C O R R E C T E D V E R S I O N

ENVIRONMENT AND NATURAL RESOURCES COMMITTEE

Inquiry into impacts and trends in soil acidity

Wodonga – 21 August 2003

Members

Mrs A. Coote
Mr D. K. Drum
Ms J. T. Duncan
Mr J. G. Hilton
Ms J. M. Lindell
Ms W. A. Lovell
Mr G. Seitz

Chair: Ms J. M. Lindell

Deputy Chair: Mrs A. Coote

Staff

Executive Officer: Dr C. Williams

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Witness

Mr J. Cass, Area Sales Manager, Incitec Pivot.

The CHAIR — I declare open the Environment and Natural Resources Committee hearing on soil acidity. I welcome Mr Jim Cass from Incitec Pivot. Jim, all evidence taken by this committee is taken under the provisions of the Parliamentary Committees Act and is protected from judicial review. However, any comments made outside the precincts of this hearing are not protected by parliamentary privilege. All evidence will be recorded by Hansard, and you will receive a proof copy of Hansard within the next fortnight. Could you please clearly state your name and address for Hansard, and then give us your view of the situation and perhaps take questions from us.

Mr CASS — My name is Jim Cass. My property is Westlynn at Tabletop Road, Jindera, in New South Wales.

As an overview of the acid soils in the upper north-east of Victoria, I would suggest that possibly 90 per cent of the soils are below the recommended or preferred levels for crops and pastures. I have been in the Wodonga area now for 15 years, and it has been that way since then; not much has changed in those 15 years. There are certainly some farmers who are quite proactive and have managed their acid soils and turned them around with the use of lime and improved pastures, but the majority of the farmers are still struggling to try to achieve that situation.

The CHAIR — Open for questions?

Mr CASS — Yes.

Mr DRUM — Jim, could you pluck a percentage of farmers who, over that 10-year period in normal circumstances would have had their soils under control in relation to acidity or pH?

Mr CASS — It varies across the farm itself. I suppose the majority — all farmers know that lime is required. I would suggest that 60 or 70 per cent would have limed at some stage, but not the whole farm. So different production areas of the farm have been treated with lime, and those areas are probably more productive and the better paddocks have been treated. So in effect if you are looking at total area more than farmers, I would suggest that possibly only about 25 per cent of the area has actually been treated with lime at some stage — maybe 60 per cent of the farmers, but only 25 per cent of the land.

Ms LOVELL — One of the terms of reference requires the committee to identify potential partnerships with industry to manage acid soils. What types of partnerships with industry would Pivot like to see developed to manage the acid soils?

Mr CASS — Possibly one of the things we should be looking at is identifying those paddocks which have liming requirements immediately, and then we should look at putting through a perennial pasture-based system for the upper north-east here and then obviously the fertiliser requirements for those points. As far as putting partnerships together, I am not the responsible person for that situation for this area. We would need to speak to John Lloyd, who is the general manager of marketing in Pivot, to work through a partnership itself, or Mark Couplan, the pasture marketing manager. That is why I said we really need to start identifying those paddocks and pastures which require the lime, which will return the best investment for the farmer, and then look at putting in perennial pastures to maintain and slow down the acidification rate.

The CHAIR — Jim, what type of fertiliser does Pivot supply in this region?

Mr CASS — Eighty per cent of the fertiliser supplied through the upper north-east is superphosphate or superphosphate-based products. They are really non-acidifying fertilisers, but indirectly they contribute to the acidification because they are producing clover-based pastures and are high-clover based. They then turn into nitrates, and they leach through the soil and become acid.

The CHAIR — Do you know whether Pivot has funded any research to look at what would minimise the acidification of the fertiliser that you are supplying?

Mr CASS — We have put money into Landcare and stuff like that. As far as the actual funding of a lime program is concerned, not that I know of, no. In the past few years certainly Pivot has been quite slack, if you ask me, on its funding of research programs.

The CHAIR — Is the application of the fertiliser purely an economic decision of the farmers?

Mr CASS — In the end it is an economic decision. It is also a bit emotional, but predominantly it is an economic decision. At the end of the day they are looking to try to make a profit or establish a pasture to make a profit out of it, yes.

Mr DRUM — Jim, you said that in your opinion all the farmers know that their land is acidic?

Mr CASS — No; I think I said that all farmers know they need limes at some time to prevent acidification — and I think that is true. When you speak to farmers in the upper north-east you find they all understand that lime is required in their soil types, certainly.

Mr DRUM — So the reason that only 25 per cent of the land has been treated would be just cost?

Mr CASS — Predominantly, yes — cost and also accessibility, because obviously the topography does not allow for ground-driven machinery to spread lime, so that is a big restraint.

Mr DRUM — Where I am coming from with this question is: do you think there is an issue with farmers needing greater access to soil testing? Or do you think most of them — —

Mr CASS — I think the soil testing is quite widespread — wide, in that they can do it and it is pretty cost efficient. I think the biggest issue is working out the cost-benefit of liming for those farmers. If you are talking $70-plus an acre — or $150-odd a hectare — as a one-up cost, that is where it hurts them, so they will just do those paddocks they can get the most production from.

Ms LOVELL — Jim, some commentators would argue that the soil acidity is not caused by the overapplication of fertilisers but is more to do with the amount of rainfall received and the alkalinity of agricultural products removed from the farm. What are your views?

Mr CASS — Certainly acidification comes from the production of the farm. Superphosphate does not actually increase acidification; it contributes to the production levels. If you are growing an annual-based pasture, particularly one of high clover content, and that is leaching nitrates through the profile or you are hay cutting or putting produce through the farm gate, that is the cause of the acidification. We need to slow that down in some way, and to do that you have to have a good perennial grass-based pasture which will use the nitrates before they leach past the root zone and try to get good farming practices where you are not, I suppose, cutting excessive amounts of hay and putting it on different areas of the paddocks.

Ms LOVELL — How knowledgeable do you think farmers are about the health of their soils?

Mr CASS — I suggest that many people know their soils are acid. The total health of their soils is another issue. Many of them know that their phosphate levels are low, I suppose, but they never have a quantitative test done. In the upper north-east possibly only 15 per cent, at the most, of farmers have soil tested, particularly on a regular basis.

Ms LOVELL — Do you think that is sufficient?

Mr CASS — No, I do not.

Ms LOVELL — Does Pivot supply soil testing kits to farmers?

Mr CASS — We used to, but now if farmers want a kit they come to an agent or ourselves and they get their requirements and they go from there, or the agent or ourselves can take the soil test for them.

Mr DRUM — To get this clear, you are saying informally that farmers know?

Mr CASS — That is correct, yes.

Mr DRUM — But you are saying formally and officially that only about 15 per cent of them would actively soil test their properties?

Mr CASS — That is right. Farmers go to field days and conferences frequently and they have been told the soils are acid in this area, and everyone knows that, but they cannot tell you quantitatively the degree of acidification. As you probably realise, every unit change is a 10-fold change in pH, so if you are in between 6½ and 4½ that is 100 times worse, and I do not think farmers grasp that concept.

Mr DRUM — Would they therefore be aware of the productivity losses in say half a unit difference?

Mr CASS — Not quantitatively, no. They know the pasture is dropping away, the responses to fertilisers are lower, but they would not be able to put it into actually saying, 'I have lost so many dollars from lost

production'. That is the hardest part about pasture-based economies; there is such a lag phase between treatment and production and then money coming back, and measuring that over a season is very difficult. Except for dairy farmers — dairy farmers are excellent in that they can look at it fortnightly with the cheque coming in or in the vat morning and afternoon.

The CHAIR — In your view what future research and development priorities do we need?

Mr CASS — We are still very much an annual-based pasture economy and we need to push the perennial-based pasture, so I think we need to go down that track of either offering or subsidising something for the farmer to put in a perennial-based pasture. That could be in the form of some sort of a 'put it in, come back to the department of agriculture or to a Landcare group', something like that to put that through. I believe acidification leads to salinisation of the country as well, where you have annual pastures that are only short rooted and then water and nitrogen leaching below that root system. Therefore in the end you cannot grow perennial pastures and the whole water table rises and becomes more salinised. That is the issue there. We need to work through the concepts: firstly, looking at that whole thing — do acid soils lead to salinised soils? And if that is the case then we should be pushing the project to get more perennial pastures going in that marketplace.

Dr WILLIAMS — Can you tell the committee a bit about the fertilisers you supply? We have been told that some fertilisers are more acidifying than others, like sulphate of ammonia is very acidifying whereas ammonium nitrate is less acidifying. Is that right? Do farmers take that into consideration when they are picking their fertilisers, or is how they come about their choice of fertiliser more an economic decision?

Mr CASS — For a start fertiliser types are really used for different marketplaces. As I said before, in the upper north-east 80 per cent of fertiliser use from Pivot is superphosphate or a superphosphate-based product, and that is not acidifying to the soil, whereas you are dead right, sulphate of ammonia is very acidifying. Very little gets used up in the north-east. A bit is used in blends, but it is probably a few thousand tonnes over the total marketplace of 30 000 tonnes up here in the north-east. Very little ammonium nitrate is used except for sowing down pastures and some small fodder crops. They are the mono ammonium phosphates, or the MAPs, and di ammonium phosphates, or DAPs. Pivot does not generally use elemental sulphur. It is quite acidifying. The rule of thumb is that 1 kilogram of elemental sulphur requires about 4 kilograms of lime to buffer it. People are looking at it so they can blend that with high analysis phosphate products and cut down on their freight handling costs. But in the end, from the trial results we have seen, it does not produce as much pasture. That is certainly the case there. In general farmers will purchase on economic response, but they purchase the product specifically in use for their marketplace.

Mr DRUM — Would farmers buy lime through a company like Pivot?

Mr CASS — We had a lime pit up until several years ago. We have got out of it, and they do buy lime through companies, particularly lime from David Mitchell, Moss Vale lime and so forth.

Mr DRUM — They have agencies up here?

Mr CASS — Yes, and those agents sell all that lime on their behalf. They usually buy it and sell it themselves in some cases.

Mr DRUM — The cost of the transport of the lime seems to be more than the actual cost of the lime. Has anything been done to try to get the lime up here in bulk?

Mr CASS — Not really, not in a specific way. In the past the only way that has been looked at is with fertiliser shipments. So if we are pulling product from here into Goulburn they will backload with lime. That is the only way they are doing it; there is no concerted effort involved. Because of the way lime is, it is pretty difficult to get it up on rail because it will not come out of the bottom of wagons; it is too dense and you cannot pull it out. You have to have it on a nice clean aluminium floor to make it slide out. There are some issues there with it.

With different limes, and across borders I suppose, we need to get some consistency between lime qualities and how to read them. On the north side of the river we do not have effective neutralising values, on the south side we do, so we have to work that through a bit. I know the Australian Fertiliser Services Association has been through the process of testing different limes to try to get the effective neutralising value through, and that needs to be more widely published and made available for farmers so that farmers can look at the costs and efficiencies of using one particular lime over another. It would be excellent if that was published somewhere easy to access.

Dr WILLIAMS — New South Wales Agriculture states that lime complements appropriate fertiliser products in many locations and adds value to the effectiveness of fertilisers. Does your company look at the synergies between your fertiliser products and lime?

Mr CASS — If you have limed the country you will not have as much phosphorus tie-up, and those sorts of issues come about. The synergies of putting lime with superphosphate, for instance, I do not believe is there, because when you have a super lime the phosphorus goes back to what they call a dicalcic phosphate which is more slowly available to the crop. It is probably ideal for sowing down a lucerne paddock or something like that, but where you have pastures or crops that need phosphorus quickly and immediately, phosphate out of the superphosphate is the go because it is available immediately, whereas dicalcic phosphate is more slowly released. I suppose in effect what that does is reduce the tie-up in acid soils to aluminium iron and manganese compounds.

Dr WILLIAMS — What sort of geographic area do you supply fertiliser to?

Mr CASS — The company?

Dr WILLIAMS — Yes.

Mr CASS — All eastern states of Australia; anywhere agriculture is being done.

Dr WILLIAMS — Out of your office, though?

Mr CASS - Out of this depot here?

Dr WILLIAMS — Yes.

Mr CASS - It goes to Tomgroggan in the east down to, say, Wangaratta, west to Cobram and Berrigan, and has been as far north as Bathurst into New South Wales.

Mr DRUM — Jim, is there a quantifiable saving in some of the nasties associated with farming — chemicals and sprays — due to the implementation of lime? For instance, can we argue that if we can encourage our farming communities to use more lime we will be able to save our environment? Is there any sort of an argument there?

Mr CASS — I think there possibly could be. When you say nasties, the nasties being?

Mr DRUM — Weeds?

Mr CASS — Certainly when you lime — this is on a cropping base, not the upper north-east pasture base — in some areas you actually increase unfavourable bacteria, and that is a particular problem for lupins and things like that. But on the other hand when you have a balanced pH in soils you also get favourable bacteria for pastures, particularly rhizobia and things like that, that will be nodulating nitrogen for clover. How you quantify that to actually put a dollar basis on that would be a fairly difficult thing to do. I suppose you could look at the whole issue of phosphorus buffing indexes to see whether if you put lime on how much more phosphorus would be available with that application instead of being tied up. That would be something to look at, certainly.

Mr DRUM — You would not think it is a particularly strong argument, would you?

Mr CASS — I do not think so, no. It would be very difficult to measure, that is the only trouble. It is probably anecdotal, and how you measure it I do not know.

The CHAIR — Can you expand on the perennial pasture and the types of perennial pasture we can encourage on acid soil?

Mr CASS — Yes, certainly. Firstly, lucerne is a lovely perennial pasture, but will not grow under acid soils at all. It needs a pH of about 5.2 minimum in water, and preferably 5.8 to start growing well. Phalaris is a lovely perennial grass. It will not establish well as a seedling under acid soils, and therefore those soils would need to be limed to drop the aluminium below around 15 per cent of the cation exchange capacity of the soil to make it a quickly established pasture. Other grass species, such as annual rye-grass, are quite tolerant to acid soils, but again only really grow well into the more high rainfall areas. So past the Hume Freeway it does not get grown too much west of that. Therefore it is really left out of the system. Fescues and pastures similar to that can grow in acid soils,

but their production levels fall away considerably compared to phalaris and they are not as deep-rooted as phalaris either, for that matter.

The CHAIR — There being no other questions, Jim, do you have anything to add — anything we have not covered?

Mr CASS — No, I think that is pretty much right. I cannot think of anything we have not really covered on the fertiliser side of things — except the issue of future research and funding partnerships. Could you make a note to see our market manager in pastures, Mark Couplan, on that one.

The CHAIR — Thank you very much.

Witness withdrew.

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Witness

Mr J. Shuter, Farmer.

The CHAIR — Mr Shuter, I welcome you to the committee. The next people, who are scheduled for 11 o'clock, are not here as yet, so you have a few minutes until they arrive. I need to let you know that all evidence taken by the committee is taken under the provisions of the Parliamentary Committees Act and is protected from judicial review. However, any comments you make outside the precincts of this hearing are not protected by parliamentary privilege. The evidence will be recorded by Hansard, and within the next fortnight you will receive a proof copy which you can amend, if you believe it has errors in it, and send back to the committee before the transcript is finally published. If you would like to have your say, we will then ask a couple of questions, if that is okay?

Mr SHUTER — This is pretty high tech for me. The nearest I have been to Hansard before is when I was once friendly with a Hansard writer — I still am for that matter, except that he is retired now.

Mr Drum asked about perennial pastures. I have had quite a few years of experience with perennial pastures in the high rainfall areas. Jim Cass omitted to in the time I was here — in the little bit I heard, because I was told the meeting would not start until 11.00 o'clock, so I missed a fair bit at the beginning — mention cocksfoot or perennial rye-grass. They are sometimes advocated.

My experience of cocksfoot is that it is very tolerant of acid soils, but it does not stand up to grazing by sheep and it does not like dry periods; its persistence is very poor in the dry periods. The perennial rye-grass will last all right, but it is a bit less tolerant of dry periods and it tends to be pulled out of the ground a bit when cattle are grazing. The sheep bite it off, but the cattle tend to pull it out. On the possibility of phalaris, it is promoted as a deep-rooted perennial grass, but my experience of it is in acid soils, and my soil untreated with lime had 46.6 per cent of available aluminium in it, which means that you should not grow anything. It would grow phalaris, but phalaris is not a deep-rooted perennial grass, because it hates aluminium, and phalaris under those conditions is really a shallow-rooted perennial grass. That is about all I have to say.

Ms LOVELL — You said cocksfoot hates aluminium.

Mr SHUTER — No, it is phalaris that hates aluminium.

Ms LOVELL — Is aluminium prevalent in the soils here?

Mr SHUTER — Yes, it is in a lot of soils in the high-rainfall areas, but it is in two different forms — or may be more than two. One is soluble, and that is the stuff that affects the grasses. If you treat it with lime it becomes insoluble. When I put out 2½ tonnes of lime to the acre it reduced the percentage of soluble aluminium to zero in the top layers, but where I was it was acid at depth and it did not have any effect further down.

The CHAIR — Thank you very much, Mr Shuter.

Witness withdrew.

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Mr L. Jarvis, Board Member, North East Catchment Management Authority.

The CHAIR — Welcome, Mr Jarvis. All evidence taken by the committee is taken under the provisions of the Parliamentary Committees Act and is protected from judicial review. However, any comments that you make outside the precincts of this hearing are not covered by parliamentary privilege. All evidence will be recorded by Hansard. You will get a draft proof of the record in the next fortnight. You can make any minor corrections to that and then send it back to the committee. I understand you have been thrown in at the last minute, but could you make some general comments by way of presentation and then the committee will ask questions.

