

Extraordinary E farming

A few stories to whet your appetite

pag 2 **Green Care** near Amsterdam • page 3 **Cultivation** under glass at Biopark Terneuzen • page 4 **Recreation** in the Green Wood •
page 4 **Industrial ecology** for livestock • page 6 **Paying for sustainability** with snob value • page 7 Northern Frisian Woods **experiment** •
page 8 Dutch knowledge in **China**

Cows should be in the meadow! Farming is for family businesses! No to mega sheds! You can't earn a living from sustainable agriculture! And so on, and so on. In the public debate on sustainable agriculture, leaders of farmers' organisations, diehards of the environmental movement, civil servants and researchers keep repeating the same old mantras. They have entrenched views and if nothing changes we will just keep going round and round in circles. These fixed attitudes have brought all development to a standstill and agriculture is increasingly suffering because of it.

Who is brave enough to come out from their entrenched position and ask the open question: what do we really want from agriculture now? It would become clear that all parties want roughly the same thing: sufficient food, a cleaner environment, farm animals that do not suffer unnecessarily before they end up on our plate and nature and landscape, to enjoy cycling and walking in. And a very important point – it has to be possible to earn a decent living from it.

TransForum was set up in 2004 to help farmers and market gardeners to find new markets. The condition was that production should be more sustainable. Over the past six years, TransForum has guided 35 practical projects and launched 25 innovative research projects. Tomorrow TransForum closes its doors.

In this appendix you will find some of our conclusions. It is possible to earn a decent living from sustainable agriculture. The farmer and the city dweller need to participate together more often. Researchers and civil servants need to take more account of the interests of those running businesses.

But the most important conclusion of all is this: we must sincerely want to find solutions. That means no unnecessary rules, no turgid legal procedures, no ill thought-out protest campaigns.

Yes to buckling down together.

TransForum has demonstrated that doing this takes us down new paths, with surprising outcomes.



Illustratie Henk van Ruitenbeek

Strategy: It can always be more sustainable

Is an industrial site with tomatoes grown in a high-tech greenhouse and a high-tech pig house more sustainable than an organic market garden with free range pigs? The question is as impossible to answer as asking whether a child would be happier becoming an architect or a baker.

In 1992 the Advisory Council on Government Policy (WVR) concluded that sustainability is impossible to define, as no one image of what we are working towards is by definition more

sustainable than another. Just as it is impossible to define happiness. What could make one person happy – five children and the position of mayor – could be torment to another. Sustainability, like happiness, is the constant pursuit of improvement. It is never completed, we have to keep monitoring problems that lie in wait for us. How quickly and openly problems are tackled when they do crop up tells us more about our chances for developing sustainably than does a vision on a drawing board.



the organisation that works toward a more sustainable future for agriculture through innovative projects

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Contact with livestock contributes to the empowerment of people who need extra care

go in for too much or perhaps too little advertising or they may just be lacking that little bit of extra knowledge concerning care and clients.' Jaap Hoek Spaans knows from his own experience how important cooperation is. He teaches Dutch and geography and has 40 hectares of land with nursing cows and sheep. Through his contacts with a fellow farmer, Hoek Spaans learned how to solve practical problems. According to Hoek Spaans a striking number of people from farming backgrounds come to Landzijde who had first tried to re-establish themselves elsewhere. 'They work at a bank, as a teacher or as a fireman. When they come to a Landzijde care farm they say "this is how I can be a farmer too". That's when a new care-farmer is born.'

Residential weekends

Extensive farms – often the only possibility in landscapes close to cities – would appear to be particularly suitable for providing work in the care field. Research indicates that contact with the soil or livestock makes people feel at home and helps them develop their own strengths. From children spending a residential weekend on the farm to dementing senior citizens and homeless drug addicts, care-farms contribute to their empowerment, says Jaap Hoek Spaans. 'The result is that people teach themselves to function more effectively. In some cases they go onto regular jobs.'

Landzijde serves as an example for other regions. All the affiliated farmers have been recognised by care institutes coming under the Exceptional Medical Expenses Act (AWBZ). Depending on the degree of care required, a day at a care-farm costs between 60 and 100 euros. 80% goes to the care-farm, 12% is for intake, the care plan and evaluation, and 8% for Landzijde overheads.

Care budgets are being squeezed. Hoek Spaans considers however that care-farming is here to stay in the care-sector. 'Municipalities will place people with an indication on care-farms, if only because farmers offer relatively cheap care.'

At care-insurer Agis, Anouk Mateijssen has just concluded a contract with Landzijde for a third year. 'Clients see a horticultural enterprise or farm as a meaningful form of daytime activity,' she says. 'And if the farmers and Landzijde are able to guarantee quality, we can only applaud care initiatives of this kind.' Landzijde has all sorts of other plans as well. Shops on farms. Language lessons for pupils at an Agricultural Training Centre (AOC) who need to catch up and are seeking a job on a care-farm. At the end of the morning Klaassen and Hoek Spaans provide a guided tour of the greenhouse for the latter target group. Simon is still there potting up parsley plants.

Peacefully planting parsley

The Landzijde organisation brings together over one hundred care-farmers from around Amsterdam together with municipalities, care-providers and research institutes. The greenhouses and gardens provide the clients with meaningful daytime activities, helping them to re-engage with life.

'That's Simon working over there,' says Jeroen Klaassen of the Kwekerij in Amsterdam, pointing to a man potting up parsley with infinite patience. 'Simon had an alcohol problem, but here in the greenhouse he's back into the rhythm of work and performing meaningful tasks. He's so good at his work that we are thinking about taking him on permanently.'

