

**AGRICULTURAL PRODUCTION — USE OF TECHNOLOGIES**

*Motion*

**HON BRIAN ELLIS (Agricultural)** [11.24 am] — without notice: I move —

That this house supports the view expressed at the fifty-ninth Commonwealth Parliamentary Conference that —

It is vital that parliamentarians play an active role in promoting the use of technologies that have a positive effect on agricultural production.

I move this motion because after attending a grains crops update conference and reading an article about a Commonwealth Parliamentary Conference held in Johannesburg, I realised that agriculture is about to enter an exciting stage in its history. I also thought that as some members have probably not even set foot on a farm, it is important to inform members of these changes that are about to take place in agriculture so that they will understand where the industry has come from and how they can assist the industry to fulfil its potential. Many members would have driven past farms and seen the crops growing and sheep and cattle grazing in the paddocks and thought that farm life must be idyllic and nothing ever changes and this is the way it has always been and always will be. However, the real story of agriculture is one of continual change. It is interesting that only last week, in *The West Australian* of 10 March, there was an opinion piece by the economics editor that recognises the changing face of agriculture. The article states, in part —

Although there has been plenty of talk and analysis about the structural change facing the manufacturing sector, there has been barely a whisper about the change taking place across rural Australia.

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Over two centuries, Australian agriculture has proved perhaps the most adaptable of all industries.

We have come a long way in agriculture from what we started with when the First Fleet arrived with pigs, rabbits and a few fowl, and I think seven horses, seven cattle and 29 sheep. In over just the next 70 years, sheep numbers across Australia had ballooned from 29 head to a flock of 15 million. A decade later, the national sheep flock had grown to 25 million. Without farmers, Australia could not have fed itself and grown and expanded in such a short time, and it could not have helped feed the rest of the world. It is a tribute to our farmers that by 2012, our farming practices were so successful that farmers supplied about 93 per cent of Australia's food, and we still had enough food left over to export more than two-thirds of our agricultural products.

Parliaments and governments played their part during the first 80 years of the last century, when protectionist policies of bounties and tariffs were applied to some areas of agriculture. However, these days, Australian farmers are among the world's least subsidised. An Organisation for Economic Co-operation and Development report published last year to cover the period 2010 to 2012 looked at 47 countries that account for almost 80 per cent of global agricultural output. The report measured the total subsidies farmers receive from governments as a percentage of farm revenue. The only OECD country with lower subsidies than Australia is New Zealand, and the only non-OECD country with lower subsidies than Australia is the Ukraine. The report notes that Australia's agriculture policy has undergone continuous and significant reform since the 1980s. It states also that subsidies have instead moved to targeted direct payments such as relief from natural disasters. Nevertheless, the Productivity Commission's "Trade and Assistance Review 2011–12" estimates that assistance to the sector overall has declined to around three per cent. Farmers have actually become pretty good at going it alone.

By 1905, Western Australia had become a major grain producer. However, the development of crops was limited by rainfall distribution. The 12-inch to 20-inch rainfall zone became known as the wheatbelt. There is a fair range between 12 inches and 20 inches. However, regardless of whether that is due to climate change, farmers have always had to deal with varying degrees of rainfall. Grain growing areas expanded when superphosphate and nitrogen were introduced in the 1890s to improve soil fertility and pave the way for broadacre farming. Pesticides were developed to reduce insect attack and weed infestations. Disease and frost took their toll and scientific research started to take a pivotal role in sustainable agriculture. As our agriculture industry grew, governments, both federal and state, began to recognise the need to fund and conduct agriculture research programs, build agricultural colleges and introduce biosecurity controls. Parliaments had to introduce legislation that kept up with agriculture's changing practices and needs. Along with the scientific advances came mechanical inventions, changing the face of farming in terms of labour intensity and productivity; agriculture began to change to agribusiness. Farms became bigger and machinery became bigger. Parliaments and governments have to recognise that infrastructure such as roads, railways and ports must grow with the times.

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While grain production was expanding, the sheep industry was also growing exponentially. In the 1880s, mechanical sheep shears replaced the old hand shears, and that further revolutionised the wool industry. Australia was said to be riding on the sheep's back, whereas in 1945–46 the gross value of wool production represented 17 per cent of the total value of all agricultural production. In 1950–51 this rose to 56 per cent. The increase in the price of wool led to a rise in sheep numbers and in the four years after 1946 the flock grew from 96 million to 113 million. I referred earlier to an article in *The West Australian* that mentioned changes in agriculture. In that same article, *The West's* economic writer noted that the culinary move from lamb to chicken and the plummeting demand for wool have contributed to the national flock dropping to fewer than 72 million in the subsequent years. He noted the following —

It has been a long time since Australia rode the sheep's back.

