COMMONWEALTH OF AUSTRALIA

Proof Committee Hansard

SENATE

RURAL AND REGIONAL AFFAIRS AND TRANSPORT REFERENCES COMMITTEE

Opportunities for the development of a hemp industry in Australia

(Public)

TUESDAY, 14 APRIL 2026

MELBOURNE

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RURAL AND REGIONAL AFFAIRS AND TRANSPORT REFERENCES COMMITTEE

Tuesday, 14 April 2026

Members in attendance: Senators Cadell [by audio link], Colbeck and Dolega

Terms of Reference for the Inquiry:

The opportunities for the development of a hemp industry in Australia, with particular reference to:

(a) the potential contribution of an industrial hemp industry to;

(i) Australian farming systems, including compatibility with existing agricultural practices, soil health and water usage/conservation,

(ii) Australian manufacturing, including the production of textiles, bio-based plastics, health and food products,

(iii) the circular economy, including biodegradable materials and waste reduction,

(iv) the Australian construction industry, including the use of hemp-based materials and barriers to their adoption, and

(v) Australia's economy, including, but not limited to, job creation, export opportunities and regional development;

(b) research and development required to harness the full potential of the hemp industry;

(c) regulations related to hemp production, sale and distribution to domestic and export markets; and

(d) any other related matters.

WITNESSES

BENHAIM, Mr Paul, Private capacity [by audio link]

Committee met at 09:41

ACTING CHAIR (Senator Colbeck): I declare open this hearing of the Senate Rural and Regional Affairs and Transport References Committee inquiry into opportunities for the development of a hemp industry in Australia. These are public proceedings being audio streamed live via the parliament's website, and a *Hansard* transcript is being made. I remind all witnesses that in giving evidence to the committee they are protected by parliamentary privilege. It is unlawful for anyone to threaten or disadvantage a witness on account of evidence given to a committee, and such action may be treated by the Senate as a contempt. It is also a contempt to give false or misleading evidence. Witnesses also have a right to request to be heard in camera. If a witness objects to answering a question, they should state the ground upon which the objection is made, and the committee will determine whether it will insist on an answer, having regard to the ground which is claimed. If the committee determines to insist on an answer, a witness may request that the answer be given in camera. I remind senators of their obligations under the Behaviour Code for Australian Parliamentarians to treat witnesses with dignity, courtesy, fairness and respect.

Welcome. I understand that information on parliamentary privilege and the protection of witnesses giving evidence to a Senate committee has been provided to you. Do you have anything to say about the capacity in which you appear today?

Mr Benhaim: I'm appearing not only as an industry veteran but also as an adviser to various governments around the world, including the US government, and corporations via the Bio-Smart Group. I'm chairman of the Hemp Plastic Company, and I'm also a consultant to Wandarra, an industrial hemp company in Queensland. Both have commercial interests in the sector growing. I've also disclosed this in my submission, but what I'm offering the committee today is 30 years of international experience in industrial hemp and not a pitch for these companies.

ACTING CHAIR: I invite you to make a short opening statement, and at the conclusion of that I will go to colleagues for questions. Over to you, Mr Benhaim.

Mr Benhaim: Thank you. As I mentioned, for 30 years I've been working with industrial hemp. I founded the hemp foods industry in the United Kingdom. I founded the hemp foods industry here in Australia, which I started in 1999. I've been here for 27 years. It took me 18 years to lobby the government to change the legislation to allow a health food to be used in Australia to support the Australian people, despite many facts showing that this should have been allowed 27 years ago. I have created businesses in Australia that, at their peak, became worth $600 million. Eventually, based upon Hemp Foods Australia, I've supported companies that work with building, with plastics and with carbon sequestration. I've also supported the textile industry. I have been a representative for the US government—not the Australian government, even though I'm Australian—to the United Nations COP.

I am interested in supporting Australians to grow this industry, which already exists here in Australia but is a very small niche industry. There are companies here, doing real work with real Australian farmers and real Australian businesses, who have significant potential for a sustainable agrimanufacturing and circular-economy industry. Their opportunities are significant, and I look forward to questions on how I can support the growth in Australia.

ACTING CHAIR: Thank you. To start with, I'll go to the discussion about the percentage of THC in hemp and the various regulations that exist from state to state, which a number of submissions talk about as being an inhibitor to the industry. I think Tassie is at 0.3, another at 0.35, and New South Wales at one per cent. How does that stack up internationally? What is an appropriate level that would facilitate growth in the industry and also work in terms of international trade? You talk about it being an industry that's growing but still has its limitations, in a global sense, if I'm reading all the submissions correctly.

Mr Benhaim: Yes. This has been an ongoing issue around the world. This is not just an Australian problem, but it has been an Australian problem. We had 0.2 or 0.3 per cent, and then some states started moving to one per cent. Globally, we are seeing some companies recently make two per cent THC the ruling.

I'll give you some context so everyone is clear on what a percentage of THC is and what the issue is. Why do we have to have a percentage of THC in the first place? It's because THC is an ingredient that is known as being psychoactive and is from a very different cousin to the industrial hemp plant. Most people are aware of this now—when I first started in this industry, it required a lot of education—and understand the difference between industrial hemp and intoxicating cannabis, which is very different in how it's looked after from a growing and use perspective. When people are growing industrial hemp's cousin—and we'll use the term 'cannabis' or 'marijuana', for simplicity's sake—they are usually growing at around a minimum of 20 per cent but up to 30 or 40 per cent, in

the flower. There have been studies showing the safety limits, but, obviously, one or two per cent is far from 20 or 30 per cent, which is the minimum that is commercially viable for anyone in the medical cannabis sector to be able to use. That is a foundation.

I will come back to the 0.3 to one per cent limits that exist throughout Australia, which have been extremely confusing for the industry and very challenging to work with. The main challenges are that hemp is naturally around one per cent in the wild, and that's what has on average been understood and found as far as what I've seen around the world. Therefore, if breeders have to grow to 0.3 per cent, then a lot of work has to be done to keep a crop at that number, where naturally, if there's a drought, there are weather extremes or there are even just natural genetics, it can revert back to its natural state, and then that number can creep. Many breeders have created industrial hemp seeds that generally stay around 0.3 per cent, which is the minimum the global industry has looked at in the past. But most countries are moving to one per cent now. That is, in my opinion, the minimum THC standard that should exist, and it should be a federal standard and not state standards which are different between different states.

ACTING CHAIR: Based on your understanding, what was the foundation for going to the 0.3 and 0.35 limits that exist here in Australia right now? Living in Tasmania as I do—I think Senator Dolega might have some questions on this too; we're both Tasmanians—there are other industries that are sensitive to any perceptions with respect to hemp. What was the basis of the 0.3 and 0.35 limits that are currently in place?

Mr Benhaim: It's interesting. My understanding is that the 0.3 per cent figure traces back to a study done in Canada in the seventies. I think it was a doctor, Ernest Small, who looked at the difference between what fibre hemp should be and what drug cannabis was to be. He basically created the 0.3 per cent number, which is somewhat arbitrary because, as I suggested earlier, 0.31 percent makes no difference to 0.3. Neither does 0.1 per cent really make any difference from 0.3. The fact is that there is a very, very small amount when we're talking up to at least one per cent, and there has to be a number. Modern science is showing globally that one per cent is a more reasonable threshold, and there's more of a scientific argument where one per cent still poses a negligible abuse. That's the critical component of this. Compare it to, as I mentioned earlier, 20 to 30 per cent as the general percentage for medical cannabis. No-one is going to be, in simple terms, getting high from a one per cent industrial hemp crop. There is very little scientific basis for 0.3 per cent, as far as I'm aware.

ACTING CHAIR: In trying to maintain a crop at, say, 0.3 or 0.35, am I right in interpreting what you said as that growing conditions may create some variability in that number?

Mr Benhaim: Exactly. Correct.

ACTING CHAIR: So one per cent, being the more natural base number in the wild, would be easier and less risky for managing the product.

Mr Benhaim: That is correct.

ACTING CHAIR: I want to go to R&D. There is, let's say, a modest R&D program that runs through AgriFutures at the moment. What do you see as being required for the possible uplift to support the development of the sector?

Mr Benhaim: The bottom line is the sector is a very new and emerging industry. It has now been proven, and it has been seen as a cottage sector until this time. The industry is doing its best to move into expansion mode. To do that, I believe it needs support from various agencies. Agencies that I'm aware have been looking at this but do not yet have any direction and would appreciate direction are things like the Clean Energy Finance Corporation, the National Reconstruction Fund and probably NAIF as well. There should be regular tax incentives to support the foundations for this industry—things like lifecycle analysis, which only has to be done once but which, for a small, emerging industry, costs new businesses a lot of money. Support by these kinds of industries to grow and expand would really help a lot.

ACTING CHAIR: From what you've seen in the development of your business, which is now exporting elements for plastic manufacture around the world, how do you see the possibility of that sort of opportunity developing in this country? What sort of investment might be required to make that happen? What sort of dollars are we looking at to see that develop into something economically viable in this country?

Mr Benhaim: Your question is sensible and a good question. I wish I could give you an answer as simple and direct. Ultimately, to create an industry—if we use the example of my business, which is what you asked and what I have experience with—to bring hemp plastics into Australia, I can give you a number and say low millions of dollars. I won't give a specific number right now, but I can say it would be low millions of dollars to create the foundations for that business to make sense here. As I said, that could be supported through NAIF, the National Reconstruction Fund, the Clean Energy Finance Corporation et cetera. Though that's the simple answer and not

accurate in my opinion and my experience supporting governments and larger corporations around the world looking to create a hemp industry.

The reason is that part of why hemp is beneficial for agriculture and manufacturing is that we are talking about one single plant that can be used for the centre part of the stalk—which is called the hurd or bast fibre—and then the flowers, seeds and roots. They all have multiple uses. You can make building materials, you can make plastics, you can make food, you can make textiles, you can make paper, and you can make biofuels from one single plant. It's the multiuse part of this plant that makes this commercially viable. It is commercially viable just for these other uses, but it's not attractive. And 'not attractive' means that no-one really wants to invest the millions of dollars to start a new industry for one particular use. That's why most small businesses either fail or just don't really push it. Everyone wants this, but no-one says: 'Great! I'm going to put $2 million into hemp plastic. But, hey, then we have all of these other materials to use.'

The reason I focused my energy on hemp plastic after decades in this career—it was interesting to me because it actually uses the waste material from both the food industry and the building industry. And, in my opinion, food, building and plastics are probably the biggest uses for industrial hemp, with the biggest potential today. We should probably talk a little more about building at some point today. But these three different uses, when using one plant, really take advantage and ensure it's a no-waste crop that can be used in a true, agrimanufacturing circular economy. Does that help you?

ACTING CHAIR: It gives me a sense of direction, I suppose, in one sense; although, in our inquiry so far, what's been evident to me at least—I won't speak for my colleagues. Just looking at the crops that are grown in our home state of Tassie, there are crops that are grown for seed, there are crops that are grown for fibre and then there are other crops grown for breeding purposes or seed supply purposes. So are we looking at some level of critical mass of each of those different types to ensure that we get enough capacity of each of the different elements to make the various parts of the industry viable? Using as much of the plant as possible is obviously the best-case scenario, but, if you're growing for fibre and hurd, you're getting much less seed, and, if you're growing for seed, you probably have a shorter plant, less chance of windthrow and therefore less fibre. But you still need the capacity of the fibre utilisation, particularly as a farmer, to get the best return for the crop. So you're talking about having a decent mix in an overall industry sense to make sure that you've got viability. Is that a reasonable assessment?

Mr Benhaim: I can understand how you came across that assessment, though I would say that it's a little simpler, in some regards. I'll use your analogy. From a farming perspective, you're correct; there are generally seed crops, fibre crops and breeding crops. Breeding crops are very small and very specialist. We'll just leave those out of the mix for a minute because they don't really need that much support—except it's R&D, so its focus is on the R&D.

Breeding is important for Australia but has also been done for three decades now, and we now have seed breeds that work throughout the country successfully. We could always do with more, and they could always get more efficient. I see that happening in other countries, and it does make a difference to the bottom line because, if you're using a crop that gives, say, a yield of one and a crop that gives a yield of 1.5 for the same hectarage, it obviously makes sense for everybody downstream. And everything starts with the seed variety.

If we put that to the side, you're talking about seed crops, and you're talking about fibre crops. Seed crops are relatively simple because they are generally grown for seed and seed quality and for food quality. It's very similar to many grain crops that are standard here in Australia. Improving the yields from specific breeds makes the difference to those seed crops.

But, when we're talking about the fibre crops, that's when we're talking about the potential for major hectarage, the potential for major job creation and the potential for major industry and dollar results for Australia, in my opinion, and it is the fibre that needs to grow and have investment in it. That was where my previous response came from. It was really around, 'If you're going to grow for fibre, you're getting fibre and hurd predominantly, and you need to have uses for both the fibre and the hurd.'

Most industrial hemp companies grow seed crop and then grow a fibre crop. But to grow a fibre crop—to grow any crop, in fact—my general advice for farmers who come and say, 'Should I grow industrial hemp?' is generally, 'No, you shouldn't grow industrial hemp until you have an end use.' That is where my advice will be focused today, saying, 'Let's get clear on the end uses that we want to create.' Through my experience globally, in what I've seen around the world, as I mentioned it's really the food industry, which is the seed crop, and then it's the building, plastics, textiles and maybe paper industries potentially. But it's mainly, again, building and plastics that have the immediate, short-term, easy wins, the low-hanging opportunities, for Australia. To do that efficiently, we have to have both of those things.

There are not many plastics companies that are experts in building and vice versa; there are not many building companies that are experts in plastics. That's where the opportunity lies, in my opinion, and that's where the support is required to create the infrastructure to move from the farm to the end product—the end product being a plastic product or a building product of some form or something from one of the other industries. But, as I said, they're my two top picks to keep the conversation as simple and clear as possible today. To do that, to move from a fibre crop to an end industry, you need not only the primary processing machinery, which is decortication generally, but also the secondary processing, which is turning the materials into suitable plastic products or building products—or food products, if you're growing a seed crop. You need to separate those materials and use them efficiently in a blend, which means you can't have one industry growing faster than the other. Otherwise, one material becomes out of balance financially to the other industry. Does that make sense so far?

