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UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

James “Jim” M. Lyons
UC Davis, Entomology, Center for Pest Management Research and Extension

Interview conducted by
Robin Li
in 2008

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James Lyons
Interviewed by Robin Li
Interview #1: 06-17-2008

[Begin Audio File 1 06-17-2008.mp3]

01-00:00:00

Li: This is Robin Li on June 17th, speaking with Dr. James Lyons in Davis, California. So my first question is when and where were you born?

01-00:00:23

Lyons: I'm a native Californian. I was born in Livermore, 1929.

01-00:00:33

Li: And did your family have a background in agriculture?

01-00:00:35

Lyons: No, not at all. My father worked for the San Francisco Water Department; Hetch Hetchy. And you know, the Hetch Hetchy dam in Yosemite Valley is a point of controversy. People want to take it out now. But the dam was built, the water was brought down through the Tuolumne River, picked up in a tunnel that ran across the valley, and then they dug a tunnel through the coast range from Tracy over to Irvington, twenty-eight miles long. And the headquarters for digging that tunnel were in Livermore and that's where my father worked and that's how I came to be in Livermore.

01-00:01:20

Li: So did your father work for the—

01-00:01:23

Lyons: Worked for the City of San Francisco on the Hetch Hetchy Project in Livermore.

01-00:01:28

Li: Okay. And so did you go to public schools in Livermore?

01-00:01:31

Lyons: Public schools in Livermore. It was a rather small town. High school, 250 kids—fifty in my class, but all through school there. And then when I graduated from high school, I went to Berkeley and did four years at Berkeley. And while I was at Berkeley, after searching around for a major that would work, I ended up in agriculture economics and got my degree in agriculture economics.

01-00:01:55

Li: What drew you to that field?

01-00:01:59

Lyons: Hmm?

01-00:02:00
Li: What drew you to that field?

01-00:02:02
Lyons: You want an honest answer?

01-00:02:002
Li: Sure.

01-00:02:00
Lyons: Okay. I went into agriculture because the college of agriculture did not have a language requirement and I was flunking German. So that's what got me into agriculture.

01-00:02:14
Li: And what year did you graduate from Berkeley?

01-00:02:16
Lyons: Fifty-one. 1951. Now, I did—I was raised—in the community, it was an agricultural community, and I worked on farms, but I didn't—my family was not involved in farming, but—

01-00:02:26
Li: What did you do on the farms?

01-00:02:28
Lyons: Well, doing hay. Putting up hay and grain, and loading sacks and that sort of work. So anyway, it was all sort of dry farming.

01-00:02:38
Li: So Livermore at that time was pretty rural.

01-00:02:40
Lyons: Yes. Major industry was hay, grain, cattle, and vineyards—wine. There were several wineries there at that time. Wente Winery, Concannon Winery, Cresta Blanca. A number of wineries in Livermore.

01-00:02:58
Li: Did you have any mentors at Cal that you remember in particular?

01-00:03:02
Lyons: Not particularly. There was one professor in economics, his name was Ray Bressler and he was very good, but he died at a very early age. Got leukemia. And so anyway, that was a mean thing. So then when I graduated, it's kind of a long and tawdry story, because in fifty-one—Korean War started in fifty, okay. So my senior year, fifty/fifty-one, I had a class A profile, and was going to have to go in the Army. But it ended up that I got turned down for having an enlarged heart. And so at that time, I couldn't get a job interview even going into my senior year, you know, towards graduation because if you had a class 1-A profile, they know you were going to be gone into the Army, and so they wouldn't even give you an interview. So anyway, when I ended up with a

4-F classification because of my heart condition, why, okay, then I could get job interviews, frankly. And so I did. But in the summer, I worked for the State Department of Agriculture in standardization. At Livermore, they had an inspection station for produce coming around.

So I spent the summer doing that and then I got a job—I went to work for Wente Winery and worked in the winery and they wanted me to stay there and become a winemaker. And after six months of that, I decided there was going to be no future for me in a small family operation. They had a son and he was there, and so I decided I wasn't going to do that. And so I left and I went to work for Safeway in the Bay Area, and I worked in their produce division, I guess partly because of the ag econ, partly because of the working on the state, and doing—inspecting fruits and vegetables. So I went to work in the produce division, did that for a couple of years. And then I decided I wanted to get closer to agriculture, so I spent my days off there looking for jobs and talked to the ag extension county director in Alameda County, whose name was Lee Benson. So I talked to Lee Benson and he encouraged me to come to work for extension. And there was a position down in Modesto for a field assistant, and so I left Safeway and went down to Modesto and worked as a field assistant.

01-00:05:48

Li: What year was that?

01-00:05:49

Lyons: That would have been '53, '54, along in there, okay.

01-00:05:56

Li: And what were the job parameters for a field assistant?

01-00:06:00

Lyons: I was just a grunt worker for the farm advisors, and went out and helped them with field plots and did whatever they wanted. The home economist lady, she ran a class in how to reupholster furniture, and I'd help the women get their furniture out and put it in a room. And, you know, all the heavy duty work.

But I also was doing economic studies. You know, cost production studies. They had me doing those while I was there because of the economics background. So then—and this would have been '54, yes, '54. Yes, '54. I get a little postcard in the mail now that says, "Your friends and neighbors want you to go into the Army and we've decided that you really didn't have an enlarged heart anymore and so you'll report and you'll go into the Army." So I did. By that time I was married and didn't have any children, but headed off and spent two years in the Army then.

01-00:07:07

Li: And had you been living in Modesto? Had you moved out there?

01-00:07:09

Lyons:

Yes, from Modesto at that point. So went into the Army then. And so because this was during the Korean wartime, I got the GI Bill. So I decided that I would go back to—as long as I had GI Bill—I'll go back to graduate school when I got out and get a degree closer to agriculture—you know, more production agriculture to go along with the ag economics background.

01-00:07:38

Li:

And what did you do in the Army when you were there?

01-00:07:40

Lyons:

When I got in the Army, why, I did my basic training as a regular infantryman and learned how to use all of the killing tools that they have and everything. And so they sent me off to go up to Fort Lewis to then go over to Korea and when I got there, they said, "Can anyone here type?" And I raised my hand and said, "Yes, I can type." And so they jerked me out and I spent my time at Fort Lewis typing orders to send other people to Korea for the two years that I was there. And so I didn't go overseas.

01-00:08:12

Li:

They didn't use your ag econ background at all?

01-00:08:15

Lyons:

No, just my typing skills. So anyway—so that's what then—I came back. So I decided to come to Davis. And I came to Davis and I wanted to go into horticulture and I chose the Department of Vegetable Crops.

01-00:08:31

Li:

Okay. And this is '56?

01-00:08:34

Lyons:

This would have been '56, yes. Yes, '56. And—okay, so I came back. And in the Department of Vegetable Crops, they essentially had three program areas. One was in plant nutrition and soil, one was in genetics, and one was in post-harvest. Well, because of my two years with Safeway in their produce division, I went into post-harvest studies. And so I focused my research in post-harvest, the storage and handling of vegetables. And so I got my master's after the year and again was looking around. The Department offered me a job as a technician at that time. Well, by now we had a child and so I decided—and looking for jobs, I could—I got paid just as well as a technician as I was going out into the private sector working at that level. So I decided to take the job. And in doing that, they'll allow you—if you're an employee, they'll allow you to take classes while you're a full-time employee. You could take up to six units, I guess. So I started my PhD program then, and did that. Now, it took me five years that way, but nevertheless, I did it that way by working full-time and doing the classes and so forth.

01-00:10:08

Li:

Was the degree in—?

01-00:10:10

Lyons: The degree was actually in plant physiology.

01-00:10:12

Li: Plant physiology.

01-00:10:14

Lyons: Plant physiology/biochemistry. So I went full circle from ag economics to plant physiology and biochemistry. And in doing that program, I had to go back and take all of the classes that I didn't take when I was an undergraduate at Berkeley and that added to it, too.

01-00:10:31

Li: But no German.

01-00:10:32

Lyons: No German. Well, that's not true. At that time, in a PhD program, you had to pass two language tests to get your PhD in reading and it was French and German. So I had to go study German and be able to read scientific literature. And I'd taken three years of Spanish in high school, so French was not particularly difficult. But the German was tough. So anyway. Yes.

01-00:10:58

Li: And who did you work with in graduate school?

01-00:11:01

Lyons: Well, for my master's degree, Larry Rappaport was the person and he was fairly new at the campus. He'd only been there a year. And we did—I did my master's program. Studied the storage of brussels sprouts and wrote a couple of papers on brussels sprouts, storage of them. And then my major professor for the PhD was Harlan Pratt and he was a person that was studying ethylene and fruit ripening, particularly with melons, honeydews, and cantaloupes, and the role of ethylene, which is a natural plant hormone in that process. And so I did my PhD with him.

01-00:11:43

Li: Is that what your dissertation was on?

