CEREAL LEAF BEETLE SEMINAR

Billings, Montana

June 26, 1990
CEREAL LEAF BEETLE MEETING
ATTENDANCE

Name, Business, Association, & Address

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Dave Taylor; Dept. of Agriculture; Helena, MT
Don Simmons; Dept. of Agriculture; Missoula, MT
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Jim Gabor; Entomology Department; Montana State University;
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Gary Adams; USDA-APHIS-PPQ; Billings, MT
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Introduction by Roy Bjornson.

Tom Burger, Laboratory Director, Niles Biological Control Laboratory.

I'm not an authority on quarantine, I'm an authority on biocontrol so any quarantine questions, I'm going to refer to Van Burgess and Gary Jensen and Roy Bjornson. I sent Roy some of the old quarantine information and I don't know if that was of any use or not; (ORB, yes) it listed the commodities that are under quarantine and their risk probabilities. In that regard, I felt that in the late 60's and early 70's, the primary way the cereal leaf beetle was going to move, other than natural movement on the winds, would be through man's efforts and I thought that the highest risk exists in straw and hay and especially straw used in bedding and horse show participants movement of livestock. What I've seen pretty much bears this out. The problems in Utah popped up in Morgan County around Salt Lake City. What I saw of Montana yesterday and some of the background I have got, for the area. You have a major railroad hub coming through here, you have got cattle, livestock pens, rodeo's, and horse shows around here. These are outside people bringing in with their own bedding and hay. I think this is how the beetle is being distributed to other parts of the U.S. It is not natural movement in from the east.

Some of the things I brought that I'm going to give to Roy, and you should determine who should get what since I have very limited quantities. I really had to scratch deep in my files to dig out some of this information. First of all, I think the University, would be interested in some type specimens, males and females, of the parasite complex that has been so successful on the cereal leaf beetle program back in the east. There are two vials of each species types. You can give them out Roy as you see fit. Back in the late 60's early 70's, four or five of us at our laboratory did a review, and actual travel through states on the border of the existing CLB infestations at that time. These included like North and South Dakota, Minnesota, Iowa, Nebraska, and this was our trip through those states to talk with the various researchers and interest groups and to look their states over and make some projections as to potential for economic damage. Keep in mind that this report was made back in '71 and economic damage was based on one larvae per flag leaf which resulted in about a four to five bushel loss in oats as one of the crops and then we were talking about 50 and 60 cent oats we were talking about $3 an acre to have pesticides applied by air. So, things I am presenting here today are back when. Somebody here, like Gary Jensen and Van Burgess are going to have to update you on what those economic statistics. The other experts, and I hope I am not stepping on anybody's toes here on your presentation on what I am going to be presenting but any
questions dealing with control tactics, material to be used, etc. This is a report that presents those types of conditions, climatic, cultural, and habitat that would be conducive to build up and economic damage by the CLB and we touched very lightly on the major grain producing areas out further west from these states that we surveyed only to record what was grain production statistics back in that time. Such as out in Washington, in the spring wheat growing areas, etc. and this is back from 1963 crop reporting statistics, and things have changed drastically since then as far as the amount of small grains that are produced out west here. Just bear in mind when you are looking at this report. Another thing I did was just for the heck of it, pull up a request from the NAPA System which is reporting all pest finds and brought an updated map, of at least what is on NAPIS as far as present known distribution of CLB in the U.S. and I think if you look at it closely, you will see it is far behind what the actual fact is, but it was just a point of interest, I think there are a lot of states that are not being plugged into the system. We should be able to develop a realistic distribution map on a minutes notice from that system but the information is not getting plugged in and I know of no one that can give you an updated realistic distribution of the CLB in the U.S. I have three of these reports that I will give to Roy. I have also brought some select references and about a 1980-81 bibliography on CLB and its associated natural enemies which will allow you who have done literature searches and everything already and this is a start for those who may not have already done that. There are old spray schedules in here, extension bulletins, etc. I only put then in for reference only, they are not the recommended amounts for necessary types of materials and Gary Jensen and Van Burgess can related more to what is present day usage and what has been removed from use as far as on small grains and what is registered on what etc. Last what is called the CLB Parasitoid Workshop manuals which we used in training ... laboratory of state and federal people back in the early '70's on survey, on looking for release sites of parasites, on recovery of parasites, on insectaries for rearing parasites in the field. It goes into some of the I.D. of immature stages of various species of parasites that were used. It may be useful down the road and which you determine what approach or the way you are going to be headed on the CLB program.

What I would really like to do is just relay to you my knowledge on the pest and especially in the area of survey techniques and allowable areas to be of concern as far as potential economic damage from the CLB. Again, let me stress, please ask questions as they arise during my presentation.

This is the adult CLB. A new adult, a summer adult just because of the very shiny appearance of the exoskeleton. The overwintered adult CLB will be duller. I think Jim Brice and his people have brought in some specimens of adults they just collected last week in the field. In looking at them I can see both old, mature, overwintered adult beetles in that, and I can see new adult beetles.

This pest was first found in Michigan just about 15 miles
from where my laboratory is located in Niles Michigan called Galien, Michigan. In about 1963, I'm sure that the pest, based on the populations that existed at the time of its kind had been inbearing colony for at least five to six years to its find, being somewhere in the late 50's. In the late 50's it probably got its start in Berrien County Michigan. About that same time, we go back in the records of the middle to late 50's, we find accounts of manure haulers that were picking up bedding and manure off of cattle boats coming into Chicago. Farmers were taking the bedding off these ships and hauling it back and spreading it on their fields in our area. At that particular time a truck load had tipped over in the Galien, Michigan area and the heaviest part of the infestation in '63 were found in that same general vicinity. Now I'm not saying that this is the case of how the beetle became established but everything leads me to believe that it was in that process but it is a notorious hitchhiker in grain straw. It likes to get into the hollow stem created by cutting, to overwinter and to summer estivation. I'll get into a little bit of the biology a little later on. ( ) Van, Where do you think it originated? The ships at that time that were coming, it has been found in Italian marble in California, the straw used to pack between the marble slabs being brought in, it is of European origin. Where specifically it came from, I couldn't tell you. It is, as I said of European origin and of little of no consequence in the countries where it is found where it is thought to be native. In '63 when it was found, an intense eradication effort was initiated by both the state and federal government and at the same time various people were looking at back up control technologies that could be applied in case the eradication effort failed, of course it did and we still have CLB. I know that Roy said something about whether we can eradicate it or not. I don't think through that effort back in '63 the intense effort that was applied then versus what you would be allowed to do today is far as applying blanket spraying, applying pesticides over a large area such as occurred in '63 and '64 I think it is out of the question to think about in eradication. Of course biological control is not going to eradicate the pest, it is going to reduce the pest to non-economic levels. The whole concept of biological control of the parasite or predators is that the pest will eliminate the pest and of course will eliminate themselves.

The infestation when APHIS got out of the program and turned it over to the states, federal quarantine was dropped, the distribution known at that time is displayed by this map. It held to our projections as to what would occur with the movement of the beetle on its periphery. The primary movement was to the east, and that is the spring movement of the adults overwintering quarters, our prevailing winds in the midwest are from the southwest and west so the primary movement was to the northeast and east from the initial infestation. Before I forget, I want to point out because you see two beetles attempting copulation does not necessarily mean that you have a male and female nor does it mean that you have a sexually receptive female. So the spring adults, the new summer or spring adults produced in any
given year the males will attempt copulation but there will be no fertile eggs produced by the female. She is sexually immature and must go through a three to four month ovulay diapause and cool period to become sexually mature. So the new beetles being produced in this area at this point in time, the new generation, will come out and feed approximately three to four weeks on any lush grasses or small grain that they can find, this will include orchard grass, timothy, young corn plants, corn because of the way it develops and under normal precip conditions can tolerate the feeding by the adults and low yield production is recorded. They will get into a very late planted small grain field, oats and barley are your primary spring grains. (Tom) Keep me on track here Gary because I do not know that much about your agricultural practices out here. Preferred crops are young tenders, small grains, late planted and then they go into a summer estivation during the hot dry period and will resume feeding activity to build up fat reserves for the winter again in the fall when we start getting cool nights of 55 or below, the adult activity will initiate again. At this point in time when they are in the summer estivation, they are widely scattered over the country side and cannot be found in any kind of numbers in any one given area. When they resume feeding activity in the fall, to prepare for the winter and then head towards the wintering quarters which will be areas where the winds tend to pile up the snow. First, meaning heavy backdrops, and fence rolls, wood lots. In this area it would be the Rimrock. I have seen fields planted up to the base of the Rimrock this would be a face that would stop the adults in their windward movement and when they drop and find the grain stubble to overwinter in, they would then proceed inside the straw so that would be one of the areas to cover in more detail as far as surveying when I get into the survey aspects. This is where they will spend the winter if they are covered with that blanket of snow which will remain at 30 degrees under it, the adults survive nicely. If they are not covered by snow, and you experience 18 degree weather or below for an extended period of time (six or more days) you will find that 80 percent of mortality will occurs when that type of weather occurs before the snow covers them up. Once they get covered up there will be almost negligible mortality occurring. Again, I am relating to the midwest as I don't know your weather conditions here but just looking at this river valley, the precip that you have here, the irrigation, the type of vegetation, I feel this is the only types of areas in Montana that you will experience, or possibly experience anything close to economic damage. Again I can not relate to your crops as to what their value are. Gary was talking to me earlier about malting barley and there is an altogether different set of criteria used on malting barley so this is something that you people will have to relate to in determining your economic damages. They won't move into the corn as adults laying eggs for large infestation. The corn you usually impacted by or fed upon by CLB is corn that is planted right next to a spring planted small grain field that has produced a large number of adult beetles. When they emerge as new summer adults, they will move right to the corn in
association with the small grain. Especially if the small grain is starting to ripen at the time of the adult emergence. Again, I know of no recommendations in the east for spraying corn. Corn put under stress, you might see some economic damage. Normally, corn is growing so rapidly at the time of the new adult emergence that it out rules any potential damage that may exist.