ACTING CHAIR: Yes, it does. Senator Dolega.

Senator DOLEGA: Morning, Mr Benhaim. I would like to ask a little bit further about your regulatory suggestions in relation to harmonising a national approach for the one per cent THC standard. In your submission you note that the Senate could consider recommending the development of that national hemp industry standard, through COAG or federal legislation, to override inconsistencies. What's your experience with the states and territories and their desire to move to that one per cent without federal intervention?

Mr Benhaim: My experience is that—or at least what I've heard, because I haven't had that much direct experience—it is quite logical that, if a number exists and a state is at, say, 0.35 per cent or whatever it may be, to move to one per cent is simply a risk that they don't want to take, because what's the reward? This is the chicken-and-egg situation that the industry has found itself in, and this is why we're having two conversations. One is about what threshold limit we are trying to harmonise within Australia. But how are we going to grow the industry? What's the point of increasing to one per cent to grow more hemp if there's not an end use? If we don't support the end uses in some form—financial support is generally what a sector requires most; it's quite normal, certainly at these early stages—then we risk more farmers going, 'Great. It's easier to grow now. I have less risk of it creeping from 0.35 to 0.36,' and then getting in trouble. They're still going to grow the same varieties. You understand that. Not everyone's going to go, 'Oh, great, let's grow to one per cent now.' Everyone's going to still grow the same varieties, practically. If they creep to 0.36 per cent, they're not going to freak out, give up or get scared that they're going to go to jail for growing an agricultural crop. No-one needs that stress. Life is challenging enough sometimes for many of these people. So there is no big reason for states to move to the harmonisation of one per cent. I believe it requires federal intervention.

Senator DOLEGA: And you believe it requires federal intervention because there are some states that are just unwilling to move, even though, from what I take from what has been presented to the committee, there's pretty good reason to move to that one per cent with very little risk?

Mr Benhaim: Yes, that is my personal assessment. Again, you'd have to speak with the states directly to get their direct opinions.

Senator DOLEGA: Senator Colbeck and I have been on very similar tangents with our questioning this morning in relation to AgriFutures and your work with them. Can you tell us about how your company has specifically engaged with the work of AgriFutures to date. Obviously, there's been that $2½ million research program. Can you let us know how you've engaged with AgriFutures and what that experience has been like.

Mr Benhaim: I have not been directly working with AgriFutures. That's the honest answer. I am aware of their work—their good work, if I may say so. I recognise part of their challenges was the THC percentage not moving forward. I also recognise that they came to very similar conclusions that I guess I could have shared regarding the potential economic benefits once the foundations have been set.

Again, because I've been doing this for a long time and it's been a little frustrating for me, it's wonderful to have this opportunity to talk with you directly and to share my experiences, but I wish I had had this opportunity 20 years ago. Instead, the US government, the African governments and the Asian governments have called on me for support, and I've helped them build their industries to a much larger number than that found in Australia because they were willing. I think we have a lot of the basic understanding of what the potential is for this industry, and there are now a few places in the world that are actually putting this into place and making this work and making this happen.

As I said, the reason is partly that THC is really focused on supporting the farming side of things. I think that's a really important foundation. I don't believe it is the most integral part of the changes that need to happen. I believe the most important part of the changes that need to happen is that we see this industry as a whole. We do not support any one specific part. We don't support just foods. We don't support just plastics. We don't support

just building. We look at them as a whole and see how we can actually move to have the basic infrastructure within Australia so that the companies can actually move forward. For example, one large decortication facility in Australia can support many businesses working in different industries, but that foundation and infrastructure are not going to be set up well. That's the key part, 'well'. Many people who are trying in Australia have been trying for many years—and I've seen this happen globally around the world too—to do this in a more cost-effective fashion, which generally fails and puts off farmers from getting involved with this again. I've been seeing this circle happening now over my career, and I hope I don't sound too frustrated, but I feel for these people who are investing their time, their family's income for a better future yet who fail because of the lack of foresight in creating the foundational support for the entire industry.

Senator DOLEGA: Your frustration is noted. This committee had the opportunity to visit many different businesses across regional Tasmania, going back a couple of months ago. We see the innovation and we see the opportunities that are available from the industry. I understand you say it's 20 years too late, but the industry has got friends in this committee, and we want to work with you on how we can get some benefits and how we can push this further. When it comes to your company, the Hemp Plastic Company, you mentioned that you currently export hemp plastic resins from the US to Australian customers. Can you tell us about the current scale of trade into Australia at the moment.

Mr Benhaim: It's very small in Australia at this time, and that's mainly relating to freight. Ultimately, plastics is a commodity, and our goal as a hemp plastic company is to not export from the US to anywhere. We're willing to export to set up and prove different customers and industries. Again, that's where support could be helpful—to get some plastic materials into Australia, into end customers, which are generally injection moulders, to give them materials so that they can do some R&D trials and create products. In the plastics industry, there's a long life cycle from customer acquisition to first sale; it can be a year or more sometimes, and that costs money. No-one in Australia wants to do that because it's not commercially viable to export from the US to Australia. So our goal is to actually license out our technology globally, and we're having those conversations in the Middle East, in Europe, in Asia. And we have started having those conversations in Australia with some of the larger companies here, but, again, no-one is willing to invest at this time importing or buying a licence for our technology that we have spent decades creating and all the patents we've created, because the infrastructure doesn't exist in Australia. That's where we go around in a circle. We go, 'Well, if there's no decortication and there's no building industry that's grown large enough yet, then why should we invest in a technology for a plastic product that we then have to build the infrastructure for, that relies on the infrastructure for building and food to create a business that takes a year to get a customer?' I hope that makes sense. For me, it's simple, but it sounds complicated because there's a lot of reliance, and that's where we need support.

Senator DOLEGA: I'm losing the call, but thanks for appearing today and thanks for your very detailed submission as well.

Mr Benhaim: Thank you for listening and for your time. I appreciate your support.

ACTING CHAIR: Senator Cadell.

CHAIR (Senator Cadell): Thank you for your evidence. I'm catching up; it's a new committee for me. Going through and reading a lot about this, I see there is a significant price differential between the hemp plastics and other natural plastics. Is that just due to economies of size? Do you think, if you had better decortication technology, if you had broader scale farming, would that get fixed, or does it need market intervention as well?

Mr Benhaim: No, it does not need market intervention as well. At the beginning of an industry. of course that is always supportive, and that's what happens normally in most industries. And I think the industrial hemp industry would appreciate that.

Your point is well taken. Yes, today hemp plastics are more expensive than regular plastics in general. But, again, saying the word 'plastic' is a confusing term for many people, because there are thousands of types of plastics. Most of our larger customers all want a very specific formulation that we have to develop for them, and that takes going back and forth many times. An automotive business in the US wants different strengths of UV temperature effects, and they'll go back and forth many times until they get a formula that they want, for example.

I can give you an example that, within the municipal water treatment industry, one of our customers is looking to enter this market here in Australia. They are interested in us creating a manufacturing facility here because it makes sense, because the product that we can produce is cheaper and better than existing materials that are not hemp plastics here today. My point is there is absolutely commercially viable product that is absolutely at scale. And to answer the other part of your question, as to whether scale will make a difference—yes, it will is the very simple answer to that. It is all about scale, in fact.

CHAIR: I've not this seen anywhere in reading—I've not read everything, I'm going to be honest; I've read about half of all the submissions to this committee only so far—but is there a number where we think that scale and that sustainability is there, where the industry is the size where it can innovate and find those economies of size and get better?

Mr Benhaim: That's a great question. It is something I have been working on, most of my career, in getting to an answer on. I would suggest that the best way to answer that is more in hectarage. So, really, we are looking at a minimum of 5,000 and up to 50,000 hectares to get to full economies of scale. If there were 50,000 hectares grown in, say, Central Queensland, central Tasmania, eastern Tasmania or wherever you want to say, then that is probably the level where you don't have to go any further. Five thousand hectares is a level where it's commercially viable, from my studies. We've done that through the Bio-Smart Group recently for a country that doesn't have an industrial hemp industry. It had basically said: 'We don't have a budget. Whatever money you want to spend, you just tell us what is viable.' We were able to look, in that study, at what was required. As I said, it requires multiple industries and multiple capex to start with. Then you would start with 50 hectares or 500 hectares—and we're already past that in Australia now—but we need to get to the 5,000 and then 50,000 hectares to start seeing the commercial potential for what Australia can produce for itself and what it can also export to its Asian neighbours.

CHAIR: But I thought I read—and you can check me on this—that Tasmania's got 1,700 hectares at the moment. That's 46 per cent of what's in Australia. That puts us somewhere just under 4,000 hectares. Is that right?

Mr Benhaim: That is correct. That's about right. I'm not sure of the exact number, sorry, but that's approximately correct. That's why I'm saying we are not there yet. We are just moving from the proving that we can do this to expanding scale. It is the expansion scale that all my answers are focused on now. In my opinion, the industry needs to be supported to have the basic infrastructure for each of these industries, not just to support farming, which is very important, of course, as well.

CHAIR: On the expansion scale—obviously, Tasmania—and our two Tasmanian senators, representing the state very well today—and you've mentioned Queensland just then—are there different varieties for different areas? Water use is where we start competing with irrigation things. I know it's competitive with cotton per hectare over length of time of crop. Are we looking at the actual farming issues around those things of getting access to water in those areas and varieties?

Mr Benhaim: That's a good question. There are definitely different varietal needs from, say, Queensland to Tasmania—quite significantly. But, in terms of using water, we're not just competitive with cotton; we're a 10th, approximately, of the water usage per kilo of hemp fibre to cotton fibre, for example.

CHAIR: But, if we're talking about hectare rate, it's about the same per hectare, isn't it?

Mr Benhaim: By hectare rate of water—I'm not a hundred per cent sure of that number.

CHAIR: Don't worry about it. We'll get it later.

Mr Benhaim: I'm pretty sure it's still less, though. That's my understanding, but I'm just having a look here in my records. Hemp uses approximately half the amount of water per hectare that cotton uses. That's about 50 per cent, so it's still significantly better. There are varieties, hence the breeding question. Can we improve that? Yes, we can. Can we create varieties that require less water and more dryland cropping? Yes, we can. A lot of work has been done for that by good Australian breeders over many years. I've seen that improve significantly. I'm just giving you approximate numbers today.

CHAIR: That's great. Is there a country who is doing this the best? Should we be looking at them, or is everyone not great at the moment?

Mr Benhaim: America have recently been improving quite significantly because, again, they've had a lot of financial support. The US have been putting a lot of money behind their industry and allowing them to really invest. I am seeing their yields increase quite significantly. In terms of farming and primary processing, great building work is happening in Europe, so there's not one country. It depends. There are different countries for different uses that I would suggest we focus in. If you give me a specific list of things that you want to look at, I can give you a specific list of companies within the countries to look at independently as well. I can do that offline.

CHAIR: Specialised support machinery—is there something that's specialising in the decortication technology specifically for hemp plants and things like that? Are there innovations where people are investing in the machines that make them more efficient?

Mr Benhaim: Yes, absolutely. There are a couple of great companies, one in the US and one in Europe, that I can definitely recommend for some of the best decortication facilities that are being used large scale in Europe and in the US today. That's how it should be done, in my opinion, and that's not what we're doing here. We are mid level at best and generally have been trying to do short cuts because the industry has been so small here. I think a decent investment in one or two decortication facilities in Australia will make all the difference. That has been an ongoing question and answer for the entire two decades that I've been working here.

CHAIR: Thank you.

ACTING CHAIR: Thank you for your submission. Thank you for your time. If there are any questions that you've taken on notice or there's any other information that you think that you would like to submit to the committee, could we have that by Friday 8 May. Thank you for your evidence.

Mr Benhaim: No problem. I thank you for your time. I appreciate you looking into this industry diligently, and I'm available for follow up and supporting the Australian public in the best way I can.

DOBLIN, Professor Monika, Professor, La Trobe University

FLEMING MUNOZ, Dr David, Professor of Agricultural and Resource Economics, La Trobe University

[10:29]

ACTING CHAIR: Welcome. I understand that information on parliamentary privilege and the protection of witnesses giving evidence to Senate committees has been provided to you. I would now invite you to make an opening statement, and then we'll move to questions from colleagues.

Prof. Doblin: I have been a plant scientist for my entire career and moved to La Trobe a number of years ago because La Trobe is very interested in sustainable food and agriculture. Both David and I are part of the La Trobe Institute of Sustainable Agriculture and Food. I'm also now the director of a protected cropping hub, which has followed from an investment in a medicinal agriculture hub. We have had a number of years working with the hemp and medicinal cannabis industries. We do research related to the economic evaluation of not only the hemp industry but others, with life-cycle analysis and so on, which is David's area of expertise. I work more in the molecular sciences. We've been looking to discover genes' underlying traits in both hemp and medicinal cannabis.

We have focused quite a lot on plant cultivation and essentially enhancing yield and traits within cannabis. We also are doing breeding of the traditional sort but also, through gene biotechnology, making transgenic plants through genetic transformation. We're now looking at waste fertilisation. The medicinal cannabis industry collects flowers to make medicinal products, but there's a lot of biomass waste, and, at the moment, that needs to be got rid of either through incineration or through being rendered unable to be extracted, so it's mixed with other agricultural waste. That seems to be a huge waste, so we are working with the industry to see whether we can come up with better solutions so we can actually produce additional by-products to offset the inputs that are required. That's particularly onerous in terms of the regulations associated with holding medicinal cannabis and also hemp.

We are subject to the same regulations as growers and manufacturers if we're making products, so quite a lot of our research dollars are actually around the compliance aspects. We've been working with cannabis for a number of years. It has a very interesting biology, but there's still much to be done to build an industry on both sides, both in the hemp industry and in the medicinal cannabis industry.

