

## second draft

Round Table on Food & Farming on the occasion of the  
visit to the Netherlands of  
His All Holiness Bartholomew I,  
Archbishop of Constantinople and New Rome  
and Ecumenical Patriarch  
Kingsday, 26 April 2014  
13:30-17:00  
*De Eemlandhoeve*, Bunschoten

### A contribution by Gert van Dijk<sup>1</sup>

#### INTRODUCTION

An opening caveat seems necessary. A Round Table Meeting is to exchange views on values and to discuss values. My contribution will be based on a personal reflection on the food and farming debate. In particular I intend to express my view on the agronomics and – marginally - on the economics of food, farming and agribusiness.

From the classics in economics and from cooperative economics I take the view that economic development is based on gaining maximum utility from scarce resources. However, although economic behaviour may thus be materialistic by its very nature, it always has to be subjected to the moral frames of the community (A. Smith<sup>2</sup>). Besides, in a democratic and free society it is the *judgement* of individual entrepreneurs, scientists, government men and politicians that matters in the end. Firms, markets, science and political institutions are all man-made.

Although economic behaviour is materialistic, it should not become *mechanistically* materialistic, as was pointed out by S. Bulgakov<sup>3</sup>. In other words systems and paradigms should not take over the *judgement* of individuals.

Along the same lines J. Calvin argued that economic life flourishes when it corresponds with the norm of individual creativity in providing services to each other and so to build civil society. Therefore civil society is built by mutuality and solidarity. An economic culture has to develop so that individual talents can be fully expressed. Both science and business activities should be to the glory of God and the relief of man's estate<sup>4</sup>.

I take this opening caveat as a legitimacy of problem observation on current economic developments and dilemma's in farming, science and cooperative strategies.

Below I argue that farming practice, scientific work and government policies have become (too) mechanistic. As a result our daily bread is produced with less and less room for the personal *judgement* by farmers and scientists. *Judgement* is of key importance for the creative process called farming and science. *Judgement* is decisive for expressing value and to stand firm for justice. *Judgement* presupposes and leads to freedom, purposefulness, sympathy and alertness: the key virtues for economic behaviour in society.

Farmer cooperatives are the institutions by which the room for farmer *judgement* can/should be safeguarded. However, cooperatives have failed to yield the necessary countervailing power to protect members from the overriding mechanistic industrialization of food production. This failure we can observe also in the world organization of cooperatives. So I conclude that The Law of Wageningen, as today's paradigm of food and farming sciences may be called, is without sufficient and necessary challenge.

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<sup>2</sup> A. Smith, An Enquiry...

<sup>3</sup> Economic philosophy....

<sup>4</sup> F. Bacon, ...

## 'THE LAW OF WAGENINGEN' – OR: THE FOUNDING PRINCIPLES OF TODAY'S AGRONOMICS AND AGRICULTURAL ECONOMICS<sup>5</sup>

The breakthrough from agriculture to agri-business in the Netherlands was made possible by the combination of the Dutch tradition of cooperation and the application of systematic scientific knowledge. In this country, each region had its own local customs for building farms, treating soil and raising animals, where regional variability grew out of imitation the past local successes. This would fundamentally change with the revolution in agricultural sciences and scientific knowledge applied to farm practice.

Local farming traditions were supplanted by impersonal calculations of the fertility of soil, input-output relations and the general aspiration to optimize production. The most important part of this new revolution originated in Germany where the founders of modern agricultural science were J. von Liebig (1803—1873), G. Liebscher (1853—1896) and E. A. Mitscherlich (1874—1956). These men developed the concepts that Professors C. T. de Wit (1924—1993) and R. Rabbinge (among us today) would further develop into the concepts – we may even speak of a paradigm - that is now generally known as The Law of Wageningen.

Von Liebig was a pioneer in agricultural science, biological chemistry and organic chemistry, who first introduced laboratory-oriented teaching methods for chemistry at university level. He discovered that nitrogen was an essential element in fertilization and famines have been averted due to his innovations. The most important concept that he developed was known as Liebig's Law of the Minimum, which stated that plant growth is not controlled by the total number of resources available, but by the scarcest necessary natural resource. The limiting factor of growth is determined by the least abundant plant nutrient. Liebig's law was the qualitative principle that enabled mathematical models to be developed for the application of fertilizer in modern agriculture.

Liebscher built on Liebig's work and formulated the concept of the Law of the Optimum, stating: "The closer other production factors (like nutrients and water) are to their optimum, the better plants can use a production factor in minimum supply in order to reach a higher production." Mitscherlich would complement these insights with mathematical equations, where the key principle can be understood as follows.

In agriculture we are dealing with biological processes that occur according to fixed schedules. The closer you approximate the biological maximum – in either vegetable or animal production – the closer you approach the economic optimum, provided that all nutrients and productive inputs are fine-tuned. Liebig's law was often illustrated by a wooden barrel: the shortest vertical stave determines how much water the barrel as a whole can hold.

To equate maximum economic efficiency in terms of maximal biological production means that scientific evidence and understanding biological processes as such have become the heart of the social, cultural and financial factors that surround agriculture.

