TRANSCRIPT
INTERVIEWEE: **Malcolm Beck** (MB)
INTERVIEWER: David Todd (DT)
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Please note that the videos include roughly 60 seconds of color bars and sound tone for technical settings at the outset of the recordings. Numbers correlated with time codes on the VHS tape copy of the interview. "Misc." refers to various off-camera conversation or background noise, unrelated to the interview.

DT: My name is David Todd. I'm here for the Conservation History Association of Texas and it's April 18th, year 2002. We're just outside of San Antonio Texas on the north side near a community called Bracken in Comal County and we're at the offices of Malcolm Beck at [the farm and garden supply store] Gardenville and he's been kind enough to talk about his many contributions to sustainable agriculture and horticulture in the state. And I wanted to thank him for taking the time to visit with us.
1:47 – 2200
MB: My pleasure.
DT: I thought we might start at the beginning. It seems like a logical place to start. How did you first get started in agriculture and particularly your alternative more sustainable version of agriculture?
2:02 – 2200
2:02 – 2200
MB: Well, I grew up on a farm. Luckily I married a girl that grew up on a farm. So, we both liked the outdoors. When we got married in '57 we bought us a little farm out South East of San Antonio. Well, I wanted to be a modern farmer and I didn't want to do that old stuff like my Grandpa and my Dad did. So, I got myself a copy of the Progressive Farmer magazine. And in there was an article about the Colorado potato beetle and how it had migrated down into Texas and told about all the damage it was doing. So, I got to thinking, "I'd better go look at my garden and see if I got potato beetles." Sure enough, beetles all over my potato plants. So, I went to the store and I got the recommended insecticides. I
2:36 – 2200
think it was Malathion and the next morning when it's calm out there dusting all these plants, then a buddy of mine walked up and said, "Beck, stop, you're killing lady bugs." I said, "Lady bugs, I though these were tater bugs." He said, "No, those are good bugs." Well, so what. I killed some good bugs. That was my only thought. But about 10 days later, my potato plants didn't look good. When I looked close under the leaves, full of some type of little lice. So, I went into the house and I called this buddy and he said, "Yeah, those are aphids." He said, "The lady beetles are on there feeding on the eggs, keeping them in check. You kill the lady beetles, they reproduce real slow. The aphids reproduce here a generation a week." He said, "Now you're going to need more poisons." Well, my feelings were a little hurt here. I had a city boy telling a country boy something about nature. I
3:17 – 2200

asked him, I said, “How do you know about good bugs and bad bugs?” He said, “Well, I’ve been reading a little magazine called Organic Gardening and Farming.” He gave me several copies of that magazine and all through that magazine the editor, J. I. Rodale, was trying to sell a philosophy. That if you planted adaptive plants in their proper season and the soil is balanced with minerals, enriched in organic matter, they grow naturally and you wouldn’t need a bunch of chemicals to keep them propped up. Then I went back and I read through my Progressive Farmer magazine. Every page advertising some chemical you
3:51 – 2201
needed to be a—be a farmer. And I got to weighing these two philosophies and thinking surely nature wasn’t designed where we’d have to use all these chemicals to grow the food we eat. Why can’t we just work in harmony with nature and do it her way. So, my wife and I, we decided we were going to take our little farm all natural organic whatever you want to call it. And after a few years it was beautiful. I mean we had this little place manicured. It was just a little 11-acre place and we started getting all types of publicity. People were calling us backwards, old fashioned. Some even have called us hippies. I didn’t smoke pot, so I guess I wasn’t a hippy. Anyway, the extension service came out and looked around and this gentlemen said, “Beck, this is beautiful. You sure you’re not using any of our modern
4:28 – 2200
chemicals?” I said, “No, I’m being a purist here.” I made my living working on the railroad at that time. He said, “Well, this is nice, but this is not practical on—on large acreage. We have to feed the world.” Well, here is a new challenge. My wife and I decided to sell this farm and buy us a bigger farm. We moved out of here and said, “Boy, was this place wore out.” I mean it was farmed to death for 82 years. It so happened that Robert Rodale, the son of the man that published Organic Gardening and Farming, he came down to visit me. In fact, I had a bunch of stories in his magazine, got on the front cover one time. Anyway,
5:07 – 2200
Robert Rodale was out here and I showed him around this old farm and I said, “Robert, this farm is so wore out Johnson grass won’t even grow knee high in a good year. What can I do to build it up?” He stood there a minute and he looked around and he said, “Malcolm, your land is level. It hasn’t washed away.” He says, “It’s clay, it hasn’t leached away.” He says, “It’s alkaline.” “Everything is just tied up.” He said, “What you need in the soil is energy.” I thought about that for a moment and I said, “Thank you. Now where does energy come from?” The energy comes from the sun and it’s collected by the plant. So, the best
5:36 – 2200
adaptive plant here were the weeds. So, I just let the weeds grow for two years and I kept mowing them off with a sickle bar mowing machine and pretty soon I had a—oh, a thick mulch laying on top of the ground. So, I planted one spring—I planted Sudan [grass] and that thick mulch of weeds, but the soil was still too poor. It only came up about, oh, 14 inches high (inaudible) and it just wouldn’t grow. So, I went to a seed company and I told them I needed a winter legume. They said, “What kind do you want?” And I said, “Well, I don’t know. Give me the biggest one.” Well, a guy there—he knew what he was talking about when I told him where I was and he sold me a good—probably was Huban clover and I cycloned it out there and I run a little hair over it to shake it through all this mulch and it
6:17 – 2200
came (inaudible) and it all came up and that stuff grew and kept growing until it got eight foot tall. The biggest clover crop anybody ever saw. It was a pure stand and a botany

professor from one of the local universities came out and he—he documented it, an eight-foot tall clover. And then he looked at me and he said, "Malcolm, you know that's the last time you can grow clover this big." I said, "Oh, why is that? He said, "Well, he didn't know, but that's what the old timers told him." Well, I figured he wasn't a farmer. However, I found out later he was a farmer and well that year—probably the most money I ever made off this whole farm because I left it dry and I harvested the seed and we made tons of seed and I sold it at a high price. So man, I said, "Why don't these farmers just go
6:57 – 2200
with clover?" All you've got to do is throw it out there, wait for—to come up and grow it and you hire somebody to come combine it. So, I went back with clover, but that professor was correct. You can only make one big crop of clover, but I found out why. You see if that clover was eight foot tall, that root was eight foot deep and I inoculated it and the lateral roots were loaded with nitrogen nodules, the microbes that take the nitrogen out of the air and build it into the soil. And the clover's an annual and then when it died and rotted off, well, you see that root was a quarter to three eighths of an inch in diameter going deep.
7:34 – 2200
Now it's rotting. It's like a sponge just pulling moisture into the soil and its got all of that energy that that plant collected from the sun and the leaf surface on top, now that's decaying, has all of that energy that the plant collected from the sun. Well, this was the perfect environment now for all of the beneficial soil life; bacteria, fungi, chemidicedes and all of these things. Now they all had energy. They all had food and the—the soil just became alive with all types of soil life. The little bitty microscopic aniorcipads, everything and seeds in nature and I'll explain this for you. Nature, the wild plants, some of the seeds are heavily coated with—like a shellac where they won't just sprout with the first rain. They'll wait until the timing is perfect. Some seeds sprout right away. Some sprout next
8:26 – 2200
year. Some may not sprout for 40 or 50 years. Well, I had the perfect environment for all these seeds that had been laying in the soil waiting for this environment to sprout it. Boy, they said let's go. Boy, these conditions are perfect. And my clover came up, but it had competition from numerous other plants. Well, from then on the soil started becoming alive and that was so simple yet it costs so little. It didn't cost, it—it paid me to build that soil. So, I pretty well stayed with that philosophy and we started truck farming out here and going 100 % organically grown vegetables and sell them everywhere and people were coming out to the farm to buy our produce. Well, this one family was a mother and a son and a grandmother and an uncle. They were out here all the time. Well, I had two sons now
9:11 – 2200
and they were just learning to drive and I bought them each a pickup and I let them go all over the neighborhood and g—gather up manure from all the farmers and the dairymen around. Well, they worked like the devil just to get to drive, you know, paying them two dollars a load or something like that. Pretty soon I had a big pile of manure out here and whenever the crops were out, then the boys and I would haul it out into the field and we'd spread it out in the field. Well, this family—they call that compost. That was compost and the son was in a lawn care business and he kept wanting to buy some of my compost and well, they're such good people. So, I decided—I said, "Why don't I sell you a pick up
9:45 – 2200
load?" So he put sideboards on his pickup and we loaded. It was about four yards and I

didn't know what to charge him so he gave me $40.00. Boy, I got to looking at that $40.00 and I said, "That was easy money. Why am I taking this manure out there to the field and planting—preparing a seedbed, planting, cultivating, harvesting and then taking it to the gor—vegetables to the store and let somebody else dictate the price? Why don't I just sell the manure?" Well, his mother then came along and wanted some of that manure or that compost mixed with sand. I did that for her and she paid me for it and then his uncle wanted some mixed with sand and topsoil. Well, word got around the landscape industry
10:24 – 2200
that you could go out to this farm and buy manure, topsoil and sand mix and here they came. Pretty soon I—I mean they just flooded out here. Pretty soon I ran out of the old rotted manure and I was mixing it fresh. By that time they put in a big pole operation up the road from us and of course my two sons and I had a lot of fun driving trucks and hauling all that stuff here. And I—what I was mixing the topsoil and the sand with this raw manure and I was aging it right away from the beginning and l—sometimes it was pretty hot yet and I'd tell people, "Now this stuff's a little hot. You'd better age it a while or leach it good." They bought it anyway and I never had a complaint ever and I started making deliveries then. And I delivered to this one family—had a nursery. They were growing
11:05 – 200
plants in big containers in their backyard. Well, they had a big backyard and I was visiting with the lady that owned it and I looked over her—all of her shrubs in those big containers and I complimented her. I said, "Elaine, you sure do a good job of weeding. There's no weeds in any of your pots. In other nurseries I go around they have weeds in their pots." She says, "Oh Malcolm, your soil never has any weed seeds in it, ever." And I got to thinking about it. When you mix this raw manure with topsoil and sand, they're fermenting composting activity kills the weed seeds. Well, word got around in the neighborhood you could go out to this farm and buy weed-free topsoil sand and compost mix. And then somebody said, "Beck, why don't you handle railroad ties so we don't have to stop down
11:48 – 2200
there." And another guy said, "Why don't you handle fertilizer?" There's another one wanting me to handle the tools and a few years I had a four million dollar a year business. All accidental. I never planned any of it and of course we didn't know anything about bookkeeping. I kept the money in a cigar box and I'd take it to the bank. At the end of the year if there was money left and all the bills were paid I made money. I mean it's pretty simple. Of course, I sold the business to a lady and they put it all in computers and the bookwork and everything, but they couldn't make it go. So, finally some old friends of mine bought into this company and they're a couple of country boys you might say from up in San Angelo and they know how to run a business and we're going straight up. Anyway, that's kind of the history of Gardenville. It more or less accidentally happened.
12:32 – 200
DT: From your experience with your organic farm and then with Gardenville selling fertilizer and compost and mulch and so on, can you tell us a little about what you learned about the soil and about some of the insects and microbes that keep soil alive?
12:55 – 2200
MB: Well, see I never went to college. I never took botany, biology or chemistry even in high school. All I took in high school was reading, writing and arithmetic and girls. Not necessarily in that order, but you learn a whole lot by studying nature and you notice I have