This happens to be an egg of a CLB, normally you find them laid singularly and normally down in the sheath where the leaf first starts to come off the stem, but as the leaf grows, the egg will move up. The major egg production is laid over approximately a four to five week period, this will vary with snow melts in the overwintering quarters. Adults will start coming out as the snow melts and you will get early snow melts, late snow melts, and as Gary and I were discussing this morning you have areas where snow drifts will last for a period of time so you will get late beetles out of hibernation moving into grain. You might see production spread over a longer period of time and that is good. You don’t want these beetles coming out all at once, that is when you may see economic damage.

Frosting effect. There is larvae that has stripped the flag leaf on that oat plant. You can see the black fecal sack, the larvae is actually yellow underneath. This shows the edges of that feeding as far as the chlorophyll cells. I apologize for some of these slides as they have been reproduced many times and their clarity is deteriorating. Here the larvae has lost its fecal sack, fourth instar larvae, and is entering the soil to pubate. Pubation usually occurs within six to eight hours once the larvae hits the soil. On a light planted stand, with high temperatures, this would fry the larvae so I would think up on your dry land areas, one of the deterrents of the CLB becoming of any significance besides the amount of rainfall you get up there is the temperatures and dryness of the soil. Pubation last for about four to six days and then the new adult emerges. This happens to be a new adult. Gary have you seen some of the adults which are a lighter blue and real shiny? (Gary) To be honest, I don’t believe we have really looked at them, we weren’t aware that they were duller. Maybe we can look at some today and maybe we will be able to determine whether they are this years or last years. (Tom) It is something that I look for right away to see where we were at in the developmental stage.

This slide shows us flying along a major highway, as we looked north on the right hand side of the plane, his is the type of terrain you saw and then on the left hand side of the plane, you look into a lakebed situation, an old glacial lakebed area, and the beetle was of no concern. Where we had high beetle populations across the road, this happened to be south, the winds were not conducive for the beetles to move out of these high production areas into something like this but you could have what I call a periphery effect if you get into economic populations in the valley you could have a small area association up in your dryland become impacted if the winds were right. But in this particular case, we had no CLB problems in type of situation adjacent to high to high levels of CLB.

This is a machine we developed to collect CLB’s out of
stubble, again we had a heavy fence lines and this is in the fall.

The CLB egg here is approximately 1mm in length and we can get up to 5 or 6 anaphoses developed in one egg so you can see how small in comparison that is when it is packed itself into the eggs as far as development. This happens to be a female and females are I.D.'d by the club on the antenna or the swollen terminal end of the antenna. You can see her ovipositor is inserted into the egg and she is depositing, one, maybe up to four or five eggs per CLB egg.

This is the early pupal stage which is commonly referred to as red eye stage. All of this is covered in the workshop manual you can reference it later on. There are actually two parasites Anaphase flavipes and tetrastichus julis.

What was the lifetime of the parasitoids? It depends on which way you went. As you went west, they were maybe a year behind. As you went east they were being born behind where the CLB was. In the case of diaparsius, it does not move out very far at all. Just like with one of our alfalfa weevil parasites, while we made such high releases in the number of releases in the number of species because it is very slow to build up and disperse out. In fact, I don't feel in some of those states to the best that some of the parasites worked. Some of the species out there didn't. I think anaphase and tetrastichus julis would but diaparsius and lemomphagus will have to be moved. That is a natural movement, I'm not talking about this long distance interstate.

() I expect you are going to have some spraying distribution around the states. Are there any instances of insecticide resistance? (Tom) No. I will be very hesitant, and I would like to stress to both the Extension Service and County agents, etc., that please be sure that there is a need there to spray. Based on your criteria that you have developed, because if you do get a biological control program. I think that you have a set of conditions out here that is going to keep that pest, at least in our lifetime, we won't see it, primarily inactive and becoming and economic importance. Except possibly in these river valley situations and I don't feel it would be yearly situation. I think how you are seeing, Van and I were just talking, that what I saw in Utah in '85 really was at least that around Salt Lake City, was because in '83 and '84 you had high moisture years, abnormally high moisture years and you had a gradual buildup of a population that had been there. Being held static because of the cultural and climatic conditions in that area. But they got a couple of abnormal years in precip which helped that beetle build up. Because have you seen that type of a population since? (Van) No. (Tom) I think this year, from what I have been able to ascertain you have a better year than what you normally have in precip. I was down in Wyoming and I have been in Wyoming a number of times and I have never seen it greener. I was just shocked to see something green down there. I got stories from the growers down there that they got prairie plants out there blooming and that is the first time that they have seen them bloom this year. (Van) What is your
annual rain fall here? ( ) 13 to 15 inches. (Tom) I would say anything over 18 inches is going to be conducive except when you get in the river valleys and you get irrigation.

Distribution and the straw for bedding and this manure get into composting and stuff like that, (Tom) composting should kill them. You have these large bales of hay sitting in the fields and this is an ideal spot for CLB to get into and summer estivate. Those bales are picked up and moved around. I don’t know how much shipping goes on but I am sure that back in the drought of ’87, ’88, I imagine you had a lot of hay moved in from surrounding states that had any. I know that Wisconsin was rubbing their hands and getting big bucks for their hay that they were shipping out. This year is really wet so there is going to be a lot of hay going out of the state. (Tom) Just remember this, you got it from somebody else. (Roy) Thank you much Tom for your presentation.

Van Burgess, Director, Plant Industry Division, Utah Department of Agriculture.

I don’t know how many of you go to church but I went to church last Sunday and that evening I brought my wife and we decided to drive up rather than fly up and the meeting was hot. It was about 10:00 a.m. and 2,000 people there and it is always a traditional 10:00 - 12:00 meeting, it was so hot you couldn’t believe it, the guy in charge of the meeting got up and said that I believe that people died in meetings like this and let everyone out an hour early. I won’t speak until 12 o’clock I’ll assure you that and I’ll try to answer any questions you have. It is an absolute pleasure to be here with you. Your people I know personally, they are professionals in every way, I come as an invitation from Roy, Jim, and others to share with you some experiences that we have had in the program. We have had some failures, I’ll be the first to admit it, some of them may have been our own doing and others may have been related to things that are beyond our control. There are a number of times in Utah, from an agricultural standpoint briefly, the drought has been very serious as we are in our fourth year of drought, extreme drought. I don’t know if any of you are aware but at one time our runoffs were so high back in ’83 and ’84 that the legislators didn’t know what to do with the water and we were sandbagging the streets; it was flooding everywhere. It was unbelievable. The great Salt Lake was so high that they appropriated 60 million dollars to install three pumps the pump the lake out in the desert. Those pumps cost $1000 per day for natural gas to run each one. We run those pumps about two years. We pumped the lake out in the desert about half the size of the Great Salt Lake and all of a sudden, the pumps are sitting out there without any water, they are about one-half mile from the shoreline right now. I’m not sure, the Republicans were in office when that happened...but they said it was approved by the Democrats. Who knew, everyone said why didn’t you take you fresh water mountain streams and build reservoirs and store it back and why let it run into the Great Salt Lake and waste it, so. We all make mistakes, it is called hindsight and foresight. I don’t
know if you do that in Montana or not. We are absolutely pleased to be here. My wife came with me and she will be joining us at noon. I always get a little nervous when I make these presentations, particularly when I am in a place for a week, I tend to get by for one day because I give her my purse and tell her to go shopping. There are some pretty malls around. We have some serious insect problems in Utah and I think that a lot of them were brought on by the drought. I want to tell you just a few things that we are doing before we get to this.

