, it seems like it's overdone sometimes. And I don't believe in making all these, you know, to telling other people how to live their life, but I know, I keep thinking to myself, there is a tooth fairy, the system does work. And I've always believed that it works. But sometimes it needs a little help from people like me. I wish it didn't. Or people like Nancy or Roiner. Or any of us. We're not here because we have nothing else to do today. We're trying to solve a problem and I thank you for your time.

MR. ROMINGER: Okay, thank you, Roni. You're certainly right. We do need more awareness and certainly you and your other co-workers have increased awareness of these issues. We thank you.

DR. STAUBER: Can I make a quick suggestion in that regard? We've got, within the Extension Service -- we're the place that Extension meets the Department of Agriculture in terms of money. There are 34,000 Extension workers in the United States, but only 206 of them are U.S. employees, the rest of them are State and Local USDA employees. I can't order them to go out and do anything. But I can put proposals on the table, and what I would like to propose is that our Nutrition Education people work with your organization to see if we can develop information that we can distribute nationally through the Extension system, to get word out about this. And we'd be happy to do a quick exchange of cards when we get done here and we'll see that that meeting happens and we'll see if we can make something move forward on that.

MS. RUDOLPH: Thank you very much.

DR. STAUBER: Thank you.

MR. TAYLOR: Let me just also add, if I may. We had included in the agenda the topic of Government and private sector roles and food handler education, and it's really a topic that deserves a full day's discussion. The philosophy that we're pursuing in our food safety initiative is to build in the concept that we've got to define responsibilities and empower people to take the appropriate responsibility at each step along the way in this farm to table strategy. And a piece of it that I think does deserve, you know, real focused attention and creative efforts like the one that Karl is suggesting, is the food handler education issue, and it relates both to food handlers in the retail, the commercial food service setting, it also involves consumers.

And the question is, how do we go from where we are today -- which is we know that that's an element of the farm to table food safety system, that's where people can protect themselves, even as the system reduces risk, reduces pathogens, people still need to observe proper practices at the food preparation and consumption stage -- how can we go from where we are today which is with everybody agreeing that this is an important need to inform people, everybody having a relatively good sense from a scientific standpoint what the information is people need -- but how do we then actually then communicate information that affects people's behavior that they really take it and act on it and reduce risk at that stage of the spectrum?

And I think that that's a topic that deserves a full-blown focus, day long or more, discussion among these interests. Not just to talk about it, but to devise strategies to take us that, you know, leap forward in informing people so that we can complete this farm to table strategy. It's an important part of the picture. It can't by itself, solve the problem, but it's something I think deserves much greater focused thought to take that leap forward, and it will take resources. People will have to spend money to do this.

MR. ROMINGER: Okay. Now, I've got three more names here of people who want to talk on the research subject, and then we'd like to I think, wrap that up and see if there are any other subjects that anybody want to raise today. I think Mike maybe has been successful in switching some of those funds within the Department already. The money we're saving on the heating bill here maybe is going to go for food safety research.

MR. TAYLOR: We don't want people to be too comfortable here.

MR. ROMINGER: Let's see, Roiner was next and then Ed and then Cindy.

MR. MUELLER: Again, I'm Roiner Mueller. I'm here from STOP. As I mentioned earlier, I didn't think we needed to reinvent the wheel, and Mr. Marshall being from New Zealand, I have a question for him. In the last three years this country has had well over 100 outbreaks of E. coli. Using the techniques that your country uses, how many outbreaks of E. coli have you had in your country?

MR. MARSHALL: Yes, that's a very good question, actually. We've had three. We're not sure -- we have endeavored to trace back to find out whether they're of animal origin. We know that humans can be carriers of salmonella, E. coli, whatever and also be shedders. While the individuals didn't have anything in common, at this point in time we're not sure. But however, we believe that, like any other country in the world we've probably got O15 in their cattle population, as we've probably got the whole range of pherogenic E. coli that cause -- which no one's actually talked about today -- but causes similar conditions.

And as I said earlier on, there's no such thing as zero risk. There's always a possibility so you have to actually produce your food in such a manner that you've actually got to minimize the risk.

MR. MUELLER: It sounds like to me, that the methods being used by a small country like New Zealand, are much better than the methods being used in our country, and it seems to me that they're basically very simple techniques that they

are using. The first is to wash the animal before they slaughter it. Literally run it through a carwash, and then the second thing is to keep the temperature at a safe listing, and as Mr. Marshall explained to me, they have digital thermometers on their food so they know -- or at least on their meat products -- so they know what's happened between the time that the meat leaves the processing plant and it arrives at the supermarket. That's something again, that we don't do in this country.

