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Inquiry into and report on the role of technology in increasing agricultural productivity in Australia

- improvements in the **efficiency of agricultural practices** due to new technology, and the scope for further improvements;
- emerging technology relevant to the agricultural sector, in areas including but not limited to telecommunications, remote monitoring and drones, plant genomics, and agricultural chemicals; and
- barriers to the adoption of emerging technology.

Research & Training

One of the biggest barriers to creating and adopting emerging technology is the Australian Government needs to commit to training and keeping young graduates in agriculture especially horticulture. Lack of job security has been further created with the changes from HAL to HIAL and the ongoing development of this new organisation. There has been little direction regarding funding and how horticulture industry sectors will be funded in future. Without substantial career options and direction, researchers will find opportunities in other sectors and horticulture will lose eager, talented researchers. Innovation in agriculture will not increase unless suitable career development is available and secure.

Genomics

Decisions made by the Dept of Agriculture hamper research and new product improvement in horticulture. A current example is the decision that no new commercial blackberry cultivars can be imported to Australia. Lack of access to the improved cultivars widely grown around the world for the blackberry sector will stifle the rapid growth and market popularity that the industry has been experiencing over recent years.
Much of this varietal improvement has taken place at Arkansas State University breeding program, and the private corporation Driscoll's. There is currently a cultivar derived from the Arkansas program, but privately licensed through a UK marketer, that is held in Post-entry quarantine because of concerns of its pedigree. Commercial production is now almost completely based on license agreements –covering royalties on intellectual property, propagation and fruit production.

The Rubus industry is concerned that the terms of reference in weed risk assessments carried out on potential importations of blackberry cultivars to Australia are unreasonable and unnecessarily restrictive. The current WRA process imposes an insurmountable hurdle upon the importation process. New cultivar breeding could be conducted in Australia, though currently the industry does not have the support and resource to conduct its own breeding trials. This places a significant handbrake on innovation, sales, investment and improvement of varieties.

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The Rubus industry believe that actual risk assessment for escape and incursion into the environment beyond production sites, is very low and capable of preventative management within the grower license agreements for new cultivars. In Victoria and Tasmania there is very little evidence of commercial cultivar escapes, of either blackberries or raspberries. Government agencies need to further examine cultivar importation quarantine restrictions and how current restrictions are limiting horticulture expansion in Australia. This barrier is hampering the industry's ability to adopt emerging technology, regardless that the technology does not originate from Australia.

Quarantine - imports

Lack of trust in other countries science is demonstrated again when it comes to quarantine imports. New genetics must be imported from approved laboratories with a certificate to ensure they have no pests and disease. The laboratories must be approved to the highest international standard. Then when the genetics arrive in Australia they are put in another laboratory for two years, that is run by a team who is under qualified to assert that the plants have no diseases prior to release.

The recent case with Little Cherry Virus highlights the problem. Australia laboratories do not have the knowledge and skills to test for the virus. Government then asked Cherry growers to use their R&D levy to fund training for government researchers to combat the issue!

There are some cases where quarantine is warranted but in many cases it isn't justified and just adds considerable cost and a two year delay to innovation. This is a barrier to the improvement of new plant varieties and geonomics.

Without the improvement of plant species with better production results/outcome horticulture industries will remain stagnant. This will open further opportunity for improved fruit varieties to be imported into Australia, while not allowing Australian growers the same competitive advantage. Australian producers already suffer with considerably higher production costs in materials and specifically labour. These measures place us further behind our international production competition.

Quarantine - Interstate

One of the largest problems for plant producers is interstate plant shipment. Currently there are seven sets of rules governing the movement of plants between the states. It is accepted across industry for some level of interstate plant quarantine and restrictions on plant movement. The best solution is to use the current technology to manage plant movement. Concerns from officials is traceability and security of information, which could be simply overcome by each producer emailing the paperwork prior to each shipment. Thereby reducing paper work and making all offices and officers more efficient.

Plant growers are filling out triplicate forms by hand which come in expensive books and need to be kept for record keeping. The drive seems to be traceability and record keeping rather than actual disease prevention. It is not possible to go to one place and find out all the restrictions on one genus of plants across the country. This makes it hard to determine what rules need to be implemented.
A first year university student could create a web based system to manage the whole issue. A simple low key investment in a database system listing all plants grown with the weed and disease restrictions entered into separate fields for each state. Even a simple spreadsheet could do this. An accounting package or stock control package to manage orders and invoicing could be modified to include the respective plant health declarations.

Quarantine - International

Sending plants in and out of Australia is a complicated and slow process to get paperwork ready for plant shipment overseas costing growers either time or funds. Many growers have stopped because too much time and money was spent organising paper work. Overseas customers place orders expecting delivery in relatively short time periods (ie whilst plants look good) but end up cancelling due to long lead times. Importing plants is even worse with some treatments being fatal on the plants without any justification. The inability to import varieties of commercial and ornamental plants is restricting business development.

Rulings such as seeds for consumption being allowed but seeds for growing not allowed is illogical. When this is then added to flat bans on whole genera with no practical alternative has cost small growers large sums. It is a simple process for plants on the electronic system to obtain a permit – which is good. However this is the only place where modern technology is working at its best.

Plant protectants

A long and continual discussion has been the issue of farm chemicals and the usage rules between states. It is a crazy system when a chemical can be used to treat a bug on one side of the Murray but not the other, or when a chemical can be used on a bug on one crop but not another. Manufacturers can't test all chemicals in all states on all crops due to cost. Data that is produced in other states and overseas, why can it not be used?

Weeds

The definitions of weeds on a local, state and national basis needs addressing. Overall the lack of consistency and logic on all these issue is frustrating to growers. There are plants that are approved to grow which then become declared weeds leaving growers with large losses. There are plants that are staple foods easily bought in any green grocer but are banned weeds. They are being farmed somewhere whilst home growers are not allowed to plant them. Finally there are those cases when whole genera are declared weeds whilst not allowing for sterile hybrids or even non invasive species. There is no 'permit' system for the growing of declared weeds in protected conditions.

Decisions are being made by people in offices with less knowledge than those growing the plants or with little understanding of the implications on the growers and wider community. This breeds a disrespect and contempt for the law and a desire to get around the regulations. This in turn results in a lessening of our biosecurity and reduces the safety and security of our horticultural industries.