We have a major operation going in Mormon crickets and grasshoppers in Utah right now. We are spraying and baiting everyday and have been for about a month. We are having pretty good success. I understand you have some problems here with getting the planes off the ground. We have had those experiences in the past and were very difficult to work through. They are very pressure situations. We have discovered Gypsy Moth in Utah in July 1987. We put together a small treatment of 1200 acres a year ago and this past week before I came, we just finished spraying 60,000 acres for Gypsy Moth in Utah and we have an objective there to eradicate it from the state and will do it. We sprayed three of the highest residential populations areas in Utah, Provo, Salt Lake City, and Bountiful. There are over a million people in Utah and 80 percent were in the areas we sprayed. We flew five helicopters every morning from May 8 to June 15 everyday. I guess we got away with it. These are pressures we are facing in today's society. California in my opinion, will have to go to a different approach than aerial applications to control Medfly. I think that they have about used up their allotted time in that approach. I think it behooves us to look working together to look at some alternatives. The Russian Wheat Aphid is a very devastating pest for us in Utah. We spray 20 - 30 thousand acres for that last year and the questions everyone seems to ask me is at what level do you determine how to spray. That is a very hard questions to determine what level of damage can you have on your watersheds and your residential areas with Gypsy Moth before you treat. What level of damage can you have with CLB before you decide to spray? I know what quarantines are and some of our states borders that are closed to us have the ability to put those on and put them on very hard. I went to California, Palm Springs, a couple of years ago and tried to work out a cooperative agreement with Dr. Isifiddiqui from California and they did not want Utah's apple maggot, they didn't want Utah's apples. The maggot was discovered in Utah in 1984, I wasn't director of the division at that time. I think they discovered it in several isolated spots, obviously it was hauled in. Several pests have been brought in something and got established and maybe more wide spread than we thought when we found it. Your having some experiences, this is your first find this year? (Van) Then you are probably having some of the same experience that we had about five years ago. Then you get onto a program, '85 was like your this year '90 and then we started in the fall we felt like the number one thing to do was try to hold it down, we realized that we couldn't eradicate it because of the nature
of it, we still feel that way. Do you Tom, feel it is difficult to eradicate? (Tom) Oh yes. (Van) So we determine what your object is. Our objective was to bring it to an economic level to operate. So we thought that the parasites was the way to do this. We quickly set up some cooperators, I brought some forms and things that we used setting up some insectaries. If doing it again, we learned some lessons but through USDA, APHIS, Tom, and these people; he’s given you the background quite well. We proceeded to establish those parasites and like I say, we were in those wet years when we were having 25-26 inches of moisture annually. Our normal is about 14-15, probably about like you guys seem to get here. It is like the pumps, we went dry, we went extremely dry. Last year we had 90’s in Utah. That is really difficult on how to measure these things. There are so many things out of your control. The winters in these heavily infested areas, Cache Valley and the north end of the state, 20-30 below zero and you start having winters that a like 10 below you get no snow, and then you begin to wonder. Then some years you have tremendous snow drift and banks of snow where the temperatures are just barely freezing. So many things have been beyond our control so it is hard to measure what we have accomplished and where we have failed. I called Tom a couple of years ago and he kind of told me he had left the program and struck out. I’m persistent I didn’t believe him. We didn’t get cranked up again the second time. (Tom) It was not necessarily my idea. I would gladly get back in it. (Van) But APHIS, I think we have to realize, what Utah’s problems are what your problems are and what our options are and we need to recognize those options as being realistic and then we can pursue a course. Hopefully, together we can work on this. Back to the ’85-’86, along in there we set up some cooperators. We established some fields. We went out and actually paid growers, or paid set aside acreage, you know give you give you "x" number of dollars and we give you the following steps. We outlined in brief detail what we wanted and there were some who couldn’t stand to see that level of impact damage and started spraying which is contrary to what we had in mind. A couple of our field were very specific "do not plow will be used as stubble" and they plowed. Those were mistakes and we made them. Flood irrigated, we did that one. There are some, the tradition in Utah, like spring housecleaning with the ladies, happens every year, burn all the ditches. All the habitat and all of the ditch banks was burned. Does burning kill the CLB? Burning does kill them. They take the flame throwers and go up and down the ditches, it works. In fact I made the statement one time with Gypsy Moth in Utah why don’t we just set the place on fire. I got the idea from you guys up here. Those are mistakes we made. We do have two parasites established, we have those like I mentioned, but they are limited. The thing that came along right behind then was the drought which was very difficult for us. Then we got into a program which I learned from you a lot of our infestation is in the northern third of the state of Utah on the Idaho border. We have some heavy drain fields on the border and they have some heavy drain fields just over the border. One thing that we have
noticed in the drought is that there are irrigation systems installed, circles, etc. much of the area that was dryland is either you irrigate or your out of business. You get down to 10-12-15 bushel per acre some of that dryland economics is not there. The last couple of years we have this friend called the Russian Wheat Aphid visit us and we started spraying 20-30 thousand acres of that and right in the same area. We have about 100,000 acres set-aside CRP ground, some of the major varieties of planted grasses is the very thing that the Russian Wheat Aphids number one favorite host. I think that a lot of our grasses in the set-aside would be to add some other strains and varieties so that we could have saved ourselves headaches. It is hard to conceive to have 160 acres set-aside of grass absolutely loaded and have a nice grain fields right beside it. In our country, they have not sprayed set-asides. What we are doing to develop a program that is contrary to what we are trying to do over here and they are sitting side by side and it is almost the same operator. I think that we can live with the CLB in Utah if we can manage it and make the right decisions and I think you guys can here also. How many times can you go over a piece of ground or how many added costs can you have? I remember when I bought my first combine, I was 18 years old and just graduated from high school went out to get rich. We had some dry farms and some fields that I’d do and also go out and do custom work all summer long. I remember it was an enjoyable summer. It was about $10,000 that I paid for that machine and we combined for $9 an acre and made money. Now what is the price of a machine: $100,000 plus and the cost per acre. Our factors are changing but we have no-till in our country down there. You don’t even plow anymore because you can not afford to. It is a one-time-over deal and you have to have 150 horsepower to pull that no-till. This $3, $5 whatever it is per acre for another insect is another time over is another "x" number of bushels per acre, how many times can you do that? Can you do it for Russian Wheat Aphid, can you do it for CLB, can you do it for the drought? How many added costs can you put on? We kind of use the format down there of 15 percent damage before we start spraying on Russian Wheat Aphids or pests. We have sprayed ourselves into problems in our insect control program in Utah. And I say that seriously. I think many times we have already lost the 10-15 percent before we have ever sprayed. Thinking if we sprayed, we would have minimal damage. Maybe it wasn't worth what it cost and the result we got from it. We may have been better off just staying home or going fishing. Those are some of the issues that we have faced in Utah. We are going to continue on with the program. When I called Tom, we indicated that gears had shifted to the Russian Wheat Aphid and some other areas and APHIS was not in the program directly like they were. We had made arrangements with Utah State University, some of you may know some of our people there, we thought the best approach and you may want to consider this, go to the universities and we had some acreage that is almost the model of what you have here where you take 10-12 acres, plant the different varieties at different times. We had it all set up and ready to go except we didn’t
