TIME TO END POLARIZATION IN THE FOOD DEBATE

Technology and/or ecology?

We shall only manage to feed the growing world population with agricultural technology and higher productivity, say some. No, say others, sustainable food production requires ecologically oriented agriculture. At a Wageningen symposium an attempt was made to break through this time-honoured division.

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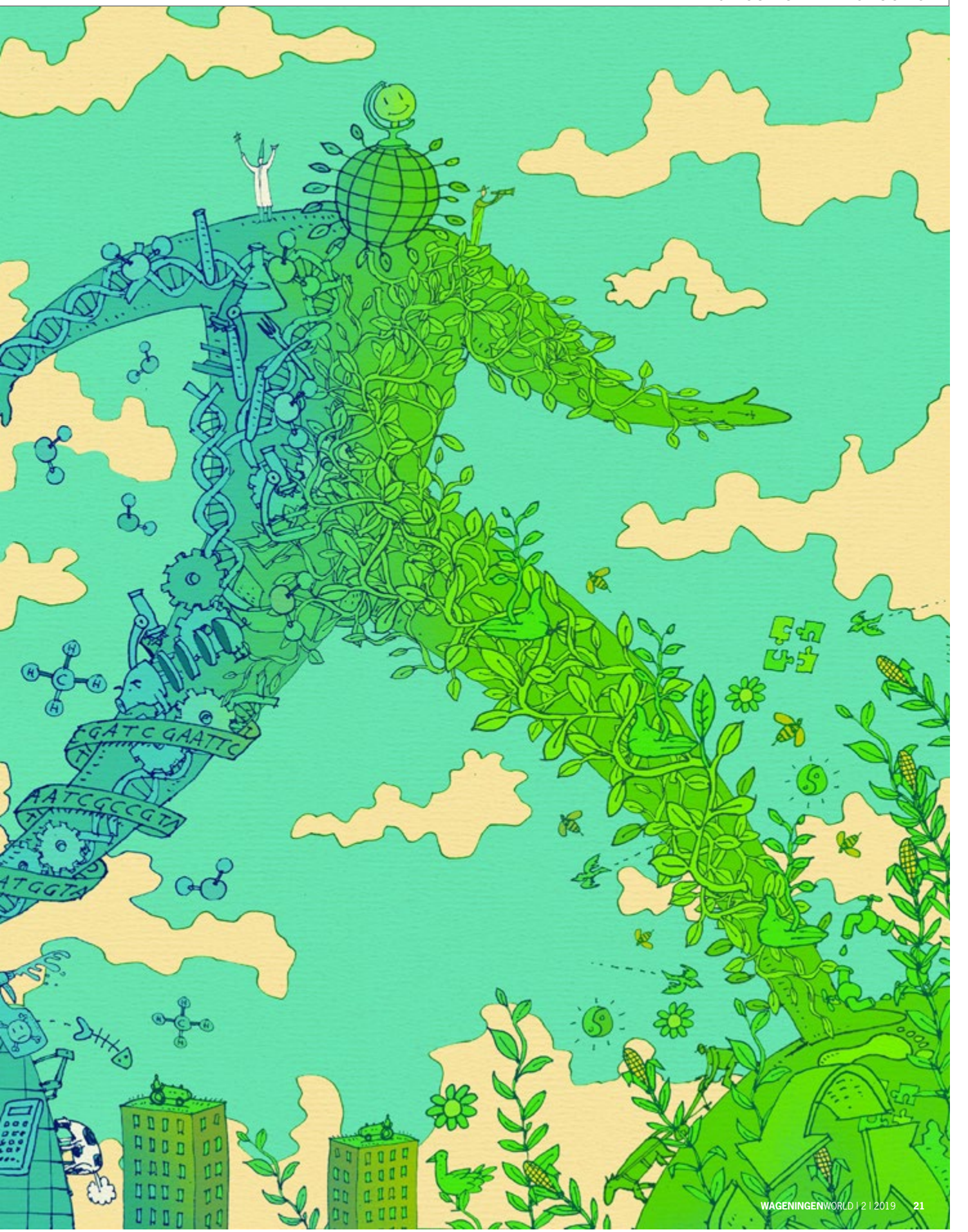
On Mariahoeve, a modern dairy farm near Deventer, Geertjan Kloosterboer keeps 120 cows on 61 hectares. While milking robots milk the cows, Kloosterboer is active in various farmers' organizations. He is keen to promote understanding between farmers and the general public, and to show how our food is produced, so Mariahoeve holds open days, and hosts school trips and children's parties at which the children get to feed chickens and cuddle calves. The maize fields are edged with flowery verges. 'But ultimately, milk production is our chief source of income,' says Kloosterboer. 'I love nature, but there is not so much scope here for the nature-inclusive farming that is being put forward now. Not every farmer is near a nature area.'