MR. MARSHALL: Yes, Mr. Chairman, can I just clarify that point? Now, we haven't quite gone that far. What we have is digital thermocouples that we actually put in containers, so when the containers are sent overseas, we can monitor the temperature profiles from the time it's left the premises to the time it actually arrives at the premises where it's going to be processed, whether it be in Europe or something else. And we have the same for chilled product, this sort of thing. And the whole idea is to make sure that this accountability by the organization that's actually conveying the meat from one source to another, that they're actually monitoring, keeping the temperature the right level.

Of course, trucks that carry it within New Zealand though are required to have thermometer recordings on there, but then we also test the meat at the time of arrival. So we haven't quite got to the stage of putting it in the consumer product.

MR. MUELLER: That's what I meant. Mr. Taylor, I don't believe we have any regulations in this country requiring the temperatures -- of the meat temperatures being transported in this country. Is that true?

MR. TAYLOR: That's correct. That's an issue that we, in the February proposal laid out as needing to be addressed. We've been working to develop the technical basis for proposing standards, working with FDA, and we tend to begin a rule-making process to address that, but that's a gaff in our system.

MR. MUELLER: So again, a very small country like New Zealand, way, way ahead of us on using very simple technology. I'm blown away by the leading country in the

world, supposedly, as we enter the 21st Century, cannot offer the American consumers safe food. It just doesn't make any sense. Thank you.

MR. ROMINGER: Thank you. Ed Menning, you're next.

MR. MENNING: Thank you. Ed Menning, National Association of Federal Veterinarians. Just sticking right to the present subject, a question for Dr. Stauber and that is, how many formal requests for priority consideration of funding has been submitted to ARS or elsewhere, that is under your control, for doing research on new methodologies of removing feces and other filth from the hides of animals, such as the much needed and good research that you are doing on washing, vacuuming, etcetera, on the skin carcasses?

DR. STAUBER: I'm not aware that we keep any kind of record where I can provide you with number of the kind of priority requests. We work closely with FSI to set research priorities for the work that we're doing at Clay Center and in all of our areas that relate to their inspection responsibilities. But Darwin, you can certainly correct me if I'm wrong, but I don't think we keep a kind of record of, well once we get 63 requests we jump into activity, but --

MR. MENNING: Are you aware of any?

DR. STAUBER: I am not aware of any but that lack of awareness doesn't mean there haven't been thousands. It only means that I'm not aware of them.

MR. MENNING: If I could just follow up to Mike. Are you aware of FSIS having requested prioritization of such research?

MR. TAYLOR: We have an ongoing set of mechanisms, really, for coordinating with the ARS program and identifying what our research priorities are including, you know -- there's a public meeting in December where this is discussed -- but there's an ongoing, you know, dialogue really, at the scientific working level.

MR. MENNING: I am gathering from the answers that there have been none, and this is one of the pints that as Mike knows, our association has been pressing for a

long time. And I would suggest that there is a truism, and you'll excuse me, 'shit happens', and this is the first critical control point in this whole process, not just for E. coli O157:H7 but the other pathogens as well, that we should be placing more emphasis, certainly equal emphasis, on attempting to help industry find out what works and also what is humane, because we have to consider that aspect, of cleaning up the animals before they go into the already clean slaughter room.

I will just end by paraphrasing or quoting Barry previously, and he'll correct me I know if I say it incorrectly, but in essence, their work in New Zealand has found that there is really only one truly significant critical control point on the levels of pathogens and bacteria on the skin carcasses. And that critical control point is, for sheep, when they arrive at the plant, is their wool short, dry and clean, or is their wool long, wet and dirty? And with controlling that one point, you significantly far more than five-tenths of a Log or even up to 3 Log reductions that you get with acid rinses, control the contamination.

MR. ROMINGER: Thank you. Cindy?

MS. ROBERTS: Hi, I'm Cindy Roberts from the National Agricultural Library. And I didn't actually want to talk about research. I wanted to talk about the third item on your agenda, Government and private sector roles in safe food handling practices education, and I wanted to continue on Mike Taylor's comments about getting the word out and the STOP comments, and I want to tell you about a unique program and that is the USDA/FDA Foodborne Illness Education Information Center, and this is a joint project between the USDA, FSIS and the FDA and the CSREES. I don't think anyone will argue that training and education is an important part of preventing food-borne illness and to that end, the many people who were responsible for setting up this center, Sandy Fascinoli at the Library and Ken Duram at FDA and Sharon Saxton, FSIS, realized that there was a need to have one center where people

would find out what's available out there, what other people have developed and have access to these materials.

