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BAIT AND BAIT MATERIALS

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CHAIRMAN BECK: We're going to change our style and approach for the remaining three topics. We have four speakers for these three topics; after each man or team presents the topic, we'll ask questions.

The first man to speak in the next group is Mr. Fred Courtsal who is the State Supervisor in Lafayette, Indiana. He's going to discuss bait materials and mixtures and probably a few other things. Fred is one of those individuals who can get wrapped up in bird control or rodent control and go all night long. We sent him home last night about midnight. We just told him it was time to go to bed and turn the lights out. This is partially because of his interest and what he makes his livelihood in, and it's also because Fred is one of our more intellectual people, and it is with pleasure that I present him—Fred Courtsal.

COURTSAL: I'd like to make some preliminary remarks. One of my duties is management of the rodent control fund; and because of my management practices, my national background is now being questioned. Therefore I wish to state I am a Yankee, half German and half French. Perhaps it's the Yankee in me that makes me as close as I am on some of the materials put out by the rodent control fund. As John indicated, I suffer from a disease; you may call it various things, but it's often called verbal diarrhea. So I will attempt to keep myself on course here. (Steckel: Did Faulkner diagnose that? Courtsal: He suffers from that, too.)

I had the fortunate experience, though I didn't think so at the time, of being a wildlifer that graduated from the University of Connecticut and who couldn't find a wildlife job. I spent 7 years with a feed and farm supply organization. At the time I questioned how much value this experience was. Now that I'm concerned with the baits and the rodent control fund at Lafayette, I find that this training comes in very good stead. There are a good number of similarities in the feed mixing business as compared to the toxic bait mixing business. I'm also fortunate in having a bait station foreman who was a master miller before he came to the rodent control fund. We together, I think, produced excellent and high quality baits.

Because people often don't understand, I'm going to take a few minutes to say something about the rodent control fund. The purpose of the fund is to produce high quality baits that are not readily available from commercial sources.

Note that I say "readily" available. It is rather difficult for instance to recommend a program where toxic baits are involved and not have them available. This is one of the purposes this fund serves. I might also say, for the benefit of my co-workers that the rodent control fund sustains all costs that commercial business does except one—and that one is profit. The rodent control fund, and I'll read that statement here: "is a non-profit, non-tax supported, revolving fund used for the development, preparation, and distribution of certain high quality animal control materials. Prices are established calculated to maintain the fund in its present condition." This is what we attempt to do.

The fund only produces materials that are registered by the United States Department of Agriculture. Two things must be done: it must be registered with any state that requires registration as well as being registered with the federal government. I have here information sheets which are duplicating the registered labels that we have on the two bird baits that are produced by the fund. I might also state that all the information—label, mixing, field testing information that the fund develops—is available without charge to anyone upon request. We do not have "closed formulas."

"Who can purchase this material?" is often a question I'm plagued with. We do not indiscriminately sell bait materials. These are available only to co-operators, and we have a definite definition of who cooperators are. These are people who we either instruct by letter, word, leaflet, telephone conversation, or by actual field demonstration in the use of these materials and associated hazards. PCOs we assume are already qualified as cooperators having knowledge of toxic baits.

I say this to form a base, because I'm only going to speak about bird baits that are produced by the fund. In my estimation, and in Mr. Clapfelter's, there are about six criteria for mixing good, high quality bait materials. The first one would be a toxicant. This is the first thing people talk or think about. I would assume that you would select a toxicant that has the quality to do the intended job. If you mention strychnine, fine. There are other toxicants.

One thing I do wish to mention is that these vary in purity. And it is very necessary when you purchase toxic materials to purchase the material of the highest possible quality. We use only materials that are USP or NF grade. The only two bird baits produced by the rodent control fund are strychnine alkaloid coated bait materials, and the strychnine is a 97% pure toxicant. When you register a material for .6% with a 97% purity, you must make up the .3% in impurity. This is the same way with any material when you register it; you must guarantee, as you do on your label, the actual quantity of the toxicant in the material. I think it's important that the purity be recognized, since there are various grades of purity on the market.

The second point is the sticker. I wish to preface this a little bit. It's quite a different thing to mix up a material by hand and carry it out to the field and use it. Many stickers will work in this manner. But when you throw shipping into this, and a truck line may handle the material twenty times before it reaches its destination, you must have a sticker which has qualities in addition to just adhering the toxicant to the bait for a short period of time. It must stand other things.