But as key markets develop overseas, the chances of hopping back on those sheep—and all manner of other animals—are increasing.

Sheep are also being grown for meat. These days the refrigerated and live meat trade plays an important role in our nation's economy. It is expected that the value of WA's live exports to Indonesia will double to \$400 million a year by 2025. The Bahrain sheep market has been reopened and agriculture exports to China have more than doubled in the past five years. China is already Australia's biggest market for agriculture products. It is notable that the Australian Bureau of Agricultural and Resource Economics and Sciences report released on 4 March this year shows that, by 2050, the mining boom will be replaced with a food boom, because China accounts for almost half the global increase in food demand.

Parliaments and governments have a determining role to play in initiating and maintaining valuable export markets. For example, the Middle East is a major market for WA wheat, meat, live sheep and cattle, and horticulture products. In February this year, the WA Department of Agriculture and Food led a strong WA delegation to the Gulf food exhibition in Dubai and the Minister for Agriculture and Food, Hon Ken Baston, has been busy promoting a WA–China agribusiness conference to be held in Perth in April. As politicians and especially as governments, we must be extremely mindful of how we negotiate with these markets, but agriculture progress has been limited to not only scientific and mechanical advances; in more recent years, agribusiness has become e-business. These days, the latest tractors can drive themselves using GPS technology. The farmer is probably sitting in his air-conditioned cabin monitoring his iPad to check weather reports, or using the apps on the iPad to update market prices for grain and checking on new varieties.

**Hon Robyn McSweeney:** He's getting lazy.

**Hon BRIAN ELLIS:** He will, hopefully, turn around when he gets to the end of the paddock! There have been cases of farmers driving through fences.

The use of this technology is not foolproof. High-tech devices on boom sprays can now detect weed density and apply pesticides at suitable rates, automatically switching on and off as required, but, obviously, the real saving is in costs and through avoiding unnecessary over-application. Other devices can detect soil moisture and apply fertilisers accordingly; they also save costs and avoid over-application. A header-mounted grain tester gives farmers the ability to instantly assess the quality of the crops they are harvesting. A Japanese prototype soil monitor is now available to measure in a single pass 19 different soil parameters, such as nitrogen, phosphorous and micronutrients. It uses a tine ripper that goes into the ground and measures the reflectance. For those still growing sheep, an ultrasound scanner tells farmers when the animal is pregnant. It detects pregnancy sooner and can detect twins.

At the latest grain crop update conference I attended in Perth there were predictable sessions of seed varieties, seeding depth and plant nutrition et cetera. Some sessions had e-tech titles such as “Out of the ‘cloud’ and into the paddock: making mobile devices work for the practical farmer” and “Farming from space—current and future opportunities for remote sensing to boost productivity for grain growers”, for example, the Doppler technology that United States farmers have been using for quite some time. Others were “Fertiliser strategy, drones and Apps ...” and “eConnect”, which was about better data management. There were technical advances that even I, as a farmer who has farmed all my life, am battling to keep up with. I think they are more for the next generation.

It is our job as members of Parliament to keep up with these technical advances because some will prompt legislative changes. Farming advances have not been possible without the underlying structure of government policy and legislation across more than just agriculture policies. Agriculture practices also demand on-road, rail and port infrastructure; environmental approvals; pastoral tenancy agreements; animal welfare regulations; biosecurity measures; border security; education; technology advances; and marketing opportunities. As

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members of Parliament we have a responsibility to ensure that these agriculture policies and regulations are practical and effective.

From looking at the time I can see that I am running out of time. In conclusion, I think it is important that members of Parliament keep up-to-date with these advances but I quote from *Farm Weekly* a word of caution, “Regulatory pressures were mounting against farmers.” I will continue my remarks later.

**HON NIGEL HALLETT (South West)** [11.39 am]: I would like to thank Hon Brian Ellis for bringing this issue to the attention of the house; it is an excellent opportunity to highlight some of the deficiencies in technology we are facing. I find it quite strange that the rest of the world is using a system such as Doppler radar, but Western Australia does not have a single station. The other states in Australia use it quite extensively, and one would have to question why we have missed the boat.