Kloosterboer took part in the symposium held in Wageningen on 29 March, about two movements that have influenced thinking in agriculture and food production for decades: that of the technological optimists and that of the ecological modernists. The techno-optimists argue for modern, intensive agriculture with ever-increasing yields per hectare, so that there is space left over for nature. The eco-modernists go for small-scale slow food >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production in small rural communities, urban agriculture and the interweaving of agriculture and nature.
The guest of honour at the Wageningen symposium was the American historian and science journalist Charles C. Mann. In his book The Wizard and the Prophet, Mann calls the techno-optimists 'wizards' and the eco-modernists 'prophets'.

HIGH YIELDS

For the techno-optimists, innovation is the right route to take so as to be able to feed a projected global population of 10 billion by 2050. Gene technology such as CRISPR-Cas can help agriculture by, for example, building specific resistance genes into existing varieties and helping reduce the use of pesticides by large amounts. High yields per hectare are the key factor. African small farmers, for example, need better access to artificial fertilizer and other aids to self-sufficiency. 'But,' says Mann, 'intensive agriculture also causes massive pollution by pesticides and over-fertilization, algal bloom at sea, vast dead oxygen-less coastal zones, desertification due to wrongly implemented irrigation, and migration from the countryside to slums in megacities all around the world.' According to the ecologists, this makes small-scale, nature-inclusive, ecological farming the right route to sustainable food production. This approach also creates jobs in the countryside, reducing migration to the city slums. Even for small farmers in Africa, agro-ecology is the way to go, say the ecologists. But this still begs the question of whether the yields will then be high enough to feed the fast-growing world population.
Mann: 'It is not just on the world food supply that parties are diametrically opposed to each other. You see the same polarization in discussions on the climate crisis, the water shortage, the phasing out of fossil fuels, you name it... It is difficult to get outside your own discipline, and your own academic compartment. Ultimately, this debate is not about the size of yields per hectare or protecting ecosystems, but about the underlying social values.'
Kloosterboer, the dairy farmer, agrees. 'I use weed killer on my farm to keep the grasslands productive. Some of my colleagues choose not to use any pesticides on principle. Their production is probably lower, but at the moment they get more support from the public.'

ONE WAY AHEAD

Agriculture and food expert Louise Fresco, President of the Executive Board of Wageningen University & Research, identifies neither as a technologist nor as an ecologist. 'It is high time we put the polarization behind us and took steps forward,' she declares. 'There is not just one possible way ahead; there are loads. And science is perfectly suited to exploring that diversity of options.'
According to Fresco, we are gaining a better and better understanding of the harmful side-effects of our technology-driven socio-economic progress. 'We need to redefine progress. A defensive attitude to technology, doom scenarios and ecological pessimism won't get us anywhere. The planet is not on the brink yet and no one sitting here is worried about not having anything to eat tomorrow. On the other hand, technology is not going to solve all our problems either. Science is the best way of getting a handle on our doubts about progress.'
But this is an old and persistent schism. 'This subject matter is incredibly complex,' says Fresco. 'More and more research is being done, and that produces new results all the time. Initially we were happy with DDT, then we were shocked by the effects of it and we banned it. Only much later did we discover that it also helped combat malaria mosquitoes, which led to further research into an alternative – without knowing the effects of that yet either. And so on. Doubts remains on many points.'

