



The precarious balance between science and policymaking

foodFIRST Vijverberg session, 24 August 2016

Discussing sustainable food systems

Prof. Rudy Rabbinge, University Professor emeritus of Sustainable Development and Food Security is stepping down as Special Envoy of the Ministry of Economic Affairs. Upon request of the Ministry of Economic Affairs he also chaired the international knowledge network Global Research Alliance on Agricultural Greenhouse Gases from 2013 to 2016.

The meeting has been organised as part of the Vijverberg sessions, an initiative launched by foodFIRST and facilitated by the Ministries of Foreign Affairs and Economic Affairs.

During this meeting, young and experienced researchers, directors, policymakers and representatives of the business sector and society will discuss sustainable food systems in relation to national and international policy on food, climate and agriculture.

Jos van Gennip, Chairman of foodFIRST

The goal of foodFIRST is to build a bridge between science, society and policymaking within the tetrahedron comprising social organisations, the business sector, government and science. This tetrahedron is an important basis for contributing to world food security, food & agricultural policy, climate & environmental policy and the Common Agricultural Policy. It is also part of our vital international commitment. Within this context, it is very positive that the idea of collaboration has been revived. The foodFIRST coalition was founded in accordance with this principle and is truly honoured to have been able to co-organise this meeting.

In 1992, Rudy Rabbinge's report for the WRR (Scientific Council for Government Policy), entitled *Grounds for Decisions (Grond voor keuzen)*, was published. The main conclusion was 'if you know how to use the land optimally, you can maintain food-production levels despite declining land availability.' Later, the Van Gennip-Rabbinge and Rabbinge-Van Gennip motions to integrally maintain the budget for Development Cooperation, promote agricultural enterprise and maximise attention to the Netherlands' contribution to the world food issue, were carried in the Dutch Upper House. These themes remain as relevant today as they were then.



Hans Hoogeveen, Directorate-General for Agro & Nature Policy at the Ministry of Economic Affairs

The precarious balance between science and policymaking: following on from what Jos van Gennip said, we must formulate this more broadly as 'the precarious balance between science,

policymaking and society. Feeding the whole population of the world requires us to double agricultural production on existing farmland. We are also seeking socialisation of issues, as you can't change society alone – society can only change itself. And the Netherlands needn't be shy about its expertise in this area.

Wageningen University & Research is one of the top universities in the world. Dutch seed companies supply seeds all over the world. And Dutch agricultural businesses supply production lines for farming and food industries on all continents. However, our way of thinking is still extremely divided: science, politics and professional practice are completely separate entities. New alliances are needed. Rudy is one of the founders of the Alliance for Climate Smart Agriculture.

The guiding principle of this alliance is to overcome the policymaking silos of agriculture, food security and climate change. When scientists and policymakers agree, the business sector wants to practically implement the resulting innovation. For this reason, we are seeking new alliances with the business sector and international organisations such as FAO and the World Bank. New links to the business sector are needed. But we don't ask businesses for funds.

We look at how they can help tackle the issues of climate change and food security via greener marketing strategies and increased Corporate Social Responsibility. We are extending a helping hand to entrepreneurs in this area. This pact between policymaking, science, professional practice and society is truly groundbreaking. It requires the vision of young researchers as well as the guts to take risks.



Rudy Rabbinge, University Professor emeritus of Sustainable Development and Food Security

I am very happy and thankful to be able to mark my retirement at foodFIRST in collaboration with the Ministry of Economic Affairs and look back upon my time as a Special Envoy. RABObank's

wonderful hospitality fully reflects the role that I believe this financial institute can play in society.

Cooperative thinking is alive and well once more and the foundations of the cooperative – commitment, continuity and enlightened self-interest – have been given new interpretation and meaning. This is more than essential to foodFIRST and my work as a council advisor, special advisor and Special Envoy. My work would not have been possible without Hans Hoogeveen, for which I thank him sincerely. Thanks also to Jos van Gennip, chairman of foodFIRST and an important colleague of mine in the Upper House at the time, who was kind enough to facilitate this event under the banner of foodFIRST. I'd also like to thank Ineke Lemmen (Ministry of Economic Affairs) and Hans Groen (foodFIRST) for their fantastic preparation of this session. I will now introduce today's topic.