a lot of books and I love to read and always try to find time to read. And I remember reading—I think it was the Albrecht Papers and William Albrecht was the head agronomy professor at the University of Missouri until he got squeezed out by the chemical industry. I think that's what happened to him. Anyway, he starts telling farmers—you know farmers always complain if it will just rain, if it will just rain, and he would tell
13:34 – 2200
the farmers—he says, "You're not suffering from lack of rain. You're suffering from lack of soil fertility." Now proven, that's a fact. For example, if we compost a lawn or a sports field you can cut the watering anywhere from 20 to 70 %. That's how much we can cut irrigation, by just building up the quality of soil. Now that gets pretty deep. We don't have time to explain all of that exactly how it happens, but what you need to do is like William Albrecht said, "Throw the books away and go out and study nature. Go out in the prairie and see what she's been doing since the beginning of time. Go out into the woods and look around." And that's the way I try to explain it to people, you know. Everything that's alive is going to die some day and if you walk out into the woods and look down you see a lot of
14:20 – 2200
dead things. The soil is just mulch. The dead leaves, dead grass, dead twigs, dead insects, animal droppings, possibly dead animals and stuff like that, and each year there's a new deposit building up of dead things. Well, something better be happening to it or yours will be miles deep in dead things by now. Well, at the soil level where there's a constant moisture and a constant temperature, you have the grubs and the pill bugs and the earthworms and the centipedes and the termites. All of these things working on—that's a good environment. They're protected from their predators, they're protected from the bright sun and the cold weather and they've got the perfect environment at the soil to—to
14:55 – 2200
work in. They've got all this food with energy in it that the plant collected from the sun and of course they burrow into the soil. And they're there breaking these nutrients out of this or decaying rotting organic matter and then the microbes, the bacteria, fungi, algae and all these other things that chemidicedes. They came and they break it down farther and they put it down into nutrients that's readily available for the next generation of life or the tree roots that are under it and it grabs it and it puts it in the cycle. Now with that mulch laying on top of the ground, you get a big heavy rain the mulch breaks up the raindrops and it soaks through the mulch slowly. Now with that mulch laying there, any thickness will help. The thicker the better naturally, if you've got a half inch that's good, if you've got three inches that's still better. Well, with that mulch laying there, the water can't run off and with that mulch laying there you have all of this soil activity and it's churning up the soil, all of this life (inaudible), so the water can penetrate the soil easily. No water is wasted. Now with that mulch laying there, it can't evaporate away. Every drop of water that falls, you can capture it and put it back underground where it belongs. That's that safest place to store the water. You can pump it out by you know digging a well into the aquifer wherever it stopped, or it may come out in a spring some where clearer and fresh and that's what keeps
16:24 – 202
the rivers flowing constant and clear and fresh. For example, in this area we got about five feet of evaporation every year. If you put a tank out there full of water, you'll lose five feet of it. You'll gain some from rainfall, but if you measure all the loss you'll loose 55 to 65 inches of water out of it. So, if you catch your water in a lake you're going to lose a big

percent of it to evaporation unless it's just a really deep lake and not much surface area. Also, if you're catching water in that lake, that water had to run down there. If that water's running down there, it probably ran pretty swift and it's carrying a lot of soil with it. So, pretty soon your lake is a big mud hole. We've got to capture the water under the ground. Now the soil will hold amount of water it wants. It never gets too water logged. Certain
17:07 – 2200
clays that are poorer may, but like the soil around here, it always holds the correct amount of moisture. The rest of it filters on down and if you've got plants growing on top and it—the plants are using up that moisture, then cavalier attraction like a lamp wick, wicks moisture back up to the plants. But you've got to have the moisture in the ground. So, that's that answer to our water problems. Now there's books being written on the coming water problems. One of them is by Senator Paul Simon. He wrote a book, Tapped Out and he talked about all the coming water problems in the next (inaudible) water problems. But he didn't understand the soil. He never grew up on a farm or anything and he's looking towards desalination, you know, let's go into the ocean and take the salt out. That takes a lot of energy. He never once mentioned mulches on the soil in a pervious soil. Nobody
18:00 – 2200
seems to understand that. Why, I don't know. And the same—in the—well, let's—let's put it this way. There's four big problems, not just in the U.S., around the whole world, and the first one is soil erosion, soil erosion everywhere. We're losing tons and tons of topsoil daily and it's going down the Gulf of Mexico or to an ocean somewhere. And the next thing is—is—is water problems. Water problems everywhere because it's not soaking in. It's all our fresh water—is running down to the Gulf of Mexico or the ocean somewhere. And another problem is—the biggest toxicity on earth—the biggest pollution is nitrate toxicity. The
18:34 – 2200
water—it's in well waters everywhere—it's nitrates. Here it's getting pretty high. Pretty soon we'll probably have to start filtering it if we don't stop it. And the next problem is carbon dioxide in the air. Well, guess what solves all of those problems. Real simple. Keeping the soil covered with mulch. Solves all of those problems and agriculture can do that now. They're learning how to do no till agriculture—conservation tillage, where they always keep the organic matter on top of the ground where nature wants it. Is that too hard to understand? You've got to look for it. You've got to think about it. Of course, that probably makes nobody any money. Maybe that's the problem, but farmers and ranchers can learn to do that. There's a group of USDA's in the Rio Grande Valley now that got
19:26 – 2200
permission, I helped them get permission by getting a lot of letters circulated, to do sustainable and organic research. And they had been doing no-till agriculture for—for many years—the research in no-till agriculture. Talking about the quality of the soil, when Rio Grande Valley here in Texas was first opened up it was the third biggest produce supply area in the whole United States and I think we produced more citrus at one time than California. We're the biggest citrus producers. Well, the old timers, most of those are dead now, they told us that when the valley was first open to agriculture, they needed no irrigation. They needed no fertilizers and they needed no pesticides. The organic content of the Rio Grande Valley was between 3 and 5 % everywhere. You didn't need anything to
20:16 – 2200
20:16 – 2200

keep a plant propped up. Well, there's a friend of mine down there now, and he's a third generation farmer. He told me his Grandpa didn't need irrigation pesticides or—or fertilizers. He said then when his Daddy was finally farming the land, he was having to irrigate for oh, five, seven times. He said then when Dad retired and I took over the farm, he said I had to irrigate as much as 13 times and he said I always had a pest problem. So, this gentleman came to visit me and I told him what I knew and what books to read and he went back and now he's farming about four or five hundred acres. A lot of citrus groves 100 % natural and his input is way less than anybody else's and of course his sales price is higher. So, look at the—the profit is there and he says, "No way would he ever go
21:02 – 2200
conventional. Well, years ago before—where it wasn't—when it was just getting started, about 20 years ago, he met the old man that use to have a p—a soil lab down there in Rio Grande Valley. I think the gentleman's name was Schultz, and they studied the old, old soil test and they saw it. As the organic content of the soil went down the need for irrigation, fertilizers and pesticides went up. It's just like that. It's that simple. And I've made it a point to do—to study the insects. When I was a kid its—I didn't have toys. I played with the bugs mostly. And I read a lot of books and I've written a book now on insects. I've got one of the leading books out on insects The Texas Bug Book. Anyway, if you study the insects the books tell you that only—of all the insects that have been catalogued,
21:52 – 2200
somewhere around a million species, and they tell me if they ever got them all catalogued a—all over the world there'd be something like eight million species. Anyway, but and they, oh, and these entomologists also say that only one % of the insects are considered troublesome. All the rest are nutriable and beneficial and other entomologists say, oh, maybe two %. However, if you study the insects from the correct point of view you find out they all have a place on earth. If you study from this point of view it's real simple. Every living thing is programmed to do what it does and only be what it is except man. Man has a free will. We can do anything we want to do. We can screw up or we can do things right. Well, this—use this philosophy for a minute for this idea that there's a higher
22:32 – 2200
power. He designed all of this. Maybe we're designed for some other reason so everything on earth was designed to be of service and aid to us. Now whether you believe that or not it makes me no difference, but if you study from that point of view then all of a sudden everything becomes clear. You begin to understand nature. Just think: everything here was designed to be of service and aid to us. Every disease, every insect, every fungi, everything was designed to be of s—service and aid to us. When you study from that approach, then all of a sudden you find the answers, but most people don't want to study from that approach. They want to sit themselves up above that, I guess.
23:28 – 2200
DT: You mentioned earlier that you as a child you played with—with insects and they were your toys in a sense. Can you talk a little bit about the role of—of insects and the beneficials and—of in—in agriculture in the soil and keeping it alive?

