Sustainability

It's no longer optional

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Food & Nutrition Delta
Food for Business

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Improving the sustainability of the agri-food chain is no longer optional. The sector can no longer afford to sit still. Major players such as Unilever and FrieslandCampina have announced ambitious goals. However, these multinationals will not make it on their own.

Small and medium-sized companies, a force to be reckoned with in terms of the number of businesses and combined turnover, will also have to make a substantial contribution. This is not only necessary from an economic standpoint - retailers are becoming more sustainable to an increasing degree in terms of the ranges they sell - but also from an ecological perspective.

The third part of the Deltawerken 'Sustainability. It's no longer optional' provides tools to help companies improve their sustainability. The motto is: get started!

Kees de Gooijer
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Introduction

In late 2010, Unilever presented its Sustainable Living Plan. This ambitious plan came as a real bombshell. In this plan, the British-Dutch multinational announced its intent to cut CO_2 emissions, water consumption and waste production (for example, packaging) by half over the next ten years. However, it is important to note that the company does aim to realise twice as much turnover by 2020 as it earned in 2010. According to CEO Paul Polman, sustainable business offers his company a competitive advantage in the market. "Consumers want more," according to Polman. "Issues such as climate change, malnutrition and starvation are high on consumers' agendas. The only problem is that governments aren't doing enough. Companies can fulfil a positive role in this regard." Unilever's plan may certainly be described as a revolutionary one. Additionally, there are numerous other companies, often multinationals but also SMEs such as Gulpener or suppliers such as Bunzl, that have made fundamental changes in their operational management activities. It appears that sustainability, or improving or increasing sustainability - illustrating that it is a continuous process - has made a definite breakthrough.

Brundtland

This breakthrough has been a long time coming, at least in the agri-food sector. The concept of sustainability dates back to the 1980s. In 1987, the Brundtland report was published by the World Commission on Environment and Development (WCED). One of the conclusions reached in the report was that the global environmental problem was the result of poverty in developing countries, and the non-sustainable consumption and production in developed countries. The so-called Brundtland definition, named after the WCED chairman at the time, Gro Harlem Brundtland, is still in use today: "Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs."

From TBL to PPP

During that same decade, the concept 'triple bottom line (TBL)' started to gain a firm foothold. With TBL, the originator of the concept, Freer Spreckley, was referring to the social and ecological consequences of a company's actions. In other words, auditing a company purely based on its financial results is too limited.

Nearly 20 years later, the author John Elkington came up with a catchier version of TBL: people, planet and profit, or Triple P. The idea behind Triple P is more or less the same as TBL: companies should not only be accountable to shareholders, but also to other stakeholders. This last group includes governments, citizens, suppliers, NGOs and so on and so forth.

This means that striving for the maximisation of profit ('profit') cannot and may not be a company's sole objective. Companies must also take human capital ('people') into account. Issues such as a decent wage or offering a safe working environment are part of this domain. The third P (for 'planet') refers to the environmental impact companies have as well as the entire chain in which they operate. Examples include energy and water consumption, recycling, CO_2 emissions, etc. Issues such as animal welfare and biodiversity - take overfishing, for example - also fall under the planet umbrella.

An inconvenient truth

An interesting question of course is why sustainability has led a dormant existence for so long and why it now appears to be emerging as a hot issue in record time? It is impossible to provide a conclusive explanation for this. One thing that is certain is that Al Gore's film An Inconvenient Truth and the lecture tour that followed played an important role. Global warming as a result of human actions (CO_2 emissions) and the potential consequences of this for the climate (droughts, floods, etc.) are central themes in Gore's arguments. Due in part to Gore, former Vice President of the United States, both the film and the theme were in the spotlight worldwide.

In spite of the fact that the film and other sources, such as the IPCC (Intergovernmental Panel on Climate Change)'s report, were the objects of severe criticism, the message still appears to remain intact: man and his actions are largely responsible for climate change, and mankind is thus also capable of exerting its influence to limit the consequences of this. This not only applies to the climate, but certainly also to the approach to scarce raw materials and natural resources, such as water or energy, or doing business in a fair manner with suppliers in emerging economies.

NGOs

NGOs are a necessary element in improving the sustainability of the food chain. There are various organisations within the meat sector in particular which have put certain issues on the social and political map. Varkens in Nood (Pigs in Peril) for example, protested against the castration of piglets without using an anaesthetic. This procedure is supposedly necessary in order to prevent boar taint. This malodorous scent may be released when the meat is heated. Recently, an EU-wide declaration was made that as of 1 January 2012, all piglets will have to be anaesthetised for castration. In the Netherlands, the meat sector has promised that it will stop castrating all piglets in 2015. Inspections performed on the slaughter line can prevent boar taint.

Important role for SMEs

National and international businesses - of which Unilever is certainly not the only one - have since embraced sustainability. It goes without saying that the ambitions in this regard vary. Up to now, Unilever has been the most ambitious company in the agri-food sector. This does not mean however that the impact of a large number of less-ambitious SMEs would be any lower. In fact, in terms of turnover in the agri-food sector in the Netherlands, SMEs generate a higher turnover than the combined turnover of giants such as Unilever and FrieslandCampina.

These days, most SMEs do not have the know-how, resources or economies of scale necessary to make their processes or chain more sustainable. To support these smaller companies, industry-wide and supra-industry initiatives have been set up. For example, various industry organisations operate within the Platform Verduurzaming Voedsel or PVV (Alliance for Sustainable Food) such as the FNLI (Dutch Food Industry Federation), the CBL (Central Bureau of Food Trade) and Veneca (Association of Dutch Catering Organisations), in order to make processes and products more sustainable. Several pilot projects have also been set up which will possibly be scaled up in the future.