01-00:11:44

Lyons: Yes. Well, it was—there were three areas. I'd also gotten—one of the other topics that they were working on in the post-harvest program was in the chilling sensitivity. Low temperature, stress. You're too young, I know, to ever remember the little rhyme that Chiquita banana used to advertise and say, "Never keep bananas in the refrigerator. We're Chiquita banana, and here to say, never keep bananas in the refrigerator at low temperatures." And that's above freezing, low temperature. It's between thirty-two and up to fifty. And it turn—they don't ripen properly and they turn brown. Go to the market and you'll see it every day, where they've been chilled and that's what makes them turn brown really fast. Anyway, so I did—so part of my studies were on chilling injury and part were on ethylene and the role of ethylene in fruit

ripening. Wrote a couple of papers in that area. And then—so when I got to finishing, there was a position that opened up in Riverside, and at that time, the department—there was a department of vegetable crops at Riverside that had five people in it, but it was a branch of the Davis Department and they had—the person down there was the vice-chair of the Department, who was the nominal chair of the group at Riverside. So anyway, they were looking for somebody to do weed control, post-harvest physiology and growth regulators, and so I said, "I can do all of that," and so I went down and worked in those areas at Riverside.

01-00:13:24

Li: So were you hired based on just recommendation?

01-00:13:27

Lyons: In those days, I was hired on a phone call. They'd call up and say, "Who you got that's the best one you have?" And they'd say, "This is the person you should hire." He called me down and talked to me and that was it, "You're hired," okay. When I got my degree, and it was in '62, okay, it was really a sellers market. Every graduate that I was associated with would get at least two or three offers, because, you know, the universities were expanding and it was really a question of wanting to get them at the same time so you could choose the best one instead of having this one, oh, that looks pretty good, and then next week getting a better offer from somebody else. Anyway. But yes, it was just done word of mouth. They didn't have to give a seminar or anything else. Just here's your job and do it, you know.

01-00:14:17

Li: So you were hired as an assistant professor?

01-00:14:20

Lyons: It was an assistant professor, right. Step one assistant professor. And an assistant—I guess it was olericulturist in the experiment station, okay, because you had joint appointments. For a full-time FTE, there was a portion that was teaching and a portion that was experiment station, research. And in the plant sciences area and agriculture, it was usually about an eighty/twenty split. Twenty percent teaching, eighty percent research, and it was an eleven month appointment, year round, as against a nine month, you know, L&S standard teaching appointment and that was because of your being hired to do experiment station research. And a portion of the salary came from the feds and the land grant monies that came to the system.

01-00:15:14

Li: So you were part of extension as soon as you joined UCD?

01-00:15:16

Lyons: Experiment station, not extension.

01-00:15:18

Li: Okay.

01-00:15:18

Lyons: I did, like I said, work for extension as a field assistant in Stanislaus County, but at this time, it was all experiment stations, so they were separate.

01-00:15:27

Li: Separate. Okay.

01-00:15:27

Lyons: And the overall structure had just changed, but they had this statewide dean of agriculture, and the statewide dean of agriculture at that time was a person by the name of Maurice Peterson. And he was out of the agronomy department here at Davis, and so he was in charge statewide, okay. Where was I going with that? Anyway—

01-00:15:59

Li: About the experiment station being separate from—

01-00:16:02

Lyons: Right. From the—

01-00:16:06

Li: Extension.

01-00:16:08

Lyons: You had a joint appointment in the experiment station and as a teaching faculty.

01-00:16:14

Li: So what courses did you teach, then, when you first arrived?

01-00:16:19

Lyons: Well, when I joined, UC Riverside was primarily the citrus research station, all right. And they did not start teaching—when they started a teaching program, they started out saying, "We're going to be the Reed College of California and it's going to be a small liberal arts college limited to 500 students, and they went out and recruited faculty on that basis. Well, they only did that for about a year, or maybe two, until the Regents said, "No, no, no. We can't have an elite small school like that. It has to become a general campus." Okay. So they expanded into them teaching agriculture, as well, because they didn't, at that time. And so I remember the year before, I went down there, there was a big article in the Riverside paper that the first—they had one student in agriculture, undergraduate student, and that person went into the vegetable crops department, and they didn't have a big article in the paper, oh, along in December describing that he left, because he couldn't hack it and left and that was that one student. So there was a very small student enrollment.

But anyway, the class—okay. So at first I didn't teach, but after I was there two years, my second year, the chairman of the department of Davis retired and so they asked the acting—or not the acting—the vice chairman from

Riverside to come up and be the chairman of Davis. So he comes up to Davis. And at that time, it ended up that the dean called me into his office and he had to get a new department chair. And there was only five of us there and now there's only four and one of them was working as an associate dean, so there was only myself and two others, maybe three others, and the dean asked me—he said, "Who do you think would be best for you as chair? Who would do you the most good?" I said, "I would." And so he said, "Okay." So I was the department chair then.

01-00:18:33

Li: And you were—

01-00:18:34

Lyons: Second step assistant professor at Riverside, yes.

01-00:18:37

Li: And you were just in your thirties at that point?

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Lyons: Yes. Went—just in my—yes. I was—so I was—yes. Let's see, I got my degree when I was, what, in sixty-two. About thirty-three, thirty-four. So I was, you know, thirty-five, along in there, which was older than the average assistant professor. I started my PhD program, Harlan Pratt, my major professor when I got into plant physiology, he said—he held me up as a prime example of how you can overcome a misspent youth by having taken the stupid ag economics program. So anyway, yes.

01-00:19:19

Li: So you became chair of the department.

01-00:19:21

Lyons: So then I was chair of the department down there for that time period that I started in. And then along in that process, the chancellor—they got a new chancellor and he decided that it was nonsense having these branches of the department from Davis. You know, they were his people and so it's going to be a full department. So they separated that and made it a regular department then, and it was not only—veg crop—the same is true of agronomy. They had a small agronomy department that was a branch and that also then became a department of agronomy. So how are we doing?

01-00:20:07

Li: Good. Great.

01-00:20:07

Lyons: Okay. Is this the kind of stuff you want?

01-00:20:08

Li: Yes, this is great. This is great. And were you still doing the plant post-harvest work or had you gotten into pest management at this point? Was that—?

01-00:20:19

Lyons:

Okay. Well, when I got down to Riverside, the job—there was the person that—the vacancy was because a person left, okay. He was not going to make tenure. They didn't review him as not making tenure, they just said, "You're not going to make it and so you'd better look for a new job," and he did. And he was doing weed control work and they wanted me to carry on with the weed control work. And so, okay, I can do that. Well, they had a full-time technician assigned to that position, and this person, his name is Fred Whiting; he was an excellent field type person, and so essentially, while he did all of the weed control—and the department chairman said, at the time I got started, he said, "You're going to have to go out and do field plots. You know, you got to put in test chemicals, that's what you—or you won't make it." Well, I sat there and pondered that, because the reason the guy who left there left was because he went out and did field plots, and when it came time to look at any science, you know, there wasn't any science there and so they asked him to leave. And so I thought, "Well, I'm not exactly going to make that mistake." But I put in the field plots and this technician taught me all about it, and so that was no problem.

But then I switched. I started focusing on looking at the persistence of these herbicides in the soil rather than just their performance. And I started doing studies in that direction. Okay. At the same time, then, I didn't do any work on ethylene or fruit ripening anymore. I set that aside. But I started doing post-harvest in the sense of my chilling injury work. And I got—it got focused in some basic aspects of temperature problems in plants and so I was looking at the fact that—and what I'd found out in my PhD research work was there was a distinct difference between plants that had their botanical origins in the warm parts of the world versus the temperate parts of the world. So all things like tomatoes and bananas and eggplant and all of those things all had their origins in Central America and those parts of the world, as against the cold season crops, broccoli, and brussels sprouts and all of that. And these warm season crops, you couldn't store them at temperatures below fifty degrees Fahrenheit, which is only ten centigrade, which is, you know, warm in a lot of contents. But anyway—and it was a time/temperature relationship. And so I started looking at that and thinking about it in terms of—in my PhD studies, I'd discerned that it seemed like—I was looking at the membranes, cellular membranes but using the mitochondria as a membrane, model membrane. And that the membranes of the chilling sensitive crops are—the chilling insensitive crops seemed to be more flexible than those of the chilling sensitive ones.

And so I started looking then at the lipid content and I had a technician that was a good chemist and so we did studies on looking at the composition of the lipids and found that most of the chilling sensitive plants had very high levels of the saturated fats, just like, you know, butter and margarine versus the unsaturated fats in the cool season crops. So that was interesting. And so worked on that for a while.

01-00:23:51

Li: And were you spending most of your days, then, in the lab?

01-00:23:54

Lyons: Well, I was in the office. I had these two technicians and I'd go out in the field and I'd work in the lab and then when the time to—when I became the department chairman, Oscar Lorenz, he was teaching a class in vegetable production, a beginning class in vegetable. So I taught that class. And the first year I taught it, I had one student in it because there was hardly any students—undergraduate students there. And then I had two or three students and taught that, too. So I kept busy.

01-00:24:28

Li: Were you publishing any of your findings at this point?

01-00:24:29

Lyons: Oh, yes. Yes, yes.

01-00:24:31

Li: Where would you publish?

01-00:24:31

Lyons: Well, the weed control work was in California Agriculture and the Journal of Weed Science, primarily, and then the other work was in—well, one was in the Journal of Lipid Chemistry and so it was quite a range.

01-00:24:48

Li: So how did you come to work for the extension?