Professors De Wit and Rabbinge developed the aforementioned concepts into theoretical and simulation models of production ecology. These models became the frames of many (new) research trajectories in the various agricultural sciences – first plant production, then followed by animal production. In this way the model gained more and more empirical evidence and technical coefficients were quantified and became verified. As a result the Law of Wageningen not only developed into the new research programmes but also into a toolbox of farming practice. It became

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<sup>5</sup> This section is based on G. van Dijk, 2014 (in press). The silent revolution in Dutch agriculture

the basis for world food production and the First Green Revolution. It is no exaggeration when we say that this work has been a great blessing.

As this Law has become dominant in farming practices it has made farmers more *alert for new means* and provided them with more *instruments*. Applying The Law of Wageningen also showed that economic optimization is the application of the biological optimum together with good management. Their alertness fitted in with the farmers' *sympathy* with farming, plants, crops, animals and with the prerogative to cooperate with Creation – or, if you like, Nature.

Farming was during a long time supported by the *sympathy* of the local community and the society at large as it contributed so greatly to food security.

Little wonder that The Law of Wageningen also became the great inspiration for policy makers. Optimism and the socialist conviction that 'if something is good, more of it is even better' led policy makers (e.g. S. L. Mansholt, 1908 – 1995) to stimulate economies of scale. Most market and farm restructuring policies by the government were to have this effect. Farms were meant to grow into real businesses that comply with the market mechanism. Likewise agribusiness supply and processing firms grew into a big international businesses.

#### THE LAW OF WAGENINGEN HAS DEVELOPED INTO A PARADIGM

Problems arising from external effects, for instance from too high concentration of manure, residuals in water and soil pollution were generally tackled by applying new measures that were again the offspring of the same Wageningen paradigm.

The effect of paradigms is mainly that these define *the choice architecture*<sup>6</sup> for daily life. That is to say that consumers choose on the basis of the offers and the prices on the shelves, scientists comply with everyday's research trajectories, farmers base themselves on best practices, etc. Thus scientists, farmers and business managers do become more *alert* for new knowledge, instruments and input/output relationships, *but not for newly worthwhile goals*<sup>7</sup>. Serious debates on such alternatives are on a different, more philosophical level. They do not interfere with *judgement*, that is choice in the 'everyday in the life of' researchers, farmers, business leaders, etc is *not* affected.

The economic successes and the eagerness by which other countries try to imitate of the Dutch Agricultural Miracle (and for good reasons too) has augmented the aforementioned psychological distance.

#### A PERSONAL JUDGEMENT AND SOME DILEMMA'S

I conclude that The Law of Wageningen has on the one hand brought about a lot of good. The mischief of the present food and farming paradigm lies in the psychological distance<sup>8</sup> it has created with regard to *judgement* of scientists, farmers and businessmen. More particular there is the threat of a too dominant coalition of government policy, research policy and product development: the prime minister of The Netherlands even speaks proudly(!) of Triple Helix<sup>9</sup>. It leads to the loss of

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<sup>6</sup> See R.H. Thaler and C.R. Sunstein, Nudge -.....

<sup>7</sup> I.M. Kirzner, Competition and entrepreneurship...

<sup>8</sup> See G. Apostolakis on Construal Level Theory.....

<sup>9</sup> At the occasion of the Dies Natalis 2013, Wageningen University

independence by scientists i.e. the loss of judgement of their own, very personal problem observations and goals. Apart from quality we have to safeguard the legitimacy of scientists<sup>10</sup>.

Regarding the respect humans should pay to farm animals: I fear that we have already gone too far. Someday in the near future we will feel ashamed about our methods of production - as we feel now ashamed about the history of slavery. Have we taken out of God's Creation what was intended for us?

Farmer cooperatives are in principle suited to act as the interface between the rhythms of farm life and of those of the global economy. Members, however, have failed to critically discuss the developments in the global economy and the consequences for farming in the local community. Cooperatives as democratically organized businesses owned by its members have failed to blaze up the debate on that which is beyond tomorrow and ourselves. Cooperatives fully adopted the choice architecture of everyday's business life.

We observe an increasing psychological distance between practices of food production and the ideology of citizens concerning environment and ethics of methods of production. (It is in particular striking to see how food and (animal) farming is described in the books that we read for young children.) So on the one hand there is a virtual reality with regard to farm life and food production, on the other hand, in our societies there is no such thing as *need critique*<sup>11</sup>. We are tempted to look at this virtual world as naive romanticism, nostalgia and Paradise Lost. At least social scientists regard it as a real phenomenon.

A general lack of success in many alternative production methods (e.g. organic farming) is due to insufficient financial and research capacity (critical mass).

There are also dilemma's:

- 1: With regard to business ethics, low margins lead to high use of antibiotics as farmers' ethics oppresses loss of animals however rational economically.
- 2: The choice architecture for consumers leaves little room for alternatively produced foods, unless they are nudged. But is there sufficient scientific ground for such nudging?
- 3: Alternative methods require more scarce landed resources. Such will be at the cost of room for non-farmed flora and fauna and The Wilderness (a resource which is already very scarce).
- 4: The pursuit of the dominant paradigm offers many new development opportunities for many new talents (faculties) in people. Are there real alternatives for this flow?

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<sup>10</sup> See C.P. Veerman, F. Kleefmann, et al., 1987. Taakopvattingen van het sociaal-wetenschappelijk onderzoek met betrekking tot het landbouwbeleid. Wageningen.

<sup>11</sup> B. Goudswaard, ....