Mr JARVIS — I presume you had a phone call from the CMA a little while ago. I am a member of the North East Catchment Management Authority. Has it provided the committee with a copy of the submission?

The CHAIR — No.

Mr JARVIS — I only have one copy of it. That is one of the reasons I am late; I had to have it sent out to me. The CMA chief executive officer was to deliver this report and apparently is not able to do it. I should outline a little bit about the CMA and its role in the acidity debate before we go on to any sorts of recommendations.

As the committee is most likely aware, Victoria is divided into 10 areas for catchment management authorities. We are now in the north-east which is renown for the amount of water that is produced in the region. We claim 38 per cent of the run-off into the Murray basin comes from our catchment management authority. So water quality is of vital importance to our CMA. About 55 per cent of the land in the north-east CMA area is public land so we have very little ability to influence the outcomes of the management of those public land areas. It is well known and well documented that the soils in the north-east are severely acidic, and we have records that go back into the past to show that they have always been. But the practices that farmers use at the moment actually are intensifying that acidity.

It is not surprising that when the catchment management authority undertook a strategy some five years ago the acidity of the soil was one of the key features in that strategy document. Since then we have done quite a bit of work on water quality and have identified that the quality of the water, the pH of the water, is also being affected. We have a fair bit of documentary evidence to say things are not stable and not the status quo, and something needs to be done to improve this. I think that is all relatively well covered in the document which I have just received. I am not sure because I have not had time to read it properly, but the CMA certainly has some ideas as to how this might be attacked.

There is what we call an acidity management program and perhaps the employment of a soil health extension officer. We are also trying to encourage people to use perennial plants that will reduce the amount of nitrate that is leaching into the subsoil. We are talking about what is called a lime loan scheme and we are also talking about some ability to have a bulk lime facility in the upper north-east. We are several hundred kilometres from the nearest lime and that is the real killer — that is, the lime reserves of the state are so far from the problem up here and the cost of the lime is dwarfed by that. The cost of the delivery of the lime to this area of the state is about twice the cost of the raw product. Later today the committee will see some of the people who spread lime in the area and they will tell the committee something about some of the problems involved in that.

We think a lot can be done on the ground, particularly making people aware of the problem. The people who grow crops are most likely more aware of the pH of their soils than the people who are growing pastures. Until recently the majority of people who ran a grasslands situation did not usually put lime onto pasture. Usually they used it when they were incorporating or putting a new pasture into the ground. So I think we have perhaps come past that a bit, inasmuch as people are now getting soil tests that actually recommend that they lime pastures. We are quite certain that there is still a role for more research, and we are quite sure that there is also a public benefit in having a lower level of acidity in our soils generally.

They are the key points the CMA was trying to make. Mac Patton, who was supposed to be with the team that was to deliver this morning, is on his way to Shepparton. He made another couple of points: that we spend a lot of money on programs in the north-east, and that he thinks the actual acidity of the soil is one of the things that is holding back productivity. He thought if you balanced up the mix of what projects should be supported obviously more money should be going towards something that would promote reducing the acidity of soils.

Another member of the CMA, Anthony Griffiths, made a few additional comments. I will give you a copy of those. He made the point that the liming of soils is a long-term thing; you do not get all the benefit immediately you do the job. And as the average age of farmers is quite high, a lot of people are saying, 'Well, why should I do it? By the time I get the benefit I will most likely be part of the soil — that is, part of the answer not part of the problem. The other point he made is that a lot of people are no not making their major living out of the land. It is a lifestyle

thing. If we are relying on the fact that there is an economic benefit to the farmer for liming that will not happen with people who are not depending on the farming land for their principal benefit. They are what is loosely called hobby farmers or lifestyle farmers. That is about all I would like to say straight up. Perhaps I can try to answer some questions.

Mr DRUM — You have come up with what looks like a few management plans or courses of action with the North East Catchment Management Authority. Was the first one an acidic soil management plan?

Mr JARVIS — There are two plans that I am aware of — one is *Soil Health in North East Victoria*, a document which is available from the department of natural resources, done through Rutherglen; and the other one is *North East Soil Health Action Plan*, which again is available through the department. I do not have copies of those plans with me; I know where they are, but I do not have them.

Mr DRUM — We have them.

Mr JARVIS — As well as that there is a section in the 'North-east regional catchment strategy', which is being revised at the moment, and there is a draft regional catchment strategy which will be available pretty soon — as soon as I can I will get the relevant parts of that presented to you as to what we are saying now, five years later.

Mr DRUM — Lindsay, one of your recommendations is for a position of a soil health officer for this particular region?

Mr JARVIS — I think that is what is recommended in the *North East Soil Health Action Plan*. The reason behind that, as I understand it, was that there is still a general lack of understanding among the pasture people that they have a problem. It is an awareness thing, for people to be aware that the actual thing that is stopping their productivity increases, is perhaps, the acidity of their soils.

Ms LOVELL — Lindsay, you mentioned briefly that the pH of the water has also been affected. Given that water quality is so important to us in the north-east, can you expand on that a little, and has any direct connection been established?

Mr JARVIS — We do have two water quality strategies, the first two that have been actually approved by the state government — the north-east and the upper north-east water quality strategies. I believe, from memory, that they both have documentary evidence that the actual levels are changing. As to what action we think there should be, we believe there should be more perennial pasture sown so that less water is actually getting back into the watertable and taking that acidification to the water. I do not have those with me, but they are both available and they have both been approved by the state government.

Ms LOVELL — Has the soil action plan been endorsed by the government?

Mr JARVIS — No, not at this stage. I think everybody approves of it, but nobody puts any dollars towards it. There is a big difference between having your strategy approved and having some action.

The CHAIR — Lindsay, the action plan emphasises the role of local government and looks at things like municipal planning schemes and strategies. It also proposes that local government be responsible for 31 per cent of the costs associated with the implementation of the plan. Do you know to what extent local government is actually aware of the current and projected impacts of soil acidification?

Mr JARVIS — No, I could not tell you that, but it was obviously involved in the preparation of that plan. All plans have to have some cost share per year basis, and the ask is 33 per cent, or 31 per cent?

The CHAIR — Thirty-one?

Mr JARVIS — Thirty-one per cent. So whether or not that is reasonable or unreasonable, I do not know. I think when you get to having a strategy implemented, then those things would be on the table as to where that money would come from.

The CHAIR — All local governments in the north-east would have been involved in the development of the action planning?

Mr JARVIS — As far as I am aware, yes. I do not know at what level — whether it was at councillor level or at officer level.

Mr DRUM — Lindsay, not having read the action plan, the 31 per cent of what amount? You are not sure?

Mr JARVIS — Not having a perfect memory, no, I do not know. But I believe this was the plan to get some things happening. I do not think it was a plan to buy 100 000 tonnes of lime.

Mr DRUM — With some of the other issues you mentioned you seem to be getting to the crux of the problem. You are interested in putting a soil health officer on for, say, greater awareness, and you are looking at lime loan schemes and at bulk lime storage for financial purposes. Do you know if there are any plans for how we will be able to get lime onto the areas with the steeper gradients, which is a real nuts-and-bolts problem with the acidic soils and the application of the lime?

Mr JARVIS — I think there are a couple of other strategies that come into play. One is the Rural Land Stewardship Plan, which tries to put the majority of agriculture onto the land that is best suited for it. And to take some of the higher and less arable soil to a more suitable use, which may be forestry or something with deep-rooted perennials or deep-rooted natives that would not have such an effect - in other words, you shift the agriculture more to the soils that it is better to be used on.

Mr DRUM — How popular is that?

Mr JARVIS — I have not put that very well. Looking at the Hansard reporters, I do not know how they will actually write that.

Mr DRUM — I understand what you are saying, but — —

Ms LOVELL — It is a hot potato.

Mr JARVIS — I do not think we actually have a Hercules lined up to dump lime on the steep land. We have some fertiliser experts in the room, so you will most likely get a better answer to that a bit later.

Ms LOVELL — What work has the CMA done to assist land-holders in monitoring and managing their acid soils?

Mr JARVIS — The acid soil program has not been funded. It is sitting there as a strategy we would like to implement, but there are no dollars behind it at the moment. Obviously we have a Landcare network and Landcare officers. There is soil testing assistance to farmers who take up soil testing. We have programs with whole-farm planning and programs with environmental whole-farm planning. All those things are an awareness and help, but none go out and actually dig holes in the ground.

The CHAIR — The committee understands that there are extensive areas of subsoil acidity in the higher rainfall areas. How is the subsoil acidity being managed in the catchment?

Mr JARVIS — As far as I am aware the first general level of this was done by Ken Rowe in 1952 when he did some deep soil testing and Anna Ridley did some follow-up work about 10 years ago. Both identified that the subsoil acidity levels are not changing, that it is the surface level that is getting worse. Obviously if you get percolation of that soil the water from there runs into your watercourses. That is when you are getting an increase in the amount of acidity in the water. The actual subsurface — and when we are talking about that we are talking about between 1 metre and 2 metres down — I do not think that number is getting any worse. To change that would be almost impossible. What we really do is, we farm the top 10 centimetres of soil.

Dr WILLIAMS — The action plan identifies a couple of areas where there needs to be future research and development — for example, identifying acid tolerant perennial grasses. What are some of the other areas on which research and development should be focused?

Mr JARVIS — What used to be the Rutherglen Research Institute has spent a huge amount of time in identifying the way that lime can be incorporated into a cropping program. None of that has been done for the high-rainfall soils. Rutherglen has looked out mainly into the midland area of Victoria and not into the high-rainfall areas. We need the research to get the answers before we can tell people what they can do. It is not much use in starting with the answer and then trying to make it fit with the question. I point out that I was chair of a committee in 1982 when a gentleman sent a request to Melbourne for planning how we could get the ability of the deep-rooted perennials and the Mediterranean plants to better match so we could get productivity out of our deep-rooted perennials. That is only 21 years ago and we have not got an answer yet.

Mr DRUM — You mentioned early on in your presentation that there was a strategy on acidic soils that was about five years old. What was that about?

Mr JARVIS — That was the first soil health plan — I think that is the one I mentioned — and that would have been put out by the Rutherglen Research Institute.

Mr DRUM — Did anything come of that at all?

Mr JARVIS — No.

Mr DRUM — Were recommendations put out?

Mr JARVIS — Yes, I think there is a recommendations section, but that is a fair few strategies ago. The big problem is that lime is a certain cost in certain parts of the state, but because we have to add $20, $30 or $40 worth of transport costs on to it it completely changes the dynamics of its use in the high-rainfall areas.

The CHAIR — To what extent do you think key stakeholders are aware of the projected impacts of soil acidity in this area?

Mr JARVIS — That is one of our key things. If you talk about the key stakeholders being the people who are farming, it is fairly poorly understood. If you are talking about the follow on, inasmuch as the industries that , in comparison, depend on the key stakeholders it is even less understood. If you are putting things in a waiting basket, 95 per cent of people would recognise that salinity is a problem in the state of Victoria and in the Murray-Darling Basin, 5 per cent would recognise acidity, and I think acidity has most likely, a greater long-term disadvantage to the state than salinity.

The CHAIR — Can you outline activities that the CMA has undertaken to raise that community awareness?

Mr JARVIS — The CMA has more or less been the broker of the soil health action plan and Carole Hollier from Rutherglen has been one of the key people to go around. We have brokered meetings in the district to have her plan explained to farmers, but the key bit is where do we go from there? It always stops as only an awareness thing. Once you get to the awareness you want to have some actual tools to go forward and say, 'If you want to go further this is what we can offer you'. It stops at the breakdown of what practical things can be done to help people. You might not have noticed, but there has been a huge drought on and two years ago the world prices for dairy products fell into a terrible hole, and there are no farmers running around at the moment with sufficient funds to invest in a 5 or 10 year improvement to their soils program.

Ms LOVELL — Do you think further education of the key stakeholders will assist in getting them to better manage their soils, or do you think the economic decision is the most significant barrier?

Mr JARVIS — It is all right to raise somebody's awareness, but you also have to have the further step: what they can do, what is practical, and what help is available. That is the key sticking point at the moment. It is not much use making everybody aware if you have not got an answer that is really going to be easy to implement and be able to be implemented. I do not think it will be easy; I am sure it will not be easy. We have to wind the clock back to 1976 or 1978 when salinity was recognised by a few key people as being of key importance. The first stage of all the salinity plans was an awareness program to raise public awareness of the program, and then we get into the implementation as to how we are going to try to solve it. We have not got to that no. 1 stage yet in acidity. And we have not even talked about sodicity, which is the way that the soil reacts. There are all sorts of things you need. You need a structure in your soil so that the water can actually get in. You have to have air in your soil and structure. There are 100 problems when you are farming and not too many answers.

Mr DRUM — This morning on the phone your colleague said that the CMAs had spent a lot of money on the programs and could very well be distributing more of those resources over to this problem. Would you therefore be in a position to prioritise acidity over some of the running programs you have at the moment — for instance, weed control?

Mr JARVIS — That would be pretty difficult. You have to have some real numbers. It was his opinion that the farmers were not aware of what was actually holding back production on their farms and, as he said, if you have the numbers then the people who recognise how important it is some people are going ahead and putting lime on their soils and getting results. So we can get actual results when there are numbers there. I believe what he was trying to say was that because people do not know that it is the limiting factor they do not take the action. So until

you are aware, until you know that you will get a result from this program, you just sit there and say, 'We are not getting as much grass as we used to get; it must be the climate change or the drought; no, it's the government, that's the problem!'.

Ms LOVELL — One of the terms of reference requires the committee to identify potential partnerships with industry and the community to manage acid soils. To what extent is industry and the community currently engaged in managing acid soils — for example, through Landcare groups, et cetera — and what types of partnerships do you believe would be beneficial?

Mr JARVIS — I cannot recall the words that are in the soil health action plan, but I think we documented it reasonably well as to things that we believe should be taken and the sorts of people that we can take forward. But one of the issues that the Landcare movement is quite concerned about is that we might come up with an answer a bit like the weed answer, inasmuch as the money goes to the committee and then all the documentation for that has to be carried out by a group of volunteers. They very much see that this should be a bit like the fuel rebate scheme, where you spend the money if there is a subsidy cum grant, or whatever it might be. But that is between you and the state, and there should not be a whole heap of volunteer labour put in in the actual bureaucracy of administering such a thing. There have been people who have talked about freight subsidies or freight equalisation and about a reduction in the price of lime. But I think we have identified that there are other blockers as well as the sheer price.

The CHAIR — I welcome the Honourable Bill Baxter to this morning's hearing.

Lindsay, can we talk a little bit about the lime loans. I think you have just touched on it there. There is obviously an argument about the subsidies and loans for liming, and that it in a sense could reward poor practice. Do you think there is an equity issue?

Mr JARVIS — I cannot draw that conclusion. I believe the reason for the lime loans was that people were putting out a huge amount of money and expecting a return on it over a longer period of time. If you invest in anything — normally you will invest in the thing that gives you the quickest rate of return, and because, by its very nature, the rate of return on lime is slower there was some degree of, 'Well, you wouldn't have to pay for it. While you might have to put it on now, you might not actually have to pay for it until a period of time'. Again my memory is a bit hazy on how we actually structured the words about lime loans.

The CHAIR — The other thing I would like to talk to you about is that the action plan actually states that some of the wider issues, the off-farm issues, include increased infrastructure costs. Do you know where the evidence is that supports that?

Mr JARVIS — No, I do not — sorry about that. I do not know whether it has been documented, but Carole Hollier would most likely be the best person to ask about that.

The CHAIR — Thank you.

Mr DRUM — Has anything been done in this region about looking at the possibility of a transport scheme for empty vessels coming back from — —

Mr JARVIS — The back loading of lime?

Mr DRUM — Yes.

Mr JARVIS — The CMA as such I do not believe has. The predecessors to the CMA, the Land Protection Regional Advisory Committee — Hillas Houston was the chairman of the north-east one, and it was his particular baby. I have asked that he be present today. I do not know whether he is on your list of people who will present.

Mr DRUM — What is his name?

Mr JARVIS — Hillas Houston. He has certainly put in a lot of effort and time. That was one of the things that we saw — because a lot of produce is taken from here down to Melbourne, most of the stuff goes one way, and apart from fertiliser not a lot comes back up in back loading.

Dr WILLIAMS — I want to pick up an issue the Chair raised about the lime loans, that perhaps there may be a danger if lime is just applied without addressing the issue of the leakiness of the soil. I guess you need to

manage acid soils with lime, but also address the leakage problem. Is that not a problem? If you do not address the leakage problem and you are just putting lime on top, that will not really address acidification?

Mr JARVIS — I do not think that is a great problem. I think what we are saying is because of the practices we have at the moment we have greater acidification from those leaky soils. I do not think we would actually redress that and turn it around the other way, that we are actually making the ground water more alkaline. But again you have to go back to your agronomy and make sure that you are putting the lime on the soils that need it and trying to get them closer to neutral rather than any overuse of lime.

Dr WILLIAMS — I noticed in the action plan that the CMA was to investigate the establishment of bulk lime storage facilities in the region and also the development of a quality assurance program for lime spreaders in partnership with the industry. Can you talk a bit about the thinking behind those proposals?

Mr JARVIS — I think we were back to this fact that there might be three trucks coming back today, but there might not be anybody who wants the lime put on tomorrow. So the idea was that somehow or other there would be some sort of depot so you could take advantage of the transport when the transport was available and have the lime on site then for when the farmers wanted to use it. But there are people from the spreading fraternity here, and they will perhaps pick up that issue with you.

The CHAIR — I think we will leave it there, Lindsay, unless you have some further comments to make.