introduce any parasites. Our mistake was going to private operators and tried to do that and they did not cooperate. We did not have the control measures so my recommendation is if you try to do this, be sure that these people cooperate with you. It is a contract entered into and you have to reimburse them for there losses because there will be some loss. It takes a number of years, three to four to set the thing up. We found that when we found the pests and introduced the parasites we could reduce the spray program, we could have a small single figure loss and live with it that has been done in the east, they live with it, they don’t spray, is that right? and it works very nice. So why can’t we do that here. Now that was our objective and I still think we can, but with the sprays for Russian Wheat Aphid and the sprays for everything else, our aerial applications now, we have to be careful we don’t spray ourselves out of business before we get into business. I think that we can do it, I don’t think we will eradicate it as I said, but I think we will do it. Are there any questions that you have about the Utah program? (Roy) Have you seen any economic damage like we saw on the slides today in Utah? (Tom) It may be before Van’s time, but yes. (Van) Here is just a handout, I just pulled out of the file, I apologize that it has my name on the top of it, just a little document. There is a lot of duplication what was said here but it gives you a little background but in 1984, I think you will see in the opening paragraph that there is 30-40 or 40-50 percent damage in that 1000 acres. So yes, it will take you out of business. I don’t know how many of you can loose 30-40 percent of anything that grows. (Tom) From what I have seen, you are a long ways from what Utah had when I was there in 1985. (Van) What would you estimate your damage is in your heavily infested areas right now? 10-15 percent, 20 percent? (Gary) Nothing approaching that from what I have seen. (Van) My experience for whatever it is worth, you don’t have a treatment program. (Tom) I didn’t see anything that would even come close to one bushel per acre loss. Now that is not taking into account what your stipulations are on malting barley as far as quality is concerned. I don’t know what those are but you are a long ways from what I saw in the midwest. (Van) About the grain industry and the corn industry. Let me shift gears there a little bit. I won’t get into the technical part of it because you have an entomologist and others who are on the agenda who can do that. We have in Ogden, north of Salt Lake, what we call the Ogden Grain Inspection Stations and we exceeded 48,000 samples. They have 10-15 full-time employees there, plus about that many seasonal employees during the harvest and that is a certification of grains coming in from Montana, Idaho, Colorado, Utah, all the western states, coming in there accumulating and going and graded for protein, purity and the various grades that go on the FGIS. We load rail cars there, putting four semi’s on the rail car and 36 rail cars on the train, and send them for export or to the west coast or whatever. This program is going to impact that very severely. The movement of these trucks, this hay, Utah is big in hay and alfalfa. Probably 75 percent of our state income is probably livestock, and alfalfa is probably our #1 crop and grain is close
behind it. So these pests are going to be devastating to a major higher agricultural industry in our state. We are going to have to fumigate if these mills, these elevators and these storages, if we are going to meet these quarantine requirements. We are going to have to certify that some of these fields and some of these counties are clean. If they are and they will accept this, that is fine. If you put your name on the line if you do that. If your in violation, you jeopardize your quarantine if you are caught. (Gary) Have you had to fumigate stored grain that is going into California? (Van) We have not had to up to this date. (Gary) I wonder why that is? (Van) I don’t know. (Dunkel) Are you under quarantine? (Van) We are not under quarantine on the CLB until I get home probably. (Dunkel) Has FGIS found it in your samples coming in? (Van) No, they have not. We have in the particular grain fields that we are talking about in the northern, you mentioned the dairies, used on the farm in livestock feeding, they have their own mills, they do their own chopping, rolling, and this sort of a thing. The dairy buy out and all those things that we have gone through, changes that in a hurry. One attitude that the university took, and it may be something you want to consider, I eluded to the CRP set-aside and the varieties of the grasses you plant there. I think we could have done a much finer job when I look at the species of the susceptible insect and what we selected to plant there. One approach we are using at Utah State University is to try and develop some varieties of grain that are resistant to CLB and I think that is something that we ought to look at very closely. There are some hard wheats, three or four varieties, they have just about determined they are resistant to CLB and maybe that is something that we look at very closely as there may be several others. Maybe some research work could be done there. (Van) What is the mechanism of this resistance is it pubescence? (Van) Yes. Tom do you know of any other varieties or some other strains? (Tom) There is absolutely no resistance to barley or oats. (Van) The pubescence acts against larval feeding? (Tom) Against egg laying, it keeps the egg up off the plant so that it desiccates. The female beetles have a hard time backing in and laying and trying to deposit eggs. (Van) When you first found CLB in Utah, California did not impose a quarantine on your state. (Van) No. We have never been under quarantine for CLB. (Van) I wonder why they have in Montana? (Van) I can’t answer that. I know that the minute Apple Maggot was found in Utah, we were under quarantine. Idaho went three or four years without having it on them. So I don’t know. In Utah, our position has been that we have never tried to hide anything, we have always tried to be honest with our surrounding states, if we have it, we tell you we have it. I can tell you we have it in five or six counties right now, in the northern part of the state, it is spreading and I have listed the counties in the literature there, spreading very slowly. They are counties that are good grain producing counties. They are counties this material will find it way into the mill, the elevators, it is a concern to us. The straw, the alfalfa, the grasses, are a concern to us. We have a quarantine on us from Montana. Did you know that? You guys won’t take any of our
alfalfa for some reason up here. What do you think the reason is? Noxious weeds. The forests—(Roy) the counties. You have game preserves or hunting units that won’t let Utah alfalfa hay come up and be spread around those units and now we have to certify that the alfalfa coming here is free from the noxious weeds. Hey, we appreciate that. We are working hard to honor that and we are writing a program down there now where we go out and we certify the fields two weeks before harvest and we are just implementing that program now. We are going to send you what you say we have to send you and we are going to put special twine on the bales, maybe. There are different ways of looking at it. We may have a few extra tons at the border and someone comes along with a saddle horse and is wondering why you are charging $500 for a permit to hunt whatever he is hunting and he gets there with three bales of noxious whatever and you won’t let him in, we just set those three bales aside and sell him three bales of good stuff and he goes on. I think that we have to look at the consumer, look at the populations needs, our regulatory programs can not prohibit people’s lifestyle, you know, I think that we need to work with them and make it a good working relationship. (Tom) One thing to keep in mind is a lot of commodities that restrictions were put on to and evaluated as risk were based on extremely high CLB populations in the area. I think that many of the commodities that were regulated at the levels that you presently have, the potential is nil to none for them to harbor, such as grain. The only thing that I can see is maybe fresh cut grain harvested and shipped and you go through drying and you go through storage, these conditions are non-conducive. It is going to be educational because they are basing all the decisions on old information. This information was gathered under a different set of circumstances than under what you find yourself today. (Roy) California’s quarantine is that they do not have any information about the infestations in Montana. It is an unknown. We couldn’t provide them with the infestation levels. The information we got was from two or three sweeps where they found four or five beetles and California quarantined us on that assumption. There is absolutely no information to back up what the levels of infestation are, whether it is of economic importance to the state. (Van) But that behooves you to do that though. (Roy) Yes, that’s right, that is why they quarantined us because they want more information. I am positive that once we give them our information, we will be in a similar position maybe as Utah. (Van) My recommendation is that you accept the challenge and go out and do your homework. (Tom) I would hope that APHIS would have a lot of that initial information so that you don’t have to go back and repeat too much. Some of this stuff you are going to have to repeat. Most of your research that was done did nothing on malting barley. There is an altogether criteria and economic
basis. (Van) Do you have a malting barley operation here where you actually receive the grain and process it here. ( ) Well not process it, receive it, yes. (Van) In Ogden they were going to put in one but I think they moved it in Idaho. Utah was being considered and would have had tremendous impact on those insects. ( ) I got another questions that’s interrelated to North Dakota where we have the European Corn Borer. In Utah, do you have the European Corn Borer. (Van) We have a quarantine coming in. It hasn’t been found in the state. The point is, they have the ability to put it on, and they have the ability to enforce it. I think that you have to recognize that. My recommendation for us and for you is to do our research, do our survey and if we feel that we are a threat, then we ought to follow the guidelines, if we feel that we are not a threat, then we ought to stick to that. Let me just give you one example that might be related. In the Apple Maggot quarantine, they said you will spray, you will parameter trap every commercial orchard in the state of Utah at 150 feet around every orchard. Now that is a lot of traps, that is 16,000 traps, that and a crew of 12 people at all times. That is pheromone traps. 150 feet around every orchard and you read those traps twice a week and replace with new traps every two weeks. Now can you imagine the magnitude of that job. From the first fly you catch, within a half mile of any commercial orchard, every orchard will spray, every 14 days from the day of the first catch through harvest. Now you can be one-half mile away and never catch a fly in your orchard and you will spray every 14 days. The cost of some of those spray covers in some of those major orchards is the price of a new automobile. So every two weeks you are buying the equivalent of a new automobile or new pickup truck and you don’t have the pest in your orchards. Now that is serious but we were able to negotiate with them that not half a mile away but quarter of a mile away, that is important. That has made a lot of money for us and then you sprayed at the first catch and if you didn’t catch again, you didn’t have to spray except your normal interval spray for codling moth or whatever you were doing for APHIS or whatever, but only as you caught again did you have to spray. This meant only a spray of a couple of covers in a season. That is the difference whether you stay in business or whether you don’t. You have to document, you have to go out and do your homework. You can modify the quarantine and they can be compatible with both parties but you have to do your homework and you have to work at it hard and you have to spend a little money up front but it is peanuts as an end result. I think that the same thing is what you are facing with the CLB (Roy) California has agreed to review the quarantine not only on a regional basis but on a nationwide basis, but what they are saying is that they need information to base their decision on as to what they believe is an economic impact or problem from receiving the product. The ball is in our court to get that information to them. (Van) And that is not all that bad, be grateful it is in your court because it gives you a chance to do something. (Gary) I am wondering if California is worth it. Can we sell it to someone else and put pressure back on them a little bit. They raise apples too and