Doppler radar is very applicable to not only agriculture but also a wide range of other uses such as emergency services, mining operations, aviation and marine services. An example of how it could have been used by the emergency services is the Margaret River and Nannup bushfires, which are pretty fresh in our minds. Doppler radar works on instant imaging. The Climate Corporation is one of 17 companies in America that offer it, and it gives an update on weather conditions every six minutes. That covers everything from soil moisture to wind conditions—a whole range of weather aspects. Margaret River was behind the eight ball; weather changes, wind changes and temperatures were unable to be detected. If there had been a base in Nannup, which is in the heart of that bushland area of the south west, there would have been very accurate imaging that would have covered back to Manjimup and through that south west area. Some 100 000 acres of jarrah forest have been affected by fire in recent times.

The mining industry in Mt Isa has saved some \$5 million a year because it is able to make informed decisions and detect the change in weather patterns. It has been a huge tool in those operations. In aviation it is used extensively in the eastern states to monitor changes in weather. Apart from the agricultural side, the implications for its use across the whole state are certainly wide.

Two years ago The Climate Corporation said its system had a 97 per cent accuracy rate. The owner of the company estimates that within the next short period it will have an estimated coverage of some \$3 trillion. That is one of 17 companies that offer this service. There are some 150 Doppler radars scattered across the US. A representative of The Climate Corporation was sitting in a paddock at Bruce Rock and brought up their clients in the US. He looked at this one farmer who had three farms, and said, “This guy hasn’t worked for five days because the weather conditions have been against him.” The representative looked at the farmer’s other blocks—it is a service that obviously has to be bought; it is not expensive—and saw that he had a window opening up in two days’ time and sent an email to him suggesting that he go from his 110-day corn back to 90-day corn. Doing that also gave him his crop insurance policy because he was following what the climate was predicted to do. With accuracy of 97 per cent, it is a pretty good bet.

What would it do for Western Australian farmers? It would give them the opportunity to plan and manage on-farm risk. It would provide the opportunity to protect their balance sheets in that if their forecasts out are not right, they can cut their costs. Both I and Hon Brian Ellis are still actively farming, or involved in it, and we know that the input costs based on weather are huge. We do not have this type of technology that would help us to make an informed decision on how much we put up front. With Doppler radar we would get to the other end of the season and know the soil temperature, moisture and yield. Say there was only three or four days of moisture in the soil, we would know not to apply more nitrogen. If the season is tailing off, we know we can cut our costs at the other end.

The economic benefit was highlighted in a Canadian study done in 1999. It was estimated that Canadian farmers were picking up approximately \$100 a hectare a year as a result of the precipitation forecasts. If we relate that back to Western Australia’s 12 million hectares, that would put, approximately, an extra \$1 billion into the economy.

If we wanted to have Doppler radar properly across the whole of Western Australia, it would cost about \$20 million. With just a little help from my good friend the minister, I found \$10 million that I think could help us pop a couple of stations through. In relation to the agriculture policy of helping grain growers better manage risk, there is \$10 million sitting there and we could pop a couple in straightaway.

**Hon Darren West:** I see the minister nodding as you speak.

**Hon NIGEL HALLETT:** That is right! We have had several discussions on this.

The United Kingdom has seven Doppler radars, but it is now upgrading to dual polarisation; France has some dual and triple. We are a long way behind in this technology, and I certainly encourage the government to fast-track this technology and make it available to, particularly, Western Australian growers. It can be extended to

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pastoral areas—to our graziers—because it is able to monitor production growth, and when we go back to looking at the pastoralists and how they have to manage their rangelands now in a physical sense, that could also be done by the use of Doppler radar. The imaging could be brought down to a square metre—in the US it is a square foot; I think here we would be happy with a square metre—and the amount of time and resources that could be saved could be significant.

**HON PAUL BROWN (Agricultural)** [11.47 am]: I thank Hon Brian Ellis for this motion and wish to express my agreement that parliamentarians should indeed play an active role in helping agriculture by promoting the use of technology and modern techniques that will have a positive effect on agriculture productivity. I listened with great intent and interest to the comments made by Hon Brian Ellis and Hon Nigel Hallett. There have been quite a few advances in agriculture in the past few decades. As recently as yesterday at the WAFarmers 2014 Annual Conference at The Vines there was quite a lot of discussion—Hon Ken Travers was there, as was Hon Ken Baston—during the question and answer session and around the halls about the advances in technology and their uptake by the agricultural community. I will list a few, and I apologise if I am repeating a little.