LNV as the driving force

The creation of the PVV was more or less a result of the Sustainable Food Policy Document (Nota Duurzaam Voedsel) published in mid-2009 by the former Dutch Ministry of Agriculture, Nature and Food Quality (Landbouw, Natuur en Voedselkwaliteit, LNV). This policy document states that in fifteen years, the Netherlands must be a leader in the field of sustainability in food production and consumption.
To realise this goal, the Ministry of Agriculture, Nature and Food Quality (LNV, which was recently absorbed by the current Ministry of Economic Affairs, Agriculture & Innovation [EL&I]) aims to stimulate sustainable innovation, entice consumers to implement a more sustainable consumption pattern in their lives, and promote international cooperation (WTO, EU, etc.). The Ministry also took several concrete measures of its own; these include setting the goal to serve a fully sustainable range of products in its own restaurants. Meanwhile, various local and regional governments have also taken steps to make their catered product ranges more

Top-of-mind issue

Over the past five years, sustainability has developed to become a ‘top-of-mind’ issue. Each year, the Consumer Goods Forum (formerly CIES, the International Committee of Food Retail Chains) publishes a list ranking issues that are high on the agenda of executives working in European retail and industry. In 2006, corporate social responsibility (CSR) was only ranked 11. In 2010, CSR, another word for doing business in a sustainable manner, occupied a solid second place on the list.

sustainable, for instance by switching to Fair Trade coffee.

Licence to produce

In short, the agri-food sector will undergo major changes over the next few years. The actors in all of the links in the chain - farmers, suppliers, producers and retailers - will have to make their processes and products sustainable. If they fail to do this, they may be gambling with their 'license to produce'.

In 2010, Ahold CEO Dick Boer pronounced the company's goal of making its entire private label range sustainable by 2015. In other words, as a supplier of private label products, you must also keep up with the competition. Even a smaller player like Plus is profiling itself in the market with a sustainable range. The expectation is that other supermarket chains cannot and will not be able to lag behind the trendsetters.

The food industry players, whether they are private-label suppliers or brand-name producers, must change their ways. In this report, we hope to provide an overview of the options available to companies making their business more sustainable. A key theme here is what is happening in practice, or, to put it bluntly: "who is doing what". As the saying goes, "a good example sets the tone"!

Delineating and quantifying

As it happens, sustainability or making things more sustainable is a broad concept, so broad in fact that this edition of Deltawerk would be the size of a telephone book if it were to cover it all. However, this is not the case. Food & Nutrition Delta wants to educate SMEs, and help them on their way to making their products and processes more sustainable. The best way to do this is in a short, concise report rather than an enormous document that often goes unread, and disappears in a desk drawer.

In this issue of Deltawerk, the spotlight is on man, the environment and animals. These are important topics for the agrofood sector. The consumer also occupies a prominent position in this report. This is no surprise since consumer acceptance is a key success factor. The measurability of sustainability is also deserving of special mention. But how does one quantify this? Which parameters should be included? How do you weigh conflicting interests, such as animal welfare and the environment, against one another? In the long run, it will become necessary to objectify sustainability in order to make this concept clear and comprehensible for producers, retailers and consumers. The risk of greenwashing is a very real, worrisome one, and this a rather alarming development. A sceptical consumer will be more likely to hinder sustainability in the sector rather than benefit it.

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Environment

2.1 Introduction

In 2006, the ecological footprint for the entire world population was already at 1.4. This means that at that time, all of us together (seven billion inhabitants) needed a globe one and a half times the size of the one we now inhabit in order to live. In 2050, the global population will have grown to nine billion. In addition, increasing prosperity in the BRIC countries (Brazil, Russia, India and China) is leading to a greater strain on scarce resources (animal proteins, food, water, agricultural land, etc.). As already mentioned in the introduction, the environmental impact in terms of CO_2 emissions and waste will only increase if we continue down the path we are now on.

Biodiversity

For the time being, 'we' refers to the wealthy West. The ecological footprint of an American is approximately nine global hectares (productive land and marine area). In China, this is 1.8 gha. We can assume that this footprint will increase considerably in the coming years.

Another thorny topic is biodiversity. The Millennium Ecosystem Assessment has shown that mankind (and its activities) disrupts ecosystems. In concrete terms, this means that animal species are dying out and that these may also be species on which mankind is (partly) dependent, such as fish for human consumption. It goes without saying that it is high time to make a change. Actors in the chain

(agriculture, industry, retail and consumers) must all be more efficient in how they handle scarce resources.

Chain approach

In this chapter, we will discuss several relevant topics such as energy, water, residual waste and (some) raw materials. In doing so, we will address initiatives from individual companies as well as partnerships between companies and/or other organisations (NGOs). In some cases companies are able to operate on their own, for example, in reducing energy consumption at production locations. In the majority of the cases, a chain approach is necessary, and to which all of the relevant partners in the chain must commit.

2.2 Energy/CO_2

Reducing energy consumption is directly related to CO_2 emissions. As was previously mentioned, a reduction in CO_2 is necessary in order to prevent further global warming. A system has been set up at EU level whereby companies obtain emission rights. This system aims to use financial elements (rights may be purchased and sold) to steer companies in the direction of limiting their CO_2 emissions. Companies can limit their energy consumption (and resulting CO_2 emissions) in a variety of areas.

More energy-efficient production process
Unilever Benelux, as an example, decided to use only sustainable energy in all of its factories and offices in the Netherlands and Belgium (via Essent in the Netherlands and via Electrabel in Belgium). By taking this step, Unilever hopes to lower its CO_2 emissions by 31,000 tonnes.

Another option for companies is to reduce the energy consumed during the production process. This applies to storage and to the production process itself, for example.