Mr JARVIS — I might have to come back and sit here for the Landcare one a little later in the day, so maybe we can continue our conversation a bit later this afternoon. Thank you very much.

The CHAIR — We will be pleased to see you. Thank you very much.

Witness withdrew.

C O R R E C T E D V E R S I O N

ENVIRONMENT AND NATURAL RESOURCES COMMITTEE

Inquiry into impacts and trends in soil acidity

Wodonga – 21 August 2003

Members

Mrs A. Coote
Mr D. K. Drum
Ms J. T. Duncan
Mr J. G. Hilton
Ms J. M. Lindell
Ms W. A. Lovell
Mr G. Seitz

Chair: Ms J. M. Lindell

Deputy Chair: Mrs A. Coote

Staff

Executive Officer: Dr C. Williams

Office Manager: Ms M. Pilley

Witnesses

Ms S. Leavold, Coordinator;

Mr A. Bennett;

Mr J. Neary; and

Ms S. Briggs, Mid Ovens Landcare Group.

The CHAIR — I welcome representatives from the Mid Ovens Landcare group: Susan Leavold, coordinator; Arthur Bennett, committee member of the Hodgsons and Horseshoe Creeks Landcare group; Mr James Neary, committee member of the Burgoigee Creek Landcare group and committee member of the Ovens network; and Suzanne Briggs, coordinator of the Scarab program, Burgoigee Creek Landcare group, and coordinator of the Carboor, Bobinawarrah and Whorouly Landcare groups.

I advise that all evidence taken by the committee is taken under the provisions of the Parliamentary Committees Act and is protected from judicial review. However any comments made outside the precincts of this hearing are not protected by parliamentary privilege. All evidence today is being recorded by Hansard and witnesses will be provided with a proof version of the transcript within the next fortnight.

Mr Neary will give the presentation after which the committee will ask questions.

Mr NEARY — Thank you for the opportunity for the Mid Ovens Landcare group to present to this committee its thoughts on and recommendations for acid soils. I refer to some of the economic and environmental impacts of soil acidity at the regional and catchment scale and projected impacts. A lot of the information we are providing comes out of the *Impact of Acid Soils in Victoria* and other documents on acid soil programs that have been written for the north-east.

Some of the lowest pH and most acid soils in the state occur naturally in the north-east of Victoria — and that is in 500 millimetre-plus rainfall areas. We are geographically located furthest from the South Australian border and the cost of ameliorating acid soils and raising the pH with neutralising agents, predominantly lime, is the highest. With the South Australian border we are talking about the dolomite lime and not necessarily calcium lime, because South Australia is virtually the closest place to us from which dolomite is available.

It is widely known and of concern to the Landcare members that the cultivation of improved clover species is contributing to soil acidity — that is, in attempting to increase on-farm production by the establishment of rye-grass and clover species their soils are slowly becoming more acidic. Some rye-grasses are perennial and these species should utilise and take up the excess nitrate from the clovers, also increasing production through higher growth rates. Perennial pastures take longer to cause soil acidification in comparison with annual-based pastures, such as clovers, annual rye-grasses and silver grass et cetera.

Many land-holders remain to be convinced of the economic benefits of lime application or other changes to land management practices which could reverse acidification process. The innovative land-holders are using lime, but the remaining 70 per cent to 90 per cent have not taken up the concept.

The environmental impacts are loss of education in the landscape, non-acid tolerant plant species leading to increased soil erosion; the lowering of water quality leaving the catchment, high levels of nitrates in run-off and high levels of nitrates moving through the soil profile and entering creeks, et cetera, which can cause algal blooms in waterways; an increase in regional ground water and salinity — soil acidification reduces pasture growth of some perennial pastures which leads to reduction in water use; and land is also susceptible to weed infestation due to the decrease in perennial pastures.

The economic and social impacts include farmers being concerned that as the pH declines over time and their soils are becoming more acid, farm production will also fall. Acidification of the top soil will progressively lead to acidification of the subsoil, which is far more costly to rectify, if it is achievable. Introduced exotic pasture species will become increasingly more difficult to establish and on-farm costs of addressing the problem will increase to the extent where some soils will become unviable for agricultural production. In turn this will lead to lowering of farm income for families. Loss of farm income directly relates to rural businesses with flow-on for rural communities resulting in decline and loss of healthy and vibrant communities.

Some positives for reversing soil acidity include: healthy soils; increased farm production; we hope increased taxation and GST for the government, but we do not know whether that is a good idea or not; diversity in farm production and being able to grow a diverse range of valuable crops such as lucerne, canola, fruit and nut trees, grape vines et cetera; production value of the region increases due to the diversity of crops grown, especially in the high-rainfall areas. The Mid Ovens Landcare group strongly supports the *North East Soil Health Action Plan*, *Soil Health for Small Farms* and the *Impact of Acid Soils in Victoria* documents.

Some key challenges and barriers to the management of soil acidity include the cost of managing acid soils, the cost of freight, cartage et cetera, of lime either from the depots in Victoria or South Australia to the north-east, the

lack of knowledge, the lack of incentive — that is, low commodity returns, and lack of time for land-holders to engage in education, field days and workshops.

I refer to the role of Landcare groups in managing acid soils. Land-holder awareness of soil acidity was explored and surveyed as part of the research project into the social dimension of natural resource management into north-east Victoria. The document *Providing the Knowledge Base for Landscape Change in the Ovens Catchment* indicates that while most properties in the Ovens catchment have high levels of soil acidity, almost half the respondents said they did not know the soil acidity of any part of their property. Those reporting that knew the pH levels on their property were specifically more likely to have taken ameliorative action. They were also more likely to link soil acidity to long-term productive capacity of their land, have higher on-property profit, have more knowledge of the soil acidification process in the district, work longer hours and have a higher level of education. The report also found that the respondents with a higher knowledge base have lime applied to control acidity, have sown introduced perennial pasture, and have record levels of soil test results.

The Landcare group experience validates these findings within its memberships. We propose the following, particularly in light of the high number of subdivisions within the Landcare group district leading to new lifestyle land-holders with off-farm incomes and low knowledge base, and we will use the case study of the south-west slopes community asset soil group action plan as a guide: incentives for soil tests for members, preferably at no cost to increase participation and engagement, to test as many paddocks as possible to identify problem areas and those which are not and why; soil health workshops and field days — for example, training workshops supplying and demonstrating land-holders with the equipment to collect their own soil samples; a second workshop where Landcare groups compare soil types and learn about texture and dispersion; and a third workshop, when test results are available, to translate these results into meaningful action. They further include: promoting knowledge of perennial pastures, both introduced and native; incentives for trial sites; information gained be linked to research programs and extension staff to increase catchment scale knowledge base and develop a best management guide for acid soils; and freight incentives to neutralise the distance factor in transporting lime across the state, creating a level playing field for all Victorian farmers.

On opportunities to manage acid soils through partnerships with industry, construction of local depot facilities is seen to facilitate transport-storage peaks and troughs, enabling contractors-suppliers to reduce their costs by evening out the seasonal supply and demand peak, and the industry is to contribute funding to pay for soil tests but not supply recommendations. The industry will benefit, as land-holders have to purchase products through a supplier. That is the written presentation, and now I dare say we will take some questions.

Mr DRUM — For the incentive for the soil tests you suggest that the industry pays for that as a whole industry. Is that the farming industry, the lime industry, or the fertiliser industry?

Mr NEARY — The lime or fertiliser industry. That is what we were hoping for or working on.

Mr DRUM — Is there any guarantee that if we were able to introduce freight incentives to neutralise the distance factor, those incentives would not just go to the transport companies?

Mr NEARY — Hell, that is a hard question. That is what we have been tossing about, paying the subsidy for the lime and whatever else. That was our point, that if you said the government was going to pay, or somebody was going to pay, a subsidy of 10 tonnes for lime, the first thing the lime companies would do is put the price of the lime up $10. It is a bit like the drought subsidy on freight for fodder and whatever else. It is a big, hard question to say whether anybody — there are people out there who would take advantage, I dare say, and put their prices up. I do not know whether there is some way we can put a cap on it.

Ms LOVELL — James, you said that in your survey almost half the respondents did not know the soil acidity level of any part of their property. Do you think it was because of a lack of knowledge about soil acidity, or they had just not bothered to do any soil testing?

Mr NEARY — They have not done any soil testing; it is as simple as that.

Ms LOVELL — But do you think they are well aware of the soil acidity problem in itself?

Mr NEARY — No, I do not believe that — they could not know when they have not done any soil testing to find out.

The CHAIR — Are you aware of the lime loans proposal of the soil health action plan?

Mr NEARY — Yes.

The CHAIR — Do you actually support that sort of program?

Mr NEARY — Yes, we thought that may be the fairest way to go, that people get a low interest rate loan for their property if they are going to put lime on. But, no.

Mr DRUM — Sorry, are you in support of that or not?

Mr NEARY — Yes, in support of that. We thought that was probably or may be the fairest way to go, but then, once again, there are people who have been out there and seen the results and have done it themselves anyway. But for the wider community's benefits, which we believe are fairly great, you need a whole lot more — you need the 70-to-90 percenters, or the non-doers, to get up there and do something to alleviate all the other problems — salinity, water quality, and whatever else. Maybe that is the only way we can get them online; I do not know.

Mr DRUM — James, picking up on what Ms Lovell mentioned earlier, do you think the 70 per cent who are not using lime are unconvinced of the benefits, or just cannot afford it? Or is that one and the same question: unconvinced of the benefits, or just cannot afford it?

Mr NEARY — Probably just cannot afford it and probably not aware of their soil pH anyway, to know that they need to put it on. But basically it is money driven, I dare say. They are probably not profitable enough to apply it.

Mr DRUM — So it is a possible combination of not being aware of the situation they have and not being aware of how much they could benefit?

Mr NEARY — Yes.

Mr DRUM — I have one more question. During your presentation a couple of times you went past the word 'pasture' and replaced it with 'clover'. Is there something there that we should pick up on?

Mr NEARY — Subclover has the ability to make soils more acid because of the nitrates. If the nitrates are not used out of the soil — if the nitrogen that is produced by clover is not all totally used by the grasses, that can contribute to soil acidification. So what we are saying is that you need your phalarises, rye-grasses, and whatever there in a fair proportion — possibly 70 per cent of your pasture — to use up that nitrogen produced by the clovers. That gets back to a bit of pasture management, if you want to get right back into it. The barer your soil is coming into the autumn break, the more subclover you will germinate and get up and running. But if you have a fraction of a cover on your property, your grasses will take over and you will not have as big a germination of subclover.

The CHAIR — I want to ask about the lowering of the water quality leaving the catchment. We have heard evidence that this is not something specific to acid soil regions, but that in fact most catchment areas in Victoria have a lowering pH level. Do you know of any scientific work that is being done that actually links the acid soils into the lowering pH? Or is it just because the pH is lowering and you have acid soils that the two are put together?

Ms BRIGGS — I think you have got a bit confused there. You are saying pH and acid soils; that is the one thing that we are talking about. The pH is a measure of — —

The CHAIR — Sorry, the pH level of our streams.

Ms BRIGGS — Okay.

The CHAIR — The lowering water quality, and the pH levels are lowering in the streams?

Mr NEARY — When we did this acid soil strategy for Victoria that was one of the points we found a little bit hard to explain, because probably not enough work is done on it, of whether the acid parts do lower the pH of the stream water. Yes, there is probably work around and somebody has done it, but we just could not quite put our hands on it at that stage.

Ms LEAVOLD — The EPA or some of the engineering companies may have reports on stream health that would include pH values.

The CHAIR — But for what you have here you have connected the two together. Is that just an anecdotal sort of connection?

Ms LEAVOLD — There is concern with high levels of nitrates in soils that as water runs off and carries the nitrates and becomes part of — the soil particles move through the water; as they enter waterways then you have higher levels of nitrates which, in themselves, cause the pH to fall, but that also contributes to algal blooms. It is the nitrates and the phosphorus in the water.

The CHAIR — But all of our streams seem to be suffering from the lowering of the pH.

Ms LEAVOLD — Yes.

The CHAIR — Not just in the areas of the acid soils.

Ms LEAVOLD — I was not aware that it was happening as well in areas that had alkaline soils. Is that the case?

Dr WILLIAMS — It is in some areas, yes.

Mr DRUM — I think it is happening adjacent to national parks and state forests, so it is not just happening adjacent to heavily produced agricultural land. Predominantly I think it may be happening regionally in the areas of the acidic soils, but it is not just adjacent to farming areas.

Ms LEAVOLD — It is not just a farming problem.

Mr DRUM — It is a grey area.

The CHAIR — I suppose I am looking for your knowledge of any work that has been done that we have not yet found.

Ms LEAVOLD — I am not aware of any.

Mr DRUM — You mentioned here under 'Economic and social impacts' the last two dot points:

> In turn, this will lead to lowering of farm incomes for families.

That is obviously commonsense.

> Loss of farm income directly relates to rural businesses.

Has anybody in regional Victoria looked at this in a similar line to the drought, for instance, and its impact on the rural farming fraternity and the impact it has had on the regional centres? For the importance of this to hit home we need to have the impact taken not just from the farms but also the regional community. Do you know if anybody has looked at what a generic 10 per cent reduction over 70 per cent of the farmers could have? Has anybody played around with these figures such as regional development units?

Mr NEARY — Probably only that other Johnson research document *Providing the Knowledge Base for Landscape Change in the Ovens Catchment*. That probably would have the closest answers in it for around here. I would like to make you aware that the *Impact of Acid Soils in Victoria* document was not the one the committee really wanted printed; the draft C was the one we wanted printed. There are a few different recommendations in it, but politically it was not seen as the one to print so it had to be changed. If you really want a fairly good story maybe you should read the draft C. I probably should not give you that.

The CHAIR — Are you going to supply us with a copy of it?

Mr NEARY — It might fall off the back of the ute on the way home.

The CHAIR — Thank you all very much.

Witnesses withdrew.

C O R R E C T E D V E R S I O N

ENVIRONMENT AND NATURAL RESOURCES COMMITTEE

Inquiry into impacts and trends in soil acidity

Wodonga – 21 August 2003

Members

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Ms J. T. Duncan
Mr J. G. Hilton
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Ms W. A. Lovell
Mr G. Seitz

Chair: Ms J. M. Lindell

Deputy Chair: Mrs A. Coote

Staff

Executive Officer: Dr C. Williams

Office Manager: Ms M. Pilley

Witnesses

Mr J. Jones, President;

Mr T. Moritz, Vice-President;

Mr L. Humphry, Treasurer;

Mr W. Donehue, Member; and

Ms J. Hermiston, Coordinator, Ovens Landcare Network.

The CHAIR — The next witnesses are from the Ovens Landcare Network: Mr Jack Jones, president, Mr Thomas Moritz, vice-president, Mr Lindsay Humphry, treasurer, Mr Wayne Donehue, member, and Ms Jennie Hermiston, coordinator. Just a reminder to you that all evidence taken by the committee is taken under the provisions of the Parliamentary Committees Act and is protected from judicial review. However, any comments made outside the precincts of this hearing are not protected by parliamentary privilege. All evidence is being recorded by Hansard and you will receive proof versions of the transcript within the next fortnight.

Mr Jones will give a presentation after which the committee will ask some questions.

Mr JONES — I am the new chairman of the Ovens Landcare Network. The Ovens Valley enters the Murray River at Yarrawonga and starts off at Mount Hotham, so we have a huge range of soil types but they are generally all on the acid pH side. We go from high-rainfall, forested country right out to open plains. We are the network in that we are trying to represent those 21 Landcare groups. The network tries to take on a leadership role so I do not want to be seen as arguing with some things some of the other groups are saying. We are supporting what you have just heard from the Mid Ovens Landcare network, which is a group of small Landcare groups in the Mid Ovens area, and would like to build on what they have said.

I apologise that we are unable to pass to the committee a document as that just received from Sue Leavold; you will receive one. You have to remember that we are all members of a Landcare group and have been running around in the last few days trying to have our Landcare groups meet and decide if they are going to come before the committee. We have also been trying to meet as a group ourselves and work through the reports and all come up to speed to be able to answer questions and discuss the issue with the committee.

I would like each member to introduce themselves. I am the chairperson and am a member of the Mudgegonga Landcare group, which is one of the more upstream valleys with mostly grazing and dairying, although in the past there has been cropping and horticultural in that area. I am about the fifth generation there, although I have worked away as a consultant with primary industries in South Australia for many years as a sustainable resource manager.

Mr MORITZ — I am Tom Moritz and am an organic farmer on the Upper Rose River. I am also secretary of the King Basin Landcare group which covers the upper reaches of the King River where we have to deal with a lot of tobacco farmers, grape growers and some dairy farmers.

Mr HUMPHRY — I am Lindsay Humphry and am treasurer of the Landcare network as mentioned. I am a farmer from Springhurst in the Springhurst and Byawatha Hills Landcare group. I became aware of the acid soil problems about 30 years ago and have been slowly working along to improve soil structure and reduce run-off and improve the overall vitality of the land, venturing into biological farming practices.

Mr DONEHUE — I am Wayne Donehue, I do some coordination work for the Upper Ovens Landcare group which basically runs from the base of the Mount Hotham area down the Ovens Valley almost to Myrtleford. I run a small beef cattle project near Harrietville.

Ms HERMISTON — I am Jennie Hermiston, the Ovens Landcare group coordinator. I have a strong background in community change processes from work experience and academic.

