

Cobus von Wielligh, Miaan Kramer & Iwan Labuschagne - Provar

Culteva™ platform allows fruit evaluators and breeders ease of data collection & report-creation

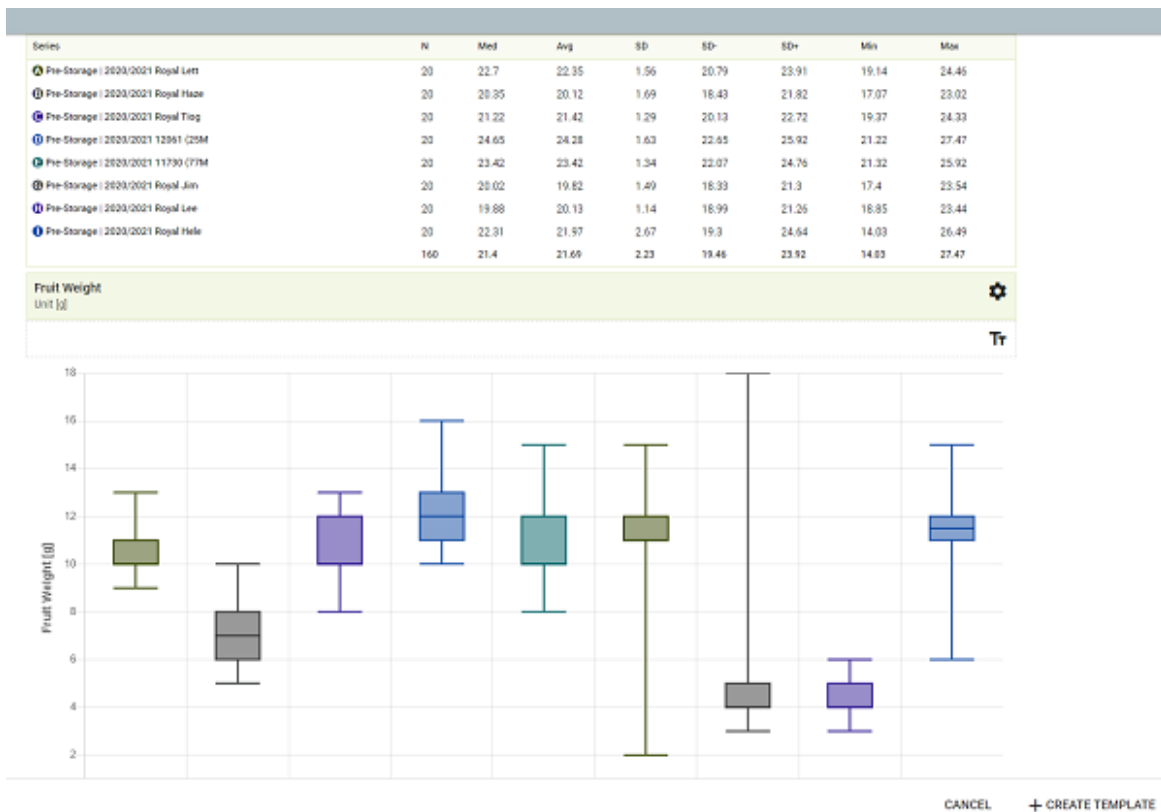
Provar, South Africa's independent new variety evaluation company, developed an inhouse evaluation data collection and reporting platform, called Culteva, for their own use. It has proven to be successful and has been adopted by a number of local and international clients, the company says.

Culteva's standardised and centralised variety evaluation platform saves evaluators many hours of tedious administrative work.

An orchard manager running evaluation trials has told Culteva's developers that with other generic tools, he had been spending at least 100 hours a year just on generating reports, accessing data from various files and consolidating it - and this does not include time spent (wasted, in effect) on collecting field data in an inefficient manner.

Now he can create dynamic reports throughout the season which can be shared with others interested in following the evaluation in real-time.

“Time spent on tasks like report-creation is essentially eliminated,” Miaan Kramer, Provar software project coordinator, explains. “The time saved in this way is enormous.”



Detail from the Culteva report builder, comparing pre-storage fruit weight of cherry varieties

The standardised protocols for many crops within the platform allow “apples to be compared with apples” across the world, he says. “Culteva allows a vastly more effective way of collecting and collating data than generic tools because of the specific protocols for specific commodities we've developed in partnership with our clients.”

Client inputs improve the backbone of the platform











As Culteva's usage has both widened and deepened through its expanding client base, it has come a long way, he notes, with regards to the increased flexibility they have built into the system.

