Growing potatoes on mist

Plant Sciences Master's student Emiel Smits is doing his graduation thesis on the cultivation of potatoes using mist. The official term is aeroponics: the roots hang in the air and are fed tiny droplets of water containing nutrients.

The potato plants are now two and a half months old and they are thriving, as are their roots. Smits is testing what drop size gives the best results. Cultivation using mist has various advantages, explains Smits. When potatoes are grown in soil there is a lack of oxygen in the soil that slows down growth. Potatoes grown in mist also don't suffer from soil diseases and persistent pests such as nematodes. Another benefit is that the plants can be grown close together; Smits thinks 20 plants per square metre would work.
The only negative aspect of Smits' experiment is that the tubers are not growing that well. 'That's my own fault. I created the perfect environment for plant growth in this greenhouse but two weeks ago I discovered the plants form tubers when they are under stress. Now I've reduced the nutrients in the water droplets. That creates some stress but I also need to do something with the day-night cycle and mechanical stress to encourage tuber growth.'

'Price of land for growing potatoes is going up while this technique is becoming cheaper'

Aeroponic spuds

Smits thinks aeroponic spuds have a future. 'They are already being grown on a small scale in greenhouses in Switzerland, and this method is starting to make financial sense in the Netherlands too. There is less land available for growing potatoes and prices are going up, whereas the technology for aeroponics is becoming cheaper.'
Potatoes can be grown in mist in greenhouses or outdoors. This method uses 95 per cent less water than cultivation in fields, says Smits. The use of pesticides can be reduced by 100 per cent in greenhouses and 80 per cent outdoors (where Phytophthora and Colorado beetles are a problem). He is still doing the calculations on the profitability of one hectare of potatoes grown in mist. AS

Emiel Smits, Plant Sciences Master's student, is growing potatoes on mist. ◆ Own photo

In other news science with a wink

◆ A LEAP

Scientists at Tufts University (Boston) have succeeded in growing a frog's leg. Not in a lab dish but on a real frog that was missing one. Frogs do not naturally possess this regenerative capacity. But all it took was 24 hours of exposure of the stump to a cocktail of five substances. The stump then grew into an almost complete leg in a year and a half.

◆ FLASH

The world record for the longest flash of forked lightning has gone up to 768 kilometres, the World Meteorological Organization has announced. That is 60 kilometres longer than the previous record flash. The flash was recorded by satellite over the Great Plains in America: Mississippi, Louisiana and Texas. It's equivalent to a flash stretching from London to Hamburg. It happened fast of course – at lightning speed in fact.

◆ CHUBBY

Fat mothers do not necessarily have fat children. The genetic factor is less important than lifestyle, shows British research at the University of Bristol. That is good news for chubby mothers: it's not in the genes. On the other hand, the link between obesity and lifestyle is indisputable. In other words: fat mothers often do have fat children.

◆ RARE

British researchers (at Anglia Ruskin University) have discovered a new leafhopper in the jungle of Uganda. In itself, that is not so extraordinary. But the rarity of the find is. The last closely related leafhopper was spotted 50 years ago in the Central African Republic. The creature is only 6.5 millimetres in size and has been named *Phlogis kibalensis*. RK