Mr JONES — My introduction will go a little further, in that, all of our valley was either a grassy woodland basically or it was into forests. All our soils were naturally on the acid side. The further you go upstream into the higher rainfall areas, the lower the pH, the more acidic the soil. Yet you can go up into those ash forests and they have a dynamic, vibrant plant population, and they did have quite active mammal populations. As you come out into the country I know, which was grassy woodlands where there were still forests around them, we still had very high numbers of macropods and also the small animals, and we had a strong, dynamic growing population of plants. The soils were still, on the pH scale, very acidic, yet they still produced plant matter and animal matter. As a group we are challenging the whole approach to dealing with this acid issue. The soils were low pH, but our farming systems have had to try to use European plants and animals to produce food that our society wants. Those foods that we wanted did not easily come from the natural flora that grew in those areas. We cleared the land and got rid of a lot of the perennial grasses, the deep-rooted perennials — you have heard that commented about already. The perennial grasses and the trees and shrubs were the plants that had the roots deep in the soil. They caught the nitrogen that was leached and used it.

We did not have a lot of the problems we now have, historically. So we are going to say to you that , our farming systems, need to biomimic the natural biological systems. We wish to copy what happened in nature. We need our grazing lands to be based on deep-rooted perennial species; and we do need our clovers, they produce the nitrogen.

The nitrogen is what everything needs to get the proteins, so you need that nitrogen. We just have to trap it so it does not go down and add to the water quality issues. We also need to address the issues in the more cultivated areas where crops are grown.. (We have an apology from one of our Landcare groups, the Boorhaman group, which is caught short in dealing with the acid soils issue. Neville Treddle is the man who would have liked to have been here. They deal with more issues to do with disturbed soils. Again they have a decrease in pH.)

The network group is saying to you: the pH is not really the issue. The issue we have is: our living soil. Having worked in a consulting field, I am familiar with the concept. I do not know how well all the farmers here are, but generally farmers are accepting that when you feed a cow or a sheep, as they are ruminant animals, you do not feed the cow or the sheep, you feed the microbes in the rumen. If those microbes are not well fed or you change the food type, you change the bugs in the rumen; your cow scours, it looses condition, and growth is lost until the rumen and microbes get going right again. Your cow gets sick, the rumen microbes are upset or changed, rumen microbe health and stability is the issue to address. This thinking is a more accepted way of managing our livestock.

A lot has been led by the Prograze system. I would like to say to you that the man who put Prograze in front of us was a Frenchman. His name escapes me, but it starts with V (Voison). He was also one of the ones who started dealing with the soil. I am trying to get across to you that the soil is also a living organism — it is full of bacteria, algae, and protozoans — if you get the soil active and living, and can manage that, you will produce plants that we can feed to our stock.

In that forest I alluded to earlier we have that happening. Australia has had a microrhiza — a small fungi that goes right through our soil. It takes the limited phosphate we have in our soils and makes it available to the native plants, and they grew quite well. Phosphates are critical for growth and development and division. The microrhiza has now been developed by CSIRO. I have heard it is now commercialising that, so it is an additive you can put into your soil. Those fungi are part of what is there. If you hark to the biological soil people, they really push the view that we have a living soil and if we get that living soil it will ameliorate those problems with the acidity. It happens in our natural forests, which have very low pH. I worry about my soil pH in the 4.5 to 4.8 range. Tom has even lower pH, because he has a much higher rainfall, but he is still able to produce things if he can get that biology right.

The critical thing for getting the biology right in our soils is calcium — again the lime issue. But we are not wanting to pour heaps on; we want to use the calcium which the plants, animals and microbes use so that they can grow, and if we can fix that, we can get the whole system rolling. So our message is: deal with the soil biota, get that right, and you will also then start to deal with that decline in pH. You will have that buffer. Our earlier farming systems have upset that. We have not definitely planted good pastures everywhere. You have heard James talk about the annual pasture problem. So our key message is use calcium (lime) to build your soil biota, use soil tests to correct trace element deficiencies and you will build a healthy top soil that can buffer the low soil pH.

I would now like to quickly run through a few of the points in your terms of reference. The terms of reference you commented on were the partnerships within — sorry, I missed one. We need to address what the socioeconomic and environmental impacts are. Our story is that if you fix the soil biology you will fix the water quality issue, you will fix the erosion, and you will fix the soil structure and stability.

The department has a good publication which is addressing the soils issue, the *North East Soil Health Action Plan*. That is the draft. It raises erosion, acidity and soil structure as three separate things. If you can deal with that acidity issue and get the biology growing, you will fix the erosion because you will have a much more stable soil structure, and that erosion is what is affecting your water quality. The water quality issue is that we get nitrogen leached into the water and we get phosphorus leached into the water; they add to algal blooms, which upset the water. If you have a decreasing pH in your water — the thing that a decreasing pH does is actually make a lot of your nutrients more available. We do not want our soil at 7, neutral; we want it down at 6 because many of the things we need, ie essential trace elements, are more available in that situation.

The other point you asked about was developing recommendations to tie up partnerships. We believe Landcare has a critical role in taking that leadership. I would suggest that this network has already started on that with some of the work it has done on training exercises to deal with managing the soil. We then look at some of the barriers and challenges we have. We feel the key barrier is the education one, I was hoping to pass over to Jennie to deal with that. But before I do, I would like to address the report in this document, which goes through what is believed to be the key points. It is point 14.3 and all the subparts of that which deal with the issues. We believe we need lime here and we need to be able to get it economically, but we also need to look at what lime, what mineral content is in the lime; is it “soft”or “hard”, “fine “ or “coarse”.

The people down at Boorhaman who are onto the heavier soils do not want a lime with magnesium in it because it will make their soils more tight. Those of us up on the granitic sands do want that in. So "limes ain't limes". We have to work out what limes are going where. Our critical story is this education. We believe the farmers need the opportunity and the help to gain a good understanding of the soil so they can deal with the issue. I will pass over to Jennie; she will discuss that, and then we can have some discussion.

Ms HERMISTON — As the Ovens Landcare Network coordinator, I would like to update you on where our local area plans are up to. We have 21 Landcare groups in the catchment. A vast majority of our Landcare groups have finished local area plans and we are identifying issues and then actions to address those issues. Every single local area plan to date has identified acidic soils and the impact of acidic soils as an issue. So I guess as a community educator I then have to start struggling with these issues of how we actually bring in change across a community. I really support the Mid Ovens group and its proposal around education linked to soil tests and linked to some research. I guess what I would like to see in a bigger picture across the catchment is Landcare groups, within certain parameters, given some sort of framework to develop their own education strategies for soil acidity, but also soil acidity linked to other land management issues. So we are starting to work in systems and we are starting to work in an integrated land management process.

What is essential for this process to work is a coordinator — long-term, ongoing, professionally paid coordinators at Landcare group level. It is absolutely crucial. Landcare has a history of relying heavily on volunteer labour — yes, that is essential as part of community change processes. Our community has to engage in some of these difficult issues, but they need to be supported with professionally paid coordinators, long term. So what I would like to see is this. We have heard earlier about the complex problems, and each community, as identified in each of these local area plans, is slightly different. Each community, as Jack has indicated, has slightly different soil types. Mudgegonga will say that soil types even vary on farm. So we cannot have simple solutions to complex problems. From a community education perspective I would very much like to see a complex or a flexible program that acknowledged Landcare knowledge but had the framework of education, research, soil tests and — what word am I looking for here? — benchmarking of some sort so we can actually learn where we are going to and where we are from. But that knowledge belongs in the Landcare group. Then Landcare groups can share their knowledge with other Landcare groups. Basically the foundation of this is capacity building. We are looking to build inquiry thinking, critical thinking and system thinking in our land-holders.

Mr DRUM — I congratulate you for totally confusing me. I thought we were heading down the track of, 'Let's get the lime in', but you have this holistic approach to the problem now which is a bit different, and that is to look at the whole structure of the soil so that you are looking at the living organisms. Even though your solution is much more complex than what we have heard, the first steps of that complex solution still revolve around lime.

Mr JONES — Yes, it is adding the calcium so that the biology is there, but if you just throw lime out without thinking about it you can add to the problem. If you are on a heavy soil that already has plenty of magnesium in it and you use dolomite, which is a lime with high magnesium, you will tighten it up. The water will not go in. The nutrients will not be available to get to the plants. Whereas on our sands we are short in magnesium, we have grass tetany problems, we need more magnesium, so we have to choose a lime that will deal with our problems.

Mr DRUM — Lindsay, you have been in the caper a while, but you have been able to diversify and move away from some of the traditional farming practices into other practices. Have you found that change difficult? What would you suggest needs to be done with the help of people like Jennie? There needs to be a shift, doesn't there, in some farming practices in some of our farming areas?

Mr HUMPHRY — It has been a steep learning curve right from the beginning. Initially we were a high input type of farming system. We were more on-farmers, and by that I mean putting more and more fertiliser on. We got to the stage where we were not getting any response and I began to question what we were doing.

After a number of years of stepping back from what we were doing and a trip overseas I came back all enthused that I was not going to use any more superphosphate. It was a big step, but I came to realise that we needed air in our soil so that we could activate the phosphate which we had applied over a number of years and which had become locked up in the soil. It was not until we started aerating the soil that we were able to release and utilise that phosphate and get really phenomenal growth in those initial stages.

As time has progressed our phosphate reserves have declined and now we have set about adding phosphate in a reactive phosphate rock form to provide phosphorus which is essential over an extended time. One of the major

challenges in agriculture, so far as I can see, is to provide phosphorus which is available over the whole year and not just give it a hit now and a hit in a few months down the track.

It has been a real challenge to really think of the soil as a living organism and to question everything we were doing in our farming practices and that effect on living organisms in the soil. The beneficial micro-organisms need a pH of 5.5 or above to become really active. Below that pH we find that fungi will persist and there are a lot of beneficial fungi which really need to be fostered because they are part of the whole ecosystem in our soil. The fungi and the micro-organisms excrete exudates which are essential food for the soil life. One microbe will live on the exudate or the dead microbes of a different species and this type of thing.

It is all in the land of the unseen, if you like to put it that way. Unless you look at the soil under a microscope in most situations you think it is dead, but healthy soil really is a very active and viable diverse community. The bigger the diversity, the healthier the soil. You get to a stage where animal health and plant diseases and pests are not a problem. We have not used any chemicals, herbicides, fungicides or pesticides for the last 25 years since we started going down this track. It has been a real challenge, but I think it has been a rewarding experience.

Mr DRUM — You made this swing shift from your more on-farm practices to the way you operate now. We need to be clearly put into the picture of how farmers are going financially because these decisions are more often than not based on finance. Was it a big decision for you? Did you say to yourself, 'I am already in strife, I will take time out to educate myself including a trip overseas', which is not what most farmers would do? Most farmers would work a little harder, work a little longer and plant a bit more. I am trying to get a clear picture. The area Wayne comes from is totally different to the area Lindsay comes from. Lindsay seems to have been able to do it, but is finance and the immediacy of financial problems stopping many other farmers from doing the same thing?

Mr HUMPHRY — I am sure it is. I did not mention that we were dairy farmers, or primarily dairy farmers with sheep as well, in a lower rainfall area — a 23-inch rainfall area, or 525 millimetres.

Mr DRUM — Does the immediacy of the financial plight of most farmers stop them from taking this holistic view, which you have been able to do, to move back away from what you were doing to take a different tack?

Mr JONES — How did you deal with the finances of changing from one system to the other? Where do you see the problems?

Mr HUMPHRY — The finances were — because of the relative stability of dairying over a number of years compared to other industries, that is probably the major reason why we were able to go down this path. But I can see that with a lot of other industries that fluctuate over a period it would be a bigger challenge to do this type of thing. Finance is one of the biggest constraints. We certainly need lime in a system in the form of calcium, and different soil types need the magnesium as well, to be able to get the system up and running.

Ms LOVELL — Jack, you talked about education being the key to this holistic approach to soil management. My question is a little bit along the lines of what Damian just asked Lindsay. Yesterday we heard that there could be up to a 16-year cost-recovery period to reap the benefits of liming et cetera. Do you feel that, with our serious farming community getting older and with the numbers of hobby farmers within the farming community, they are prepared to put the finances into these soil management plans? Or do you think it would be cost prohibitive?

Mr JONES — The costs are a critical issue, but there are quite a lot of the hobby farmers, if you want to call them that, the part-time farmers, who are very efficient and interested, and many have the funds. I am in a difficult spot chairing the whole group. Once you get out into more of the cropping areas, people have had a better income. When I went to Dookie I was amazed at the number of young guys who were still on the farms, because in the valley I came from everyone was old. I am turning 50 next year, and there is a whole cohort of my age now farming. We are only new and just getting hold of the land, and we are 50. Most of us have off-farm income. I have fossil income that I am using at the present; Les, who will talk to you later, is a mechanic. We have other sources of income. Our parents were the only generation in our valley who have only farmed and did not have off farm income. If we go back to our grandparents and great-grandparents, they were sawmillers, bridge builders and loggers. They had other income sources to get the farms going.

So income is certainly a critical thing, but I think there are enough people interested — whether they are making a lot or not making a lot — that they will learn. And we have had a good response from this learning. A whole group of us are incredibly frustrated because we cannot — I grew up on a farm where we milked over 100 cows on

300 acres; we were well over the 20 dse. We did that for quite a lot of years, as well as running replacements. The whole farm was not developed, and we ran a beef herd as well. I am scratching to get anywhere near that sort of potential out of our land. The whole family farming system has gone down because we have not addressed that critical issue, which was not only decreasing acidity but the availability of nutrients and that loss of a biology that made them available in that soil system.

Ms LOVELL — Lindsay, when you changed practices did you have a period where you had a downturn in productivity? And how long was it before you felt you reaped the benefits of your new management strategies?

Mr HUMPHRY — Initially it was only a slight downturn in productivity over a number of years, because we were able to utilise the fertiliser that was locked up by, initially, aeration alone. Then further down the track we started applying lime, when we realised that there was a greater benefit to be gained from the aeration. Initially the aeration provided us with calcium that was locked up in the soil. But it has got to a stage now where, after doing this for 25 years, our production is still probably marginally down, but the quality of our produce is much better. Currently mastitis is almost non-existent — our cell count is among the top 10 at the Murray-Goulburn Cobram factory, out of 330 suppliers — and we attribute much of this to our changed farming practices. So after doing it for this period of time I feel that we are still going along reasonably well.

The CHAIR — Thank you very much.

Mr JONES — If I can add one little comment: in my experience working with some horticulturalists in severe alkaline soils who went biodynamic, they went to heavy mulching to create a structure. It took them three years of going backwards with their citrus — and I mean backwards; like the leaves fell off all the trees, sort of thing — until they got that biology going. There are additives you can use. There are things from the worm culture industry and there are other products being thrown at us. How good they all are, we do not know; that is part of the research we need. But there are things that can help speed it up. In our valley we have industries like tobacco, which were very heavy users — I grew it for one year, so I have some background in it — of pesticides, the DDT group. So we have residues in the soil that are killing the animal part of the microbes. So how long it will take to ameliorate and fix that problem: I cannot answer that. There are some good answers that will speed that 16 years up, but there are other sides as well that are a real problem.

In summary, we really need to say that we need access to the Lindsays of the world. He is not the only one; there are others sitting here now who have had some experiences. We need to get that information and bring it out into the public arena, and give credibility to some of that information. And we need some good systems study put together so that the land-holders can move forward.

The change will be slow, and the lime issue will be adopted easily by many to get a start, but they will then run into other problems, as I have done. I have poured heaps of lime on, and I virtually have toxicity problems in my soil. There are other issues. The super fixed things back in the 1930s and 1940s, and then we ran into problems. We will put lime in in big amounts and we will get a lift and good economic return, but we will end up with the same "short term fix" problem. We have to deal with the issue of what is happening — hence my analogy. Those forests have very acidic soils; they have a soil biology that keeps them growing, and they are productive. We can do the same. We just have to mimic that and deal with it. Thank you.

The CHAIR — Thank you very much.

Witnesses withdrew.

C O R R E C T E D V E R S I O N

ENVIRONMENT AND NATURAL RESOURCES COMMITTEE

Inquiry into impacts and trends in soil acidity

Wodonga – 21 August 2003

Members

Mrs A. Coote
Mr D. K. Drum
Ms J. T. Duncan
Mr J. G. Hilton
Ms J. M. Lindell
Ms W. A. Lovell
Mr G. Seitz

Chair: Ms J. M. Lindell

Deputy Chair: Mrs A. Coote

Staff

Executive Officer: Dr C. Williams

Office Manager: Ms M. Pilley

Witnesses

Mrs N. Wallace, Farmer; and

Mr A. Wallace, Farmer.

The CHAIR — I welcome Mrs Noelene Wallace and Mr Alexander Wallace from the Kiewa Valley. All evidence is taken under the Parliamentary Committees Act and is protected from judicial review. However, any comments made outside the precincts of this hearing are not protected by parliamentary privilege. All evidence given today is being recorded by Hansard, and you will be provided with a proof version of the transcript within the next fortnight.

Would you go through your statement, and then we will take some questions.

Mrs WALLACE — Thank you for the opportunity. Sandy is fairly deaf, and I am always talking. The Wallace family have farmed in the Kiewa Valley since 1869. Since then farming practices have adapted to what was believed to be the best information available at the time and the promotion of that information. The farm on which we live has been a dairy farm since dairying first came to the Kiewa Valley. We formed our family trust in 1971, when we took over from Sandy's father, and our first and current priority was and still is to establish and maintain good improved pastures.

Our generation and the next have adopted soil testing and the spread of lime for several years, along with tree planting, fencing off streams and riverine areas, and involvement with Landcare. We have benefited from being so close to the Rutherglen Research Institute — and that is what we all still call it; it has probably had three names since then — and have participated in several of its information days, but with the continuing change of emphasis away from extension the method of obtaining information has had to change. We attended meetings when the *Soil Health in North East Victoria* 1999 document was being compiled, which has been commented on today.

