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## **Key-note address: The pay-off from 5 years of leafy spurge research**

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Welcome all of you to Bozeman, and to what I understand has been an extremely productive meeting at this point.

My assignment this morning is to give a keynote address that focuses on the issue of THE PAY-OFF FROM FIVE YEARS OF LEAFY SPURGE RESEARCH. Being the key-note speaker allows me to deviate considerably from that particular title. I would like to spend a couple of minutes with you this morning talking about my perceptions of investment in research because, undoubtedly, if you're talking about a pay-off some place along the line, then there must have been an investment in that activity earlier. To anticipate a tremendous pay-off for five year's of activity, addressing a problem that has taken as long as it has and as complex as it is to address, I think is probably being terribly optimistic if we're looking for a tremendous pay-off. I'd like to visit with you for just a few moments about at least the Montana perception of investment in research. Where I think we are going, where I think we have come from, where I think we are at the present time, and where I think we are going as far as research, not only in our state, but in surrounding states and nationally as well, especially in the agronomic area. Weed research in Montana, I believe, is a classic example of the development of a particular research area, both from past activities and for the future. I get to many meetings around the state, as I know many administrators do, and talk to people about the key issues. Without a doubt, during my five years in this particular position, the single most visible issue that we have had from the crops community, from the livestock community, from the environmental community, from the public lands community, and you can go right down the line, the single most visible and critical issue we've had is the weed problem. Until I took this assignment, I had never been particularly active in the legislative process. I can assure you that not only is this issue serious in the minds of the people that are producing the agricultural products, but it is equally serious in the minds of our legislative community. A tremendous amount of activity, debate, and discussion on funding and so on has also occurred in the legislative process in Montana. I know it's occurred in a number of other states in the region.

What are we, in fact doing and going to do in terms of addressing this particularly complex and difficult issue? Awareness of the problem is, of course, the first stage. The day before yesterday I had the pleasure of traveling with our president and two or three legislators to review some of our own land-holdings with respect to a particularly troublesome issue called leafy spurge. It's obvious to me that weeds are no longer a back-

room issue. The legislators that were in that particular discussion were concerned not only with the question, "What can we do today in terms of helping the public sector to control their problems, but also what can we do in the future in terms of putting more resources into this kind of an issue which, in fact, affects such a wide segment of our total society?" There has been and will continue to be a tremendous awareness of the problem. I know Pete Fay, Mike Foley, Jim Story, and Bob Nowierski, as weed scientists, have worked very closely with our own public awareness system, the extension service, with various individuals in that area and with other public agencies to increase the awareness. It's amazing to me still, how many people you can find in our area that really don't know what a spotted knapweed plant looks like. But as you go out across the countryside and talk to people, knapweed, spurge, Canada thistle, and so on are still not readily identified and addressed in the minds of what I suppose you'd call the average citizen. And so we need to continue to pound on the awareness issue.

After the awareness issue has come on us we have become aware of the seriousness of spotted knapweed. If you don't believe it is a serious problem, go over and take a look in the Bitterroot Valley of Montana. The whole western side is absolutely 100% infested, and please don't quote me on this, because that is an overstatement to make a point. In all seriousness, if you look at that particular area, there is an incredible amount of the land-mass that is covered with spotted knapweed, and we're just now really becoming terribly concerned about the issue. I know our own weed scientists have identified new weeds that have just begun to make entry into Montana. It seems to me that if anything, we should be placing more emphasis on the question of how do we address the issue of new weed problems migrating into the state before it becomes a crisis issue. Unfortunately, our society is a crisis-oriented society. I think back to my own experiences in North Dakota, born and raised on a farm in the Langdon country area. I can tell you that until we almost got wiped out with stem rust, a problem that was on the minds of the scientific community but not an issue for farmers, it was sure tough to make key people aware that they ought to be pumping some resources into stem rust research.

We're a crisis-oriented community, there's just no question about it. I think somehow we have to move beyond that mentality. But assuming that that's the case, it appears we have to move farther and faster in developing plans to address these issues in order to carry them out in a well-coordinated and efficient fashion, because I see fewer resources in the future. I can assure you that that part of the speech is not going to be particularly optimistic as far as additional resources; because I just don't think they're there. So in developing plans to address the problem, it seems that we have to figure out how to use our resources more effectively than we have in the past. The way we've approached it, and I know that the way many of you have approached it is not entirely unique. We have said to the legislature, "If we can get some additional funding for the research team that we have on board, and allow them to work more closely to their maximum capacity, then we will not have to add an entire new cadre of people for which we don't have enough funding. We think we can do a better job with what we have in terms of the scientific personnel. That is the program that the legislature in Montana has followed as far as the weed research area is concerned. There are about four research scientists in the experiment station addressing the three areas and I noticed on the Symposium tee-shirt this morning the three areas of chemical, cultural, and ecological research listed. We feel that a team approach in a well-coordinated effort, with the personnel that we have available, is

the route to go. The legislature bought onto that, not to the magnitude that we would have liked, but they did buy onto it and added some additional resources and supplied some technical help, extra work funds, and a little bit of capital equipment, and so on. Certainly not enough, but we have been able to do more than before. Nevertheless, it is a package that we can stand behind. We have an excellent scientific team. We continue to move forward both in the state funding and in the soft money to provide a total package that we think has gone a fair distance in beginning to address some of the weed control problems.