01-00:24:54

Lyons: Well, that comes later. I only—I didn't really work for extension, again. One period was here at Davis, again in the administration. They asked me to be a joint director of the—a regional director for extension along with being associate dean of the college. But that's a later story. So that was my only connection with extension, okay .

01-00:25:15

Li: So back at Riverside then. What year did you become the chair of the department?

01-00:25:23

Lyons: Well, it would have been—I went there in '62, so '64.

01-00:25:26

Li: Sixty-four.

01-00:25:28

Lyons: Yes.

01-00:25:29

Li: And then how long were you—did you serve as chair of the Riverside department?

01-00:25:32

Lyons: Well, until I left and I left in '70.

01-00:25:36

Li: Did the program change a lot in the time that you were there?

01-00:25:40

Lyons: Oh, yes. Well, I like to counter the fact that at that time—when I joined in '62 until I left in '70, that was sort of a—it was a real changing time. That is, when Oscar Lorenz left and I became chair, we had to fix a budget every year. You had to turn in a budget. And so I said, "Well, you know, how do I prepare a budget?" He said, "Well, all you do is take what I presented last year and you add one more technician and ten percent increase in the supply funds that you need," and they got that every year. Okay. But—he did that, then. That was the budget he left. So when it came back that year, there was no additional technician and there was no ten percent increase in funds. And so I'm preparing a budget and I'm thinking, "Well, I'll do that, but you know, so now I'm going to ask for two technicians and twenty percent increase." And there was no money that year. And it also coincides with when—in '64 when Ronald Reagan became governor. And the first thing he did was to cut research money out of the university. And so the real peak years of the funding was in about '60-'63. And from then on, it has been gradually reduced over time. And so it was going like then, and then it stabilized, and then it went down. So anyway, that was—yes.

01-00:27:07

Li: So you had to make do with less?

01-00:27:08

Lyons: Yes. So then, the other dynamic in here was when I was doing the weed control work, the chemical companies would come and they would give you \$500, \$1,000 of research monies to test some of their chemicals. Well, you could accumulate that and with that you could get enough money to get a grad student or something, you know. So we were getting those kinds of monies.

01-00:27:34

Li: Was that sort of new for the university, to be getting private money like that?

01-00:27:36

Lyons: Yes, pretty much, because they didn't need to before because they were getting money from the state. Then the other thing that happened about that same time was the National Science Foundation, National Institutes of Health all had large granting programs. And actually, for my PhD program working on ethylene in fruit ripening, Harlan Pratt, he'd gotten a large grant from the National Science Foundation to study that topic. So, you know—but you got monies from grants, all right. So it began to show that—who's going to control

the research agenda. But then the other thing that evolved along in there was that we were getting money from the growers. The growers, if they had certain work they wanted to get done.

01-00:28:31

Li: Okay. You mean growers associations?

01-00:28:32

Lyons: Yes. And so—yes.

01-00:28:37

Li: So would these donors, then, sort of formulate the research questions that you guys would pursue?

01-00:28:42

Lyons: Sure, yes. So we were getting money in the department from—there was one person that was working on asparagus, and there was another one that was working on lettuce. And we were getting money from the growers in small amounts.

01-00:28:57

Li: And what kinds of things would the chemical companies be interested in using?

01-00:29:00

Lyons: Well, their products—we want you to test our products to see if they work, you know. And so you'd put it on field plots and put theirs in with others and study. But that's when I started the longevity rather than their performance and whatnot.

01-00:29:17

Li: Was that something they asked you to study or was that your own question?

01-00:29:19

Lyons: No, that wasn't. I began to wonder what was going to happen in the long run.

01-00:29:24

Li: What were some of the things that you found?

01-00:29:29

Lyons: Well, a large number of them were very persistent. And so I wanted to study well how long—if they're selective against this crop but for how long before you can't grow anything else, you know. And so those kind of longevity studies and all. So then this evolved. I had been working with growers on terms of getting money from them. Well, then it was time for—not time, but my—I had done six years now and so—yes, '62. I could go on sabbatical, my six years. So I had a colleague I'd worked with in Australia and he asked me to come work with him in Australia and so I went off to Australia.

01-00:30:18

Li: With the family? Your wife?

01-00:30:18

Lyons:

Yes, I had two children by then. And we all went off to Australia and spent a year in Sydney working for the government, actually. Their equivalent of the USDA, which was CSIRO, Commonwealth Scientific Industrial Research Organization. And they paid part of my salary, which gave me some money to get over there and all. And there I worked totally on the chilling injury issue and that was, again, this issue of cell membranes. And I wanted—there was a specific experiment that I wanted to do and there was a person in a plant physiology unit at Sydney University; there was a person there that was very good with mitochondria and so we teamed up.

The question I wanted to ask was if, in fact, the membranes of these cells do solidify or change in that way, it should be reflected in their metabolic activity. So what we did was set up a system where we could make a preparation of mitochondria from a tomato or a cauliflower. And he had the equivalent—we could set up and put them in six different temperatures, so you had the same batch of material and you could study them over this temperature range and get six points on it. I'm always kind of fascinated—well, not fascinated, but enjoy the fact that when I went there and they asked me to sort of describe what I wanted to do to the group—there was a group of about six there and I went to the board and I drew a curve and I said, "Well, it should—if there is this—it should look like—instead of being a straight line, there should be a definite break." And by the time I left, we had the evidence that says exactly what happened. That there was. There was a phase change, a change in the lipids that made these membranes not as functional below ten degrees centigrade. And so we got two, or three, four papers out of that and that was a lot of fun.

01-00:32:18

Li:

And were you pursuing this—this was basic research or did you have—?

01-00:32:21

Lyons:

No. Yes. It was basic research but, you know, and that doesn't always please the experiment station people, except that you could argue in the long run that, well, if we can find out the basis for it, maybe the geneticist can manipulate it and make it so that they can convert the—reduce the chilling sensitivity in crops. So that's the longer term goal.

01-00:32:44

Li:

Yes. But did you see yourself primarily as a basic researcher?

01-00:32:47

Lyons:

Well, at that point, yes. And for that year. And the other thing, while I was with my colleague there, we also then asked the question, saying, "Well, what about cold blooded, warm blooded animals? If that's true for plants, what about them?" And so we worked with rats and fishes, okay, and showed the same relationship. The only difference being that where the break in the plants were at this ten degree centigrade, the break in animals came at about twenty-

two degrees centigrade. And looking in the literature, they talk about, you know, finding people frozen or near freezing. And the lowest body temperature on record where they survived was around twenty-two, twenty-three centigrade, where they'd gotten their body temperature down that low and then they survived from it. So there was quite a similarity with the process.

01-00:33:40

Li: And so it was still about the presence of lipids in the cell membrane?

01-00:33:42

Lyons: Right. Right, right, yes.

01-00:33:44

Li: Interesting.

01-00:33:44

Lyons: So I'm not sure this is helping you with the experiment station business, but—so when I finished my sabbatical. You know, in terms of the practicality of it, I would say that the Campbell Soup offered a—they had a Campbell's Soup prize for the best research on vegetables for a year and they gave us the prize for that work on that, what we showed about the low temperature work. So John and I split that prize. \$1,500. It was big money in those days. So anyway—so then I went back to Riverside and John Raison, the guy that worked with me over there, he came then. I got some money and got him to come to Riverside for a year and we continued the studies there. At that particular point, we asked the next question about the animals, saying, "Well, if that's true with fishes and rats, what about a mammal that hibernates?" And gee, as if by magic, one of the colleagues in the biology department there was studying golden mantled ground squirrels, which were true hibernators. And they—in the wintertime, they would take their body temperature down to near zero and their heart rate was like one a minute. So we got him to sacrifice a squirrel for us. And this little graduate student cried when she had to do that. But anyway. Yes, we showed that when they were hibernating, that the membranes changes between when they were warm—being warm blooded and when they went into their hibernation. They changed the composition of their membranes to accommodate that.

01-00:33:31

Li: Oh, wow.

01-00:35:33

Lyons: And we showed that and got more papers out of that. So we had a good time. So now—so then when I got—then during this—so that was '60s—I was in Australia '68, '69. Came back to Riverside. When I was at Riverside then for the year. The chairman—now Oscar Lorenz, who was the chairman at Davis, he decided he wanted to step down and so the folks in the department asked me if I'd be willing to come to Davis. And I said, "Sure, I'd be willing to come

to Davis." My home was down at Livermore, you know. Yes, so I did. And so I left Riverside and came to Davis as the department chair in 1970. Okay.

01-00:36:21

Li: And can you just compare the department at Davis versus the department at Riverside?

01-00:36:26

Lyons: Well, there was five or six at Riverside and there was sixteen at Davis, so there was that difference. So when I came to Davis—Let's back up, though. While I was at Riverside, they—would have been somewhere between '66 and '69. That's when they gave up this statewide dean of agriculture and created the Division of Agriculture. What was it? The Division of Agriculture. I think just the Division of Agriculture at that time. And they chose a person from Riverside who was the chairman of plant pathology, Jim Kendrick, to come up to Berkeley to be the state—to be the director of the statewide division and the director of the experiment station and the director of the extension. It went under one title then. And at that time, Jerry Siebert was the director of extension. Boise Day was director of experiment station at that time. Anyway—but Jim Kendrick became the vice-president. And I knew him well because I'd worked with him at Riverside at that time. So there was a major change then in the structure of those two organizations.