maybe it is to their best interest to put extra pressure on other states so that, you know, to keep apples out. (Van) We call that down in Utah, hardball. We said at one time, we had a quarantine on musk thistle coming in out of Idaho. We told Idaho you can’t send us any bulk shipments of grain. It made that little kind of headline newspaper thing and in about two days I got an article from an Idaho newspaper saying we can’t send barley to Utah, Utah can’t come up and hunt our pheasants. (Gary) That is right, that is what we need to do to California. (Roy) You have to remember that North Dakota would love us dearly because North Dakota would sell all of the barley into California. (Van) You have to make that decision. My position is that we need to keep every market, every opportunity open. The world is very small and the minute they shut the Utah hay off, we went to the Pacific Rim and probably bettered ourselves. I think in public office, it is our responsibility to keep every avenue open any way we can and let the free enterprise system work. Let supply and demand find itself and second guess ourselves or shortchange ourselves saying we don’t need California. Right now we have a quarantine on us where we can’t ship cherries into California, sweet cherries, you can. (Roy) There is a good example, Utah and Montana have the same quarantine but we can ship cherries into California under compliance and we do ship a lot of cherries into California under the compliance agreement. The responsibility is back on the industry and it takes one larvae to throw out that warehouse out of the program. They take pride in that program and it works, and works very well. California accepts our cherries with open arms. () Have any other states imposed a quarantine on you for CLB because normally what California does a lot of other states will follow suite. (Van) No. Do you have any on you besides California? (Roy) Not that I know of. (Van) California is kind of a working type thing isn’t it, it isn’t full-fledged is it? (Roy) They have listed it as the entire state as being quarantined but we have clearance on some counties. (Tom) Once the federal quarantine was dropped, I think that everyone assumed that it is going to be introduced, it is going to take that special spot because as you get further west the conditions are not conducive for establishment. Once you drop below that precip then the likelihood of CLB becoming even established is very small. (Van) Let me just shift gears a bit to different insects because I think we can relate and learn from them. I go back to the Gypsy Moth, we found that in 1987, July 21, which is the end of the season so to speak, we determined just some egg masses and second life stages, we had about 1200 acres in the highest populated residential section of Salt Lake City. The homes there, one of them for example is the guy who invented the Jarvik Heart, they are multi-million dollar homes along the Wasatch Front and that is what we were asked to spray over the top of. Swimming pools, Porches, you know that take the paint off, you know! Well that is a challenge. We determined the spray 1200 acres three times, last May 10, 18, and 28th last year. So we imposed on ourselves a big buffer of 6000 acres around that 1000 quarantine acres, no one going out of this 1200 acres is going to
move Gypsy Moth. We have approaches 1) treat and kill it and we had a 95 percent kill where we treated. 2) There is nothing that will move out of this area. We are going to put a big buffer around it. 3) No one moving into the state of Utah from the infested areas is going to move Gypsy Moths again. When you come to Utah and you are from an infested area, you have to register with the Department of Agriculture and we track your route for one year or you don’t get a driver’s license, or you don’t get a license plate on your car. That is how serious we are and if you move out of that quarantine area with a commercial mover, he won’t haul your stuff unless there is a certificate from our department. Your caught at a roadblock, it is $5000. Now that is how serious we are. This year we moved that to 20,000 acres. The quarantine is 150,000 acres. Now you say it is getting away from us, no we just found it. Last year was the first year that we had a chance to trap everything in our state. We know exactly where it is, we know what we got, and now we are going to get rid of it. You know, we had three complaints that we documented on our spray program this year. We spent $1 million and we had three phone calls. For health reasons, I was just getting into the pool and you came, I was sunning on top of the roof and that sticky molasses hit me in the wrong place. I use that as an example. It can be done but you have to do it yourselves and we are serious about eradicating and don’t want a quarantine from you guys and we are not in the Christmas tree business, we are just trying to protect our watersheds and the value of our property’s. (Tom) In addition, you have a big difference in the Gypsy Moth program than you do with CLB in that you have good survey tools up until the last moth. Whereas in CLB you have the sweep net but as the feds found out back in ’63 a sweep net was 500 miles behind the actual leading edge of the CLB infestation. (Van) It is kind of like what the Fish and Game use, I don’t know if any of you have deer damage in your orchards. I have a 20 acre orchard of fruit. I asked the Fish and Wildlife about there not being any leaves on the trees from (waist) about here down. They said lawn rabbits, and all sorts of things. My wife would plant bulbs and the bulbs would come up and you know better than to plant yellow tulips, that is their favorite. I planted red tulips the next go and they said don’t plant red tulips as those are their favorites. I said would you come out and do a survey on my orchard and see how much damage these critter have done, you know 50, 60, 70 head a night in your orchard are eating something and they came out and they had this formula where they go down ten trees, read that tree, go left twenty trees and read that tree. When they got all done, I think I had lost 50 bushels on 20 acres. Three years ago I fenced with an eight foot deer fence all the way around it and in three years I have doubled my production. From 50 to 100, I guess. The formula like you are talking about is not realistic in some of these things where you have the pheromones and the ability, you can do a pretty good job. Where you sweep and walk an "x" number of steps, and sweep, it is by guess and by golly. We have learned a lot, but we still have the problem. I think our problem, maybe you will find out is similar. Maybe you have
about the same number of acreage. We are doing an extensive survey now, we have been for about two to three weeks and I was not able to get the data because both guys were out of the office just before I left because Roy just called my Thursday and I started to head out here like Friday and Saturday so I didn’t get the data but I will get that for you and I will work with you as far as counties, acerages, you know, what we are doing, what we have got set up and so forth. We are spraying a little bit and it is a little worse than what it was, it is hitting a few more counties. I think your economic losses as to whether do you spray or don’t you spray, I think we are still about right there. I don’t see 30 – 40 percent damage, I see 5 – 10 percent damage. Basically, I think we are living with it is the bottom line. (Tom) We made a projection back in 1970 of where it was going to be a problem and where it wasn’t, it has held true ever since. (Van) It is right on the money. (Tom) Once you get past the Mississippi River, the precip drops and the Dakotas is the next place that should have had CLB problems and we said that they were not going to have any except on the river routes. I think that they can only find them on the river routes and that isn’t even a problem. (Van) Tell me a little about your country here. Do you have dryland and irrigated? (yes) Are you finding it more in irrigated than in the dryland? (yes) Are you finding it in the dryland? (not too much) Our experiences are with irrigated. (Tom) What they are seeing in the dryland, I think you have to get way out in the dryland because you are right, the dryland is right here on the river bottom and you will get some slop over. (Gary) Yeh, we went up on the rims three weeks ago and we could find it about two miles north of the rim and then it petered out. You had to look pretty hard to find it. (Van) That doesn’t surprise me. I would have expected that. () What we are saying is that it is not very adaptable we don’t have to be too concerned about learning how to survive cold winters or low humidity. (Tom) If you don’t have snow cover and you have cold temperatures, you are going to kill it. () I’m talking about actual changes in the insect itself. Is it going to adapt to our conditions in Montana? (Tom) We have 25 years under our belt and it hasn’t adapted yet. I can’t say that an insect is not going to adapt. Every insect that we see out there today is something different than what it was 100,000 years ago. (Van) Do you have enough ditch banks and brush croppings with snow drifting that you could maintain a habitat for them year around? () I can tell you right now the countries of origin. Look at Iran -- well it is hot, dry, when everybody thinks about it. The only place that CLB is a problem is in the higher elevation where the precip is higher and it is cooler. Down in the semi-arid areas and stuff like that, CLB has been there forever. (Van) Since there are not more questions, I’ll turn it back over to you Roy.