23:44 – 2200
MB: Well, I can mention they're all beneficial and lucky I grew up really poor. No toys and I found the insects fascinating and I would play with them. I'd dig them up and the horny

toads and all the little animals and everything. I got—it—it—it's fascinated me so much, you know, it's greater than books could tell you when you watch them every day and every day. And then when I bought my first farm and I killed a bunch of beneficial insects, you know, I'm a grown man now. I said, "Wait a minute, I'd better go back to my childhood here and start looking at these insects again." So, I started studying the insects
24:24 – 2200
under this Dr. Dale Winegar. He's that guy that came out and looked at my clover. Dale really became my mentor. He told my one day, he said, "Malcolm, learn to think for yourself." He says, "Don't accept or reject anything you read see or hear." He said, "But store it and see how it fits." And that makes so much sense. Some people want to argue. Instead of just listening you learn a whole lot more. When I worked on the railroad an old man use to always tell me—he said, "Beck, if you be quiet and listen pretty soon you'll be twice as smart as the other guy." And I got to thinking about it and I said, "Well, yeah. I'll know everything I know and everything he knows and all he'll know is what he knew to
24:57 – 2200
start with." Anyway, I think about these things. Well, I got to studying the insects and they're extremely fascinating, the most fascinating things on earth, the insects, the complete metamorphous and everything. And I tried to talk about the insects. Well, how do you describe an insect? So, I said, "I'll just buy myself a camera." Lucky, I found a guy that could t—sell me the right equipment and I started taking pictures and this professor, Dale Winegar, he wanted me to give a talk to a big group. I think it was Sierra Club, talking to about four or five hundred people. I said, "Not me, no way." He said, "You can give a talk." He says, "I'll tell you how." He said, "All you have to do is know your subject, talk about it with enthusiasm and be yourself. Dress the way you want to. Comb your hair the
25:40 – 2200
way you want to. Don't mimic anybody." I said, "Well, I can do that." Anyway, this is probably 10,000 talks later, I'm doing about 50 to 80 presentations a year, but at each presentation some old timer will always ask the question or tell me about some incident that fills in a piece of the puzzle. You always learn more than you teach really if you keep your ears open and you kind of got to humble yourself, you know, you don't know it all. You may know a whole lot but still you still don't know it all. Well, the—after I studied the insects and I studied the soil life and everything, all of a sudden everything becomes
26:25 – 2200
simple, really. It's not complicated. Now I'm not a fanatical organic gardener. I believe in checking everything out, even some of the chemicals that organic gardeners are against and looking at them—take a look at them and see. It may work. Nature may approve it. This is the philosophy I like to use. Every product, every instrument, everything that's out there, see if nature would approve of it, see what their effects are going to be say down the road. And before you do anything or use anything this is something you need to always think about is how it—how is it going to affect the future crop. How is it going to affect my family? How is it going to affect my neighbors? How is it going to affect Mother Nature? Does she approve of it? Will it screw her up somewhere down the road? And I don't like to put a label on anything. Some people call me an organic guru, well, I'm a nature guru or I'm a sensible guru. I don't like to label. Sustainable would really be a good—a good label, but look and see.
27:24 – 200

DT: Can you give me some examples about how say for sustainable agriculture, how particular insects could contribute—I mean you talked about ladybugs…
27:25 – 2200
MB: Okay, well let's—let's just use…
DT: What about praying mantises or pill bugs or…
27:43 – 2200
MB: I'll tell you some of the ways that I proved one of our better agricultural schools wrong numerous times.
DT: Please.
27:51 – 2200
MB: When—on that first farm that had a bunch of big pecan trees like I got here and the first two or three years we moved in there I made pretty good pecan crop, but then after that a little bitty moth started coming along and laying an egg on a little nut and they would hollow out the nut and pretty soon I was losing 89 % of my crop every year. And I went to the extension service and they said, "Oh yeah, you've got to spray. That's the only—the only control there is." Well, I didn't want to spray. I kept thinking there's got to be a better way. And one day I was reading through that organic magazine. I saw an ad in there and it showed a little itty-bitty microscopic wasp with boxing gloves on. Anyway, this attracted
28:25 – 2200
my attention and this little wasp was called a tricaderma—tricadermous. I think that was the name. No, that wasn't it—trichogramma. That's what it is, trichogramma. Anyway, there was a guy out near El Paso raising those things and releasing them in his cotton field to control the cotton bowl worm. So, I called this guy and asked him how that thing worked. He said, what's—it's an egg parasite to that moth. I said, "Will it work in case bearers?" He didn't know anything about case bearers, but he told me all about this itty-bitty trichogramma wasp. And he told me it'd live up to 12 maybe 21 days something like that and reproduces every seven days and it's almost microscopic. So, I called the
29:07 – 2200
extension service. They knew nothing about the trichogramma wasp, but they knew all about the case bearer. So, they told me exactly when a case bearer was going to emerge and lay eggs and they all come out the same time and lay the eggs when that little nut is just right to lay that egg on. So, and he told me—that was May 1st that year that I kept traps out. So, I call this guy out there at El Paso and I said, "Hey, send me a whole bunch of new wasps." And that was around the first week in April when I released them and then I remembered the extension service said, "Well, May 1st is when that moth is going to come
29:40 – 2200
out and lay her eggs. So, I called him back and I said, "Send me a bunch more to release around May 1,st the end of April." Well, he did that. I think I spent about $6.00 each time. Twelve dollars is all I spent. Hey, I got good control that year. So, I tried them again, again and again and I never had a failure. I'd have 10 – 12 % damage, but you need that much. You need to get rid of that many nuts so the limbs don't break and they all fill out. Well, I gave a talk on that to the Men's Garden Club and three guys in the Men's Garden Club bought them and released them the way I told them to and they got good control too. Robert Rodale from Organic Gardening and Farming was down visiting me again and I
30:18 – 2200
was telling him how we control the case bearer using this little bitty wasp and it's so

inexpensive. Almost costs nothing. No labor involved. He said, "Malcolm, write that up. I need to publish that." So, I wrote it up. He published it in Organic Gardening magazine and I got calls and letters from everywhere wanting to know all I knew. Well, I wrote or I answered everybody's questions and I asked these people, "Now get back with me and let me know if or if not they're working." And I got numerous calls and letters saying, "Hey, Beck it works. It's so simple. It's so inexpensive." Nobody called and said they didn't work. So, I was really proud of my discovery and I went to visit the extension entomologist
30:58 – 2200
and I'm telling him this story and the whole time I'm telling him this story he's sitting there shaking his head. I said, "What's the matter Charlie? Don't you believe me?" He said, "Malcolm, they don't work." I said, "Well, how do you know they don't work?" "Well, we tried them." I said, "Well, how did you try them?" He said, "Well, we kept traps out and on that day we released 50,000 of these little things per tree." And I said, "Well, that's more than I released. I was only releasing 50,000 per three trees." Anyway, I drove home reevaluating. Now I'm not dreaming. All these other people are not dreaming all these years. How come they work for me and not the extension service? Well, it dawned on me.
31:36 – 2200
He was releasing on that day. In my impatience, not intelligence necessarily, the impatience I released three weeks earlier. Well, they reproduce every seven to twelve days. So, when the case bearer finally came out these little things had—were parasitizing other moth eggs. There are moths flying all winter down here and I had millions or billions of them on that day. I was using them the way you should use a biological control and they still had the spray mentality. Anyway, that was one of the success stories and—well, that goes for any insect. They have to be used and protected. And then the next thing was all of a sudden—oh, back—I was still on the other farm at Boatville, was the name of that place, and I didn't have any webworms, but the webworms were getting extremely bad everywhere. They were defoliating trees and I asked the nurseryman, "How come the webworms are so thick?" He said, "Well, we discussed that with the extension service and the extension service just decided we planted too many pecan trees and they are going to take the pecan tree off of the recommended list of trees." Well, I couldn't accept that. And this old farm when I bought it, it was an old abandoned farm and there were wasp nests—paper wasps, the yellow jacket, and the red wasp, all over the place. Well, I'd always watch the wasp and their docile if you don't have bad thoughts toward them or don't throw rocks at them. They won't bother you. You can even pet them believe it or not, but we won't demonstrate that today. Anyway, I would watch the wasp carry green loopers and chop them up and feed them to their larvae, you know, worms of all types, not earthworms but
33:13 – 2200
33:13 – 2200
worms that were feeding on plants. And I had a feeling those wasps were keeping my webworms out of the trees. And I got to thinking that the webworms became a problem when they finally des—designed them big spray rigs that can spray to the top of the tallest pecan tree. Big (inaudible) everything and also to came out—they came out with that aerosol can that you can…
(misc. noise)
and knock down the wasp nests from the eaves on the house. And I got to thinking, yeah, it correlates perfect, so I figured where the wasps were good. Well, one day when I was gone

my two younger brothers came out and they knocked—went around all day long knocking
33:56 – 2200
down wasp nests. When I got home they had a bushel basket with that many wasp nests. The next year I had webworms and it took me eight years of protecting the wasps until the wasp population built back up to where it got the webworms under control. When I moved on to this farm in '68, webworms were everywhere. There were 20 big pecan trees around here and the neighbors down there had a bunch of pecan trees, webworms everywhere. And he was poisoned—this guy here didn't—I don't know if he done anything (inaudible). So, I start protecting the wasp. I never would let anybody knock a nest down and it was about six or eight years webworms disappeared. Oh, you'll see one once in a while. We got 250 some trees all over this farm now, and out of 250 trees you may find six or eight, possibly a
34:42 – 2200
34:42 – 2200
dozen webworms for the whole year. I'll leave them alone. Those wasps need something to eat you know and they need to stay in practice. It works. It's so simple. All the answers are simple and I wrote some rules on growing plants. The first rule is, the very best adaptive plant—each plant is got its an arm—its environment that it's happy in and then here we got two seasons, spring and the fall. Put it in the right season and then balance the mineral content and you can do that with rock powders. All of our minerals came from rocks at one time. There's rock powders in mines and quarries everywhere. It's overburdened, they need to get it out of the way or it's (inaudible) or something like that. It's cheap, limestone,
35:27 – 2200
basalt, granite, any kind of rock powder. It all works, but just find one that's higher in the mineral that your—you're lower in. Of course, they'll contain all the minerals and that's so simple and you pretty well got it.
DT: Can you talk about some of the additives that you've…
35:49 – 2200
MB: The additives of rock powders?
DT: investigated as alternatives to traditional fertilizers, pesticides…
35:55 – 2200
35:55 – 2200
MB: Okay. Good. When—I—like I say I've gotten a lot of publicity doing this. I guess you'd say, "buckin' the trend or something" and I've had a lot of letters and newspapers and stuff—articles in newspapers and TV. Anyway, the guy down at Laredo, Texas—he read a story about me. He wrote me a letter and he said he had a rock phosphate he was importing out of Mexico and they were grinding it to a powder and—and using it as an animal mineral supplement, and he wanted to know if I would use his phosphate here as a test in the soil. And I wrote him back and I said, "Sure, I'd love to try." Well, I just moved on this farm and I figured I'd better call the extension service and find out how you use
36:37 – 2200
rock phosphate and if they had any ideas. So, I called to—talked to the horticulturist up there and I says, "How do I use rock phosphate?" And he says, "You don't." I said, "What do you mean, don't?' He said, "Malcolm, you've got alkaline soil. It would just lock up. You won't get any use out of it." I mean he was positive of it. Well, this guy done had shipped up I think two tons of it on a little goose neck trailer and we were out there planting tomatoes.