Numerous suppliers have taken steps to ensure that their machinery uses less energy (and water and cleaning agents). On its website, Tetra Pak claims that over the last 30 years it has improved the energy efficiency of its filling machines by about 60%.

Mild processing methods, such as pascalisation or PEF (pulsed electric field processing), are forms of production which are still in their infancy, yet which score very high in terms of low energy consumption. This type of preservation also contributes to an improved economic value of the product since it causes less degradation of micro and macro nutrients (compared with pasteurization). Pascalisation is now applied in the production of a select number of products such as fruit juices, meats and shellfish (lobsters and oysters).

Re-use of dry gases
Optimising conventional processes, such as drying, can lead to substantial energy savings. A good example of this is the absorption dryer that FrieslandCampina developed together with TNO. The dryer can be mounted on a spray tower and ensures that the dry gases are re-used. This results in a process that not only consumes less energy (less heat loss), but also limits the loss of valuable ingredients, such as essential oils.

Another area in which producers can save energy (and thus reduce CO_2 emissions) is distribution. One interesting initiative is the so-called 'Green Order'. Several producers including Mars and Arla are already applying this system. Green Order means that producers report their CO_2 emissions on their delivery notes; this is designed to make their customers more aware of their ordering behaviour. Frans van den Boomen, Outbound Logistics Manager at Mars Nederland: "The customers' account managers lay the CO_2 objectives on the table and make them negotiable. They look at the order sizes, the stock levels and the number of truck movements. We make it possible to measure the CO_2 emissions which are linked to the filling and delivery of the orders, and report this on the delivery note.

Natural resources

Apart from saving on their energy consumption, companies can also use natural resources, such as solar and wind energy. A less obvious option is geothermal energy. This type of energy uses a well from which hot water (75 °C) is pumped up from a depth of approximately 2.5 kilometres and piped into a heat exchanger.

Pieter Wijnen of the Limburg company Wijnen Square Crops is already using geothermal energy. Using the new system, Wijnen expects to be able to save a total of five to six million m3 of natural gas per year for the heating of three sweet pepper greenhouses. "To be able to heat all of our greenhouses, we would actually have to have two wells. But first we'll wait and see if this one is a success, and how fast we can recover our investment. Our business case has allowed 15 years for this, and though this may seem like a long time, of course it also depends on the current price of gas. Plus the life of this system is 70 years. In addition, we really do have to do something to reduce global warming. If you can reduce the production of CO2 this way, that's an added bonus."

The objective is to increase customer awareness, and to encourage other customers to cooperate. With this concept we want to inspire companies to start using this system and to start combining shipments with other suppliers, for example."

The transport sector itself has recognised the importance of 'cleaner' transport for quite some time. In 2002, Transport & Logistiek Nederland (an industry organisation) published the report Licht op Groen. In this report, TLN explained how shippers and transport companies could reduce their CO_2 emissions (and other emissions such as fine particulate matter). The TLN emphasises that more efficient transport, in terms of a reduction in the number of kilometres per kilo of product, will also save the sector money. In other words, the knife cuts both ways.

Soft drink vending machines

There are some 80,000 (refrigerated) soft drink machines or refrigerators in the Netherlands that are operated by Coca-Cola. According to the soft drink manufacturer, these machines account for a considerable proportion of the company's energy consumption and CO_2 emissions. Coca-Cola now wants to make this equipment more energy efficient. One of the things it is doing to achieve this goal is to install a 'sleep mode' in the vending machines. This device responds to people's movements and the opening of the door. If it is 'quiet' in and around the machine, the lighting will switch off and the intensity of the refrigeration will be adjusted automatically. The machines can also be programmed to automatically switch off during the hours that the buildings in which they are placed are closed. Systems with these types of modifications are an amazing 35% more energy efficient according to the soft drink manufacturer.

LED: the future?

Multi-layered cultivation in a completely conditioned environment where nutrition and light are precisely tailored to the crops. The Center for Growing Concepts (CGC), an initiative of PlantLab and HAS Den Bosch, has succeeded in growing cucumbers without daylight, free from pesticides and by using much less water. Started from seeds, cucumbers, courgettes, aubergines and other plants were grown in an office over the past few months. All of the fruit-bearing crops flowered nicely and formed fruit.
Rob Baan of Koppert Cress has already put the LED lamps and the multi-layered cultivation into production. The use of the lamps, in combination with the free daylight, has resulted in a major reduction in Koppert's energy bill. Baan: "Our energy consumption has dropped by about 80%. We won't know the exact percentage until 2012. With the subsidy, we will recover this investment within five years. The greatest benefit of the LED lighting however is the improvement in product quality. The seedlings have more flavour and colour."

2.3 Water

Water, or rather a lack of water, is one of the most critical issues in the global agri-food business. Several years ago, José Lopez, Vice President of Operations for Nestlé, warned about water shortages in certain regions in which the multinational is active. Compared with other sectors, the agri-food sector is a huge guzzler. The main culprit is agriculture, which, on its own, accounts for approximately 70% of the fresh water consumption on earth.

One cup of coffee = 140 litres of water

Each product has a 'water footprint'. This is the total quantity of water that is used during the production process (including the primary sector). In the case of coffee, we look at how much water the plant uses and the quantities which are used during harvesting, processing, transport, storage and sales. This comes to a total of 140 litres for just one cup.

Product	Litres of water required
Apples (1 kg)	700
Beef (1 kg)	15.500
Bread (1 kg)	1.300
Cabbage (1 kg)	200
Cheese (1 kg)	5.000
Chicken (1 kg)	3.900
Chocolate (1 kg)	24.000
Coffee (125 ml)	140
Lettuce (1 kg)	130
Milk (250 ml)	250
Pork (1 kg)	4.800
Potatoes (1 kg)	250
Rice (1 kg)	3.400
Tomatoes (1 kg)	180
Wine (125 ml)	120

The water footprint of food, Twente Water Centre, University Twente.