Some of the highlights include the advent of AutoSteer and GPS navigation—the technology that enables the precise application of seed, fertilisers and chemicals. It helps avoid costly wastage of inputs, which is obviously beneficial to farmers. We also have research and development into crop varieties by private enterprise and government, and they are working to improve the capacity of our agricultural industry by constantly developing better, higher-yielding strains and hardier varieties. Hon Nigel Hallett talked about Doppler radar, which, coupled with the weather stations within the radar footprint, allows the Bureau of Meteorology to provide a more specific snapshot of the current weather conditions from a very specific location.

One of the great investments that this state government has made in agriculture is the development of the Australian Export Grains Innovation Centre. The government made a \$50 million commitment to AEGIC over a five-year period, which in turn has leveraged another \$20 million from the Grains Research and Development Corporation and \$15 million from CSIRO to enable AEGIC to develop strategic market intelligence along with grain quality and processing technology. The Nationals recognised the importance of AEGIC when we committed another \$20 million in our “Seizing the opportunity” vision for agriculture policy at the 2013 state election. Therefore, \$105 million in total has been committed to AEGIC over five years to allow it to prosper and enable the agricultural grains industry in WA to develop new markets and service existing markets. AEGIC’s website states that its mission is to —

Enhance the value capture by export grain producers through national leadership and coordination in research directed at export grain quality, functionality, processing innovation and market and supply chain analysis.

That is beneficial to agriculture not only in Western Australia, but also throughout Australia.

There have been advancements in machinery technology. We have gone from the use of tow-behind threshers and harvesters—Hon Brian Ellis and maybe Hon Jim Chown might remember those; they might have seen them in operation on their farms —

**Hon Ken Travers:** I think you started with bullocks, didn’t you?

**Hon PAUL BROWN:** I can say that I still have one of those on my farm; it is still in pretty good order and it is there as a backup just in case.

We have moved to more modern models. I look at them quite regularly, as I am sure Hon Darren West does, when I go to field days. I drool over a lot of these machines and what they can do to —

**Hon Ken Travers:** I wondered what that mess was!

**Hon PAUL BROWN:** That may have been me!

As farmers go around various field days, we gravitate to the machinery section and look at these wonderful, magnificent machines that can now measure grain moisture levels, do protein analysis and segregate grain. We can do on-farm segregation of grain without having to utilise a heap of other storage, which also benefits farmers. Surveillance and mapping technologies such as drones and satellites inform farmers, and governments for that matter, about soil moisture levels, salinity and nutrient levels.

Hon Brian Ellis mentioned the advent of pregnancy testing. Prior to entering Parliament, I was, and still am, involved in a livestock company that is quite heavily involved in the pregnancy testing of sheep and cattle throughout WA and, sometimes, other parts of Australia. That one piece of technology has allowed the productivity of farmers to expand to capture markets as required. They can either send dry—that is, not pregnant—ewes off to market or carry them on further. It allows farmers to identify single births and multiple births so that they can apply feed or do pasture rotation. That is another fantastic ability. The technology used in

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the pregnancy testing of dairy cattle is at such a specific level that now farmers can actually sex the foetuses inside the uterus. That gives dairy farmers the ability to identify well in advance what sex the foetuses are, thereby enabling the farmers to make a conscious decision about what to do with the pregnancy. That might not be palatable to some people who do not understand the realities of farming.

Today, the staff of my livestock company are at a feedlot in Badgingarra processing about 6 000 head of cattle for Israel. They are using another form of technology. I am not too sure whether those members who are not from a farming background are familiar with the national livestock identification system, which was introduced to track and identify livestock and disease outbreaks. We can now utilise that system to allow farming enterprises to remotely identify cattle on pastoral stations, segregate them at watering points on the stations and do remote weighing. All that data can be uploaded from these remote points via wi-fi and/or satellite technology back to the station owner. This gives station owners the ability to do other things on the farm and not have to spend time doing that work. The technology means that work is done without the station owners or their staff needing to be committed to that practice at that time.

