

# Farming with Awe

On growth, boundaries and prospects

# Remarks on the English version of 'Boeren met Ontzag'

Boeren met Ontzag (Farming with Awe) was first published in November 2016 and distributed to more than 20.000 subscribers of the main agricultural magazine in the Netherlands. Afterwards several thousand copies have been ordered by farmers, food and environmental organizations, schools, political parties, churches and theologians.

The author's main purpose in writing the booklet was to hold up a clear mirror to the Dutch agricultural world and show the grim prospects of continued industrial ways of farming. Moreover, it aims to encourage farmers who have recently chosen to redirect the course of their farming or are considering doing so. From his own experiences in transforming the family farm, the author is downright positive concerning the perspectives for sustainable ways of farming, beneficial for all of creation.

The many presentations and lectures have enabled a broader audience to be addressed. 'Not everyone is a farmer, but all eat', which implies that we all have a responsibility when it comes to enabling farmers in our communities to farm within healthy boundaries.

With crisis upon crisis, mainstream agriculture is still heading for disaster. But over the last couple of years we have seen a remarkable increase in initiatives that follow a different track, both from farmers and citizens. This is not only encouraging and hopeful, but it is also challenging to our own position and role. As farmers we should not expect and wait for the government or the 'consumers' to guarantee the continuity of our farms. We have a key role to play, in line with our calling to serve the soil (life) and to respect the given boundaries within the created order: a calling to farm with awe.

By popular request the English version is now available, as an e-book. Although written in the Dutch context, the basic principles presented in this booklet are universal. As in the biblical parable on the sower and the seed, the author expects the message to fall 'in good soil', hopefully in many places around the world.



Link to a lecture 'Farming, eating and living with awe', given at L' Abri UK (2019): www.boerenmetontzag.nl/en/



If we continue with our competitive agriculture,

we know one thing for sure: ten or twenty years from now,

either me or my neighbour will no longer be farming...

Is that what we really want?

# Introduction

# Reason

From a superficial point of view, there seems to be every reason to put an exclamation mark by our agricultural performance. In the light of agricultural history, the developments over the last sixty years are downright astonishing. In addition, all kinds of new techniques and technologies seem to promise that production will soon overcome its present limits. There is a great deal of optimism: 'with our agricultural methods we can certainly feed the rapidly growing world population'! On reflection however, a question mark to this all is more appropriate. Looked at historically, the forms of agriculture that we view as normal have only recently arrived. Yet they have already left a trail of serious problems; from the pollution of soil, water and air to problems of food quality and animal welfare. Both farmer and soil have come under an increasing pressure and losses of wild plants and animals are staggering.

'Farming with Awe' looks at three related questions and briefly shows:

- 1. when did we take the wrong turning, both as farmers and society
- 2. which healthy boundaries were crossed in doing so
- 3. what are the prospects if we respect those boundaries

The author is convinced that the outlook for farming with awe are good. This conviction has been confirmed by his experience as a pioneer in the transformation of his family farm. Farmer and soil will be the centre of attention again and the whole of creation can catch its breath. The booklet focuses on both arable and dairy farming. Together they account for about two-thirds of land use in the Netherlands.

# Goal

'Farming with Awe' intends to hold up a mirror. It calls for serious reflection and challenges us to take courageous decisions. There is a lot at stake. If we continue with our current competitive farming, there's one thing we know for sure: within ten or twenty years either me or my neighbour will no longer be a farmer. Deep inside, every farmer wants his farm to continue. But that's only possible if our way of farming is a blessing for 'everyone and everything'. In this respect the key factor is awe.

First and foremost, this booklet is aimed at people working in the field of agriculture. It can also be used in 'green' education programs. In a broader sense: not everyone is a farmer, but everyone eats. The message of this booklet challenges every reader to reflect on his or her own position and responsibility. How can we enable farmers in our neighborhood to work within healthy boundaries?

# About the author

After studying land and water use, followed by twenty years of nationwide experience in nature and landscape conservation, the author took up the pioneering work of transforming the family farm. Nowadays, the 'Buytenhof', near the village of Rhoon, is a flourishing farm, where the next generation has already taken over. In 2012, the farm was declared the leading multifunctional farm in The Netherlands. Afterwards, the author made business plans for farms in the polders 'Buijtenland'. Situated close to Rotterdam, there are historic opportunities for city-oriented farmers within a cooperative context. In addition to his work as an author and consultant, he is currently a small farmer in the Betuwe region. Comments are welcome (info@boerenmetontzag.nl).

# **1** History

- 1.1 Called to farm with care
- 1.2 Give us today our daily bread
- 1.3 Land flowing with milk and honey
- 1.4 Results that stand the test?

# bread milk honey





# 1 History

It is instructive to view matters in their historical perspective. In addition to clarifying the changes that took place, we will also gain insight into the consequences of our actions. It is then only a further small step to find the key to changes that do justice to our calling to farm with care (1.1). Using the well-known biblical trio of bread (1.2), milk and honey (1.3), we look at yields of the land over a longer time period. Chapter 1 concludes with a reflection on our current way of farming, which appears to be very successful (1.4).

# 1.1 Called to farm with care

As the most read book in the world, the Bible has a unique place. It is actually a library in itself, consisting of more than 60 coherent and consistent books. The Bible has been written by 40 authors over a period of more than 1500 years. No other literature has influenced and shaped the (western) world so much. Without a good knowledge of this book, our society and its culture cannot really be understood. Yet, in our country, the Bible is being read less and less, which is a great pity because quite a few bible books speak with remarkable wisdom about how to treat the land. It is the ground beneath our feet and our existential source of our food. The contents of the Bible span our history, all the way from the 'Garden of Eden' to 'Heaven on Earth'.

# To serve and respect - the fruit of farming

Over the past fifty years, it has been suggested from various sides that it is precisely the biblical message that has led to a global environmental crisis. However, if we take the trouble to actually read the Bible, it appears to provide a remarkably solid basis for dealing carefully with the land, that has been entrusted to us on loan. We are held accountable for our responsibilities in many relationships: first of all to the Creator and flowing from there, to each other and to creation as a whole. There is a tripartite relationship, in which Creator, land and human beings each have a unique position and an essential role to play.

## Serve

Following the creation, man is called to 'le'obedah ulesomerah' (Hebr.), commonly translated as 'to work and keep'. However, the first part of this assignment (le'obedah) is in fact about serving the Garden, seeing to its needs. In a deeper sense it is about feeding the soil life. The soil life then responds by feeding plants, animals and humans. All of creation is ordered along this special line of 'giving and taking'. Serving the soil is therefore our first duty of care.

## Respect

The verb in the second part of the assignment ('ulesomerah') does not refer directly to the soil. It is about preserving the Garden by observing and learning, through respecting and honoring built-in boundaries. This second part of the assignment requires insight and wisdom. By respecting boundaries, we honor the Creator. Only farming that nourishes soil life (= serves it), as well as observes given boundaries (= respects it), yields sustainable fruit.

# Fruit is given

Things we manufacture aren't alive. They are products of human labor. When dealing with (fresh) food we also speak of 'production'. The use of an industrial term for what is in fact the living fruit of the land, shows we have a mechanistic view of reality. After all, the essence of life is a mystery that deserves our reverence. Healthy basic food is a fruit of our service to the soil life and of soil life serving us. This process involves 'waiting for the land to yield' in contrast to 'enforcing crop production'. Gratitude and joy are fitting responses, which for centuries have been shown in festivals around sowing, planting and harvesting. It is telling that this attitude and the celebrations have been lost in our time. In the next section we will take a look at the historical yield of the land.

# serving soil life



# observing boundaries



# Wheat yields in kg/ha





# 1.2 Give us today our daily bread

The single grain that falls into the soil and yields multiple fruit... That is a strong image of vitality and of hopeful expectation. In line with this image, we will dwell on grain yields throughout the centuries. The graph on the left shows the historical development of wheat yields in grain weight per hectare. Crop breeding by farmers and improved cultivation methods, initially lead to a very gradual increase over a long period of time, right up until the 20<sup>th</sup> century. A number of stages in this process are briefly highlighted.

# Mesopotamia (2000 вс)

Preserved clay tablets give an impression of seed quantities and grain yields. In the irrigated parts of the cradle of cereal cultivation, Mesopotamia, harvests of barley and emmer wheat amount to about 0.5 tons grain weight per ha. At the same time, Isaak, son of patriarch Abraham, has a very abundant and exceptional harvest of one ton per hectare, described as a 'fruit of a hundredfold'.

# Winchester, Oxford and Cambridge (Late Middle Ages)

In England, rivalry between Oxford and Cambridge extends to them competing at arable farming. Between the 13<sup>th</sup> and 15<sup>th</sup> century, yields of barley and wheat in the three-field system ranges from 0.75 to 0.9 tons per ha.