More productive and eco-friendly agriculture

In recent years, there has been constant discussion of the impact science has on society. These debates have been dominated by extreme opinions from all sides, from science being subservient to society's needs to the complete independence of science. This is remarkable for an institution like Wageningen University & Research, whose very mission is 'Science for impact'. I've felt at home there for 52 years, long before this mission statement was devised. At an engineering university, science is about scrutinising, exploring, serving as well as providing different perspectives. The great thing about this is you can make a further contribution to a society already enriched by the fruits of scientific labours. Science is continually improving, serving more and more social goals and focusing ever more on continuity and sustainable development.

In short, 'it's going great', to quote Michiel Bicker Caarten, founder and former editor-in-chief of Nieuwsradio. He backs up this optimistic claim with a multitude of facts and information in his 2012 book *Het gaat geweldig*, predominantly based on scientific insights and concepts. In my 2011 farewell address entitled *Perspectives in Hindsight*, I also mentioned how agriculture has become more productive and eco-friendly in recent decades thanks to better knowledge and insights.

This holds true for developments across the board. However, the paradox is that on the one hand we as a society make ample use of and are dependent on scientific developments, but on the other hand, the authority of the scientific community is waning. In social debates, science's authoritative position is less accepted. Lip service is paid to science's role as an honest broker, yet its insights are implemented into policy less and science is seen merely as a, somewhat other-worldly, academic hobby, or used (or indeed abused) by proponents of a certain viewpoint to justify their opinion. This has eroded the credibility and authority of science. This is a great shame and it's understandable that attempts are being made to regain this lost position of authority. In the agriculture and food sector, there is a 'golden triangle', set up after the first agricultural crisis in 1874, within which fundamental and applied research, government bodies and the business sector positively reinforce each other and boost the competitiveness of the actors in the sector. The French and Germans were protectionist, and the British were reluctant to intervene, resulting in many bankruptcies.

In contrast, the Dutch increased their competitiveness by adjusting the infrastructure, boosting their market positions via collaborative ventures and increasing knowledge and innovation via the aforementioned golden triangle of policymaking, business and science. It was active policymaking as opposed to a laissez-faire or a defensive, controlling approach.

Since 1874, many agricultural crises have occurred and the countries' reactions have always been practically identical: the Brits keep their distance and accept the weakened position of the agricultural sector (an approach made possible due to the Commonwealth), the Germans and French propagate protective measures, and the Netherlands, as well as Denmark to a lesser degree, focus on boosting competitiveness. This policy was accepted by various coalition governments in the Netherlands (an inevitable feature of Dutch governance), and is part of the reason why the agricultural industry occupies such a strong position and makes such a significant contribution to the trade balance. This remit is being broadened and modernised all the time, and ministers from various political backgrounds devised modernised visions such as Dynamism and Innovation by Jozias van Aartsen and Choosing Agriculture by Cees Veerman. The policy roughly defined positions, visions of the future and made explicit policy decisions. A deliberate decision was also made to focus on collaboration with science and the business sector, from which our country benefitted significantly. It is striking that the role of expert leader and stimulator is now being increasingly phased out in favour of that of a process manager and remote director.

Power of the golden triangle

According to Herman Eijsackers, the power of the golden triangle can be further boosted by widespread social acceptance in the case of a 'platinum tetrahedron' in which policymaking, the business sector, science, and social actors such as NGOs collaborate on the broader objectives of food security, climate policy, the environment, competitiveness and global orientation.

It is striking that within this kind of tetrahedron, the role of the scientist is completely different to the one described so beautifully by developmental economist Jerry de Hoogh in his farewell address entitled Distance and involvement. This is what gives rise to the precarious balance between science and policymaking. Getting too involved can result in unquestioning and unconditional provision of the desired science, while too much distance results in irrelevant advice and recommendations that miss the mark and fall apart before the politician has a chance to put them into effect. Implementing the tetrahedron will help eliminate this risk and stabilise the precarious balance between policymaking and science. Responsibility for the effective functioning of the tetrahedron is shared between all four actors involved, with the government playing a particularly important role. This sort of knowledge and innovation structure can greatly benefit the government, a fact that should be reflected in the level of funding. The role of science is to describe, analyse, explore and design. By doing so, it offers perspectives (utopias), recognises risks (dystopias), and avoids short-sightedness (myopia), according to Martin van Ittersum in his

inaugural address. This is all done in close consultation with innovators – mainly the business sector but also social organisations – in order to create acceptance in society and get the government to grant the necessary legislation and orientation. The role of the government can be reinforced by increasing expertise and affinity within the organisation, and in a number of cases, by appointing Chief Scientists or, as in my case, a Special Envoy for Food Security and Sustainable Development. Four key activities are conducted:

- building bridges between partners
- offering perspectives via innovative insights and concepts
- forging alliances with various actors
- catalysing innovation and modernisation

I carried out this role with great pleasure, due in a large part to the excellent collaboration with my colleague Paulus Verschuren at the Ministry of Foreign Affairs and my many great contacts with a wide range of government partners. I would like to illustrate this by giving a few examples of different yet equally vital activities.