01-00:37:58

Li: And that was 1970?

01-00:28:00

Lyons: Would have been—yes. Would have been—well, that would have been in the period between '65 and '70 when that change occurred. Because by the time I came to Davis, that was already set.

01-00:38:11

Li: So when you came to Davis, then, were you working with this new, reorganized structure?

01-00:38:17

Lyons: Yes. Well, the department structure was still pretty much the same. So Department of Veg Crops and they had a Dean of Agriculture here who was also an associate director of the experiments station then, responsible for that portion on the Davis campus. And then cooperative extension was still totally separate from that. They're under the division but they weren't under the dean of the college here. Same structure as at Riverside and the same structure as was at Berkeley at that time. The three ag campuses.

01-00:38:46

Li: And so what were your duties at Davis?

01-00:38:49

Lyons: Department chair, yes.

01-00:38:51

Li: Did you teach at all or—?

01-00:38:54

Lyons:

Well, yes, I did. Even though you're department chair, your major functions still were a function of doing research and teaching. And so I still kept a research program for a while and then—and I was pursuing the—still interested in the membrane work. And while John Raison was still with me—he was down at Riverside now and I'd moved up to Davis, but we still got together. And we said, "There's a crucial experiment we need to do. We need to find a physical measurement of that membrane change. We've seen it in the metabolism, we've seen it in those kinds of parameters, but we need a physical measurement." And there was a guy down at Berkeley, a faculty member who had some novel techniques with electron microscopy, where they'd shown some pictures once that looked like you could see the membranes in a totally different configuration when it was chilled—so John came up and we went down to talk to this person, Dan Branton at Berkeley, described what we wanted to do.

He said, "No," he said, "you don't want to use my tools." He said, "There's a guy over here in the genetics department, his name was Alec Keith, who's doing some really neat work with electron spin resonance, okay, and that's a technology. And there's an instrument that will detect the spinning of electrons." And so what he does is he takes these chemical compounds that have this capability, inserts them into membranes and then they can study them in their electron resonance spectrophotometer And they can follow the changes in it. And so I went over and he picked up the phone and gee, the guy was there. And really, it's just—you know, it shows you sometimes how chance enters, because if he hadn't have been there that day, I don't know if we'd have ever made contact with him or not. But so we went over to there, sat there and he described it, and he said, "Yes, that'd be an interesting problem to look at." So he said, "Okay, so we'll come up here and spend several days and we'll prepare the materials and then you can look at them in your electron spin resonance machine." And yes, that'd be great. So we did that, we came up, and yes, we verified. Got the same graph where they came down and then it dropped where it's with the chilling—once it was a straight line and so we really got physical evidence that, in fact, that event was going on.

01-00:41:25

Li: And did this machine measure density, then, or what would it—?

01-00:41:29

Lyons:

No, the activity of this—as the environment around that molecule changed, it would slow down so it couldn't spin as fast in a solid lipid matrix as it would in a fluid. And so it measured the rate at which—

01-00:41:45

Li: Oh, okay. The electrons were spinning.

01-00:41:46

Lyons: Right. Yes, yes.

01-00:41:50

Li: So these findings must have been fairly significant, then, for your work, too.

01-00:41:54

Lyons: We thought it was, yes. And not everybody—we thought it was. So that was—and that came pretty close to being the end of my research, then, couple years here at Davis. Part of it was because I got involved in being department chair and so in 1973, the college had gone to a new organizational structure where they had a dean and then they had associate deans for various subject matter areas. Pest management, plants, animals, et cetera. So the dean had asked me to leave being the department chair and be an associate dean of the plant sciences and the pest management departments, because I had these great pest management credentials with weed science. Okay. So I was associate dean.

01-00:42:47

Li: So this was based on the weed work that you had done years before at River—

01-00:42:49

Lyons: At Riverside. Right, yes, yes. So then I did that. I said, "Okay, I'll do that, but only if you'll—" to the dean, "Only if you'll let me go back to Penn State and work with this Alec Keith." This Alec Keith worked for Berkeley. He had gotten a job offer at Penn State, so he'd moved to Penn State and still had a few more experiments he wanted to do. And so he let me go to Penn State for the summer and did that, and then came back and took over as associate dean. And they put Oscar Lorenz back in as department chair for a while. But—

01-00:43:29

Li: And what year was that? That you came—

01-00:43:30

Lyons: That would have been '73. 197—

01-00:43:33

Li: So you were associate dean of pest management as well as plant sciences?

01-00:43:34

Lyons: Plant sciences and pest management, right. So I got further embedded into administration at that point. And that was still only nominally half time. But that meant like eight hours a day in the office and the other half time was nights and weekends. So anyway, I got involved with—and in that time period, when I was chairman—but back to where I was the chairman of the department, okay, money—when I arrived in Davis as chair of the Department, Reagan had just given the university its second budget cut from

the first one, okay. And so the Dean, Alex McCallo, at that time, the cut he gave was like ten percent across the board. But the dean said, "I can't do that." He said, "I mean, some departments have a lot of money and some departments don't have very much. And so the old standard departments with a lot of money, they're going to get harder than I got to start some new departments. Like we have a department of wildlife and fisheries biology that's brand new and they don't have any money. So you're going to get hit heavier." So I was hit with a fifteen percent budget cut. I arrived in August and had to deal with a fifteen percent cut in the program—in the budget in the department.

So one of the first things I did was went to folks in the department and say—well, for example, we had a person that was a geneticist working on lettuce and every year, the growers would send him a check for \$1,500 to help support his work on lettuce. And so he came in and showed me this check and I said, "Ted, I'm going to send that back to them, because that's not near enough money." So I did. I sent it back and I said—went down and I met with them, and I said, "You're going to have to—you, the lettuce industry, are going to have to come up with money to support that program." I said, "You have to understand, the University of California does not need a lettuce breeder. You need a lettuce breeder. We don't. And they're cutting our monies, and so if you want to see that program continue, you're going to start paying for the technician's salary and you're going to have to give us twenty-five to thirty thousand a year." And so they did. They started—there was a vehicle under the state ag code that lets the growers organize a marketing order. Marketing order, so much for advertising. But they could also do it for research.

So they put together a marketing order where they taxed themselves across the whole industry. So I'd go out and work with the folks trying to put those together, go to growers meetings and explain what we could do and why they needed to do it and so forth. And so I was involved with getting marketing orders put in place for fresh market tomatoes, for lettuce, for carrots, for other crops, too. A couple of other crops, okay. And where the growers said, "All right, it's valuable, and so we will pay this." So when you do that, okay, the money then—the growers get to decide what projects it's going to be spent on. And so we set up a system where we had an internal review of the projects so that we were happy with them, but then the growers got to say, "Well, we don't want to fund that," or, "We will fund that." But again, see, the dynamics shifting from the state saying where the money is going to go, to this. Now, understand, when I went to the lettuce breeder and I said, "Ted, you know, there's not enough money," he said, "But I don't spend any money." And no. He had one full-time technician, but he also used essentially half of all the field labor. We had greenhouses the department paid for. I said, "That's money, too." They look at money as cash, where I go down and buy a little goodie, you know. "I don't buy it." Yes, all you had to buy was pot labels but there's a lot of expense. And so anyway, that's—

01-00:47:46

Li: So did marketing orders expand, then, in the seventies?

01-00:47:48

Lyons: Yes, uh-huh, they did. So then along about—so now I'm over in the dean's office, too. And then you get to the point where there was a lawsuit. The mechanization lawsuit was brought against the university for saying, you know, the hard times/hard tomatoes issue. I don't know if you ever heard of that term.

01-00:48:10

Li: No, I haven't heard about that.

01-00:48:11

Lyons: There was a book written about that. That our geneticists, and the tomatoes, they bred these hard tomatoes so they would withstand mechanical harvesting, and the quality was all gone, and so forth. Which wasn't true, but they thought so. So they filed a suit saying we were gifting public monies to the private sector by doing that research, okay. And so there's a lawsuit that went on for a number of years. And learned how costly lawsuits are in the sense that, in that lawsuit, the first thing they did—I was in the dean's office at this time. They came in. They got a court order, they came in, and said, "You need to make a copy of every piece of paper you have in your office that relates to research." And we had this—these associate deans, and once a week they met as a dean's council. "And we want the minutes and we want every document that said what the agenda was going to be and every discussion item in that." And boy, talk about having to go to the Xerox machine. And it was—you know, it was a very, very expensive proposition and it went on for several years.

01-00:49:31

Li: As associate dean of the plant sciences, then, was this lawsuit a lot of—

01-00:49:36

Lyons: It was against the experiment station. It was statewide. It was not just Davis, yes.

01-00:49:41

Lyons: But it was primarily focused on—and at that time, they were working—the ag engineers were working on a mechanical harvester for lettuce and they'd already had the mechanical harvester for tomatoes and she's saying that you don't take into account the workers in this. You know, you put all these laborers out of work.

01-00:50:00

Li: So what did you think about the lawsuit? Did you agree with it?

