Australian Government

Chief Scientist

PROFESSOR IAN CHUBB AC

ADDRESS TO THE ROYAL MELBOURNE SHOW AGRIBUSINESS LEADERS LUNCHEON

15 minute speech and 15 minutes Q&A

WAITING FOR THE APPLE TO FALL

12:30PM – 2:00PM

26 SEPTEMBER, 2014

PORT PHILLIP ROOM, MELBOURNE SHOWGROUNDS

ASCOT VALE

Listening to some economists I get the impression that ideas grow like apples, on trees.

Or they roam free-range around laboratories, until the scientists chase them down.

If the scientists are hungry, they will run. If they're any good, they get to eat.

And if they're not – it's best for all concerned to let them starve. Call it 'freeing up resources for the productive assets'.

Somehow it all works, because iPads come out at the end, and the rest of us can just remove the bubble-wrap.

With all due respect to those who take this view, it is logic we left behind with the Neanderthals.

For tens of thousands of years, we have understood that you only reap the harvest you sow.

You don't have to wait for the apple to fall. You can choose the right moment to pick it.

And better still, you can plant the orchard in the first place.

You can harvest ten thousand apples where you began with the seed of one – with patience, persistence and planning.

In other words, you can be a farmer of ideas as well as food.

We too can run with the policy equivalent of a rain dance. We can bet the national farm on fate. Or we can accept that success is a matter of choice, far more than chance.

I hope we will have the wisdom of the farmer.

I have shared these views with people in agriculture for some time. This month, I released my recommendations for a Strategy to the Government.

I want to urge the leaders in this sector to take an interest.

We have a lot more in common than an appreciation of the need for planning.

The future of agriculture – and consequently the future of this country – rests on our capacity to back you with science.

That is what the data tells us.[1]

- Almost half the value of output in 2003 can be attributed to new technology generated by domestic research since 1953.
- Were it not for domestic research the real value of output would have contracted from about $35 billion to less than $20 billion in 2003.

If we doubt the numbers, the reality of a modern farm would confirm the message.

Survival in the industry is not just a question of hiring the occasional agricultural technician.

[Which in itself is not a particularly easy thing to do. We have less than 1200 agricultural technicians in this country, and we imported more than 100 of them on 457s.[2]]

A modern farm needs a workforce that makes innovation its daily agenda – and a culture that puts science at its core.

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[1] Sheng, Y, Gray, EM, Mullen, JD and Davidson, A 2011, *Public investment in agricultural R&D and extension: an analysis of the static and dynamic effects on Australian broadacre productivity*, *ABARES*

[2] http://www.immi.gov.au/pub-res/Documents/reviews/streamlined-responsive-457-programme.pdf.

- Reaching for opportunities.
- Understanding what research means.
- Applying that knowledge in a market that won't wait for Australia to keep pace.

We would have to do all that to tread water.

- We make much of the fact that the value of Australia's economic production rose by some 67 per cent in the five years to 2012.[3]
- But over the same time, we increased waste production by **147 per cent**.
- Greenhouse gas emissions climbed **25 per cent** – and energy consumption at a similar rate.
- Water consumption dropped, largely in response to drought – but as soon as availability increased, we turned back down the old growth track.

How, and for how long, can we sustain this? And how does it match up with the promise of our policy agendas?

- To be a food-bowl of Asia?
- To be a global leader in biofuels?
- To double our agricultural output by opening up the North?

It seems to me that we are calling for innovation on a scale we have never achieved in our history.

[3] ABS Environmental Accounts (April 2014). Available: http://apo.org.au/files/Resource/abs_australianenvironmentaleconomicaccounts2014_apr_2014.pdf

And we have to do all that with a community perhaps more disconnected than ever before from the reality of science **or** farming.

So I worry that our complacency will defeat us.

In agricultural research, as in so many areas of our science enterprise, we have been living for far too long from meal to meal.

Governments establish large programs to tackle specific problems. The politicians or the priorities then change, and the funding and research focus fades.[4]

Perhaps we have learned to adapt to the political winters – never trusting too much, never risking too much, never looking too far ahead.

But all along the way, valuable work from across the research spectrum – from discovery to development and translation - is stymied long before we have had a chance to capitalise on it.

Research from the Bureau of Agricultural and Resource Economics shows that public R&D research strategies that invest over the long-term result in higher returns than those with a short-term focus.[5]

Too much expertise and knowledge is lost or wasted when we leap from agenda to agenda.

The number of agricultural scientists and consultants employed in Australia actually **fell** in the last period on record.[6]

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[4] Mick Keogh, Australian Farm Institute opinion piece

[5] Sheng, Y, Gray, EM, Mullen, JD and Davidson, A 2011, *Public investment in agricultural R&D and extension: an analysis of the static and dynamic effects on Australian broadacre productivity*, *ABARES*

[6] http://docs.employment.gov.au/system/files/doc/other/234111agriculturalconsultantscientistaus.pdf

Yes, it is heartening that graduate enrolments in agricultural science picked up slightly this year.[7]

But we are building from a record of decline. And we do not know how costs or enrolments for domestic students might look in a deregulated market.

Agricultural science attracts small numbers of students, who require expensive facilities like laboratories, research stations and technical support staff.

Relatively few overseas students undertake undergraduate agricultural courses in Australia, reducing the opportunity for cross-subsidisation.[8]

We also know that Australian schools show a decline in the rates of participation in 'science' subjects to the lowest level in 20 years, with consequences for the skills of the entire workforce.

Other nations have faced the same hard numbers, and set about changing them in a strategic way.

They see that education policy today is your industry policy for tomorrow – and so your agenda has to deal with both.

School to study; study to work; research to product and process; and ideas to innovation.

The links are as important as the actions.

Australia is now the only OECD nation that has resisted this logic. I would suggest our time has come to leave the cave.

So that is the goal of my recommendations.

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[7] http://www.smh.com.au/national/tertiary-education/boom-times-in-agribusiness-20140205-320pn.html

[8] Mick Keogh, Australian Farm Institute opinion piece

I have divided them across four fields of action: competitiveness or innovation; education and training; research; and international engagement.

And there is a great deal here for the agricultural sector. I am calling for:

- Properly trained and supported science teachers in all schools, *including* regional areas.
- Improving the incentives for agribusiness and researchers to work together.
- Encouraging more farm placements for science students.
- Articulating our innovation priorities, and supporting them with an earmarked portion of overall funding.
- Making a good deal more of our international standing in agricultural research.

We can’t cherry-pick and we can’t think in silos. We **all** should see our place in a stronger future.

A Strategy provides that focus, and the alignment and scale to match.

I welcome your interest and your questions.