And I have been tracking food safety education materials. There is a lot out there for food service workers, for children, for science teachers to teach in their classes, and I've been collecting information about it and collecting the pieces, making them available for people to borrow at the library. I have a list of these, some 220 programs now, that I can give people on computer disk, or it's also available through the Internet.

I have also been looking toward the future in HACCP and have been tracking HACCP training programs that are offered around the country, and HACCP education resources on videos and manuals, so whenever the final regs come out we can offer people advice about training. This too, is available on disk and through the Internet. And I have a flyer I have put out about the USDA/FDA Foodborne Illness Education Information Center on the table outside. But if you don't get a chance to get a flyer and you want to talk to me more about what I'm doing, my name is Cindy Roberts and I can be reached by telephone at the National Agricultural Library at area code 301, 504-5719, or by E-mail at CROBERTS@NAOUSDA.GOV.

And this has been a very successful program between the USDA and FDA coming together, seeing a need, not going out their separate ways, but getting together and working at putting funding into it and making the information available to whoever wants it.

MR. MUELLER: Can you give me your E-mail address again?

MS. ROBERTS: Sure. It's CROBERTS@NALUSDA.GOV.

MS. MUCKLOW: G-O-V?

MS. ROBERTS: Yes, G-O-V.

MR. ROMINGER: Thank you, Cindy, for giving us the information about the National Ag Library and services and information that are available there. Do we

have anything else here on this before I ask Karl for a wrap up comment on the research portion? Rosemary?

MS. MUCKLOW: I'm just going to ask a question. Is -- oh, I'm sorry. Rosemary Mucklow at National Meat Association. I know that FSIS has a delegate to the Blue Ribbon Task Force of the National Livestock and Meat Board, the E. coli Blue Ribbon Task Force. I don't recall anybody there from the ARS. Are you aware of that, or is somebody giving you any liaison with that, or is it something that you would like to know more about?j

MS. ROBENS: I think we would like to know more about it.

MS. MUCKLOW: Okay. Since we're in the time of swapping telephone numbers and titles, you want to hear about that, Jane?

MS. ROBENS: I'm Jane Robens with ARS, the National Program Staff, in Beltsville. My telephone is 301-405-5381.

MS. MUCKLOW: Okay. Thank you.

MR. MURRELL: I want to be careful -- wouldn't want to leave an impression that nobody from ARS is on it. I don't know who's on it, but for instance, our National Animal Disease Center has some of the world's authorities on E. coli and animals and they may be serving on that board.

MS. MUCKLOW: Don't think so. I think the only person that I've seen there, and can't think of his name, but is one of Mike Taylor's people. And it might be that some more -- is Janet still here? Janet, are you -- can you think of that?

MS. WILLIAMS: There is somebody there from FSIS.

MS. MUCKLOW: There is somebody from FSIS but I've never heard anybody -- and it would seem to me that ARS probably should be involved.

MR. ROMINGER: Okay, thank you. We have Dane Bernard then.

MR. BERNARD: Thank you, Mr. Secretary. Two quick points. The first refers back to the research note that Dr. Marshall was discussing and that is -- and I'm

sure that your researchers are aware of the old adage that when we disfavor one group of microorganisms we automatically favor another group. And that was the point on the lactic acid washes. We do select for those which are tolerant of those kinds of things. But the same note, and we're exploring other very promising areas with the steam, the superheated steam that you're exploring and the saturated steam tunnel, one model of which is already installed. We need to be cognizant that while at that particular moment in time we appear to have done a good job, we need to follow the effects of that right through to putting ground beef into a package, in terms of whether we have made that more susceptible or less susceptible to cross-contamination down the line.

So the advice there is to not segment the research such that that's the only focus. That we look longitudinally through the distribution system. And while on that topic looking back at the other end, we've talked about consumer information and the topic of the Agricultural Extension Service came up, and it's a very opportunity for one of my favorite themes since we seem to have the right people here, and that is, how we can utilize that.

And I know a lot of people in Extension and they're chronically busy and underfunded as well as the rest of us are. But there is a lot of information now on good husbandry practices that could be more widely distributed in the field which could serve, I think, to reduce the pathogen load, the bioburden on animals presented for slaughter. The logical extension of that information is to plug in it through the Extension Service and make sure it gets taught.

This is not HACCP, this is just good husbandry practice. Is that we can put a better emphasis on how to produce our food animals. The pork producers have done a marvelous job in looking at how to take animals right through to slaughter conditions and reduce contamination. There's a lot of information out there on vector control, maintenance of farms such that we reduce vectors into the animal population, and

that information to the best of my knowledge, is not being as well spread through the agricultural sector as it could be. So we have opportunities now that I think, with the proper encouragement, coordination and funding, could be better utilized.