# Holland and Flanders (16th - 17th century)

The growth of cities during the Golden Age ensures a flourishing trade in urban manure. Wheat yields rise to 1.5 tons per ha in a four-field system. Amsterdam develops into an international grain market and a financial centre.

# East Anglia (18th - 19th century)

Inspired by Holland and Flanders, forms of 'New Husbandry' and 'High Farming' arise between Harwich and Hull. The so-called 'Norfolk Rotation', a four-field system with a green fallow increases Yields to 2 tons per ha. In our country plant breeding by farmers results in strong landraces with good baking qualities, including 'Zeeuwse witte' and 'Gelders risweit' (photo on the left).

#### Period 1850 - 1950

The graph on the right zooms in on the increasing wheat yields from 1850 onwards. The emergence of steam milling, pipe drainage and later on especially the introduction of fertilizer, increases the yields to 3 tons per ha. From 1900 onwards, the replacement of older varieties by modern breeding varieties contribute greatly to this rise. However, these changes are still nothing compared to the explosive growth in the next period.

### Period 1950 - 2000

On the eve of the world's greatest revolution (industrialisation of agriculture), the explosives industry in America is looking for markets to sell their nitrogen. Corn selections, tested on gravel soil, show spectacular growth reactions to artificial nitrogen. Farmer and soil subsequently fall prey to the limitless optimism of both industry, government and their advertising and information campaigns. Straw manure and legumes, considered indispensable by both farmers and researchers up to that time, make way for artificial fertilizer and later also for slurry. The use of varieties with short straw, fungicides, precision agriculture and genetic engineering all push yields up to historically astonishing levels: 10-fold compared to the Middle Ages and 15 to 20-fold compared to the time of the patriarchs (Abraham, Isaak and Jacob). More than 8 tons of grain weight per ha has become the norm in our country.

# Period from 2000 onwards

At the beginning of the 21st century, wheat yields reach a limit, with only incidental yields of 10 tons and more. In 2012 the UK starts the ambitious program 20:20, aiming at wheat 'production' of 20 tons per ha within 20 years. Wheat will be genetically transformed into 'wheat' with the metabolism of high yielding corn. In our efforts to maximize yields, the focus is entirely on grain weight. If people think they see the waving spikes of their 'daily bread' in the fields, they are almost always wrong: more than 90% of this wheat will be processed by the compound feed industry into concentrates for beef and dairy cattle.









## Milk yields in It/cow



# 1.3 Land flowing with milk and honey

Around 1450 B.C. Moses was called to go to the land of Canaan. This land, remarkably rich in biodiversity, was 'flowing with milk and honey'. The graph on the left shows the historical trend of annual milk yields (per cow). Breeding by farmers and a higher feed quality show a very slow increase over a long period of time, up to the 20th century. This steady growth is followed by a remarkable rise (graph on the right).

# Period up to and including the Middle Ages

Until the year 1000, no data on milk yields are available. Quantities will have been less than 500 liters per cow per year. In our regions the first cows make their appearance a few thousand years BC. Although cows are still small sized, in the Middle Ages yields are increasing from roughly 500 to 800 liters per cow. At the end of this period, the average stocking density per farm is five cows.

# Period 1500 - 1900

While the average for Europe is 800 liters, from the 16th century onwards the yields in Friesland, Holland and Flanders range from 1250 to 1500 liters per cow. This increase is due to the supply of (city) manure, the trade in hay and the use of flax cake. The livestock density doubles to ten cows per farm. Since the 18th century, our country has been ahead of the rest of Europe, with yields rising from 1500 to 3000 liters. The purchase of concentrates (cattle cakes, corn and meal) plays a major role. The majority of farms still have no more than ten dairy cows.

# Period 1900 - 1970

Farmers initially breed 'double purpose' cows (milk and beef) along three lines ('Fries-Hollands', 'Maas-Rijn-IJssel and 'Groninger'). At the beginning of the 1970s more than 90% of the cows are milked by machine. Due to breeding selection, they are now more milk-typical. The average stocking density rises to 15 dairy cows per farm. The milk yield increases from 3000 to more than 4000 liters per cow.

# Period 1970 - 2000

Automation is accompanied by specialization and an increase in farm size. Cow cubicles, cooling tanks, feed computers and milking robots make their appearance, just like the Holstein-Frisians cows, bred one sided for milk yield only. In the 1970s, the number of dairy farmers is halved, while the number of milk cows doubles to more than 30 per farm. This goes hand in hand with a sharp increase in the use of artificial fertilizer, concentrates, slurry and antibiotics. Around 2000, the stock numbers rise to 50 milk cows. Annual yields increase from 4000 to 7000 liters per cow.

# Period from 2000 onwards

Milk yields rise to an average of 8000 liters and the stocking density to 80 milk cows. With a few hundred cows per farm, the percentage of mega farms is growing rapidly and 30% of the cows are permanently indoors . Eighty percent of the milk is exported. Removal of the milk quota in Europe has been anticipated in recent years with the expansion of cow sheds. Dairy giant 'FrieslandCampina' is one of the top five dairy companies in the world and is tapping into new sales markets. In the meantime, only a small number of just over 15.000 dairy farmers remain in our country, 90% fewer than in 1950.

#### Honey

Instead of dwelling on honey yields, we focus on the role of bees in the pollination of food crops. In terms of weight, 40% of our food crops are dependent on insect pollination. Fruits and vegetables are particularly dependent on bees for a full pollination. The number of (wild) bees in our country is decreasing, as a result of extreme flower poverty and the use of harmful plant protection products in agriculture. It is telling that our arable and dairy farms have been unable to sustain honey bee colonies for over forty years now.

As a small country, we are proud of our extensive dairy exports. Instead of flowing, we are literally overflowing with milk, but the question is: can we really call that a blessing?









# Number of farmers (x 1.000)



# 1.4 Results that stand the test?

Food is the first necessity of life. It is remarkable, that in our food supply we have made ourselves completely dependent on fossil energy (fuel, fertilizers, plant protection chemicals) and on loans (debts). In order to feed people healthily and sustainably, we first need to feed the soil life. We neglect this only at our peril. Sooner or later, such behavior will come back at us like a boomerang. Do we dare to take a critical look at the apparent successes of our agricultural methods?

# Playing with fire

As has been said, we as a small country are proud of our food exports, with a world market share of no less than 7%. However, if we take into account the real costs and losses, then shame is a more appropriate feeling. On average, we annually waste more than a hundred kilos of food per person and we force farmers to stop. We have lost farmers at a rate of 25 to 50 per week over the last decade. However, farmers are more than economic actors in calculation models. In reality, they are at the basis of our existence and deserve a central place in our society. The graph shows that there has been a free fall in the number of farmers since 1950. By 'milking' and 'squeezing' farmers, soil and cattle to the last drop, we as a society will sooner or later bring evil upon ourselves. The earlier mentioned tripartite relationship between Creator, man and land cannot be mocked without consequences. As farmers, it is about time to ask ourselves the question: what healthy boundaries have we been crossing for a long time now?













Farming with Awe - does our contemporary way of farming have anything to do with Awe?

# 2 Boundaries

- 2.1 The tree is recognized by its fruit
- 2.2 Economy without blinkers
- 2.3 Farming with awe
- 2.4 Biodiversity as an indicator
- 2.5 Healthy boundaries

# freedom needs boundaries





# **2** Boundaries

Freedom needs a framework in order not to degenerate into a lack of freedom. In this chapter on boundaries, we will first look at the fruit of modern Western agriculture. This fruit is the result of acting in a way that is dictated by the norms and values of a very limited, financial economic approach (2.1). Originally, economics was broadly based, having norms and values that guaranteed a multifaceted fruit (2.2). It asks of us a basic attitude of being in awe and showing awe (2.3). Within that framework, biodiversity is an appropriate indicator and touchstone for our actions (2.4). From this, healthy boundaries can be derived to guide farmers who acknowledge their calling to make 'everything and everyone' bear fruit (2.5).

# 2.1 The tree is recognized by its fruit

When it comes to respecting boundaries, the Bible is a particularly relevant source of wisdom. Its message, in terms of norms and values is radical and surprisingly topical. There is always a choice between doing justice and being 'crooked'. The far-reaching consequences of our deeds, either positive or negative, are honestly portrayed throughout the Bible.

# Special fruit trees

In the center of the Garden of Eden, the garden that vibrates with life, the Creator places two special trees: the tree of life and the tree of the knowledge of good and evil. Only one restriction is imposed on human beings, for their own good: they are not allowed to eat from the tree of the knowledge of good and evil. Eating from it inevitably leads to a degradation of all relationships within creation. Much was lost when man ignored this limitation. All relationships were fundamentally distorted. Nevertheless the vocation to farm with awe in dependence on the Creator remained. The answer we give to this call reveals our worldview. Our worldview turns out to be crucial for the way in which we deal with ourselves, others and the world around us.