The ability to influence bureaucrats concerning the effects of acid soils and obtain funding for research or to assist farmers in this region due to the expensive transport costs to get access to an economically viable supply of lime has been limited and at times met with almost hostility. We congratulate the committee on this inquiry and look forward to its recommendations.

While we may have been applying lime, and most of our industry has been well informed and had the finance to do so, it will not be enough to influence whole catchments, and as this region supplies 38 per cent — I am still working on 38 per cent, but I note that Lindsay said 34 per cent — of the Murray–Darling Basin's water to improve the whole of the Murray catchment, more widespread adoption will be needed.

Within probably 50 kilometres of Wodonga, and most other large centres, there has been a trend to split a considerable amount of good agricultural land into smaller holdings and house blocks. Of the larger holdings running beef or other enterprises, there are a large number of farmers or family members working off farm to supplement their incomes. While they might then have access to more income, frequently the amount of time available to cope with the myriad maintenance jobs that need to be carried out is limited. The aftermath of the drought and fires of 2003 will be felt for several years and will not be conducive to large amounts of money being spent on remedying acid soils without a large amount of encouragement and assistance.

We are pleased to read the committee's second term of reference and believe it is imperative that farmers are seen not only as part of the problem but as an essential part of the solution. As members of farming organisations, Landcare or just groupings depending on our small local communities, we need to be involved in the drawing up of solutions so that we have ownership of the answers and cooperate in every way possible. Getting anybody offside or the big stick approach is usually totally unproductive. Once again we thank the committee for giving us this opportunity.

Mr DRUM — Effectively your story is pretty similar to a lot of the ones we have been hearing.

Mrs WALLACE — I think that is so. I am involved with the Upper North East agricultural care organisation, which runs a rural counselling service, and you have commented on farmers' financial situations at the moment. I am certainly aware of a comment made by the rural counsellor that most of the people he has been working with this year — or last season it was — had already spent the next year's money, so it does make life a bit difficult when you are trying to look at priorities.

Mr DRUM — Have groups of farmers in the region previously tried to make the supply of lime more economical?

Mrs WALLACE — Not as a group. They might have argued or lobbied, but I do not think they have actually looked at any particular practical solution.

The CHAIR — Would your view be that farmers generally do not understand how significant an issue the acid soil is, or is it that they know but they just cannot afford to use lime? Is there a real understanding, or is it just commonly known that we have acid soils but you keep going?

Mrs WALLACE — I think there has been a bit of a change in who the farmers are, despite the fact that we are ageing. There was a lot of work done in the days when we had extension officers and farm visits and trips, but it seems to me that there are hobby farmers coming in, there are younger farmers, although they are not all that young either, but there is a change in generational farming, and I do not believe it is discussed all that much locally any more. Do you, Sandy?

Mr WALLACE — Possibly there is a bit of information available on liming. It is very difficult to see any results from liming, and that is our experience. I first started liming after reports in the *Border-Mail* many years ago, and I put lime on half a paddock in two particular places. I observed after we milked about four weeks later that when we let the cows out into that particular paddock they grazed the half that had the lime on it. There was no obvious change in what grass was on there, but the cows evidently liked lime. Since then a farm consultant could not convince us that it was too expensive to use lime. There were no obvious results from it. Since then I have put lime over the majority of the farm. I do not think the amount of lime we have used will have any marked effect on the acid soils. It is just too expensive to spend the amount of money necessary and to have that amount of money tied up in something where you cannot see any obvious results. Maybe if we had Mount Buffalo as a source of limestone, or something relatively close, that would solve that problem. The cost of transport is obviously, compared with other areas, what is killing us in putting on more lime.

The CHAIR — What pastures do you have? Have you moved into the perennial grasses?

Mr WALLACE — We have a majority of phalaris pasture, with limited rye-grass and clover. We find the hot summers in the north-east stop rye-grass. It is quite obvious that phalaris is the grass of the future in the north-east area on dryland country.

Mrs WALLACE — Our son has a block that runs from the top of the ridge down into the Yackandandah Valley. The committee was talking about how you would spread things on that type of country. When he first took that over he had it aerially sprayed, and then aerially supered and seeded. It is also fairly well timbered, so it has probably not had the maintenance fertiliser that it should have had, and it is a case also of having somewhere where a helicopter or plane can get in and out to do that spreading. You need to have a landing strip somewhere close; not a formal landing strip, but a suitable landing strip.

Mr DRUM — Was he able to put aerial lime on that?

Mr WALLACE — No, he did not.

Mrs WALLACE — It does stir up the fire spotters when there is a lot of white smoke in the air!

The CHAIR — Thank you.

Witnesses withdrew.

C O R R E C T E D V E R S I O N

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Witness

Mr S. Crews, Coordinator, Upper Murray Landcare Network.

The CHAIR — I welcome Mr Stafford Crews, coordinator of the Upper Murray Landcare Network. I should let you know that all evidence taken by this committee is taken under the provisions of the Parliamentary Committees Act and is protected from judicial review. However, any comments made outside the precincts of this hearing are not protected by parliamentary privilege. All evidence given today is being recorded by Hansard, and a proof transcript will be sent to you within the next fortnight.

Mr CREWS — Thank you.

The CHAIR — The format we have been following is that we have been taking presentations from witnesses and then asking questions after that. Is that okay?

Mr CREWS — Certainly. I did not actually prepare a submission. The discussion I had with Caroline suggested to me that you would ask the questions and I would endeavour to answer them.

The CHAIR — That is fine; we can do that too. Can you give us a bit of an outline about to what extent the acid soils are a problem in your area and what types of impacts they are having?

Mr CREWS — I think it is fair to say that acid soils are quite extensive in the Upper Murray, which is the area that I am confined to. The area in which I work starts at Koetong, carries on to Tintaldra, and follows the river back around to Walwa and Burrowye. All of those areas have soils which are substantially acid, although within that framework there are also pockets of soil which are not so acid. There are numerous strategies that people are following at this stage. A fairly sensible approach is to concentrate on improving the productivity of those most productive areas in an effort to improve income, so that the additional cash flow can then be directed to the other areas that need to be improved.

Ms LOVELL — What type of work are the Landcare groups doing in your area to address acid soil?

Mr CREWS — All the Landcare groups that I work with have fostered discussions on acid soils. Carole Hollier and Eloise Seymour from the Rutherglen Research Institute, who have done a lot of work on acid soils in the upper north-east, have visited all the Landcare groups and made presentations, and those presentations are well received. I do not think there is much doubt that people understand the extent and the danger of acid soils going forward in modern agriculture.

Ms LOVELL — Has the issue of acid soils been incorporated into any of the local area plans in your catchment?

Mr CREWS — Yes. In our immediate area we have a catchment plan called the Koetong/Cudgewa Catchment Plan, and acid soils form part of that catchment plan. As time and money became available the acid soil question would be addressed. At this point in time it is a big problem for people. A lot of people do not have sufficient cash flow to be able to invest in liming. The bigger operators, who have surplus cash flow, or some surplus cash flow, do as much liming as they can. But I was listening to the previous speaker, who pointed out that the lead time between applying lime and receiving any return is quite long and very, very difficult to demonstrate.

Mr DRUM — Stafford, quite a few different witnesses have come before us, and they have said that lime is costly.

Mr CREWS — Yes.

Mr DRUM — And that just lime in itself is not the answer; lime with perennial grasses is more of the answer, which is even more expensive. The previous group, the Ovens Landcare Network, even took a further step by saying it is all about the soil and the biotech health of the soil. Whereabouts do the aims of the Upper Murray Landcare Network fit in relation to those other three — the just liming, the liming plus perennials, and the holistic health of the soil?

Mr CREWS — I think all of the things you have mentioned are quite true. Our groups would seek to address all of those matters. Again, it is a matter of scale and time and having finance available. We encourage people — part of our catchment plan is water quality, and my initial employment was on a water quality project. Water quality is affected by all of the things that degrade soil. So, as we can, we are addressing perennial pastures, acid soils, salinity — and if those things go beforehand, then soil biota conditions improve. I think that has been pretty well established over time.

The CHAIR — Mr Crews, your network spans both Victoria and New South Wales?

Mr CREWS — No, my area of work stops at the Murray River. I do cross the river from time to time, but basically I am confined to the north-east corner of Victoria. I am a resident of New South Wales.

The CHAIR — Are you aware of — and if you are, can you explain to the committee — the differences between how New South Wales manages its acid soils and our practices here in Victoria?

Mr CREWS — No, I cannot fully explain it to you. I am a member of a Landcare group in New South Wales, and I am aware that some quite extensive soil mapping of acid soils has been carried out in New South Wales. That mapping has been documented quite substantially, and the next step was to try to acquire some assistance from the New South Wales government to subsidise farmers for the application of lime.

Ms LOVELL — Stafford, what are the key challenges and barriers to managing acid soils in the Upper Murray?

Mr CREWS — The key challenges and barriers? That is a very broad question. I think, given the opportunity, all of the people whom I deal with who are reasonably well informed would very much like to address acid soils as they occur on their property. I think the key things that prevent people from addressing acid soils are finances. I think the smaller operators just do not have sufficient income, or surplus income, to allow them to apply lime, especially when the lead time for the return is so long. I think lime is quite different from superphosphate or nitrogen or other fertilisers, in that when applied — and again I can honestly quote the previous speaker — you cannot see any result. Possibly the only positive result that he could see was improved palatability for his livestock.

I think finance is a very big factor, and I know people who are possibly short of money do everything that they can to at least try a small area, because they know from well-documented research that, if we do not try to address the acid soil problem, productivity will just continue to decline.

Mr DRUM — If you wanted to leave us with one message, what would it be?

Mr CREWS — Possibly the most important thing that I could say is that it is very easy to continue to say we need money, and I think we do need money, but I do not think acid soils can continue to be ignored. They are right up there with salinity, with all the other problems. The Upper Murray contributes a substantial amount of water to the Hume Dam and the Murray River. Unless we address some of these very basic problems — and acid soils is one of the most basic problems — then water quality will continue to decline, albeit very slowly. It is a very insidious thing, but that will happen over time.

Mr DRUM — When you say we cannot allow acid soils or acidity to be ignored, are you talking from a farming perspective, a government perspective or about everybody?

Mr CREWS — I think it involves the whole community. Over time profitability will decline. For people to remain profitable, land-holdings will have to increase in size, and if that happens everybody suffers. There is not the rating base there or the income for taxation purposes. Everything just continues in a very slow downward spiral. I think it affects the entire community.

The CHAIR — You said before that one of the ways you were looking at managing acid soils in your area was to look at the most productive parts and try to build that production so you then have income for the more marginal areas. Is that the best management tool that you have managed to come up with?

Mr CREWS — That is one management tool. Some pasture grasses will cope with acid soils, but if agriculture is confined to those species then you limit your options, and in limiting options you limit profitability. Maintaining profitability is important for farmers to be able to reinvest in their properties.

The CHAIR — Thank you very much.

Witness withdrew.

C O R R E C T E D V E R S I O N

ENVIRONMENT AND NATURAL RESOURCES COMMITTEE

Inquiry into impacts and trends in soil acidity

Wodonga – 21 August 2003

Members

Mrs A. Coote
Mr D. K. Drum
Ms J. T. Duncan
Mr J. G. Hilton
Ms J. M. Lindell
Ms W. A. Lovell
Mr G. Seitz

Chair: Ms J. M. Lindell

Deputy Chair: Mrs A. Coote

Staff

Executive Officer: Dr C. Williams

Office Manager: Ms M. Pilley

Witness

Mr W. Donehue, Farmer.

The CHAIR — Mr Donehue, I remind you that all evidence taken by the committee is taken under the provisions of the Parliamentary Committees Act and is protected from judicial review. However, any comments made outside the precincts of this hearing are not protected by parliamentary privilege. Hansard is recording the proceedings, and you will get a separate transcript of this evidence.

Mr DONEHUE — Thank you for the opportunity to come along and have a few words. I wish to say at the outset that my comments are from an individual point of view and from living on a property in the Upper Ovens Valley, some paddocks of which originally had a 4.3 pH level, which is fairly low.

I went through the committee's four points and would like to address one in particular. My major point is that I think acidity is not the problem. Acidity is just an indicator of the real problem we are having with our soils, and that is our soil health. Soil health is a major issue. It is something that industry and government departments have completely forgotten about. They are certainly not including it when they are looking at why we are having these problems.

I have drawn a little sketch to give the committee an example. I do not know how it will be recorded, but it is to help explain what I am talking about. I have basically got two triangles, a bottom one and a top one, where the bottom one represents the soil and the top one represents everything on this earth which lives off or on the soil. I guess what I am saying is that the committee has to realise how important the soil is. You also has to realise that you are in a very important position where you can affect everything above this bottom line. We are talking about grasses, animals that feed off grasses, animals that live off it, all the way up to your brothers and sisters, your mothers and fathers — you can affect all these people.

What happens when we get an unbalanced soil, which is the cause of acidification, is we start to prop it up. Industries and governments come in to look at the problem. This sketch shows that the soil is unbalanced and the triangle is starting to fall off the side, so we hold it up with logs which come from various areas: from land management and from industry developing products and saying, 'Put this on and it will get better and better each year'. Nobody goes back to look at the soil health and at why the problem has happened. Everybody tries to put a bandaid on and patch it up. Unfortunately it carries on. We get to the point where we put up more and more logs to hold up the triangle, and we get logs underneath the soil problem. What we are putting on our soils is making our soils worse. We need to sit down and look at what we need to do to improve our soil health.

It is nothing new. It is nothing that was invented yesterday. It is something that people have been talking about for years and years. It is not organic farming, it is not biodynamic farming; it can be used in everyday conventional farming. The real issue is that pH is not the problem and acidity is not the problem; soil health is the problem. We have to get a feeling for the animals that live under the soil. There are as many animals living under the soil as above it, and they will help solve the acidity and the pH problem, if we get the right minerals and the right balance.

It needs to be looked at basically from a soil perspective. Yes, unbalanced soils have a large effect on the environment, on water quality and on air quality. The present government and governments before it have spent lots of money on planting trees, which we all know helps make oxygen and keeps everything going. If we look at the catchment in the Upper Ovens, starting from the top of Mount Hotham and coming down, we see that at the top 100 per cent of the land is covered by trees. As we come down to the valley floor probably 20 per cent is cleared land and maybe 80 per cent is covered by trees. As we come down further it is probably less: 50 per cent cleared and 50 per cent trees. As we get down further, say closer to the Murray, I do not know but as a rough guess it may be 30 per cent or 20 per cent trees.

These days people are pouring money into planting more trees to help the environment, but as that percentage of trees drops off and we compare it to the percentage of soil, the whole area has 100 per cent soil. If we get healthy soil that is living, vibrant and producing oxygen, imagine what we can do to the environment, to our production, and for creating healthy people.

The soils are creating unhealthy things; they do not have the right balance, they are lacking minerals. As any medical person would know, a lack of minerals and vitamins is one of the main problems people have. I think this issue is really huge. I think you need to think really deep and hard on it. I think soil health, which is the cause of acidity and pH, is the issue that you really have to tackle. You are in the position to actually have some effect and make some change to make things better for the future.

Ms LOVELL — Wayne, we are hear to learn from you, too. What are you doing to manage the soil health on your property?

Mr DONEHUE — To cut a long story short, we initially started off in the beef check course, which is a course run by the DPI over three years. It was a steep learning curve, but we did find that their answers on soil health were very limited. They had all the answers on animal health and all the other things that you need to do on the farm, but I think with the soil health issues — certainly at that stage, two or three years ago — they did not have all the answers, or even the right answers, I feel. They were very tunnel visioned on where soil health was going and what we should do with soil health. We started looking outside there and looking around at what other people were doing, going and learning some more things to try to improve it. We have slowly become sure that lime is the answer, in the form of calcium. But it is not about putting on as much lime as you can afford; soil can only handle so much lime.

I think the question of finances to put lime on needs to be looked at a bit harder because people certainly do not have a problem with paying $300 and $400 a tonne for super or other products to put on. I think the real issue with lime in our area is the transport costs. I think something has to be done to equal out the transport costs. People who sell produce in our area get the same for their commodity prices as what people on the South Australian border do. So there really needs to be some way to give the people up here an equal footing on being able to get the soil healthy so they can compete with them. So without getting in depth, the soil health thing is about balancing your main minerals in your soil and getting the biology working very well.

Mr DRUM — Wayne, we spent 3 or 4 hours yesterday over at the Rutherglen Research Institute. Why would they not have mentioned this issue to us, that soil health is the actual problem as opposed to acidity and the pH being the problem?

Mr DONEHUE — That is an extremely good question. One of the issues, I guess, is the outside pressures — political pressures, industrial pressures. Unfortunately I do not think that everyone is looking for the best fix to the problem. There are too many dollars involved, and over the years people build up a trust with the type of direction they are heading in and people do not like changing that direction. You are talking about huge mental walls — challenging people and what they have believed and what their forefathers have taught them and what the industry has told them. All those things have to be changed. I think they rather than the dollars are the real problems. I know that the Rutherglen institute has done a lot of work on acid soils and has put out a lot of documents, which we get through Landcare and everything. I just do not think they are going to the root of the problem and tackling the real cause. They need to look at the cause of why it is there — what is causing it and what we can do to fix it for the long term.

Mr DRUM — Have you expressed your views to the people at Rutherglen?