Dr Fleming Munoz: Personally, I joined La Trobe University two years ago. Before that, I worked at CSIRO, and my research career has always focused on research and development issues from an economics point of view. I try to bring a broader perspective of issues faced by different regional Australians in terms of development. When I joined La Trobe, there was a small project already in place with a couple of colleagues from the business school, where they were doing a prospective study to better understand the hempcrete industry in Australia. A subproduct of that little project, submitted as part of the findings of the project, was the response to the parliamentary inquiry, and we have engaged with the industry a little bit to try to go ahead and expand this project. I declare that we are currently applying to the ARC linkage program to try to get some funding to actually provide more and better research and data for all of the different dynamics of the hemp industry in Australia to better understand the cost competitiveness of, potentially, modular hempcrete panels in the country.

ACTING CHAIR: In terms of development of the product from a plant-breeding perspective with respect to yields, where do we sit in the overall scheme of things here? I think, when we were doing a field trip in Tassie, a lot of the seed being utilised and breeding being done was coming out of Canada. I recall my visit to the conference held at La Trobe University last year. There was a lot of conversation there around the different plant types and their sensitivity to various climes here in Australia. Where is that work sitting at the moment, and what are the levels of advancement in terms of the progress of the industry itself?

Prof. Doblin: It's a good question. I think AgriFutures are still continuing with their variety trials. Those varieties, to the best of my knowledge, have been developed elsewhere, not in Australia. I think the performance is reasonable. It's not that we have terribly performing varieties, but what is happening in Australia is quite small-scale in terms of breeding. Do we have well-suited varieties across all of the different climate types and soils in Australia? I don't think so. That would be required if we were to geographically distribute hemp growing across the country.

The previous speaker talked about differences between Queensland and Tasmania—that's obvious. Variety trials are happening around the country. I think they're relatively small-scale. The plan is complex. Growing outdoors, it's subject to lots of environmental conditions that vary across different years. So it needs multi-year trials of a scale that take into account the variability that we have in our growing regions.

That said, I've visited a trial down in Gippsland and the yields seem perfectly adequate. It's fast growing. We can get two crops a year. It's around 100 days per crop. It grows quickly and has the potential to outperform cotton, in terms of the amount of biomass—the amount of fibre that we can gather per cropping cycle. As I said, it's small scale and probably niche. There are some industry players who do breeding, but I don't know how extensive that is and whether there's uptake of those varieties across Australia to, essentially, have the scale across the different growing regions.

ACTING CHAIR: This question probably goes to both of you to a certain extent. In terms of fitting it into our agricultural system, this is about farmers making a return out of it, and therefore for those that are contracting its growth or growing it for the next-stage process—whether that be for fibre or for seed—the submissions would indicate that it plays a pretty sensible role in that overall growing cycle or as a plant in a farm management plan. What's the scale and what are going to be the drivers in terms of the economics of that? We've got the regulatory piece that we've talked about, but also the development of the various uses. And it's seriously a chicken-and-egg scenario at the moment. What are the elements that we need to be pushing along with? Is it starting with things like the common THC level, some work on standards for building products and some of the other things that would permit utilisation of the whole of the plant for animal feed, bedding and those sorts of things that start to generate the base economics?

Prof. Doblin: I think it is a chicken-and-egg proposition. You need industry pull. Farmers need to grow a product and then be assured that they can sell it. In Australia, I don't think that's really established. We're small scale. So far as I'm aware, we don't have decortication facilities that essentially do anything more than hand feeding—

ACTING CHAIR: What we've seen is pretty basic.

Prof. Doblin: It is. The scale is not there to do that. That means there's variable quality in the hurd and the fibre that's separated through those small-scale machines. If there's no industry pull then a farmer isn't incentivised to grow it, so I think it does need industry pull. To your point around regulations around building products, I think that's a massive problem because I don't think that's an easy thing to do. It's expensive. The hemp industry is small, and registering products to meet standards is expensive for farmers. It's not going to happen. It has to be through industry led activity, and that needs investment. If there were standards for particular products and if there were endorsement, if you like, from the building—what do you call it?—industry to use those products, that would create some pull. That they're safe et cetera would obviously help. Having a large manufacturer use hemp products would absolutely mean that there would be scale and farmers would be incentivised to grow hemp.

You're right; it does provide a diversification crop. I don't think we quite know yet how it works in the Australian system. I think the legume-cereal rotation is well known, but I don't know whether that's really very well known for hemp yet. I think more research needs to be done, but you certainly need industry pull. To incentivise farmers, they really need an assurance that the products that they're making are going to be manufactured into products that can be used and they can actually gain a profit from. Otherwise, they'd grow something else.

Dr Fleming Munoz: I have not much to add to that, because I think it's very clear what is the chicken-and-egg issue here. Definitely, the demand side of things is quite critical and important for the development of the industry. I think some more research is needed to understand better what sorts of incentives we can place on demand. I know we talk a lot about standards and certification, which I think is a critical element—and we need to keep exploring opportunities and what we can do about it—but there is also the role of government in terms of public construction of housing and even the development of large infrastructure projects like highways. When you put up sound barriers and things like that, there are great opportunities to use hemp based products. If we can maybe start incentivising demand from that side and put out very clear signs from the public point of view and from the government point of view in terms of potential demand coming from public infrastructure projects, for instance, that can help the industry a lot in terms of providing very clear signs of how the demand can be built in the country. Then, of course, there's expanding that to other types of projects. I think that's the critical component here, but I think a lot can be done to explore different opportunities from the demand side.

ACTING CHAIR: We've had a conversation already about plastics, but are there any products or places globally we should look to who are leading the charge in this space?

Dr Fleming Munoz: I think France is one of the best case studies in the world because they have a very well-advanced industry. To my understanding, for the public infrastructure in France, they have a strong certification in terms of embodied carbon and green materials that need to be used. In the US, as well, they have very strong regulation in terms of green certification in public infrastructure types of projects. In the US, it's probably not as

well as advanced as in France, but France is definitely the case that we need to be very aware of. I know that some colleagues have explored very well the case of France, but it's a good example in terms of how to develop the industry in terms of fomenting demand and in terms of good regulations and certification for hemp based products. The Netherlands also, I think, has very good standards about it. I'm not sure about anything else there.

Prof. Doblin: They're the leaders.

ACTING CHAIR: Senator Dolega?

Senator DOLEGA: I've only got the one block of questions for you today. Thanks for your submission. In your submission, you propose a national hemp innovation hub. Can you tell the committee about how you would complement the existing work that AgriFutures has been doing under the Australian Industrial Hemp Strategic RD&E Plan?

Prof. Doblin: I'm not as familiar, I guess, with anything beyond the field trials, if you like, but I think it's key. We do it as researchers. We need to collaborate to enable all of the parts of the industry to connect and to get the value across the supply chain that we're wanting. Farmers, obviously, get a piece of the pie, as well as the manufacturers and so on. An innovation hub would be that centre by which people who are in the industry—everyone from researchers to manufacturers and growers et cetera—can come together and coordinate activities. A farmer might grow a particular variety, and that could be trialled to manufacture some sort of product. Having everyone together and connected means that the best person or place to do the next step is part of that process.

I think the other thing, coming from a university perspective, is that the education and training piece is critical. For the industry to grow, they need skilled workers. It's not just cultivation in field; it's all of the manufacturing, which is fairly specialised. So that needs to be integrated to enable those people we're training at university to then move into the industry. That, I think, is critical to that piece—bringing all of those players together and working with AgriFutures so that, if things are grown, research can happen alongside that, and we can get more value from the investment already within those trials. That takes coordination and effort, but I think the industry are really trying to pull together to enable this scaling and build the momentum around the hemp industry. I think that would really help consolidate investment but also learn, help it grow and enable the scaling.

Senator DOLEGA: Dr Fleming Munoz, I don't know whether you wanted to add to that answer.

Dr Fleming Munoz: I think the science of hemp, if we can call it that, is well advanced in the country. I think there are a lot of opportunities to keep going and grow the industry from the supply side. Again, bringing it back to the demand side is quite critical. The processing facilities and all the demand side—why not also include it in some sort of innovation hub where we can bring case studies, expertise and the experiences of the different people actually building houses using hempcrete materials, and share that knowledge and try to create more coordination in the industry?

Senator DOLEGA: So you're proposing that that hub would complement the work that AgriFutures is doing?

Dr Fleming Munoz: Absolutely, and working with them.

Prof. Doblin: It's not just the growing; it's also the manufacturing, and really bringing that together so that those are close by and people can see the products that they're trying to innovate and grow.

Senator DOLEGA: Thank you. That's all I have to ask today.

ACTING CHAIR: In the context of the hub, what would you say the key attributes are? Rather than saying, 'We're growing a bit of hemp here, so this is where we put the hub,' what do you see as the key attributes of the hub in terms of making it work? Obviously, there's proximity to where you can grow the product, but you also have, on the other side of it, the products coming out of the manufacturing process, if they were to be developed, and their proximity to the appropriate market as well. So, if we were looking at saying that we think this is a good path to go down, what would we list as the key attributes of an innovation hub to support the development of the hemp industry in this country?

Prof. Doblin: It would be receiving goods, I suppose—having it be like a manufacturing plant such that it's not too large-scale, since it's not supposed to be a commercial facility, but is big enough. It could be a pilot facility, if you like, that would enable product to come in at one end and be processed, or decorticated, then allow the secondary manufacturing to occur. It would have a range of different equipment available to enable different products to be made and things to be tested. I know there was potential for cotton gins to be used to decorticate—yes, they do the job, but not well, so we're trying to centralise equipment. Innovation is trying things, so that would be a testbed for being able to do that. You would have researchers, students and industry all coming together and using the same space, holding workshops and that sort of thing. So it would be space, equipment and technical personnel, and the hub would be coordinating that activity.

ACTING CHAIR: David?

Dr Fleming Munoz: I'm not sure what more, in terms of attributes for a potential hub, I could add. I was thinking that the hemp industrial processes and manufacturing should be very local. As you said, distances in Australia are always a barrier. So it's very—

ACTING CHAIR: That's why I put that part into it—because proximity is a genuine issue. I've had a lot of conversations about utilising biomass for different purposes. There are ranges of operation where it's economically viable. A 100- to 150-kilometre radius for the growing to processing and manufacturing—whatever—is about the limit. And that goes for a whole range of things, whether that's cotton, rice, biomass or timber. So your comment in relation to how big this country is is certainly relevant to that, which is why I made that point. That's an attribute, as I would see it. That's adding to all of those other things. Then, of course, proximity to market is also an element in the overall cost—if the current circumstance we're living in are teaching us anything, maybe more so. So it has to be about the numbers, at the end of the day, as well. Is that a fair—

Prof. Doblin: I think it is. We noted in our submission that the opportunity for regional development is great here, where, for example, in Gippsland, the population involved in the timber industry need to pivot and do something else. This would lend itself to that type of thing. Where infrastructure is already positioned and where there are transport hubs et cetera nearby—all of that lends itself to having something in that location. So it's really about making the taxpayer's dollar work harder in an investment setting to enable the industry to grow. I think we all want that. As researchers, we try and do that, too, through our collaboration. I think the industry itself is a collaborative industry, but it does need assistance to enable this scaling, and it does need some investment not just in one area but in a number of areas, as Paul mentioned, to bring that together.

ACTING CHAIR: I'm not sure whether it was your submission or not, but there was reference to something like a CRC in one of the submissions that I was reading. Would you see some benefit in something of that nature, which draws all forms of industry partners into the system—you talked about the collaborative nature of the industry—and also some potential end users of product that value the attributes that it brings, as a mechanism for the sector to take a step?

Prof. Doblin: I do, and I think that what is useful of a CRC is the longer term timeframe of that investment, which would enable us to essentially work along the value chain, both from growing, yield and that sort of thing—the quality of the product—right through to its manufacture. Yes, I could see that a CRC-type scenario could benefit.

ACTING CHAIR: And could bring in some of the things like development of standards and those things that provide the confidence in the product that has been talked about as part of the conversation.

Prof. Doblin: Absolutely. Yes, that would need to be embedded in that.

Dr Fleming Munoz: Maybe you could let me add a little bit about that CRC option, which I think is very interesting. It definitely has potential. I would just like to emphasise here that we also need to understand the government as a key industry player here—not just, as an industry, providing support for research and development in funding through a CRC, for instance, but actually as a consumer of hempcrete products or industrial hemp products. Again, large infrastructure projects—public infrastructure projects—can be using a lot more hemp based products. As a consumer of potential materials coming from the industry, it is also important to highlight that the government needs to be present there, and not just the federal government but state governments.

ACTING CHAIR: That's one of the functions of the CRC. When you mentioned sound attenuation for major highway infrastructure projects, for example, my ears did prick up immediately. Hemp would be a product that could provide some definite attributes in terms of what it brings from a number of different perspectives—say, if you're building a concrete barrier versus a hempcrete barrier—carbon storage being the first thing and noise attenuation being the second, which is the core purpose of the piece of infrastructure. There are interests that would benefit from engagement in that sort of structure and would therefore drive some demand, which is what we talked about at the outset. Senator Cadell?

CHAIR: With the previous witness I talked about varieties and different areas of Australia and scope for the expansion of the product. Professor Doblin, you said something about more trials being needed for different varieties in Australia. How far are we going with that and what would you like to see?

Prof. Doblin: I have been following the outputs of those trials. I think the RD&E plan is coming to an end at the end of next year, and I'm not quite sure what's next on the horizon. But, as I said, I think most of the varieties that are in those trials have come from elsewhere. They haven't been, let's say, bred in Australia for Australian conditions. There's certainly a lot of germplasm available internationally. I'm not close enough to know why those

varieties were selected, but, to Senator Colbeck's mention of regions, if we're really trying to, let's say, have regions of hemp cultivation, then we need to make sure that those trials are happening in those areas that are best suited for that activity. As I said, I'm not sure what the thought process is or how those varieties are selected—whether they're the best in the locations in which hemp is grown currently. We would like to do more in this space. We haven't done as much in that breeding space. There's a huge amount of diversity in hemp.