“In fact,” adds Cobus von Wielligh, Provar chief technology officer, “SK Südtirol, one of our clients, had significant inputs into our new features which will be released in the middle of April. It's a win-win situation because all of our clients benefit from these changes.”

Other clients include tree nursery GRIBA in Italy, German variety manager Artevos, France's Blue Whale and in South Africa the platform is used by Dutoit Agri, Fruitways and Stems Fresh Fruit as well as variety developers TopFruit.

Among the new features they are introducing is a storage regime more focused on controlled environments and atmospheric measurements. They have streamlined the process to allow an evaluator to swiftly access the data required

for a specific day's evaluation, instead of wading through lists of criteria.

<input type="checkbox"/>	Code	Plant/Harvest Date	Scion & Rootstock	Site ↑
	PS-5YC1-CNBZ-GXLG	1 Jan 2018 Planted 3 years ago	Alvina Gala [I13239]	Trial Block, Nootgedacht R1.58
	PS-4V15-04E2-ZDSQ	4 Oct 2018 Planted 2 years ago	Rave	Trial Block, Nootgedacht R1.113
	PS-WZ15-UJ19-KN34	8 Oct 2018 Planted 2 years ago	NGD Gala	Trial Block, Nootgedacht R2
	PS-VK01-X6K0-9GJ0	1 Aug 2010 Planted 11 years ago	Sweetie [PremA280, I 9522] M7	Trial Block, Nootgedacht R2.1
<input type="checkbox"/>	PS-PE40-116D-HJQ7	1 Aug 2014 Planted 7 years ago	Apri-Queen by ASF Royal Seedling by open	Trial Block, Nootgedacht R2.4 2.0m x 4.0m (1,250 /ha)
	PS-06HI-C12R-BHHJ Full Trial NGD	3 Aug 2014 Planted 7 years ago	PremA 34 [I 9020, I 9020] M7	Trial Block, Nootgedacht R2.72
	PS-VGYT-SUSN-4LBC	1 Aug 2014 Planted 7 years ago	Rocket [PremA06, I 13350] by Topfruit M7	Trial Block, Nootgedacht R2.94
	PS-YF96-AMIQ-HOZ4	3 Oct 2016 Planted 4 years ago	Dazzle [A 182 R03 T120, I 14253] by To...	Trial Block, Nootgedacht R3.41
	PS-ZNVR-JH9M-H9WU	5 Oct 2014 Planted 6 years ago	Prem A51 by Topfruit	Trial Block, Nootgedacht R4.4
	PS-DU00-H1VT-27VJ	1 Aug 2010 Planted 11 years ago	Opal [JEB32642, I 6450] by Topfruit M7	Trial Block, Nootgedacht R4.27
	PS-8PZA-1D98-QWRZ	6 Oct 2014 Planted 6 years ago	Prem A25 by Topfruit	Trial Block, Nootgedacht R5.44

Detail from the plant sample index for apple evaluations, showing information like the scion and rootstock and plant date

Breeders' module in development

The Culteva mobile app collects data from bar-coded plant samples in the nursery or the orchard which immediately accesses the particular sample's data sheet. The mobile app has been designed to work offline as well, but in case evaluators prefer printed data sheets, that option is also possible. A single data collection methodology is not enforced on users.

Through developing a module for cannabis evaluation for Portuguese company Alto, a process which entails hundreds of cannabis seedlings to be evaluated three or four times a week to select for further crossings, data between evaluation and breeding have been linked. The logical next step was the development of a module for breeders, and its release is planned for the end of May.

“With time, Culteva has become much more dynamic,” Miaan says. “You can create your own templates, select which protocols you want to include. You have a lot of freedom within the platform. Every additional client brings more knowledge to the platform.”

