

Future Dikes: improving dike stability by increasing the vegetation richness

Level: Master internship

Start: April 2025

Duration: 6 months (36 or 42 ECTS)

Project form: Greenhouse work, data collection and data analysis

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Project description

Roughly two-thirds of the country's surface area of the Netherlands is prone to flooding from the seas, major rivers, and lakes. Consequently, more than 17.000 kilometres of dikes have been raised in the past. Dikes that no longer meet the prevailing safety standards need to be reinforced and traditionally that involved widening and/or heightening the revetment. In the next 30 years, over 1500 km is scheduled for maintenance and the costs are in the billions of euros. So, what if we can lower those costs by increasing the species richness of the vegetation cover?

Aim

Prior research has shown that a higher species richness leads to more above- and belowground biomass. To find out which combination of grasses and forbs leads to the strongest sod, four small-scale dikes were built behind the Radboud greenhouse facilities, in 2022. On those dikes, 80 plots were created and ten different seed mixtures were put to the test.

In August and September 2024, the first drought experiment took place and we are currently analysing the impacts on the vegetation composition and root proliferation of these different mixtures. Another period of drought is scheduled for spring 2025, where we will study similar aspects, but also the combination of drought and mowing. In your internship, you will assist in taking vegetation surveys and collecting biomass, and you'll learn to analyse and present your data to our research group.

We welcome teams of students that work together, which makes the work lighter and facilitates sparring among each other and with the supervisors!