### Worldview

Since the end of the Middle Ages we have placed ourselves, as human beings, at the center of the cosmos. We have come to consider ourselves as the standard and measure of all things, including good and evil. But with ourselves as the starting point, we do life in all its diversity too short. Without an acknowledged fixed point of reference outside ourselves, meaning and purpose disappear beyond the horizon. In thinking and acting from our limited view of humanity and the world, we ignore the limits set in place to keep the world livable for all creatures. In this way, as a society, we have wreaked havoc over the last fifty years in general and especially in farming. This trend reversal with the past has led to spectacular 'production' levels. However, there are enough reasons to speak of the fruits being sour: nothing less than pollution of soil, water and air. To which we can add ill-health, food scandals, food wastage, aridity, soil erosion and big losses of wild plants and animals.

## Economy with blinkers

Despite the sour fruits, many believe that the future of agriculture looks bright: solving problems through technological innovations is expected to be a matter of time. A favorable future was also anticipated back in 1825, with regard to the emerging economic sciences. The first professor at Oxford predicted that 'she would occupy a first place in the moral sciences, in terms of influence and usefulness in the eyes of the public'. Around 1930, leading economists added that self-interest makes society rich, 'so greed and love of money must be our gods for another hundred years'. Today, we conclude that no other set of norms has influenced our behaviour as much as those of the financial economy: they dictate the way we shape our society. Financial economic valuation has become the benchmark for almost all of our dealings. This narrowing down of what economics means, denies the reality of good and evil in the running of our households and of our world. It is diametrically opposed to a husbandry that offers a home to all creatures and to an economy without blinkers.

# with man at the centre all is loose sand



financial economy dictates

# goodness truth beauty



# care hope trust

# 2.2 Economy without blinkers

As said, economics cannot escape the reality of good and evil, in ourselves and in the world in which we live. Life is characterized by both light and dark sides. Our choices and actions have an impact on both sides and are by definition morally loaded.

# Core values: goodness, truth and beauty

Everything that is good, true and beautiful serves life. We are called to live thoughtfully and bear fruit. Starting from a healthy self-image, we can love ourselves and others and we are able to deal respectfully with the rest of creation. Knowing who we really are and realizing our destiny, requires revelation. That is why we consult the wisdom of the Bible again, this time to discover what it means to be a good economist, in the image of the Creator. What we find is a broad view of economics, that helps us in reflecting on healthy boundaries.

# This asks of us: care, hope and trust

Maximizing yields is not appropriate in farming with awe because it is at the expense of the welfare of the community as a whole. The Creator calls us to use soil, water and other resources responsibly, trusting that our needs will be provided. We are promised a rich and diverse fruit, a yield that is given and falls to us, rather than a 'production' merely forced by us. Key words in this process are care, hope and trust, with a common basis: limited use of the soil.

# Count your profits

Our financial economic models do not include a fair loss account, so the results look very flattering. In biblical economics, the goal is that the whole of creation bears fruit: the entire house ('oikos') benefits. The actions of human beings should be aimed at maximizing goodness, truth and beauty. In practise this means optimizing results in such a way, that the overall fruit is rich and versatile.

Careful farming within that framework leads to sufficient and healthy food, as well as to a clean environment, job satisfaction, animal welfare, community spirit, a rich biodiversity and more. All of creation continually shares in this fruit.

# Sharing out of abundance

Only in our mathematical models is there such a thing as a financial economic world. In reality, we live in a gift economy, where buying and selling are not central. Creation is buzzing with life, without humans being involved. Plants capture solar energy and form the abundant food base for a wonderful world of animals, fungi and bacteria. Within this food web, giving and receiving are the basic principles and life and death are inextricably linked. Everything is ultimately focused on bearing fruit, while maintaining fertility. Within this setting, people are called not to violate the fertility of the soil, but rather to increase it, by serving soil life and respecting creation order (1.1).

# Feeding soil life

Soil life is especially abundant when plant remains and solid animal manure are available. These organic materials are also essential for soil structure and the storage and release of nutrients and moisture. Up to the middle of the 20th century, research into plant nutrition through decomposition of organic matter by soil life, was conducted at a high level. Indirect intake of nutrients benefits, among other things, the resilience of food crops. One-sided use of artificial fertilizers and slurry has put the organic matter content and the reshaping of organic matter in the soil under pressure. Both of these practises have a negative impact on soil life. The interplay between organic matter, plant roots, bacteria and fungi is awe-inspiringly complex. That is why we would be wise to approach our task of serving and preserving with humility and awe.





# 2.3 Farming with awe

Farming with awe is the key to agriculture that serves life in all its aspects. It helps to ensure that creation continues to bear fruit. We are called to farm with awe and give a proper answer to that calling (1.1). It starts with recognising our position and role: we are created beings, inseparable from soil and earth. This far-reaching connection has many hidden facets, giving it a mysterious character.

## Ignorance as a virtue

The web of life is so complex, that recognition of our ignorance is a good starting point for our attitudes and farming activities. Soil and soil life form a microcosm, of which we know virtually nothing. Moreover, it is an illusion to think that it is only a matter of time before we fathom this wonderful world. A handful of good soil alone, contains more than a billion organisms. It is to our credit when we let go of our pretensions and marvel at the awe-inspiring interdependence, both in the microcosm and macrocosm.

#### **Everything is relational**

We live in a world where everything is relational. This is not self-evident, but a special and fascinating fact. It points to a relational origin, to a Creator who is referred to in the Bible as Trinity. The whole of creation flows forth from the love relationship within that community. Despite the distorted relationships between Creator, man and the land, our world still bears witness to this. The web of life, with all its relationships, is dizzyingly complex and primarily focused on fertility. We are part of it, but at the same time we are called to answer the love of the Creator by serving the soil. This requires a lot of wisdom.

# Beginning of wisdom

The Bible states that awe for the Creator is the starting point of all wisdom. Wisdom is not achieved through self-determination and scientific knowledge. It starts with acknowledging our position and our role as human beings within the community of Creator, land and people. In healthy relationships, it is all about knowing and being known, about real identity. We show wisdom when we act carefully, with the well-being of the whole community in mind. A basic attitude of hope and trust, nourished by wonder and awe, is fitting.

# Asking for the essentials

Saying that farming with awe is essential does not appear to be self-evident. One of the important, recurring steps in the learning process is surprisingly simple: ask for it... 'Teach me to have reverence and stand in awe', is the question with perhaps the most far-reaching consequences for this world. But first, let us see where things stand now on the practical measuring stick of biodiversity.

#### Link naar Lezing





# sprout! sow! teem! crawl!



# 2.4 Biodiversity as an indicator

Careful farming leads to a rich and diverse fruit: sufficient healthy food, clean living environments, job satisfaction, animal welfare, community spirit, beautiful landscapes and a rich biodiversity. Biodiversity is a relatively easy to measure, objective indicator of the extent to which agriculture serves life in a broad sense.

## Bible and biodiversity

The first bible book Genesis (= becoming, taking shape) outlines in powerful terms the appearance and origin of life on earth. In short: 'Let there be biodiversity'! 'Teem and swarm'! Diversity splashes off the page, as it were. The remarkable variety of life forms testifies to an awe-inspiring creativity. In other parts of the Bible, powerful, poetic words have been used to outline cosmic reality: everything revolves around the creative 'Bio Logos', the Living Word, the Lord of Life and biodiversity. We humans are called, within this reality, to deal with it responsibly and caringly (chapter 1). This begs the question: have we, in our way of farming, really shown respect for the rich diversity of life that surrounds us? And thus, for its Creator?

# Farming and biodiversity

There is a strong link between crop yield and biodiversity. Upto certain yield levels, there is a great diversity in life forms in our crops. The graphs show this connection for both arable land (top) and grassland (bottom). The blue oval gives the yield range that benefits both the crop and the majority of wild life. Within this range, plant communities are an expression of the soil conditions and moisture condition of the plot. In the higher yield range, over 9 tons grain plus straw, due to nitrogen supply (N) over 200 kg, uniformity prevails, with very few and common species. For non-cereal crops, like potatoes and sugarbeet, the biodiversity is slightly less, but the shape of the graph is more or less identical.

As in chapter 1, we will now focus our attention on bread, milk and honey, with regard to biodiversity.