Rising water prices
Given the increase in population growth, the resulting water consumption and global warming (evaporation), the strain on the available sources of water will only increase. The expectation is that this will rise so high that the price of water will also increase substantially. This is bad news for the industry, which must naturally pass this price increase on to its customers. The news is just as bad for people who live in areas where the pressure on the water supply is high (and will only continue to increase). Among other things, this means that the life expectancy will decrease, and infant mortality will rise. The local flora and fauna will also suffer from the rising demand for water.

Considering the economic and humanitarian interest in a sufficient supply of fresh water in certain geographic regions (including Italy, India, and South America), various multinationals have started initiatives in which they educate local farmers or cooperatives on efficient irrigation methods.

Lakes running dry
There are numerous lakes in the world that are slowly running dry, and this doesn't just apply to lakes in Africa or Russia. In the U.S., Lake Superior, the world's largest freshwater reservoir, was at its lowest point three years ago. Because the average water temperature has risen by 4.5 degrees over the last 20 years, the surface water evaporates much more readily. This phenomenon combined with the long periods of drought has led to an extremely low water level. This has naturally had consequences for the various plant and animal species living in the area around the lake.

Drip irrigation
Unilever has set up a project in Italy that has helped spinach farmers make the switch to drip irrigation systems. In this type of irrigation, water is circulated together with the fertilisers through a system of pipes, hoses and drip units. This saves water, partly by keeping evaporation from the ground to a minimum. Unilever also shares these initiatives with other companies. In 2002, the Dutch multinational set up the SAI (Sustainable Agriculture Initiative), together with Nestlé and Danone. Focusing on numerous aspects of sustainability, this non-profit organisation currently has more than 30 members. The SAI is also open to small and medium-sized companies; the membership fee they have to pay depends on their turnover.

Although encouraging farmers in arid areas to reduce their water consumption is a commendable goal, it is subject to limitations. After all, the farmers or cooperatives are autonomous parties, and it is open to question whether they even want to invest in other irrigation methods.

Grolsch and Gulpener

This issue is not at play when companies aim to do something about the water consumption within their factory walls, for example, during the production process. Various companies, such as brewery sector companies Grolsch and Gulpener, have made drastic reductions in their water consumption over the past year. A subsidiary of SAB Miller, Grolsch aims to reduce its water consumption by 35% per litre of beer by 2015 (as compared with its 2008 consumption levels). The brewer plans to achieve

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this target by putting a biological waste water treatment system into operation that removes 80 to 85% of the contamination from waste water, and by implementing water- saving projects for the rinsing machines and crate washers.

There are a few different ways to save water during the crate-washing process. One system that is used in the meat industry is based on a cascade concept. This concept involves using the same water for the three steps involved in the process: pre-rinsing, cleaning and rinsing. In concrete terms, this means that the rinsing water is used during the pre-rinse phase.

Re-use

Another way to save water is to rework waste water, which will allow companies to use the same volume of water several times. Peka Kroef wants to start re-using waste water after it has undergone a reverse osmosis treatment. The potato processing company wants to use this water for washing the potatoes in its facility.

One disadvantage of this approach is that the remaining waste water (30% of the original flow) contains a higher concentration of certain substances (sulphate, chloride, phosphate) than is allowed. Together with the Aa and Maas District Water Board, Peka Kroef is now going to study how it can reduce the phosphate flow in particular. One of the possibilities is a system in which phosphate can be precipitated as struvite. This last component can then be re-used for fertiliser.

Companies can also save on their water consumption during the production process itself. There are suppliers of lubricants that offer an alternative for water and soap lubrication for certain machine components.

Heritage

The question that many companies ask is "Why do we need to conserve water in a country where there is no real threat to the supply of fresh water?" The answer is simple: treating natural resources in a responsible manner, even if they are available in abundance, is an integral part of a sustainability policy. In addition, the European Water Framework Directive encourages the sustainable use of water, and the Netherlands is therefore no exception. Among other things, this directive states that water is not an ordinary commodity, but that it is part of our cultural heritage. Given the deterioration in both quality and quantity of the groundwater in the EU, this heritage must be protected.

2.4 Residual waste

“Consumers and industry throw away Ð 3 billion each year.” This headline caused quite a commotion a few years ago. While part of the world population is suffering from starvation, the rich West is throwing food and valuable components onto the compost heap. There is simply no clear relationship between food that is thrown away in welfare states and the lack of food elsewhere in the world. Even if ‘we’ reduce waste, this does not mean that the starvation problem in poorer countries will be solved.

Return on residual waste is too low

One thing is crystal clear: businesses must take a smarter approach to how they deal with residual waste. In other words, if companies could find other destinations for their waste than the rubbish dump, they could assign a higher value to residual waste, both for consumers and themselves. Researchers at Wageningen UR have concluded that companies in the food industry do not derive high enough returns from their residual waste. Of the ten million tonnes that the industry generates annually, approximately 80% is used for feed, and 20% for soil improvers. In practice, to increase the value of residual waste seems to be anything but a simple task. Companies offering residual waste often need partner companies to treat and process these waste flows. If these flows are used for products for human or animal consumption, the companies must take into account compliance with the legislation that is in force. In the case of products destined for animal consumption, the relevant legislation became much more stringent as a result of the BSE crisis. This can limit the number of application possibilities.

Finally, there must also be a customer for a particular residual waste flow. This means that the companies that supply and process this residual waste must involve potential end users in the upgrading of the waste. It goes without saying that the increased value of these flows must offer certain advantages (price, functionality) compared to more commonly available flows.