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Since the appearance of the Russian Wheat Aphids, growers
are becoming more aware of what is happening and we are encouraging them to do a little bit of scouting and monitoring. One grower right here in Yellowstone County, very close to where we are right now took the suspect CLB into the County Agent and sent it to me and we were able to determine that it was CLB. I sent it down to Jay Kerin because I went to B.Y.U. with Jay and I know that he is a specialist and he confirmed it right away. Jay has been very good to send me a lot of information. So that is how we found it and then Chuck Egan, County Agent from a neighboring county, Stillwater County, and his county and we found it down in Carbon County. Now Will Kissinger sent out a letter to Californian's to try to facilitate matters and he mentioned in that letter that we would be doing some surveying for CLB and we went out three weeks ago and we surveyed quite extensively mostly in Stillwater and Yellowstone Counties. We went up in this area here looking for CLB. This is where we found it last year, incidentally, along the Yellowstone River and this is just projected. We don't want to get any more counties involved. Earlier on, a month to a month and one-half ago, we did find it in Bighorn County and I should have kept my mouth shut because we now have Bighorn County involved in this quarantine. It was very low numbers. We scouted about 45-50 fields and found it nowhere up in this area at all. We had to wait until we got back down near Park City where we found it fairly low numbers but we could find it quite easily. Then the next day we found it in every field that we sampled but we had to look very stringently in some of the fields. I suppose it is like you were talking about, it is hard to find it in certain fields. I would venture to say that Wyoming probably has it, although it is not our place to go down there and find it for them and I don't suppose they would want to. The questions was asked earlier if we had scouted the whole state, well we have not. We don't think that it is in any of the other counties. It has never been turned in. We have a little bit of a different situation with our malt barley, we don't really know the economic thresholds on the malt barley. We had two fields of malt barley have been sprayed here in Yellowstone County. We were wondering whether or not we reached the economic threshold level and we looked at the information from Michigan, Ohio and the other states and the threshold level that they were talking about, we hadn't reached that level yet. I'm talking with some of the representatives of some of the brewing companies, they have to have a plump kernel for malting barley and they can't fool around with the protein levels. We did not know how the larvae affecting the broadleaf would affect those conditions. I understand that there were a couple of field of malt barley that have been sprayed. Does anyone here happen to know how many acres have been sprayed in Montana, I don't think very many and possibly those were not even necessary. We are not sure at this time as we have to get some information on malting barley. Wendell Morrow, specialist on cereal grain insects, is here and he is going to do some research on CLB. Wendell was out last week looking at some fields in this area and he was going to set up some research plots and he was not able to find enough of an
infestation of the CLB to put up his plots. Yesterday when we
came up here, we thought that we should check some fields to see
what was up here because we did not want to be embarrassed in
going out and not being able find it. He bet me a dollar that we
couldn't find it in the first field that we stopped at and I won
the bet. We don't know what is happening Tom because three weeks
ago when Jim and I were out, we could find very, very few adults
and mostly larvae and then last week, Wendall couldn't hardly
find any larvae and now we are seeing quite a few more adults and
so we were wondering, we were a little confused and were thinking
that maybe we were having a second generation but it is not
supposed to be. We were talking with Tom a little earlier and he
said that there is just one generation and that we must have had
a cold wet period that will arrest the activities of the adult
beetles and so I guess that is what happened. We must have had a
little bit colder and wetter weather than I thought we did because
there are quite a few beetles out there. In the field that we
were in yesterday, there was a field of corn right next to a
field of winter wheat and the beetles were in the corn and
epecially the wild oats, they were really going after it and
that is where found the four beetles on some leaves. We were
thinking that either there has to be a second generation or there
are some adults that have emerged since two or three weeks ago.
(Van) What stage of development is your grain? (Gary) That
grain there is about this high but the field of corn right next
to it, your corn is about this high and the wild oats are in
there. They were in both but we could really observe them in the
field of corn. We couldn't find to many on the corn but the wild
oats right next to the road were really loaded. (Wendall) Most
of the grain is flowering, it is headed out and flowering. There
is a field close to here that is still in the boot stage, the
field is half wheat and half alfalfa perhaps we could look at
that this afternoon, I'm not sure where we are going to go. The
beetles are quite heavy in there like we heard earlier, it is a
late field and is preferred. (Van) Do they have any data as far as
what stages the CLB does the most damage? (Gary) Well, after
the soft dough stage, like with any insect, you can kind of
ignore them after the soft dough stage but until then you have
to protect the flag leaf. (Tom) The flag leaf is the most
pertinent. (Van) As far as feeding on the plant, does it prefer the
flag leaf more than the plant? (Gary) Well flag leaf is more
succulent. (Van) They say that if you loose your flag leaf, you
can loose up to 15 percent of your yield. (Gary) The flag leaf
is the most critical thing. That is why we sprayed the malting
barley because we did not know what they might do. They are
easily controlled. We have Seven that we can use on wheat. We
can't use Seven on barley so we had to go with Malathion there.
Seven is not registered for barley for some reason. They are
quite easily controlled. (Van) That is what Jay Kerin told me
that Seven would kill the eggs, whereas Malathion won't and in
some field in Utah, I guess that they had to treat more than once
where they use Malathion. Whereas Seven seems to be one
application will do it. (Gary) I think with the little number
of insects that we have maybe that one treatment of Malathion
will do it, except now we are getting another influx of adults out so we don’t know how it is going to shake out. () In Michigan, Illinois, Indiana, did they get more than one generation per year? (Gary) No, it was just the one, and that is why we were confused. Jay Kerin told me there was only the one. I have a distribution map here but you have already seem pretty much the distribution of the CLB in the United States. (Tom) Something that you have got unique here is that most of the states in the east don’t have is the canyon where you have a south exposure and a north exposure. That south exposure sure heats up a lot faster than the north exposure so you are going to have a delay. You are going to have beetles coming off the south exposure first and maybe two, three, four weeks, even later you are going to have beetles coming off the north exposure. (Gary) Maybe that is what is happened. (Tom) Maybe that is what is good because it is not going to be all at once. All at once is when you are going to have more problems. They are spread out and you are going to have less of a problem. () That map needs to be corrected. (Gary) Yes. TAPE 2. We can find CLB in about any field we want to look at in the Yellowstone Valley, but on the up on the bench, they are pretty scarce. Any questions? (Gary) on your U.S. map, didn’t they find CLB in Illinois and Ohio? (Gary) Yes, (discussion was multiple voices discussing map) I’m sure it must. (Tom) If you go by the NAPIS System, the data is only on there for three years and so most of those states you are talking about is stuff twenty years ago. That is why I say, if you take the midwest maps that I brought, those are much more realistic. What I don’t have are the new finds in the last five years. (Gary) That is Utah and Montana. (Tom) And I’m sure Colorado, Wyoming and parts in between. (Dunkel) There are two issues really, one is economic damage preharvest, and what about the quarantine that has been put on the stored grain? I think the issue that is most immediate right now is protecting the grain that the farmers have produced in those four counties or whatever other counties it is going to be found in, particularly the grain that they are wanting to sell. Roy Bjornson and I both feel that the onus is on Montana to lift the quarantine that California has imposed on us. What we feel is important is to gather the information that exists on whether the CLB can survive in stored grain, can survive the temperatures, can survive the first part of storage, and then can survive the winter as farmers usually store their grain and put it on the market. As far as we can tell from our literature, this information doesn’t exist. The hypothesis is that it does not survive. I have talked with stored grain people and none of us feel that it has survived. Our plan is that we are going to do a laboratory study with CLB adults from a new generation and we are going to look at lowering temperatures and higher temperatures and perhaps simulate the process. That is going to take some extra funding, it is going to take time. We have to simulate at least a three month storage period. We hope that will do it and we hope that information could be available perhaps by February. (Tom) Is small grain the only thing that going to be quarantined by California? (Roy) That is the only
thing that we are shipping now, but (Tom) no hay or straw (Roy) no, it is a regulated article but to my knowledge we have not received any complaints on the hay or any other. (Tom) Do you know what they do with livestock bedding, etc. that may be shipped into California? (Roy) No. (Tom) what restrictions are on them. (Roy) No, these are all things that we need to get together and start asking. (Dunkel) Right now the fact is in '88 Montana shipped about 14 million bushels of barley to California and that is a lot of money. The same thing will happen in the 1990 grain if we don't do something about it. (Roy) I'm hoping that California will, if we can come back to California with a good document saying that we completed our survey and found certain levels of CLB, we don't believe that there is an economic problem with it on plant materials and let California review that, then we have a pretty good chance of having them lift that quarantine. But right now they have no information and there reacting in the only manner they know how and that is put a quarantine on. (Van) The reaction of the purpose of that quarantine is not to keep you out of California, the purpose of that quarantine is making you do what you are going to do. (Roy) Right, and I think that California is a little sensitive right now to a number of other insect problems such as the Mediterranean Fruit Fly and also initiatives are coming through the voting public on "no use of pesticides" and they are nervous on what could happen to their agricultural industry. I think we have good chance in getting this quarantine modified on just from what we have learned this morning, we have a pretty good idea about how we should approach this problem and what areas we need to concentrate on. California has already agreed to review the quarantine so that is a positive step right there. What they are saying is, get your stuff together, we'll take a look at it and Van has worked with Dr. Siddiquii as well as I have, and they will be reasonable to deal with but we have to have our act put together. (Roy) in your compliance agreement does it say anything other than fumigating or putting through a mesh screen or anything? (Roy) No. (Gary) I'm surprised that California is willing to look at the infestation levels, I would think that one gravid female would be all that they would need, but if they are willing to look at the infestation levels, I think that is up to us to provide that information to them. (Van) The normal reaction in California is that if you have a pest in your state, they just quarantine the state like that (snap of the finger). The fact that they have only said that we will only quarantine those four or stored or whatever, you are on second base right now from home plate. All you have to do is finish your homework and you will score in my opinion. (Roy) I think that is true. (Dunkel) I think so too and I think the point Tom is that perhaps we are looking at the wrong commodity. The quarantine was not based on finding CLB in the stored grain from Montana that went to California, it was as far as I know, there was never a CLB ....(Tom) I can't recall what was in that quarantine that I sent you, it was broke out by commodities and high risk, medium risk, low risk and I thought one of the amendments was on small grain that had been screened. (Roy) The
quarantine I think reads that if grains that can be treated like seed or screened or that will meet seed certification requirements is exempt from quarantine. (Roy) It is cheaper to screen that grain than to fumigate it isn’t it? (Roy) Industry would have to answer that question depending on how they are set up and how they handle it. (Roy) By screening, you are talking about running it over sieves to separate into different sizes. (Don) It was mentioned that they can be transported on Christmas trees too. (Gary) Yes, they don’t feed on the Christmas trees, they hide under the needle scales. It is an overwintering site. Probably hay bales, I would think would be more suspect than anything else that we send out of state, and straw. (Van) How would you supervise that? As the doctor mentioned, it may not be in the grain itself, we may be looking at the wrong product. Say it is in the alfalfa, then what do we do here. That is what is scary to us. (Dunkel) Are we as big a shipper of alfalfa and Christmas trees to California as we are of barley? (Gary) Not from this area, alfalfa; I don’t know. Christmas trees, I don’t think will hurt us but the alfalfa thing could. Can they fumigate alfalfa? (Van) Well that is the question that we have and we may be looking at a carrier that is difficult to address. (Roy) Would that beetle live through the cubing process? (Gary) No I wouldn’t think it would, no. (Roy) See that is the way that it has been shipped to California, mainly through cubes. (Van) But not all. (Roy) But not all, no that is right. We are going to that because of the system of economics. (Tom) How much bedding and hay is going out in horse trailers and trucks, railroad cars and that is where the potential is. (Van) We have in Utah, a lot of grain harvested and the semi’s are pulling off the side of the fields so to speak. We have a lot that go from the farm out. What is the chance of that being detected? (Tom) That is not good because of the direct field harvest, you are picking up the beetle and moving it directly. When grain goes through a cleaning or storage process you are automatically going to get a drop out of the beetles through screening process when you are going into a storage high death situation and adults can not tolerate that. (Van) You could have on the farm shipments jeopardize your quarantine just like that. (Roy) Yes, any farmer that is doing any marketing in California has to have a compliance agreement with the department or he is in jeopardy of losing his right to ship into California. OK lets break for lunch right now.

