Beets dislike quinoa

WUR researchers are using age-old methods and adding new knowledge by testing which combinations of varieties and crops work well.

In the Droevendaal field, researcher Peter Bourke is working with Unifarm employees, students and other researchers on an experiment with strip cropping and 'pixel farming'. The hectare of organic farmland is divided into 800 plots for growing nine crops, ranging from oats to buckwheat and from beetroot to quinoa. There are three varieties of each crop. 'We want to see how we can test as many combinations as possible without using too much land,' explains Bourke. Bourke and his colleagues — from Soil Biology, Crop Systems Analysis, Farming Systems Ecology and other groups — have divided the field into strips and the strips into plots. 'We don't just want to investigate which combinations work well, but also develop methods for breeding crops that are better suited for cultivation in combination with another crop.'

Of course there is nothing new about this approach for crop trials and cultivation, says Bourke. It is essentially the rediscovery of age-old expertise. 'We have long known that some crop combinations work well. Take broad beans. The beans don't need much nitrogen as they can fix nitrogen themselves, so you can grow them in combination with a crop with a greater nitrogen requirement. That is ecological knowledge that we can apply in agriculture. If we want to cut the use of pesticides, we will need different systems, like the ones used in the past.'

The 800 plots are being harvested in stages: first the endives, then the buckwheat. Bourke: 'We are already seeing some interesting things. For example, beetroots do poorly in combination with quinoa. That could be due to the drought. But farmers should steer clear of that combination.' The project will continue until the end of 2024. WA