We have been active in working with the other agencies, the private sector, private landholders, with the cooperative extension service, and with the public media, to distribute the research information. Information doesn't do any good if it sits on the shelf. The scientific community in the area and the state has a, I'll put it frankly, has a heck of a bad reputation for developing information and not really getting it out in the hands of the people. In addition to the scientific work of research and development, we feel very strong commitment to work with the appropriate organizations, agencies, media, extension service, and so on, to be sure that this information gets into the hands of the people so they can use it. Generally, this is the approach that we've taken. I think it's been pretty effective. As I said, the program isn't of the magnitude that we'd like to have, but at least we think it's a step in the right direction for using the resources that we do have.

What do I see as far as potential resources, and when I'm talking about resources, folks, I'm talking about greenbacks. That translates into people, trucks and all the rest of it, but I'm really talking about money. What do I see coming down the line as far as additionally resources for this kind of activity? Let us look at our own state of Montana for just a moment. I've had the pleasure of traveling for the last 10 days to various research centers, private farms, and so on around the state. If I were terribly optimistic, I would tell you that the outlook is grim. Is that a reasonable statement? I think that's a reasonable statement. We are in probably one of the deepest droughts that we've had in the history of the state. I know our Canadian friends, the western edge of North Dakota and part of the northwest corner of South Dakota. It's a kind of a strange thing that this area seems to be blessed with a unique set of environmental circumstances that not much of the rest of the country is dealing with at the moment. If you look at the kinds of bumper wheat crops that are rolling in from the Great Plains, from the central and southern Great Plains, you can see our dilemma. A good bit of our resources in this state come from a couple or three areas. One of them is agriculture and what I have just painted for you is not exactly the brightest picture in the world for the agricultural area. We also depend on a good part upon other natural resources like coal and oil. And I heard some discussion the other day that there is a possibility that OPEC may drop their oil prices to \$15 a barrel. Now I will tell you that for every dollar that a barrel of oil drop, our state revenue drops by about \$10 million. That may give you some additional insight into where I think we are. We are also looking at tourism and coal production as major industries, at this point in Montana, are weak. Back to agriculture, it isn't good anywhere. It isn't good in Kansas, even though you may roll in a bumper crop. Wheat is dropping at what, three or four cents a day? Something like that. So they are now getting down to where they're at least \$1.50 below production costs with every bushel they raise. I'm generating a picture of gloom and doom, and that's really what I mean to do, but what I mean to tell you is that I think we have to take a realistic look at the whole card deck relative to what kind of resources we may have available to work with. I just don't think that in the state of Montana that

we can anticipate an additional large influx of state dollars into a program, for instance, that may address weeds.

What about the national picture? I read in the Great Falls Tribune this morning is that the entire national budgeting process has just fallen apart again. This means that the best we can probably hope for on the national scene, which is where our formula funding, special grant funding, and all kinds of major components of the research program come from, is a continuing resolution. Now for those of you who don't know what a continuing resolution is, generally out of a continuing resolution the best you can hope for is a flat budget, which means that there will be no increase for next year based on this year. So we're looking at a flat scene there.

What about the soft money area? What about grants and contracts? Now interestingly enough, but at Montana State University, over the last 5 years, if you chart the grant and contract money at MSU, it's on a nice inclining slope. We have been picking up more grant and contract money from various sources, and I think this says something about the capability, about the way these people are putting their programs together, not only in the weeds area but in other areas as well, and so if I see a bright spot on the horizon as far as increased money, it's probably in the grants and contracts area. That, of course, carries with it its own set of particular problems and issues. For instance, the federal funding and so on is getting tighter and tighter and even decreasing.

I guess what I'm saying is that as we look at these programs, and as I talk with Pete Fay, Bob Nowierski, Jim Story, and Mike Foley about the weed research issue, I don't think that it's appropriate to tell them that they will have a tremendous number of additional resources to work with. I don't think that's all bad. We have operated under tight budgets before and we'll operate under tight budgets again. I don't think that's all bad, because I think it leads us to do some other things that we need to address and these are addressed in my closing comments.