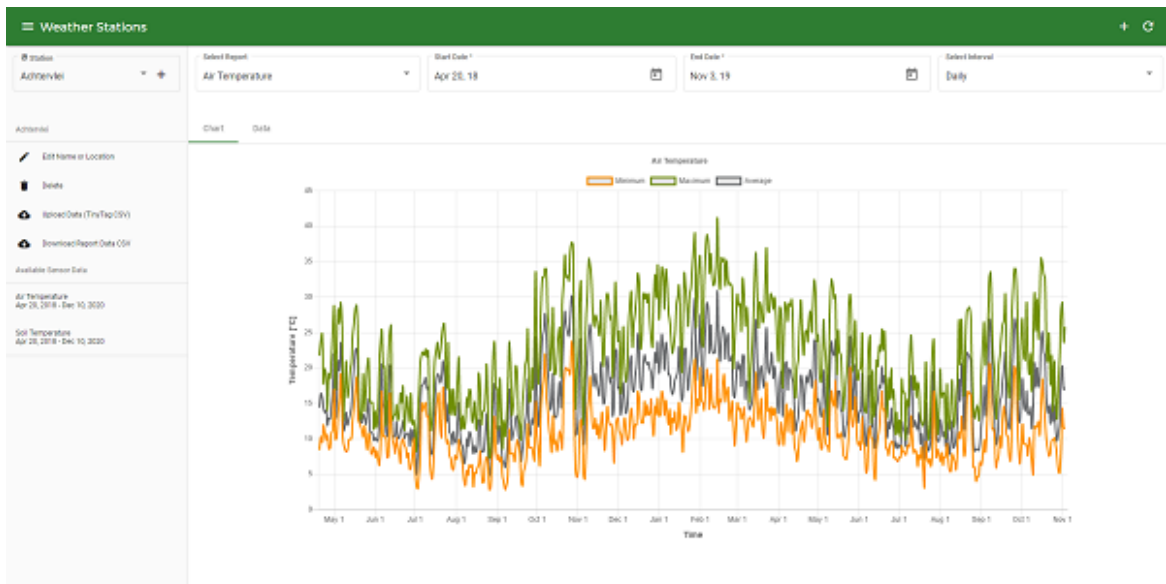
Fruit - Ripening					
Ripening Stage	Descriptor Score	Physical Firmness	Descriptor Score	Firmness Homogeneity	Descriptor Score
A	Pre-Storage 2020/2021 Royal Lett Ideal Eat Ripeness 51	A	Pre-Storage 2020/2021 Royal Lett Medium 43	A	Pre-Storage 2020/2021 Royal Lett Intermediate 48
B	Pre-Storage 2020/2021 Royal Haze Ideal Eat Ripeness 50	B	Pre-Storage 2020/2021 Royal Haze Firm 65	B	Pre-Storage 2020/2021 Royal Haze Little Variation 68
C	Pre-Storage 2020/2021 Royal Tiog Mature 62	C	Pre-Storage 2020/2021 Royal Tiog Medium 51	C	Pre-Storage 2020/2021 Royal Tiog Little Variation 67
D	Pre-Storage 2020/2021 12061 (25M) Ideal Eat Ripeness 58	D	Pre-Storage 2020/2021 12061 (25M) Soft 36	D	Pre-Storage 2020/2021 12061 (25M) Little Variation 70
E	Pre-Storage 2020/2021 11730 (77M) Ideal Eat Ripeness 53	E	Pre-Storage 2020/2021 11730 (77M) Medium 47	E	Pre-Storage 2020/2021 11730 (77M) Little Variation 68
F	Pre-Storage 2020/2021 Royal Lynn Mature 68	F	Pre-Storage 2020/2021 Royal Lynn Medium 45	F	Pre-Storage 2020/2021 Royal Lynn Little Variation 73
G	Pre-Storage 2020/2021 Royal Jim Ideal Eat Ripeness 53	G	Pre-Storage 2020/2021 Royal Jim Firm 64	G	Pre-Storage 2020/2021 Royal Jim Little Variation 72
H	Pre-Storage 2020/2021 Royal Lee Ideal Eat Ripeness 54	H	Pre-Storage 2020/2021 Royal Lee Medium 50	H	Pre-Storage 2020/2021 Royal Lee Little Variation 74
I	Pre-Storage 2020/2021 Royal Hele Ideal Eat Ripeness 52	I	Pre-Storage 2020/2021 Royal Hele Medium 56	I	Pre-Storage 2020/2021 Royal Hele Variable 39

The Culteva Report Builder's section on fruit ripening

He continues: "We want to free our clients from the tedious administrative tasks in order to focus on the important things like decision-making."

Hereafter, they aim to free up time and make it more convenient for tasters attending fruit exhibitions, scientists and students collecting data and eventually for producers to simplify orchard data collection.

"The endless possibilities and potential that Culteva offers all along the agriculture value chain, in the fast growing agri-tech industry, makes the platform an attractive investment and collaboration opportunity," Cobus remarks.



Air temperature measurements within the Culteva weather station

Culteva has grown substantially since it was initiated in 2017 and still has a lot of potential to grow, this, he notes, is merely the beginning.



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