I always planted two rows of tomatoes, two rows of beans, two rows of tomatoes, like that so we can walk between them. That's the reason for the beans in the middle. And I had already set out two double rows of tomatoes and I thought about this
37:18 – 2200
rock phosphate. So, I went and got some bags and I just poured it in the furrow. Just painted the soil black. See I was opening furrows with the tractor to set the plants in then we'd cover them a little bit then cultivate it and heap the soil up on it, anyway, one double row. I set the transplants right on the rock phosphate and then none other—no where's else in the garden. And then when harvest time came we were harvesting them in five gallon green pickle buckets you get from Waffle burger and places like that and the rows were about five hundred feet long and we'd carry the buckets out to each end and I told the
38:01 – 2200
employees and the wife and all the helpers, I said, "Now the double row on this side I want to weigh them. Every time we harvest leave them sit there until I weigh them and this row I put in the potter—the rock powders, I want to weigh it and then the double row on this side, make sure I could have a good comparison." Well, the first picking, that phosphate row was more than double than either one of the other two rows. In fact, it made more than those two rows did together. That continued to the whole field. So, I got to thinking. Those Aggies don't know what they're talking about. Started a—I think it was a 22-ton load of this phosphate and I was going to show these Aggies how to do it. So, I homogenized it into soil across one end of my farm and not the other end and I put it out there with a bottom drop hopper and I disked it in homogenized it into soil. And then I put my rows across it so half of all of my vegetable farm would be in phosphate and the other half would be out of phosphate. And—but guess what? I could barely see an improvement when I did that. So, this is—now this is puzzling. So, I called this extension agency and I told them—I
38:56 – 2200
said, "Are you crazy? You don't know what you're talking about, but you're also correct." He said, "Beck, what are you talking?" And I told him about my—my test where I set the root right on it and he said, "Mmm, this is strange." He said, "Let's just analyze that." He says, "I do know a plant has to have phosphorous when its seed sprouts because phosphorous and calcium is what gives it good quick root development." And he says, "In cool soils—in alkaline soil, when it's cool, phosphate is not available because it's locked up and it takes microbial activity to make it available." So, that plant is always stunted. It never catches up. That's the reason I use super phosphate. Phosphate that's been treated with aspheric acid or phosphoric acid so it can't lock up and rock phosphate—every time they tried it, it locked up. But they were homogenizing it in the soil like I do. When you
39:48 – 2200
blend it in the alkaline environment it tends to lock up, but then too, you've got it scattered around everywhere in little bitsy, bitsy pieces and the root can't go out there and hunt for it because it don't have enough phosphorus to develop a big enough root to go out and hunt for it. Well, if you put it in a band or just paint the soil white and then set the plant on it, the plant can assimilate nutrients out of rock because of the rizosphere, that a plant is collecting energy from the sun and sending this energy—carbohydrates down to the roots and their sending carbon—carbon dioxide out the roots also and that's carbonic acids and all of these carbohydrates and this microbial activity right that roots on that rizosphere the pH can drop to 4. The microbes will do whatever they need to do to keep that plant going

because that
40:35 – 2200
plant is feeding those microbes the source of energy—carbohydrates. Well, if the phosphate is right there by the root, you see it immediately got it so it can keep on growing in that band of phosphate. Well, after we discussed that, well then Texas A & M did their research and proved it. They didn't publish it because I beat them to it.
DT: Can you talk a little bit about your different kinds of cultivation? It seems like you've been promoting no till and—and some other alternatives.
41:06 – 2200
MB: Well, what you want to do is mimic nature as close as you can. At one time, yeah, I thought you had to plow, but now science has discovered that there's more tonnage of life and more numbers of species underground than there is above in any given area. You know some places there is a lot of life in organic matter above ground living, but there's still more underground some place like a desert. Not much underground, but there's still more underground. Now whenever you go out with a moldboard plow and turn the soil upside down, you're disturbing this soil life something terrible. Now the plant part that's above the ground, it's designed different. It's got a lot of cellulose or something in it to make it strong
41:58 – 2200
so it can stand up in the wind and the—and the sun, the heavy raindrops and everything. It's designed different, but life underground—it's protected from all of the bright sun, ultra violet rays and everything. It's not in the wind. All it has to do is just grow so it's a lot more tender. It's say—you might say it's almost like Jell-O with a film around it. Well, whenever you use a moldboard plow and turn the soil upside down you expose this to the elements in the sunlight and you kill it all and it oxidizes and quickly. You fill the air full of carbon dioxide and you kill off all that life and you tore up all those fine root hairs and you disturb the microbial fungi that's extremely important. They're the fungi underground that—it—every living thing needs energy, but this particular fungi doesn't feed on decaying organic matter. It likes to steal its energy from a living plant and what this fungi
42:55 – 2200
does as several species, some grow into the root, some wrap around it, some grow into the cells and this little plant grows up in sunlight collecting energy from the sun. Well, this fungi, it steals up to 10 % of the energy that that plant sent down to the root, but that's the reason the plant sends down there. To feed that fungi, but it don't get it all. Well, this little fungi, it knows if something happens to that plant that's the end of its energy. It—it can't live. So, this little fungi knows too, if it can get that plant to grow bigger and better and faster, it can make more carbohydrates, more energy. So, if you've got a big tree up there creating a ton of carbohydrates, 10 % of a ton is a lot, but if you've got a little bitty plant, you know, making a few ounces of carbohydrates, 10 % of an ounce ain't very much. So, this fungi grows out into soil massively and collects all the nutrients that that plant needs, dissolving it from rock. Giving it what that plant needs plus the moisture and plowing
43:56 – 2200
destroys that fungi. So, there is a time where some conditions nature may say, "Hey, go ahead and use that herbicide." There's certain herbicides out there that nature can handle, but they've got to be used proper. People are using them improper. The (inaudible) type herbicide with the microbes can eat it up.
DT: (Inaudible)

44:21 – 2200
MB: Yeah, around that type thing. However, if you use something like that doing a pour soil that has no energy and no beneficial soil life, it's like taking it out of one bottle and putting it into the next. But if you've got a rich soil with a lot of energy and a lot of microbial activity, hey, they just make fertilizer out of it. Where—see I learned this by screwing up you might say. I had a fa—after I owned this place—built the soil up and got it all good and healthy, well, Johnson grass is a good forage crop. Johnson grass loves this type of healthy soil and I had another patch out here I wanted to take into vegetable production. Well, Johnson grass is a—you can't grow vegetables in Johnson grass. There's no way. You just can't hoe fast enough to keep it out. So, I figured I would plow it to death
45:04 – 2200
and I never did kill the Johnson grass, but I ruined the soil. And look—look at all the carbon dioxide I wasted to the air. I—the soil was rich in carbon now all that carbon is in the air. The soil is rich and all the benefits of soil life and I probably destroyed them. So, what you got to do is look at the le—the lesser of two evils, you might say. Does nature approve? I just use that as an extreme example. And let me tell you a little bit more about the carbon dioxide. You know that's making the news all the time and Dr. Joe—well, first of all, I was giving a talk up at Stevens Point, Wisconsin—oooh—this must have been 16 years ago and there was a EPA scientist giving a talk on the impact the automobile is having on the environment and the economy. And of course our economy rolls on rubber
45:56 – 2200
tires and the impact its having on the environment was burning fossil fuel was loading the air with carbon dioxide. Well, they had done some research and this guy was a ex-marine and he was a scientist and he made this statement, he said, "If we could just build the organic content of our farmlands one tenth of one percent every year, we would offset that excess carbon dioxide we're putting—we putting in the air by burning fossil fuel and we would put it back in the soil." But he didn't know how to do that. Well, that made me think and I got together at—with some professors—PhD's and I—we both studied and we found out carbon dioxide in the air 220 years ago when they first started taking measurements
46:46 – 2200
was something like 270 – 280 parts per millions. Now it's 380 parts per million—385 parts per million. If we (?) the way the excess carbon that's in the air and what's missing from our farmlands, they equal. How are we going to get it out there and put it back in the ground? Well, I've been reading Discover magazine. The scientist is trying to design some big vacuum to suck all the air through, take out the carbon dioxide and pump it into the bottom of the ocean. How much energy is that going to take? Well, I happen to be vis—be visiting Dr. Joe Bradford down in South Texas. He's the guy that's been researching no till
47:28 – 2200
agriculture for a number of years now, his whole adult life probably. And I asked Joe, I said, "Joe, what's happening to the organic content of the soil under no till?" And he thought for a moment and then he mentioned one farmer that keeps good records. He said, "Well, about eight years ago when he first started the no till his organic content was pretty good. If was .8, you know, you should be 3." But .8, that's even considered good in the valley. He said he started out at .8. He said now eight years later he's 1.6 % organic matter, one tenth of one % every year. He's doing his share to take the carbon out of the air and put it back in the soil. We need that carbon that's in the air in the soil. Think about this. All of that coal and

crude oil that's underground at one time was carbon dioxide in the air because
48:12 – 2200
that's how it got there. The plant captured it. Building into the plant and then the plant was partly decayed then the physiology books tell this that a plant would prefer lots of carbon dioxide in the air, up to 10 times what it is now. It would grow better, but it wouldn't be too good for us because our weather patterns would change. Anyway, they're simple things like that. The knowledge is there but you got to be thinking all the time and don't act like you know it all. The—act like you say. I don't know enough and I want more. And listen to people. I don't care who you are. Some guys may not know what they're talking about, but they may accidentally spark a thought in your mind that gets you to thinking in another direction.
48:57 – 2200
DT: Tell me something about that. It seems like a lot of things that you're discussing are—are ideas that were—were known a hundred years ago, but they haven't been promoted as well by the current system and I'm wondering why it is that conventional agriculture is strayed so far from historic agriculture and from the kind of organic or sustainable ag that—that you've been investigating and promoting.
49:18 – 2200
MB: It's kindly a human ego for some I think and then money has got a lot to do with it. For instance, this William Albrecht, you know he was teaching all the natural ways of building soil. It worked. He's been teaching what nature's been doing since a million years, but after World War II and we came along and we had all the chemicals left over from the war we got to thinking, why are we doing that old dumb stuff? Man, we've got this knowledge. We've got this—all these chemicals. Now, let's see if we can't use them. Well, evidently they started giving the ag colleges grants to research these chemicals and they forgot about it. They didn't do this on purpose, but it was just forgot and now they've got
50:02 – 2200
on this—this chemical kicker—the tread mill and it's hard for them to say, "Hey, we've been wrong. We need to go back." It's pride, I guess you'd say. But I've got books in this library here—old, old government yearbooks. Like I've got a 1953 issue of—of insects published by the SDAARS. It's a agricultural yearbook and through the whole book they're telling you how to control the insects naturally and all of our troubles from insects are imports—our really troublesome ones that are hard to control. Well, what they were doing prior to 1955 was going to the country that these imported troublesome insects came from and finding their natural enemy and bringing them over here and they were
50:50 – 2200
controlling every problem they had by doing that. But when they came out with DDT they'd abandoned that program—hey, we got something now that just killed everything, but they didn't realize that that DDT was also killing off the beneficials that were commonly here that kept the aphids, the white flies and the—the webworms and everything under control. And now they have to go back, but pride is hurting them. How does a guy that's got—a—lots of degrees to his name that has been teaching it all these years—how does he go now and say, "Hey, I'm wrong." Can you do that? All the problems in the world can be solved with an educated public, but how are we going to educate the public?
51:37 – 200
DT: Let me ask you another question. It—it seems that a lot of ranchers and farmers are