The stand-out in this list of technological advances that has been, and will continue to be, the most beneficial to agriculture is the rollout of genetically modified technology, particularly in the grains industry. This innovation alone will be the saviour of the expected nine billion to 10 billion inhabitants of this planet by 2050. As conventional wisdom suggests, between now and 2050 we will have to produce more food than mankind has produced since we have been on the planet. Some people in the community have a philosophical objection to GM technology, and they are certainly entitled to their opinion. I suggest that most people in the community have heard those who are flagrantly scaremongering to gain advantage for their own personal beliefs or perhaps for reasons of commerce that they do not declare, but the science is clear. The Office of the Gene Technology Regulator, the body that has the final say on these issues in Australia, has determined that the GM crops that have been approved in Australia pose no risk to human health or the safety of the environment. The naysayers in the GM debate have not been able to provide one piece of credible evidence to support their vision of agricultural Armageddon. GM canola allows Western Australian farmers to be more productive and use fewer chemicals. The continued expansion of GM canola allows for lower storage costs across the spectrum of WA's storage facilities. Also, GM crops are leading to health benefits in Third World countries.

Given the lack of time, I will leave it there. I applaud the sentiments raised by Hon Brian Ellis and I fully support the motion.

**HON KEN TRAVERS (North Metropolitan)** [11.57 am]: I was looking forward to hearing the government respond, but maybe we will not hear that today.

**Hon Peter Collier:** We are the government—all of us.

**Hon KEN TRAVERS:** Leader of the House, I will use the remarks that I was going to open with. I listened to the debate and I congratulate Hon Brian Ellis for bringing this motion to the chamber, but once again I am left wondering how government backbenchers can get it so right and the government frontbenchers can get it so wrong. We had a fantastic explanation. The comments by Hon Nigel Hallett in particular about Doppler radar left us sitting here wondering how on earth the government has not dealt with this issue. In a very short space of time, Hon Nigel Hallett put a very succinct analysis of how Doppler radar could not only help the agricultural industry in Western Australia, but also have prevented the fires at Margaret River and assist the mining industry. People talk about win-win, so where is the loss? Consider the fact that the Barnett government under the Liberal and National Parties has had a review and changed the way in which weather stations operate and got rid of a whole lot of staff in regional WA, which has an impact on regional WA. The government does not have to use the \$10 million, Hon Nigel Hallett; it could have used the money that it saved from cutting jobs across the wheatbelt and put that back into providing an economic tool for the industry. I am bewildered by that.

Hon Paul Brown was at the Western Australian Farmers Federation conference yesterday. One of the speakers gave a quote at the end of her presentation, which she said was from Charles Darwin. It is questionable whether it is actually from Darwin; nonetheless I think it is still a relevant quote. Darwin said that it is neither the strongest of the species that survives nor the most intelligent. He said that in the struggle for survival, the fittest win out at the expense of their rivals because they succeed in adapting themselves best to their environment. I think that really sums up what we are debating today; that is, those who adapt, who grab those new technologies and who incorporate them will be the ones who survive. The reality is in agriculture in Australia, we are in competition. I would argue that if we do all of those things, we probably are the most intelligent.

The other thing I wanted to raise in this debate is my belief that there is a role for government, but I also acknowledge that the people who will adapt and use the technology the most are the farmers themselves. They will be the first people, but there are issues such as Doppler radar which, as a government, we can use as an economic tool. We can be using the money that is there. In fact, one of the things we have seen over the past four

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or five years is that we do not have those champions of what goes on in how we can drive the economy of the wheatbelt. I remember attending a function—I am not going to do it today—but many years ago out at Gloucester Park, there was a guy called Ernesto Sirolli who did a presentation; I think it was for the Country Urban Councils Association. He took his shoe off and held it up for everyone to see. It was a very dramatic event; it was kangaroo leather. Everything was done in Italy, not in Australia; we had lost that technology.

Back in those days, we actually had people who were looking for economic opportunities. It was not just in terms of agriculture but how, in other ways, we can drive an economy in the wheatbelt of Western Australia. We have seen that completely go. Where are the champions of the oil mallee industry in Western Australia? It used to be there at the parliamentary level driving an alternative way of providing not only an income to those regions, but also dealing with climate change—effectively farming carbon. We do not see that sort of approach any more in Western Australia at a government level, but it is great to have a debate today in which people are putting these matters forward.