So our criteria for a sticker are as follows: good adhering qualities, good spreading qualities (by this I mean if you introduce the toxicant into a sticker as is often done-we don't do this—you must be able to disperse this material in either a suspension or in a solution so that you get an even distribution over the bait material), good sacking quality (that is, a material you can sack directly from the mixer or from whatever equipment you use; having to take a material out for instance in a production run and spreading it to dry just doesn't lend itself to any type of production), good storage qualities (it can't harden the material in the bag if you must store it for a long period of time, nor should it change any of the color, odor, or taste characteristics of the bait material), good lasting quality in the field (we wish a material to last more than past the first rain storm).

Now I realize that with materials used for pigeon control on whole corn, you would perhaps want this to detoxify itself as quickly as possible. But I'm sure if you put it out, that you would wish it to last past the first rain storm. So we believe that a sticker should have this last characteristic—good lasting quality. And I've said it must have good shipping quality. To illustrate this let's look at Rhoplex or starch. Both materials are used as a commercial sticking agent. Unfortunately these will not ship very well; they're rather hard and rather brittle; and you will end up in the bottom of the bag with a lot of fine material, which can produce a sublethal dose on the baits. It can also endanger the operator using these bait materials. This is a real hazard that must be considered.

The third point is mixing procedure. This of course depends on the type of equipment you have. But in general our practice is to dry mix the toxicant and bait materials together. This insures an even coating because most materials have a natural moisture content, grain materials I'm thinking of now, which will temporarily adhere the toxicant to the bait. We then add the sticker. The sticker we are presently using is Lipoidol 211 which is a soybean oil. This material lends itself quite well to the qualities that I've mentioned for a sticker. In addition it lends itself to beating; we whip it in order to extend it, and it has the color of butterscotch and the appearance of heavy whipped cream when we get through with it. This is added as a material to permanently coat or stick the toxicant to the bait materials.. We then have the ability to sack it directly from the mixer.

A fourth point is housekeeping. I have seen an awful lot of bait material; and one of the things that is commonly done in the feed industry, or used to be, was that you didn't throw things away. If you could sweep it up and remix it into some other preparation, this was an acceptable practice. It is not an acceptable practice in mixing quality bait materials. When you spill it, you throw it away. You don't sweep it up and put it back in the bag again; this only produces a very poor material. I'll come to a reason why for that later.

We also feel that in storing quality bait materials, as an aid to good housekeeping, all incoming raw materials must be fumigated. We do have insect problems. I'm not used to this type of climate here, being a New Englander; I'm used to a lot colder weather than the Lafayette. I wasn't as well aware of the insect problem when I first came as I am now. We can get quite severe insect problems

without the added fumigation. There's a little story on this. I saw a commercial bait from a rather large company recently. It was very attractively packaged with a window in the front. There was only one thing wrong—I think they had forgotten to fumigate, because you could see all the larvae of the grain beetle wiggling around inside through the nice attractive window in the package. We later learned that they had withdrawn this from the market and were fumigating it. That's expensive—to rehandle it, to reclean it, and to refumigate it. So you might as well follow good practice procedures and fumigate before you start.

We also have another criteria we think of as bags. There are criteria for the type of bag. I am not at all pleased with a multi-wall paper bag. I know commercial industry has gone with this; but as Bemus has illustrated to me, you can take a multi-wall paper bag and drop it from your shoulder 25 times and you've had it. You can take a burlap bag or a bag with 7-ounce burlap in it, and drop it all day long from your shoulder, and still use the bag with no apparent effect from the jarring.

Now I do think we have a moral responsibility, at least the rodent control fund does, of assuring that the material reaches the consumer (not the animal to be killed but the person using the material) in a condition which is acceptable to him. Even with labeling and caution statements, it's quite possible that in transit a bag is ripped open, especially if it's paper, and you have toxic compounds spilled on a loading dock or in the bed of a truck. If the bag disappears, how does the fellow who sweeps up the truck or the loading dock know that the material is toxic? We feel that we want to insure the arrival of the material in the same condition as we sent it.

The bag should have moisture resistant qualities. It should have odor resistant qualities both in and out. If any of you have ever mixed up zinc phosphide and then stored the material in a room, you will know what I mean by odor out. The shipping department of Purdue will now allow us to bring zinc phosphide inside the shipping facilities because it stinks. We must keep it outside on the loading dock. So anything we can do to reduce this is to our advantage, and Purdue's also.

Probably the most important thing in bait mixing, and if there is any secret to bait mixing, and I'm a bug on this, it's selection of the bait material. I might say that we do not use materials of a quality less than human consumption. We do not consider number one corn good enough; it contains too much trash and other materials to be suitable for bait material. For instance we buy all our corn products now from General Foods in Kankakee, all our oat products from Quaker Oats. We do have one milo that isn't used for human food, and so therefore we must take somewhat of a lower grade and be satisfied with it. How many of you have ever wondered how many whole kernels there are in a bag of whole corn. I can guarantee it is not 100% whole. If you reach 95%, you're doing well. So this bait material business is to me of the utmost importance. We have a phrase that's somewhat crude, but it does sum it up: "If you can't get them to eat it, you can't kill them." If you select materials of a poor quality, my thought is that you will only reduce the effectiveness of your control.