Building bridges

First and foremost, this is about bridging the gap between the various partners by acting as a mediator and go-between and actively stimulating collaboration via unifying concepts, collective goals and the removal of barriers (mainly mental barriers such as fear of the unknown). You can do this at the global level, but it can just as easily be done at the national, regional or even local level. At all of these levels, threats are often blown out of proportion, opportunities go begging and people and companies doubt their own abilities. This is exemplified by the Peat Colonies in Groningen, where an overwhelmingly defeatist mentality prevailed. The cries for help and wallowing in negativity often resulted in incorrect measures and support. Historically, the programmes The Power of Decisiveness and Perspective through Power were often based on the existing strengths of the agricultural sector, enabling the business sector, NGOs and the government to create an extensive programme with the aid of scientific insights. The scrapping of, for example, government support for the cultivation of high-starch potatoes was more than compensated for by the renewal of faith in the growers' own abilities. The slogan '10 15 20' is one example of this: 10 tonnes of grain, 15 tonnes of starch and 20 tonnes of sugar per hectare with less than half of the input, as well as much more effective use of high-starch potatoes as raw materials for new proteins and high-quality products. A huge number of projects (over 90) ensure the 'problem area' will flourish. A completely different level at which bridges are being built is reflected in how the green agrarian revolution has caught on in China and significantly increased food security. While just 25 years ago, China's agriculture was fully based on rice cultivation, it has now been hugely enriched by the potato. China is now the largest producer of potatoes in the world. In this regard, this bridge-building was extremely beneficial to Dutch business such as the seed-potato and dairy sectors. Dairy products are being increasingly included in Chinese menus.

Providing perspective

The second major function of the Special Envoy is to offer perspective by using accurate scientific analysis and research with regard to opportunities. Typical engineering approaches are extremely useful in this regard. The 1991 WRR report *Grounds for Choice (Grond voor Keuzen)* demonstrated that by basing agricultural policy on social objectives relating to agriculture, the environment and nature, and by optimally capitalising on opportunities by using Best Ecological Means on well-endowed soils, it is possible to optimally achieve the desired goals whilst greatly reducing land use (by up to 50%), pesticide/herbicide use (up to 80%), nitrate emissions (up to 70%) and costs (up to 50%). This perspective has been realised to some extent, but certainly not in full, as in many cases, unenlightened self-interest dominates over enlightened self-interest. Enlightened self-interest is seeing perspective in the future, while unenlightened self-interest is characterised by a desire to cling to old-fashioned structures.

A second example of providing perspective relates to climate policy. At the Copenhagen Climate Change Conference (COP 2009), it was established that agriculture is responsible for at least 15% of greenhouse-gas emissions. As a result, initiatives were devised to reduce this percentage. In addition to the Global Research Alliance on Greenhouse Gases (GRA, www.globalresearchalliance.org), set up by New Zealand with the aid of Canada and the Netherlands and focusing mainly on mitigation applications and, to some degree, on adaptation measures, initiatives were also launched in 2010, 2011 and 2012 to give structure and meaning to the Climate Smart Agriculture (CSA) concept. This involves insight-based agriculture with robust systems that greatly reduce emissions and boost the sector's resilience. The Netherlands played a leading role in both GRA and CSA due to the government's energising policy and was successful in mobilising the global community. To achieve this, old prejudices and taboos had to be eliminated.

In this regard, research from my colleagues Nico van Breemen and Martin Kropff at the International Rice Research Institute (IRRI) at the beginning of the 21st century determined that highly productive rice systems emitted substantially less methane than less productive systems. It was a typical example of serendipity. Highly productive livestock and cropping systems also enabled much lower greenhouse-gas emissions by implementing precision agriculture and effectively applying the principles of production ecology. The assumption that intensive farming automatically means greater environmental damage must therefore be abandoned.

The propagation of CSA as part of the GRA approach has not yet been widely promoted, although this is probably the most important (and maybe the only) way forward to increase productivity while reducing environmental impact.

