



DIGITALNXT CASE

Averis Seeds improves quality with digitalNXT Vision

Averis Seeds, a subsidiary of AVEBE, is specialised in cultivating new potato varieties for members of the cooperation, with the aim of securing continuity and maximum yield. Only 1 out of 10.000 seedlings of the crossbreeds made by Averis is successfully introduced onto the market. To improve the necessary selection process and eliminate all subjectivity, Averis started a pilot with automatic image recognition in which the visual features of a potato are assessed by an algorithm instead of by humans. This pilot has been so successful that mother company AVEBE also wants to start using image recognition.

'Image recognition ensures improved selection of new potato varieties'

New potato varieties

There is a constant need for new potato varieties that offer improved resistance against continuously changing diseases and climate change, and that also grow well with less fertiliser and fewer pesticides. It takes a minimum of ten years from the moment the

first seeds of a new cross breed are sown until a new variety is ready for propagating. “

There is no way to shorten this ten-year period, but we can ensure that with improved selection we are not accidentally getting rid of potatoes with good features or overlooking wrong characteristics”, says Johan Hopman, Manager Breeding & research at Averis Seeds.



Making more objective and transparent decisions

When Johan visited an event, he came across the image recognition technology. “I immediately thought: This is something we can use in our company. After all, we also perform visual inspections to assess the characteristics of a potential variety. This inspection is now performed by humans, which means that subjectivity is always a factor. I wanted to know: can we develop a model that eliminates this variation and thus obtain better assessments?”

Averis Seeds’s regular ICT supplier Microsoft introduced Hopman to OrangeNXT. “They stood out because of their enthusiasm. Prior to our meeting they had already trained a model with photos of potatoes, which gave us a very concrete idea of how the technology could help us. They clearly had the ambition to help us achieve prompt results.” What’s more, OrangeNXT has a ready-made product, digitalNXT Vision, which has already been applied in a wide variety of other situations.

Modelling features

The first step in the pilot consisted of selecting five features to be used for training the model. Averis had 15.000 photos with quality assessments at its disposal. The model was trained in two ways: as a black box based on an overall batch score for the five features. And as a white box, which entailed annotating the five features in the photos. The benefit of the second method is that you know which grounds were used to reach a certain



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Johan Hopman,
Manager Breeding & Research
bij Averis Seeds

conclusion. We chose this second method because it provides more information and added value, even though it takes more time because the photos need to be annotated. Averis is using the second half of 2020 to expand the model with the thirteen most relevant features that are essential to the selection of varieties. The goal is to fully automatically score the harvest of 2021, and this will be the first time. At the same time AVEBE will start its preparations for applying image recognition for assessing the



potatoes supplied to Avebe's factories by farmers. After all, the price is dependent on the quality. "We also want to eliminate the subjectivity from this process and give more consistent quality assessments", says Hopman.

Eliciting innovation

The thing Hopman likes the most about this project, is that he has gained new insights that he had not dreamt of beforehand. This increases the value of this project even more than initially anticipated. "One innovation leads to the next. You simply have to start off to find out the opportunities. You can't conceive of everything beforehand; in most cases you come across new things just by starting out. If I could give other organisations one piece of advice, then it would be: if your company performs visual inspections, why not start with an image recognition pilot. See how it goes, find out the opportunities for applying what you find, let yourself be surprised and find out what your business case is along the way. In our case the results were more positive than we anticipated."

More info?

For more information about digitalNXT and its capabilities, please contact us - you will find our contact details below.



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Want to know more about this case?



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