01-00:50:03

Lyons: No, of course not. Not that I had a bias but, no, I didn't. And they didn't succeed with it, but they sure got a lot of publicity and so forth, so—

01-00:50:15

Li: I mean, did it undermine—because it seems like the purpose of extension in a lot of ways is to support ag production.

01-00:50:20

Lyons: Right. You bet. But they were—it did force some additional monies to go into some sociological studies about helping the farm workers and those sort of things. But that's a different area and so nobody resented building that up. Maybe we should have been doing it. In fact, I ventured into a program with one of the persons in the sociology department to say, okay, we're going to study asparagus, because asparagus was being all hand harvested. And there was some work being done on a mechanical harvester, although it's easy to develop a mechanical harvester. But it wasn't going to work very well because they don't all come at one time. So set up this study with a guy in ag economics and we went down and met with workers and growers and whatnot. And boy, I'll tell you, it was—we didn't get anything out of it because you couldn't get a grower to talk to you, you couldn't get the workers to talk to you. Everybody had their own agenda, and no way did they want to share—the workers, they had a system going in terms of pecking order. Who got what job, where, and so forth, and they didn't want to talk about that or get that out there at all. The guy in ag economics, he even went down and signed on as a day laborer and went out and worked with them to get some information. But the growers, they didn't want to see this at all. We're saying, "But this will help you if you can answer these questions." "I can guarantee you whatever you find is not going to help us. Period. So we're not interested in this." Okay. So that was my venture into that field.

01-00:52:11

Li: So would you work with county agents on things like that?

01-00:52:14

Lyons: Sure, we worked with the farm advisors. Always—it was the principle that I learned because it seemed a common sense thing to do. When I was at Riverside, I was working on tomatoes, one of the other—the growth regulator arena was down in Chula Vista area. They put on a growth regulator, 4-chlorooxyplocetic acid. And it was a growth hormone. If they sprayed it on the flowers, they could pollinate them—not pollinate. They could get fruit development and they could get an early crop. It was the only place in the US that used it. And so I worked on that down there. Now, why did I bring that up? For these tomatoes. Well, anyway, I did that work down there.

01-00:53:10

Li: Did you work with a county agency?

01-00:53:11

Lyons: Yes, well, that's what I started on. And they had an excellent farm advisor down there, Bernard Hall—Bernie—oh, Bernie. And I'd never go down there without him. You know, say, "I need this. You know, let's work together." Because he knew the growers. He could do all that. He could work, you know,

do it. And so yes, I always worked the farm advisors. There was an extension specialist, who—their role is to also work and train farm advisors and he used to go down there and ignore the farm advisor and I just found it incredible. And the farm advisor—you know, he didn't get along too well because the farm advisor—the growers were sympathetic, but the farm advisor—if the farm advisor said something, he'd believe it. If the guy—if the specialist said it, they didn't believe him, just didn't—they didn't have confidence in him. I always worked with the farm advisors. But not everybody did and it caused problems if they went into the county. They found out, all of a sudden, there's somebody got field plots out here and they don't know anything about him, you know, that's kind of foolish to do that. But yes, I worked closely with all the farm advisors.

01-00:54:18

Li:

Because it seems like that's a challenging relationship, to get from the university to the growers.

01-00:54:22

Lyons:

Right, right. Yes. That continuum of the applied and basic and getting it in to use by the growers. What it's all about.

01-00:54:31

Li:

So what year was the lawsuit, the hard tomato lawsuit that was—?

01-00:54:34

Lyons:

Well, that was going on in '73, so it could have started in '72, '73, and then it went on for several years. Yes. Little things like the judge that started out died and so they had a new judge and they had to do other—you know, and it just kind of went on and on as a nuisance. But—yes.

01-00:54:54

Li:

And then meanwhile, you stayed on—you were soon to be associate dean.

01-00:54:56

Lyons:

Sure. Doing the same thing that we were doing. And I was still going out raising money from growers to help support the research, you know, convince them that this couldn't happen if they didn't put up the money.

01-00:55:08

Li:

Do you think that the interest of business and the university worked well together? Did they counter each other?

01-00:55:15

Lyons:

No, I think it worked well together. And I can tell you, also, that we had this strong relationship with the growers. And when it came time for—when the university put its budget in and the president went—for the whole university, that they'd go to the growers and the growers would support the university's budget. Well, that's the only—the university didn't have another—doesn't have another constituency other than the public. But they could get the growers. And the growers were powerful links with the political system and

many of the legislators were growers and all. So they were very good in supporting the general university budget. It began to falter a little bit when the Berkeley riots, Mario Savio — and I was down at Riverside at that time. And I—

01-00:56:17

Li: Is that '67, '68?

01-00:56:19

Lyons: Yes. I had to be—yes. No, it was '62. This is in the sixties.

01-00:56:24

Li: Oh, it's earlier, okay.

01-00:56:25

Lyons: And it was in the sixties, okay, because I was down at Riverside then, which was '62 to '70. So it was like '63 along—well, it was when—yes, it was about when Reagan—yes, Reagan got elected. It was just before Reagan got elected and he got elected on the basis of saying he's going to straighten out the students at the university. Anyway, the Mario Savio and the student issues there. And my friendly farm advisor down in San Diego, Bernard—Hall was his last name. Bernard Hall. Bernie Hall. And he asked me to come down. "The growers want to chat with you, you know." I go down there and there were about six growers in there. And man, did they ream me up one side and down the other about the Berkeley riots and students and how weak-kneed we were for just not going out there with a club and just getting them off of campus. And I said, "Hey, you know, I'm—" He said, "You're the only university administrator we can talk to, and we can tell you, we're just mad as hell." And they started not supporting the university's budget because of that issue of the feeling that the—you know, that the university was too lenient on that. And it took a long time to get over that, really.

01-00:57:34

Li: So just the left-wing politics were too much for the growers?

01-00:57:37

Lyons: Right, right. Yes. So anyway—and I can remember going to meetings at University Hall right across from the Berkeley campus there. I don't know who's in that. It's still a university building, I guess, but having tear gas waft into the conference room there from what's going on on the campus. But anyway that had some impact on it.

01-00:58:04

Li: So this brings us up to 1973. So you were still—

01-00:58:07

Lyons: Well, beyond, yes. So then as time went on, then changes occurred in the vice-president's office. Jim Kennedy was the vice-president and he had brought in another guy from Riverside, who was a weed scientist, as the director of the experiments station. And then he had the director of extension. And then those

people began to retire and change. And he brought Lowell Lewis, who was an associate dean at Riverside, up to be the associate director for the experiments station. And then after a while, they asked me to be an assistant director of the experiments station. So I left the dean's office as an associate dean. I went in in '73 and I left in '81. And then I was working—and I started working half-time down in the vice-president's office. And I'd do that commuting—I'd stay down in the Bay Area a couple of nights and working the rest of the time up here. Much of the activities were still—what—I was responsible for all these growers meetings, and so I spent a lot of time meeting with the growers of all these commodity groups around—there was quite a large number of them. And rice growers, alfalfa growers. I spent a lot of time doing that, representing the vice-president's office.

01-00:59:46

Li: Okay. Let me just pause and change the tape.

[End Audio File 1]

[Begin Audio File 2 06-17-2008.mp3]

02-00:00:00

Li: This is Robin Li speaking with Dr. Jim Lyons, June 17, 2007, Davis, tape two.

02-00:00:13

Lyons: So by this time, while I was associate dean, I did teach a couple of classes. I taught the beginning class in vegetable crops and I taught a general freshmen class in plant sciences. But my research essentially ended. And part of it was that I'd carried that up, done the experiments, and proven this concept, and the next step was really to move into molecular biology and actually manipulate the composition of membranes and show that that was, you know, going on. And I knew I was not going to become a world-renowned molecular biologist and so I said, that's for somebody else to do. I'd watched another faculty member, a colleague that decided, well, he was going to get into biochemistry and did nothing but waste money and chemicals for three years and didn't ever—so I wasn't going to do that.

02-00:01:15

Li: So when you went half-time to the vice-president's office, was the other half-time with the experiment station, then?

02-00:01:20

Lyons: Well, it was my campus position, which was—yes.

02-00:01:23

Li: So did you go back and do more research again, then, after you left the dean's office?

02-00:01:26

Lyons:

Well, I didn't do—no, I didn't do any research. It was primarily just teaching and administrative work. Having said that, though, I got to a point on the salary scale where I did not get advanced any further, because—and I wouldn't ask to, because I didn't have a record to put in any more to support an advancement.

02-00:01:51

Li:

But it sounds like your relationship with the growers was an important part of your kind of repertoire of skills.

02-00:01:58

Lyons:

Yes. Right. I think that the growers had confidence in me and I had a good relationship with them, and so, yes, it was important. And after I then retired, actually, then another person—Bob Webster, who was in the plant pathology department, he picked that up and he was also somebody that was kind of raised in the same experiment station period I was, that understand, you know, the growers, you needed to listen to them. You didn't go and tell them what to do, but you listened and worked with them and made sure that they heard the same thing every time you went there and so forth. And so he built—they had confidence in him, as well, and so it worked very well.