It's just nine o'clock in the morning and apart from Simon there are already 30 people – most of the men – busily at work in the greenhouse on the western edge of Amsterdam. They are potting up parsley and lettuce, picking tomatoes and courgettes with yellow flowers and sorting aubergines and cucumbers. They suffer from

psychological or addiction problems or some kind of physical disorder. The most mobile workers are at a table cleaning sprouts. On average 30 clients turn up five days a week. 'They are picked up by minibus all over the city,' says Klaassen. A year and a half ago Klaassen took the initiative to convert a derelict greenhouse that had belonged to a bankrupt rose-grower into a care farm. Nowadays it is a learning and care farm. The fresh vegetables are sold to restaurants and shops in and around Amsterdam. 'The Michelin-starred restaurant De Bokkendoorns in Overveen and the Kas in Amsterdam are among our customers,' says Klaassen proudly.

The Kwekerij is one of more than a hundred care farms that are flourishing in the greater Amsterdam area. It is a kind of pilot business run by Landzijde, an organisation forming the link between the affiliated farmers and the care institutes, care offices and municipalities that purchase organised daytime activities on the farm. In this regard Landzijde is collaborating in the TransForum knowledge project Greencare with Wageningen UR and VU University Amsterdam. 'Cooperation is necessary,' says Jaap Hoek Spaans (56), managing director of Landzijde, 'for no matter how inventive farmers are in offering care, on their own they often come up against the limits. They

Open Letter

Dear Minister,

The combination of Economic Affairs, Agriculture & Innovation in the one ministry creates a tremendous opportunity. This ministry will be able to invest so as to ensure we can continue living in a prosperous and beautiful country.

The Netherlands may be proud of its internationally renowned agricultural sector. This strong competition position is attributable to 150 years of effective innovation.

But innovation can no longer continue along the same lines as in the last century. Innovations now need to take account of the requirements of members of the public and consumers. This calls for the steering of demand and active participation by all parties concerned. It was in order to share experience in this area that TransForum was set up in 2005.

Now, six years later, we know how to tackle this process. We have seen how things can go well and how they can go wrong. By concentrating at this point on innovation in the agrosector, the Netherlands can set itself apart with a clean, low energy, environment-friendly and efficient system of production. This will leave us with an export product of world class.

Together we possess the knowledge, possibilities and energy to realise this ambition. We have however also come to realise that innovative entrepreneurs in the agricultural sector are unable to do this on their own: expensive investments constitute an undue financial risk for them. Conclusion: the market is failing here. Your ministry is able to bring all the stakeholders together through an intermediary that takes initiatives.

By spurring others on you hold the key in your hands. You are able to show how things should be done and to challenge others to follow suit. That innovation is possible in this way has been demonstrated by the TransForum programme.

Now that this opportunity is so clearly at hand we are relying on you to make full use of it.

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Metropolitan agriculture can have many faces: agroparks, green care organised at regional level, local production, urban farms.....

We may need some time to get used to the idea, but the division between town (not for farmers) and country (for farmers) no longer makes much sense in our crowded country. This is clear from the rising tension between farmers who want to expand and the general public who want peace and quiet, nature and a beautiful landscape. Better that we get used to metropolitan agriculture – farming in urban areas.

The characteristic of metropolitan agriculture is that farmers produce products and provide services for townspeople and townspeople come to the farmer. In itself that's not new, of course. One-in-nine farmers already earn income from multifunctional agriculture (camp sites, care farms and farm shops, for instance). What is new, however, is the

understanding that for a real leap forward to be made here, rural businesses will have to organise with each other and with 'urban' parties that they used to have little to do with, such as care service providers, supermarkets, universities, tourist information offices and societal groups.

There is no other way. Urbanisation has led to urban norms and values (nature, high animal welfare, beautiful landscape) also becoming dominant in the countryside, in so far as the countryside still exists. Farmers have to 'earn' their right to exist again by taking this into account. And many town and city dwellers do not want their food to come from hundreds of kilometres away, because then it is not fresh and has to be transported excessive distances unnecessarily.

Aubergines growing on residual heat in Terneuzen



At the Biopark Terneuzen glasshouse horticulturalists draw residual heat and CO₂ from the Yara fertiliser plant. There are also plans for the centralised production of biofuels from green waste. And: 'It will soon be possible for the vegetables to be sent to Paris by refrigerated ship.'

Horticulturalist Jan van Duijn, who hails from the Westland, has been pioneering at a brand-new agropark near Terneuzen since last year. In November 2009 he started with seedlings; in January he harvested the first aubergines. He gathered in the final harvest with hydraulic, extendable electro wagons, he relates in his five-hectare glasshouse. 'The plants were four metres high.' Twice a week his employees do the rounds to gather aubergines from the 70,000 plants. What's special about Van Duijn's auber-

gines is that they grow on the residual heat from the Yara fertiliser plant two kilometres away in Sluiskil. The plant – accounting just by itself for three percent of the natural gas consumption in the Netherlands – releases huge quantities of low-grade residual heat. And the plant also generates CO₂ – a waste product that costs it more and more money on account of the climate problem and emission rights. For horticulturalists CO₂ is a vital fertiliser that brings aubergines, tomatoes and sweet peppers on more quickly. 'Until recently all the heat and CO₂ went into the canal or the air,' says Jan Uilenreef, managing director of WarmCO₂. 'Now the horticulturalists in Terneuzen are cutting down on their fossil fuel consumption by 90%.'

The WarmCO₂ company, together with its shareholders Zeeland Seaports and Yara, has invested 80 million euros in an industrial heat grid. Approximately twelve million have been paid out in the form of gov-

ernment subsidies, while 25 million have been borrowed from a low interest green fund.

