



CASE STUDY

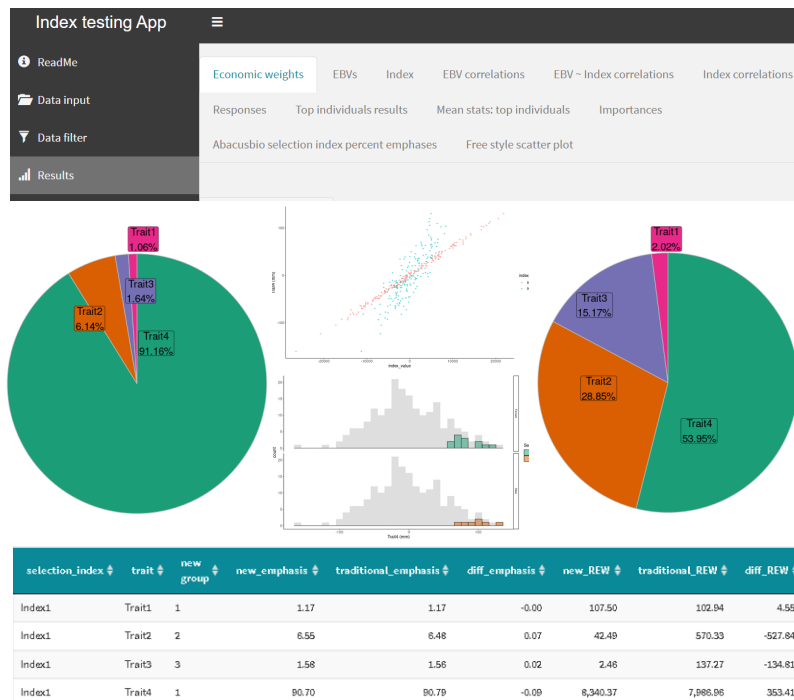
INDEX TESTING APP

SOFTWARE / APP DEVELOPMENT

In 2020, [AbacusBio](#) upgraded one of its most useful shiny apps – the Index Testing App. An Index is a tool used by those managing a breeding program to identify and select plants or animals. Those that score highly for the Index might be selected. Those that score poorly, may not be selected. The app allows analysts to rapidly test selection indexes and their ability to predict trait responses and allow for variation. The team involved in the app upgrade was led by Consultant and developer - Luna Zhang and AbacusBio MD - Peter Amer who published a recent [journal article](#) on the methodology in the Journal of Dairy Science.

The Index Testing App has been used a lot domestically in NZ with our valued long-term clients. More recently it's been applied to situations in North America and Europe with the [American Angus Association](#), [Canadian Angus Association](#), [Red Angus Association of America](#), [Irish Cattle Breeding Federation \(ICBF\)](#), [Angus Australia](#), and [Danish Genetics](#).

Caeli Richardson is an analyst in Abacusbio's UK office. "I think that the app allows us to deliver more to our clients. There is still a lot of indecisiveness around breeding for animals with more environmentally friendly genetics - what traits to measure, carbon price, and overall breeding objective definitions (e.g., gross vs intensity). The app lets us test many different indexes and compare the outputs of various breeding programs and breeding objectives.



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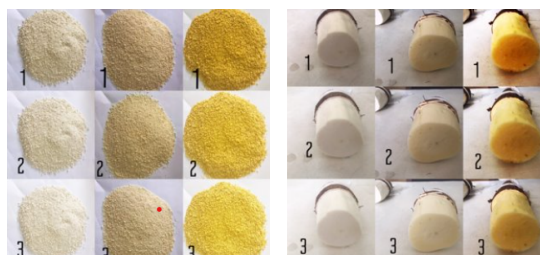
Dr Caeli Richardson,
for her work with
DairyBio, Australia

- ➔ Automatic and streamlined data analysis
- ➔ High speed and reproducibility
- ➔ User-friendly operation and interface
- ➔ Live interaction made possible with the clients
- ➔ Eye-catching and versatile visualization
- ➔ Quality control

So, the clients can be confident they are considering the right Index for their specific breeding program. It enabled me to do the work much faster and more intuitively than if I was using a different method." Caeli describes the app as the training wheels that guided her through her Ph.D. at [AgVic](#) to help her test multiple hypotheses and questions in a relatively short period of time.

The idea behind this increasingly popular app is to build animal or crop selection indexes for clients with each breeding goal or trait weighted appropriately. Selection indexes provide an easy way for breeders to evaluate and rank candidates for their overall value across many traits. The different weightings for each trait are based on the economics of a production system and/or preferences of farmers, or others in a value chain. and potentially other actors along the value chain.

Stefan Meyer ([Proteus](#)), Cheryl Quinton, John Crowley, Sharl Liebergreen, and Jason Archer (now at [Beef and Lamb New Zealand](#)) have played vital roles in delivering and testing this incredible app.



Pictures of real cassava samples shown to respondents to understand some trait preferences