Mr DONEHUE — To some people, yes. I have probably not had a good debate with Carole Hollier on that, but other people from Rutherglen, on various other courses, yes — with mixed response, I guess. When people spend a lifetime going down a certain track, it is not very easy to change that. If you spend a long time researching things and heading down one way, it is very hard to get people to accept change, whether it be right or wrong.

The CHAIR — Wayne, where do you think future R & D priorities should be directed?

Mr DONEHUE — I think there needs to be a lot of research done on the minimum amount of lime or calcium to be put onto a soil to get the life into it and get bugs living. I do not think the old theory of everyone putting on 1 tonne to the acre and just putting it on regularly — at five, six or seven years — is the answer. I think a lot of research needs to be done on the types of limes we put onto the types of soils — or the calcium, I should say, not the lime — and a lot needs to be done on finding out how quickly the farmers get a return from that. I personally do not believe it is long term; I think it is in the three-to-four year time frame that you would start to see a return on that. What you have to realise is that a lot of farmers who have put on a lot of acid fertilisers over the years have huge amounts of phosphorus locked up in the ground. It is just sitting there; it is unavailable. By putting on minimal or small amounts of lime regularly, it is quite possible to release these. As Lindsay said earlier, it is as good as actually going out and putting more fertiliser on. It is sitting in the ground locked up, but nobody has access to it until they unlock it.

Dr WILLIAMS — Can I ask about the standard soil tests that farmers use around here?

Mr DONEHUE — Yes.

Dr WILLIAMS — Is that purely a chemical test or does that also test for the biological health of the soil? What does the standard soil test involve?

Mr DONEHUE — A standard soil test — do you mean, 'What comes back to the farmer.'?

Dr WILLIAMS — Yes?

Mr DONEHUE — It basically gives you all your elements — like your calcium, magnesium and all those types of things. It does not give you a biological bugs-in-the-ground test. You can get a test done in Queensland, which we have had done, which tells you the numbers of the different bugs or — I do not know, whatever the words are for those ones in the ground. So you can get those tests done to find out how your soil is and what you need to do to increase the microbes and all those things to get your soil living and get it healthy. So that is available. It is probably a little bit more expensive than a standard soil test, but it is certainly available for people who want to check it out.

There was a comment that we have more animals in the ground than above it. We certainly need to go out and check what their health is like and what is being done to improve what is happening above the ground.

The CHAIR — Thank you very much, Wayne.

Witness withdrew.

C O R R E C T E D V E R S I O N

ENVIRONMENT AND NATURAL RESOURCES COMMITTEE

Inquiry into impacts and trends in soil acidity

Wodonga – 21 August 2003

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Witness

Mr Lobban, Victorian Farmers Federation.

The CHAIR — Welcome, Mr Lobban. Mr Lobban is a general councillor and land management committee member of the Victorian Farmers Federation. All evidence today is taken under the provisions of the Parliamentary Committees Act and is protected from judicial review. However, any comments made outside the precincts of the hearing are not protected by parliamentary privilege. All evidence is being recorded by Hansard and you will receive a proof version of the transcript within the next fortnight. The format has been that our witnesses have made their presentations and then the committee has asked questions. Is that okay with you?

Mr LOBBAN — Yes. Thank you for the opportunity to speak with you today and share some of my experiences with acidity. I am also heartened that at last acidity is being addressed and at least considered. For 20 years I have held the view that acidity is and will become a far greater problem than salinity, and I think that has been proven now. People are only of recent times starting to realise just how serious the acidity problem really is. Salinity is more visual, more emotive, and therefore has attracted significant government funding through catchment management authorities, Landcare groups et cetera.

I wish to go back to the 1980s when I believed my pasture on one property north of Chiltern at Browns Plains was not producing as it had in the past. Also I was experiencing grass tetany problems, as did my neighbours. I operate a commercial Angus breeding enterprise. I started to make some inquiries and came across Mr David Debenham, who was involved with ACI. David was a consultant in agricultural affairs and also had ties with ACI. I took soil samples and had them analysed, and the results showed a low pH as well as a low magnesium, hence the grass tetany problem.

I entered into a trial with ACI, which was very keen to find a property to do some trials to prove a lot of its theories and to set up a demonstration site. ACI donated some dolomite in the first instance to be able to commence that program. I used dolomite because of the grass tetany, otherwise straight lime would have done.

At that time we approached the agriculture department at Rutherglen Research Institute to be a partner in the program, but it declined. The view at that time was that there was no such thing. I need to clarify now and go on to say that in later years the department at Rutherglen Research Institute with changed personnel has taken it up. I am in the Chiltern Landcare group, and through the research station we did a number of trial plots three or four years ago and conclusively proved the benefits and what you could do by applying lime, and certainly the necessity for it. I have worked closely with both Carole Hollier and Eloise Seymour at the research institute since. The committee probably spoke to them yesterday.

During the trial with ACI we applied 1 tonne per acre. The result in the first instance was that grass tetany loss was completely eliminated — that is, with the dolomite being applied in the autumn, by the July-August winter period we were able to eliminate the grass tetany. The improved pasture was obvious, particularly legumes and the clovers. The grass became a dark green colour instead of the light yellowy green, and it was certainly a lot sweeter. I did not actually eat the pasture myself, but we did a set stocking rate, which was part of the deal with ACI, and we had two paddocks of 100 acres adjacent to one another with a gate between. I set cows and calves on the 100 acres we applied the lime to, and when the grass would get really eaten down and I thought, 'I must let them out into the other paddock', when I let them through, even though the grass was longer and looked to me to be visually better feed, they would always come back to the paddock with the lime, so obviously it was a lot sweeter and they preferred it.

With ACI many people came to look at the property, and an enormous number from New South Wales came and were interested in the project. I then went on and did the whole property at great expense. At that time we were looking at about $70 to $80 per acre. The problem is it is now well overdue to be done again, but with the drought there is a lack of money available to be able to enter into such a project again.

So we know what to do. We know acidity covers a huge area from the Upper Murray down the Hume corridor through much of north-east Victoria and beyond. The problem is that it is very costly, and returns from the livestock industry over the past decade have not been sufficient to be able to afford it. I think it is fair to say that more cropping land has had lime applied because there is a more instant return on the money invested.

What are the solutions? No-one likes the word 'subsidies'; nor do I. However, let's be honest and realistic. We do not have a level playing field, as we are forced to compete on export markets with countries that heavily subsidise their farmers. I put it to you: how about our governments assisting our farmers? In other words, charity begins at home. Otherwise could I be brave and perhaps suggest another method as well as direct government assistance, and that is through Landcare and NHT funding et cetera.

Do not get me wrong; Landcare has been great, with tremendous achievements, and I am in two Landcare groups myself. However, I have witnessed in some areas most of the funding going to hobby farmers, or what we could call lifestylers, to plant trees, fence their properties et cetera. As a VFF representative I can assure you that I get very annoyed seeing urban people buying rural blocks to build a house in which to live and one of their first ports of call is to ring up to see if they can get some free trees through Landcare — and most of them do. These people would have planted the trees anyway. Often they have two incomes, and secure incomes as well, and certainly more available cash than most farmers. So what about assigning some Landcare money to assist full-time farmers to improve their soil?

This would benefit the community and state economics through increased production. A soil base is just so important to care for — for environmental benefits, water quality, pasture growth, less weeds and improved meat quality. If you are vegetarian I have probably not won any points there.

In closing, could I be personal to my own situation: as a VFF rep, I know of many in the same position. We have two kids, both at university. My wife works off farm and her wage virtually goes to affording to have the two kids at university. We do not qualify, because of assets and income, for Austudy or any other assistance whatsoever.

With the drought we have been forced to go into heavy overdraft. Again because of incomes and assets, we did not qualify for any drought assistance — not that I wanted it, I like to stand on my own two feet, but it is a problem that you do not get any assistance, no help whatsoever. But for the things on the farm that you would really like to do, because you are paying your way everywhere else, there is just not the finance available. As I go around district council and VFF branches I hear the same story from people all the time.

So I think we need to start with the drought. With the way the drought assistance is, it tends a little bit to support the poorer operators at times rather than those people who have saved some money and provided for themselves, who get left out because they have to go and borrow money et cetera — which they are happy to do and they are able to do. But I think the drought assistance packages from governments really have to be seriously looked at. Our district council put a resolution through the recent conference calling for a fairer method of drought assistance. I just mention that as an aside.

Finally, we do need to address the acidity issue. How do we do it? Perhaps we could have a study and a research team. I believe a lot of the research has already been done. The people at the research station at Rutherglen did a tremendous job in the three years they had to do it. The unfortunate thing, and it often happens, is that they put an enormous effort into those three years because there was funding for a project at that time, but when the three years was up the project stopped — all the data and all the evidence was all there, but all of a sudden there was nowhere to go to take it on.

Fortunately all that data is there, and hopefully we can reinvent it; get the thing up again and use the data that is there and is so valuable. Perhaps we need a committee to investigate all avenues as to how it can be financed. The farming community, I believe, would be keen to work with whoever and support an endeavour to overcome our acidic soils. Whilst the farmers will benefit, so too will the whole community. Australian farmers provide perhaps the cheapest and best quality food of anywhere in the world, but we do not compete on an even playing field. I will just leave it at that and answer any questions.

The CHAIR — Thank you.

Mr DRUM — Ian, is your unequal playing field in fact the tyranny of distance with the liming versus down in the Western District? Is that your biggest issue?

Mr LOBBAN — No, it is not. I mean, the freight is obviously a big issue with it, to get it to the areas far away from the manufacture of it. But when I talked of the even playing field I was really referring to sale of our product on export markets.

Mr DRUM — Tariff?

Mr LOBBAN — Our overseas export. With most of our commodities, particularly in the meat industry, the greater percentage is exported and we are forced to sell on world markets against countries that subsidise their producers. It is just not a level playing field, and we are put at a disadvantage.

Mr DRUM — Okay.

Mr LOBBAN — That is the reason why I believe we qualify to ask for some assistance — because of that factor of how much the export market is worth to the economy of Australia.

Mr DRUM — Ian, I refer to the studies you did on your property with the help of ACI. You are one of the first witnesses we have had who has been able to experience an almost immediate benefit from dolomite or liming. Within three or four months you have witnessed cows having a preference. We heard about it happening within days, but we put that down to more of a palatable issue or a taste issue. Did you notice whether that preference of your cattle stayed over time — like the next year, the following year and the following year? Or did you then do the subsequent paddocks?

Mr LOBBAN — Well, two years later I did the other 100 acres, so that that whole block was done. So it is difficult to tell the preference there after that time. But up until the other was done there certainly was a preference for that paddock. The immediate result — I mean, the first thing with the dolomite was the grass tetany. That was the first obvious relief.

Mr DRUM — Sorry, what is grass tetany?

Mr LOBBAN — It is a magnesium deficiency in livestock — particularly in cattle and sheep, but in my case it was cattle. The magnesium is in the soil and there is uptake through the plant. If there is not enough in the soil and not enough uptake, then in cold, wintry and bleak weather the stock will get that. It affects them a little bit like milk fever. They die pretty quickly. Some properties in the north-east and over the river in the Holbrook area had experienced some pretty heavy losses until we got onto using the dolomite.

Ms LOVELL — Ian, you have obviously had personal experience of managing your soils and the acidic soils on your property. So do you feel that the *North East Soil Health Action Plan* has provided a useful framework for the management of soil in this region or do you feel through your personal experience that there is a better way that can be done?

Mr LOBBAN — It is a difficult one. Well probably the best advantage to me was the personal experience, where you realise something is wrong and you look for some answers. I mean, I was just lucky at the time to be able, through a friend, to get into contact with David Debenham, who had the contacts with ACI. I said to him, 'I have a problem with grass tetany', and he said, 'That is fixable'. I must admit that I looked at him. He said, 'Well, using such and such you can overcome that'. I thought it sounded a bit too good to be true. The fixing part was right, it was true; but the cost side was another thing. It just went from there. That is when he said, 'Look, we firmly believe in it, and we are looking for a property somewhere to be able to do the trials on. Then we can open it up to the public to be able to demonstrate it'. That is how I got into it. So that is the main focus that I have had.

Ms LOVELL — So you were lucky that you knew somebody who sent you in that direction.

Mr LOBBAN — Well I went looking for it.

Ms LOVELL — Had you not known someone, would you have found the answers in the action plan?

Mr LOBBAN — I probably would have kept looking. I think the answers would have come, but it probably would have taken longer. Within a few years of that it was becoming general knowledge that lime was the answer to stunted pasture growth and that sort of thing. But I really got in early, probably because you live with pasture loss more than you would live with dead stock. That was the thing that really prompted me so that I just had to do something about this. The other thing is that you can put out magnesium licks as a supplement-type thing, but that is a bandaid, and I got to the stage of thinking, 'If I have to keep doing this forever, the job is not worth it'. So you look for other answers.

The CHAIR — Ian, a National Land and Water Resources Audit was done, and one of the things that was reported there was that farmers were actually not aware of acid soil problems and were not being convinced of the benefits of lime. That was one of the main barriers to the management of acid soils. That was a national study. From what we have picked up just over the last couple of days I do not know that that is really the reason up in this north-eastern region. It seems to be more economically or financially based. Would you agree with that?

Mr LOBBAN — Yes. Over the last few years the awareness has improved enormously. If you go to a VFF branch meeting the acidity problem is a common topic. The awareness is there with the majority, but it is the cost that is prohibitive. As I said before, we know what the answers are, we know what the problem is, but the big problem is that the majority of farmers do not have the available funds to do it. Take someone with 1000 acres.

When I did it was $70 or $80 an acre, and you might be looking at $100 now. It is a very big cost to have to do it, and probably five to seven years later you need to do it again.

Mr DRUM — You are talking about the dog chasing its tail. Mr Shuter told us that the reason the farmer has not got the money to do it is because his productivity is down due to acidic soils. Do you agree with that?

Mr LOBBAN — Partly. Obviously if your productivity is down it affects your income. Yes, that has to be a factor, but I do not think it is the whole reason. Based on the prices we have had of recent years in the livestock industry — especially if you look at the wool industry, and there are a lot of wool properties that have acidic problems — there is no way they would have been able to generate the income needed to do what was necessary.

Mr DRUM — If you were simply a bean counter masquerading as a farmer — you are just an accountant but you are on a farm — what do you do? Do you sit there and say, 'No, I can scrape by and stay in the black with these acidic soils that are getting lower and lower in pH, but at least I am still making a profit, I am still making a living', or do you borrow $30 000, $50 000 or $70 000 to buy lime? As the Chair said, it comes down to the economics. Too many farmers are obviously saying, 'Economically I do not have to do this. I can make a living so I will not do it'. Is that where you are coming from, because you brought up the drought assistance and the fact that your kids are at university and have to live away from home, which can cost you $15 000 a child?

Mr LOBBAN — I think that is probably a fair statement. If you are surviving — and a lot of people are — you are living with it, there is no doubt about that. It depends on the age of the farmers and at what stage of life they are as to whether they are prepared to go out and borrow the amount of money needed to do it as an investment to meet their productivity, or whether they say, 'I will ride out the next 10 years as I am'.

As the problem is becoming more accentuated people are realising the impact is far greater than perhaps was first thought. It will become more or less essential that it is done, and particularly for the good of the state, because if a lot of people just opt to leave it go and not do it, then at the end of the day everyone will suffer — the state, local communities and all. That is why we really need to take a look at it. We know what to do, and we need to look at ways to try to alleviate that financial burden in people's heads, which is real, and introduce some incentives or assistance to go part way to be able to bring people in and encourage them to do it.

Ms LOVELL — What has the VFF as an organisation done to educate its members and to assist them with soil acidity management?

Mr LOBBAN — It has been a topic within VFF circles and branches for some time. Over the last few years I can recall there being two resolutions before our state conference which called for a subsidy on lime, and they were from Corryong down to Benalla. They are two branches I know of that have put up resolutions, so for them to do that they are obviously well aware. With the VFF it depends whether it is state or local. Locally VFF branches are concerned about it, they are addressing it, and that is why they have taken it to state. No-one has had an answer, apart from the resolution asking the government for a subsidy. That should have highlighted the problem to the government. It does not matter whether it is a subsidy or not. The people putting it up are not worried about what it is called, so long as we can get it addressed and get through some assistance in funding. As I said, maybe an option is to look at Landcare. I think salinity has had an enormous dip into the bucket, and maybe it is time that acidity got a share of Landcare funding.

Ms LOVELL — Your organisation as a statewide organisation has not put together any seminars or policy document?

Mr LOBBAN — Not actual seminars. There is a policy document, and I know a presentation was made to the committee in Melbourne.

Ms LOVELL — Sorry, I missed that day.

Mr LOBBAN — I understood that was the case.

Mr DRUM — Yes, by Clay Manners and Paul Weller.

The CHAIR — The *North East Soil Health Action Plan* proposes a rural land stewardship project for managing less productive and degraded land. I do not know whether you are familiar with that proposal, but can you give me your views on that?

Mr LOBBAN — I am not overfamiliar with it, but the land stewardship proposal is okay. We all know that there is land degradation. It is a case of being able to do something about it. I am not sure what the proposal from the north-east proposes so far as financing is concerned. We all know about it; it is a matter of being able to do it rather than talking about it.

The CHAIR — Are you familiar with any of the management structures that are used in New South Wales, South Australia or Western Australia for acid soils?

Mr LOBBAN — I have read some, but I do not say I am right across it, no.

Mr DRUM — You have spoken about the Landcare groups and where they may finance trees for some hobby farmers. While it is philosophically a good line to draw in the sand — that is, that we not do that but direct that money across to some form of liming program — we are not really talking about enough money, are we?