Waterpipes

The residual heat from the fertiliser plant goes to the glasshouse complex in the form of water at a temperature of 95 degrees. At the complex a heat-exchanger distributes the heat to the glasshouse water pipes. Water at a temperature of 40 degrees is returned to the fertiliser plant, where it is heated up again. The pure CO₂ from Yara is mixed with compressed air and injected into the glasshouses.

According to Uilenreef this far-reaching form of recycling on such scale is unique in the world. 'Experiments are being conducted only in Germany.' Horticulturalist Jan van Duijn now pays as much for his energy as in a conventional gas-heated (combined heat and power) glasshouse.

A tomato grower from Belgium and a sweet pepper grower are already estab-

Over 100 hectares at the Biopark Terneuzen remain available for pioneers wanting to set up a 'green' glasshouse.

lished at the site. Between them the three pioneers have cultivated some 25 hectares and taken out an option to double the area. In order to fill the entire area of 168 hectares of glass a good many Dutch and Belgian horticulturalists still need to sign up.

Uilenreef confirms that the economic crisis is doing nothing to hasten uptake. Even so he is not pessimistic. 'Unlike in traditional areas, especially the Westland, there is room for expansion in Terneuzen,' he says. 'And where these days can you still negotiate a contract with a fixed energy price for 15 years and are the logistics and refrigerated storage all in place?'

At majority shareholder Zeeland Seaports, in which the municipalities of Terneuzen, Flushing and Borsele and the province of Zeeland all participate, managing director Hans van der Hart is equally upbeat. Crises come and go, he says. Zeeland Seaports is used to thinking in periods of at least ten years. And sustainable plans such as these are the future, maintains Van der Hart. Zeeland Seaports has set aside 50 hectares at the glasshouse site for nature development, water storage, bridle paths and footpaths. And the agropark is to restore the cultural/historical phenomenon of the

18th-century Zwartenhoekse Zeeluis sea locks. 'I think that this sustainable glass horticulture area will be fully taken up in five years' time,' Van der Hart says with assurance. 'The fact that it will be possible for these glasshouses to be classified as green label glasshouses will confer extra creditworthiness.'

There are more plans. In the near future it will be possible for vegetables to be transported not just by lorry but also by refrigerated ship via the canal from Ghent to Terneuzen and further afield. 'Within ten years the Scheldt-Seine Canal will have been widened and Paris will be in our sights,' according to Van der Hart. Green waste from the glasshouses can be fermented, thereby generating energy and compost; wastewater can be recycled and there are plans for the production of bio-fuels.

Right beside aubergine grower Van Duijn's glasshouse there is a smaller glasshouse. This is an information and training centre, where courses are run for people wanting to work in energy-friendly glass horticulture. Van der Hart: 'In the first year 50 people were trained; 30 found work in the three glasshouses of the pioneers straight-away.'



Photo's WarmCO2

Agroparks with pigs a sensitive issue

Various agroparks are on the drawing board in the Netherlands, but when pigs come into the frame matters become sensitive. Three years ago, for example, investors had almost been found for an 'Agrocentrum Westpoort' in the Amsterdam docklands. Under the design produced by Wageningen UR, this would involve three low pig 'flats' covering four hectares: the lower floors for mushrooms, two further floors for housing some 114,000 pigs, and then vegetable glasshouses on the roofs. The site would also contain a slaughterhouse and a manure- and compost-processing plant producing biogas, clean water and fertiliser pellets. There turned out, however, to be too much public opposition to these 'pig flats'.

The opponents do not want any intensive livestock farming in the Netherlands (or in their backyard). The advocates of agroparks with pigs, including TransForum, are however continuing to stress the advantages: pigs produce valuable heat and carbon dioxide and they eat fruit, vegetable and garden waste that would otherwise have to be incinerated or composted. Housing pigs near the city – with a slaugh-

terhouse on site – also means less transportation of the animals and feed.

On behalf of the Innovation Network, architect Winy Maas and designers from The Why Factory (TU Delft) recently designed a glass, organic pig tower for The Hague. The designers of this *City Pig* have calculated that The Hague annually consumes some 300,000 pigs, and that 0.6 square kilometres would be required to provide organic quarters for them, at least if the pig pens were not stacked.

The New Mixed Farm in Grubbenhorst in the province of Limburg is a planned agropark with sheds for over one million chickens and 35,000 pigs, a chicken slaughterhouse and a biogas plant that is now waiting on an environmental permit (see page 6). The initiative-takers hope that the nearby California glasshouse area will link up with the New Mixed Farm. The result would be the first effectively operating sustainable agropark in the Netherlands.

he film '*City Pig*' by the 'public and ecological pig farm' for The Hague may be seen on www.youtube.com.



Illustration architectenbureau MVRDV



These cows are in the integrated sustainable cowshed of 'De Klaverhof', in Moerdijk, run by Marc and Ingrid Havermans. It allows the cows plenty of space to move around. What do we stand to gain from this? The new style of cowshed (known as an IDV-stal in Dutch) has a soft comfortable floor of sustainable dried manure, and the building itself is spacious, light and well-ventilated. There is more than twice the space per cow than in 'traditional' cubicle stalls. These cowsheds provide a very high standard of animal health and welfare, so cows can again exhibit their natural herd behaviour.

EXPERIMENT KOELANDERIJ

Dairy farmers Bouke Durk and Berend Jan Wilms of Schoonebeek in the province of Drenthe want to expand from 220 to 1200 cows. Not, however, by adding further cramped cubicles with concrete floors where cows can pick up hoof and claw disorders. With the aid of organisations such as Wageningen UR, they want to set up a 'KoeLanderij' or Bovine Estate.