Where is another area where we are changing technology in quite a simple way and making a complete difference to the economic viability of farms? I will tell members about one. Co-operative Bulk Handling made a decision a couple of years ago to buy completely new rolling stock for carting wheat in Western Australia. It changed the economics in the way in which we can cart wheat, because all of a sudden, given that all rail lines are limited in the amount of tonnage they can carry on them, if half of our tonnage is in our rolling stock, of course we carry less wheat, and the cost of moving that wheat is more expensive. But if we buy aluminium rolling stock—it is simple; it is not even that innovative in its technology and it has been around for years—by making that investment, by buying that latest up-to-date technology, we are able to completely change the economics in the way we could cart grain. It would then impact upon the profitability, that would then allow farmers to go back to buy other new equipment and to adapt to new and varied technologies that are available to them that have been outlined today.

Who are the only people in Western Australia who have failed to pick up and adapt to the changing circumstances and to change their policy to adapt? It is the Barnett government, the former Minister for Transport and, I suspect, the still current parliamentary secretary for transport who have held a position of complete intransigence on that issue. Blind Freddie and everybody else in Western Australia could see that there was a new way of doing things that could make a better outcome, make it more profitable for farmers, and yet it is the government that has been the one body that has stopped that from happening. That is why I can stand here and say, “I look and listen to the backbench of the Liberal–National government in Western Australia and they get it!” They do understand it, and I will give them the credit for that today. So why cannot their frontbench get it? What is it that stops that from getting through into their frontbench? Maybe it is about time for a rotation policy again to see if we can get some better outcomes.

The other area where governments can actually work and assist in these matters is in ensuring the departments are helping lead the way. I agree with Hon Brian Ellis; we as members of the Parliament need to be out as being across these things. We also need to ensure our agencies are at the forefront. The reality is that one of the key areas Western Australia required was a new department of agriculture. I am sure Hon Mark Lewis knows about the old headquarters of the department of agriculture better than anyone! I do not know, but how many times have we deferred the new headquarters for the Department of Agriculture and Food now?

**Hon Ken Baston:** Eighteen years.

**Hon KEN TRAVERS:** Yes, but there was money in the budget. The government finally got some money in the budget; it was all ready to go. If I remember correctly, over \$2 million was spent in getting the planning done for that new office. I know what happens when those sorts of things happen. It is not just about building a new office, it would have also been the point at which new technology would have been brought in; technology that touches on biosecurity and around all of those other research arms that the agriculture department has been part of the charge or the leading lights of in Western Australia.

We see this government build a whole lot of monuments to the Premier of Western Australia that will not drive and assist the underpinning agricultural industry of Western Australia. Mark my words, when the mining industry boom is over we will turn back and look at two industries in Western Australia to get us out of the mess. One will be agriculture and the other will be tourism. Yet, over the last five years when we had an opportunity, when the money was there, the government’s position has been to constantly defer that office block. It not about just building a new office block to have nice shiny offices for the staff to work in. The thing I would hope for, if I were the Minister for Agriculture and Food, would be to make sure that the new office has the new technologies and the ability to adapt to future technologies so that, once again, the Department of Agriculture and Food will be the facilitator by providing the outreach and assistance to the farming community who will then know what is available.

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One of the things that has always amazed me, and it is probably a debate for another day, is the survey that is done by the Department of Agriculture and Food each year of the farming community. The survey basically indicates that the overwhelming majority are either neutral or actually believe that the department does not assist them in terms of increasing their profitability. That says we have to do it better and we have to change so that farmers can actually say, “No, this department is helping us to be more profitable, more adaptive and more innovative.”

**HON MARK LEWIS (Mining and Pastoral)** [12.07 pm]: I support the motion by Hon Brian Ellis, namely, that we congratulate the Liberal–National government on its excellent performance in the agriculture and food portfolio. I will touch on some of the issues just raised in that last speech by Hon Ken Travers, given that I have got a background in both agriculture and in the Department of Agriculture and Food.

Australian farmers have a history of innovation and ingenuity in which we have seen big leaps forward in agriculture through technological developments such as the stump-jump plough, the Sunshine combine harvester, and what we now call the automated dairy industry. As a member for the Mining and Pastoral Region, I will again highlight that what is probably some of the world’s best practice in irrigated agriculture is sitting right under our nose at Carnarvon. The practices used in Carnarvon are, without doubt, world-class and produce our fresh fruit and vegetables. Members would have heard of the Israelis being ahead of the game in agriculture and irrigated agriculture; members probably would have heard of the Californians also being powerhouses in the production of food. I can tell members I have been to both Israel and California, and I can stand here today and say that there is no doubt in my mind that the technology used in Carnarvon surpasses both of them. It is not only the technology, it is actually the management practice and the agronomic practices that sit behind them.