What we also need to focus on is yield stability—having robust varieties that perform similarly and understanding a bit more about how yield and quality of product changes when there is a wet summer or when there's a very dry summer. I'm not sure we're really to that level with the futureproofing of the industry. We are going to have a hotter and drier climate into the future, and we need to keep that in mind. If we're trying to grow an industry in Australia, we need to be mindful that what the weather patterns are today is perhaps not what they are going to be into the future. I think I'm a climate realist. There is climate change happening. I think we need to be aware of that and play a role in future planning and how we do research, more trials and so on into the future. We're not just looking at yield under best conditions, but also under future climate conditions.

CHAIR: You've said the industry is cooperative and that they are working together on these things. There were a set of comments talking about CRC, but is there a real science led approach to quantitatively review these strains, changes and practices and see what's working or is it really too small for that yet?

Prof. Doblin: It's a good question. I'm not close enough to the AgriFutures trials to know that. They are, I'm hoping, being done under robust scientific methodology. There's always more that you can gather from the data with digital technologies, drones et cetera. We need to look towards using new tools to enable us to gather information across regions, across distances and under different weather conditions to integrate what data we are gathering now and look to see whether we can get as much information as we can when we're growing material. I think more could be done, essentially, with the trials. We could gather further information that would be useful to the industry. I'm talking about things like non-invasive technologies that, yes, require computer power and digital tech. In a way it's cheaper than the destructive molecular based technologies that we use to characterise plant material currently.

CHAIR: This question just came into my head. Given the disclosure that there's some distance from the trials, does Australia have any particular novel pests, parasites or dangers to the hemp plants in Australia?

Prof. Doblin: We've got our fair share. Hemp itself is generally quite resilient because of the specialised metabolites that it makes. It does definitely have pests and pathogens that impact it. Like all monocultures, that can be problematic. Part of our research is also to look at that to make more resilient and disease resistant varieties. I think that's part of the breeding program that comes in the future. I don't know how well the material that is in the trials is characterised in that manner.

CHAIR: That's something that really only comes with size and different environments. Australia has something that will kill everything. We're good like that. But, until it's everywhere, we won't know, will we?

Prof. Doblin: That's right. Yes.

ACTING CHAIR: I've touched on some of the other attributes in relation to carbon credits and things of that nature a little bit. Is there any work that demonstrates the values that could be supported there? I've made the comparison between a concrete sound attenuation barrier and a hempcrete based one. Are there any places that we could look to, or is there any information that might be available, that would support some of those values? In this committee we've been talking in a different forum, through estimates, to the Australian Rail Track Corporation, for example, in relation to how they're mitigating their carbon footprint. This is something in a slightly different scope, but it's still major infrastructure. Is there any data that we could look to in that sense?

Dr Fleming Munoz: Not that I'm aware of. In terms of valuation of embodied carbon, we know the characteristics of hemp and how much it can capture in production and things like that. But, in terms of a full lifecycle analysis or evaluation of carbon embedded in products, I'm not aware of a particular study about it. Maybe the Hemp Council knows better than the next witnesses, but I'm not aware of one.

To some extent, our next research at La Trobe will actually be about this. We're to run a small project that tries to provide better data to understand all the benefits, especially of hempcrete modular panels as a potential alternative to industrial hemp. That's what we're going to do next—bring in more and better data about it. It would involve looking at international experiences—at what analysis has been done in France and the US, especially—and scaling them to Australia to try to understand, with different types of cost curve simulations, the cost-benefit ratio of these products against how the market is operating now.

ACTING CHAIR: The answers to a lot of these questions are still being developed by the industry globally, not just here in Australia. So part of the research work, if you like, that's required to develop the industry also involves answering some of these questions.

Prof. Doblin: I think so, yes.

Dr Fleming Munoz: Yes.

Prof. Doblin: And we've got completely different climates. Hemp has been used for phytoremediation. None of that type of work has been done in Australia, yet we would clearly benefit from using hemp in cleaning up mine sites, for example. There's obviously the stigma around the use of it, too. Do we have local evidence, if you like, of its performance? We don't. We need to gather that, even though I guess evidence from elsewhere would suggest that it is carbon negative. It is a product that could help move the building industry towards net zero. The building industry is currently very hungry in terms of its generation of CO2. We would love to be able to provide some actual evidence that, yes, hemp is a solid performer when it comes to making a more sustainable circular bioeconomy.

Dr Fleming Munoz: These sorts of evaluations can be done and are always done to evaluate different things in the circular economy—what the value is of sustainability, recycling and things like that. There are different ways of doing it, but the point is that, yes, some research needs to be done. We are really sure of the attributes of hempcrete and those products in general and that they are definitely sustainable. They're coming from an amazing plant like hemp. Also, about the life cycle analysis, the carbon capture—all those qualities are there.

Bringing back the example of soundproof barriers for highways—yes. They have a lot of qualities. Maybe we don't have dollar values put on them yet, but it can be done. There are always things that we need to include in the life cycle analysis from a circular-economy perspective. When we say, 'When is the end of the life of the product?' and we talk about the recycling of these materials, it has been proved that hempcrete materials are much, much easier to recycle than cement or other types of products that are being used in these barriers. So, if you add that component, all the benefits of hempcrete and hemp industry products will increase for sure.

It's just a matter of letting the public know and letting the politicians know that the benefits are there. They can be valued, and the potential is clear, economically.

ACTING CHAIR: And it is a matter of developing the systems that support all of that information, which are in a developing stage—a very early stage—at best.

I want to go back to the comment that you made in relation to the by-product from medicinal cannabis. How, in a regulatory sense, do you see that we might manage that? Going to the stigma point, it's quite a different product in terms of how it might be seen in relation to the industrial product, which I think a lot of the stigma is now coming away from. It is being much more readily accepted in the agricultural sector and also in the broader community. How do you see that other by-product being appropriately handled or managed? As you quite rightly say, at the moment its disposal is a genuine cost to the medicinal cannabis sector.

Prof. Doblin: It is.

ACTING CHAIR: And that does fit within our terms of reference.

Prof. Doblin: Yes.

ACTING CHAIR: What do you see as an appropriate way of managing that so that the genuine or perceived threats can be appropriately handled?

Prof. Doblin: The phytoremediation studies that have happened in Europe, for example, show that, in different varieties, the cannabinoid content varies in different plant parts, so that needs thorough assessment. We have the highest concentrations of THC in the flower, but in the stem that is much less, as it is in the seed. So I think it's really understanding what the drivers for changing that in a plant are. Is it always that the stem is of low THC content? It's about really understanding what happens, I guess, under conditions in which medicinal cannabis is grown and so understanding if it is really a massive risk. Then it's about how that material is processed. For example, retting might use some sort of acid or base. Those chemical treatments also break down cannabinoids. So it's perhaps not as risky as one would think, but it needs to be monitored and tested.

ACTING CHAIR: As long as the processes that support it are managed appropriately to deal with the risks.

Prof. Doblin: That's right. So I think there's a possible way. For example, the fibre from a medicinal cannabis plant is probably not as good as that from a hemp plant, which has been grown for fibre, but it can be used for low-value products—cardboard and paper and so on. So I think it's a possibility to offset the high costs of building a potential indoor growth facility, and it just enables the diversification of product. Then we're not

wasting biomass, which is actually really valuable. So it is about enabling innovation but being aware of the risks and—

ACTING CHAIR: Effectively rendering it inert in a THC sense or a risk sense—

Prof. Doblin: That's right.

ACTING CHAIR: but then being able to embody it in something that takes advantage of its availability.

Prof. Doblin: That's right.

Dr Fleming Munoz: Let me just note from a personal point of view—different to yours—that maybe we need to treat these as totally separate industries due to the risk to the development of the industry. That's my opinion because, if we talk about medicinal cannabis, there are going to be a lot of other concerns and issues that have probably been raised here. The by-products of that maybe can be treated separately, but we should probably treat industrial hemp as a different industry with different varieties and different plants, totally different from medicinal cannabis. So we treat them separately. We keep them separated for now, for instance, to de-risk any potential initial development. I think that is probably a good idea. I don't know.

Prof. Doblin: Yes, the in-field volumes are way different. In the medicinal cannabis area, you might have a 30,000-square-metre glasshouse—a large glasshouse. All of that material is under regulations. But what can you do onsite, if you like, to enable you to use that material and not just compost it onsite? There's a lot more we can do than just composting. So it's really about trying to utilise what is being grown and make it work harder. You've heard hemp is a multi-use crop. There's lots of innovation that can occur in that space, and I think enabling manufacturers to use that biomass in a way that, yes, meets the risk mitigation requirements et cetera is an opportunity, if you like, to really—

ACTING CHAIR: And, of course, there is plant breeding. As we've seen, the various different use types are breeding plants that are more appropriate to those uses.

Prof. Doblin: Correct.

ACTING CHAIR: The medicinal cannabis plants are being grown to promote flower and head, not stalk and leaf.

Prof. Doblin: That's right.

ACTING CHAIR: Similarly, plants grown for seed are grown to promote seed production rather than stalk and leaf.

Prof. Doblin: Yes; that's right.

ACTING CHAIR: So they will have their various attributes, but the fibre is the scale part of the sector—

Prof. Doblin: Correct.

ACTING CHAIR: and brings the other attributes that perhaps the others can take advantage of.

Prof. Doblin: Yes.

ACTING CHAIR: Thanks for your evidence today. We very much appreciate your submission and your evidence. If there are any questions that you have taken on notice, we ask that you have that information back to us by 8 May.

Proceedings suspended from 11:14 to 11:33

CHRISTIE, Mr Darren, President, Ihemp Victoria [by audio link]

KOVESS, Mr Charles, President, Australian Industrial Hemp Alliance Inc.

ACTING CHAIR: Welcome. I understand that information on parliamentary privilege and the protection of witnesses giving evidence to Senate committees has been provided to you. I now invite you each to make a short opening statement, and after that we'll go to questions from colleagues. Mr Kovess, would you like to start?

Mr Kovess: Thank you, yes. Good morning and thank you for this opportunity to appear. I am the president; I'm also managing director of Textile & Composite Industries, the company that manufactures the world's best hemp decorticator in Geelong. It was founded in 1994, and the AIHA was founded 11 years ago, in 2015.

I am passionate about industrial hemp! I come before you, therefore, with a very simple message: hemp's time is here. Right now, Australia grows fewer than 5,000 hectares of industrial hemp. Yet, with the implementation of our recommendations to this inquiry, we can expand this to grow one million hectares by 2030, turning hemp into one of Australia's most powerful economic and environmental engines. Why does this matter? Because industrial hemp offers 11 clear, proven solutions to big problems that benefit our planet and strengthen Australia's economy. It sequesters up to 20 tonnes of CO2 per hectare. It produces real biofuels—ethanol from the stalk, biodiesel from the seed—reducing our dangerous dependence on imported fuel and reducing harmful emissions. That fuel issue is front and centre of government consideration as we speak. Hemp creates healthier, energy efficient hempcrete homes and can help build the 1.2 million new dwellings Australia needs, overcoming raw materials shortages and cost blowouts. Hemp replaces imported cotton and synthetics with durable, antibacterial, low-waste textiles. It regenerates soil, provides high-protein food and animal feed, and can generate extraordinary profits for Aussie farmers. In short, hemp can deliver net zero outcomes, new regional jobs and massive import-replacement—please note: import replacement—opportunities, all while creating entirely new, value-adding industries here in Australia.

But we are being held back by unnecessary red tape, outdated regulations and a lingering failure to distinguish industrial hemp from high-THC cannabis. Governments and large companies still greenwash while ignoring hemp's potential. That's why the AIHA urges five immediate, clear steps. Firstly, remove all unreasonable regulatory impediments. This includes the requirements of the Office of Drug Control to regulate the exports of hemp fibre. There are some horror stories around that: the failure of the ACCU Scheme, the Australian Carbon Credit Unit Scheme, to properly include the sequestration benefits of hemp and the ODC's interpretation of the UN-style convention that is then imposed unfairly on the industry. Secondly, stop greenwashing and demand truth from corporations. Thirdly, encourage and support investment fund and superannuation investment into hemp projects. Fourthly, give preference to hemp products in government procurement, especially uniforms for first responders and defence forces. And, fifthly, educate the public accurately so that consumer demand drives supply. As consumer demand increases, supply will increase.

Australia has the land, the climate, the research capability and the entrepreneurial spirit. All we need now is the political will to let hemp flourish. Hemp's time is here. Let's make it happen. I urge you to do what you can to make it happen, and I look forward to the most difficult questions you could possibly ask me. Thank you.

ACTING CHAIR: Thank you. Mr Christie.

Mr Christie: Thank you, senators, for allowing me this moment—just a quick brief. I think Industrial Hemp Alliance have probably covered most of the bases. Industrial hemp is a low-impact opportunity to strengthen climate resilience and Australian agriculture and manufacturing in regional economies if the capability barriers are addressed. Hemp is already legal. Australia has the strong agronomic suitability for existing regional capacity. Hemp directly aligns with regional transition to a circular economy and low-carbon construction priorities.

As a contribution to Australian farming capability with existing agriculture, hemp fits seamlessly into broadacre rotation—legumes, pasture et cetera. It uses standard machinery for seeding and harvesting, with minor adaptations. It's suitable for regions transitioning from forestry and other declining land uses. When I say forestry, the timber industry in Victoria is null and void at the moment. When I talk about us transitioning from timber into hemp, there were 417 mills from Pakenham to Orbost in the early days, all cultivating timber and putting it into building products. That's probably what most of my work goes into. To talk about soil health, we're doing progress reports down at Lardner Park, not using chemical pesticides or anything like that for biomass. The point for the committee is that they're high-mitigation crops for farmers facing climate volatility and market pressures at the moment, so I can see that being a great contribution.

