**Transcript**

***Professor John Foster – Genomics-assisted breeding of agricultural species***

My research is involved with using DNA fingerprinting technology to address the improvement of plant and animal species that are important for the Victorian and the broader Australian economy. What this involves is sequencing of the genomes, the genetic code of our target species and then we aim to identify differences that arise between individuals in the DNA code. Once we’ve seen those differences we can use that information as tools to help support breeding programs and the aim is to give information to breeders that can allow them to make more accurate decisions and do that more quickly and at lower cost.

Well the key outcome is to deliver higher levels of genetic gain to the livestock improvement and the crop breeding industries. And what this will mean is that we can improve a range of species for target characters which are desirable for the breeder and then lead through to improved products for the consumer. So, in crop plants the kind of things that we’re looking to improve would be things like yield and also the quality of say grain or horticultural species like potato. In addition, we’re really focussed on being able to improve things like resistance to diseases and tolerance to environmental stresses.

So the aim is to be able to produce faster, better varieties faster to deliver to the market. And that means that there is economic value that is going to go into the rural community because it means that farmers and growers will be able to produce a high quality product more rapidly and examples there for the plant industries would be again the kind of things I talked about for improved quality and yield and this could also involve cheaper and healthier food going through to the consumer. The same kind of issues apply to the animal industries. For instance, in dairy cattle what this could involve is having high levels of milk yield with better nutrient quality and also sustainability because of increasing the ability of dairy cattle to derive the energy that they need from lower amounts of feed input.