



# The elm can be trusted again

**Dutch elm disease almost wiped out the elm right across Europe. Now, in part thanks to Wageningen research, there are resistant varieties on the market. All that remains is for nature managers to pluck up the courage to plant this distinctive tree again. ‘Elms became synonymous with disaster.’**

TEXT NIENKE BEINTEMA

**S**tately elms lining rivers and canals, on village squares and on every city street corner... One hundred years ago, they were a fixture of the landscape in the Netherlands and its neighbouring countries. And if it is up to Jelle Hiemstra, they will be so again in the not-too-distant future. Hiemstra

works at Applied Plant Research (PPO), part of Wageningen UR, where he leads a project called ‘A future for the elm’. This joint project involving scientists, tree nurseries and municipal councils has delivered a top 10 of new elm varieties which are resistant to the fungal disease that wiped out the ‘ancient’ elm.

‘The elm is an ideal tree for both city and countryside,’ says Hiemstra. ‘It can cope with high winds, and even with salty sea breezes. That is why it used to be such a feature of the coastal areas. And it can handle the tough conditions in the cities. No other tree species is a perfect substitute. We don’t



want to lose the elm.’ But that is precisely what happened on a large scale over the past century. In the early years of the 20th century the Asian fungus *Ophiostoma ulmi* turned up in Europe. Asian elms are resistant to this fungus, but their European counterparts are not. The fungus disturbs the sap flow, causing leaves, branches and eventually the whole tree to die off. The elm bark beetle, which lives off the sap of the elm, quickly spread the fungus throughout Europe.

### BREEDING FOR RESISTANCE

‘As early as 1928 Dutch researchers started a breeding programme in order to develop new resistant varieties,’ explains Hiemstra. ‘That work was later continued in Wageningen at the then forestry institute De Dorschkamp.’ This programme went on until 1992 and was a textbook example of successful traditional breeding. Hiemstra: ‘As a starting point, the researchers took Dutch varieties with useful characteristics, the most important being all-round robustness. Resistance was bred into those varieties from Asian elm varieties. Then it was a question of endless further breeding: selecting seedlings with resistance to the elm disease as well as the right characteristics, and breeding out undesirable charac-

teristics. In total 100,000 saplings were grown and tested for resistance.’ Meanwhile, in the nineteen seventies a new and aggressive variant of the elm disease emerged. Even though their breeding work had had good results, nature managers lost their last remaining faith in the tree. ‘Elms became synonymous with disaster,’ says Hiemstra. ‘Nobody wanted to plant them anymore.’

Something had to be done about that, thought Wageningen scientists. They joined forces with tree nursery owners and municipalities and launched the ‘Future for the Elm’ project in 2006, with the support of the Horticultural Product Board, the municipality of Amsterdam and De Bonte Hoek tree nursery. ‘It had two goals,’ says Hiemstra. ‘Firstly to test and compare the resistance of the new Dutch and foreign elm varieties under Dutch conditions. And secondly, to show what you can do with them in both town and countryside, and thus to restore nature managers’ faith in the elm.’

### GOOD PERFORMANCE

The Wageningen researchers tested the resistance of all new elm varieties available on the market. This was done on trial plots in the Betuwe area of the Rhine delta. The

trees were deliberately infected with the fungus which causes the elm disease, with a view to convincingly demonstrate their resistance. ‘That part of the research has now been successfully completed,’ says the researcher. ‘Out of 20 promising varieties we selected 10 that perform very well. We also tested the trees’ other characteristics in real situations. First in Amsterdam, in the harbour area and on the IJburg islands, and then in five other municipalities.’

The researchers will continue to monitor their ‘trial trees’ until 2015 at least. Hiemstra hopes to be able to expand this work. ‘We are looking for older trees, from resistant varieties bred in the nineteen seventies, for example, to see how they perform. And we also want to do some trial planting in other parts of the Netherlands.’ But Hiemstra is satisfied with the progress of the project to date. ‘Managers have enough varieties to choose from. They just need to pluck up the courage to take the plunge. The research that is still going on now is targeted at this. The only thing we haven’t managed to do is to get the distinctive broad crown of the old Dutch elm back. The new varieties are all a bit taller and slimmer.’ ■

Info: [www.wageningenUR.nl/jep-in-nederland](http://www.wageningenUR.nl/jep-in-nederland)