having a hard time making economic (?) despite all the new chemicals and—and heavy equipment and implements that they've got at their disposal that weren't available 40 or 50 years ago.
51:59 – 2200
MB: They're fighting nature. They're in a big fight with nature. Let's just use the HRM holistic management methods ranching, all right, this Allan Savory book. Allan Savory—he studied the ranching or the lands in West Texas and in Australia and in Africa and Dr. Dale Winegar did all this research and studied what all the other people studied. Back 250 years ago there were more buffalo in this country than there are farm animals all put together now. Allan Savory studied how the buffalo grazed. The buffalo roamed in tight
52:38 – 2200
herds because of the predators. That gave them protection from the mountain lions and the wolves. Well, when the buffalo went along in tight herds; they ate the grass down; they urinated all over it; they manured all over it, and they tromped it up into the soil. But then the buffalo didn't come back to that spot for maybe 18 months or two years—maybe a long time so that grass could completely recover. Now when I grew up on a farm my Grandpa and my Dad both, if they saw a patch of grass that wasn't being harvested by cows or (?) off, that was a sin, you know, they had to be growing it. Well, with out constant way of grazing, what happens? Let's just use that one time we had big blue stem and a little blue stem and then numerous other grasses that cattle love. Well, probably the best and easiest to eat was the big blue stem. Let's just use that for an example. So, continuous grazing the cow ate off this leaf today ate off that leaf tomorrow, ate off the next leaf. Every time that blue stem or that grass try to put up another leaf surface—another leaf, so it could collect the energy from the sun, manufactured carbohydrates so it could build a big root, the cow never allowed it to do that. Pretty soon that grass was just whipped and it expires—never got a chance to make seeds. The root dies. Then the cow went after the next grass. Then the cow went after the next grass. Well, nature never wants bare soil. So, nature said, "All
54:03 – 2200
right, you're going to take that grass off, I'll give you lesser one. You take that plant off I'll give you a lesser one." Pretty soon all we're left with is prickly pear stickers, poisonous plants, junipers and mesquites. You see we did it. This whole country was plains, prairies at one time except the mountains. They were wooded. They needed to be wooded because the grass didn't grow. This whole country—and s—they keep saying we need to grow trees, but we've got more trees in this country now than there ever was because we've covered the plains with trees—with trash trees. Well, they're really not trash trees, but they're trees
54:37 – 2200
that are trying to protect the soil and keep it from growing and now we're even poisoning the junipers. And instead of using them to an advantage—does that explain a little bit?
DT: That helped. I had one more question. When you go and speak or—or you write your books, how do you make the case to people that maybe aren't as knowledgeable and experienced about these things, that why it's important to care about sustainable agriculture? And how do you recruit new people to…
55:09 – 2200
MB: Why it's important? All right. First of all I like to hit them in the pocketbooks. For example, I know an HRM rancher that's got a big ranch up in Mason, Texas. I went up there. It's beautiful. And at one time it was just all brush and weeds and cactus, but he studied

how to control those things. You—you kind of ignore—you've got to get rid of them, but you ignore them. You concentrate on growing grass. Now he's got beautiful grass. He's more than doubled his stocking rate over any rancher in the area—more than doubled. Well, this guy also is a banker so he gets the records of everybody and what it
55:48 – 2200
costs to get a cow—a calf from birth to market. He's got everybody's records because they're coming there and borrowing money to buy feed and what have you—build fences and what have you. You see he's got everybody's records. It's costing him $80 to $82 to get a calf to market figuring everything from birth to market. His neighbors are running a $120 to $222. So, you see that right there. Well, some of these people, well, they don't want to believe it. Some don't want to admit they've been doing it wrong. I don't know human nature the way it is. I think it's something else. I showed you that book there, Food
56:25 – 2200
and Behavior. Well, years ago I went and listened to a guy give a talk and this guy owned a dairy and the veterinarian bills were getting out of hand. The production was going down. He was losing money. So, he went down to A & I and he took some animal husband or animal nutrition courses and he came back and says, "I think it's nutrition." And then he was growing lot of his own feed so he decided he would really build the soil up the best he could—get the best people coming there build the soil up and then when he bought feed he would test it for all the nutrient and he was feeding his animals proper. So, he really got interested in this—really studied it and he got so good at it that instead of the neighbors
57:10 – 2200
going and calling a Vet, they would go visit him. And then he was asked to teach a course. I think it was down at A & I. This was years ago. This guy is dead now. And his students—when he first got in a classroom he told them—he said, "Half of the food on the grocery store shelf is not fit to eat." Well, they challenged him. They said the FDA wouldn't allow it if it wasn't fit to eat. He said, "All right. I'll prove it to you." He said the college got this big group of pigeons. He said, "Let's divide this group of pigeons in half the best we can; age, sex, health, everything." He said, "Then we'll feed one group polished rice and the
57:47 – 2200
other group brown rice." And he s—and he said, "I predict those on the polished rice will get five degenerative disease. They're going to stop reproducing and die prematurely. And those on the brown rice—the whole grain rice are going to live happily ever after." And just exactly like he predicted came true, except they learned something they weren't expecting. The very first sign of malnutrition before anything plentiful showed up those pigeons on the white rice got irritable and discontented and was fighting amongst themselves. Well, this really startled me when he said that. Well, at that time my wife and I had already been gardening naturally and eating whole wheat—everything we made whole wheat, brown rice, eating out of the garden, eating naturally as you could and so I
58:30 – 2200
decided—oh, my folks had come out—they didn't want that old brown bread, they wanted some white bread. So, I decided I would do a test. Well, I had a bunch of baby chicks. These were three-day-old chicks when I got them and I took a big coop and divided it in half. Everything was equal—same sunlight, everything equal. One side got white bread and the other side got whole wheat bread and water that's all. Well, the 13th day, the first one on white bread was dead. The 17th day, the last one on white bread died. Those on whole

wheat bread lived happily. Grew up to big beautiful chickens. Butchered the rooster for
59:09 – 2200
Thanksgiving and turns the hens out to lay eggs. Does that tell you something? Well, wife and I raised our kids naturally on whole grain products. Nothing fancy. We didn't let them eat a lot of junk food and we had no doctor bills. They were healthy, happy, they were never whiney, never complaining. They didn't care about watching TV. They had too much energy. They was outside riding their bicycles or swimming or hunting or riding the horses or doing something all the time. And when they came to the table, man they ate. They never complained about what my wife cooked. Now days, most kids tell their mothers what to fix. Most kids don't—what—mothers don't cook. They eat at Wendy's one day,
59:51 – 2200
McDonalds the next day, Waffle burgers the next day. That's the way they eat. You can't live like that and my kids made excellent grades in school and the only time they ever missed school—one time the creek came up and I let them stay home because the creek came up. They didn't want to walk out the back. My daughter got threw off the horse, broke an arm. One of the boys on a motorcycle—he rammed it into a fence post or something. That was the only doctor bills we had. The only time they missed school. They loved school. They made great grades and everybody liked them. They were just fun to raise. It's all in nutrition. You've got to have that first before your mind can think properly.
1:00:25 – 2200
I wrote an article on that. I'll give you a copy of it. The name of it's "Food For Thought." But this lady more or less, Dr. Barbara Stitt in this book proved it scientifically. She's a probation officer and she'd get these guys out on probation and they'd end up right back in the pain. Anyway, and that was just constant—constant pain. She was living in a fast lane and you know sweet roll and coffee for breakfast and just never no proper nutrition. Pretty soon her health went down and she noticed when her health went down she was getting sharp with people and she couldn't concentrate and everything the way she wanted to.
1:01:00 – 2200
And—and luckily she had a friend who said, "Hey, you ought to, you know, go eat some better food and look at some natural foods and stuff, whole grains, the best you can do." Well, she got herself back and she noticed her concentration and everything. She wasn't sharp with people. So, then she got to thinking about the—these inmates that were going out on pro and going right back in. So, she told several of them—said, "You know I think I can keep you out of the pin. Do you want to stay out?" They said, "We don't want to go
1:01:29 – 2200
back in there, but we just end up back in there." And she got them to change their diet and all those that changed their diet went on to a decent diet and never went back to the pin. Now that's—some people can't comprehend what you're trying to tell them. I don't think their brainpower can work. You know your brain has to be nourished too with the proper energies and the minerals and everything because it's organic. It's not like a computer all just electrical system, it's that too, but you've got to have proper nutrition, the proper minerals and whatever it is. The whole body has to be that way.
1:02:02 – 2200
(Misc.)
[End of Reel 200]
DT: Mr. Beck would you please tell us what you're doing here with the tomato plants?