When I say contribution to the circular economy, I mean full plant utilisation—fibre, textiles and composites. We've been doing studies and we are aligning with India and China at the moment. We've sent fibre over there at

different stages, and they have come back saying that, if we could supply as an export market, they'd take 500,000 to 600,000 tonnes a year just for the fibre itself.

There's construction materials. As we've heard, it's a timber replacement in housing. There's poultry farms and animal bedding. A few points have already been made about that. The antibacterial component in that for the poultry farmers—huge issues out there at the moment with that. There are environmental outcomes, with biodegradable plants, long-life products, sequestered carbon, and reduced landfill and fossil based imports. Other points are that the platform crop is circular manufacturing, not a niche product. It's a contribution to the construction industry. Hemp makes building materials. It's in timber replacement, fibre insulation panels and composites. Now, this is where our industry can [inaudible] scales.

Barriers, I think, are the lack of standards and codes at the moment. We've got a short [inaudible] strengthen that and get it on the fast track as quickly as we possibly can. There are opportunities to build offshore processing. We have that opportunity. That's all about investment. There's bioplastics and composites. It will replace petrochemical based plastics, and there are applications in automotive, packaging, insulation, consumables, food and health products. There is a bit of a seeds export market coming in, and I think that's a bit of a problem with our industry at the moment [inaudible] value-adding farms, not just commodity exports.

Contributions to the Australian economy are jobs in regional [inaudible] development; labour intensive across farming, processing and manufacturing; strong alignment with the forestry transition regions, especially the Gippsland region; and clear pathways for skills to transfer.

Exports include food, fibre and building materials. We probably have that opportunity. There's strong interest from Asian and European markets, like I've said. Australia is well positioned to qualify that in the future. I think the biggest problem we've got at the moment, from what I can see, is probably manufacturing plants for processing the raw materials. My company sits at that gateway at the moment—being able to sustain volumes and get them into marketplaces.

The markets are there. There are probably three companies in Victoria; that's probably 35,000 tonnes of just hurd alone value-adding to their own product line. There is a company that could use the fibre as a building product, instead of using MDF fibre. That company alone, there in Victoria, could probably use 15,000 tonnes a month. This is what all of my research has been about over the past 15 to 20 years. Understanding that the building industry is vulnerable at the moment, with hemp being processed into products, now is the time when it can change into the system.

The final message is that industrial hemp is ready to be constrained. With modest regulatory reform and targeted capability and investment, it can become a mainstream contributor to Australian agriculture and a manufacturer of regional resiliencies. Thank you.

ACTING CHAIR: Thanks, Mr Christie. I will start with some of the regulatory elements that you both spoke about, so my questions can go to both of you. In terms of things like the ACCU Scheme and the opportunities that sit there, are you aware of any work that has been done in the development of a methodology that might incorporate these products?

Mr Kovess: Yes. AIHA put in a submission, a detailed submission of many pages, on 8 December 2025 to the ACCU Scheme review public consultation. In it are huge amounts of data about the scientifically accepted measurement basis on which hemp sequesters carbon. The ACCU Scheme ignores them all. Carbon futures—there has been some great work done with the industry. It has developed a tool called TerraTrack to enable farmers to measure the carbon inputs and sequestration. The data is clear, but nothing has happened. ACCU refuses to properly treat industrial hemp, despite most countries around the world accepting the wonderful sequestration benefits of it, and in particular product sequestration, because ACCU says, 'We're not going to take into account carbon credits unless it's a permanent plant like a tree.' It's a ridiculous model. When you think about it, there is hardly a permanent plant on the planet. In fact, I can't think of one.

ACTING CHAIR: Well, everything has its life cycle, I suppose, and it depends on what you're talking about in the context of the life cycle of the various plants. Let's go to trees. For each of them there is an artificial life cycle that's put into the system by the ACCU, which may be 25 years, for example, which a hemp plant wouldn't have.

Mr Kovess: That's correct.

ACTING CHAIR: Therefore, it's not just about the plant; it's about the downstream product. We could have a conversation about this forever. So you've done some work in relation to the attributes of the plant, but there is still work to do with regard to the development of—

Mr Kovess: No, there's a lot of—

ACTING CHAIR: Hang on, I haven't finished my question.

Mr Kovess: Sorry.

ACTING CHAIR: a methodology, which is what actually recognises the attributes of any particular sequestration method?

Mr Kovess: No, the methodologies have been submitted to ACCU. There are some methodologies that are well accepted around the world.

ACTING CHAIR: Okay, so what jurisdictions utilise those methodologies?

Mr Kovess: I don't know off the top of my head, but I'd be delighted to—

ACTING CHAIR: I'm happy for you to give us that on notice, because that would be of use to us.

Mr Kovess: Terrific—will do.

ACTING CHAIR: Do you have anything on that, Mr Christie?

Mr Christie: Yes. I did a lot of work with the University of Melbourne at one stage. They got a grant for carbon sequestration and looking at the plants. Right at this particular moment, we're working with Victoria University on the same model and probably proceeding into the sequestration into building products from the plant. There's a bit of work being done. That's another model. There are so many people out there working on that program, but—the truth as to who's right, who's wrong?—in the end, the model we're working on will go into the building product line and housing, for offset for carbon.

ACTING CHAIR: So, it's differentiating between the plant in the field and/or stored carbon that might remain from soil contribution to the building stream, which is what you're talking about, and the carbon sequestered in a building product and then stored in a piece of infrastructure?

Mr Christie: Correct.

ACTING CHAIR: Okay. You talked about the UN Convention interpretation, which we—I think, from memory—had some discussion about with industry at our hearing in Tasmania. That, from my recollection, has some implications for other industry sectors. How do you see us managing that issue without impacting on other industries that have significant value in the economy already?

As a Tasmanian—and Senator Dolega will be as sensitive to that as I am—I'm very specifically thinking of the potential impact on the poppy industry because the convention is about the interpretation of drugs. We're looking to make a fairly critical change in the interpretation of that convention, which may have other side effects.

Mr Kovess: And it has been recommended by the EU to change that interpretation of the 1961 Single Convention. So let me bring to your attention or remind you of something that you would have seen, which was on the 25 October 2023. The ODC wrote to the Tasmanian Department of Natural Resources and Environment, and in that letter, the ODC stated that 'all extracts from the hemp plant are controlled under the UN Single Convention and may only be used for medical or scientific purposes'.

That letter, from an assistant director, has become the de facto position of the Australian government on whole plant hemp. It's been communicated to the APVMA—the Australian Pesticides and Veterinary Medicines Authority—as you know, and the Australian Veterinary Association. It's shaped the position of every downstream regulator. It has had real and immeasurable consequences, including an APVMA public statement that the AIHA formally complained about and that the APVMA subsequently withdrew or corrected on 1 May last year. So this statement made by the ADC is quite inaccurate.

The World Health Organisation's Expert Committee on Drug Dependence, the very body that advises the UN on drug scheduling, has formally recommended that 'preparations containing predominantly CBD'—making the distinction between CBD and THC—'and no more than 2,000 parts per million of THC should not be under international control'. So we can do a submission of 'I didn't want to'—you know, that you said don't give you any more materials—but we can expand on this as well. We've got a beautiful letter to you that I think will help in your thinking around this issue.

ACTING CHAIR: Well, it is a critical issue because I could be provocative and say that the European Union would love to break Australia's dominance of the global opiate sector. I don't discount a political element to what the European Union are recommending because the Spanish, in particular, are players in the global opiate sector. I think Australia has something of the order of 50 per cent of the licit opiate market, and others would like to breach that. If they could accuse us of breaching an international treaty, that would be pants down for—

Mr Kovess: It was the WHO that recommended this—

ACTING CHAIR: So, in that context—I'm a Tasmanian senator, and Tasmania is the home of the Australian opiates and poppy industry—it was developed here in this country and is of significant value to the economy of the country, as well as that of our home state, and I am speaking for Senator Dolega at the moment. I don't want to give our friends in Europe any excuse to pull our daks down, if you like, in respect of the poppy industry, and I won't. I'm happy to receive information with respect to it, so, if you like, a submission on notice would be useful to the committee.

Mr Kovess: What we'll do is this. The AAHA will send to you a letter that we're sending to the ODC. We'll send that to you and explain the relevance of how we see the extracts issue being properly handled.

ACTING CHAIR: That's fine. That deals with that particular matter. You mentioned an item at the beginning, and I didn't finish writing my note down, with respect to export.

Mr Kovess: Import replacement.

ACTING CHAIR: Yes, import replacement.

Mr Kovess: If we look at import replacement and we take Australia's top 20 imports—I've done this for all Pacific island nations; this is also what's very exciting—Australia can become a leader, because one of the great challenges for island nations that we want to have relationships with is growing their own economies, and hemp is the magnificent plant for each island nation. I've done the analysis for Vanuatu, the Cook Islands and Fiji. Even Nauru can do a manufacturing facility. There is this opportunity to grow hemp and then—here's the point—not export but do import replacements. I've done the analysis and hemp can replace four of the top 10 imports in all of those island nations, and it is similar for Australia.

Senators, this is a real opportunity for Australia, through the work of our farmers—who have proven their capability to grow this—to reduce our import levels, including of fuel, by generating jobs here.

ACTING CHAIR: There was a point that was made with respect to biofuels, and I think both of you made mention of it. I was just curious to see where it sits in comparison to other biofuels that are currently in the market. There is quite a significant biofuel industry here in Australia already based on other commodities, if you want to call them that.

Mr Kovess: Yes. There are two types of biofuels. There is the ethanol from the hurd. Hurd is cellulose, so after decortication the fibre can be used for other matters. You could also produce ethanol from waste mass—for example, from the medicinal market. But for efficiency and profitability for farmers, the hurd used for ethanol and the seeds pressed for the oil become biodiesel. The economics of doing that stack up well compared to corn. It's quite a simple digestion process for the hurd and the biodiesel. The numbers suggest the combined hurd and biodiesel per hectare from a fibre crop is in the realm of 1,000 to 1,100 litres per hectare. So, if we had a million hectares of hemp growing, we could do some serious damage. In fact, if we were doing biofuels seriously, it would lead to much greater production. That would then have a spin-off, perhaps from greater fibre utilisation.

I don't have the precise numbers and the cost of producing, because the technology keeps advancing, but there's some globally available material on producing biodiesel and ethanol from plants.

ACTING CHAIR: Okay. Mr Christie, I will ask you the same question.

Mr Christie: Charles has covered a fair bit of the issues that we face. Just on that diesel or biofuel plant, it's up to a $65 million plant. When it's up and running, it has to consistently be running 24/7. We've already gone down a program with that in Australia at the moment and we're working on some of those issues to see if it's viable.

CHAIR: The question that I was asking is: in an economic sense with other established forms of biofuel, not hemp based forms, is it comparable in cost?

Mr Kovess: It's comparable.

ACTING CHAIR: Okay.

Mr Kovess: And it's interesting to note, senators, that, just last week—I didn't bring the paper, because I didn't want to burden you down with more papers—in the US, there was an increased requirement for adding biofuels to petrol and diesel. I'm sure you've noticed that in the journey.

ACTING CHAIR: Senator Dolega.

Senator DOLEGA: Thanks for coming along today. I have a couple of lines of questioning for you today. I want to start by drawing your attention back to the hearings that we had in Longford a couple of months ago—I can't believe we're in April already. Andi Lucas, who is the President of the Tasmanian Hemp Association and the CEO of X-Hemp, raised some concern with the committee about the hemp industry's ability to organise as a

group. I'll paraphrase some of the evidence that she gave to the committee. She said she feels that, over the last decade, there's 'been a real demonstration of a lack of ability within our industry as a rapidly emerging sector'. I paraphrase. Her personal opinion, not in the role of the THA president, is that the industry needs 'some sort of external intervention' to assist the merging of two rival national peak groups and two rival peak groups in Victoria and New South Wales.

I want to give you an opportunity to talk about how you see Ms Lucas's evidence. She said that she believes that there have been lost opportunities and that there have been multiple voices at the table, which is slowing down the industry's ability to be effectively represented. I'll ask the next witnesses about this as well, but I want to give you an opportunity to talk to that, if you might, Mr Kovess.

Mr Kovess: Excellent, Senator—excellent question. I reject those assertions entirely.

Mr Christie: So do I.

Mr Kovess: I reject them 100 per cent, and I do so by, first, giving you a metaphor. What we have are two players in a football club, in a football competition. With Tasmania's position in the AFL being a very interesting one, the Australian Hemp Council and the Australian Industrial Hemp Alliance—we were founded 11 years ago, a long time ago. It's like two football teams competing in the same space. I have asked AgriFutures—I have asked everybody—to tell me what the downside is. We've got two groups of volunteers, none of whom are paid. By the way, there are over 15 agricultural bodies in this country. No-one can give me any evidence whatsoever—and I invite you to tell me if there is any evidence—of any specific harm caused. They're just broad generalisations.

We have two groups of people playing in two different football clubs, all pursuing the same thing. I know of no significant policy difference between the AIHA and the Australian Hemp Council, so I reject the assertion that having two national bodies causes any harm to this industry.

Senator DOLEGA: Thank you. I make no judgement. It is just that that evidence was provided, and Ms Lucas is quite respected within the Tasmanian industry. I wanted to get your thoughts on that as we consider how to progress. Mr Christie, do you want to respond at all?

Mr Christie: Yes. I sort of agree with Charles, in that respect. From the start, I actually thought these national peak bodies—one was going to represent farming, and the other one was going to represent medicine, in those pathways. And the same with the Victorian association—but, really, at the end of the day, we're all just out there advocating to get this across the line. I set up the Global Hemp Summit for [inaudible] at Lardner Park and invited every state representative and every national peak body to that conference. We had a great turnout of 75 people, all contributing and trying to get this industry over the line. I can't see any sorts of discrepancies between any of these associations at the moment. They're still driving down the right pathways.