No Waste Dinner

In 2011, the No Waste Dinner was held in Maarssen. At this event, where top chefs prepared dishes with ‘rejected’ ingredients (including mozzarella whey and stale bread), discussions were held about the food that is wasted in this country. The No Waste Dinner was the kick-off for the No Waste Network (www.nowastenetwork.nl). Consisting of government organisations and businesses, this network aims to achieve a 20% reduction in food waste by 2015.
Various stakeholders can exchange ideas and tips on the website and via social media.

Bakers against wasted bread

One good example of a sector-wide approach is the Broodnodig project. In this project, the bakery industry finds another destination for the annual residual waste flow of 70 million kilos of bread. This is often processed and used in low-quality applications such as breadcrumbs or pig feed. One alternative is packaging materials (bread paper and bread plastic). These uses double the value of stale bread from eight to sixteen cents per kilo.
In the sub-project FlourPower, bio-energy is generated using stale bread. Two loaves of bread can produce up to 3 KwH of energy, and do so efficiently.
There are also plans in place to limit overproduction by improving the coordination between the ordering systems of supermarkets and bakeries, as well as plans for transforming stale bread into a snack product.

Biocascading

Companies looking to upgrade or valorise their residual waste should, ideally, first study the highest possible upgrading (read: the highest price per kilo). Wageningen UR has developed the biocascading model for this very purpose. This model more or less prescribes that economic and environmental factors (CO_2 and water consumption) should be included in a decision model. According to this model, every residual waste flow should be able to be ranked. The highest economic value is pharmaceuticals, followed by food, feed and bio-fuel. In the dairy and meat sectors, this way of thinking has been commonplace for some time now. One example is VION Food Group, which has set up a separate activity, Sonac, the goal of which is to give animal by-products the highest possible value. Sonac processes pig and cattle blood to produce high-functional proteins, among other products, which are applied in the pharmaceutical industry. In its processed form, blood may also be used as a colouring agent, or as a binder for compound meat products. Finally, blood is also used as a source of protein in animal feed and fertilisers.

Knorr Vie

In the dairy sector, some residual waste flows have even evolved to become main flows. While consumer dairy products have become increasingly more commoditised, the isolated components have increased in value. Immunoglobins, for example, are used in toothpaste, and peptides, produced from casein, are used in medicines.

Pharmaceutical applications are of course the Holy Grail. A consumer product that is manufactured using residual waste can also be quite a lucrative undertaking. In 2006, Unilever even won the prestigious Wheel of Retail award – a retail prize – for its Knorr Vie product line, vegetable and fruit juices produced using residual waste.

Unilever has since taken Knorr Vie off the shelves in the Netherlands because sales fell below the multi-national's expectations. The concept also had to endure the necessary criticism from the Voedingscentrum (Netherlands Nutrition Centre) and the NGO Foodwatch, among others, since the value that Unilever attached to the product - an easy way for people to get half the recommended daily amount of fruit and vegetables - was challenged by these organisations.

The question remains whether it was this criticism that ultimately finished off Knorr Vie. According to Unilever, this was not the case. However, it is a wise lesson for producers interested in upgrading residual waste to a consumer product. Ultimately, the value must also be obvious to consumers. After all, they will not buy a product because an optimally upgraded residual value is better for the environment, but because the product offers them an added value.

Cradle-to-cradle

Cradle-to-cradle is a concept that was the brainchild of William McDonough and Michael Braungart. Both authors introduced this concept in their book published in 2002, Cradle to Cradle: Remaking the Way We Make Things. The idea behind C2C is that products, including food and packaging, can be re-used after their first life cycle.
The difference between this and recycling is that C2C products must not suffer from any loss in quality. Examples include plastic bottles recycled to make flower pots, and then later as bollards. Ultimately, these are burned; this, however, is cradle-to-grave. In the C2C scenario, the plastic bottles would be able to be used ad infinitum as... bottles.

From biomass to packaging materials

Apart from food products, residual waste flows from food also offer possibilities for non-food applications, such as packaging, or bio-energy.

The company Avantium is active in the processing of biomass, sugars and other carbohydrates, converting them into bioplastics and biofuel. In 2009, the company made a deal with Cosun in which the latter party will be selecting and isolating suitable components from residual agricultural waste. Avantium will be working on a chemical-catalytic production process to convert these processed residual waste flows into packaging and bio-energy.

In the case of packaging, bioplastics offer a more sustainable alternative to conventional packaging which is manufactured on the basis of petroleum. This reduces our dependence on petroleum, and has a favourable effect on reducing CO_2 emissions. Since bioplastics can readily be composted, the burden on the environment is much less than that from conventional plastics.

2.5 Raw materials: soybeans

The cultivation of crops can have a considerable impact on the environment. This definitely applies to countries where the expansion of acreage can lead to a disruption of the ecological balance as a result of deforestation, or disruptions to the soil and water balance. In the case of soybeans, the global demand has nearly doubled over the last ten years. Used in food for human consumption as well as animal feed, soybeans is profiting primarily from the dramatically increased demand for animal proteins. Confronted with an increasing domestic demand for animal proteins (meat), China is now the world's largest importer.

The largest suppliers of soybeans are located on the American continents: the U.S., Brazil and Argentina. As a result of the expansion of acreage in these countries, valuable natural areas such as the Amazon or certain savannah landscapes in Brazil and Paraguay (Chaco) are now endangered. Although the percentage of the Amazon region that is used for soybean cultivation is limited (1 to 2%), there is still an indirect impact in terms of former grasslands being used for soybean cultivation. Since livestock farming must then move in the direction of the savannah and rainforest regions, these areas now face real threats.

