

The future of berries: Are we doing enough to meet technology half-way?

Jen Rowling, Project Manager, Berries Australia

At BerryQuest 2022, Jesse Reader, Commercial Manager for Ag Technology & Innovation at Costa Group gave a great presentation about how industry needs to step up to meet the new technology coming along if we want to see faster progress in the AgTech space. For those that missed his talk, this article summarises Jesse's presentation.

The world of AgTech has boomed over the past couple of years. During the pandemic, money stopped flowing to millions of businesses and into most parts of the world but this was not the case for AgTech.

AgTech has previously been highly focussed on farm-centric hardware and software technology, but recently investment has shifted into agrifood technology. In 2021, \$32.1 billion of the \$51.7 billion invested in AgTech has been directed downstream into agrifood tech. The AgTech lens has essentially been stretched to include such diverse areas as provenance, traceability, and food delivery systems.

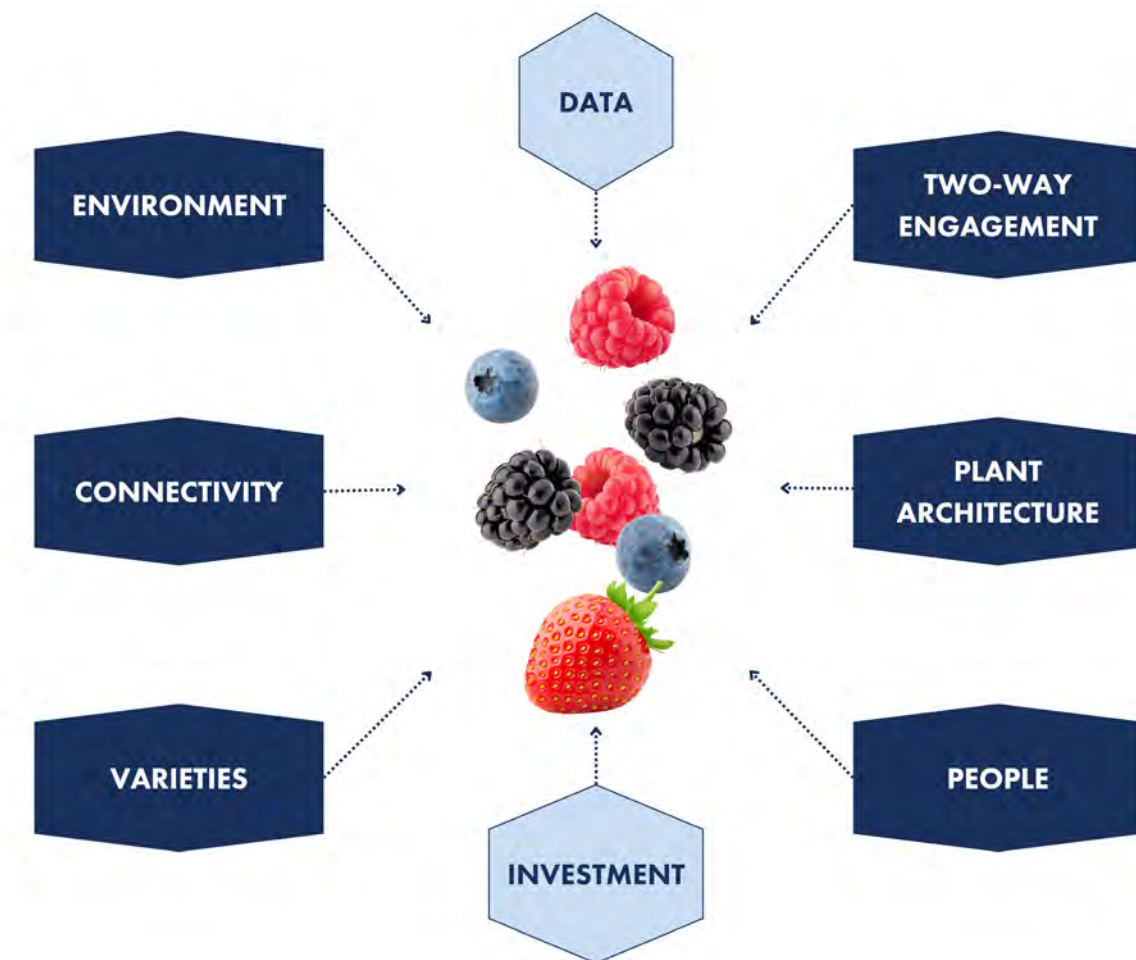
An example is a \$3 billion e-Grocery AgTech deal done in 2021. This stretch of investment presents an 85% increase from 2020 and it's exciting to see the continuing flow of funds coming into the AgTech sector.

What's even more exciting is that the global berry industry hasn't missed out.

- A vertical farming startup, Oishii received \$50 million for bee-assisted carbon neutral strawberry cultivation
- A collaboration between Driscoll's and Plenty in the vertical farming space continues to evolve with the addition of a \$140 million investment
- Bowers Farming, the largest vertical farming company in the United States, has acquired Traptic, a company utilising computer vision, robotic arms and artificial intelligence (AI) to harvest fruiting, vine and other delicate crops, including strawberries

Despite the investment in AgTech and the companies out there that are working on this incredible technology, there is still an element of scepticism from our sector. The broader industry in Australia continues to question the validity of the technology being developed, whether it will work here, what it doesn't do rather than what it does or could do, what it should be able to do but doesn't yet and how long it is going to take! A very glass-half-empty attitude.