Crop yields with an average of 6 to 7 tons dry matter per hectare (with a spread at farm level of 4 to 9 tons), are a guarantee for rich biodiversity in both arable fields and grassland, provided we do not use herbicides. In the graph, cereal yields are composed of grain plus straw weight. The specific species composition depends mainly on the time of tillage (spring or autumn) and the frequency of mechanical weed control. For grassland, the ratio between mowing and grazing is decisive. Although milk yield is also related to the quantity of concentrates, we can roughly say that grass yields of 6 to 7 tons of dry matter on average, lead to 5.000 to 6.000 liters milk per cow.

## **Bread and Biodiversity**

Nowadays, colorful grain fields are an extremely rare phenomenon in our country, limited to nature reserves. This has been the case already for a generation. It is therefore difficult for most of us to imagine that it is possible to grow a healthy grain crop with a rich biodiversity as a secondary fruit. Only elderly people remember, with a certain nostalgia, the grain fields of their youth as seas of poppies, camomiles and cornflowers, with the spikes of bread grain proudly protruding from them. Of all the cultivated environments in the Netherlands, it is the grain fields where the loss of biodiversity has been the greatest over the last sixty years. Sissingh's thesis of 1950 gives a good picture of the richness of communities in farm fields on the eve of the free fall in biodiversity. Until then, grain crops had for centuries been accompanied by 30 to 40 different field herbs. With this richness of plants, came a rich community of pest-controlling insects, butterflies, birds and small mammals.

Until the end of the 1960s, photographs of multicolored grain fields could still be taken anywhere. From then onwards, the use of systemic fungicides enabled the cultivation of low, dense cereals with higher yields. This, together with the use of large quantities of (artificial) manure and chemical weed control resulted in the monotone image of the last picture on this page (from the 1980s onwards). What remains is nothing like the varied communities that have been commonplace on farmland since time immemorial. Just a dozen or so very common, persistent weeds are all the plant variation that is left. There is nothing here for skylark and partridge anymore. It is sad that we have caused a loss in biodiversity of more than 80% in a very short time span. But are we worried about it? Let alone that we mourn it...





# Milk and biodiversity

Grassland use has changed enormously over the last 60 years. Historically, as in the case of arable land use, there has been a remarkable break with the trend. National grassland research by De Vries (from 1934 to 1953) shows that until 1950 more than two-thirds of all grasslands were herbaceous and species-rich. Milk yields did not exceed 4,000 liters per cow on average. Thirty years later the milk yield exceeds 5,000 liters, due to a sharp increase in the use of artificial manure, concentrates and later also slurry. This leaves almost nothing of the once species-rich grasslands and the associated diversity of animal life. The same applies to the number of dairy farmers, which is now less than 10% of the number around 1950 and still declining.

The pictures in the margin illustrate the loss of biodiversity in grasslands. For a long time, grasslands as shown in the first three pictures represented almost the entire acreage, with yields of 4-5, 6-7 and 8-9 tons of dry matter per hectare respectively (usually depending on the distance to the farm buildings).

Nowadays, with yields of twelve tons and more, the plant species can be counted on the fingers of one hand (bottom picture). Just as illustrative of the dramatic losses in plant species, is the fate of meadow birds. After ruff, snipe, shoveler and redshank, lapwing and black-tailed godwit are now on the verge of disappearing from our grasslands as breeding birds. The black-tailed godwit, 'king of the meadow' and recently crowned as our national bird, loses out to our wholesale premature mowing. Most of all, this bird disappears due to a lack of insect-rich grassland where it can raise its chicks. We shamelessly leave even our national bird to its fate...

# Honey and biodiversity

The biodiversity losses outlined here, have led to extreme flower poverty in fields and grasslands. As they together account for more than 65% of our land area, the habitat of (wild) bees has also been decimated. In addition, the last two decades have been characterized by a sharp increase in the use of systemic nerve toxins. As a result of disorientation and weakness, bee mortality has accelerated. This sad decline in the bee population may be seen as indicative of the unravelling of biodiversity on farmland. We can rightly ask ourselves whether it is not high time we started farming within healthy boundaries. Last but not least, there is also an urgent need to prevent further disillusionment of the farming sector, as well as the exodus from the countryside and the increasing disuse of farm buildings.

# 2.5 Healthy boundaries

Within a community, boundaries are the framework which facilitate a shared life. Observing and guarding boundaries, leads to continuity and the lasting fruit of wellbeing. Freedom needs structure. Healthy rules are there to serve life and make communal life possible. Healthy boundaries protect against selfishness and abuse of power.

### On boundaries

Boundaries allow wild plants and animals to coexist with human beings. We are not there by choice: it is all about given relationships, which can either be fostered or damaged. Whether we ignore our special responsibility within created order is primarily a moral choice. In current farming practices, both the playing field and the possibilities are considered virtually limitless, certainly when it comes to increasing yields. The loss of living space for other creatures, including fellow farmers, is taken for granted. In the least unfavorable scenario, we literally reduce that living space to the margins of our 'production plots', or the edges of the world market (niches). It is easy to guess what will ultimately be the fate of the limited living space that these farmland margins offer. Usually they have to be legally enforced or are tolerated in return for an annual payment. We rightly fear even greater losses of biodiversity if we continue along the path of maximizing yields.

## Keep going with the lights on red?

In the previous paragraph, biodiversity was chosen as the criterium for assessing whether our farming practices are as fruitful as they seem. We conclude that this has not been the case for last fifty years. The graph shows a healthy boundary for yields of grain and milk, on the basis of biodiversity. (see 2.4)

# healthy limits guarantee space to live



they serve life

# Free fall of farmers and biodiversity (x 1.000)



If we cross that boundary, the fruit of the land is one-sided, forced and at the expense of life as a whole. We have gone beyond healthy limits in the course of the 1960s, roughly when we exceeded an annual average fertilization level of 100 kilograms of pure nitrogen per hectare. Since then communities on all levels have been falling apart.

## The rich fruit of self-control

Throughout all centuries, self-control and restraint have been considered a virtue. The Bible mentions this virtue in one breath with love, joy, peace, patience, kindness, goodness, faithfulness and gentleness. Controlling ourselves would mean that we do not claim all the space for ourselves. We hold back, so that other creatures can come into their own. In today's farming, it would mean voluntarily giving up some of what we can do technically and is legally permitted. We are prepared to limit what we do in the service of all of life. In this self-limitation the farmer who knows that 'less' in this case means 'more' shows himself to be the master, growing a lasting, versatile fruit and continuity of the farm. A deep sense of our dependence, helps us to take this path in which we consciously limit ourselves. A growing awareness that we are part of a created community with responsibilities and promises, increases our confidence that this is not just a way we can go, but in fact the only way that does justice to our calling.

Observance of healthy boundaries is not a romantic, nostalgic notion. It is a serious decision to use the knowledge and skills of both the past and the present to be able to farm with awe. It is in self-restriction that the farmer shows himself to be the master

> the farmer who knows that 'less' is 'more'

a lasting, versatile fruit and continuity of the farm

# 3 Prospects

- 3.1 How to return to our calling
- 3.2 Building blocks for farming with awe
- 3.3 Room for diversity, creativity and community

Examples: arable, dairy and mixed farming Multi-coloured farmland Frequently asked questions Justification and sources

# being a farmer is a calling



# asked: courage

# **3** Prospects

Using the trio of bread, milk and honey, we looked back at historical yields of the land, only to conclude that we, as farmer and as society, are out of step with our current way of farming (chapter 1). Then we discussed healthy boundaries, which are indispensable if farmers are to return to healthy forms of farming again (chapter 2). In this final chapter, we outline the perspectives that exist when we learn to control ourselves, in order to return to our vocation as caring farmers.

We now move on to the space we have to give ourselves to change course (3.1), the building blocks that make up farming with awe (3.2) and the many-sided yield that such a way of farming brings (3.3). The chapter concludes with examples. They give a brief impression of what farming with awe looks like on the ground.

# 3.1 How to return to our calling

If we want farming to be caring and sustainable, we must get rid of the persistent misconception that farming is a normal, financial economic activity, with only the calculator next to us on the table. Working within healthy boundaries requires self-control and trust. Choosing to do so requires courage.

# A brave decision

When we want to give space to thinking seriously about a change of direction in our farming, challenges appear. First of all, we struggle with ourselves. We will have to face the fears that arise and gradually overcome them. This is as much a matter of faith and trust, as thinking through and doing. Another struggle comes with the reactions of people in our (immediate) surroundings. We can be sure that not everyone will be cheering us on. Some people will want to convince us that it is unwise, or even impossible to leave the current way of farming. It is good to keep in mind that we are choosing a direction that is practicable for the long term and not at the expense of fellow farmers.

With our decision, we are creating space not only for ourselves and future generations, but also for new farmers. So, what is stopping us?