Amazon Moratorium
In June 2006, together with the European industry and social organisations such as Greenpeace, Brazilian soybeans processing companies and traders decided to stop buying soybeans grown on land that was deforested in the Amazon rainforest after 24 July 2006 for a minimum period of two years. This agreement is also known as the Amazon Moratorium. In the interim, the protected areas are being mapped out, an adequate monitoring system is being set up, and regulations for land use in the Amazon are being drafted.

Human rights
Apart from environmental aspects such as deforestation, biodiversity and soil and water balance, there are other factors that play a role in the cultivation of soybeans. Examples include employees' and land rights, and the well-being of the indigenous population. In some areas, the right of ownership is not laid down in the law, causing situations in which various groups can make a claim to land. In some cases, these disputes are accompanied by violence towards and intimidation of the local population.
Given the fact that the Netherlands is the largest importer of soybeans (second only to China), the business community can fulfil a pivotal role in making the soybean chain more sustainable. Several of these companies, including Cargill, FrieslandCampina and Unilever, have joined forces within the context of the Round Table on Responsible Soybeans (RoRS) association. This is an international group; the Taskforce Duurzame Soja (Task Force for Sustainable Soybeans) was set up specifically for the Dutch market. Within the Round Table, which in addition to food producers also includes cultivators, processors and NGOs as its members, guidelines have been drawn up specifying the criteria sustainable soybeans (cultivation) must meet. These guidelines are embodied in a standard which players in the chain must follow in order to qualify for a certificate. Conditions are stipulated for farming practices, treatment and remuneration of employees and dealing with land rights.

Cono chooses sustainable feed
It is not only the large multinationals which have access to sustainable soybeans for use in animal feed. Cono and Ben & Jerry's, for example, have signed a cooperative agreement with Solidaridad and Stichting Natuur en Milieu (Netherlands Society for Nature and the Environment). This contract provides for assistance to local soybeans cultivators for investments in sustainable cultivation methods and help with certification. They can also be sure of an honest price for their products.
The project is part of the four-year old Soy Producer Support Initiative (SOYPSI), an international programme set up by Solidaridad, the WWF and the Round Table on Responsible Soy.

Controversial
This document is also designed to provide those buyers with the guarantee that the soybeans they are buying were cultivated in a sustainable manner. Since the demand for sustainable soybeans exceeds the supply, a transitional arrangement has been set up in which customers initially guarantee sustainable cultivation by purchasing certificates (see the Green Energy principle). Ultimately, this will cause supply to rise, thus enabling customers to actually purchase sustainable soybeans.
None of this means that the RoRS programme has gone unchallenged. In early 2011, several farmers and environmental organisations raised objections to the standard. According to Nina Holland of Corporate Europe Observatory (CEO), a pan-European organisation that investigates corporate lobbies, "the RTRS criteria are weak. The

expansion of soybean monocultures can simply continue at the cost of small farming companies and ecosystems. Large-scale spraying with herbicides and the resulting damage to public health and the environment simply continues under the RTRS criteria," according to CEO.

In the opinion of CEO, the Nederlandse Melkveehouders (Dutch dairy farmers association), Friends of the Earth and a few other parties, the RTRS standard is a typical example of 'green-washing'. This is a practice in which companies claim that they are taking measures to protect the environment, but these measures are not sufficient. We will return to this topic in the chapter on consumers.

GMO responsible?
The 'case' of sustainable soybeans illustrates that sustainability is a matter about which differences in insight can easily arise. Take genetically modified soybeans for example. The RTRS remains non-committal in this regard: 'Based on their customers' wishes, the participating companies are considering whether or not to supply products made using genetically modified soybeans.' In other words, it is possible for GMO soybeans to qualify for a certificate. For some NGOs, this is unacceptable; they claim that the use of genetically modified soybeans leads to monocultures.
In the meantime, industry is also putting in its two cents. According to Peter Brabeck, former CEO of Nestlé, a ban on GMO crops in food is not only unscientific, but also immoral. In his view, it is simply not possible to feed the world without transgenic crops. It appears to be a devil's dilemma (or at least in Brabeck's eyes): 'should part of the world's population suffer from starvation or should the environment (biodiversity) benefit?'

2.6 Regional products: local is beautiful

Local products play a meaningful role in making food more sustainable. As a result of the discussion on food miles, products which are cultivated or produced close to home were suddenly portrayed in a positive light.

Beans flown in from Egypt, strawberries from Spain, and so on and so forth: since consumers want to be able to put seasonal products on their plates all year-round, these products are transported over many hundreds of kilometres. It goes without saying that transport brings with it CO_2 emissions which can be added to the price of the product.

In view of the fact that the distance that food, raw materials and fresh products must travel has increased considerably over the last 25 years (as a result of the globalisation of trade, among other things), the discussion about food miles has developed. This has meanwhile diminished to some degree, due in part to studies which have appeared showing that the production/cultivation organisations are taking the lion's share of the responsibility for CO_2 emissions, thus making the transport factor less of a weighty one.

Man and the environment
Whatever the case may be, local products are now here to stay in the supermarket. They are also being positioned as sustainable products in terms of marketing. Take Gulpener, for example, that brews its beer using only regional ingredients.

The reasoning behind this is that these products make a contribution to the regional economy. They also usually contribute to the preservation of typical cultural landscapes, and to improving the environment. These are arguments that easily win supporters in a time of globalisation and giant, anonymous companies.

Local products in the Netherlands also have their own quality mark which has been developed by the Stichting Streekeigen Producten Nederland (Foundation for Regional Products of the Netherlands). This seal of approval, Erkend Streekproduct (certified local product), places demands on the raw materials, the processing location, environment (no crop protection products used, agro-biodiversity), animal welfare and reduction in transport.