The plan is innovative: on their plot of 20 hectares herds of 60 cows get their own space under 'flying' roofs (see picture of the design) with natural litter consisting for example of cow manure, a mixture of dried reed, clay dredgings and sand, or wood chipping and sawdust floors with which Wageningen UR is currently experimenting. Each cow now has an area of 20 square metres in the stalls instead of the usual five or six. The brothers want wherever possible to substitute cereals grown in Drenthe for imported concentrated feed (soya). They also want to sell the used litter containing manure to Drentse horticulturalists for soil improvement.

Just what the KoeLanderij will look like the Wilms brothers don't yet know. 'We are going to submit various designs to the local community,' says Berend Jan. 'Do the local residents want footpaths? May the stalls be visible? Local residents will also be designing a Bovine Estate in workshops themselves.'

If so desired the brothers will be able to supply a meadow with cows. But a maximum of 40 cows can be run on their 20 hectares, so that most of the animals will have to spend all their time in the stalls. The Animal Protection Foundation continues to take the view that each cow should be able to go outside, says staff member Bert van den Berg. But spending the whole year round in an open-plan cowshed is not a problem for the cow, assures Bouke Durk Wilms. 'Natural stall litter is equally as comfortable as lying in a meadow. And in a shed it never gets too hot or too cold.' On an excursion in Israel the Wilmsen saw for themselves how satisfied cows were in an open-plan shed of this kind.

The Drenthe dairy farmers are seeking a special building permit. This will probably be required, as the present open-plan sheds do not as yet comply with all the statutory environmental requirements. The obligatory ammonia scrubbers have no point in open-plan stalls, while in conventional cowsheds nitrogen-containing gases such as ammonia and nitrous oxide can be kept under control much better. The Wageningen researchers are however trying to design open-plan cowsheds combined with an advanced litter system and ventilation. That this is possible has however still to be demonstrated.

On account of all these uncertainties the brothers are not ruling out the possibility of a new cubicle cowshed. Berend Jan: 'But I'm assuming we'll get approval for an open-plan shed.'

'The newest filter was not on the list, of course'



Henk van Latesteijn, general manager of TransForum, believes that we need to give farmers more scope to experiment with more sustainable greenhouses and housing for livestock. 'If we begin now in Brabant with five experimental pig farms, then there's bound to be one that is good.'

Permits that are refused, local government departments with their own agendas or distrust in the chain: innovative projects can be forced to sail against a strong wind, TransForum has observed. If it were up to general manager Henk van Latesteijn, the solution to these impasses would be sought in a special 'experimental space' for sustainable agriculture. 'In that experimental space there are four active parties,' he explains. 'Knowledge institutions, governmental bodies, societal organisations and businesses. All four must suspend their normal good sense to allow the experimental space to function.'

Van Latesteijn has been general manager of TransForum for six years. Before that he worked for the Advisory Council on Government Policy (the WWR) and the Ministry of Agriculture, Nature and Food Quality. Before the formation of TransForum, in 2004, he says people had been talking about sustainable agriculture for 20 years. A number of prominent figures in science, industry and government felt at that time that something needed to be done. 'They were saying: we need to stop talking and do something. It's by doing that you find out what really works.'

Where is the evidence for this lack of room to experiment?

'At Grubbenvorst near Venlo, for example, two pig farmers and a chicken farmer have been working with an installation company for a number of years to try to get the 'New Mixed Farm' agropark off the ground (see also p.3, Ed.). The farmers failed to get permits for units incorporating more effective air cleaning filters because these filters were not on the permitted list. That was hardly surprising, because they were new. A planned underground pipeline to take away the manure was not permitted either, because it was not covered by the current regulations, as under the regulations in this country manure has to be taken away in tankers. And there were more obstacles. Campaign groups gathered signatures on petitions against mega sheds, while the size of a farm tells us nothing about its sustainability. But people dug their heels in.'

What would be your idea of an experimental space?

'Businesses, researchers, governmental bodies and societal organisations working together devise several types of greenhouses, livestock housing or chains and try them out to see what works. The farms are given a 'special status' which means that they

are temporarily exempted from the current regulations. That does not mean they are free to do what they like. In the experimental space they make agreements about the land, the duration and the ultimate objectives. For example, to have five new higher animal welfare and more environmentally-friendly pig farms in Brabant within four years. Then there's bound to be one that really is good, and new regulations can be based on that. If one of the farmers decides to go back to business-as-usual during the experimental phase - something that campaign groups often fear - then that farm comes back under the current regulations.'

What demands would that place on the participating parties?

'The government would have to be able to suspend the rules temporarily subject to certain conditions. Societal organisations would have to convert their objections into design requirements and above all else say what they do want. Researchers would have to collaborate more with the farmers; only then would they find out what knowledge is really essential to innovation. But for that to happen the universities would have to modernise their research assessment exercise and stop judging researchers purely on the number of papers they publish.'

And the farmers?

'They should be rewarded for their pioneering efforts. Most agricultural businesses are small and medium-sized enterprises. If they stick their necks out to innovate and it fails, they go out of business. If they succeed, then others will copy their success within a year. That excessive risk should not rest on the shoulders of the farmers alone.'

Who should finance these innovative businesses then?

'We need a fund for these experiments that industry, banks and the government all contribute to. If an innovation is successful, then they get part of their money back. So the government can participate instead of giving subsidies.'

What makes an experiment a success?