02-00:02:48

Li:

Did you feel like you had to manage kind of public and private interests as you worked for the UC, but then—

02-00:02:53

Lyons:

Well, not really. It was still—as long as we had a plant breeder going to work on tomatoes, then, you know, you need to fund them and they're the ones that pay for that support. I will say that as time—in the period that I came from—when I came back in 1970, the new faculty members in the department gradually were changing their programs. So in the genetics—in the vegetable crops department, we were hiring molecular biologists, okay. And they would go and get a \$300,000 grant from NIH to work in—we could go out and get maybe \$40,000 from the growers. But we hired people that—but we had some excellent ones that could walk that walk where they could be a fundamental—I mean, a really top-notch molecular biologist, and at the same time understand what the grower's needs were doing and put things in that helped the growers in terms of giving plant breeders genes to work with and so forth.

We had a number of them that were really good at being able to bridge that spectrum even though they were—I remember the first molecular biologist we hired in that department. Every year we had a meeting where we brought all the farm advisors into the department and met with the research and discussed current things. And this person hired in and he was a molecular biologist. And so he came and he said, "Okay, here I am. You're looking at me. I'm a card carrying molecular biologist." Because everybody, oh, you know, they can't do anything for the growers. And he said, "And I want to tell you, I've heard

every joke there is about molecular biologists, as well, so you can't get at me that way. But here's what I think I'm going to do for you." And he spun the story about his particular—what he was interested in—would lead towards a new technique to get resistance for nematodes, particularly, in crops in a shorter period of time." "Well, okay, we understand that." So it's that sort of thing that came along.

02-00:05:04

Li:

Must have been hard to find people with that set of skills.

02-00:05:06

Lyons:

Right. But they're there and yes.

02-00:05:15

Li:

So how long were you working with the vice-president's office on the—?

02-00:05:20

Lyons:

How long?

02-00:05:20

Li:

Yes.

02-00:05:20

Lyons:

Well, okay. I started really going down there about '81, getting involved, when I was working with the growers and all. okay. So then we'll get to—'81, '79. Seventy-nine. Then along in seventy—while I was working down there. But '78, there was a notion that we should have an integrated pest management program and this was a proposal that people in—particularly spearheaded by the group out at Berkeley in the biological control department.

02-00:06:05

Li:

So this wasn't spurred on by the growers. This was an internal project?

02-00:06:08

Lyons:

Right, okay. Proposal. And it was an approach of integrating pest management techniques where you don't just use a chemical, but you go in and you have to look at the plant growth, you have to look at the whole system, you have to choose the right soil, the right varieties. You do a whole complete look at the system. And there were those that were computer modelers that were sort of leading this in terms of being able to model various things. And so the goal was to expand the activities in that arena. There was a group in bio-control at Berkeley that put together an outline of what a program would be and that was spearheaded by a person by the name of Andy Gutierrez. And in that disc there, that really describes that history. The book—the history's about this thick, but it's like the first ten pages. A really historical view of how we got the program started. And so Jim Kendrick, as the vice-president, he said, "Well, let's get a group together and take that document and then frame it in terms of a proposal to the legislature for funding." Okay. So Charlie Hess, who was dean of agriculture at that time, myself, and Lowell Lewis from Riverside—no, not Lowell Lewis. It was Ivan Thomason who was—he had a

joint experiment station, extension responsibility. Being responsible for pest management over the whole state at that point, farm advisors, as well as department. Having responsibility—you're just trying to coordinate things. You don't tell people what to do or control budgets.

So anyway, we put together this proposal along with the director—regional director for extension and put together this proposal for a statewide project and it was asking for a million five to do this. And it focused on research—had a research component and it had—the extension—had a manual, where we write manuals on pest management component and it had an extension component. In there, I described the fact that—well, first of all. So we get this done and we give it to Jim Kendrick and we say, "Okay, go for it." And he said, "Oh, no, no, no. We can't do that this year. The university's budget is already put to rest and we can't do that." Charlie Hess was quite close to the grower groups and all, and so we took it and we put it out into the hinterlands and said, "Don't you think this would be a good idea?" And a person by the name of Dan Dooley—have you run across Dan Dooley? He's the new vice-president for agriculture now. And he was—he was—at that time, the governor was Jerry Brown and he was chief of staff to Jerry Brown, Dan Dooley. He was from a grower family down in the valley, but he was a lawyer, particularly focused on water law. And he liked it and so he got a hold—he took it to Jerry Brown and Jerry Brown went to the president of the university and said, "Yes, I think this would be a good idea." And the president of the university went back to Kendrick and said, "Gee, I think this would be a good idea." As if by magic, why, he thought it was, too. So anyway, they put it to the state legislature and it got funded. So I spent numerous time over in the legislative process testifying before the committees and all to get this thing. So we got funded. And it got funded in—starting in '70. I think July 1, 1970 was when it started the funding.

And Ivan Thomason from Riverside, he was to be the director of it, okay, and he'd been involved in putting it together. And so along about—before it had got funded but along in May or something, he said, "Well, by the way, I'm going on sabbatical to Michigan State starting the first of July." Oh. And then they passed it and we got the money, and so now what do you do? So the first thing they did is say—Kendrick said, "Well, what we'll do is we'll have an associate dean off of each campus. The three of them will get together and decide the program." I went to one meeting and I went back to Charlie Hess, who was the dean here. I said, "Charlie," I said, "This isn't going to work because the whole discussion was, well, how are we going to split the pie up between what Riverside gets and what Berkeley gets." And so we had a little confab. What we agreed was—I was still half-time associate dean, then, as well as working down in Berkeley—in Oakland. And so, "Okay, you'll be director. We'll make you director until Ivan gets back, and to get it started." So okay. I did that for that year and got that project started.

02-00:110110:00

Li: So at that point, were you an extension employee, then?

02-00:11:13

Lyons: No, I was paid for in part by the Davis campus and part out of the vice-president's office. So I was associate director of the experiments station at that time. And what I described in the history was getting this started was not easy because we—you know, we attacked every paradigm that was sacred in the system. Number one, we're going to have a grants program, but each grant had to focus on the particular things that we wanted. It had to be multidisciplinary, and you're going to be held to producing—and we'll tell you what, you know, the topic and you have to do that. And no, we apply for grants and we do what we want. No, no. These are going to be very focused grants. The second was we're going to write manuals. Well, no, no, we can't do that, because unless you're a senior author on a publication, you don't get any credit for a publication in the system. So we got the director of the extension, everybody to agree. They're saying, "No. You'll get the same credit for that as if you were an author on a paper, okay." So we hired in a person, Mary Louise Flint, had her PhD in bio-control, a very bright, talented lady, and she's still in the program. She put the manuals together and they're a world class document. They're still used all over the world.

And our grants program worked and then what was—oh, so we—in the extension component, we put in area—we got money and had six area advisors, extension advisors, okay, and their job was to essentially work with the farm advisors in six areas in terms of the IPM techniques. You can't have that. Boy, the extension farm advisors just went crazy. The extension specialist went crazy. And no, we're going to do it, and we did, and it's worked. In other words, you know, fraught with a lot of problems, but anyway. We got that going and then Ivan did come back. He did it for a year and then said, "I don't want to do this anymore," because he had to spend more time up here than he did in Riverside, and he got tired of traveling. So I became director again and did that for three or four more years, and then, anyway, moved on to another title. And then Frank Zalom, who we'd hired in as the IPM extension specialist, then he became the director and so forth. So anyway, it's still a vigorous program.

02-00:13:55

Li: Did this program connect with any of your earlier research interests in terms of—?

02-00:13:59

Lyons: No. No, other—my pest management credentials was as a weed scientist. I had a tough time. But I was tough. That is that—so when we'd ask for grant proposals, the weed scientists would put in proposals, and their proposal was, "We need money for eight technicians and eight pickup trucks so we can go out and test new chemicals, because all weeds are going to be controlled by chemicals. I don't care what anybody says." "No, that's not going to happen.

We're not going to fund that. You may do that. That's fine with you, but you're not going to get a nickel." And we didn't. And there was about—there was one person here at Davis who was taking a more holistic view and doing—trying to look at how you could measure things to say whether you needed to use herbicides or not. And so we gave him a grant. There was a woman down at Riverside that was doing the same thing and she got funded. But the other ones, they just hated me, because here I was, a weed scientist, and yet I wouldn't buy into the mantra that chemicals forever, you know.

And it's changed. The growers were very supportive because they recognized the only way they were going to get off this pesticide treadmill they were on was to do these approaches. And they had many of the farm advisors. So they supported it very strongly. They hesitated—you know, they bought into it, but they had put together an oversight committee to watch us to make sure we didn't do any damage. And after a couple of years, they—"No, we trust you. We don't need to worry about it. We can't spend our time doing this." And yes, so it was very successful. And a lot of new technologies or techniques developed to help them.

02-00:15:52

Li:

So was this project influenced a lot by the ecology movement in the sixties and seventies?

02-00:15:56

Lyons:

It sure was, yes, yes. Rachel Carson's book and there was a faculty member down at Berkeley particularly that—and they had all the data that showed that by using these pesticides, you're creating more problems than you're solving and you have to go cold turkey and clean it all up because you're killing all the beneficials and in many cases, you don't need to use anything. And, you know, all of those techniques came and it took a long time to turn that around. But it did. Yes.

02-00:16:26

Li:

So some of your—

02-00:16:26

Lyons:

But they drove it, yes.