Gijs

The umbrella quality mark 'Gijs' was an idea developed by Streekselecties BV. An initiative of Agro en Co and ZLTO, among others, this company was set up to bridge the gap between small, local products and supermarket retail chains. According to director Rene Bink, this gap developed because retailers paid too much attention to name brands and their own private-label ranges. "Even if they wanted to, consumers could hardly find any local products in their supermarkets."

There are currently about 100 products sold under the Gijs label at the Plus supermarkets in the Netherlands. At the Deen supermarkets, the range is sold under the in-house brand, Het Beste van Deen. According to Bink, taste is the most important distinguishing factor for the Gijs products. Consumers have to be able to taste the traditional aspect of a Gijs product. The story behind the product - the origin and/or the method of production/cultivation - is also important.

2.7 Protein transition

Protein transition - the shift from animal to vegetable proteins - has been an important theme for dozens of years now. In recent years, this development has gained in importance on political and social agendas. The desirability of a shift to vegetable proteins has been prompted partly by environmental considerations, and partly by reasons related to health. Generally speaking, the Dutch consume more animal proteins (and protein in general) than they actually need. Consumption of animal protein also means consumption of saturated fats. The environmental impact of animal proteins and the quantities of water, land and vegetable proteins that are necessary to produce them has also been documented extensively.

Alternative

Yes, it is true, 'we' (read: the rich West) could consume fewer animal proteins. However, this option does not seem very marketable. The concept of consuming less is not high on most consumers' list of priorities. Meat substitutes are one alternative; these are also referred to as Novel Protein Foods. These products attempt to imitate the taste and texture of primarily meat-based products. These days, there are numerous options on the market which may be used in combination with meat (compound products) or as 'stand-alones'.

According to MVO Nederland (the CSR association of the Netherlands), suppliers are having increasing success in developing meat substitutes which more closely approach the real thing, in terms of flavour and texture. One of these products, 'Meatless', won a taste contest in 2011, even beating 100% meat products. Beeter van Ojah, a 100% vegetable-based product, has a fibre-like texture, giving it the same 'bite' as real meat.

People (cacao case study)

3.1 Introduction

In 2007, journalist Teun van der Keuken, also known from the Dutch television show Keuringsdienst van Waarde (Food Inspection Department), launched the Tony Chocolonely line on the market. With this chocolate brand, Van der Keuken wanted to show, among other things, that most chocolate processing companies and producers could not prove that they incorporate 'slave-free' cacao in their final products.

One of the first products was a chocolate letter under the Tony Chocolonely brand, which bore the Max Havelaar quality mark. Van der Keuken's initiative, in cooperation with Oxfam Novib, demonstrated that a small-scale enterprise can truly make an impact.

Since that time, numerous players in the cacao chain have made their sourcing practices more sustainable. The manufacturer Verkade, for example, made the switch to sustainable cacao in 2008, under the Max Havelaar quality mark. Another player, De Ruyter (sweet sandwich toppings), chose the Utz quality mark in 2010 to make its chocolate flakes and sprinkles more sustainable. In 2009, Mars, one of the largest producers of chocolate products worldwide, announced that by 2020, it intends to use exclusively sustainable cacao in its products.

More than just (child) slavery

The issue of human rights and fair pay for farmers has been pushed to the foreground in recent years. The above campaign of Van der Keuken's focused primarily on forced labour, and pressure

from various NGOs have placed this matter higher on the social agenda. And, of course, it is not only about slavery or child labour. Aspects such as a safe work environment, the optimisation of yield (quantitatively and qualitatively), fair pay or the promotion of a healthy socio-economic climate (education, political stability) all play an important role.

The above sub-areas will all be discussed in this chapter as they relate to the cacao chain. It goes without saying that these sub-areas are all interconnected; education, for example, leads to higher productivity. This in turn yields higher income, thus providing farmers with the time and money for investments in seeds, machines or education, for example.

3.2 Cacao: an exploration of the market

The world market for cacao is approximately 3.5 million tonnes per year. Important producers in the primary sector are the Ivory Coast and Ghana. Over 70% of the global production originates from West Africa; other exporting countries are Indonesia, Brazil and Ecuador. The aforementioned volume is processed to create consumer products (chocolate and candy bars) and semi-finished goods for sale to the industry. With a processing capacity of 25% (globally), the Netherlands fulfils a pivotal role in this chain. Large processors such as Cargill, and producers (Mars) have a presence in the Netherlands. This production (both semi-finished goods as well as consumer products) is then sold both within the Netherlands and abroad.

One noteworthy factor is that the cacao sector is consolidated to an extreme degree: the world market for grinders is dominated by ADM and Cargill. Barry Callebaut, producer of chocolate for final processing companies, is also a multinational. Producers of final products are usually multi-billion dollar companies such as Nestlé, Mars and Kraft.

3.3 Excessively low prices

The economies of scale and profitability of these multinationals stand in stark contrast to the position of the millions of farmers and employees who have to earn a living from the harvest of cacao beans. These are usually small farmers who have two to five hectares at their disposal. Since the production per hectare is also still far below the mark, these farmers and their families lead a marginal existence.

Price structure of a chocolate bar.
Source: Newsletter FNV Bondgenoten 2009.

An additional problem is that the African countries have liberalised the cacao market. This means that the price is determined on the futures markets in London and New York. Since the farmers are at the beginning of the production chain, they have a weak negotiating position with respect to the intermediaries. Additionally, the farmers lack the insight into the chain they would need to be able to demand a higher price per kilo. In spite of the fact that the market demand for cacao has grown (and is expected to continue to grow), according to Oxfam Novib, the farmers' position has not improved as a result. This is not only because the prices they are getting for their products are too low, but also as a result of disappointing harvests (plant diseases) and the lack of a professional approach (low degree of organisation and not enough knowledge of market and price information).