'When businesses come on board and the innovation becomes standard practice. We had to work hard for four years on the Rondeel system for keeping hens. It took a lot of perseverance by all parties and at first we could not find anywhere to build the new type of hen house. But one has been built now, a second one is under construction, and numbers three, four and five are coming. The next step is to export the complete system.'

Varied cycling in the Groene Woud

We are trying to create an attractive area in which the cyclist sees something different at each turn: cows in the meadow, pollarded willows, a profusion of flowers on the edge of a field.' This is the vision of strawberry grower Frans van Beerendonk from Best and the initiator behind the 'Groene Woud'. The Groene Woud or Green Forest is the name for the countryside between Tilburg, Den Bosch and Eindhoven. Some ten years ago Van Beerendonk - also a board member of the Dutch Organization for Agriculture and Horticulture LTO - realised that most farmers in his region were no longer able to expand: something which the Alterra Institute of Wageningen had also demonstrated rigorously. Urban dwellers don't welcome maize fields or pigsties. They want a varied landscape. Beerendonk did not want to leave this inevitable new configuration of the landscape to politicians and policymakers: together with other entrepreneurs, he took the area development into his own hands. Along with Cork in Ireland, the Eifel and Tuscany, the Groene Woud is now among the leading examples in Europe of 'region branding'. Some 80 Brabant farms now sell products and events to Groene Woud, ranging from regional milk, bread and

strawberries to a multi-day cycling event and a day of canoeing with French fries. The farms are only awarded a Groene Woud licence if they do something for the landscape. The regional promotion fund or Streekfonds - set up with the aid of the Rabobank - is already receiving enough money to provide annual support for projects totalling 200,000 euros. 'I have always maintained that nature, the economy and culture go hand-in-hand,' Van Beerendonk explains the success. 'And also that we need to listen to one another and that we all in fact have the same goal, namely finding markets as entrepreneurs. A number of farmers in our region manage to produce for the world market, but most have to make a choice between moving elsewhere or finding new markets. I have also always emphasised that city-dwellers must get the idea that their environs are their back-garden - a well-maintained hinterland for which we are jointly responsible.' The Groene Woud provides a model for similar initiatives in the Netherlands, such as MijBoer and the Northern Friesland Woods. Representatives from the EU Commission also come and look. But Van Beerendonk does not think that much can be copied. 'Each region has its own characteristics.'

Photo: Gils Gons



'ROUND THE TABLE WITH MEMBERS OF THE PUBLIC'

Farmers and the general public are currently on opposing sides in the debate about intensive livestock farming. According to Gerard van Oosten, director of ZLTO, an organisation representing agricultural and horticultural businesses in the south of the Netherlands, this is because the relationship between members of the public and farmers and growers has broken down. He acknowledges some blame for this himself. 'For a long time the agricultural sector was mainly interested in technological improvements. And the public do not really know the value of agricultural production.'

A farmer needs to have a 'name' and a 'face' again. Through an open day, for instance. 'I was recently talking to a poultry farmer who had expanded his business without many problems. He had held an open day before construction started, and another one when it was finished. In all, 350 people turned up.'

'We need to get around the table with members of the public to talk about the importance of a healthy agricultural sector for the environment, the landscape and biodiversity. Then the sector can set to work to deliver those values. If people really think that welfare, production conditions and our carbon footprint are important, we will have to produce our food in north-west Europe, and we will have to decide together

how such an agricultural sector can fit into our densely populated environment.'

Van Oosten approves of the plea for room to experiment. 'With that space we can gain inspiration and try out sustainable projects. Otherwise we won't achieve any breakthroughs.'

The RDM Campus, in Rotterdam, is a fine example of a site where students and companies collaborate in an open environment in developing new economic activities in the Building, Moving & Powering markets: sustainable and innovative solutions in construction, mobility and energy.



Foto Pieter Mogelisen © NFP Photography

Farmers can earn extra in all manner of ways

There are five ways for farmers and market gardeners to earn income, says Taco van Someren, Professor of Strategic Innovation and Sustainability at Beijing Normal University, and managing partner at Ynnovate. With André Nijhof of Nyenrode Business University, he looked at how farmers can earn extra income in nine projects supported by TransForum

Van Someren: 'Farmers can provide extra services, such as care services. They can invent new products, as with the hen-friendly Rondeel egg. Or they can organise a new shorter chain, for instance, so that they get a higher price for their products.' Examples of this last solution are the new Landmarkt chain of shops and the MijnBoer organisation, where farmers sell their milk, tomatoes or meat to consumers in the local area. Money can also be saved and earned with closed-loop farming, according to Van Someren. This has been demonstrated by the dairy farmers of the Northern Frisian Woods, 'They can sell prunings from the wooded banks that are typical of the region, for use as fuel.' Finally, farmers can sell their *business ideas* abroad. None of the players in the nine projects studied has managed to get that off the ground yet, but the other methods turned out to be sure to produce returns. Some Green Care farmers around Amsterdam have seen their income double. That's also thanks to the co-operation that they sought out, says Nijhof, 'The formation of Landzide (see page 2 Ed.) was really necessary for the Green Care farm-

ers. Because that organisation maintains the contacts with care service providers and local authorities for them, the farmers can concentrate on their farms. And we saw that all the time: chains have to be geared to the new services or products, otherwise they will not sell.' Timing is one of the trickiest factors here, says Van Someren. 'If you start too early, you'll have no business. If you start too late, you'll miss your chance. Though it does often seem that the pioneer keeps an edge.'