**Hon Ken Travers:** I was going to say that I suspect some of the technology came out of Israel, but we’ve then adapted it.

**Hon MARK LEWIS:** Yes. The actual hardware, generally for computers that we now use in agriculture, yes, are done by people like Netafim and also Silicon Valley. But Carnarvon’s on-ground practices and agronomics probably surpass them.

The practices that drive this remarkable response are what we might call open field hydroponics, which is basically the adaptation of the hydroponic industry but out in the open field. We are fertigating through drip technology, which is also developed and produced in Israel, but the difference is in the way we apply it. In terms of our water use efficiency, we produce about \$8 000 of agricultural product per megalitre of water. I cannot find anywhere else in the world, even in Israel, where that is surpassed on a precinct scale. Obviously, individual crops will do that but not on a precinct scale. As I said, we are up there with the best, or even better.

The best thing that politicians can do—this is going to the heart of the motion—is produce more water in areas such as Carnarvon and also get out of the way when it comes to regulatory regimes and that sort of thing. We have to give credit where credit is due, mainly on the good advice of some very good public servants in the Department of Agriculture and Food at that time, but the former government was also very active in this role.

**Hon Ken Travers:** The current government got rid of one of the best.

**Hon MARK LEWIS:** I agree; it probably did.

**Hon Darren West:** You’d think the government would give them some job security, wouldn’t you, such quality public servants?

**Hon MARK LEWIS:** I could go there but I will not.

The government has committed \$25 million to the Gascoyne food bowl initiative. Along with previous exploration and drilling for water, the amount of water provided to industry in Carnarvon to use in this very efficient and effective way will nearly double.

Over the past couple of years, the main game in northern Australia is to look at other areas, not just Carnarvon. We are doing that through the water for food strategies introduced by this government. We also need to open up areas such as La Grange, which is south of Broome, and the Knowsley area, which is south of Derby, and develop the water resources there.

The other area in which we are taking an active role in promoting technology that has a positive effect on agriculture is the Pilbara. The government is looking at new ways to develop sustainable development in the Pilbara, borrowing heavily on the agronomic and irrigation practices that I just outlined we use in Carnarvon, and developing new approaches that will allow us to open up the Pilbara. I have already mentioned in this place the story about Rio Tinto carrying out mine dewatering, which in relative terms compared with Carnarvon is about 10 gigalitres. We are looking at about 200 gigalitres, so it is potentially 20 times the size of the Carnarvon

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area. The technology that is being used has been directly adapted from Carnarvon but applied on a broader agricultural scale. The two projects up there are probably the two largest irrigated agriculture projects in Australia outside of the Ord. That did not happen by accident. A lot of adaptation and learning went on. I congratulate Rio for its research and development and for leading the charge.

We have seen the adaptation of what might be called the open source codes that sit within centre pivots that major companies such as Reinke hold very closely. These systems drive the big irrigation systems around the world. We went to the United States and worked with Reinke to change its open source codes so that it could be adapted to Australian conditions. We are also looking at the environment that allows this to happen. That is part of an initiative that was recently announced by Hon Ken Baston as part of the \$12.5 million Pilbara hinterland agricultural development initiative. One of the major outcomes of that initiative is to review the regulatory arrangements around how we might use mine dewatering and how we might operate in the Pilbara.

I like a bit of a punt every now and again. If someone had said 10 years ago that the Pilbara will be one of the major agriculture areas in WA, I would have taken as much money as I could on that bet. Today we have two of the biggest irrigated agricultural projects outside the Ord. We will be looking at how we might expand the Pilbara hinterland agricultural development initiative and open up further opportunities in the Pilbara. It is really only through the ingenuity and innovation of the farmers in Carnarvon and the Ord, and WA more generally, that we are able to do this.

I commend Hon Brian Ellis for bringing this motion forward because it gives us the opportunity to inform everybody that we are at the cutting edge and engaging in what is obviously world's best practice in agriculture.