Forging alliances

The third aspect of the Special Envoy's role is forging alliances. Once again, this can be done at all levels. The Agricultural Deal agreed between the government and the northern regions of the Netherlands (Groningen, Friesland and Drenthe) is an example of mobilising all four corners of the tetrahedron with all actors

recognising the benefits of collaborating and initiating concrete activities in a number of areas. The fruits of the Agricultural Deal, such as the innovation programme for the Peat Colonies, the acceleration agenda for the dairy sector and the northern 'shell' for the high-quality seed-potato sector, have already resulted in effective coordination, numerous projects and increased competitiveness, while simultaneously gaining broader social acceptance. Based on these programmes, further work is being done on Healthy Ageing and the greening of chemistry: turning plants into factories. At a different level, alliances are forged by developing a unifying concept with the involvement of all the various actors, financial support from private investors (Gates, Rockefeller) and, in particular, extremely strong leadership (former UN Secretary-General Kofi Annan). The lack of a green revolution in Africa, where structural food shortages and starvation have increased significantly this century, was one of Mr Annan's pet hates. The Alliance for a Green Revolution in Africa, founded eight years ago, is striving to turn this around. Many projects, collaborative ventures and funding opportunities have been established, and this third green revolution is now gradually gaining momentum in a number of African countries. An essential factor in this is the involvement of regional and local government. The Maputo Declaration of 2003-2004 promises that investment in agriculture, which had been hugely neglected, will be increased to at least 5% of Gross Domestic Product (GDP), the level recommended by the Organisation for Economic Co-operation and Development (OECD). This is now being implemented in several countries and input from many companies and institutes is essential to ensure the successful green revolution in Asia can be repeated in Africa. It was a privilege to be part of this.

Stimulate innovation

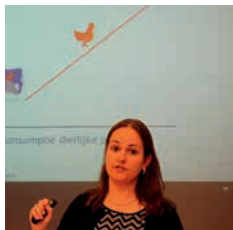
The fourth aspect is the catalysing function of the envoy, which my colleague Paulus Verschuren greatly fulfilled in his galvanising role with various companies in the food sector. This resulted in numerous activities in which the business sector made investments over and above their corporate social responsibility obligations and helped formulate and structure new developments. In effect, it is enlightened self-interest for the parent-material industry (seeds and seedlings) and the food industry to endorse and capitalise on this in their foreign operations. Scientific analysis can also be helpful in this regard. For example, the InterAcademy Council report 'Realizing the promise and potential of African agriculture', commissioned by the UN Secretary-General, established a movement that resulted in many of the recommendations being practically implemented by government bodies and institutions. The same applies to a number of reports by the Committee on World Food Security's High Level Panel of Experts. Gerda Verburg, the departing chair of the Committee on World Food Security, would agree. The new permanent representative of the Netherlands to Rome-based institutions such as the Food and Agricultural Organization of the United Nations (FAO), the World Food Programme (WFP) and the International Fund for Agricultural Development (IFAD) will have to effectively implement Dutch

expertise and experience in this area. The Dutch platinum tetrahedron has a great deal to offer a wide range of countries. Boosting the Netherlands' international position is also of great importance for the Dutch economy.

The agri-food sector played a leading role in this regard, and despite the pessimism of some politicians, may well continue to do so in the future provided the right decisions are made (knowledge-intensive, high quality, efficient and effective).

It goes without saying how honoured and inspired I am to be able to do my bit to boost food security and access to food as well as making food production eco-friendlier. The production ecology approach is being applied more and more. In recent years, I have found that ecological insights are also being used effectively for the purposes of modern, broader environmental impact assessment. Legal requirements to implement the best ecological alternatives are being seen much more as an asset than a liability. This offers perspective, trust and hope for the future. This movement must be led by passionate, idealistic pragmatists rather than pessimists (end of the world, famine etc.) or naive optimists (everything will be okay as long as the market performs well or more natural products are introduced). Engineers fit this profile perfectly. I am extremely proud, content, and most of all grateful to have fulfilled this role as a council advisor, special advisor and Special Envoy for so many years.

Pitches by young researchers at Wageningen University & Research



Food security impossible without animal products

Hannah van Zanten, PhD Animal Production Systems

As land is scarce, there is competition between the food-production and cattle-feed-production sectors. Given

this scarcity, it is more efficient to cultivate crops suitable for human consumption rather than using the land to produce crops for cattle feed. In order to inventory the livestock-farming sector's contribution to sustainable food production in the future, we have developed a method known as the land-use ratio (LUR). The LUR takes into account the productivity of a particular crop, the use of products unsuitable for human consumption (i.e. cattle feed) and whether or not the land is suitable for arable farming (marginal or non-marginal land). The results show that in the Netherlands, dairy cattle on sandy soil, laying hens and pig-production systems have an LUR of greater than 1. In terms of protein production per square metre, it is therefore more efficient to use this land to produce food for human consumption rather than cattle feed. However, dairy cows on peat land have an LUR of less than 1.