1:22 – 2201
MB: Well, this web is called grow web and it solved a big problem for me. In this part of the country now we have viruses, tobacco mosaic virus, curly top virus and stuff like that and tomato plants because of breeding them up and not, you know, taking care of them, they're susceptible to it—highly susceptible to it. And when that plant is little there will be an insect out there feeding on the plant that's n—kin to the tomato plant and they'll have that virus, but it's a native plant so it doesn't bother it. Well, this tomato tastes better than that weed out there so that little insect comes over here and feeds on this tomato. When he
2:06 – 2201
does that he inoculates that plant with that virus and if you inoculate that plant with that virus its production is shut down and it just never does really good. Well, I found out I can put this web over tomato plants as soon as I set it out and put a lot of compost around it before I put the web over it. Well, the plant don't get that virus and in fact it doesn't get any insects because no insect can get under there, but it—it gives you so many other benefits. It'll give you two or three or four degrees frost protection. Also, it slows the wind down. If the wind gets over 15 miles an hour a plant is stressed and it stops growing. Well, that can't happen under here and it defuses the sunlight where you get photosynthesis all over the plant and then too, as that compost under there is detained it's giving off a lot of
2:51 – 2201
carbon dioxide. Well, now you're concentrating the carden—carbon dioxide under that plant, you're keeping the wind off, you're defusing the sunlight so the sun ain't too intense on one spot, you get photosynthesis all over the plant. So, it's all of these things. The plant can grow three times faster and produce three times more. That's how beneficial it is and the lady that was trying to sell it to me—she was telling me it would give you frost protection. That's all she had. And I said, "Well, I'll try it." You know, we all (inaudible). Boy, I found out that this stuff—it is a miracle product.
DT: Without using herbicides or…
3:26 – 2201
MB: I don't have to use anything and it took me a while, but I got Dr. Gary Parsons with the extension service. He's a vegetable specialist. He tested it. Now if you get real cloudy weather and you're in the shade, it won't make the plant grow faster, but it still gives you all the other benefits even if you don't get the sunlight. But in the full sun all the time it works miracles. Dr. Gary Parson said that the greatest tool that has ever come along for the home gardener if they use it right—that's what he thinks of it. Now if you turn around and you see plants back…
(Misc.)
DT: Could you tell us about the Purple Martins and why you have this nest out here?
4:54 – 2201
MB: Well, I love Purple Martins. That's one reason I got the nest there. Purple margins are very beneficial besides being beautiful and being so beneficial. The only thing they eat is insects they catch while flying and Purple Martins love people. You can put a martin house out there away where they don't get a chance to see people and you'll very seldom get Martins in them. You need to put a purple martin house where they can see people. They're a social bird and they're the masters of—of flight or gliding. You just can't say enough good things about Purple Martins. I just love them and they sound good also.
(Birds singing)

5:43 – 2201
MB: Oh, you didn't show the tomato plants that I've taken c—a web off of. I've got some big beautiful ones down here I've taken the web off (inaudible). Those are all old heirlooms that we got started too late. (Inaudible).
(Birds singing)
DT: Beck, can you tell us about how these tomato plants have benefited from your grow web?
6:25 – 2201
MB: Well, it—it got them a great start. Now they have no diseases, no insects or anything and I waited until the tomato plant was touching the grow web all around it and when I took it off—actually I was two days late because it was doing this under it, but it only took one day and this is—was just a week ago—just a week ago this tomato plant was all on this grow end, down here and look at the blooms on it. Looks like it's beginning to do—it gave it a great start.
DT: Mr. Beck, can you tell us about this compost pile you've got going?
7:05 – 2201
MB: Well, you know we make thousands of cubic yards of compost, but we need a home garden compost operation and I like this one because it's cheap. You just go to a hardware store and get you some wire like this—three to four foot tall at the most and get about a 12 or 14 foot piece and bring it around and just pin it together and then start throwing your material in there. But you always need to start out with a bunch of dry carbon material to start out with if you can. Now if you put too much thick heavy green stuff in there or vegetable waste at one time can begin to stink. So, you need to have a bunch of dry carbon material like dried leaves, dried hay, sawdust or something like that. So, when you start
7:43 – 2201
bringing out or you bring the kitchen scraps out and you got a lot of green grass you can blend it with it because that'll keep it from matting together and keep it from ever going—ever getting stinky. And I do this real simple. I never ever turn the pile. I just keep adding and this will collect a year's supply of what I pulled out of the garden here because it's constantly settling and then after one year the bottom, 10 or 12 inches, will be beautiful black compost and the higher up you get—actually what I'll do is I'll take this wire away early next spring, say February, and I'll just move it to the side. Before it was right here—last year, it was right there. And then there'll be a whole bunch of stuff on the top and along the sides that's not decomposed, but in the very center of it you'll have almost a
8:30 – 2201
pyramid-shaped cone that's beautiful black humus that you had to do nothing. It'll be full of earthworms. It—it was no work or nothing. You just throw it out there, but the main thing is you need that black carbon material to—in case you put a lot of wet or green stuff. Now if a bird dies or a chicken dies I'll bury it here. If a chicken got—I can bury it down in the middle here—way down in the middle if you got—and dogs won't get to it because of the microbial activity—eats it up in four days. If you dig down in here you find all types of stuff. See, here's some old (?), but you see here it's already turning moldy. Look at this mold. See the fungi eating it up and there's no smell. I even got prickly pear leaves in here and the thorns are already pretty well gone off. Of course, that didn't have many thorns. And I got all kinds of life and pill bugs and grubs and everything feeding on it. That's all
9:24 – 2201

part of it. They chomp it up and they're excrete—they're manure is really the compost, believe it or not. Anyway, it's just an easy way of doing it. You can have the barrels that you turn or fancier, but it's going to rot whether you want it to or not. That's the simplest way I can explain it and you put it in a pot, let it rot, don't let the wind blow it around. Make it simple. Don't put a lot of energy into it. Everything goes in here. You see feathers, corncobs, that was bamboo, and you kind of got to keep it around the sides so water can be run through the middle. If you keep piling the middle, the water wants to run to the outside. That's just a simple trick.
DT: (Inaudible), where's there anything you had to prepare for the base underneath it?
10:09 – 2201
MB: No, you want to just put it on there—the soil and then as it decomposes the earthworms work their way up in it with time. You need nothing under it. And—see this—right there where those tomatoes are now is where this thing was last year and I just spread it out on the ground. And first I rake away the raw stuff that was on top and around the sides a little bit and I put it back in the pile for the bottom. Real simple.
DT: Do you want to show us your greenhouse?
10:43 – 2201
MB: Yeah.
DT: You tell us (inaudible).
10:49 – 2201
MB: Well, let me see. Oh, look at that old tractor tire. Did you ever see a raised bed like that? Now you could paint that and make it pretty. Take a tractor tire and turn it inside out.
DT: Have you ever been to the Kerr [Center] Ranch in Oklahoma?
11:09 – 2201
MB: No—turn them inside out.
DT: For cattle.
11:12 – 2201
MB: Well, that would make—oh, yeah. Great for cattle troughs, but see this is nothing toxic. You can run into it with a car, bump it with the lawnmower. It's never going to rot away. Termites won't eat it and before I did it I got with EPA and TNRCC [Texas Natural Resources Conservation Commission] to make sure nothing toxic leaks (inaudible). I got (inaudible) but I'll just pour some molasses in there and chase them out.
DT: Mr. Beck, can you tell us about this orange tree here and what it represents to you?
11:45 – 2201
MB: Actually, it's a tangerine called Changsha tangerine. It came from China and it takes cold weather, but I found out I can even help keep it from freezing if it really gets cold by using paramagnetic minerals and compost. In my first research on that paramagnetic rock or read a book, Paramagnetism. Dr. Phil Callahan wrote it. And so I went and got some granite, basalt and lava and I mixed it altogether and I put a little green sand in it too. That's an ocean deposit or lake deposit. And I had about, oh, about four gallons of this stuff
12:15 – 2201
and I put out four tomato plants in the garden real early in the season. I put about a—almost a gallon under each plant with a lot of compost and those plants are about so tall when I put them out when they were up this tall and blooming and looking beautiful, they predicted a freeze. It got down to 28 degrees with a sustained wind. Well, other people had had out tomato plants. A lot of people covered theirs some didn't, but every tomato plant

within miles around here was froze black to the ground. Those four tomato plants that I had that paramagnetic mineral around it with the compost out in the open, not covered, were completely untouched. There was no evidence whatsoever there was a freeze in those four
12:57 – 2201
tomato plants. So, I did that with olive trees. The Olive Growers Association gave me 22 trees and I planted seven of them here and I gave the rest around to the neighbors. Well, I put the paramagnetic rock and a lot of compost around mine and it got down to 16 degrees. Well, all the olive trees in the neighborhood, this was in '99, died—dead—gone. My olive trees are virtually untouched. Well, this year I didn't put the compost to the olive trees and mine got hurt a little bit from a freeze. It was down to 17—16 degrees again, but what it is when you use the paramagnetic rock, that's a mineral source and it has a low level of
13:40 – 2201
energy in it and that stimulates root hair activity and it stimulates microbial activity and if you got the compost there, then you have the energy. So, you load the—the—plants up—the sap in the plant is full of—full of sugars—carbohydrates and minerals and when it's really concentrated with sugars and minerals it has a much, much lower freezing point such as salt water. See salt water freezes about 26 degrees. Fresh water—fresh water freezes at 32. So, that's what we're doing. We're lowering the freezing point four, five or six degrees or more and it makes the plant a lot healthier and immune to insects and diseases.
14:13 – 201
DT: What do you mean by paramagnetic?
14:16 – 2201
MB: Well, paramagnetism means it's almost magnetic and a dictionary or a chemistry in a dictionary or physics will tell you something is paramagnetic if—when you put it in a magnetic field, the atoms in it line up like a marching band. Well, I asked a physicist, "How can you see them?" He said, "We don't see them." I said, "Well, how do you know they're lining up?" He said, "Well, if you put this product under x-ray, we can see the shadows. The shadows change." Well, that means this product is paramagnetic. It don't necessarily have to have parac metal in it to be paramagnetic. And things are made
14:54 – 2201
paramagnetic with high heat and then cooling slow and I found out ceramic and porcelain—commodes are paramagnetic, believe it or not, bricks, ashes and basalt, lava and granite. They're paramagnetic. However, this paramagnetism—it—it dissipates when exposed to the elements, but that time is measured in centuries—centuries. My first test was lava rock. I couldn't make it work and somebody called me and asked me my—my thoughts on using paramagnetic lava sand and I said, "Well, I can't make it work." So, I—I think it was A&M—published a bulletin—said Malcolm X said it don't work. Well, I said, "I could make it work." Well, I called to scold him from the guy that was making it work and he said, "Well, maybe Beck your product is not paramagnetic." So, I—I bought one of
15:49 – 2201
these machines that s—measures the paramagnetism and surely the lava sand I was using wasn't paramagnetic. And he sent me some he was using that was reading like 12 or 1400 on—on this machine. So, now I've found products around that's like four and five and six thousand. Well, I found out when I went up to Enchanted Rock, above Fredericksburg, a big, big granite dome and I was taking the chippings off of the outer edge and I put them under