## Brave beginnings

We make room for this type of farming, by changing the focus: from maximization of 'production' and minimization of the actual, unrealistic cost-price, to optimization of marketing. We begin by putting enough energy into organizing the direct sale of what we grow and cultivate to the end consumers. We stop working for the global market and large cooperatives. With a farm close to the city or a large town, we start a shop in the farmyard and process the harvest ourselves or in cooperation with fellow farmers. If the farm is further away from the city, we participate in farmers' markets and work together with other farmers to be able to deliver directly to (cooperative) shops. A short food chain works both ways: the price we get for the food we grow and process makes it worthwhile for us and affordable for the customer.

In the early stages of decision making we need a good sounding board rather than an accountant. But in the hectic start-up phase of a transformation we cannot manage without proper (financial) guidance. This helps to continue to make well-considered decisions, in line with our calling and passion. The appreciation, encouragement and voluntary help that is offered, as soon as we take the first steps on the path of farming with awe, will certainly also stimulate us. These are things that an accountant will never take into account...

## **Blessed continuation**

As soon as we start farming within healthy boundaries, our environment will react, both the land, the animals and the people. The fruit of farming with awe turns out to be much richer than just healthy food. We make room not only for ourselves, but for unexpectedly rich, positive developments. Many things will fall into place when farmer and soil once again take centre stage.

# making room for ourselves and others



# blessed results: all falls into place



# 3.2 Building blocks for farming with awe

If we choose to farm within healthy boundaries and arrange our sales as directly as possible, the next question is: what does farming with awe look like in practise? Once liberated from extensive specialization, countless combinations are conceivable. The examples at the end of this chapter only give a brief impression. The common starting point is feeding soil life and respecting boundaries in creation. By respecting these boundaries, we serve life in all its diversity. In so doing, natural soil fertility is guaranteed for future generations.

## Soil: beginning and end

If we want to feed people permanently and healthily, we need to feed soil life. In terms of food supply, the significance of the life forms in the thin layer of top soil cannot be overestimated. However, we do not feed soil life by doing the equivalent of putting it on a drip of artificial fertilizer and slurry: the soil degrades and loses its natural ability to yield. The application of organic matter, composted, fermented or (preferably) as matured straw manure, makes soil life flourish. In arable farming, the use of legumes and green manure supports the manure input and improves soil structure. As a result, light tillage is sufficient for sowing and planting. With long crop rotations and green fallow we will be able to control the pressure of wild plants.

The use of long strawed grain leaves room for biodiversity. Animal rotation stimulates soil life, ensures good use of grasslands and controls pests and diseases. Working with regional breeds, which have proven themselves, guarantees both a broad genetic base and high nutritional values, health and resilience. Green remains return as soil nutrients, via manure, fermentation or compost heaps. We close mineral cycles as much as possible, preferably on the farm, or locally and regionally through cooperation with farmers and others. We do not buy in fodder from abroad. If we farm with care, the soil reacts with lasting fertility.

#### Farmer: both master and servant

If we want to be able to continue farming and hand the farm over to the next generation, we must be both master and servant. In modern agriculture, however, we have become both oppressor and slave. On the one hand, we are farming at the expense of our surroundings and fellow farmers. On the other hand, a great deal of money is earned by agribusiness and government at our expense. Many people walk on the leash of banks, often burdened with heavy debts. Significantly, our children are 'not eager' to take over the farm.

We will become a master again if we take back control. Our place and role, given by the Creator, is characterized by freedom and responsibility. In order to regain our freedom, short food chains and the spreading of risk are essential. Once we are free from overspecialization and subsidy addiction, there will be room for creative entrepreneurship. Being a good master, however, is inseparable from serving the soil and respecting healthy boundaries. Farming will become farming again when we actually feed the soil life and work towards closing the cycles of organic matter and minerals. Our yields will then be at a level that can be sustained by the land. Matured straw manure and compost will, as ever, be worth 'gold' again. The land will react by restoring biodiversity, both in and above the ground.

# Farmer and soil back at the centre

As a society, we show our awareness of the importance of our food supply, by putting farmer and soil at the centre. Given the major financial interests at stake, this will not be done by government, research, agrobusinesses or banks. Farmers, preferably in co-operation with local residents, will have to take initiatives themselves to really prepare their farms for the future. Not in competition with each other, but together with colleagues in order to find creative ways to ensure continuity.



# a farmer is master and servant





financial space for ourselves, physical space for new farmers



# 3.3 Room for diversity, creativity and community

As stated before, farming with awe leads to a versatile fruit: healthy food, a clean environment, job satisfaction, animal welfare, community spirit and a rich biodiversity. It creates space for creative and fruitful relationships between farmer, city dweller, town, village and countryside. Becoming connected to farming leads to the relearning of celebrations around sowing, harvesting and changing of the seasons. A revaluation of the role of farmers, as foundational to a healthy society, goes hand in hand with a remarkable increase in community spirit.

# A thousand flowers

A characteristic of farming with awe is that it 'allows a thousand flowers to bloom', both literally and figuratively. Farms unmistakably reflect society's attitude towards Creator and creation. Instead of uniformity and flower poverty, they will have a rich diversity of food crops, wild plants and animals. Farms will be multicolored and of various types. Due to more direct sales, lower investments and greater flexibility, the scale of existing farms could in many cases be decreased. In this way we gain financial space for ourselves and physical space for new farmers. Experience has shown, that the scope for doing business on and around these farms also increases. As a society, we have silently left the food supply to a small and shrinking group of farmers. Only 1 in 250 people in our country is still a farmer or market gardener. Just two generations ago, before we crossed healthy boundaries, the ratio was still 1:25. Most people were familiar with farming.

# Unlimited creativity

In the current financial-economic growth models, there is 'no alternative' to our non-caring way of farming. However, in reality there are as many alternatives as there are favourably disposed farmers. Farming is something completely different from 'producing food' and raw materials for the world market at the lowest possible cost. Farming with awe is not about standard economic models or blueprints. The starting point is to work soil-based, in balance with the carrying capacity. It is significant that the famous European Commissioner Mansholt later in his life concluded that a mixed farm would be the best alternative to derailed agriculture. Unfortunately, he himself saw no 'way back'. However, opting for a mixed farm in times of overspecialization is in fact a big step forward. Incidentally, a certain degree of specialization is possible, particularly around the city and preferably in a cooperative context. In the meantime, new, fruitful relationships between farmer and citizen are being sought and found, for the financing of land, seed and planting material, as well as for processing and marketing. Food relationships become visible again and reciprocal positive influences restored: the land connects with the city and the city connects with the farmer again. By jointly bearing the risks associated with food supply, they are able to make a substantial contribution to each other. From there it is only a small step towards celebrating the harvest together...

## Learning to celebrate

Economics in the broad sense of the word ('oiko-nomia') includes social benefits. Farming with awe is a healthy, relational way of life, focused on the welfare of the entire community of humans, animals and plants. Offering people an opportunity to connect to farming with their heads, hearts and hands, is an excellent way of forming resilient communities. Celebrating the harvest together, works wonders in this respect, as it is an annually recurring highlight in the cycle of seasonal festivities. Picking up those centuries-old traditions again is very rewarding. They help us reflect on our dependency and to marvel at the gifts of food and life. Remarkably, people who know that they only have a short time to live, experience being on these farms as 'coming home'. This is not strange: it is in fact the best kept secret of farming with awe!



# farmers and citizens sharing responsibilities





Grain for 'our daily bread' and room for biodiversity - by farming within healthy boundaries

# **Examples**

To give you some ideas, here are a number of examples that show, in words and pictures, what farming with awe looks like in practise. There are no blueprints or standard economic models: as many variations as motivated farmers. The examples are based on the principles discussed in chapter 3: feeding soil life, respecting healthy boundaries, closing cycles, soil-based working, adapting scale where possible and seeking local partnerships. Attention is first and foremost given to the most direct forms of marketing possible. In this limited context, only a few of the ingredients of farming with awe can be mentioned. But if we allow ourselves space to think, then imagination will do the rest...

# Arable farming

# Rehabilitation of cereals

In our country, nowadays we grow cereals almost exclusively as a necessity, as a resting crop in a rotation that mainly involves cash crops, such as potatoes and sugar beet. Moreover, in nine out of ten cases, cereals are grown and used as animal feed. Farming with awe brings bread and baking cereals back and gives them a central place in our crop rotation, as basic to human nutrition. More artisanal farming, baking and brewing helps us break free from the straitjacket of industrial standard requirements. We will receive both fair prices and appreciation and honour for our work. Short food chains help make food affordable for everyone. Meanwhile, tried and tested regional varieties, bred by farmers, are available again. They combine baking quality with high levels of minerals and vitamins, low manure requirements, high biodiversity and low pest and disease pressure.