Senator DOLEGA: Ms Lucas was asking for some sort of national intervention—there wasn't a specific in her submission's recommendation—but you don't believe that's necessary? You don't believe that the different peak bodies are competing, per se? You believe that there is collaboration and cooperation?

Mr Christie: Absolutely. When I look at the plant itself—you know, just take one stalk. With the leaves that come off, the diversification and where the directions go are huge. The contribution to each association and peak body is where we're sitting at the moment for all that information, involving Melbourne university, La Trobe and Victoria University. There are so many different pathways that have to be adjusted to to find out not the correct answer but how we actually can get this industrial hemp into the economy sooner rather than later. That's what I see.

Senator DOLEGA: Thanks. I just think it's important that everybody has an opportunity to contribute so the committee understands how the industry sees itself, after that evidence.

Mr Christie: Yes.

Senator DOLEGA: I might just go to Mr Kovess on another line, about your involvement with AgriFutures and the Australian Industrial Hemp Strategic RD&E Plan. What was your group's involvement in that project, and what's been the experience of the national Industrial Hemp Variety Trials?

Mr Kovess: It has not been extensive. We've monitored carefully. One of our vice presidents, James Vosper, is on one of the committees of the Industrial Hemp Variety Trials, the IHVTs. We support the work that AgriFutures is doing. It is our considered view as a body that there's been plenty of R&D done now, and that's why our recommendations do not require more research and development from government. There's been wonderful support from AgriFutures and from the government too—those steps that have been taken. It's our view that industry is now capable—the beneficiaries of the hemp plant expansion. They can fund any specific

R&D that is required. So we're supportive of that work and we're grateful for the support, and it's now time to stop doing relentless R&D.

I'll give you an example of the R&D trap, and that's Poland. Poland has a hemp research institute that was founded in 1930, and the leader of that is renowned around the world for all his knowledge of hemp. Last year, Poland, a nation of 55 million people, grew 1,800 hectares of hemp. That should have been a million. The reason is that the farmers don't know where they're going to sell what they grow, and that's the essence of this inquiry. The importance of this inquiry is to understand the amazing opportunities, and then that will drive farmers growing because they know where it's going to sell, and that will drive money into solving the R&D problem so that doesn't fall on government's shoulders—subject, of course, to the government's wonderful R&D incentive scheme. I think it's a 43 per cent kickback, but that applies to all industries.

Senator DOLEGA: Yes. Going on to that million hectares, in your submission you set out a vision of one million hectares of hemp under cultivation in Australia by 2030.

Mr Kovess: That's correct.

Senator DOLEGA: The current plantings are 5,000 hectares. How do you see us getting to a million hectares in the next four years? You project that there'll be almost 29,000 jobs and nine separately owned manufacturing centres. Have you done any feasibility work on those nine centres, or are these figures indicative at this stage?

Mr Kovess: The figures are indicative at this stage. The growth will come from offtake agreements. I urge you, as senators, to contemplate hemp as the mining industry. The company that I'm managing director of, Textile & Composite Industries, started in 1994, so it's been a 32-year journey. In fact, it was the founder of TCI, Adrian Clarke, who got Jeff Kennett in Victoria to allow the first trials of hemp to happen in 1996-97. Offtake agreements are the answer. In other words, farmers will grow anything that they can see is going to be profitable if they know where they're going to sell it. What we are doing as an industry body is driving to create end buyers and to sign contracts.

My recommendation to the government is that all first responders, national and in the states—I know we're in a national inquiry—should give priority to hemp uniforms. If that one decision were made in Australia, this would have a global ripple effect, I assure you, Senator. We've got the textile capability. Geelong is sitting there, ready, willing and able to produce these textiles. The argument is that hemp clothing is more expensive. My answer, and our industry's answer, to that is: compared to what? I point out that the environmental impact of cotton and synthetic textiles is the second or third highest in the world, and countries are drowning in waste textiles. That can all be changed magnificently. Offtake agreements mean that we've got signed contracts from government and from major corporations, and then we go to the farmers and say, 'Grow.' We know that in Australia the farmers can grow. Last night I was at a function with one of the heads of the grains industry. I think you might know the answer: 22 million hectares of grain is being produced in Australia. One million for hemp is small beer in the capability of our farmers.

Senator DOLEGA: At the moment, have you started on the feasibility work? Have you done a feasibility study?

Mr Kovess: My game plan is this. Investors want to invest in hemp. This industry needs investment. I do not want it from government. I want it from private investors—from investment funds, from venture capital, from impact investors and from environmental investors. It's in our recommendation, Those investors say, 'Where is the market?' They know the benefits. They understand. So where are we going to sell it? The two elements that stop them are market demand and regulatory uncertainty. That's the other reason why we're focusing on this triangle. We will get the investors if they know where the end product is going to be sold and if the regulatory environment doesn't unfairly burden this industry.

Senator DOLEGA: Finally, your submission and pretty much every other witness who has been before us have been talking about harmonisation of regulation. What's been your experience engaging with states and territories so far over the matter? Are they for a federal—I don't want to say the word 'takeover'. But are they for the Commonwealth government making a national regulation? It's not very often that states want to hand over control or powers. What have been your dealings with the states and territories?

Mr Kovess: I think our problem is bureaucrats from different government departments having internecine wars. I'm the chairman. I'm on the executive board of the Federation of International Hemp Organisations. AIHA is a founding member. I have six meetings a week on the global situation on harmonisation of rules. The UNCTAD report *Commodities at a glance*, to which you have been referred, talks about recommendations. FIHO, the federation, has a list of 24 submissions—I'll send these to you—as to what we think sensible policies would be. With the issue of state and federal bureaucrats keeping patches, we have a problem. That's why the ODC is a

problem. That's why the APVMA is a problem, because bureaucrats don't seem to want to give away jurisdiction. The industry knows what should happen, and then the fights start. The industry agrees on what should happen and what sensible regulation is. We're not saying anything in terms of THC. We're not changing any of the globally accepted rules. The question is: how can this inquiry make recommendations or pathways to say, 'If the ODC says something that's contrary to what the department of agriculture says, how do we resolve those disputes?' That's what my recommendation would be—how to find a pathway to solve these turf wars.

By the way, the other metaphor I was thinking of for two national bodies is boxing. How many global peak bodies are there in international boxing? So we're all used to it as a society. So I would love a pathway, if ODC or APVMA is unreasonable, where somehow there is a bureaucrat resolution process.

Senator DOLEGA: Thanks for that.

Mr Christie: Can I just make a little bit of a contribution on what Charles has said.

ACTING CHAIR: Certainly.

Mr Christie: I'll just go back a step. Farming, yes, as soon as there are some offtake agreements—I totally understand what Charles has said as well. We can't make any offtake agreements with India or China at the moment because of the fibre left to process here—I'd estimate until we get to the bottleneck in the process in the facilities.

I'll go back to the timber industry. When they had 400-plus little timber mills contributing to the economy on timber and building, there'd be paper and everything else like that. Where the problem lies is getting the fibre to a stage—as we go through the decortication system that I've actually got as well, we need to open the fibre. We could create more money to export markets at some stage, but it's the processing facilities that are actually holding us up. Logistically, we probably need 10 in each state for our farmers, but once a processing plant can establish properly, it'll open up the fibre.

Like I said before, we've got markets in Victoria that could take over 100,000 tonnes of just the hurd into their product line. They could take the fibre into insulation batts to keep that market alive. Insulation batts is where we can actually create a market for an offset, and an offtake agreement as well. Once again, it's a bottleneck. We're in a bottleneck in this industry. Everybody's working together to create the industry, it's the processing that's the problem. It's a major problem.

Mr Kovess: Can I add one other, Darren? The ODC also purports to regulate the export of the fibre that Darren's talking about. Margaret River Hemp Co in Western Australia was delayed for nine months in exporting a 40-tonne container of processed hemp fibre after decortication to China. It took nine months to get the ODC to give a licence to export fibre of industrial hemp of less than 1 per cent. We would love to submit details of that. It had a huge impact. Hemp Homes Australia in Western Australia is recognised; it has built numerous homes. It just damages our export capability—which, again, is attractive to our farmers. And Darren will confirm this from his evidence given today: the Chinese are unable to grow the hemp fibre that they need. They don't have the land availability.

Mr Christie: Correct.

Senator DOLEGA: Thank you. That's helpful.

Mr Christie: I have just one more comment on the building industry and the contributions to hempcrete. We've got panels now that are load-bearing panels. We're the first around the world to have load-bearing panels to create low-cost housing. We've got problems out in the industry—building codes et cetera. We need hemp to be pushed through the system as quickly as we can so we can get the cost of building housing down. That's a fact. That's part of my program.

Senator DOLEGA: The committee was very excited, especially the first timers like me, when we did the tour and we saw firsthand the benefits and the opportunities of hempcrete. So I appreciate your evidence, Mr Christie.

Mr Christie: Thank you.

ACTING CHAIR: Okay. You've got some homework for us, I think.

Mr Kovess: I've got a complete list of homework. I'm going to send you the methodologies used globally and the Federation of International Hemp Organizations policies, as well as the letter that AAHA is sending to the ODC on this issue—those three things.

ACTING CHAIR: You know what your homework is. Can we have that by Friday 8 May, please.

Mr Kovess: I think two pages on the Margaret River Hemp Co and the ODC would also be helpful. Can I add that to the homework?

ACTING CHAIR: If you want to send us some additional information, that's fine. Thank you, Mr Kovess and Mr Christie, for your evidence today. We've established the homework date. Thank you for taking the time to make your submission and for appearing here today.

BRIAN, Mr David, President, Victorian Hemp Association

LARIBA-TAING, Mr Matthew, President, Australian Hemp Council

[12:19]

ACTING CHAIR: Welcome. I understand that information on parliamentary privilege and the protection of witnesses giving evidence to Senate committees has been provided to you. Thank you both for your submissions and for appearing here today. I invite each of you to make an opening statement, and then we'll go to questions from my colleagues.

Mr Lariba-Taing: Good afternoon. Thank you to the committee for the opportunity to appear today. I am speaking on behalf of the Australian Hemp Council, the national peak body representing Australia's hemp industry. We appreciate this inquiry because it presents a genuine opportunity to move beyond fragmented discussion and towards a practical national framework for industry development.

Our submission, with the collaboration of those who wish to be represented by us, was built on a simple premise: industrial hemp is not a fringe issue; it's an agricultural, manufacturing and economic opportunity that Australia has been slow to unlock. Industrial hemp sits at the intersection of farming systems, regional development, low-carbon manufacturing, circular-economy outcomes and sovereign capability. It has the potential to contribute across fibre, food, construction materials, biomaterials, research and emerging industrial applications. Yet, despite this potential, the sector remains constrained by regulatory inconsistencies, policy ambiguity and the absence of coordinated national support.

The Australian Hemp Council has centred its submission on practical reform. First, Australia needs a clear, federally legislated definition of industrial hemp based on cannabis sativa containing less than one per cent of THC. Without that clarity, businesses grow as regulators, investors and export partners are forced to operate across inconsistent definitions in compliance settings. Second, industrial hemp should be removed from the national poisons framework and regulated as what it is: an agricultural commodity. Keeping hemp tied to narcotic-style treatment continues to create stigma, delays, administrative burden and misplaced compliance hurdles that are inappropriate for a lawful industrial crop. Third, government procurement must play a role in creating market demand. If Australia is serious about low-carbon materials, regional manufacturing and circular-economy outcomes, hemp based products should have a fair pathway into public infrastructure, construction and innovation programs. Beyond this, the sector also needs fairer commercial access, better input in R&D pathways and integration into broader government strategies across climate, manufacturing, agriculture and regional jobs.

At its core, this inquiry is not simply about hemp; it's about whether Australia is prepared to support an emerging industry with the policy settings needed to scale responsibly. Our position is that the opportunity is real, that barriers are identifiable and that reforms are achievable. We are not asking for special treatment; we are asking for fit-for-purpose treatment. With national consistency, agricultural oversight, procurement support and coordinated policy reform, industrial hemp can become a meaningful contributor to Australian farming, manufacturing, exports, innovation and regional resilience. Thank you.

ACTING CHAIR: Mr Brian.

Mr Brian: That pretty well summed everything up. I'll just give you a little bit of background about myself. I grew up on a farm, very interested in agriculture. I have a hemp building company; I think I'm the largest hemp building installer in Australia. I'm working on developing panels, including sound barriers, as well. I am very involved with the Victorian Hemp Association and have been for a long time. I have been an advocate for all areas of the industry and working to develop different facets of the industry, tied in with universities, research and things like that.

ACTING CHAIR: I might start with that construction element. We've had a bit of discussion today about the standards for hemp products. What work is being done on developing those standards, or is the production of a product a little bit nascent yet to have got down that path? How important will those standards be in driving the development of a product into the market?

Mr Brian: I should also say I'm on the committee for Standards Australia too to get hempcrete as a part of the National Construction Code. At the moment, every hemp related building needs a performance solution report done. That's done by a third party to say that hemp will perform to the standard required. It's more about water resistance. It's actually more to do with render than the hempcrete. Apparently, render—

ACTING CHAIR: It's how it fits into the national code in a performance sense. That's the word.

Mr Brian: That's right, yes. Because it's not actually in the code at the moment, the surveyors can't tick a box. That's what they want; they just want to be able to tick a box. Apparently—

ACTING CHAIR: It's about the external treatment rather than the product itself.

Mr Brian: That's right, because the render is not in the National Construction Code either. Part of the reason hemp comes into it is it's a monolithic product generally, whereas all other rendered bricks have a cavity, so moisture technically can't penetrate right through the wall. They just need to ensure that there's enough water resistance. We're working on getting hemp in the National Construction Code. Well, our first committee meeting is in a few weeks, so it's still early stages of that whole process. That will tie in with standards of the binder, the actual hurd standard itself. You talk about seed crops for hemp. The hurd on those crops isn't as good a quality, hasn't filled out enough, so potentially isn't as useful for building or may not be useful for building, but they'd have other uses, like pet bedding and things like that. We're working with overseas standards as well and incorporating them into our own standards.