Mr LOBBAN — No, it would not be enough on its own, but it is a start to start looking somewhere. If some was directed from there and the government looked at some other methods, maybe collectively enough could be got together to make it at least affordable. There might not be any one avenue of funding; it might be a combined avenue.

Dr WILLIAMS — The VFF and the Department of Sustainability and Environment have an action plan out on environmental management systems in agriculture. Is that a concept and system that you are familiar with and that farmers in this area are looking at?

Mr LOBBAN — I think what you are talking about there is probably a little bit of a different thing to what we are talking about, because it is a more general thing across the board; it does not actually go into acidity as an individual issue.

Dr WILLIAMS — Yes, acidity is one of many issues.

Mr LOBBAN — It is one of many under the whole umbrella, that is right. But I think the time has come with acidity where, rather than putting an umbrella over it and lumping it in with all the other issues, it is serious enough to start to address it as a single issue.

The CHAIR — Any further questions? Thank you very much, Ian.

Witness withdrew.

C O R R E C T E D V E R S I O N

ENVIRONMENT AND NATURAL RESOURCES COMMITTEE

Inquiry into impacts and trends in soil acidity

Wodonga – 21 August 2003

Members

Mrs A. Coote
Mr D. K. Drum
Ms J. T. Duncan
Mr J. G. Hilton
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Ms W. A. Lovell
Mr G. Seitz

Chair: Ms J. M. Lindell

Deputy Chair: Mrs A. Coote

Staff

Executive Officer: Dr C. Williams

Office Manager: Ms M. Pilley

Witness

Mr P. Anthony, Owner-Operator, Jenkins Fertilisers and Limes.

The CHAIR — I welcome Mr Paul Anthony, owner-operator of Jenkins Fertilisers and Limes. Paul, all evidence taken by this committee is taken under the provisions of the Parliamentary Committees Act and is protected from judicial review. However, any comments made outside the precincts of this hearing are not protected by parliamentary privilege. All evidence will be recorded by Hansard, and you will receive a proof version of the transcript within the next fortnight. You are perfectly familiar with the operations, so we will hand over to you.

Mr ANTHONY — Thank you. I would just like to take the opportunity to thank you for letting me put my submission to you today. As a distributor of lime products serving in the agricultural sector, we are well placed to provide advice to the committee in relation to the Wodonga and Upper Murray regions.

Our submission addresses the application of agricultural lime in the Wodonga and north-east region of Victoria. Over the past 12 months we have handled about 3000 tonnes of lime, which is approximately 34 per cent less than that handled in previous years, predominantly as a result of the current drought. Of the 3000 tonnes, approximately 90 per cent was spread on pasture, with about 10 per cent applied to horticultural production. We found that most of that went on to dairy farmers, purely because of their pasture renovation, smaller blocks, it was cheaper, their monthly income; they could actually budget a little. This is purely from where we come— you could see that they were doing smaller lots; they were not trying to do 100 acres and they could do their 10 acres. Most of it went on to dairies; some did go on to beef farmers, but there was usually an outside income that came from that farm.

The cost of lime application in Victoria's north-east is considerably higher than that of other regions in Victoria — approximately 45 per cent to 65 per cent. In the western districts of Victoria lime delivered on farm costs in the order of about $25 to $28 per tonne delivered. In Gippsland the cost is approximately $35 to $40 per tonne delivered. In Victoria's north-east the product cost is approximately $65 to $85 per tonne. Whilst the cost of lime varies depending on the quality of the product, the prohibitive cost of the product in this region is transportation, being 300 kilometres from the nearest lime pit. I got most of those figures from other contacts I have in these other areas. Some people are not really keen on giving exact figures, so it has been a bit of a rough estimate.

In our experience agricultural producers do not apply lime to soils as frequently as they apply other nutrient-fertiliser products due to the lack of quantifiable cost benefit. For cropping farmers they see more immediate measurable increases in yield per hectare when lime is applied — that is to say, return on investment. To the contrary, pastoral and grazing producers cannot measurably graze more cattle and increase cattle weight or quality based on the application of lime to their soils in the short period. This results in lesser applications of lime by pastoral and grazier producers, having a significant impact on the acidity levels in the soil and the long-term sustainability of farm production.

Being in a high rainfall area, production capability is greater. Therefore, the application rates of lime required to maintain or reduce acidity levels should be greater than in some regions of Victoria, but due to the prohibitive costs of lime acquisition this does not occur. An example of an application rate required to adequately reduce the acidity resulting from production would be 1 kilogram of lime for every tonne of hay cut for the year. You can imagine how much hay or silage would be cut in a year, and that is just to maintain where it is now. So there has been a lot taken off over the years.

Soil acidity is a major problem in the region. We estimate that only 17 per cent of our producers regularly undertake soil analysis. Of those tested over the past 10 years, 90 per cent show soils as highly acidic, and 10 per cent are moderately acidic. Our experience shows that those that are moderately acidic are so as a result of some lime application, which is evidenced by subsequent testing. So they are actually testing, realising they need lime, trying it, and then two or three years down the track they test it again and realise that they have improved their pH levels and calcium and magnesium ratios of the soil. Again that is mainly through dairy farmers, because they have smaller lots and have a lot more pasture renovation with perennial pastures.

Whilst we are not agronomists, we have worked in the industry for more than 15 years — and in the business for well over 40 years. The problem with continuously reducing alkaline in the soil is that it lifts aluminium levels and reduces the plant's intake of nutrient. The plant's inability to take up nutrient can result in poor root structure, the consequence of which can be increased soil run-off into our waterways and the subsequent transfer of nutrient, creating a greater environmental impact.

In addition, poor or shallow root structures can impact on watertable levels, giving rise to other environmental complications. Lime application reduces aluminium bonding to plant root systems and increases a plant's capacity

to take up nutrients, resulting in a good, high quality plant and root structure, which actively contributes to the sustainability of our environment.

I refer to the obvious solutions to the problem, being the third part that I was asked to speak on. Solutions to the problem of soil acidity are not simplistic; however, we do offer the following suggestions: to ensure ongoing benchmarking or the introduction of Australian standards to lime quality so producers can be confident the lime supplied has the maximum effect in reducing soil acidity — and we can actually start determining whether the soil needs magnesium and how much and we can pick what levels we need; that the Department of Primary Industries develops and actively implements comprehensive education programs to assist producers in understanding the cost benefits of lime application, including production, long-term sustainability, and the environment. I feel that if we had people like those from the Rutherglen Research Institute out there on days or evenings and showed them what the benefits are, they would actually take a lot more notice of people who do not appear to be pushing their own barrow.

The third suggestion is to introduce a subsidy or rebate program to stimulate increased lime application in the north-east. In the past subsidies to reduce costs or encourage specific practices have often been directed at the transport or service provider. This has resulted in price inflation with no direct financial or end cost reduction to the primary producer. If a rebate or subsidy model was considered it should be directed at the primary producer to assist in reducing the cost of lime. We feel models should be structured to provide the highest level of support to producers with the highest level of acidity. The program may be offered for a set period with funds available to participating producers within a set framework linked to soil analysis, lime application and evidence of decreased soil acidity.

What I am trying to say is that we have to be able to focus this on the people with big problems and probably larger land-holders purely because they need the money. They are not taking enough off the farm. They are not making enough off the farm to be looking at doing 1000 acres. They will do 100 acres, but we are talking about 10 per cent of the farm and it just becomes a big burden. So we are looking at trying to those to get those people with the biggest problems to be looked at and looked after first.

With each year that passes, and with every year of production increasing soil acidity, we reduce the future production capacity of our region and in turn compound the agricultural sector's inability to fund lime acquisition, the long-term impact being a unsustainable agricultural industry that has contributed to the degradation of our natural environment. Government has a responsibility to contribute to the protection of the environment for all Australians. Primary producers have the responsibility to ensure the sustainability of the industry. Both must work in partnership to resolve the issue of acidity. That is about all I have to say. I hope I have helped in some way.

Mr DRUM — In relation to the Australian standards that you would like to see introduced for lime quality, how much control would farmers have now in relation to the lime that they may ring up and order from you? So if they had a particular soil test done and they rang up and said, 'This is the standard of my paddock at the moment', how much control do they have about the product that actually lands on their farm?

Mr ANTHONY — That would be all about how much knowledge they have got. If they rang me and said they wanted a particular lime, I will not say no. The customer is always right so far as I am concerned. If they ring me and ask for advice and have not had soil tests and say, 'I want to put 50 tonnes of lime on the ground', the first thing I ask is which lime. They ask, 'What do you mean which lime? Limes are limes'. This is the education process I would like to see places like Rutherglen putting out. Then we will do a soil test and have a look at that and at calcium-magnesium ratios, and from there start defining which lime would be best suited to their farm. I then take the next step and we start working on tonnages and so forth. We look at calcium and magnesium and their pH. We are always looking for better quality limes. Because of transport issues on lime that comes into our area, I look for limes that are over 80 per cent effective neutralising value, so that is another issue in itself.

When we start talking about national standards, there are some concerns between Victoria, New South Wales and South Australia on who has the best lime. I do not think it is about the fineness or how soft it is or wet sieving. There are new technologies, and I am not sure what they call them, such as using infra-red to start giving us some really definite answers on qualities of lime. I would like to think we could go down that line so there was an Australian standard so that all farmers knew if they needed a magnesium lime these were in the top bracket. So if I am bringing lime up here, I am bringing lime that will do the job. Instead of having to put 5 tonnes to the hectare I can put 2½ tonnes and still get the same results — and that is the standard.

Mr DRUM — Do you understand that there could be reticence on the farmer's behalf to trust a lime merchant to come out and do a lime test?

Mr ANTHONY — Without a doubt, and that is where I have talked about people doing those programs in educating the farmer, that we may be able to indicate to the farmer the other different sources.

The other thing I would like to see would be soil testing. I am not really sure how you would go about it, but to have the Landcare group able to take soil samples to send to state chemical labs and say this is the standard. All the readings will come back and our database becomes a lot greater in being able to assess the situation of magnesium areas or calcium areas, and being able to, as we have heard other gentlemen speak about today, bring a lot of lime into the area in bulk. If we have empty trucks running this way, then we can bring the right lime to the right area, but it still can be definitive to little areas.

Mr DRUM — I think New South Wales had that some years ago where they had tests done.

Mr ANTHONY — A lot of money was spent on that in New South Wales.

Ms LOVELL — Where do you source most of your lime?

Mr ANTHONY — I source it from three areas, purely on magnesium levels of the lime. I will either source it from David Mitchell Lilydale, ACI magnesium lime from South Australia, being a high magnesium lime — David Mitchell being a moderate magnesium lime — or I will take the New South Wales Marulan lime which is very low in magnesium and has a high effective neutralising value. They are the three main limes I handle. I have had some of the producers say to me, 'We will give you consignment stock, bring it all into the area as you sell it'. As I said to them, there is not much point my doing that if a farmer needs magnesium. We build our business on supplying what the customer requires. I could have been selling cheaper lime, but it is not always the lime they need. We have seen over the years where one person has it and pushes that product whether the farmer needs it or not.

Ms LOVELL — Are there many farmers in north-east Victoria trying to source their lime from interstate themselves?

Mr ANTHONY — Without a doubt. They are always trying to cut costs, and they will. If they know transport operators, it could be someone who carts some hay for them, and if they are in South Australia they may say, 'I need some mag lime, bring me back a load. That's good, I can do it at a better price'. From where I sit it is all about service. If a farmer wants 100 tonnes of Marulan or 100 tonnes of Lilydale, I could probably source it $2 or $3 cheaper purely by waiting for the grain truck to come up from Gippsland to pick up grain. But he does not want it in a month's time, he wants it up there in that week because that is the time he wants to puts it on. We have to pay for that service compartment of the cost, yes.

Mr DRUM — Part of your suggestion which I found a little bit scary was the concept where you may increase your subsidies for the farmers and the areas that need it the most, so those with the greatest risk or the poorest pH reading get the better subsidy or the better rebate.

Mr ANTHONY — Yes, this was done late last night. I was probably not thinking that clearly. I suppose flexibility is probably a better word. It may not be on pH, but it purely may be on farmers who have larger land masses. I am not sure how you would do it. I just feel that it should not be going back to transport companies to get it here because over the years we have seen that the trucking companies will turn around and say, 'I am doing it for $20, but it is really worth $25'. So the subsidy comes through and they say, 'It is $25; I am being given $8, so we will do it for $17', and the farmer saves himself $3. If there is a subsidy or rebate I think it really has to go directly back to the farmer in some form.

Mr DRUM — It just sounded a little bit scary. It is a bit like what Ian was saying earlier about the drought assistance going to the farmers and that those farmers who did not take care of their financial livelihood ended up being assisted, whereas those who did and who had off-farm investments and had taken prudent steps years earlier were unable to get assistance. Here you might also find that farmers who are helping themselves do not get any additional help and that those farmers who have not been able to manage all that well may be letting their paddocks get to a situation where they will get assistance from the Landcare group.

Mr ANTHONY — Yes; I definitely agree with you, Damian, that it is a very hard ask. I am glad you have put this submission forward, because it will be extremely difficult to actually come up with a model that will suit

everyone. But I know that the smaller — and I have forgotten what the Landcare group is called — the smaller-type hobby farmer, the lifestylist I think it is, is taking income off from other areas. In this area for 10 acres we are talking around $1000, in round figures, to put it on — something that is probably not completely out of their reach and that they can possibly do. Whether there is a tax incentive or something, I really do not know. But the bigger farmers — and they are the blokes I am finding hard to convince — the 1000-acre farmers, say, 'I don't see any return from applying it straight off. I can't run another two head to the hectare because I put it on this year'. That is what I am trying to get at, that those people need to be given some reasonable incentives to start doing their 1000 acres, and whether it is a long-term loan-type situation, I do not really know.

Ms LOVELL — Paul, you spoke about the importance of lime quality. Are the regulatory controls on the quality of agricultural lime in Victoria adequate at the moment, or do they need to be revised?

Mr ANTHONY — It is a good question. I am very involved with the Australian Fertiliser Services Association, which has already put a submission to you. Years ago, when we set up our own soil acidity committee, which was backed by the Rutherglen Research Institute, as members of AFSA we went out and organised nights. Carole Hollier and another person — I cannot think of their name — would come along to talk and promote soil acidity.

When the subsidies fell through for those we kept the ball rolling a little bit, purely by giving our members a lime sheet on the actual quality of the lime. We found that a lot of the companies would actually send out their lime to three or four different labs, get the test back, and 'Best result, that is what we are selling'. Because we had actually done some testing over the years, we found that some of these did not quite ring true. So through our own association we went out and tested the limes through one lab doing the same tests on all of them and got some true figures back. I would say that 70 or 75 per cent of the companies would say, 'Yes, print those, send them off to your members'. But there were a few, which had probably not as many well-known limes, who said, 'No, we don't want those figures printed'. So all we did was put at the bottom: 'Such and such tested; did not want numbers submitted'.

What we tested for was moisture, effective neutralising value, neutralising value, calcium carbonate and magnesium carbonate so our members could look at it and say, 'Well, that is a good lime, I do not mind bringing that to here'. But when we start looking at the lime being closer at hand and they are paying maybe $4 or $5 a tonne for it, if they are a big enough user, they can afford to be putting 2 or 3 tonnes to the hectare on the ground to do the equivalent neutralising as a tonne-to-the-acre type lime would do. It would still become very cost-effective for them to do that. Did I get off track?

The CHAIR — That is fine. Thanks very much, Paul.

Mr ANTHONY — Thank you.

Witness withdrew.

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Witnesses

Mr J. Jones, Secretary; and

Mr L. Brown, Chair, Mudgegonga Landcare Group.

The CHAIR — We welcome back Jack Jones and welcome Les Brown. Jack Jones is secretary and Les Brown is the chair of the Mudgegonga Landcare Group. I will tell Les and remind Jack that all evidence taken by the committee is taken under the provisions of the Parliamentary Committees Act and is protected from judicial review. However, any comments made outside the precincts of this hearing are not protected by parliamentary privilege. Hansard is recording all the evidence given today. You will receive a proof version of the transcript within the next fortnight. Are you right with the same sort of formula, Jack?

Mr JONES — Yes; you had better explain it to Les.

The CHAIR — We have been having witnesses present to us and then we have been asking questions. Whether that is okay with you, or you want to open with questions is up to you.

Mr JONES — Fine. I have introduced myself; I will introduce our group. We are two small valleys, Mudgegonga and districts. Both valleys were settled by pastoralists and ended up in the one pastoral family back in the early 1800s. The area was closely settled after the gold rush. It went from grazing with cattle and sheep and then to intensive farming with cropping, tree crops and dairying. From there we moved on as the dairy industry died and were subsidised to move out onto irrigation. We lost our competitive edge, and our productivity has declined over the time. As I said to you earlier, many of our land-holders had off-farm income at the gold rush time and after the gold rush. It was really only Les's and my parents' generation who were the full-time farmers, other than a couple of the very large grazing land-holders. Our real problems are being addressed by all of us in different ways. I think Les is the best man to talk about the issue, in that he has spent a lot of time and money paying for other people's advice and he is still really battling to get his property up to produce what it did in the past or to do better. So I will pass it over to Les to explain how he sees the soil acidity on behalf of our group.

Mr BROWN — Thank you for that. It just appears to me that a lot of the research has been done in the north-east soil health books and in the acid soil action plan. So I think I should probably browse over that fairly quickly, in as far as the economic and social and environmental impact of soil acidity goes.

There are a few things I have picked up out of these books that I would like to mention. Firstly, as far as the economical section of it goes, obviously because of our low pHs we have reduced yields and reduced options for agriculture, which represents less income and obviously less farmers in the future. As far as statistics go already, we know that back in 1975 we had 160 000 farmers in the country; we are down to about 105 000 now, and it is predicted that by 2025 we will have only 80 000. So that is fairly substantial.