Selection of bait materials depend on a number of things. Color is one. I'm sure any of you who have done pigeon control with whole corn will realize that if pigeons are used to a bright yellow whole corn, and you offer them a dark brown yellow corn, that your acceptance of the bait material is much lower. We realize that corn grown in the bottom lands is of a much darker color that is corn grown on higher ground. And this does influence the acceptability. There must be a size criteria. If you have for instance too many fine materials in the bait, several things can happen. You of course increase the surface area; therefore the possibility of a sublethal dose per kernel is apparent. This works the opposite way if you have too large a size. For instance in orchard mouse control we recommend half-inch cubes when you're cutting up apples and treating them with zinc phosphide. The reason for that is surface area—if you cut them up too small, you've got more surface area and you may have a sublethal dose on a piece of bait. When you take this over to the grain field and are preparing bird bait, you have the same situation: too many fine materials in the bait can endanger the operator.

When I was first associated with the Bureau we were involved in doing pigeon control. Fortunately strychnine is a material you can build a tolerance to, and we were using starch at the time as a sticker. And in carrying around these bags it would not be uncommon to breathe in and get a good taste of it. I think with the years I've done pigeon control under New England conditions that I could stand a whale of a load of strychnine. For a person who does not have a tolerance to this, you could affect him very seriously, especially with strychnine which works so fast.

Cleanliness is also a point. Whole corn that is full of junk, chaff, cob, soybean seed, weed seed, etc. poses the same sort of problem as size. Now we must also be very careful on moisture content. It is quite a thing in the industry to blend. You can blend a 14% moisture content with very much higher moisture contents; in doing so if you dry it too fast you can fracture the bait, fracture the material. And one of the reasons you don't have a whole kernel is that they dry it down too quick. If you don't dry it down you will run into insect problems and spoilage.

Now I realize that there is a lot more to bait and bait mixes than what I've attempted to go through here. I was just trying to set up some criteria for mixing a good bait. And I would sum it up again by saying that if you can't get them to eat it, you can't kill them. Thank you. Are there any questions?

HAYDEN: You said you fumigated your raw materials. Do you have a bulk treatment and what material do you use?

COURTSAL: We use methyl bromide with 2% chloropicrin as an indicator. We also have halide detection equipment. Basically when we bring material in, it is set on pallets covered with Visquene, which is large enough to envelope the in-coming materials. If we have a room where finished material may have been held over from the previous year (we keep nothing longer than one year), this is fumigated on a room basis., We seal all the cracks, windows, etc. and fumigate

the room. We have masks and equipment that is approved by the Bureau of Safety in Mines for toxic materials like methyl bromide.

STECKEL: Is fumigation sufficient to hold this material for that length of time?

COURTSAL: No, we fumigate twice a year.

STECKEL: Suppose the material goes out to an operator or one of their branches and is held there; is there a possibility of it getting infested? Do you do anything else?

COURTSAL: Yes. Well, I feel this way. If we fumigate before time and fumigate held material, then I think the cooperator has a responsibility in the correct storage of the material. As you know, methyl bromide is only a short period fumigant. The bait is subject to insect attack if his facilities are not clean. I can't control his facilities.

STECKEL: I'm thinking more the addition of malathion.

COURTSAL: Of course, when you add malathion, you add cost. My co-workers are now jumping up and down about my pricing method. Yes, it could be done; there's no doubt about it. How effective it would be over a period of time I don't know. I assume it would be, because it's introduced into anticoagulant baits used in rat control. Evidently it works.

STECKEL: It's entered at a pretty low dosage (1% or less), so the addition is not very great.

COURTSAL: Well, it's a thing I hadn't thought of. Perhaps it is a valid point.

MITTERLING: Have you investigated the use of deep-freezing this without taking it out of the bag?

COURTSAL: Deep-freezing? I'm afraid we don't have the facilities to do that. I know what you mean—yes, it would hold it better.

MITTERLING: It also kills some of the insects.

COURTSAL: This is quite true.

SEED: We recommend that in the storage of grain, if a man is going to keep it on hand for any length of time, that the vapona strip be used to keep out insects.

COURTSAL: As far as I know, vapona is very suitable for flying insects. I don't know how well it would work on eggs coming in on grain for instance. We're now

considering seriously phostoxin which is a new fumigant material. It does seem to have some better properties than methyl bromide does. I might make one more statement. If you are interested in the rodent control fund, price schedules on the rodent control fund materials are sent only on request.

BECK: Thank you Fred; I appreciate your comments.