ACTING CHAIR: What is the volume of overseas standards in relation to these products that, if we're developing standards here in Australia, they might be aligned with or otherwise?

Mr Brian: As far as I know, Australia doesn't take a direct overseas standard. We almost have to repeat the process, as far as I understand. Otherwise, we could just adopt overseas standards directly, especially for the binder, which have their code marked certifications, but a lot of surveyors in Australia or the National Construction Code don't just accept an overseas standard. I'm not sure why that is.

ACTING CHAIR: Different products perform differently in different environments. That would be my instinct.

Mr Brian: Well, that's probably true.

ACTING CHAIR: It's why different agricultural chemicals are rated differently in different parts of Australia or internationally—because they perform differently in different environments and that has to be tested as part of the regulatory framework. Sorry, I digress.

Mr Brian: I've forgotten where we were up to.

ACTING CHAIR: Well, we were talking about the development of Australia's standards and the capacity for them to be aligned internationally. There is some capacity, but the testing would have to be done to prove the elements of the international standards at a local level, to prove them in our conditions.

Mr Brian: That's right. As far as things like the panels, for example, go, where it's more of a purpose-made product, that would be more up to the individual companies to get the code mark certification, the fire testing and things like that. I'm not sure if the overall standard could then be overlaid to that panel, but I think, because it's a manufactured product, it's a little bit separate, whereas the standards will be more in situ, where it's done onsite. I don't know if you understand the process much, but it's done with formwork, a little bit like rammed earth. I think the focus for the standards that cover that are going to be on the in situ method.

ACTING CHAIR: But it would also—would it not?—specify the mix.

Mr Brian: It would specify the mix. I don't think it's broad enough to cover both. I will ask that question, though. But I do recall something early on saying that the panels weren't going to be included in that. Whether it can be added in, I'm not sure.

ACTING CHAIR: I used to be a builder. I spent a bit of time fighting with the National Construction Code and standards myself. I'm trying to think of how I might apply that in a direct and practical sense if there are a whole heap of variables that don't come with the process.

Mr Brian: I think you're right. If the panel, any blocks or any bricks were made with the same recipe and the same process and mixture—all it is is just a 100 millimetre panel as opposed to a 300 millimetre in situ wall—it's all the same product. But the installation of the panel would be slightly different.

ACTING CHAIR: That would have to meet code specifications as well.

Mr Brian: Yes. Which would be testing on a fixing system.

ACTING CHAIR: So that work is started and—

Mr Brian: Underway.

ACTING CHAIR: You're in the frame because you're sitting around the table, which is good. In terms of the broader regulatory issues that we're dealing with, what are the issues that you're being confronted with, with respect to the national poisons framework?

Mr Lariba-Taing: I'd have to get some proper examples. I haven't had time to actually write them down. It does come down to individual businesses that have been facing those hurdles themselves. I'd have to take that on notice to actually get back to you with specific examples.

ACTING CHAIR: Okay. In terms of the definition of one per cent, that follows on from, I suppose, the evidence that we've received.

Mr Brian: Can I just clarify something on the poison thing?

ACTING CHAIR: Yes.

Mr Brian: Are you talking about it being linked to the poison?

ACTING CHAIR: Yes.

Mr Brian: Right. Is that what you're talking about?

Mr Lariba-Taing: Yes. It's the growing side and what people have to go through to grow hemp.

Mr Brian: You weren't talking about actual sprays?

ACTING CHAIR: No.

Mr Brian: Okay. I just want to be clear.

ACTING CHAIR: How it's grown agriculturally and any applications that might be on it would be a matter for the APVMA. Those applications would be licensed under the APVMA—

Mr Brian: Which is another issue.

ACTING CHAIR: which would assess each active that's being utilised for application to the crop. It would depend on the crop type, I would have thought. If it were a food crop, withholding periods and all of those sorts of things might be applicable. And, of course, it depends on the active, its form and how it might be applied in various environments, because they can vary.

Mr Lariba-Taing: I might add something a little bit contradictory to what people have been saying. I do know that when it came, back in 2017, there were some chemicals that were given approval by the APVMA to be used by the industry to place on the crop. From my accounts and purposes, the APVMA, on that specific topic, have been quite reasonable. They've obviously allowed us to extend the permits even though they have requested specific data from the industry that the industry has failed to produce. I see it as any sort of standard permit. If they've given you a permit and requested data in return and you haven't provided that within the timely manner that they've requested, by all means they have every right to deny it for the next season. Although it is critical to the industry for those chemicals to be available to the farmers who use them, it is on the industry to actually provide that data back. Unfortunately, this time around there was a bit of concern with some of the chemicals not being available for the upcoming season. But the APVMA have been forthcoming and have allowed for that to be used with the promise that we'll provide the data that they're looking for within the timeframe. So those chemicals have been included into AgriFutures AIHPR, the Australian Industrial Hemp Program of Research, and they are being tested up north. The data that is collected from that research will then go to the APVMA.

ACTING CHAIR: So that's being supported by the work that AgriFutures is doing?

Mr Lariba-Taing: Yes.

ACTING CHAIR: It's collecting that data in an appropriate manner.

Mr Lariba-Taing: Yes. It's very fortunate that that was something that was added to the end of the project. The project had already kicked off and then AgriFutures made amendments to bring that in. Reading through the transcript and listening to talks today, there have been two projects run by AgriFutures. The initial one was the industrial hemp variety trial. They took five or six varieties, one of which was from a breeder here in Australia, from Hemp Farms Australia, which is located in Queensland, and they pegged them against international Chinese and European varieties. Then they were planted in WA, South Australia, Tasmania, Victoria, New South Wales and Queensland, just to see how those varieties would perform in those areas.

ACTING CHAIR: The one per cent is basically a broad perspective across the industry that that is where the regulatory framework should sit rather than the varying numbers that we have, from, I think, three per cent in Tassie up to one per cent in New South Wales?

Mr Brian: Yes, I think it's still 0.35 in Tasmania.

ACTING CHAIR: Sorry, 0.3.

Mr Brian: One per cent is quite a good standard. Where the 0.35 per cent came from—I think Paul spoke about it earlier—they asked the French. A lot of the French varieties were below 0.35 and a lot of the Chinese varieties were sitting on it or a bit above. So the French said to the international regulatory body—

ACTING CHAIR: Our friends the Europeans again. I'm going to get myself into real trouble here.

Senator DOLEGA: You're going to cause a diplomatic incident.

ACTING CHAIR: Again!

Mr Brian: So they set it at that, which basically meant that they could sell more of their seed. Most of the varieties grown in Victoria were sitting well below 0.35 anyway. What happens is that, when the plant is a bit stressed, whether it's water stressed, it does raise its THC. At least the regulators are a little bit flexible, so, if it's only a little bit over there, there's a bit of flex. So one per cent does give us that room.

The thing that Victoria is wanting to add in—this is the Victorian department of agriculture—particularly with plant breeders, is some varieties that have some good characteristics that might sit above one per cent. They're talking about allowing researchers to breed from those slightly higher THC varieties to then breed it down to—I think sowing seed has to be below 0.5 of one per cent. The harvested product has to be under one per cent, but the sowing seed has to be below 0.5 of one per cent.

ACTING CHAIR: Is that the content of that seed or is it the certification number of that seed?

Mr Brian: It would have been in the plant. So there's no THC in the seed; it would have been in the head or the flower—

ACTING CHAIR: In the plant material around the seed.

Mr Brian: Yes, in the plant material before that seed was harvested. That's when they would have tested it, so they would know that it's below 0.5.

ACTING CHAIR: So it's 0.5 of a per cent in the plant material that the seed is from.

Mr Brian: That's right. They're looking at increasing that to allow researchers to work with that material to then breed down a product that's below 0.5 per cent.

ACTING CHAIR: Senator Dolega.

Senator DOLEGA: Thanks for coming along today. I might just ask you both the same question that I asked the previous two witnesses about the industry as a whole organising—and I've come from an organising background myself, so I get that things can be a little bit difficult at times. Ms Lucas suggested national assistance for the merging of rival national groups and state groups so that there's a consistent voice from the hemp industry. Do you support Ms Lucas's evidence and submission to our inquiry? Do you have another idea? Or do you dismiss it completely?

Mr Lariba-Taing: From a national perspective, I have a different but very similar view. Andi and I get along quite well, and I know exactly what she's speaking of. I do believe there is a call to have one body. Then—and this is obviously looking toward the future—if levies are ever applied to this industry, it will allow the industry to coordinate those funds effectively.

I don't believe, though, that there is a need for an outside third party to mediate that. I believe that's a waste of resources. Fortunately, on our side, even though it's outside of AgriFutures's remit, they do work quite closely with Charles and me to make sure that we are talking and collaborating. One of the main items I can see is that, whatever initiative we've put forward, the other national body has supported, and, likewise, whatever they put forward we support as well.

One of the most recent ones—and I believe Charles touched on it—was when it came to the APVMA and the use of hemp oil and feeding it to your cattle and livestock. They put forward a letter to the APVMA while the Australian Hemp Council ran its Paws for Wellness campaign. We provided scientific data to the APVMA to say, 'This is why this is unreasonable.' From my perspective, that was a collaborative effort that allowed the APVMA to then slowly make their decision on that matter.

That's where I don't believe we need an external third party, but I do believe we need to have one national voice, and I do believe in looking for assistance from government bodies like Austrade. They want to work—although not strictly—with one body rather than a disjointed one. I do acknowledge those potential missed opportunities for us as an industry.

Senator DOLEGA: And from a state perspective, from the VHA, what are your thoughts on the national groups, Mr Brian?

Mr Brian: From an operational point of view, we support what they do and I hope they support what we do. We have reached out about merging, but that was rejected from the other side. We spoke about an independent, human-resource-type person to pick the best people from both organisations, but we didn't get that far. That was the plan. I went and spoke at Darren's global hemp summit, and that worked well. I think anyone promoting hemp is a good thing. They do things that we might not see need to be done, and we're doing things that they might not be covering. I think, in that way, it's covering a bit more, but then I understand from an operational point of view—particularly in dealing with government bodies—that maybe one voice is better. I'm not sure how the olive

industry evolved. Apparently they had nine different bodies at one point. I'm not sure if they're down to one now. It's just something that all industries face.

Mr Lariba-Taing: It's like the cotton industry; it took them a while to come together.

Senator DOLEGA: Andi did talk about the cotton industry in her evidence.

Mr Lariba-Taing: I spent a lot of time reading into their history to see how we as an industry can replicate what they've done, at a much faster pace. If someone's already done it for us in the past, it's best that we learn from them. I do agree with what Andi said about communication overhead. That's why the strong belief of the Australian Hemp Council is that it should be a federated model. Unfortunately, we only have four voices at the table right now, with Tasmania, obviously, unfortunately, pulling away. The Northern Territory, with it being so small and probably only growing one hectare last year, didn't really contribute too much. With having the key states speaking there on behalf of the people they represent, it allows for items to be dealt with a lot more quickly. That's why I believe the AHC's federated model is best suited to reduce the communication overhead.

Senator DOLEGA: Absolutely. It's good just to get your thoughts about the matter for the record. I just want to ask the AHC about its submission. In relation to procurement, you've suggested 10 to 15 pilots for 20,000 square metres of hemp building products in year 1. If I go back to your submission, I think that was for the pilot program for schools, social housing and regional health fit-outs using hempcrete blocks and products.

Mr Lariba-Taing: Yes.

Senator DOLEGA: Is there product available? If an agency was to come to the industry and say, 'We're going to go for this,' is there product ready to go, or could it be in a pipeline and would you be able to pivot to that and get onto it?

Mr Lariba-Taing: I couldn't say. David might have a better idea, being a builder with the product in the pipeline. I'm fortunate enough to be a business development director of a business called Hemp Inside. We are a processor located up in New South Wales. Pipeline is one of the biggest items that we always like to communicate to the industry. It's understanding when you need to buy the product so that we can put hectares into the ground this year.

Senator DOLEGA: So, if there was a tender process to come out, you'd be—

Mr Lariba-Taing: Yes. Knowing that there's a tender process coming out in the next three months and that it then goes through that whole process—obviously, it's open for three months, it goes through deliberation and then gets awarded; that's probably about nine months out—it means that, come September, we know, if the person is successful or someone is successful, how many hectares we need to put into the ground to then meet that demand. I believe, especially if you're growing it for hurd, there's no shortage of land or capability for making hurd for hempcrete products.

Mr Brian: Essentially, you've got up until September really, or maybe a little bit earlier, just to allow for a bit of preparation. But it doesn't take long to get farmers lined up. So you've got a few months to get farmers lined up, and then you've got your product the following March. In a large project, that's a relatively short lead time to get an unlimited supply of volume.

In regard to the actual products themselves, it can be adapted very quickly into different products. I know there are people working on a chipboard-type product as well. They're experimenting with that. Even just with the hempcrete side of things, it can be modified and shaped and things like that. An architect from Brisbane rang a week ago. There's some big project, which I think might be tied in with the Olympics. We could quickly modify the hempcrete to fit the scale and the size of that.

Mr Lariba-Taing: Yes. I think one of the best examples—you are all fortunate, being from Tasmania—obviously, is looking at the UTAS build.

Senator DOLEGA: Yes.

Mr Lariba-Taing: You'd expect that normal hempcrete walls would be all straight and flat. With UTAS, you've got nice, curved walls.

Senator DOLEGA: Absolutely. It's beautiful.

Mr Lariba-Taing: It's quite adaptable.

Senator DOLEGA: So you believe that, if there was a tender process, the industry could absolutely put in and be ready to deliver?

Mr Brian: Easily.

Mr Lariba-Taing: Yes. Definitely, from supply. I think the crunch point for us as an industry would be with what David's working on. It is meeting the requirements of the tender, to say that it fits the performance.

CHAIR: So that's the standards that you're looking at.

Mr Lariba-Taing: Yes, the standards.