Van Someren and Nijhof anticipate problems with enlarging the scale of projects. There is not enough space in the Netherlands to be able to meet the potential needs of 16 million people with metropolitan agriculture. We also have to wait and see whether consumers in the future will want to pay extra for local products, if more suppliers enter the market and they become more readily available. 'Sustainable agricultural products will certainly bring new, more expensive brands on to the market,' Van Someren assures us. The hen-friendly Rondeel housing illustrates that. The farmer earns three cents more per egg.

CHICKEN CONTENTMENT ASSURED IN THE RONDEEL HENHOUSE



Photo Ruud Zanders

'De Rondeleieren zijn niet aan te slepen'.

Non-governmental organisations and supermarkets are necessary if a sustainable henhouse is to succeed. This is evident from the success of the Roundel eggs, on sale since June.

The eggs of the chicken-friendly Roundel henhouse are all but unprocurable. The supermarket chain Albert Heijn purchases virtually all the eggs laid by the 30,000 hens in Barneveld. Roundel eggs are strikingly packaged, in round coconut-fibre eggboxes containing seven eggs, one for each day of the week. 'On account of the increased demand, we have been supplying more in recent weeks than was agreed,' says Ruud Zanders of Rondeel BV in Barneveld in the province of Brabant.

The contentment of chickens is wherever possible the key consideration in the Roundel henhouse, now 18 months old and designed on the basis of a chicken survey conducted by Wageningen UR. The hens are able to go to and fro easily, from the night quarters to the day quarters. Everything is close at hand, as the building is round. The animals are able to scratch on a green artificial grass mat, strewn with grain, they are able to take dust baths and they can scrub their feathers clean in the sand. The woodland-fringe element, several metres in width, is sealed off by a cage so that birds of prey and foxes can't get in. The chickens therefore live in a protected environment, just like the knights of yore in the roundels of their castle. The henhouse air is clean and ammonia emissions are the lowest in the Netherlands. Air is blown through the manure quarters, where the hens defecate. This dries the manure, so that less ammonia evaporates. Wind from outside passes through the chicken run, escaping through the chimney in the middle of the coop. This

chimney effect creates natural ventilation. Zanders: 'A roundel henhouse uses at least 20 percent less energy per egg than other chicken coops.'

It is not an organic henhouse. 'No,' states Zanders. 'Our chickens are not given organic feed; that's too expensive. This doesn't make any difference, as the chickens themselves don't feel any benefit from biological feed.'

The free-range area in the Roundel henhouse is also smaller than required by the EU for organic chickens. But according to Zanders this is also not a problem for the chickens. Zanders: 'Chickens seek shelter. In many free-range runs you don't for the most part see any chickens. Venturing far afield from the coop is not part of chicken behaviour.' The welfare researchers from Wageningen UR, the designers of the Roundel henhouse and the Animal Protection Foundation share this view.

The Animal Protection Foundation has awarded the Roundel henhouse its Better Living Hallmark, with three stars. And the Wakker Dier animal welfare foundation advertises the Roundel on the radio. Similarly the environmental foundation Stichting Milieukeur has awarded its hallmark to the henhouse. These hallmarks are important, says Zanders. 'The consumer takes notice of them, for Roundel eggs are a little more expensive.'

Most of the eggs from the Roundel henhouse are exclusively distributed by Albert Heijn, while a small proportion are marketed locally by the farmer in Barneveld. A second Roundel henhouse will come on stream in Wintelre in Brabant in March

next year. Licence applications for two further chicken coops are under preparation. In 2012 there will be five Roundel henhouses, Zanders expects.

Animal Protection Foundation involved in the design

The Animal Protection Foundation has been involved in the design of the Roundel henhouse since 2003. Marijke de Jong of the Foundation is enthusiastic about the outdoor space and the facilities for scratching. If the chickens are unhappy they will start to peck each other, which is why beaks are trimmed in conventional coops. By way of experiment, the beaks of 6,000 of the 30,000 chickens in the Roundel henhouse were left untrimmed. 'This has not caused any extra plumage damage,' says De Jong. 'The laying hens have retained good feather quality, there is no aggressiveness and the chickens have things to their liking.' In the second Roundel all the chickens will be going through life untrimmed, De Jong predicts. The Animal Protection Foundation has provisionally awarded the eggs three stars. The organisation will be taking a definitive decision on the basis of behavioural research by Wageningen chicken researchers in Barneveld. 'The research results look good,' says De Jong.



Wakker Dier calls on consumers

'A chicken that is scratching happily and has a good life,' announces the sonorous male voice in the radio spot of the animal welfare foundation Stichting Wakker Dier about the Roundel henhouse. The laudatory text is in stark contrast to the foundation's recent radio spots calling on consumers not to buy super-size chickens ('Cat food is even cheaper.') 'Rightly so,' says spokesperson Sjoerd van de Wouw, a graduate in chicken welfare at Wageningen University. 'The Roundel henhouses unique: everything that really matters to the chicken has been properly arranged. We made the radio spot in order to commend Albert Heijn and to encourage other supermarkets to do more about animal-friendly eggs. There are millions of hens in laying batteries in the Netherlands, confined to an A4-size piece of wire mesh. As from 2012 that will no longer be allowed, so it is as well for supermarkets to get their act together before then. Consumers are certainly prepared to pay a little extra.'

Five examples for new business

1

EDUCATION

Five special schools around Zaandam are giving children some lessons on farms. Norway (*Levende skule*) and Germany (*Bauernschule*) have also had positive experiences with 'farm schools'.

Market: special primary and secondary schools.

Challenge: the farmers have to organise themselves on a regional basis with primary schools and teacher training facilities and develop 'green education'.