# Setup and scale

For arable farming within healthy boundaries, the average crop yield is 6 to 7 tons of dry matter per hectare, with a spread of 4 to a maximum of 9 tons at farm level. For cereals yields, grain and straw weight are combined. The gross yield of root crops is higher due to their higher moisture levels, as with potatoes (max. 35-40 tons, more than 75% moisture). Closing cycles by cooperation with local cattle farmers, more or less automatically implies healthy boundaries. By including legumes and green manure in our rotation, we support animal (straw)manure application and improve soil structure and soil fertility. Rotational green fallow and smart mixed crops ensure control of weed pressure. With light forms of tillage, we save and stimulate soil life. We give bread and baking cereals such as wheat, spelt, rye and oats a respectable place in the rotation. We build relationships with bakers and other processors, preferably in a cooperative context. In the immediate vicinity of a city, it is challenging to make these relationships visible on the farm itself. When we do, food relationships become clearer in a very attractive way: nothing compares with the smell of freshly baked bread...

Without maximizing crop yields, but with significantly higher prices for our produce, the pressure to scale up disappears. We can also make a conscious choice to reduce and supplement crop income by adding value (processing) or by integrating arable farming with other activities in the field of day care, education or recreation. If we once again provide 'daily bread', the fields will be teeming with poppies, camomiles, cornflowers, skylarks and partridges. Just as with the sowing of grain, working within healthy boundaries generates a rich and diverse fruit, of twenty, fifty and (who knows) a miraculous hundredfold!

# **Dairy farming**

In this example, the principles of chapter 3 are the starting point (see introduction to Examples). The text below also applies to other types of farming with grazing livestock.

# Revaluation of herbs, grasses and livestock variety

Two generations ago, seed mixtures for grassland consisted of as many as ten to twenty varieties of grasses and herbs. Farmers knew about their useful properties, both for livestock health and for rumination. The most commonly used seed mixture today, consists of two varieties of only one species, English rye-grass (with specifications such as 'super', 'super plus' and 'premium'). As with corn, research at the time showed an astonishing response of this grass to nitrogen fertilizer. No wonder that we find the shiny 'green desert' type of grassland almost everywhere in our country nowadays. In recent years, however, there has been a revaluation of the quality of herbaceous grassland. They are a natural pharmacy, with great preventive and even curative potential. Herbs are important for minerals, trace elements and healthy substances like antioxidants. Legumes (clover, vetch, lathyrus) bring more balance to the ratio between energy and protein. Research with feed trials has shown that the admixture of a 25-30% diverse grass crop, rich in structure and herbs, does not lead to a significant reduction in milk yields. By mixing, the cattle absorb more roughage. Farming with awe even goes further. Working within healthy boundaries requires robust cattle breeds that give sufficient yields on more than 30% herbaceous grassland. For sustainable yields, livestock density should not exceed an average level of 1.5 livestock units (adult) per hectare.

# Setup and scale

For dairy farming within healthy limits, the average grass crop yield is 6 to 7 tons of dry matter per hectare, with a spread of 4 to a maximum of 9 tons at farm level. Closing the cycle by partnering with local arable farmers, including exchange of manure, straw and grass clover, more or less automatically implies healthy boundaries. The use of straw manure, compost and fermented materials, stimulates soil life and improves both soil structure and soil fertility. By distributing the manure in different quantities over the plots, a wide range of grassland types will develop: from grass-rich (8-9 tons dry matter) to herbaceous (4-7 tons dry matter). With a partially high-water table and differences in mowing and grazing regimes in open polder areas, it goes without saying that we are hospitable to meadow birds and their growing chicks.

We pay a lot of attention to more direct forms of marketing and to adding value (dairy variety), whether or not in a cooperative context. The consequences of abandoning the milk quota can help us choose for farming with awe. It takes reflection, courage and guts. A 'flight forward' in further scaling up, will be at the expense of other farmers and will prove to be unsustainable. Orientation to the world market is very risky and sooner or later, due to growing (international) competition, the continuity of our own farm is jeopardized. If we really dare, we direct ourselves towards the local and regional markets and make (financial) room for ourselves and others by farming with fewer cattle and less land, sustainabe and flourishing. A farm where not only milk is flowing, but where it is the most common thing in the world for bee colonies to flourish too: a blessing for ourselves, our children, our communities and an honour to the Creator.



Multi-coloured grassland, sustainably 'flowing with milk and honey' - by dairy farming with awe



Closing cycles: through partnerships or mixed farms - a big step forward!

# **Mixed farm**

In this example, the principles of chapter 3 are the starting point (see introduction to Examples).

# Back again

Until the 20<sup>th</sup> century, more than 50% of the farms in our country were mixed, with livestock mostly serving arable farming. Manure from animals and people is worth its weight in gold. Because of the proximity of growing cities, there is some specialization in the west of our country from early days. From the second half of the 20<sup>th</sup> century onwards, accelerated segregation has taken place. Intensive livestock farming gained ground, through overseas supplies of animal feed. The broad economic base of farms disappeared and (over)specialization in arable or livestock farming became common. Currently, no more than two thousand farms are mixed. However, there is an increase in arable and dairy farms that work closely together by exchanging manure, straw, fodder crops and land.

Choosing for mixed farming in times of overspecialization is a bold and big step forward. At the end of the 20<sup>th</sup> century, farmer and European Commissioner Mansholt concluded that mixed farms actually should be the model for the future. More recently, there has also been a strong argument in favor of such a transformation from climate considerations. Nevertheless, skid marks in mainstream agricultural development are not yet visible. Mixed farm management is not easy. It requires more oversight and skills and it challenges to more creative forms of entrepreneurship and land use. Backed by historical experiences, we can look for suitable contemporary practices. Farming with awe requires respect for the built-in boundaries, within which we serve plant, animal and human life by serving the soil life.

# Setup and scale

We shape a mixed farm in such a way that there is unity in diversity, so that all parts reinforce each other. To guarantee a versatile and sustainable fruit, we work within the healthy boundaries of an average of 6 to 7 tons of dry matter per hectare. We ensure a spread in the yields of fodder and food crops of 4 to at most 9 tons of dry matter. By closing the mineral cycle as well as possible, we logically stay within the mentioned limit. We supplement the various parts of the examples given for arable farming and cattle farming, with clever combinations of animals and crops. Pigs, for example, must not be left out either, as processors of green waste and as cleaners and fertilizers of arable land. Depending on affinity, the emphasis is on animals, crops or fruit, without losing sight of the added value of cohesion. The presence of multiple types of manure, supports both soil fertility and biodiversity. A mixed farm also offers the advantages of minimal transport of manure and fodder and of greater possibilities for crop rotation. However, coordination and absorbing peak loads in labour, do require extra attention.

With self-sufficiency as a self-evident basis, we offer a wide range of food with our mixed farms. Dependent on the location of the farm this may take shape through food subscriptions, a shop in the yard or a cooperative one in the city. Experience shows that mixed farms create spaces for multiple small businesses, both inside and outside of the farm. As a circular farm with multiple land uses, we can easily provide the farm with extra financial support related to food. As a rule, a scale of 20 to 30 hectares is sufficient. Especially in the vicinity of cities, there is really no excuse for not opting for such a resilient, future-ready farm!

# Multi-coloured farmland

Farming with awe is not 'back to the old days'. That is not only impossible, but would also be undesirable. However, what is desirable and possible, is to pick up the thread of farming that serves the soil, as well as respects the built-in order of creation. By farming in this way there will be a diverse and sustainable fruit. It leads to the return of multi-coloured farmland, but with a modern-day appearance. Needed: sober dreamers...

## From boring and vulnerable to living and resilient

Between us, within two generations we have managed to ensure that farmland can now be characterized as 'one size fits all'. Overspecialization, fewer farmers, the disappearance of family farms, empty buildings, reduced variation in the landscape and a lack of human scale have all contributed to less variety. People have been replaced by ever larger machines in ever larger fields. The farmer, but more and more often the contractor, is the only living soul to be occasionaly seen. Moreover, the neighbours are competing for land and continuity, bank charges are high and the eyes are focused on the world market, with backs turned towards town and village. It takes a certain distance to dare to look into this mirror. Nevertheless, we would be well advised to do so. It could prevent further degradation and uprooting of farmland and people. However, there is much more at stake. Without right relationships and healthy reciprocity between farmland, town and village, social cohesion will also be wiped out. To help us realise this, we only need to go back to the wisdom of the Bible, in this case to the books of the prophets. Yet this will also teach us that restoring crooked relationships leads to the restoration of socially healthy communities, first on farmland and from there to village and city.