Senator DOLEGA: I might ask you a similar question to that which I asked the previous witnesses. It is about the harmonisation of regulations between the different jurisdictions. How have you dealt with that and what experiences, if any, have you had with states or territories in relation to, for example, the one per cent THC? What willingness has there been on the part of the states, or do you believe that there's just such unwillingness that the federal government needs to take the lead?

Mr Lariba-Taing: I've got both sides of the fence there. There are definitely states who are looking to come to the table and act first and develop their own industrial hemp act. Obviously, New South Wales went through their taskforce most recently. Victoria have just recently completed their independent inquiry and then I believe had their first sitting earlier this year. I think it was early in February, and then they were looking to publish the results in July. Then obviously Tasmania was the leader, once upon a time, in that space. I hate to point up north, but places like Queensland seem to be very reluctant to do that themselves. And, Queensland being Queensland, that is where you potentially can grow hemp year round, and it is home to where our two breeders in Australia actually reside. I believe that, yes, some states are actually looking to move forward, but then some states aren't. And so, if you had a federal framework that then we could go and argue the facts, like, 'Well, the work has already been done for you,' it would give them more incentive to actually follow that.

Mr Brian: There's also the Queensland growing season. We have more of a summer growing season down here and in Tasmania, whereas Queensland can grow during the winter quite comfortably. So we could become an all-year-round supplier to the export market.

Senator DOLEGA: In relation to the AgriFutures investment, what has that delivered for your members, and what are the experiences from that?

Mr Lariba-Taing: I acknowledge the work that AgriFutures has done. I believe probably the best piece of work that AgriFutures have put forward is the best management practice manual. That obviously gives anyone who's looking to jump into industrial hemp a document to refer to and then obviously ask the questions that are relevant to their farm and their situations on how to improve. I believe the research was started with the best intentions to understand what varieties could be grown and what they should be used for. I, coming more from a business perspective, was asking questions like, 'What point is there in growing a variety if you don't know what you're trying to achieve, and what is the market asking for?' You're better off looking at what the market is asking for and then working back and finding the varieties that best suit the market outcome. They do play a good part. In summary, that best management practice has been probably one of the most pivotal pieces of documentation for our industry, but the trials probably could have been conducted a little bit better.

Mr Brian: Yes, it was great that AgriFutures did the trials. I think that's fantastic. I don't agree with Charles that government shouldn't continue with research. Using the Birchip Cropping Group as an example, which is around Birchip, north-west of Bendigo, they get over $4 million in government funding every year to research grains in that area. You could think, 'Well, we've researched wheat,' but they're still discovering new things and new methods. So I see the research as an important thing that needs to keep going as the industry develops. We also don't know what bugs or what fungi might come from multiple cropping back to back or how long we can grow back to back. Do we have some cross-contamination with different fungi, like with canola? I think that is in Canada, but are we going to have that here? So there are a lot of things. AgriFutures are just scratching the surface, really. They did do only grain varieties initially. I think now they're moving into fibre. We probably would have preferred it if it had been the other way around or they had done both. Unfortunately the food side of things is still progressing, but it's not a main supermarket item. Not everyone in the supermarket knows that you can buy hemp seed and hemp seed oil, so there needs to be a lot of marketing going into that.

Senator DOLEGA: It's a stigma. We're still going through breaking a lot of the stigma that's been spoken about. I know where one of the farmers who we've spoken about was barely able to walk more than halfway across his paddock. Then he said—we're not giving medical advice through the committee—that he's having a teaspoon of his hemp seed oil and suddenly he's a changed man.

Mr Brian: It's anti-inflammatory, so that would tie in with that. Actually, speaking of hemp seed oil—as an industry, we'd love the term 'cannabis oil' to stop existing, because it's technically not an oil. Cannabis is an extract. As an example: you've got olive leaf extract, and you've got olive oil. You've got the oil from the seed and the extract from the leaf. That's exactly the same with cannabis. Any oil that is with the cannabis extract is another

oil. It's olive oil, or it's coconut oil. We're always having to educate people on how hemp seed oil is not cannabis oil. That's the first thing they say—'Is it cannabis oil?' So we would love the cannabis industry to refer to it as an extract or a tincture if it's got an oil blended with it and just lose the oil component. I don't know if government can help do that.

CHAIR: They probably can whether you want them involved or not!

Mr Lariba-Taing: David is right in saying that research does need to continue. It is concerning, and it is something that I have flagged with our AgriFutures representative—what the next steps are for industrial hemp and working with AgriFutures if our RD&E plan finishes up next year.

Senator DOLEGA: Research is continuing all the time. We went to one of the medicinal cannabis plants. Seed genetics and everything—the research is absolutely happening all the time. Like you said, you shouldn't stop.

Mr Brian: The thing that we need to do as an industry is really encourage farmers. If they're going to plant a variety, we'll put in one strip of another variety and see how it goes. Farmers, especially at the moment, need to be doing their research. I know a lot of farmers want to come in and have everything done, but it's going to help the industry if they're prepared to do a little bit of the groundwork as well. Throwing in another variety and seeing how it goes in the same conditions is really helpful for the industry. They might find: 'Wow, that one actually did better. I'll put that one in next year.'

CHAIR: Those agronomics are really important, and I've observed that myself in other sectors. For example, when poppies came to Victoria roughly 10 years ago, farmers were understanding the agronomics of poppies. I think there was one guy who decided to flood irrigate them. They didn't like that all that much, and so the crop had to be resown. There were a few other accidents along the way. The learning of the agronomics is really important to your point. Therefore, the need for research always continues. I think about the development of the poppy industry in Tasmania from what it used to be, where you would walk through a waist-high crop to something that's probably now only knee high, and the continued R&D of those varieties and the different varieties that are now grown compared to what they were initially.

Mr Brian: We're also finding that the thinner stalk has a better-quality fibre than the fatter stalk. Some people might be thinking, 'I'm getting more hurd out of the fatter stalk—the bigger, the better.' But they're also finding that, with the higher plant density of the thinner stalk, they are not only getting a better quality fibre for the textile market to fill that shortfall that China has at the moment but getting the same volume of hurd. And then, if you're harvesting it sooner because it's gotten to 2½ metres—and that's a mature crop—you may be able to grow two crops in one season and then maybe do a winter rotation as well. The whole thing with researching—you may be able to push the whole boundary of what's technically considered the growing season. You might be able to plant earlier and harvest at Christmas time, for example, and save water by relying on spring rainfall. There are all of those types of things and what sort of rotation crops—

CHAIR: The need for R&D never stops. You mentioned the possibility of a levy. What conversations have been had about that?

Mr Lariba-Taing: From a national perspective, it's just with AgriFutures, because their remit is obviously to get an emerging industry to levy. Fortunately enough, that's where they do introduce us to all of the levied industries. We're learning from them—some people levied their farmers—and where they actually collect the levy. The only item I could possibly say that has been discussed as being more than likely is that, when there is a levy applied to industrial hemp, it should be applied at the processor, because the processors would technically be the bottleneck of the industry. All farmers have to go to someone to get it out, so the processor would have to collect the levy on behalf of the growers.

ACTING CHAIR: I was listening to your commentary and conversation with Senator Dolega in relation to supply and your capacity to scale up to meet a project. Surely, though, one of the objectives of the industry would be to have a certain scale, with a constant demand that drives a certain capacity within the industry, rather than having the fluctuations of project based supply.

Mr Brian: The initial focus of the industry will be filling that shortfall in China. As Charles said, they've reached the limit of how much they can grow, and demand is increasing. You've got companies like Patagonia that are getting right into hemp, and other companies will follow.

ACTING CHAIR: So that generates that base demand.

Mr Brian: That's right, and it creates that continuous demand. Then you can follow in and have that continuity of supply. So that will be the main core of it. And to tie in with that and tie in with the levies—at the moment, when a farmer grows hemp he doesn't really know what he's growing. He doesn't know if he's got a

Merino sheep or a Corriedale. It's a bit all over the place. What we've done through the Australian Hemp Council is we've registered Hemp Fibre Innovation Australia. The idea is that that would become like Australian Wool Innovation.

ACTING CHAIR: I hope you don't have the history that AWI has had. Anyway, that's a different story.

Mr Brian: Oh yes, we've been learning about stockpiles! But the idea is that we would get a fibre-testing standard, which Deakin are working towards at the moment. I think they're in the process of buying a final piece of the machinery that would cover the whole spectrum. The idea is that the levy would go into helping to fund that and keep the research going, but that research could also broaden out into the hurd side of things and even to the growing side—to go right through the whole thing, not just the fibre. The textile market will be the initial thing.

There's a company in Melbourne that are keen to get some hemp to run through their insulation batt making machinery. Basically, they can do it—they just want to run it through, making sure all the figures are right and that it's a competitive product. As good as hemp is, at the end of the day it's got to be competitive. It can probably handle 10 to 20 per cent more because of its sustainability, but, over that, you're maybe starting to reduce—

ACTING CHAIR: There's a limit in the market.

Mr Brian: Yes. But I believe that, with the whole system, with efficiency in the processing and the growing—and you're growing a lot of it; it's a very bulky product—we can compete with fibreglass and polyester insulation batts. That needs to be our focus through the whole thing, really.

Mr Lariba-Taing: That's why one of the core components of our submission was the use of the whole plant. If we're able to use every part of the plan, it means we can bring down the cost of everything else.

ACTING CHAIR: That's the economics of the plant.

Mr Lariba-Taing: Yes.

Senator DOLEGA: Do you mind if I just ask one more quick one?

ACTING CHAIR: Sure, and then I'm going to give a bit of gratuitous advice.

Senator DOLEGA: I wanted to follow on from the supply question, with the hypothetical—if there was a tender process and everything—just so we have your perspective on the record, Matthew. How does hempcrete compare to timber products on sustainability and in terms of cost, energy efficiency and emissions intensity? What are some of the other benefits that people might not understand?

Mr Lariba-Taing: One of the main ones—and this comes from my HVAC background—is indoor air quality, though, to my dismay, there hasn't been much study of putting in an IAQ sensor into a hempcrete building to understand how many VOCs or TVOCs there are inside the space. In terms of timber and the sustainability process, David would be best to answer that, obviously, being a hempcrete builder.

Mr Brian: I see timber as a sustainable product, and I didn't really agree with the closing down of the industry, because it was a renewable resource. Anyway, that's done. With hempcrete, it's more the other products, like the bricks. Bricks are very energy intensive in their production. A lot of brick companies are having a lot of pressure because of gas prices. Some are spending millions of dollars a month on gas bills. As the younger generation come through and they don't want to work like the older generation, bricklayers are going to be a harder thing to get. Robotics may be able to come into that equation. But that's going to be a factor.

This is where the panels will probably come to the fore, where there can be an automated manufacturing process, and two people are putting up a whole panel, rather than laying all these smaller bricks. Bricks will always have their place, and hemp bricks will have their place as well.

There's no heated energy required for hempcrete. It's an air cured thing. When the lime that's used in the binder is processed, it releases carbon dioxide, but, as it cures, all that carbon dioxide that was released is absorbed back into the wall, and over time the hemp supposedly petrifies, so it becomes like a limestone wall.

Matt touched on indoor air quality, a big issue in housing in Australia at the moment, partly because houses are getting a bit smaller and they're sealing them right up and everything is plastic—plastic paint, plastic carpets. The big issue is that even just vapour from your breath has nowhere to go. So the moisture builds up on the wall, and then mould becomes an issue, and quite often it's mould you can't see. The reason hemp is so good in that regard is that any excess moisture is absorbed by the hemp, and then, when the air dries out inside, it releases the moisture. That's what the breathability is. It's that vapour permeability. It's moving vapour in and out of the wall, so you don't get excess moisture. It doesn't support mould growth.

Senator DOLEGA: For sustainability, and from the industry perspective, hempcrete and timber live together in a world in which the products coexist, but not bricks. This is a new way to build, and it's going to be better than, say, the brick industry.

Mr Brian: Yes, definitely. They say the only thing certain in life is death and taxes, but we've added a third one: rising energy costs. So, if you're going to save 80 per cent on your energy bill, plus you've got a more comfortable environment to live in, that's going to be a big factor.

Senator DOLEGA: So this would be really well suited to modular housing.

Mr Brian: Yes.

Mr Lariba-Taing: I add that, for the full carbon cycle of hempcrete, I do believe Tim himself mentioned in Tasmania that AHC has also worked with Winton Evers's Eco Profit to get the full life-cycle analysis into the FullCAM. Obviously, going straight to the ACCUS and saying 'put our system in' doesn't work. The process has to be recognised as a FullCAM method, and then the ACCUS can actually acknowledge that as a process to use. In relation to your comment that hempcrete and wood live together, it's the exact same view when it comes to fibres. All natural fibres have their place. Our main enemy is synthetics.

Mr Brian: Yes. We don't demonise cotton. We think cotton has a place. It's breathability—synthetics don't breathe. It's the same thing.

Senator DOLEGA: Thank you.

CHAIR: Thank you for your evidence today. As someone who has sat in a ministerial chair and has had to deal with multiple industry organisations, having one industry organisation who comes to talk to me about what the industry's issues are so that I don't have to go to several different places makes a huge difference. The easiest way for a minister to not make a decision is to have a different position from here and a different position from there and let the industry sort it out before you make a decision.

Over 25 years in politics, I've watched a multitude of industry bodies in the agriculture sector get nowhere because there are too many different voices. Why would a minister put their backside in a particular sling if there's another person who's going to bite them from the other side? Horticulture's a great example. I think there were 42 or 43 of them. Trying to get a decision supported in horticulture was always hard because there was always someone who thought they were special. That's gratuitous advice, I admit, but those are my thought processes on the unity of an industry that's looking to do the things that you're looking to do, which we're trying to assist you with.

If there's anything that you've taken on notice, could we have that by Friday 8 May. We would appreciate that. We certainly appreciate you taking the time to come and provide evidence to us today. Thank you to Hansard and Broadcasting. Thank you to the secretariat for pulling it all together.

Committee adjourned at 13:12