Thank you.

MR. ROMINGER: Okay, thank you. George. I think George is going to be the last one here before we wrap up research.

MR. BERAN: At National Animal Disease Center there's a great deal of research going on in the food safety area on E. coli O157:H7, ursinia, arcobacter, complobacter, and food-borne viruses. Are those in a different category entirely that they weren't mentioned here? Then -- may I ask that, and then I have another question.

MR. MURRELL: I tried to emphasize those that -- the work has more or less pointed toward some practical application immediately of the work. The work at NADC is much more basic nature in general, and I didn't mean to ignore it in any way but we had to be selective. There are other projects -- Fayetteville, other locations -- where there's some good research going on, but I wasn't sure about how much time we ought to take here. So we had to make some choices. But I don't want to slight it, no.

MR. BERAN: I would also like to ask especially with Cindy here, a very major need in research in food safety is that we don't have an on-line database similar to Medline in the health area, in the medical area. And this has shown in many occasions here, that we don't have access to all of the literature that is actually been done and reported. If there is any way that emphasis could be brought to bear that we need a database on food safety that we can access on our computers, this would be very valuable for our research.

MR. ROMINGER: Cindy?

MS. ROBERTS: There is the Agricola database at the National Agricultural Library, and this is very similar to Medline. It's available on CD ROM and through Dialogue. And it's a database that covers all of Agriculture issues, so that's not only food safety, that's everything else -- nutrition, it's very broad. But it does have all the major journals and food safety, it has conference proceedings, it has technical reports, and there really is quite a bit of information where you can get other literature research done. Most of the USDA literature is in there. There is also another database called CRIS -- Current Research --

DR. STAUBER: Information --

MS. ROBERTS: Right, right. And that is the USDA research that's going on if you want to know about it. And both those databases can be accessed through the National Agricultural Library, but also through many other libraries. Most State University schools have those databases in their collection.

MR. MUELLER: You can also use a -- browser.

MR. BERAN: As we browse the --

MS. ROBERTS: The Agricola database is not available on the web yet, but the library is working on that, and once it becomes available on the web I'm sure it will be much more accessible to everybody.

MR. ROMINGER: Okay, thank you. Karl, would you wrap up our research discussion, please?

DR. STAUBER: From my perspective, this should be seen as the beginning of a series of conversations rather than the conclusion of them. I would strongly encourage all of you to continue to make your research priorities known to Mike. You can also feel free to make them known to me. I'm here at the Department. Or Darwin. And we're happy to feed those into our ongoing process that occurs both within ARS's process, internal competition, as well as our continuing work with the Land Grant community throughout the country. So I would, both on an Extension side

and on a research side, would appreciate, you know, if you have additional thoughts or comments that you would like to share, we would very much like to have them.

MR. ROMINGER: Okay, thank you, Karl. Are there any other subjects that anyone would like to raise at this point? We don't want to stay very many more minutes here, but if there's any subject that you feel we missed and that you'd like to get on the table today, we'd like to hear about it. If not, I'll ask Mike Taylor if he would like to give us his wrap up comments?

MR. TAYLOR: Well, I think in an hour or so I should be able to sum up what we talked about today. I really --

DR. STAUBER: Would you like a --

MR. TAYLOR: That would be wrong. This discussion has been very, very useful for us, and I appreciate all of you who have been here throughout the entire day. I think this morning's discussion of legislation showed, I think both the wide interest in the subject and also the wide array of views on the subject, and I certainly hope we can find a way to continue a discussion among this diverse array of groups, of what over the long haul, are the reforms that would improve our ability, collective, in Government and outside Government, to ensure the safety of meat of poultry products through legislative reform and other means.

And I think we ought to look for a mechanism to continue that discussion. I think that was very fruitful. I just appreciate everybody's effort and input, and look forward to the next step.

MR. ROMINGER: Thank you, Mike. This has been a valuable day for us. We want to thank all of you for coming and participating in these discussions, and as Karl and Mike have said, we need your continued input on our research issues, as Congress does more legislative activity, as we do the regulations, continue with those, reforming what we're doing here. We need your constant idea and input and suggestions so that we get the best outcome possible.

I think we all want the safest foods possible. We want to figure out how to do that. It's going to take I think, the best thoughts from all of us to get that accomplished. So thank you again for being here today, and thanks for helping us.

(Whereupon, at 4:40 p.m., the Food Safety Forum was concluded.)