## Social returns

The shortest possible food chains and the reduction of scale, creates space for more farmers (and market gardeners), as well as for processing artisanal businesses. Farming with awe restores healthy relationships with food and land. Farmers and food are no longer anonymous and the opaque forest of quality marks becomes superfluous. Multiple financial irons in the fire make the businesses resilient, with farmers still focused on growing food as the mainstay. With a return to the human scale and right relationships, people return: as clients, employees, apprentices and volunteers. Disabled people and the elderly also find a valued place in the care communities that arise. Working together on the farm brings about a re-evaluation of social and physically healthy ways of working. It bridges generations, differences in origin, backgrounds and income. With farmer and soil at the centre, an attractive home ('oikos') is being built. A home to which people like to bond and where wild plants and animals flourish too.

# Community of farmers and partners

Farming with awe comes with a marked increase in community spirit. People coming 'out of the woodwork' want to be part of a community connected to the land. It turns out to be a deep, innate desire. As farmers, we should no longer just wait and see, but take responsibility and enter into partnerships, both to be able to supply food more directly and to find new forms of funding. The time is ripe for finding common ground and creative ways to share: from sowing and planting to harvesting and processing. Head, heart, hands and financial shoulders are badly needed to restore right relationships. Wanted: farmers with the courage to fulfil their crucial role, preferably in partnership. Farmers with awe!

























Multi-coloured farmland: caring, hospitable and vibrant - a diverse fruit of farming with awe

# Frequently asked questions

# Enough to eat?

There are currently more than enough calories available to feed the world's population. But food is not always grown there where it is needed, within the framework of local food traditions. Farming with awe can double or triple yields in countries with self-supporting farming (See 'Appendix'). In this way, population growth can be absorbed. However, farmers should not be deprived of land in favour of large, export-oriented companies. Policy that (un)consciously drives people to cities, will sooner or later create big problems in the food supply. Only a serious crisis will set in motion a reverse movement, but then born purely of need.

Worldwide, more than half of agriculture is still primarily based on family self-sufficiency. This healthy way of farming, often cooperative, still forms the social and economic backbone of local and regional society in many places. It is presumptuous to claim that our Western agriculture and food technology should feed the world's population. And it even seems dangerous to say that further development of the food chain must be based on industrialization and financial economic principles. This will increase problems of underfeeding and overfeeding, as well as the gap between rich and poor. Moreover, farmer and soil in our western countries will be pushed even further to the sidelines and beyond. Besides, rising prices will depress the demand for animal proteins In the future. But the need to moderate our meat intake will remain. This is more or less self-evident when farming with awe. There is enough food for everyone's need, but not for everyone's greed.

# Economically affordable?

From a healthy, broad economic viewpoint, as a society we cannot afford to continue in any case with agriculture on the path that we took two generations ago, centrally managed by the government. What is the prosperity that it brought worth, if it is not lasting and comes at the expense of well-being? The cost is high, and will sooner or later have to be paid. We are striving for continued financial economic growth by removing barriers to free trade. However, 'growth for the sake of growth' is the ideology of malignant tumors. Everything grows and is in motion within creation, but the key question is: in what direction and with what result? Currently, unsustainable forms of agriculture are subsidised directly and indirectly from public funds. Most of the money goes to the largest companies. If we are farming with awe and look from a broad economic view, then such income support is superfluous and tends to make us lazy and vulnerable. If we follow the flow of money, for years now farmers have been the 'weakest link' in the food chain. Moreover, they bear the greatest risks. This burden brings farmers into aboveaverage susceptibility to psychological problems. A more relevant question would therefore be: can we afford this as fellow human beings? As a society, we should not be proud that we only spend 10-15% of our income on food. Our 'lifestyle' comes at a high price, both for farmer, soil and earth. However, as farmers we would do well not to wait for changes in behavior of governments and 'consumers'. By farming with awe and spreading risks, we prepare ourselves for the future. Then we will be economically rich in the true, biblical sense of the word.

# Continuity first and foremost?

Historically, it is remarkable that the number of farmers in our country has fallen over the last 70 years. It is even astonishing that this represents a reduction of more than 80%. Indeed, for centuries, farm continuity has been the top priority. This trend reversal should give us pause for thought, but today we prefer to regard agriculture as just a normal economic activity in which market forces determine the number of farmers. In today's competitive agriculture, the most important survival strategy is increased efficiency. For the sake of convenience, we forget that there is substantial support from public funds. More importantly, however, we overlook the fact that many older farmers (those of 50+) have heartache when it comes to the prospect of continuity. Intuitively, this generation knows that there is something wrong with agriculture. This is difficult and confusing to come to terms with. Taking steps to change things is seen as even more difficult, but it is desperately needed. It takes courage to turn around, rethink and start looking for sustainable ways. The post-war project of agricultural reform was ideologically motivated. Farmers disappeared to the sidelines, and most of them (>85%) were driven off the land. Nowadays, government, research and industry are strengthening their grip on agriculture and food in order to tackle all kinds of problems 'from farm to fork'. They see a reduction in the number of farmers as inevitable and even desirable: the remainder can 'scale up and become more productive'. By continuing this historically irresponsible experiment, not only will the continuity of farms be put at risk, but so will food security.

# More farmers wanted?

This booklet states that there is a need for more farmers, rather than less. At play are risk spreading, less distance between farmer and citizen and healthy relationships with food and land. Two generations ago, there were still over 400,000 farmers and market gardeners in our country. Their livelihood was based on an average of 6 to 7 hectares of land. There are now fewer than 60.000 farmers and market gardeners, with an average of 30 ha. Farmers and dairy farmers use an average of 40 to 50 ha.

With more direct forms of marketing, lower investments and greater flexibility, a scale of 20 to 30 hectares is sufficient. In this way, we also generate physical space for new farmers. Moreover, if we farm with awe, there will be more room for entrepreneurship in and around the farmsteads. For outdoor growers and small farmers (including outdoor husbandry of pigs, goats and chickens) a few hectares are sufficient. This also applies to 'smallholders' who combine farming for food with another profession. Historically, this has proven to be a smart, crisis-proof way of farming, which is again here warmly recommended. Farming with awe does not need more knowledge, big data, genetic engineering and other capital-intensive technical innovations. These all keep up appearances of food security and food safety. In the hands of fewer and fewer people and companies, these things in fact represent a major risk. The call for central government intervention will only intensify. However, this is diametrically opposed to the distribution of food supply among a larger number of farmers and processors, in order to keep food (chains) and society healthy.

# Can biodiversity be restored?

Fields and grasslands with a great biodiversity have almost disappeared in one generation since 1950, Together, they used to make up more than half of our country, which is why nature reserves, organic farming and agricultural nature management, despite all the good intentions, is of limited importance for their restoration (see graph 'Free fall of farmers and biodiversity' in section 2.5). Substantial restoration is only possible by substantially changing the way we farm. The survival of bee colonies on farms is an excellent indicator, and requires more than adapted management of field margins. Abandoning chemicals is the first step we need to take. In arable farming, smart crop combinations (agrobiodiversity) and adapted tillage enable us to regulate weed pressure sufficiently. The use of long strawed cereals allows more biodiversity. The distribution of land uses and the intensity of operations across the farm (manure, frequency of weed control and mowing), is a further precondition for recovery. The spontaneous return of plant species is sometimes possible from remaining growth areas or from the seed stock in the soil. In such cases, it takes three to five years to develop species-rich plots. However, for the majority of species, a one-off introduction of seeds is required, either through the use of native seed mixtures or through spreading seed-rich hay from the region. Variation above ground is fostered by a rich and varied soil life. Feeding soil life with solid (straw) manure and compost ensures the balanced growth of crops, grasses and herbaceous plants. In this way, we maintain and increase the natural fertility of the soil.

# Separation of farming and nature?

Before the great trend reversal in agriculture, over 85% of the rich biodiversity in our country went together with farmers' use. It is understandable that thereafter, as a precautionary measure, farmland was purchased as nature reserves. A strict separation of agriculture and nature then followed. Nowadays, some people are even arguing in favour of further intensification of farming in order to make more room for nature. In the long run, this separation is untenable, both in relation to people's involvement and government funding. It is literally unfruitful. Above all, however, it does not do justice to our dependency as human beings and to our responsibility within creation order. Actually, the word 'nature' does not appear in the Bible. It only speaks of creation, in an active relationship with the Creator. Many people see nature as if it is something independent. Some even write it with a capital letter. The use of the word 'system', usually betrays a closed world view of purely material causes and consequences (naturalism). In this view, man is at most a useful animal species. There can be no question of any real, well-founded responsibility, and this has been playing tricks on nature conservation around the world for some time now. 'Farming with nature' and 'nature-inclusive farming' are recent terms. Unlike these terms, farming with awe is not transient. It is a calling and mandate that spans past, present and future. Farming with awe leads to lasting fruit in the form of food and biodiversity. Sometimes separation of farming and 'nature' is necessary as a precaution, but not in general. It is therefore advisable to seek fruitful partnerships with other landowners and land users.