This is because peat land is not suitable for arable farming.

Livestock systems with an LUR of less than 1, such as dairy cattle on peat land, will therefore play an important role in future sustainable food provision.

Livestock systems should not focus on the highest productivity per animal, but on the highest productivity of protein for human

consumption per hectare. By making optimal use of waste flows, the livestock sector can produce a vital quantity of protein without competition for land for crops or cattle feed. The livestock sector can therefore make an important contribution to the future of world food production.



From feed to meat: applying concepts of production ecology

Aart van der Linden, PhD candidate, Animal Production Systems and Plant Production Systems

My research is based on the example of extensive meat production in France, although the methodology can be applied around the globe. In this way, insight can be gained into which regions are viable for intensification of meat production. After calculating the yield gaps for livestock production, factors that limit animal growth are analysed. The model we developed for beef cattle indicates whether production is limited by the animal's genotype, excess warmth or cold, feed quality, feed quantity and management. Based on these limiting factors, improvements can be made to farming systems in order to sustainably intensify food production.

Results for beef farms in France reveal scope to intensify beef production considerably from a bio-physical perspective.

Intensification of meat production must also be economically viable and socially acceptable. In addition, sustainable intensification means animal welfare must be ensured. You must also bear in mind the competition between arable farmland for producing crops for human consumption and arable farmland for cattle feed.



Organic matter in the soil: a solution to food security and the climate problem?

Renske Hijbeek, PhD candidate, Plant Production Systems

My research employs two methods examining how organic matter can contribute to soil fertility:

- 1) an analysis of 20 long-term experiments into the effect of organic matter on crop yields compared to artificial fertiliser, and
- 2) a survey of 600 farmers in five European countries into shortages of organic matter in the soil. In Europe, there is little variation in achievable yields either with or without organic matter, provided nutrients are not a limiting factor. In addition, few European farmers are currently experiencing a shortage of organic matter in their farmland.

In the main, Europe's climate is relatively cold and wet, and as a result, the levels of organic matter in the soil are quite high. The question is, do these results also apply in regions with a more tropical climate?

Crops need water, nutrients and space to grow. Organic matter can help in some cases, but in others irrigation and artificial fertiliser produce greater yields. However, in general, higher yields are a good way to ensure greater crop waste, enabling higher levels of organic matter in the soil.

Reactions by prominent guests



Food policy for the entire chain

Louise O. Fresco, President of the Executive Board of Wageningen University & Research

When I came to study in Wageningen, I was as far from a country girl as you could get. People wondered what I was doing here! There's amazing intellectual

capacity here in Wageningen, and Wageningen University & Research is a crucible for vital new ideas. The future is in transversal thinking that connects different areas and sectors.

For example, it is necessary to develop new concepts for the Common Agricultural Policy. The researchers' pitches show just how important it is to focus on the entire chain, such as plants, animals, landscape and the environment. We must practise agriculture in the countries and regions where it is possible, as this frees up other land for other purposes.

In Wageningen, we can give this solid scientific foundations, as we are engineers who listen to society. Whatever society needs is our main priority. The balance is precarious, but it's not as extreme as Rudy makes out. Dialogue between science, society, policymakers and business is – and always has been – our main strength.

However, this dialogue is not as simple as it once was. It's based on trust and the openness to discuss things with each other. However, this has been undermined partly by the internet, which can be used to voice any opinion, and also in a large part by the sense that people don't feel in control of their own lives any more. People find immigration, globalisation and the EU unsettling, resulting in conservative tendencies. Complexity unnerves us. So it is vital that the dialogue is made more transparent. Unfortunately, there's no simple way of achieving this. A national science debate won't cut it. Cancer research – something everyone supports – requires solid and detailed genetic research, e.g. into genetic modification. But this message would never get across via a national science agenda. It's easy to lose sight of the long-term perspective if things are done too much on a demand-driven basis.