02-00:16:27

Li:

Some of your earlier research, then, into the durability of these chemicals in the soil.

02-00:16:30

Lyons:

Yes. It had some bearing in terms of, you know, being one of the downsides of the chemicals.

02-00:16:38

Li:

What was something that came out of that project? Can you think of a particular technique that—?

02-00:16:42

Lyons:

Oh. We have a document in there but—one of the things is that—we did a lot of work on—you start with sampling. You have to go out and watch the crop and you sample and you have to go out and count and see when certain critters appear. And then you can decide whether or not you need to do anything or don't need to do anything as against just saying, "Well, every year, we sprayed this time, this—you know, the crop and we do it whether we have any bugs or not." And I can't give very many specifics, but it was—I know in the cotton, they were able to show that they reduced the pesticide usage tremendously. Cotton and tomatoes. And the measure is how much—what's the reduction in the use of pesticides. And yes, there's marked reduction in many of the crops.

02-00:17:33

Li:

So you stayed on directing this program until?

02-00:17:35

Lyons:

Well, up until—it would have been about—let's see. About—when did Sarah return? It would be into the mid-eighties, okay. Then I retired in ninety-one.

02-00:17:52

Li:

And what'd you—what happened in the intervening years between?

02-00:17:55

Lyons:

Well, I was still working. They had an overall umbrella they were trying to put together over all of the pest management things. And I was working and then we're doing—trying to do strategic plans for the division and working across a lot of things for the administration.

02-00:18:13

Li:

Can you tell me something about the Center for Pest Management Research?

02-00:18:16

Lyons:

Yes, I founded that. It disappeared.

02-00:18:20

Li:

What year did you found that?

02-00:18:22

Lyons:

Well, that was an attempt to put an office that was over all of the pest management projects in the state. And it was approved. But—but the thing that happened—by then, we got—Kendrick was gone. We got new—Ken Farrell came in as the vice-president and he didn't think much of it. So they never funded it. And it didn't ever have any teeth. It just was sort of a paper thing. I was director of that and then after a while, I turned that over to Mike Stammen, who was an extension—he dealt with some of the pesticide issues in the division. Then, after I'd retired, when Henry Vox became the vice—became the associate—yes, under Farrell, he became the associate vice-president. He asked me to do a review of the pest management department kind of thing. In there, I recommended that it be terminated. It was useless and get it off the books. Well, we don't want to do that, because the legislature

approved it, and we were supposed to give the legislature a report every year. They never asked for one, we never gave them one. I said, "Just remove the name from the books. Don't announce that you're getting rid of it. Just get rid of it." And nobody ever asked a question again. Because it was non-functional.

02-00:20:11

Li: Was the vision behind that very similar to the IPM?

02-00:20:13

Lyons: Well, the division—they wanted to—you know, the people in the legislature are saying, "We don't see you coordinating all the activities." This was a device to try and coordinate the activities across everything. Well, it's—you know, it could have worked if, in fact, they'd given it some teeth to say, "Well, you don't get any money unless you act this way." But the vice-president's office wasn't willing to do that or no dean or anything else, so it never happened.

02-00:20:41

Li: Did you ever meet with the other pest management specialists from other states? Was there cooperation that happened?

02-00:20:46

Lyons: I'd go to national meetings, I did. We went to Washington, DC several times. California really had the model program for—there was a pretty good one—there was a good one in Florida, there was one in Texas, one in Cornell. But California's was the broadest, partly because we have all the crops, you know. So the one in Texas was on cotton and the one Florida had was on citrus. So ours was pretty—and most of that was because the structure was sound. You know, was good.

02-00:21:20

Li: The structure of the university?

02-00:21:21

Lyons: Of the IPM Project.

02-00:21:23

Li: I see.

02-00:21:24

Lyons: And again, the manuals and the way they did the—and the area advisors and all of that was looked upon as a real model. And Frank Zalom as the director, he was a true IPM, you know—he got his PhD in biological control. My science wasn't there, you know. I did it as—because I was skilled in UC Davis politics, in the division. I knew everybody. One of the reasons I got to do what I did was because Kendrick, who was a vice-president, I knew him well from days at Riverside. Lowell Lewis and I were hired at the same time at Riverside and we were good friends. And so they trusted me. And so if I'd

say, "We need to do this," they'd do it. And okay. So that worked that way. But that was a unique situation.

02-00:22:13

Li: Yes. So you found that California's role in terms of pest management was as a leader?

02-00:22:17

Lyons: Yes, absolutely. And Frank Zalom still gets called all the time to go back and do things on national programs and everything. So was a leader.

02-00:22:27

Li: What do you think was the greatest challenge working in ANR?

02-00:22:31

Lyons: Well, was or is or, you know?

02-00:22:36

Li: It may be the same thing.

02-00:22:37

Lyons: Well, in terms of—I told you the challenges in getting the IPM program off the ground was because it violated the historical paradigms as to how you got your promotions, how you got your publication credit, how you did these things, you know. How you had control of your grants and so forth.

02-00:22:56

Li: Yes. So changing the way the system worked basically.

02-00:22:58

Lyons: Right, yes.

02-00:23:00

Li: How did you see the field change in the time that you were working in the field of pest management? Did you see approaches to the field change?

02-00:23:10

Lyons: Well, certainly the new—the new issue is molecular biology and genetic modification. Not only in terms of developing fast—being able to more quickly develop resistant plants, so forth, that—yes. But when I started the IPM program, we had these grants and we got a million and a half. And the chairman of the agronomy department, who was a plant geneticist, came and he said, "Look. If you really want to do this, what you need to do is give the geneticist in the agronomy department the million and a half so that we can breed crops faster." "No, we're not going to do that. I'm sorry. There's more to it than that."

02-00:24:00

Li: But did you have the—did you feel like you had the support of the growers?

02-00:24:03

Lyons: Yes, yes. We did.

02-00:24:07

Li: Were there any particular problems facing California growers in terms of pest management based on the variety of crops or the climate?

02-00:24:16

Lyons: Well, it's just a constant problem. It's never—you know, there's something—it's never a vacuum. Something will fill the void. You solve one problem, there'll be another one. Yes.

02-00:24:32

Li: Do you feel like overall, then, that ANR has been an effective resource for California agriculture?

02-00:24:40

Lyons: Well, yes, I think it's been an outstanding resource for California agriculture. And I think it's made it quite clear. There was an article in—where was I just reading it? That showed that as investment in research for growers has declined, their productivity has declined. And that across the nation, that the amount going into it is declining and productivity is declining. So yes, I think there's a direct correlation with it.

02-00:24:08

Li: How do you see the future of ANR? Do you think it will still play an important role?

02-00:25:13

Lyons: Yes, sure I do. Yes. I think that—I think there's a tendency towards, and some believe very strongly, towards decentralizing—decentralizing it to a campus and, i.e., the Davis campus and not having a vice-president's office, but to have a dean do it. But that poses problems, because there's a large element at Riverside and there's a large element at Berkeley. So—but I think it's valuable. I think it was valuable to have them under one umbrella, as long as there was some teeth to make that work, in the sense of—instead of having people on these three campuses doing the same things and competing with one another, instead of getting together and saying, "Okay, we can do this together."

02-00:26:13

Li: How do you see ANR research differing from standard academic research that would happen?

02-00:26:19

Lyons: Well, first of all, I think that's changing slightly, too. But we had experiment station appointments, where we had eighty percent of our salaries paid to work in agriculture. And in the rest of the departments, that's not the case. You know, nine month appointments and get grants for their summer salary and that sort of thing. So we felt like we had an obligation to deliver products.

Where in the rest of the University, it's, you know, the individual. They have to produce but it's for their science and not for the field of poetry or the field of, you know, something else. There's no constituency there. But here it was to further agriculture. And there's some—oh, there's some literature in the division library someplace about these kinds of discussions. But yes.

02-00:27:17

Li:

Do you see the trend that you had talked about earlier with the increase in marketing orders in the seventies? Has that continued to grow? That—?

02-00:27:25

Lyons:

No, it hasn't grown, but there's still significant—a number of them are still in existence in providing significant contributions of funds, yes. Yes. In terms of historical context, there was a book published—I don't have a copy anymore, but by the federal USDA on a history of the land grant system. And I remember in reading that, they talked about when the discussion in Congress during Lincoln's administration, there was talk about having to strengthen agriculture research in the US. And the model was a European model of having these experiment stations around and tied with university campuses. Well, in the 1860s, they had this debate where whether—we should fund these experiment stations in the states to do research, but they should be by themselves and not associated with a university. And one of the statements, they said, "If you allow the experiment stations to be associated with a university campus, no longer will they do anything good for the growers." And that debate was back in the 1860s. And you'll still hear some of that debate today, you know, that—well, see they just want to do that basic research. They don't want to do anything of value to us.