2

HEAT

Tropical plant cultivator Stef Huisman, from Bergerden, has been the first to build a greenhouse that produces energy. Heat is captured and stored in the summer, to be used in the winter. The greenhouse currently produces more heat than it uses.

Market: customers for heat such as local housing corporations and care homes.

Challenge: greenhouse growers have to negotiate with housing corporations about the price of the heat and about laying pipelines.

3

MEAT WITH FEWER TRANSPORT KILOMETRES

The New Mixed Farm planned for Grubbenvorst, near Venlo, is planning a large-scale, high animal-welfare and environmentally-friendly production process, including the complete chain from egg to chicken meat on a single site. This will mean much less transporting of chickens.

Market: global market for chicken.

Challenge: to convince campaign groups of the sustainability of the meat.

4

NOSTALGIC ATMOSPHERE OF A BYGONE AGE

The Northern Frisian Woods are characterised by their peace and quiet, wooded banks, cattle grazing in the meadows and old churches. The 700 dairy farmers and hotel and restaurant owners can reinforce that nostalgic atmosphere of a bygone age with footpaths or by restoring cultural features; they can attract tourists and sell woodland products.

Market: city dwellers seeking peace and quiet.

Challenge: dairy farmers and the hotel and restaurant trade need to organise themselves at regional level to get the regional brand off the ground.

5

LEISURE AND PUBLIC INFORMATION

In the new nature reserve at Lingezegeen between Arnhem, Elst and Bemmel, contractors, market gardeners, energy companies, architects and research institutes plan to build a *Crystal Palace*. This will be a glasshouse displaying the most innovative devices in the field of energy and horticulture. High tech that will make people proud tourists and sell woodland products. There will also be space for exhibitions, restaurants and meeting rooms.

Market: families with children, businesses requiring meeting rooms, schools.

Challenge: to reach agreement with many parties on how to divide up costs and benefits.



Foto: Pieterman Wageningen

The Board of the Northern Frisian Woods. From left to right: Foppe Nijboer, Gjalb Benedictus, Dick Zeinstra, Jan Brandsma, Douwe Hoogland, Folkert Algra. Missing in the picture is Jan de Boer.

Northern Frisian Woods trial polder

Many European regulations are outmoded,' says Cees Veerman, arable farmer and Professor of Sustainable Rural Development at Tilburg University. 'You could, of course, just resign yourself to that.' But that is not what Veerman did when he was Minister for Agriculture between 2002 and 2007. He gave an organisation of conservation-minded dairy farmers in North Friesland, known as the Northern Frisian Woods, an exemption from the European Nitrate Directive. Under this directive, which is now 20 years old, farmers may only spread a set amount of manure; the rest must be injected into the ground to prevent the emission of ammonia into the air. However, the Frisian dairy farmers and a couple of passionate researchers from Wageningen argued that soil injection harms soil life. They be-

lieved that this was certainly true for the 'closed-loop farming' that they had developed: dairy farms with rough fodder from the local area, late mowing of grass (also better for meadowland birds) and low protein feed (which means that the manure gives off less ammonia).

Veerman was impressed by the farmers' arguments. He decided that they need not inject the manure into the ground any more, provided their closed-loop farming and its effects continued to be monitored by ecologists and soil scientists. If it went wrong, then they would be brought back under the directive. 'Our own lawyers and my counterparts in the Environment and Justice Ministries raised their eyebrows at first', Veerman says. 'How are you going to check whether these farmers stick to the

agreements?', they asked. And will the European Court of Justice accept an exemption like that?' Veerman spoke to all concerned. To farmers who were angry because they had not been given an exemption, he said that he could not make the whole of the Netherlands a trial polder.

The former minister has no regrets. Up to now (the Frisian dairy farmers still have a conditional exemption) this closed-loop farming has turned out to have ecological benefits. You can make real progress by suspending certain rules in trial areas, Veerman believes. 'We learn a lot from it. And if the conditions are transparent and the Netherlands complies properly with the rest of the EU rules, the other member states are less likely to have problems with it.'

'ENTREPRENEURS' QUESTIONS ALSO APPLY TO HIGHER PROFESSIONAL EDUCATION'

Researchers and innovative entrepreneurs do not always collaborate easily, innovation projects show. Entrepreneurs want to make a profit and to have a quick answer to their practical questions. Researchers want to publish internationally and have a response to their research questions. Martin Kropff, rector of Wageningen University, is asked what can be done about this.

Do you recognise the criticism that researchers have no time for innovation because they have to publish internationally?

'I know that people say that. It is certainly an intensive process for a university lecturer or professor to publish internationally, lecture and also contribute to innovation processes with entrepreneurs. But the best of our researchers in fact manage to combine all these effectively. Ever more university researchers accordingly work with the private sector. Examples include plant breeders at TTI Green Genetics working with seed companies, and feedstuff researchers at the Food and Nutrition Institute with food companies.'

What do you say to a researcher who takes part effectively in an innovation process but does not publish internationally?

International publication remains a requirement for university researchers. But Wageningen University and Research Centre also has DLO, Practical Research and Van Hall Larenstein (a college of higher professional education - ed.) under its roof, where the contribution towards policy or innovation comes first. The practical researchers for example work in practical networks with arable farmers and horticulturalists. Their performance is assessed in terms of not just research quality but also customer satisfaction, which is measured by surveys. Evaluating the social impact of innovations is more awkward, but we are in the process of refining relevant methods for doing so. On top of that practical questions from the SME world lend themselves excellently to colleges for higher professional education, particularly since they are now turning increasingly to applied research.'