What are the opportunities for the future? I think the opportunities are really wide open, but I think we're going to have to learn how to do it better, more efficiently, squeeze more mileage out of the dollars that we're investing. How can we do this? Well, again, I think that we're making a mistake by bringing additional large numbers of people or additional people on board and not being able to fund them. I really think that's a mistake and I think we've done it over the years in the agricultural experiment stations around the country. The way to expand programs is add more people. In my opinion, the way to expand programs is to do a better job of supporting the people that we've got on board and let them work to their maximum. We need to provide more support for them. We need to provide more technicians, more capital equipment, more travel money and so on. But I don't think, at this point, it's in our best interest to bring more scientists on board. Not because we couldn't use them, but because I don't know that we will be able to support them.

Second, and I feel very, very strongly about this, is that I believe that we can make a lot of mileage with a stronger cooperative effort than we have had in the past. I think this meeting, yesterday and today, and under the administrative leadership of Don Anderson, and with an issue that is as vital as leafy spurge is, as the way you have come together is a classic example of what I'm talking about. There's plenty of work out there for every-

body. And the single most frequently asked question I get, especially when I visit with legislators is, “why are you doing the same things that they’re doing in North Dakota?” And the answer is that really we’re not, but it isn’t always very visible that we’re not. I think this kind of an activity will become even more important in the future than it has in the past, you’ve got to figure out how to do it better if you don’t have more resources to work with. You’re just forced into it. I think we can. I just had a conversation with Don Anderson about 2 minutes before we started the program this morning. We will have an entomology position open at the Sidney Montana Research Station. Now I don’t know whether all of you know where the Sidney station is. How many people know where the Sidney, MT station is? It’s very close to North Dakota. Right across the Montana border on the other side is a little operation called Williston. It seems to me that what we really need to do, and I just visited with Don Anderson about this, is to sit down and take a look at that open position, take a look at the Williston-Sidney relationship and figure out how we can do a better job down the line of staffing centers, the key issues associated with that particular area. The Sidney operation concentrates primarily on, or a good bit at least, on irrigated agriculture and the Williston operation concentrates a good bit on the dry land agriculture. That’s what makes a natural mix for that particular area of both of our states. I think we are going to have to just do more of that. I could go down through the list. But I really believe that this will be a key to the continued success and improved output of the research community and the extension communities as we look at problems like this.

A third area, and I just don’t know how everybody feels about this. The Ag Experiment Stations have traditionally not had a tremendous track record in the competitive funding arena, that is in the soft money arena. Partly because we have always had a pretty solid base to work with. You know you have your experiment station base that’s state appropriated and you have the CSRS, the formula funding coming in from the federal side and so on. So it’s been a fairly stable base, and we will all obviously work to continue to maintain and expand that base. But I see our scientific communities having to simply become more competitive in the soft money arena. I just think we’re going to have to do more in the soft money arena if we’re going to continue to support and develop our programs the way we should. And that, then leads to the whole area of grant writing, to the whole business of how to be competitive with other individuals across the country, and so on. Our track record is improving and we do have the capacity to do it. As we bring these young scientists on board and as we move forward in the next 10 to 20 years, my prediction is that the Ag Experiment Stations in this country will become increasingly competitive in the soft money arena. I really believe that we will be able to do that.

So that brings me, then to the final statement about what I think the pay-offs are. I really think that the pay-offs in this activity are incredible. I think you’ve seen some tremendous pay-offs at this point, even though the title says 5 years, obviously there is a longer history than 5 years in this business and we know that. We know that in biological research it’s not always easy to run a crash program and generate something in 6 months, as it is in the bacterial arena, for example. But in the biological world where you’re dealing with critters like leafy spurge, the hawkmoth, and so on, things that tend to take a long time to unravel. Often times people become fairly impatient with that. I believe the pay-offs have been incredible, the fact there’s this much interest in this subject at this point is some testimony to that. Certainly we are seeing more interest on the part of the

producers and on the part of the public land managers and so on in addressing these issues. I believe that we are standing on the edge of really some very, very exciting and tremendous pay-offs and I think we have had them up to this point. In my way of summarizing this, I believe, despite the funding comments I've made, I believe the future is bright. I think we have some really exciting things that we can do. We may be forced into doing some things a little differently than we have in the past, but I really believe that there are some exciting things that we can do and I think track records will show that the pay-offs and investment in this kind of activity are really incredible. Best wishes to you for the rest of the program. Unfortunately, I will not be able to stay with you for the entire day. Mike, thanks for having me on and if there are any questions or comments if you want to take 30 seconds, I'll be glad to try and answer them. Thank you very much.