(Tom) Another thing that you must consider if you do implement a biocontrol program is keep those insectaries out of flood irrigation or field irrigation situations and you are not going to control CLB because you are going to destroy the parasites as well. (Gary) Under what consideration should you, we have quite a malting barley industry in our particular county. We are running high volumes of water. One of the cultural practices in malting barley is once it has gone to head, continue applying water to it so that the protein does not go up and it is acceptable by the breweries. (Tom) Is this malting barley area of more the open prairie or flatland? (Gary) No it is
basically within valley’s bordered by river land, timberland, and
then they rotate around their crops. They have barley,
sugarbeets, and alfalfa. (Tom) How much snow cover do you get
in the winter? ( ) Lord knows, sometimes it is bare ground and
sometimes it is four feet. I’m serious, I’m not being sarcastic,
it is hard to really come up. This year I think we averaged at
the ASCS office, something like 13 or 14 inches. ( ) That would
be a normal year. (Tom) Leaning back to let’s say Michigan, we
have normally a two week period before Christmas where it gets
extremely cold 18 degrees or below for a week to ten days.
Eighty percent of our larvae mortality occurs at that time. ( )
What is your snow cover at that time? (Tom) Zero. (Gary) We
will get down to 20 to 30 degrees below zero again for a weeks
period of time in the later part of November or early part of
December. (Tom) But when I say snow cover and the habitat for
the overwintering, that snow cover has to be dense enough to
cover them up. (Gary) To give the insulation effect, I
understand that. (Tom) I don’t know what your practices are, in
your small grains, is it common to leave the stubble, is that
fallow during the winter? ( ) In my particular county most of
our land is left in stubble and in the irrigated areas it is not
left in stubble, they are preparing the fall bedding for sugar
beets. (Tom) Then you are destroying probably the biggest
overwintering site there is if you are plowing the stubble in.
Thank you Gary, (Roy) Any other questions? (Bob) Are they going
to survey any other areas of the state or just these four
counties. (Roy) That is a good question, I think that we are
going to have to. (Wendall) When I’m looking at other parts of
the state for other insects, I can look for this one. For
example, I’m in the triangle quite a bit. (Roy) Industry
indicated that they would not like for us to survey for CLB with
the potential of having other counties quarantined. We should
be looking for the insect and if we find it, we should sit down
the three agencies involved and determine the extent of it
before we release information on the find. I’m not saying that
we want to hide the discovery of anymore infestations, but I
think we need to coordinate activities so that we don’t run into
this political buzz saw that we ran into about 30 days ago. I
think from California’s perspective, if we find it we report it
and we tell them how we are going to deal with it. That is the
proper approach we should take with California. I think to
answer your questions Bob is we should continue to look for it,
we should be very careful on how we report the find of it and if
we do report the find, we need to be able to deal with that
reported find up front and have it well worked out in advance
before we let it out into the general public. (Tom) I hope you
all realize that what I presented today was just highlighting and
you can take that information home and read. It gets into more
specifics as to what constitutes ideal CLB habitat and what does
not. There are things that I did not touch base on if you go
into a survey program and are just looking for finds, you are not
trying to get any density’s, stay out of turnrows because the
more dense the stand, the less preferred it is by the beetle. If
you have got a high, low spot in the field go to south exposure
on the hill and survey there first, that is the first part of the field that warms up and that is where the CLB will be, where it greens up first. Stay out of the depressions where water collects and grain is slow to start coming. These types of things are covered in a lot of that material that I left. (Dunkel) I would like to agree with Roy that indeed we have to have the survey ongoing. Announcing more counties right at this moment that would have the CLB is going to cause problems. The most immediate thing we have to do is to lift that quarantine on the grain and provide some type of long term good survey where a really good type of sampling is being done. The other thing that can be done is that MSU has a mapping system that is becoming more and more fine tuned but it maps habitats in Montana that are similar to habitats where whatever pest insect is occurring that you want to know about. (Tom) You can take these parameters that are known and show right where you should be concentrating your survey. (Dunkel) We are not going to publish a map right now that says where it is probably going to occur in Montana. We really don’t want to disclose that information at this point. We are going to divest our energies on lifting that quarantine and then we want a survey that will keep you informed. (Roy) I think that one of the things that plays a big part in this our the resources that we have to do a survey or any other type of research and it is going to have to be as can as catch can basis for the interim and I think we are all pretty much strapped for the resources in terms of any additional survey. I guess there was some concern raised about a letter that was written to California saying we would conduct a statewide survey. Well, there are various degrees in what that means in a statewide survey. We will have to work with California to make sure that they don’t interpret that to the maximum or to the extent that we can not afford to do that. I agree that our first and primarily goal is to try and get enough information put together so that we can get the barley at least flowing back into California from the infested counties. That obviously is one of our goals that we need to establish today and somehow all three agencies need to work towards that goal with the resources we have available unless we can come up with some way of convincing somebody that we need emergency funding and we all know what the current philosophy, not impossible but it would be a challenge for us.