# Is manure a problem?

Since the mid-1980s, there has been a persistent idea in our country that manure surpluses are merely a problem of manure processing. In fact between 1950 and 1970, the amount of of nitrogen applied via manure rose from 50 to 200 kg per hectare per annum and then further to 350 kg in 2005. Restrictive European manure legislation then followed, but our country has so far been able to negotiate an exceptional position (derogation). The average amount of nitrogen applied from livestock manure and chemical fertilizers is now 300 kg per hectare per annum. This is well above the healthy limit of farming with awe. On the basis of closing local cycles as far as possible, this limit is on average 100 kg per hectare per a annum. A great biodiversity is possible when livestock manure is applied at different rates across the farm (see par. 2.4 and 2.5). Historically, solid manure has always been worth its weight in gold and an important reason for mixed farming. In our times, solid manure is scarce, less than 5% of the total manure produced. Currently in the Netherlands, manure consists to a large extent of minerals extracted elsewhere in the world, in the form of imported concentrated feed. The statutory maximum for phosphate is also far above the level consistent with farming with awe. The fixation for decades on NPP in scientific models (nitrogen, phosphate and potassium) has reduced the soil to a lifeless substrate. In the long term, artificial fertilizer and slurry are a timebomb under soil fertility. Without nourishing soil life, we cannot sustainably feed people. The worrying share of agriculture in climate change underlines the conclusion: there is far too much manure in our country.

# Eating with awe?

In the introduction to the booklet it says: 'not everyone is a farmer, but everyone eats'. We are created in such a way that we need food on a regular basis. Food cannot be reduced to just fuel, and people are not just consumers. Food is about relationships. It is the most intimate connection with life forms surrounding us. If we share food, we share life. Eating together adds an important social component. The ritual of the communal meal is part of our social cement. There is no food without sacrifice, without the death of something. This is a given in creation order. Without interdependency and service, life is not impossible. This applies not only to eating plants, but also to eating animals. For us to eat meat, blood has to flow. At a deeper level this reflects the principle that we live by the grace of sacrifices. Only within the context of careing livestock farming, can eating meat (in moderation) show that we understand the crucial principle of self-sacrifice. The worrying increase in obesity and associated diseases show that our relationship with land and food is seriously out of balance. As with other addictions, it is related to the denial of real needs. If we eat regardlessly, it affects not only our health and our society, but also the way we farm. On the other hand, when we learn to eat with amazement at all the relationships that support life, we make a real difference: we help and encourage farmers to farm with respect for creation. Enough thoughts and issues for another booklet...

# Heaven on earth?

The first paragraph of this booklet notes that the Bible speaks with striking wisdom about how to deal with the land. It addresses individuals and families as well as communities. Its content spans the history from the 'Garden of Eden' to 'Heaven on Earth'. Through our actions, relationships at all levels of creation have been seriously distorted. Longing for a lost past does not help us here. But it would be to our credit if from time to time we could be sad about it and mourn. Since the 18th century, many people have held a belief in progress, often based on humanism. This belief says that science and democracy will bring us increasing prosperity and freedom 'to be ourselves'. Food and agriculture are treated as if industrial principles apply, centrally managed and designed at the expense of soil, farmer and biodiversity. The Bible loses no time in harshly judging such crooked situations. They inevitably lead to social abuses, whereby society becomes uprooted and degraded. Since mankind is in reality not at the center of the cosmos, we can still look to the future with hope. The biblical authors state this clearly and unanimously over a period of 1500 years. Just like patriarch Abraham, we can go on our way with confidence, our eyes fixed on the perfect 'garden-city'. We have the promise that heaven and earth will be united by the Creator, into a perfect unity-in-diversity. In the meantime, we live and work with the hope of recovery and renewal. By trial and error, we care for the land as master and servant at the same time.

# Farmers' reactions

A number of farmers, with different types of farms, have responded to the draft version of the booklet. Their reactions are given below:

## Arable farmer (Zeeland):

As a farmer's son who grew up on a mixed farm, it is a fascinating and recognizable story. Fewer and fewer farmers combined with an exodus from the countryside are a real cause for concern.

#### Cattle farmer (Friesland):

My sincere compliments! The booklet is inspiring from start to finish. It not only gets to the heart of the matter, but also offers directions for solutions. That you brought it to my attention now, is very special to me. It comes at exactly the right time to help me further develop the farm with confidence.

#### Farmer with mixed farm (Flevoland):

I am glad you have written the booklet. It clearly shows that admitting our 'not knowing' is the basis for healthy farming. It also makes clear that there can be no freedom without responsibility.

### Young farmer and market gardener (Gelderland):

Fascinating to read and beautifully portrayed! The booklet 'Farming with awe' is certainly a valuable contribution to encourage farmers. Courage and trust are things that I personally also see as crucial for change.

# Justification

Farming with awe was written out of involvement and concern for farmers and farming. The booklet does not hesitate to name things that are crooked, but does so in order to be able to point to boundaries within which our farming yields a versatile, lasting fruit. Doing justice in dealing with the land is a responsibility of society as a whole, but that should not be an excuse for not taking the lead as farmers and playing a key role!

In writing, the author has been encouraged by the informal platform 'bible and agriculture', which for a number of years has combined farm visits with discussions and presentations. Draft versions have been commented on by a large group of people from various fields, such as economics, agricultural history, rural development, nature and landscape management, public administration, soil science, journalism, theology, philosophy and of course farming practice.

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- Print : Frouws, Ede, The Netherlands. November 2016
- E-book : Made by Wim and Job Schippers. March 2021

Reactions and questions are welcomed at <u>info@boerenmetontzag.nl</u> Printed version available (in Dutch) at: <u>www.boerenmetontzag.nl</u>

Pictures were taken by the author, with the exception of: 4-Lachai-Roi / 6-lu: Rombout / 7-Rauch, Monniaux / 9-u: Karen 11-la: FH-Muenster, mu: Rasbak / 14-Sorensen / 18-Hephorst 19-Artotems / 31-Rombout / 33-Alterra / 34-rmu: Petterson 34-ru: Rombout / 34-rm: DePoorter / 34-ru: Tangelder 37-rmu: Zuidveld / 38-lu: Geerts.

# Sources

This booklet is more of a pamphlet than a scientific treatise. In addition to my own experience, the following sources have been used:

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# Appendix (English version)

### Enough to eat? (addition to FAQ)

Helping increase crop yields in places where the food is most needed, is wise policy. It is not only logical (see graph on the right), but also socially responsible. This can best be done by low input, agro-ecological ways of farming. Yields can be doubled or tripled, while still staying within healthy boundaries. Further yield increases in the highest yielding areas is limited and comes at high environmental costs. Introducing high input farming elsewhere will only lead to the collapse of local and regional economies, cities being flooded with even more people and communities being undermined. We should not forget that worldwide 75% of the food supply still comes from smallholders on family farms. Worldwide around 95% of the holdings are less than 1ha). In the Netherlands 75% are over 5ha (of which 40% are over 50ha) and hardly any of the holdings are still real family farms.

# Manure a problem? (addition to FAQ)

To address the many problems faced as a result of mainstream farming, the Dutch government in 2018 launched the vision paper 'Valuable and connected'. It talks about the need of transition to circular farming, to be completed by 2030. This vision is ambitious and needs further elaboration. While agricultural exports and wholesale import of animal feed are not in question, mainstream farming will not come near to solving the problems. A national crisis around excess nitrogen, that emerged in 2019, underlines this observation. As shown in 'Farming with Awe', throughout history, good manure and compost have always been seen as 'worth their weight in gold'. Though now 'overflowing with nitrogen', our country has a scarcity of good manure, that is able to feed crops by feeding and stimulating soil life. Most of us are unaware that it takes six to seven times more nitrogen from chemical fertilizer and slurry, to raise yields to twice those obtained useing good manure ('glorious muck'). Not to mention the difference in quality, both of crop, soil, air and (ground)water.

# Soil and soil life (addition to 1.1 and 3.2)

The created order is amazingly complex. In most places the earth is potentially buzzing with life. Although too complex to ever fully fathom, intuition and practical knowledge tell us, that soil life should be fostered to maintain and enhance soil fertility. Its role can be compared to the crucial role of the gut flora in our bodies. If the soil is 'dressed' with organic matter, preferably mixed with material that passed through the body of animals, soil life will flourish and turn it into more valuable components, in close interaction with plant roots. In this organic reality we (humans) are being served by serving the soil (humus) well. So let us act wisely, with a basic attitude of hope and trust, nourished by wonder and awe.







A printed version in Dutch is available at <u>www.boerenmetontzag.n</u>