In the past 30 years, China has surpassed Europe's importance in all kinds of fields, but not in dialogue between society, science and policymaking. We also developed from being an imperious society as little as 60 or 70 years ago. In Chinese society, the process will take longer to reach our levels. Our food choices of today and tomorrow will revolve around questions like "what kinds of food do we want, where do we get it from and what are we willing to sacrifice for it?" And are our fears about food safety actually based in fact? As well as nationally, this discussion must particularly be conducted at the European level. We need a food policy for the entire chain.



Passionate pragmatism

Dirk Duijzer, Director of Strategy & Sustainability, Rabobank

Dirk Duijzer testifies to how Rudy Rabbinge's passionate pragmatism in the face of scepticism shows that opportunities are there for the taking, ambition is clearly

present and a solution is within reach. Feeding a world population of 10 billion people by 2050 seemed impossible, yet it was possible to create a collective and collaborative agenda for academia and the business sector. What we need now is somebody inspiring to tackle the scepticism and mistrust within politics and Europe. The three pitches are good illustrations of how science can contribute to food policy. To realise these kinds of results, the passion of people like Rudy Rabbinge is vital.



A paradigm shift is needed

Cees Veerman, former Minister of Agriculture, Nature and Food Quality

A precarious balance? I'd say more of a pendulum swing. The current era is all about what we define as 'progress'. After the war, we assumed that science would

help society develop further. In today's uncertain society, the jury's out on science's contribution to progress. The thought that science can take us further by harnessing natural processes is now in doubt. Against this background, a new sense of romanticism has set in, with people wondering if things were better 'back in the day'. However, 50 years ago, the work of a farmer was incredibly heavy duty. Today, mechanisation and mobile devices lend a helping hand. Our work and research focuses on a social context. Does it matter that breeding beef cattle in France provides higher yields? Or does the idea of breeding cattle there have more to do with agritourism and nostalgia? The friction between technical considerations and social acceptance evidently does matter.

The belief that progress naturally trickles down to the whole of society evidently doesn't hold water. Economically, mid-level employees have gone empty-handed for many years, and with regard to development collaboration, the general population never sees any of the benefits enjoyed by those on high. A paradigm shift remains necessary. Henry Ford once said "If I had asked people what they wanted, they would have said a faster horse. However, I built an engine."



Cross-pollination of each others' fields

Paulus Verschuren, former Special Envoy at the Ministry of Foreign Affairs

The most important question in the drive towards greater and better food supplies is what will this do for humanity.

Will focusing on people help realise greater prosperity? There is a great deal of expertise available within the government and scientific institutes. The challenge is to examine whether these people have the trust and the right mindset to give policy scientific foundations. Scientists will also be asked to immerse themselves in the issues policymakers have to deal with.

Exploration of each other's fields of expertise will result in 'cross-pollination'. But above all, in-depth analysis and articulation of people's needs is vital.



Mismatch between training and work

Marinus Verweij, Director, ICCO Cooperation

ICCO invests in first-time entrepreneurs in Africa. There is often a shortage of skilled professionals, although more often, there is a mismatch between young people's education and training and the

company they work for.

The farming trade and the image of farmers is becoming less and less appealing. There is an urgent need for a framework and highly educated professionals in order to produce food locally and regionally for the current and future generations. ICCO works with fine examples of contemporary agricultural entrepreneurs in South Africa and Mali. They are driven businessfolk who have proved their ability to work based on a modern business model.



Balanced business operations

Alfons Drietelaar, Drietelaar Dairy Farm, Zuidwolde

Rudy and I have talked at great length about our businesses, the importance of agriculture in the world and particularly in the Netherlands. I have always

appreciated Rudy's openness and perseverance. He continually emphasises the importance of balanced business operations, i.e. maintaining a balance between dairy and fertiliser production in relation to the provision of feed. He regularly visited our barns and cows together with prominent national and international figures and professionals. These visitors nearly always returned home with a far more positive outlook than when they arrived.



Leadership, friendship, mentorship

Shengghen Fan, Director-General of the International Food Policy Research Institute (IFPRI)

Rudy's leadership, friendship and mentorship have continually inspired not only myself, but also the younger

generations. His leadership was vital to the further professionalisation of the Consortium of International Agricultural Research Centre (CGIAR) and the China Academy of Agricultural Sciences. His advice was honest, sincere and had a major impact. Rudy devoted his knowledge and experience not only to developing environmentally sustainable food systems but also connecting top-class institutes around the globe. Enjoy your retirement, Rudy – you've certainly earned it!

Further information

- www.foodfirst.nl
- www.globalresearchalliance.org
- www.minez.nl
- www.wur.nl

Colophon

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