this meter and they're barely paramagnetic. They're up there like 200, which it could be higher. Then I went down to the creek bottom and got some old decayed stuff that's been exposed for years. They wasn't paramagnetic at all. Then I went to a quarry next door—it was several miles down the road, where they were cutting the big granite rocks
16:42 – 2201
and when they handling these big granite chunks, you know, they weigh tons and tons. When they set them down, they chip them. Well, I got some of the granite from the inside of the boulder. IT was highly paramagnetic. So, it loses its paramagnetism as it is exposed to the elements. Well, like I say that's measured in—in centuries.
DT: Why does some paramagnetic mineral have some value in the garden?
17:06 – 2201
17:06 – 2201
MB: Well, that—that is in the energy. It's a magnetic energy and—and that stimulates cell activity, microbial activity, cell growth—we don't really know what it does. And some people say, "No, it's only the minerals." Well, I did another test to see if was a paramagnetism. I got 16 one gallon containers and put potting soil in them and put rye seed in each. One of them—I took two pieces of water hose that was about an inch in diameter. It was clear hose. And I filled one side with paramagnetic rock—highly paramagnetic, it was 5000 and on the other side with limestone, which was diamagnetic and I put them—and I caught the ends so nothing could escape and the roots couldn't get to it. And I put this around the outside of that pot, one pot, and I had 16—15 controls. Well, that pot with that
17:50 – 2201
energy field around it now grew about 20 % better—bigger, better root system and everything and I did it numerous times. Now in the greenhouse—and I found out this can even be detrimental if it's used wrong. A friend of mine wanted to do some research for me in a apple orchard. So, he came out and he got a lot of my paramagnetic rock and he put 5 pounds, 10, 15, 20, 25, 30 and 35 pounds around apple trees that were already in existence. The trees were one year old. Well, guess what? The more paramagnetic material he put there, they went down hill. I mean it just stair-stepped right down. The last two it killed.
18:38 – 2201
So, I said, "Uh oh, what's going on here?" So, I went up and I dug those two trees that died and I dug down a hole. Now he laid this stuff right on top of the ground. He didn't work it into the soil. He laid it on top of the ground and he had this highly paramagnetic material laying this thick—so big around—three-foot diameter around that tree. And anyway, I moved all that aside and I dug down and I found a red rock down there and I chipped it loose with a crowbar and I put it in the meter and it was highly paramagnetic. So, I had a positive paramagnetic—positive paramagnetic and I had a bad energy feeling between. I had a positive and positive. So, I blended all that into the soil—all that paramagnetic rock so it was all the way down to the rock and replaced those trees. Now those trees are
19:21 – 2201
outgrowing the rest. So, see if you—you got to watch what you're dong. Here it works great because all of our subsoil below this soil is limestone and we can use highly paramagnetic on top and diamagnetic at the bottom. And so I got the—the proper energy field. Now that's a whole new science. There's a whole lot of research needed to be done on it.
(Misc.)

19:46 – 2201
MB: He'll come back in the company.
DT: Yeah.
19:50 – 2201
MB: And one of my—my oldest son—he's—he's a fanatic constitutionist, Bible student and…
DT: Mr. Beck, we're standing in front of a Concord grape vine. Can you tell us what you're doing here?
20:05 – 2201
MB: Well, they were given to me so I had to plant them. The extension service said, "Hey, two years they'd be dead. Pierce's disease would kill them." Well, that was six or eight years ago. Well anyway, at one time I had a vineyard here and I had all the recommended varieties, but the birds got all the grapes. You—when you put them out on these little wires and you expose them, the birds get all the grapes. Well, I came up with an idea. If I grow this vine up and make it like a big umbrella maybe the birds wouldn't find them. Guess
20:31 – 2201
what? The birds never get a single grape. And they said, "Oh, you can't do that because they get diseases." But they don't get diseases. Every grape is perfect and they make great wine. There's something else I'm trying. I ha—I hate to weed around them. You don't want to let the weeds grow around so I'm putting decayed granite and tapping it tight. Now that decayed granite is full of minerals that this grape vine likes. That decayed granite is porous there and the water goes through it, but the design of it—weeds just can't run roots—they—it—it—because it's sharp or something the weeds can't push through. So,
21:13 – 2201
it—it's like a paved area that breathes and feeds the plant, but it keeps the weeds away. So, I—I solved the bird problem and I solved the weed problem and by keeping the plants healthy, paramagnetic rock compost, and keeping the—the—mow around—you just want to mow. You don't want to ever plow. You disturb the roots. They're right on top of the ground. The trees don't get diseases. So, they live here just as well as they do in New York, although, it's a New York grape.
DT: (Inaudible)
MB: Use to. I don't have time anymore. Yeah, I use to make a lot of wine. My—my Dad made it.
DT: Mr. Beck, can you tell us about the compost operation?
21:47 – 2201
MB: Well, this operation is probably a little different from a lot of them you've seen. You notice we've just got big piles, no windrows. What we do is bring the products in here, which is stable bedding with sawdust and hay and horse manure and get a lot of vegetable waste and (?) manure and ground up paper and what have you, anything organic. Anyway, we—we blend it and make sure we've got enough moisture in it when we build a pile and then we push the pile up as high as we can. We push them up 13, 14 foot high and then leave that pile. Leave it alone for two months and it absorbs the annual rain and that gives
22:20 – 2201
us enough moisture. We never have to water our piles. Our average rainfall here is right at 30 inches. Some years we may get 40, which is still—it's not too much, but if we only get 15 or 20 we still make compost. And after two months we will turn the pile and get the outside

to the inside and we do that on purpose and we won't—this compost won't be ready for six, seven, possible eight months. And we do that on purpose because there's a lot of wood in it. Now if you keep turning the pile (inaudible) you keep disturbing the beneficial fungi. The fungi is what breaks the hard, the wood, the high carbon material
22:52 – 2201
down. The bacteria feed on the nitrogen material. Well, if you keep using (inaudible) you keep on disturbing the fungi and chopping it apart. The bacteria eat up the fungal threads and pretty soon you have composted, broken down all the proteins, all the nitrogen materials, but your wood material is still hard. It never got composted. Well, if do the static pile method and keep a little bit high on the carbon side you'll never have a anaerobic smell. You'll never run out of oxygen because it—it works. I've been doing it this for all my life and I've never had a problem with it and it's a simple—it's a lot less energy free and we got one man back there doing all this operation—big operation, 26 acres here. One man
23:35 – 2201
with one big tractor, that's all. And the trucks come back here and then they haul it to different places. Haul it up to the front, we screen it and blend other things into whatever. No windrow turners. It's a real inexpensive way to make—inexpensive way to make compost, but a lot of people say, "Yeah, but look how long it takes you." Well, hey, I only had one waiting period. That was the first one. You see, every day we bring in 250, 300 cubic yards of material to compost. Well, I had that first seven-month waiting period. From then on, I've got compost to sell every day. It's never on—no more waiting periods and it
24:06 – 2201
takes up way less room than a whole bunch of small windrows. And windrow turners are real expensive to run and when you're through with it there's no market for it. The big loaders we use—anybody can use that on any construction job. So, it's a simple way to make compost. It's nature's way to make compost. We let it rot. We give it time. We don't keep disturbing it. It works. Had one of the topsoil microbiologists in the country to test compost. She says, "Malcolm, got the best compost." She came to that conclusion. I didn't know her at the time when she came to that conclusion because we let the fungi do their share too.
24:47 – 2201
DT: Now how do you know when it's ready?
24:50 – 2201
MB: Okay. That is a real good way to test compost—is what you do—you roll the sleeve up on this hand and you stick this hand in your pocket and you go dig into the pile deep as you can, it may still be hot in there, and you pull some compost out and you smell it. If it smells rank, it ain't ready. If—you might smell a little bit of ammonia and you're not sure well then you—you go off—get away from the pile and smell both hands and—and you're still not sure, well go ahead and wash the hand real good. Wash both hands and then go to the office and preferably let a woman smell both hands. If there's—the hands smell the
25:26 – 2201
same, it's ready. You never want to sell compost unless all that protein is completely digested. And that's how you tell. You don't use instruments. Your nose, your eye is the best instrument you can use when you're making compost. The smell test, if it smells bad it ain't ready. If it smells like the earth, it's great. It may still have a little ammonia smell, but if you wash your hand and it all washes away, well then it's ready. You don't want to sell stinky

compost. It's as simple as that. But you don't want to sell compost that is completely rotted away either because then you don't have any activity left to put in your soil. Just get the smell out of it then you can grow plants in it.
DT: (Inaudible) What happened when you tried to make an arrangement with the City of San Antonio involving this?
26:19 – 2201
MB: Oh, all right. It wasn't this particular compost. Are you ready?
DT: Yeah.
26:25 – 2201
MB: The City of San Antonio decided they needed to use their bio solids and their tree trimmings to make compost. So, I helped them—told them the best way I—you know what they could do. Anyway, they designed a big—well, I even wanted to do it for them, but they wouldn't let me do that. They wanted to do it. So, they built this big, big beautiful pad. I mean the best and they bought the windrow turner and read all the books. Well, they made pretty good compost except they made it for about six or seven years and they were losing money. They just—a municipality just can't sell, you know, I guess you don't have
26:52 – 2201
the incentive or something. They just didn't do it. So, about—it's been a little over a year ago now, the City called me and they said, "Malcolm, we're going to shut this compost operation down. It's costing us too much money. We're losing money on it." But they said, "Do you want us to keep it open for a little while yet?" One of the—the big shots up there said he had enough money in one of his funds to keep it alive and I said, "By all means keep it open." Well, I went to the people that were in the process of buying my company and I said, "Hey, we can take over the city's yard. I think they'll let us have it." So, they said, "Oh boy, we want it." So, I called them and I told them—I said, "We'd like to bid on it." They said, "Okay, we'll keep it and we'll put out the bids." And of course we got the
27:30 – 2201
bid because we had the experience. And now they had some 40,000 cubic yards piled up trying to sell it. We sold all that in about four months. We're low on material. We can't even make it fast enough. We got three big compost yards and if you know how to make compost and if you've used it, then you know how to sell it. That's about what it amounts to, but you have to have an incentive to sell it, I guess you would say.
DT: You mentioned bio solid and I'm curious if you can explain what the value and risks are in bio solids. I know that organic agriculture is…
DT: Mr. Beck, you're involved in—in composting bio solids and I understand there's controversy in organic agriculture about whether this is a proper material to—to use in the field. I'm curious…
28:31 – 2201
MB: Well, let me put it this way. The Asians have maintained soil fertility for—for 40 centuries because they don't have hang-ups. They've used human waste in agriculture. We wore out farm after farm in this country in less than two years because we don't use it. All of our best farmland is growing the food we eat and that has to be recycled back to the land. We can't get around that because it has to go back to the land, but it's going in the land fills somewhere. So, it needs to be processed and if it's processed through the sewer plant and then composted with wood chips and gone through a heat and composted
29:04 – 2201