But I had the experiences of going out and having—even all of the farm advisors were—a number of the farm advisors, they were pretty pedantic about not thinking we do the right research for them. But most of that's changed over time. But I'd have—they'd say, "Look. If you guys out in the departments aren't out here kicking clods and talking to the growers and finding out what's going on, you're not going to know what to do." And I've had growers that are sitting there at the same time, saying, "Don't go out in my fields. I know how to grow. I know how to grow those crops really well. You need to be in the lab doing the next generation of work, not out here doing this. I've already done that." And I ran across that. One experience was this department chair, who has passed on, sweet guy. He was doing work on fertilizers, you know, and NP&K, nitrogen, potassium. How many pounds you needed to do on which crops under which conditions. He was giving a talk up with a grower group in Santa Maria one time and I was along with him there. And he said, you know, "Our studies show that you need to put on X—you know, it needs to be between 150 and 175 pounds of nitrogen to get—" And one of the growers says, "It's exactly 162 ½." I mean, they knew what they were doing. They did a lot of it themselves at that point. Earlier on, a lot of their basic work was really of value. But the growers got into it. They could

do it just as well as the farm advisors could. Or the department guys. So anyway.

02-00:30:41

Li: Do you feel like your background, growing up in Livermore, having been on a farm a little bit, helped you develop these relationships?

02-00:30:47

Lyons: Oh, I think that it has to involve all aspects of your background. You know, where I got my skills I really can't say exactly. But I don't know. A part of it was figuring out how to work with people, I guess, and I don't know where I got that. I worked with some pretty tough bosses along the way. But anyway—no, I can't pin it down.

02-00:31:16

Li: It seems like for most ANR people, being able to work in complicated relationships is an important trait.

02-00:31:19

Lyons: Yes, right. Yes, yes. Yes. So—

02-00:31:26

Li: Yes. Do you mind if we just go back?

02-00:31:28

Lyons: Sure.

02-00:31:28

Li: I wanted to ask you a little bit about the organizational structure of IPM, how it kind of ran day-to-day.

02-00:31:35

Lyons: They've just made some changes. But what we had was—so the director and then we had the manuals group, and we had the director and associate director. And we had a manuals group and we had a computer group, which included meteorology and we had—and the area advisors.

02-00:31:59

Li: And the manuals group would be in charge of doing research and producing manuals that you would distribute to growers or to—?

02-00:32:06

Lyons: Right. They were all for sale items, but yes. And we did them when—developed around the crops and around the research so they could show the new techniques and to apply. And so manual on tomatoes. All of them. Essentially all the crops. And they're about that thick. And we sell them all over the world. They're still sort of a standard. And because they approach—they have a lot of—we had an excellent photographer in the system, and he actually worked for extension, and we actually paid half his salary so we could capture his attention. And to start with excellent pictures of the pest, the

critters for identification. I'm going to have to stop for a minute and get a drink. Experts from the various campuses and the various fields. So you know, plants, plant pathology, entomology and so forth. And we had—and then the area farm advisors who were working with the farm advisors. The area farm advisors, in principle, were not to have clients themselves, but to work with farm advisors who had clients. So they'd put on workshops for the farm advisors and with the farm advisors and that sort of thing.

02-00:33:23

Li: So would they transfer, then, IPM's research to the farm advisories?

02-00:33:25

Lyons: Right, right.

02-00:33:26

Li: The advisors then talked to the growers.

02-00:33:27

Lyons: Growers, right. So the technical committee then met several times a year and they did the grants proposal. We'd get the grants in. We had put out a call for proposals in various fields. They helped design the call for proposals and then they would review the grants and then make recommendations and rank them and that sort of thing. And then we'd have—after the science was ranked—was reviewed and ranked, we'd have the farm advisors rank them in terms of whether they felt they really solved a need or not. So we had two sets of rankings that we used in deciding which projects we funded.

02-00:34:08

Li: I see. And so they would evaluate previous projects to help figure out what future projects needed to be done.

02-00:34:14

Lyons: Right, right.

02-00:34:15

Li: So there was the area advisors, the manuals group, the computers group, and this technical committee?

02-00:34:20

Lyons: Well, the technical committee was—worked with all of those. They'd discuss the manuals and everything. So—yes, but within IPM, it was just those—so right now, Mary Louise Flint is the director. Let's just say—I don't know what terms they're using, but say the manager of the manuals group. Joyce Strand is the manager of the computer—of the computer system. And she's professionally a meteorologist and there was a meteorological component in it because you use weather data in the models and so forth that they use.

02-00:35:00

Li: What was the responsibility of the computers group, then?

02-00:35:03

Lyons:

We put everything into a computer system so that people can access it all by computers. Now, originally, we had stations out in the various areas so they could come in to Kearney station or into Bakersfield to an area and using a computer. And they were using it for models, to run models. They had a cotton model.

02-00:35:28

Li:

So a grower could come in and—?

02-00:35:29

Lyons:

Right. The farm advisors could come in and use it and work with the growers with them. And then we'd get—and you'd put weather data into those models and that sort of thing. And it started out that we had—there was a big debate at the beginning as to whether we should have a central computer or have individual computers, PCs around. And there was a big fight. People wanted PCs. But the PC, at that time, was difficult to use. You had to be a real, you know, freak—computer geek to know how to really make them work. And giving them out to the farm advisors was not really very valuable. So we had a distributor system where we had a central computer at Davis and then we had a node down at Riverside and we had a node at Kearney and then we had stations in the counties that they could link to. And over time, the program evolved towards writing everything for PCs. So doing it that way—as PCs became more abundant and easy to use and however—yes, they're all PCs. But most of the IPM project was all Apple driven. But anyway, so everything we do is out on disks now, and so they don't use the central computer like that anymore.

02-00:36:55

Li:

So would you have scholars from all different disciplines giving you data for these volumes?

02-00:36:59

Lyons:

Yes, we did. We included all the disciplines in it, yes, from entomology, nematology, plant pathology. Even—we had an animal component to it. We didn't do animal—we did give grants in animal production for fly control and things like that. But yes. So all the disciplines.

02-00:37:22

Li:

Was there any other program in ANR that was this sort of wide in scope and—?

02-00:037:25

Lyons:

No, not that I'm aware of, no.

02-00:37:28

Li:

So it was pretty unique?

02-00:37:28

Lyons:

Pretty unique, yes.

02-00:37:31

Li: And what's its current status? Do you know?

02-00:37:34

Lyons: Well, it's still very functional. Let's see. Well, Frank Zalom was director, and then a couple of years ago, he wanted to get back into the lab and so he stepped down. And they hired me back to be acting director until they got a new one, which turned out to be eighteen months, not the four months that they thought they were going to do. And they got a new director in who was from Australia. He was a US guy that was in Australia. And after a couple of years, he decided he wanted to go back to Australia and so he's gone. And so right now, there is an acting director, who is Phil—no, what's that? He's an area advisor from down at Kearney who is nominally the senior area advisor over—anyway, he's being the acting director. And they haven't—it got—this got involved at the same time that getting a new vice-president. You know, Farrell was stepping down. So they haven't moved ahead with it yet, and so they're still just hanging on that pattern now. But Pete Goddell. Pete Goddell is the acting director. He's at the Kearney}. And then Joyce is—and Joyce's job, in addition to the computer system, is also the office manager person. And then Mary Lou has the manuals and that's about it, yes.

02-00:39:07

Li: So you see IPM continuing into the future?

02-00:39:09

Lyons: Yes, I think so.

02-00:39:12

Li: Yes. Is there anything significant that you feel like we haven't talked about yet that I missed?

02-00:39:18

Lyons: No. I can't really—

02-00:39:19

Li: No? Not off the top of your head?

02-00:39:20

Lyons: No, no. You—I mean, as you're talking to other people, why, you may come up with things that you'd want to ask other questions about but—

02-00:39:27

Li: Right. I could come back and give you a call.

02-00:39:29

Lyons: Yes. Sure. Absolutely.

02-00:39:30

Li: Okay, great. All right. That's good.

[End of Interview]

Biographical Information**JAMES M. LYONS**Education

University of California, Berkeley	B.S.	1951	Agricultural Economics
University of California, Davis	M.S.	1957	Vegetable Crops
University of California, Davis	Ph.D	1962	Plant Physiology

Academic Employment

1962-70	Assistant, Associate, Professor of Vegetable Crops and Chair, Department of Vegetable Crops, University of California, Riverside
1970-73	Professor and Chairman, Department of Vegetable Crops, University of California, Davis
1973-81	Professor and Associate Dean for the Plant Sciences, Pest and Disease Management Subject Matter Areas and Research Coordinator, College of Agricultural and Environmental Sciences, University of California, Davis
1981-88	Professor and Assistant Director, California Agricultural Experiment Station, and Director, Statewide Integrated Pest Management Program, University of California, (located on the Davis Campus). Served from October 1 to December 31, 1986 as Acting Assistant Vice President of the Division of Agriculture and Natural Resources.
1988 - 1989	Professor and Director, Office of Program Planning and Evaluation, Division of Agriculture and Natural Resources, and Director, Statewide Integrated Pest Management Program, University of California.
1989-1991	Professor and Assistant Director for Programs to coordinate statewide special projects and Director, Center for Pest Management Research and Extension, Division of Agriculture and Natural Resources, University of California.
1991-present	Professor Emeritus and Director, Center for Pest Management Research and Extension, Division of Agriculture and Natural Resources, University of California.

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4. McCoy, O., J. M. Lyons and I. Thomason. 1968. Modified: Rate phosphorus-fumigation study with lettuce at Imperial Valley Field Station, University of California, El Centro. Imperial County Farm Bureau Monthly XLI(12):7-9.
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