TEMPTING COFFEE LOVERS WITH GRAND CRU



Foto: Karin Andeweg

Click on www.nespresso.com and browse through the superb texts and short films. They tell stories about the Nespresso coffee machines, the accessories, the Club and the Grand Crus: the capsules with coffee for one cup. Nestlé understands how to tempt the consumer. The Grand Crus cost 33 cents per cup and the coffee machines retail at around Euro 200. 'We've already sold 10 million machines,' says Hans Jöhr, Nestlé director and member of TransForum's international Supervisory Board.

Nespresso - like more and more products from the big food companies - is not initially being marketed as fair trade or as an environmentally-friendly product, though Nestlé is working on that. 'Consumers are willing to pay extra for Nespresso because of the guaranteed quality and convenience that it offers,' explains Jöhr. 'Environmentally-friendly production and a good price for the farmers are aspects of that high quality standard.'

His company has, in partnership with the conservation organisation Rainforest Alliance, among others, created a Triple E programme (sustainable coffee, recyclable capsules and green machines). By 2013 the company aims to source 80% of its coffee under the standards of the programme. Currently it's 50%. Jöhr claims that Nespresso's own standards are higher than those of many of the present fair trade or environmental quality marks.

'The Netherlands has a huge reputation for efficient production'

Supplier of climate control and process control systems, Priva, in Lier, is experimenting with a closed-loop system producing tilapias and tomatoes in the same greenhouse. Photo: Priva BV



Photo: Priva BV

Meiny Prins (1962) was Businesswoman of the Year in 2009 and winner of WWF's Clean Tech Star. She is CEO of Priva, a horticultural company that leads the way in climate control and commercial and industrial building that employs 400 people. One of Priva's projects was the development of a greenhouse that actually generates power rather than consuming energy in vast quantities. I had four questions for Prins.

Is it a problem that so many farmers and horticultural businesses are giving up?

'The Netherlands has a huge reputation for the efficient production of food. We produce up to 80 kilograms of tomatoes per square metre using five litres of water. Elsewhere in Europe, in the open air, hundreds of litres of water are needed for 10 kilos of tomatoes. To keep that level of production up, then of course it's worrying that practical, day-to-day innovation is being lost as so many producers are giving up.'

Large-scale agriculture is good because it's innovative, isn't it?

It's not as simple as that. For a business that prioritises cost-efficient growing, being large-scale is a must. But there are small-scale businesses that have concentrated on innovative niche markets and have been successful. Think of some of the

growers of ornamental flowers. Combining traditional products with new services such as green care, recreation or water storage is also an interesting trend. I think that sustainably produced agricultural and horticultural products are here to stay.'

Only if the consumer is willing to pay for them, and the Dutch quite frankly are not.

'As it happens I'm in France at the moment and here in the Alps you find local products that seem to be slightly more expensive in all the supermarkets. It's true that we in the Netherlands do not have a culture from way back of having plenty of money to spare for good food and drink. But you can see that things are changing. There is growing interest in traceable meat, eggs from hens with enough space to move around, and sustainable coffee and cocoa. Sustainable agricultural prod-

ucts need to become the norm and no more expensive than the products we have now.'

Do you see the new Ministry of Economic Affairs, Agriculture and Innovation as an opportunity or rather as a threat?

'International Enterprise and Innovation would have been better. But this is an improvement. You see agriculture and horticulture are an economic sector, just like the Port of Rotterdam. I'm also pleased with the addition of 'innovation', as innovation is an essential part of enterprise. I hope that the government is prepared to adapt legislation and regulations to promote innovations, such as the fish we farm in the warm waste water from tomato greenhouses, and cowsheds where the cows are free to walk around. We need to create the scope for experiments like these.'

THE NEXT WONDER OF THE WORLD?

The Netherlands as 'Transport Land', the Netherlands as 'Knowledge Land' and the Netherlands as 'Water Land' – these have been familiar concepts to us for some time. To these, as soon as possible, we need to add the Netherlands as 'Farming Land'.

In recent years, hundreds of foreign visitors have pressed their Dutch hosts to fulfil a particular request: they wanted to fly over the Delta works to look down on that wonder of the world that keeps the polders behind it dry.

We should ensure that when eminent Chinese and Arab delegations visit us in 2020, what they will insist upon is flying over the fields of North Brabant, or the glasshouses of South Holland stretching out toward the horizon. These should become the next wonder that the Netherlands gives to the world.

In my book *Het inflatiespook* [The Spectre of Inflation] I explain why a huge wave of inflation is going to overrun the world in the next 10 years. The source of much of this inflation will lie in the agricultural sector. The Food and Agriculture Organization of the United Nations (FAO) predicts that the prices of many agricultural products will increase by tens of percent.

This will be due to the growing demand for food and water. World population is increasing and countries such as China, India and Latin American nations are becoming more and more prosperous. Supply is not keeping up with expanding demand. First, because the area of land under cultivation is decreasing because of factors such as urbanisation and, second, because of climate change, which will make poor harvests the norm rather than the exception. This wave of inflation is good news for some: farmers, for instance, will get better prices. Food prices are set to rise more than are prices of other products. It will be good for the Netherlands, which is an important exporter of agricultural produce.

Continuing to feed all those mouths will require an increase in productivity in the agricultural sector. And this happens to be where the Netherlands is among the best in the world.

The government must, therefore, promote Dutch agriculture on the international stage. But that is not enough. More farmers are leaving the industry every year. With every farmer that says farewell to the fertile polder land, valuable knowledge that has been built up over centuries is lost. That's why the government needs to look at how we can make the Netherlands attractive again to farmers as quickly as possible. This is indispensable human capital in which we must continue to invest, so that we will still be able to show off a wonder of the world in the future.

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