properly, it is as clean as any compost anywhere. Let me mention this. The human protein molecule is probably the most perfect fertilizer on earth. Let me tell you how I discovered that. While I was selling the composted bio solids and the lon—the lawn care people found out, "Boy, this stuff really makes the lawn grow and you cut way back on the water, no diseases and no insects wherever you use bio solid compost." And they said, "But this stuff is kinda nasty to spread and when it's dry it's dusty and dirty when it's wet it won't go through a spreader." So, I had owned a big feed mill downtown—had a (?) mill and so I screened out some of the finest prettiest black bio solid compost I had. This was old stuff I had around—boy, it just smelled like the forest floor and I ran it through that pelting dye
29:52 – 2201
and I had the prettiest black pellets you ever saw. Boy, I'm seeing dollar signs. Man I'm going to get rich. Well, after about a week or so that stuff started stinking. I had it stored in some paper bags outside of my office about 60 feet away. About three weeks it stunk so bad you couldn't get near that stuff. So, I opened and lifted those bags and you couldn't see the product. Every type of microbe, fungi, algae, bacteria in the world was feeding on it. Well, everybody I talked to—they couldn't answer that question. I talked to every—every man this part of state that I figured knew something about that. Nobody could answer that. It so happened, when I was up in Steven Point, Wisconsin—I went to visit a friend of mine over in Cannon Falls, Minnesota and he was doing pelletized. Well, he couldn't answer it,
30:24 – 2201
but his microbiologist was there and that microbiologist explained it this way. He said the higher in the food chain you go the more complex the protein molecules. We're at the top of the food chain. The human protein molecule is almost like plastic. It's immune to destruction. It's a very complex protein and he says the only way you can hydrolyze the human protein molecule is with heat and pressure simultaneously. That's what I had with the pelting dye. Extreme pressure was generated—high temperatures. I broke open the human protein molecule. Now the microbes were having a field day. Anyway, this guy
31:09 – 2201
explained then—he says, "That's the elite of fertilizers." That's the elite of microbe food. When they get through with it—he says, "There is no better fertilizer on earth." And that's why we should be using bio solids. Well, I had my compost all tested by Trinity University for pathogens. We tried to get compost on athletic fields and the—the school board said, "Oh no, we can't let our kids play in compost. They'll get infections or diseases." Anyway, my employee was out trying to sell and he went to another school—suggest they put compost on the athletic field because it grows a big thick beautiful turf, cut back on irrigation, the kids don't get hurt playing on it. They—they said, "Oh no, our kids can't play in compost. They'll get infections and diseases." Well, this employee asked though, he
31:53 – 2201
said, "Well, is it all right to let those kids play in diazinon, orothene, dursban, 2-4-D?" They had no answer. So what happened, I knew Dr. Rex Moyer at Trinity University, top professor over a biologist and asked him if he could test compost. He said, "Malcolm," he says, "Trinity can do that test but it's a long test—several months, eight or nine months. It could cost you three thousand dollars or better." I said, "Let's do it." Well, after we was into the test two months he called me and wanted to know if I'd ever seen insects in my compost pile. I said, "Well, no. It gets too hot." He said, "Well, the reason I asked," he said, "28 % of the microbes he's isolating out are well known microbes that are pathogenic to

troublesome insects keeps them in control." That's why the people that put compost on
32:34 – 2201
their lawn never have grubs, chinch bugs, fleas or ticks and even the fire ants stay away if you use the compost often. Well, Dr. Moyer called me later and he says, "You know, Beck, you got some valuable stuff in that compost pile." I said, "Well, I try to tell people that." He said, "What I'm getting at now," he says, "Another 18 % of microbes isolating out are well known microbes that industry uses to break down toxic materials. You can't break it down anywhere else. The microbes can disassemble anything we put together to give them the environment to work in." Well, when the test was over with he gave me a stack of
33:13 – 2201
papers this thick and I said, "Dr. Moyer you've got to summarize this." He summarized it on one page. He said there were no frank pathogens found in any of the four compost I gave him. None. I said, "Well, what's a frank compost?" He said, "A frank microbe is a microbe that would be pathogenic to man, plant or animal. He said a lot of microbes there, but they're all beneficials.
(airplane)
MB: Sorry.
DT: No, no. That's all right.
MB: Next time I'll call Randolph [Air Force Base]. Do you want to go through that again?
DT: I think if you just pick it up from the results…
MB: Huh?
DT: I think if you just pick it up from what you were saying about the results.
34:02 – 2201
MB: Oh, the results? All right. Where abouts was that? Oh, after the test was—when he was into the test or the very end?
DT: After the test.
34:14 – 2201
MB: Right. When Dr. Moyer was finally through with the test there was a stack of paper three eighths of an inch thick and I asked him to summarize it so I wouldn't have to read all that stuff. And he summarized it on one page. He said there were no frank pathogens found in any of the four composts we gave him. He says though, they're loaded with microbes, but they're the decomposers and optimistic microbes. He said there's not a microbe in any of these composts. I gave him four different types at four different ages. He said there was no microbes in there that would be pathogenic to man, plant or animal. They're only beneficials. And I talked—I talked to Dr. Gerald Johnson up at Texas A & M, pathologist and he told me the same thing. He says, "The harmful pathogens can't compete with the decomposers." In a good compost pile, the decomposers that break things down, disassemble them, destroy any harmful pathogens. So, and as far as the toxins go that's in bio solids, you see you got another 18 % of the microbes that degrade toxic material. So, the best place for it is in the compost pile back on the land because the human protein molecule is the elite of fertilizers. There is none better.
DT: So, do you think the schools will go ahead and adopt a (?) now or no?
35:23 – 2201
MB: Well, yes with that study—with that study we got it on two football fields in San Antonio. Well, the state of Texas offers two Class five A state championships. That's the big schools. Well, guess what? Those two schools won Class five A state championships the

same year. The first two schools in the area to have compost and the compost had a lot to do with it. One day the football coach and the soccer coach was walking across the football field and the soccer coach commented and said, “Boy, what are you doing to this turf? It’s like walking on a big thick carpet.” And the football coach told him—he said, “Well, we’re putting compost on it a quarter inch at a time twice the year.” The soccer coach said, “Man, I need that.” So, he put compost on his soccer field and a year later he
36:02 – 2201
called our office in talking to my—my athlete that worked here. He said, “Paul, I’ve been coaching soccer all of my adult life and this is the first year ever I did not have a single knee injury or shin split.” And both coaches said they cut way back on irrigation and—and then the football coach said, “Well, yeah, I too. We don’t have any injuries when we’re playing on our own field.” So, you see there’s other benefits of compost your lawn.
DT: (Inaudible)
36:32 – 2201
MB: Why can’t you do it here? They compost in l—in Canada—everywhere.
DT: (Inaudible)
36:37 – 2201
MB: New static piles, windrows. You’re too small. You keep disturbing the fungi. You wouldn’t never—never digest. Dry compost that’s done with a windrow turner—throw it up in the air, a lot of dust flows out and a lot of hard pieces of wood chips hit the ground. Ours, you let it dry and throw it in the air—they’re all successful and I know a whole lot of people that failed trying to make compost wind row (?). Because in this environment you keep drying it out. You can’t keep it wet. You’re pumping water and (?) its mostly carbon, dead leaves, dead twigs, dead branches, dead roots, what have you. How much nitrogen is
37:09 – 2201
there? Just a little bit what the rabbit came by and dropped manure and the bird dropped manure, maybe the coyote peed on it or something. See, there’s not much nitrogen. You—you compost and you let it take time and you go high carbon and you’ll never get in trouble. And there’s way more carbon in the environment for us to use than there is nitrogen.
DT: I guess that’s the problem with conventional ag’s…
37:33 – 2201
MB: They read the books. They don’t know how to go out there—see composting is an art. That’s the—what I—the first thing I say in my (inaudible). Composting (inaudible). Everything that is alive is going to die. When it dies it’s going to rot whether we want it to or not. Composting is an art of working with the rotting process in an economical way. You’ve got to think economics—nature economics then that ultimately becomes pocketbook economics. Right?
DT: Solar dollars.
37:58 – 2201
MB: Solar dollars, there you go.
DT: (Inaudible)
37:58 – 2201
MB: The only problem we have is people throwing plastic. Plastic don’t decompose. The sunlight can’t destroy it. Okay, tell me when you’re ready.
DT: (Inaudible)
38:35 – 2201

MB: See all this actimidicedes in there? See that fungi breaking it down? Look at the fungal thread. Now it's beginning to get a little bit warm in there. Whew, it's getting too hot now. This is not quite ready. Now this fungi that's on the outer edge, if it gets too hot it can't live. It moves into the pile as the pile cools down and this fungi is what breaks the wood down. Now a lot of people will come out here and they'll see this and they say, "Oh, you got the pile too hot. You ashed it." They think that's ashes. Beautiful stuff. This smells like money.
DT: What produces the (?)?
39:47 – 2201
MB: The energy being released from—it's sunlight being released. That's the best way I can explain it. See, this was all plant material at one time and it collected the energy from the sun and turned it into carbohydrates—sugars, and now the microbes are feeding on that, breaking it down and releasing that sunlight energy.
DT: (Inaudible)
40:14 – 2201
MB: Smells like money to me. There's no odor in this. There's a little bit. This is not quite ready. It's got probably one more turning in another month or two.
DT: The ammonia smell that comes from unripe compost…
40:28 – 2201
MB: Well, the ammonia—when the microbes break down protein the first step is ammonia and then that takes on nitrite and becomes ammonium and then there's another microbe—works on that and makes nitrites and then there's another microbe takes that—could be the same one just changing itself. And then there's another microbe that makes nitrates, that's the end product. Now early in the spring plants feed on ammonia because there's not enough nitrates being released. They can feed on ammonia, but a nitrite they don't like. That's kind of a toxic form. Nitrates now is the form that both plants can feed on later on and you want it—you want all this in the pile or in the soil breaking down as the
41:55 – 2201
plant needs it. And the ammonia in these static piles is reabsorbed are carbon—pretty well stays in the pile and make carbic ac—carbonic acids in the humic acids and things like that. We don't want to lose the nitrogen ammonia to the air. We don't want to lose the moisture to the air. We don't want to lose the carbon to the air and we pretty well got it all sealed in and the microbes are using it in—in building their bodies. That's why I like static piles. When you got a windrow turner you're constantly losing moisture, constantly losing ammonia, constantly losing carbon dioxide and you're loading the air with carbon dioxide and we need that carbon in the pile. We need that carbon in the soil.
41:55 – 2201
End of reel 2201
End of interview with Malcolm Beck