What can we as growers and as an industry do to meet the technology companies half-way to achieve what we need for our industry?



Data

All roads lead to data! If we're not collecting robust, reliable and meaningful data sets, access to technology becomes very challenging. There is considerable technology that we can't actually use until we are able to build deep data sets.

Environment

What can we do to remove variability? In harvesting, for example, we have to think about all the things that technology companies are trying to do that we haven't been able to overcome. These are things like controlling light and evening out maturation of fruit; the more consistent the maturing of fruit for harvest the easier it becomes to introduce the tech by taking the discretion out of selecting fruit for harvest.

Connectivity

Technology requires connectivity. Wireless updates and even the ability to do support and maintenance of technology remotely require reliable connectivity. When something goes down and its tech-enabled, what will Tier 1 support look like? Will we be able to resolve problems over the phone rather than over the air? Machine-to-machine communication also requires connectivity. Technology such as automated sprayers, fully automated tractor kits, electric self-driving tractors and advanced robotics is all coming through, but autonomy needs supervision via someone with a tablet supervising the fleet. All this requires connectivity. There are no real excuses now (with some exclusions of course!) but there are some fantastic solutions in this space to ensure consistent connectivity to support the technology.

Varieties

In the development of new varieties, we should be thinking at least ten years ahead. What does a piece of fruit need to look like, how does it present on the plant and how firm does it need to be for a robot to be able to select and handle it whilst maintaining the integrity of the fruit during harvest?

There are considerable traits that need to be considered and plant breeders need to be working to incorporate these traits into the plant genetics in alignment with the tech companies developing the robotics. This will go a long way towards achieving the robotic harvesting needs of the industry.

Two-Way Engagement

If you want the solutions to come to you quicker, start working with the solution providers. Articulate the unmet needs that you have and help them to understand which part(s) you need a solution for. You will then develop a mutual acceptance of the limitations around what you are trying to do, and things can then move quicker. Rather than sitting and waiting for the solutions to magically appear why not co-create the solution by actively engaging and discussing, and understanding what can be achieved.

Plant Architecture

If we sat down to solve the harvest problem as a design exercise, with all blinkers off and using critical thinking, we may not grow the way we currently grow.

We are not meeting tech half-way in regard to plant architecture. We need Simple, Narrow, Accessible, Productive (SNAP) canopies. It doesn't matter which crop we're talking about; the aim is to present the fruit in a purposeful way.

What is your current production system optimised for? Is it yield; is it quality? Will we get to a point where it will be optimised for accessibility for robotic harvesting?

Lower planting density may be more viable for robotic harvesting, more berries per plant but fewer plants perhaps. These are the things to consider if we are to meet the technology half way. Again, it's also about removing the discretion associated with harvesting fruit.

People

A business needs to start the conversation and build in-house capability around new tech coming in prior to its arrival. The introduction of new tech can cause issues with integration and embedding into the business. The technology discussion is like a different language, it's not native to most and starting the conversation and capability development prior to the introduction will help soften the landing when the tech actually arrives.

The introduction of new tech into a business also means getting comfortable with ambiguity! Life isn't black and white, it's grey and the tech isn't always perfect. It won't do everything you think. Get comfortable in the grey area and with some critical thinking, great things will happen.

Investment

None of this tech will eventuate if we don't invest in it. If these things are as important as we think they are, then we need to back it by investing properly and consistently.

The beauty of becoming technology-ready, even if the robots aren't marching in, is that your business will be better for it. More productive, better packhouses, improved safety – all these initiatives to meet technology are a good incentive for business improvement so you can't lose by doing it.

Key messages

Be comfortable in the grey area. We get taught in black and white. The world is grey.

Reframing preconceived notions in an opportunistic way can help eliminate the logic of "the way things were" and get to "what could be".

Expand your time horizons; 3 years out seems like a long time but its likely less than 10% of your working life. Think 10 – 15 years out instead when it comes to things like how a technology could impact you.

Technology is a move from conventional to analytical, whether we like it or not.

To meet the challenge half way we must pair critical thinking with emerging technologies to create safe, productive and efficient farms that produce high quality fruit with high market desirability.



Jesse Reader

Born and raised in country Tasmania, Jesse has a deep appreciation of the issues and challenges faced by the agricultural sector.

Jesse graduated from the University of Tasmania with a Bachelor of Applied Science (Agricultural). He worked for ten years across a range of cropping systems as a production agronomist, where he focussed on perennial horticulture and technology transfer.

As Technical Manager for Apple and Pear Australia (APAL), Jesse was pivotal in driving significant productivity and quality gains for the industry via international knowledge transfer and extension. During his time at APAL Jesse was awarded the industry impact award for his work on the Flagship 'Future Orchards Program'.

During the last five years, Jesse has been at the forefront of agricultural technology development, thought leadership and industry engagement. In 2020 Jesse completed a five-year, international business opportunity analysis of AgTech at global giant Robert Bosch.

In 2021, Jesse took up a role at ASX Listed - COSTA Group. Jesse's current role as Commercial Manager - AgTech & Innovation, sees him applying new technology and innovative approaches to emerging and existing business needs.

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RASPBERRIES



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