As far as the social aspect goes, yes, a lot of the farms in our area are receiving off-farm income for that same reason, and if that continues we will see a move of people to the towns. Environmentally obviously the soil pH is affecting water quality, causing soil structure decline — meaning loss of top soil — and compaction of our soils, the ability of the soil to absorb water creating extensive erosion. The degradation or acidification of our top soils is extending into the subsoil and if that happens I think we are faced with a very serious problem. We need to be trying to fix the acidity problem rather than putting a bandaid-type fix on it.

Deep-rooted perennials are a big thing at the moment. That is probably fine but is it a long-term fix, because all these things we grow, phalaris or other deep-rooted perennials, are still pulling calcium from the soil and possibly the subsoil? If that subsoil is acidified it will be a lot harder to fix than just the topsoil.

Jack mentioned that I have spent a fair bit of money and research on my own property in trying to fix the pH. I have basically discovered there is a lot of variation in soil tests. I have recently got on to a soil test which is really just an independent tester and seems to be much more reliable.

The soil health reports talk about the pH, but they do not mention much about calcium, and really the calcium is the king of nutrients or minerals. It gets down to the structure of the soil. The structure of the soil is built on cations, being calcium, magnesium, potassium and sodium, and it is important that we get these calcium levels up rather than get too tied up in just the pH and continue looking at pH. The percentage of calcium in the soil structure should be about 65 per cent. In one of the tests on my property the calcium was down to 17 per cent, which is a long way to build from.

Getting these calcium levels up is not as easy just as putting out lime. I have put out extensive amounts of lime in different places and really have not had a lot of results from it. I now believe maybe this lime was applied at too heavy a rate and the soil has not had a chance to absorb it. Because of the cation exchange capacity of the soil it does not have the ability to absorb the calcium.

We need to go down the road of more research into successful alternative methods and look at the best way to increase calcium levels in the soil for the money we spend, and also look at recycling nutrients. All our produce heads off to the cities and the towns and all those best nutrients are just being disposed of in sewerage farms and whatever, so there is a big avenue there to recycle those nutrients and get them back onto our farms.

It will be very important that we use lime in the best way we can because it will become very precious. It cannot last forever. We need to put it out at the right rate so we do not waste it. That is where the research needs to be done. We need to educate ourselves and our primary producers about the best way to apply the lime. It will probably become part of the role of Landcare groups once we know which track we want to take in educating the primary producers. A problem we will have obviously is that all farmers are not in Landcare groups, only a percentage of them. But I do not think that matters much. Once the Landcare groups become active and these things start to happen it will not take long for the rest to follow suit; they will just join in.

As far as assistance goes, it will be important to get everybody involved with some sort of rebate or assistance. A big help I am sure would be a stockpile of lime in the area so we can draw off it. Hopefully that lime can get into the area with less freight involved. Obviously the freight is the biggest expense we have. One of the limes I use comes out of South Australia. It is only worth $13 a tonne, but it costs me $45 a tonne to get it here, so a big percentage is in freight. If we can get lime freighted into the area at a reduced price that would be a big help.

I picked up some information from the summary on the *North East Soil Health Action Plan* and did some sums. There is in the vicinity of 1.9 million of hectares in the north-east and around 20 per cent of that is public land, which brings us back to about 700 000 hectares. I imagine that not all that country needs to be treated with calcium or lime, so we are probably back to around 500 000 hectares of country needing attention. If that land needed 3 tonnes to the hectare of lime, we would need around 1.5 million tonnes of lime. At a cost of about $70 a tonne it would be about $105 million. That is a lot of money, but it does not seem an extortionate amount to fix the problem in the north-east.

At the meeting we had the other night we discussed the introduction of an environmental levy. I have done some sums on an environmental levy at a very small rate, something like 0.01 per cent across the board so far as taxpayers go. I think we have something like six million wage earners. I think the average income is about $1000 a week now. I have worked out two little sums. If the average income was $35 000 a year, 0.01 per cent of that relates to $21 million. Over five years we have $105 million. If it related to an average income of $1000 a week, that is $30 million, and over five years we could have $150 million. We really only need $105 million.

We do not expect the farmers not to have to pay for lime, but some sort of subsidy would certainly help, and I am sure people would be glad to pay a small environmental levy. It is worth looking into. That is about all I have to say.

Mr DRUM — You gave an example of applying lime to your own property, which did not give you any discernable result. When was that done? How long ago did you go through that process?

Mr BROWN — Yes, this is all fairly recent. I really only got fair dinkum about getting the property remineralised about two years ago. I got involved with an agronomist — you may call him an NPKS-type agronomist. His first recommendations were for nutrients in the NPKS-type lime and plus lime, and he gave me the choice of calcium lime or dolomite lime. He said either one would be fine, so I put them out. The first time around I used dolomite lime, and it went out at a tonne to the acre, which was two years ago. Since then I have put Lilydale lime out; I put that out at one tonne to the hectare. I have recently had soil tests done, and it really has not changed things all that much — possibly because of the rainfall we have had in the last couple of years it really has not worked its way down through the soil, or the biological guys are right in saying you should not apply it too heavily too quickly.

Mr DRUM — Les, where do you sit on that philosophy or opinion that it is more about soil structure or soil biology than about just the acid pH levels?

Mr BROWN — Yes, I certainly do. I certainly think it is all in the soil structure. You really need to build that soil structure before you can build your nutrient levels.

The CHAIR — Les, you spoke a little about variations in soil tests. Are they variations in different companies, or are they variations within the same company, testing the same soil and getting different results?

Mr BROWN — No, it is not with the same companies, it just seems to be across the board. I have several tests here. Obviously they will be difficult to look at now, as it takes so long to summarise them. But obviously there are two measures of pH — one is in water and one is in calcium chloride — which confuse people a lot. Obviously the one in water has a higher reading than the calcium chloride one. From what I can see, that is probably fairly general across the soil tests. They seem to be in relation to one another, so long as you know which one you are talking about, whether it is the water one or the other one. The thing I have the biggest concern about with soil tests is that they do not look at the cation exchange capacity enough, and that is what all your minerals are tied up in. They make recommendations from the available nutrients in the soil rather than the way the soil is structured.

Ms LOVELL — Les, how confident are you that the plan you have put in on your farm will pay benefits well into the future?

Mr BROWN — The Mudgegonga Landcare Group and the Ovens Landcare Network are currently running some schooling with biological-type guys. It seems to me that it is all heading down that road of: a small amount of lime being added is good, the correct amount is better, but too much may not be the answer. It is more feasible to me to spread a smaller amount over the whole property and improve the place slowly than putting too much on the one area and not getting good results from it.

Ms LOVELL — Les, can those answers that you were looking for be found in the *North East Soil Health Action Plan*?

Mr BROWN — Can the answers I am looking for be found in there? No. I think they have missed out on a bit there.

The CHAIR — Thank you very much, Les. I will let you know that your suggestion of how to raise the environmental levy to pay for this met with stony silence because only the federal government can raise taxation, and we are from the state government. It is the typical handballing which annoys everyone, but that is the truth of it. That is certainly something that we cannot look at as a state parliamentary committee. That is why there was very little response to what you were saying to us.

Mr BROWN — Fair enough.

Mr JONES — If I might toss up one other point that I failed to on the introduction. The reason we at Mudgegonga are getting very active is that if you look at the soil health issue, the major cause of turbidity in the Ovens River comes out of our valley. You will not see Mudgegonga mentioned; you will see Barwidgee Creek, which is the creek system that drains our valleys. We have had severe erosion problems and we have spent huge amounts of our own and government money trying to ameliorate those. We are now starting to believe that unless we really address this soil health issue in a big way, all the work we have done with rock, fencing and trees will not fix the problem. It is a total soil health issue in terms of everybody's benefit.

Mr DRUM — Is that erosion linked to the bushfires at all?

Mr JONES — No, this is erosion that has been going on for many years and has been accentuating in the past 30.

The CHAIR — Thank you very much.

Witnesses withdrew.

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Witnesses

Mr G. McKernan, Coordinator;

Mr L. Jarvis, Member; and

Mr A. McAlister, Secretary, Kiewa Catchment Landcare Group.

The CHAIR — I welcome the Kiewa Catchment Landcare Group — Mr Geoff McKernan, coordinator; Mr Lindsay Jarvis, member; and Mr Tony McAlister, secretary.

Mr JARVIS — Tony will lead off.

The CHAIR — This is another reminder that all evidence taken by the committee is taken under the provisions of the Parliamentary Committees Act and is protected from judicial review. However, any comments made outside the precincts of this hearing are not protected by parliamentary privilege. All evidence is being recorded by Hansard, and you will be provided with a proof version of the transcript within the next fortnight.

Tony, we have been handing over to the presenters to give their evidence and have then been asking questions, if that is okay with you.

Mr McALISTER — I am the secretary of the executive of the Kiewa Catchment Landcare Group, which incorporates sub-branches of Yackandandah, Kergunyah, Upper Kiewa, Lower Kiewa, Leneva et cetera. Geoff McKernan is the coordinator of our Landcare groups, so he might just explain the whole process of the submission.

Mr McKERNAN — The Kiewa Catchment Landcare Group has put a submission together on the guidelines of your recent letter and has stuck to those headings. You have probably heard a lot of technical information, and we have decided not to go down the track of repeating that. We have taken the answer to the first question straight from the soil health guide. As an introduction we acknowledge that soil acidification is a major land degradation issue that threatens the sustainability and productivity of agricultural soils in north-eastern Victoria.

We further recognise the impacts of soil acidity on agriculture and the wider community. The social and environmental impacts of soil acidity listed in this submission are those identified in the assessment of catchment conditions in August 1999 and published in *Soil Health in North East Victoria*. Because of the overall detrimental effects these would have on the local and regional environment we are totally supportive of any viable remedy that will reverse the trend of increasing acidic soils.

I will read quickly through the economic and environmental impacts. We actually agreed with them all. They include: an increased nitrate contamination of ground water and reduced water quality; reduced farm yields, farm income and domestic export earnings; reduced options for agriculture; reduced vegetative cover leading to accelerated run-off and erosion; irreversible clay and structural damage; declining pH of streams; increased infrastructure costs; and decreased land values.

As a Landcare group we believe we have some issues we could put forward as assistance to the ongoing soil acidity problem. With partnerships we would be in a position where we could provide extension and community education to existing land-holders and small lifestyle dwellers in the area. We can instigate education programs in soil sampling methods with low-cost access to independent soil testing facilities for members. We would hope to achieve this by either sponsorship or assistance at government or a higher level where some type of subsidy or assistance could be provided to reduce the cost of soil testing so at least we could educate the communities about what type of soil they have. We believe many land-holders just do not know what their pH levels are.

We could hold soil health workshops and field days in local areas to disseminate information gained so it can be passed on and all the good things we find can be utilised and the word spread. We could promote knowledge of perennial pastures, both introduced and native, and if we had sufficient support from either government or sponsorship, or both, we could provide research programs, extension staff, and establish trial sites. We believe freight incentives could be introduced to reduce the high costs in transporting lime across the state for all Victorian land-holders.

The committee asked a question about the *North East Soil Health Action Plan* report. Our members are totally supportive of that and also the *Soil Health in North East Victoria* report. We have no argument with that at this stage.

Key challenges and barriers to the management of soil acidity, as I mentioned before, include poor knowledge of soil pH by quite a few members of the community; lack of incentive and low commodity returns — both or one generates the other and we believe that holds people up a bit. There is also the sheer cost of managing acid soils. It is not a one treatment fix. It is an ongoing expensive operation to keep acid soils in check and managed. Other challenges are the cost of freight and cartage of lime from South Australia to north-eastern Victoria; the lack of time of land-holders to engage in educational field days and workshops; and the administrative load imposed on

voluntary members if Landcare is used as a service delivery agency — and I stress the word 'administrative' because I believe Landcare is probably a good service delivery point.

Mr DRUM — Most of those recommendations have been put forward at various stages throughout the day. If I was to prioritise the cost of soil testing and the need to have regular soil tests, and the need to have some sort of help in relation to freight transport costs, do you think they are the two leading areas for assistance?

Mr McKERNAN — In summing up I would say yes, except for one extra issue that comes across this. The ultimate responsibility — if that is the right word — goes beyond the land-holder. It is the environmental impact that if nothing is done it will affect more than just the land-holders concerned. It is a total community problem, because once the land deteriorates to that position where the vegetation disappears and you get turbidity, run-off and erosion, as was mentioned before, those problems affect the broader community, so it is an issue that affects all of us. I have not got an answer or the cure, but that is the ultimate result. We are concerned as a Landcare group about overall environmental results. What we can offer is to work together as a community networking with our local members and the farming communities, hopefully to pull it together that way.

Mr DRUM — I will throw in a philosophical question. If you are operating a factory and you discharge pollution into the air and damage the air quality, you are charged. If you are operating a farm and you are damaging the ground on which you work — —

Mr JARVIS — Should the polluter pay?

Mr DRUM — You are throwing responsibility back to the wider community, and I agree with that, but where does the responsibility sit? The responsibility with factories and industrial land sits fairly and squarely with the operator.

Mr McKERNAN — In this case if the factory remains dormant nothing happens, but in the case of the living land it does not have to be worked to go acidic; it will go acidic by itself anyway.

The CHAIR — You mentioned that the effects of acidification decreased land values. We have been told not the opposite of that, but that in some areas, especially those close to Wodonga, many people are going on to the land because of lifestyle choices and with off-farm incomes, and that the value of that land is not really affected by acidification at all. Perhaps your area is a little further away. I am trying to flesh that out a bit.

Mr McKERNAN — If you are talking short term, what you are saying is perfectly correct, I have no argument with that. But if you allow a few years to go by and do nothing, and suddenly your infrastructure and farming community start to leave, that will affect land values too. It is not just now; in 10 or 15 years it could be a totally different scene.

Ms LOVELL — I am going to put Lindsay on the spot. Lindsay, you have been here all day and have listened to all the presentations that we have listened to. You are obviously far more knowledgeable about soil acidity than we are; we are here to learn from you. Having listened to what we have, what conclusions and recommendations do you think we should be taking away from this session?

Mr JARVIS — Thanks for the question. We have throughout the day heard quite a bit about the impacts, such as the increased contamination of the ground water. By the way, I had that question earlier this morning and I went back to the water quality strategy that we have done for the north-east and there are some words in there about some actual research that has been done, so perhaps I will leave that with you and you can follow that up.

The points that Geoff makes about reduced yields and lower than desirable farm income and therefore lower income and lower exports is all a big treadmill that goes around. I wear another hat and am involved with the biggest dairy company in Australia. In the last two years we have manufactured just 1 million tonnes of dairy products. Dairy products are high in calcium. How many thousand tonnes of calcium have come out of soils in Victoria that have contributed to that million tonnes of product? It is pretty frightening.

When we go into acid soils we definitely start to limit the use of the land. We have plants that will not grow in acidic soils, so our farmers get limited. As we have heard from others, we have undesirable species come in. We get accelerated run-off and we get the erosion. Erosion has been identified by the CMA as a really important issue, because it adds to the turbidity of our main export product — the water that goes down the Murray River.

We have this soil structure decline, and I think you have been a little confused during the day because some people have said, 'This is the problem', others have said, 'But you have to attack this piece first', and others have said,

'Oh, but you have to look at the whole issue'. So it is very tricky. Today evidence is being taken on soil acidity, and therefore we are concentrating on acidity. But it is not just one piece of a farmer's decision making; it is part of his whole farm plan. The main thing is that if we have less viable farms, we have less viable communities, and the CMA has the motto or vision statement: healthy landscapes, vibrant communities. That is what we are looking for. Obviously soil health is the very building block that you build your vibrant community on.

I guess we have had programs to increase farmers' knowledge about the issue. I think you have heard that a helluva lot of people still do not recognise it as an issue. We have heard some people say that they have had visible results, and others say that you cannot see the result. But I think we have got enough evidence to prove there are results. I think we need some real, live success stories out there in the community. I think this is all part of our action plan. I do not think we are making those up.

We have talked about trying to reduce the cost. The ATO is actually allowing us some money back on our diesel fuel because it is recognised that it is not fair to put road tax on that. I think there is also a way that farmers who are doing some quite good soil health work could be rebated through that system. Obviously it is not a state issue.

We have heard that there is still research to be done, and I think one of the key findings we would like you to follow up is where we have identified gaps in the research they should be followed through. There are new species; I mean, obviously some species handle acid soils better than others, and a breeding program — dare we mention gene technology — could be the way to go.

The CHAIR — Not in this room.

Mr DRUM — You can mention it over here; just do not mention it over there.

Mr JARVIS — Finally, you have seen the paper that has been presented around here. Soil acidity is not a new problem to the north-east of Victoria. There has been far too much paper generated and not enough action. So if this inquiry sees some action, we will be well pleased with the day we have spent. Is that what you wanted?

The CHAIR — Thank you. I think we are all done.

The CHAIR — Tony, do you have anything to say?

Mr McALISTER — Not really. I just support the comments that Lindsay and Geoff have made. I am a farmer at Bruarong, which is just south of Yackandandah. I have been there for five years; I am originally from Hillston in New South Wales. We did not have a problem with pH, we had a neutral situation, but where I am it is very acid. I have already spent $5500, and it does not go very far when you are putting on 2 tonnes of lime and 1 tonne of dolomite per hectare, and the whole farm has to be done. I have 450 acres, so this will be very interesting for us.

The CHAIR — Thank you very much, and thank you to Hansard and everyone else.

Committee adjourned.