**HON DARREN WEST (Agricultural)** [12.17 pm]: I will speak very briefly because other members want to have an input and contribute to this debate. I congratulate Hon Brian Ellis for bringing such an important motion before the house. I join forces with my fellow farmers, my Liberal colleagues, on the other side of the house for bringing such an important motion forward. Technology is vital to our industry. Most technology will come about itself. Industry will fund that. I would like to bring two things to the house's attention. I went to the recent grains conference. In a bipartisan way, this house needs to address the graph I have in front of me, which shows the state government investment in research and development in agriculture over the past 20 years. It is a worrying trend. Germany and Brazil are beating us hands down in this area. They are more efficient and more productive than us. One of the ways we can do that is through the use of Doppler radar. I also have a piece of paper that shows all the Doppler radar sites in the United States. We do not have any in Western Australia. The Doppler radar system was invented 170 years ago. In 2014 we should perhaps all get together and work out a way that we can implement such a system for the benefit of all Western Australian farmers because it is a vital piece of technology. I concur with most of the comments made by the previous contributors.

**HON KEN BASTON (Mining and Pastoral — Minister for Agriculture and Food)** [12.19 pm]: I would like to thank Hon Brian Ellis for bringing this motion to the house. It is a valuable motion that has created very valuable discussion. The input has been very good. I noticed that Hon Ken Travers raised the issue of the new headquarters for the Department of Agriculture and Food. One of my priorities is to try to at least have concrete poured in my time as minister.

**Hon Ken Travers:** You better get on with it.

**Hon KEN BASTON:** It has been pushed back over 18 years from when it was first mooted. It was a \$236 million project.

**Hon Ken Travers:** Since there's been money in the budget, your government has constantly deferred and pushed it back. There was money in the budget.

**Hon KEN BASTON:** It has been pushed back over the past 18 years. I assure the member that it is extremely important to not only have a building, but also to have all these facilities for the high-tech machinery. I have been working very hard on trying to find somebody else to share some of that machinery, because some of these microscopes are worth some \$500 000 each. I believe other agencies could be involved in the science side of it as well, and I am still working on that.

My good colleague Hon Nigel Hallett touched on the Doppler radars. We are working very hard on a business case for that. It is true that we do not have any in Western Australia, and they do create a huge advantage in predicting outcomes for better farming in the future. In the short time I have left, let me say that agriculture is extremely exciting in this state. We always see that whenever there is a downturn in the resources sector, agriculture pops its head up and fills that gap. Last year, of course, we had a record crop of 16 million tonnes, and that did not happen without technology. There are fewer people out there in the agricultural sector, but technology has allowed them to increase their productivity. It will not be long before we see farmers sitting on

Hon Brian Ellis; Hon Nigel Hallett; Hon Paul Brown; Hon Ken Travers; Hon Mark Lewis; Hon Darren West;  
Hon Ken Baston

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the veranda, controlling their headers to take off a crop. It is already happening in the resources sector, if we look at Rio Tinto.

**Hon Ken Travers:** Hon Nigel Hallett already does that, with a glass of wine whilst his son's out there!

**Hon Nigel Hallett:** I'm becoming like a pastoralist!

**Hon KEN BASTON:** I will not make comment; it seems to apply in politics as well!

The opportunities created by the research that has been done by the department are fantastic. It is creating higher crop yields, which has resulted in those record tonnages. It has also resulted in frost-resistant crops, and crops that do not need as much water as they have in the past, and have a shorter growing time.

**Hon Ken Travers:** Have you been down to UWA's Future Farm?

**Hon KEN BASTON:** No, but I have already booked in to do so. The Future Farm is fantastic. Before I came into this place, I always maintained that it was all very well for the department to throw down the gauntlet about what we should be doing, but not if it was not able to do things itself in practice. I always used to say, "Come back, show me the profits I can make, and I'll adopt the ideas." I believe that that is happening, so we are moving in that direction. My direction, of course, has been very much towards markets, so that we can increase the profitability of farmers. Of course, we then need productivity, and it is productivity that actually draws on the technology to increase profitability with the number of people we have on the ground. The Managed Environment Facility in Merredin is one of only three such facilities nationally in which research is carried out. When we look at all the issues surrounding the raising of genetically modified crops, we see that that is just another way of us keeping up with the yield and increasing productivity.

There are huge opportunities for agriculture in Western Australia and the more people who realise that, the more investment we will have from private investors and farmers out there. I think this is a fantastic opportunity, and I thank Hon Brian Ellis for bringing this motion to the house.

Motion lapsed, pursuant to standing orders.