MODIFICATION

The tone was set at the symposium by molecular biologist and science journalist Hidde Boersma and political scientist Joris Lohman, the founder of Food Hub, an organization that promotes more sustainable food. It was these two who instigated the discussion about techno versus eco in the food supply with an essay in the Dutch newspaper De Volkskrant. They are both young parents and they are worried about the future of the earth. Boersma was always in the technologists' camp and has supported the use of genetic modification, while Lohman was in the ecologists' camp.
'For a long time we fiercely opposed each

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other’s point of view, but now we want to shake off that polarization in the food debate,’ says Lohman. ‘I was in a group of political science students in Amsterdam that were full of inspiration about the future of agriculture, but when a farmer’s daughter in the group asked us if we’d ever spent time on a farm, just one hand went up. That was a turning point for me, and I realized how strange it actually was that the next generation of policymakers on the future of agriculture had so little experience of farming practice. Anyway, I think you achieve more by having a conversation with the people who are furthest away from you ideologically. Interesting interactions happen at precisely that cutting edge. I used to get irritated by every single thing Hidde Boersma said on Twitter; now we are working together.’

Their ideas were diametrically opposed, says Boersma. ‘But if you go on polarizing and bickering, the only winner is the status quo. Now we regularly get invited to give presentations at workshops as a duo. There is a lot of scientific evidence for both standpoints. The point is to make the underlying social values explicit. Does it give you a lot of satisfaction to produce your own food? Or do you think it’s better if a small group of farmers do that, so that other people can do other things? Does living in the countryside make you happy or would you rather be in the city? What is your idea of the good life?’

ONE TON PER HECTARE

According to tropical plant breeder Toon van Eijk, the world food supply is not a technological issue. ‘When I went to work in East Africa 30 years ago, the farmers got one ton of maize per hectare. Now, modern high-yield maize varieties have been around for decades, but the ordinary farmer still harvests just one ton per hectare. I can give you 20 reasons for that right now, but they are all political and economic factors. Wageningen needs to focus more on those.’

Student Suzy Rebisz is taking two MSc programmes in Wageningen: International Land and Water Management, and Rural Development and Innovation. ‘There are an awful lot of problems, but there are lots of possible solutions too. Let’s show some solidarity with the supporters of all those solutions, instead of being competitive and aiming to get as much money and support as possible for our own solution. Let’s respect that diversity of viewpoints and show more appreciation of each other’s underlying values. I argue for more collaboration and synergistic relationships. Let’s give each other the space to come out of those scientific compartments and listen to each other. Then we can go forward together, or at least alongside each other.’

NO SINGLE GUIDING PRINCIPLE

Dairy farmer Kloosterboer agrees. ‘We must rid ourselves of that polarization and thinking in black and white terms. There are very extensive livestock farms where the cows get fed a lot of grass and where there is a lot of nature. Other farmers focus heavily on CO_2 reduction and the efficient use of minerals. They have a manure digester on their farm and might keep the cows indoors to keep the manure pit nice and full. There are very many different options at the farm level, and there is not just one guiding principle for all farms. I think every farm has the right to a license to produce. I think it’s brilliant there is such diversity among farmers in the Netherlands. Everyone does it their own way, based on their own principles and with the resources they have.’ ■

www.wur.eu/whizards-prophets

TECHNO-OPTIMISTS AND STRICT ECOLOGISTS

In his book *The Wizard and the Prophet,* the American historian and science journalist Charles C. Mann makes a distinction between techno-optimists, his ‘wizards’ and strict ecologists, his ‘prophets’.

Charles Mann points to the American researcher Norman Borlaug (1914-2009) as the founding father of the techno movement. Borlaug was the godfather of the Green Revolution, which produced high-yield new varieties in the 1960s. These varieties helped save millions of people from famine. In the mid-1980s, the ‘average person’ had enough to eat for the first time in history. ‘Innovation means everyone wins,’ claimed Borlaug.

According to the ‘prophets’, though, it is nature-inclusive, ecological farming that is the key to the future. Even for small farmers in Africa. ‘Take one step back, otherwise everyone will lose,’ says the American ecologist William Vogt (1902-1968) in his bestseller Road to Survival, published in 1948. Vogt introduced the concept of the earth’s carrying capacity. Exceeding that carrying capacity has disastrous consequences such as erosion and desertification, soil exhaustion, water pollution, the extinction of species and eventually mass famine.