(Roy) I think today we will ask Jim to give us an overview of what his office is doing and at the conclusion of that we will have pretty much gone around the table in terms of finding out what we all have been doing which is a good exchange of information and Jim you may talk a little about the site where we are going to. We would like to get out of here by 2:00 p.m., or shortly after and if we need further discussion on what our plan of action is or to further that discussion, we might take a few minutes after Jim gets done. Jim will you quickly bring us up to date and maybe talk about the site.

Jim Brice, Officer in Charge, USDA-APHIS, Billings

(Jim) The site out here is a barley site. We have an alfalfa weevil site where we had some parasitaries released here
years ago and while we were incidental to that surveying for the alfalfa weevil we did come across the CLB and the first one was found by Glenn Harruff who should be given the credit to, he was out there looking for Russian Wheat Aphid samples and he came across a few and we passed them on to the individuals that needed to be known. We found them most anywhere just south of I-90 next to the railroad track, next to the river, and an irrigated field. This is where we will be going. I will show you a quick map. Who needs a ride and who doesn’t need a ride? If you go across I-90, there is a bridge here where you go underneath the interstate like you are going to the Holiday Inn, Elliott Inn, are you familiar with that? There is a service road here, what is it Glenn, the second turnoff? (Glenn) The easiest way Jim is just go down past the Elliott and everything and take the first turn to the right and not the frontage road. Take the first turn to the left and you will go by a school to the south. This is Walter’s house and there are corn fields and we will all be right here. It is only a matter of perhaps one-quarter mile from the school. There is an intersection right at the school if anyone gets lost. We can kind of caravan going down there. (Roy) The department people will be taking our own cars and we will be leaving from that site to go back to Helena. Just an overview of what APHIS is doing in the state here as it relates to biological control, we have been very quietly putting biocontrol organisms out for alfalfa weevil, right now we are out of the real release sites but we are going back. We have 45 sites that we monitor this year throughout the state trying to find out if we have established some of these organism that we have released. We also have a couple of Russian Wheat Aphid sites that were, study sites, or whatever you want to call them, I guess a general release site, out here in Laurel, north of Laurel and we are also working with Jeff Littlefield and Bob Morsky on a very low profile that we are putting this out because we don’t want everyone running out there and pirating our organisms. In addition to that we have the leafy spurge sites, we have eight sites, and we have some plots while we started releasing, Gary put some out yesterday, some down in the Camp Cook areas, some in Blue Water BLM corporate program, we have some going, I guess by Babb. The sites are generally spread out through the state here and we will be working on those sites along with our cooperator Bob Richard at Bozeman. Just to give a little overview of what we are doing. If I put all of these projects together, if I got my biocontrol, my leafy spurge, knapweed, Russian Wheat Aphid, CLB to come extent, and then we are surveying for gypsy moth. Of course we had one positive find last year right in the middle of Great Falls, we got the traps in this year and we are monitoring them already. (Van) How many traps are you putting out? (Jim) We are putting out 650+ and the state cooperators put out about 650. (Van) We put out about 8,000 in Utah. (Jim) Based on our criteria, which is based in the western part, category 2 and 3, and then we have a number of special sites spread out over the rest of the state so we have the state pretty well covered. Of course we always have our perpetual crickets and grasshoppers. Fortunately we are on a real low with
grasshoppers but we have crickets coming out of everywhere in Big Horn and Powder River counties, a little bit at Custer National Forest. (Roy) Have you ever bothered with a baiting program? Here is Mr. Bait himself, that is why he looks so haggard. To give you an idea, we put out 11,440 pounds of bait in the last week. (Van) Last week in Utah, we were up to 60,000. (Jim) We could have if we weren’t tied up with this administrative business right now, we could have been pretty close to that. (Roy) Do you find it effective? (Roy) Extremely effective, it works at 80 pounds per acre. Our density’s are running somewhere between 20 and 150 to 200 per square meter. (Jim) But as far as grasshoppers this year, we have been blessed with a real wet spring, everything was lush and the grasshoppers were in a down cycle in the last couple of years and they went up here for about five or six years and everyone was waiting and they went down like that. In fact it is starting to come up a little bit if anyone is monitoring them. Our sentinel sites show that we really don’t have too many grasshoppers. I’m not saying that there are not going to be little hot spots in and around some of these cropping areas but our range man says it looks better than it has looked in a good many years. In addition to that, we have our borders where we are monitoring exportation and importation. That is pretty much what we are doing here, I know you know that APHIS is here, we probably take a low profile sometimes but we have a good many projects going. I guess we have implemented an export certification program last year and I don’t know if you have heard anything back on that yet Roy? (Roy) We are still waiting for D.C. to respond. (Jim) And we got all off the state inspectors all certified, not certified, they passed, they went through the homework, they did well, they took the exams and passed the formal exams for becoming federal certificate writers so we are pleased about that. You know how bureaucratic wheels change a little bit, things are kind of slow. (Roy) I don’t want this to be misinterpreted but, Jim, in reference to survey, what is your agency planning to do in the next three months? (Jim) For CLB? (Roy) CLB. (Jim) O.K. Our agency right now officially has no funding for CLB. However, as we usually do, we dovetail survey’s together. Now when we are out there looking for grasshoppers, for instance, particularity in these counties where it has been infested, our people can go into a field and take a couple of sweeps, look for damage, so on and so forth, or they are out there talking to a rancher and he says that I have something here, get it back to us. That is what we have been primarily trying to do and we will continue to do that. (Tom) Officially, APHIS is broke, you know. (Roy) Jim will you continue to interact and communicate with county agents when you are doing these surveys on these and I would appreciate it if you would do it on the CLB? (Jim) Yes, anytime. I will tell you what we can do which might be helpful, on our monthly narrative we could have our scouts come in on that day and tell you. What I try to do, and I know it is a positive, I go to the protocol and send it to the systematic lab to assure. I go through that process and check with Roy if he knows, because it is very embarrassing to blind side Roy with something that of a new organism that is of
quarantine. I try to work with the state to let you know what we have got. (Roy) O.K. MSU, who wants to be the spokesman? (Dunkel) You mean in respect to the survey? (Roy) What is your plan of action for the next three months or what resources do you have available, or what is your views of survey, where are you going to put your effort? (Dunkel) We have no extra funding, we have our committed programs and the salaries that go along with that, but they are all committed. I think it is important enough that we will set up laboratory, under quarantine, a storage test to see whether it will survive and what they would encounter in Montana. There were will be two extension entomologists around the state. It isn’t an official survey, I think we will continue the literature review which we have gotten a good step on so far. The other thing, in cooperation with your office, is find perhaps some of the unpublished APHIS data on storage, some lab tests. Wendall or Gary do you want to embellish some of the survey that you want to do. (Wendall) I don’t have anything more to say about survey but the other things that we would like from the research standpoint when you get to that. (Roy) Go ahead. (Wendall) I have some money from Montana Wheat and Barley Research Committee and they will fund research like this. One thing that we need to do is look at economic injury levels, we don’t know what that is for malting barley, it is pretty late to do that this year but next year we will probably do some artificial defoliations and infestation levels by moving larvae around so we can high levels, medium and low levels of the infestation and measure yields and quality from those plots. I think that we need to do something about what insecticides are effective and what are not. I know growers say, does Malathion work, do we have to use Parathion, so on and so forth. They need to look at those and the impact on the larvae adults and eggs as well as the beneficial insects. I am also interested in the biology of this thing. I think some things are happening that are really surprising us like adults are coming out at different times laying eggs, it almost appears like we have two generations as we have talked about already. Someone needs to keep an eye on that. I know it is a ways from Bozeman to Billings but perhaps we can come over from time to time to see what is happening with the biology of the insect. (Tom) I think that is critical in the case of Montana. What we find in Michigan does not necessarily apply to Montana. (Wendall) From what we saw so far this year, based on no other input at all, we would say that we had two generations because they had one flush of larvae that went to mature, a couple of weeks later adults were there mating and laying eggs and a second flush of larvae, which by any measure would say that we have two generations. Maybe we have two egg laying periods. (Tom) You will see two flushes of larvae, you will see a flush in winter wheat and then you will see spring planted dry grains. That is because the beetles are laying a certain number of eggs in the winter wheat. Once those spring grains come up, they are going to jump over to those spring grains. (Wendall) That is fine but these are in the same field. (Tom) I think that we have discussed that earlier to. (Roy) Gary. (Gary) I think that we know pretty much where the
populations are. We have been northeast and west but we haven’t been south yet. We know that they are in Carbon County and that goes to Wyoming so I don’t know that we really need to do much there. (Roy) From the Department of Agriculture’s point of view, we are going to have the compliance agreement in place by July 1 with the stamp which is a CLB stamp for the stamping of all labels of commodity into California from non-infested areas. We will be assisting in fumigations and issuing certificates on fumigations for those people in infested counties who wish to ship. We at this point have no money or no resources for survey but we will survey catch as we catch can. I guess that at the conclusion of this meeting we have to get our heads together with the three agencies and see if we can’t “come up with a formal response to California in reference to survey to see if we can’t satisfy those people in that respect.” We have a good dialogue with California, we worked with their quarantine people. I know that Gary has been working with Mr. Clark down there in terms of trying to get as much information to him as possible so I think that everyone sort of knows what they are supposed to be doing. We just have to bring it together a little bit better and maybe I’ll pull the same string for money resources and put those resources where we think they are going to be the most effective in terms of convincing California to raise the quarantine or lift the quarantine. A combined effort will be needed by the three agencies or whoever involved to do a good job to keep our superiors informed in terms of what resources we need. It definitely does follow a parallel to the Russian Wheat Aphid so there may be some overlap or some benefits to that. We do have some questions to which we do not have answers for and as you mentioned Wendall, we need to get those answers and hopefully we can convince California that we don’t have an economic problem or that our thresholds levels are low and there isn’t a situation that would harm their agriculture.

In concluding, we thank you Van for coming up and sharing with us what Utah has done. You guys have been winging it down there on your own. In that respect I think that Van and Montana and probably Idaho and Wyoming, particularly in the western region need to get together and sit down with APHIS and talk about where we are going to be at with this insect in five years or should we be building towards some type of a biological control program and at what level we should enter into that. Utah you are ahead of us. If we can get into a program that will please the politicians and please the industry, then we are right on course. So Van we thank you for coming up. We also want to thank the rest of you people for coming, I know you have busy schedules.

Derald do you have any questions? (Derald) I came in kind of late but I have some questions you have probably already answered. (Roy) Go ahead. (Derald) Has anybody any ever found one of those alive in stored grain that has been stored for a period of time? (Dunkel) Mainly no, in the infested areas it can be found in freshly harvested grain. It can be picked up live but as far as we know it doesn’t survive. Our best recommendation is that we consider this research urgent. As far
as we know, California has never found a CLB in the grain. They are basing it on a zero tolerance in the field. (Roy) Mike Mcklusky from General Mills called me and said that he had heard that California had found a adult in the grain and I got his name, I think it was Mr. Clark, said that Mr. Clark had told him this. I called Mr. Clark and I said "Did you or did you not?" And he said "No, I did not." He said that they were going on the basis of what we found here in Montana. Getting back to what my other comment was, unfortunately we have a lot of misconceptions circulating out in the industry right now and probably the best thing that could happen right now is don't panic. Let's work on this problem and get it thorough the system and there shouldn't be any need for concern if we progress in a positive manner and what we need is information to go to California and information that we can get them to raise the quarantine. We may be coming to industry saying that we need your help on some certain types of information or certain samples or whatever and I know in talking with Peggy Beltrone that we have support from your organization as well as any other organizations. We probably will be, as soon as we find out where we want to put our emphasis, we will be asking for some help on that. I think that stored grain is number one priority. (Gary) Do you think that growers understand that whether or not they treat their field it is not going to affect the California quarantine? In other words, we don't want growers to panic and say "I better spray my fields so that I can ship my grain to California." It is not going to impact the situation at all. () One small part of Big Horn County they have found it and that is not our major grain producing area but yet they quarantined the whole county. (Roy) When we talked survey, you have to understand what we are talking about. We want a survey that will identify the infested area and APHIS has been doing this for years. We may convince California that only a portion of that area within that area in Big Horn County is infested at this point but we don't expect it to go any further. If we can do that, we may eliminate Big Horn Counties problem. But the thing of it is, we did was broadbrushed the whole thing if we say that we have three counties infested. California says great, we have a quarantine. Now that is what I'm talking about, the more that we can refine our survey and get our techniques down and the more that we can delimitate this problem, the better off we have of solving some of our problems. (Van) One of California's standard policies is that if it is in any county, your state if oft times quarantined. We have an infestation of one county, we have been threatened three times of a statewide quarantine. It is only on three properties in one county. () We've got it on one property in a little bitty corner of the county and yet the rest of our county is not affected. (Roy) When we put that package together, we need that information, we know that, we need to be able to say that we can pinpoint that within one-half mile of this spot. () Roy, you need to have that in Montana, particularly in the size of our counties. We are dealing with different climatological situations, typographical situations, it is a large county, we have big areas in this state. (Roy) That is what I'm saying
this isn't a one agency problem, it is anybody we can involve in it to eliminate what this insect is doing. I think we want to leave that message with you that any information that you get we need to sit down and get that coordinated and put together. We are going to report back to our boss on what happened today and if he wants to take the lead role in developing that information then we will do that. I'm sure that he will be talking with you people at MSU whatever. That will be up to him to make that decision. (Van) Roy, I would like to make one more comment in closing, when you make your release, an announcement, information if a find, have a plan to go with it. That is critical. I like the approach you are making in surveying and detection because you can pull these quarantines down to isolated points if you do your homework. We pulled one down to 20 miles but it took a lot of documentation, but it is worth the effort. (Roy) I don’t think we should be afraid of the word survey. What we need to be afraid of is not being able to define what the survey is telling us. I think that even though it may be costly, we need to put that information together. (Van) Have a central release point when you release information, make sure it is coming through a committee or everybody makes the same release.

(Roy) O.K. Any other comments, any other questions.

(Derald) If we bring grain from unaffected areas, there is no way that I can bill it out of my elevator here, I don’t think without fumigating. (Roy) Not the way the quarantine is written now.

Travel to Survey Site.

pid/clbmtg

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If you would like a copy of the Cereal Leaf Beetle information distributed at this meeting, please sign below:

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