3.4 Inexpensive or free labour

Since farmers/plantation owners are able to influence the labour factor, some of them rely on less expensive workers; in other words, children or in some cases, (child) slaves. The use of child slaves by cacao growers in Sierra Leone and the Ivory Coast has been documented extensively by some media channels in the past, including CBS News. A negative side effect of this is that in the past, conflicts were financed with the proceeds from these activities.

Apart from slavery, child labour is also a frequently occurring problem. These children usually work excessively long days, and do physically demanding, dangerous work (carrying heavy loads, working with pesticides, etc.). Since these children spend nearly all their time working, there is no time for education. This means that these children cannot develop, and get trapped in poorly paid, unskilled jobs.

Another problem is the marginal position of women in cacao cultivation. They play an important role in the processing of the cacao beans after the harvest, a crucial step that affects the final quality of products. These 'invisible cacao farmers' also have to keep a household running. These roles are however not acknowledged by men; they are still the ones who determine what happens with the income earned from the cacao. It is usually also primarily men who own the land. Women often inherit only a small part of the land; buying land (via a bank loan) is nearly impossible.

ILO

The ILO (International Labor Organisation) identifies several standards which are designed to ensure that labourers are treated properly and paid fairly for their efforts. These standards have achieved the status of universal human rights. The standards can be divided into four groups:

- the right to be a member of an organisation (trade union, professional association), and the right to participate in collective negotiations
- the elimination of forced and/or mandatory labour
- the elimination of child labour
- the elimination of discrimination in the labour market

While there are many countries that have legislation in place, some of it based on ILO standards which regulate the factors above, there are also countries that prefer to ignore this. Companies acquiring raw materials in these countries can have their suppliers audited and certified under the SA8000 standard. Set up by Social Accountability International (SAI), this international standard is based on such conventions as the UN declaration on human rights and various ILO conventions.

3.5 Sector on life support

One result of the aforementioned developments is that the primary cacao sector is slowly being eroded. Farmers do not get paid enough for their cacao beans, and as a result, do not have enough resources to invest in new plants or (environmentally friendly) technology which would enable them to raise their production and quality.

For this reason, many farmers make the switch to crops which will allow them to earn enough to live on. The remaining cacao farmers are forced to fall back on overcropping, causing them to ultimately exhaust their acreage. The consequences of these developments are already visible. In a growth market, an annual 2 to 3% worldwide, production is declining in West Africa by 2% a year. Howard Shapiro, chief agronomist at Mars, had already issued a warning about cacao shortages on the world market if the farmers in Ivory Coast continued to exhaust their land.

This is why companies, such as the players mentioned earlier, have committed to making cacao cultivation more sustainable in recent years. According to Shapiro, the significantly improved cacao cultivation industry in Brazil could serve as a model for the changes in the pipeline in West Africa. In Brazil, cacao cultivation has been elevated to a considerably higher level by taking steps such as making nutrient-deficient soil suitable for cacao cultivation. Since the yield from the new cacao plants is relatively higher, farmers can work with fewer plants and part of the acreage may be used for other crops. The farmers are less dependent on the prices of a crop as a result, and in the event of an emergency (failed harvest), they can consume the other crops themselves.

Man and the environment

It goes without saying that the aspects of man and the environment are closely linked to one another. This is only logical, after all, since man is dependent to a great degree on the environment in which he lives. Insufficient or poor quality drinking water, the presence of pesticides in the soil, on crops or in the drinking water, or soil erosion have consequences for the well-being of the population. For this reason, well-known quality marks such as Utz Certified or Rainforest Alliance, apply standards when it comes to man and the environment.

3.6 Quality marks

Players such as Mars have the economies of scale and the know-how necessary to conduct research into cacao plants which are resistant to certain diseases, or to develop cultivation methods which lead to higher yields. This does not mean however that smaller manufacturers cannot exercise any influence on the process whereby cacao farmers (such as those in West Africa, among others) are offered a more sustainable future. As mentioned previously, Van der Keuken started his own brand, together with Oxfam Novib. Although a smaller player in a global context, Verkade incorporated Fair Trade cacao beans (under the Max Havelaar quality mark) into all of its chocolate products.

There are currently four quality marks for certified cacao 'on the market' that are associated with standards related to man and the environment. The scope of these standards varies from one quality mark to another. Some quality marks, for example, do not apply a minimum price to farmers to protect them from price fluctuations on the global market.

Max Havelaar

The Max Havelaar Foundation is a quality mark organisation that focuses on small farmers in developing countries. The foundation aims to provide farmers' cooperatives with direct access to the Western market under good trade conditions, or Fair Trade. This fair-trade mark not only guarantees that the raw materials are cultivated under good ecological and social conditions, but also that the farmers have received a fair price for them. Part of the premium goes to the local community.
See: www.maxhavelaar.nl.

EKO

The EKO quality mark is intended for products that are grown without the use of artificial fertilisers, crop protection products or chemical additives. These farmers respect biodiversity and the natural environment in the cultivation of their cacao. Organic farmers usually receive a higher price since the market will pay a higher price for these products. A fixed premium does not apply to this mark. The organic products produced or processed in the Netherlands are certified by Skal. See: www.skal.nl

Rainforest Alliance

Rainforest Alliance is a quality mark that was developed by environmental organisations in Latin and North America. This organisation's objective is to protect ecosystems and the people and animals that depend on them. In order to be allowed to bear the Rainforest Alliance logo, farmers must satisfy a variety of requirements with regard to nature conservation, water management and forestry management. In addition, the labourers working on these plantations must be paid at least minimum wage and have good employment benefits, including a safe living environment. Rainforest Alliance does not give farmers price guarantees.
See: www.rainforestalliance.org

Utz Certified

Utz Certified is a quality mark for sustainable products such as coffee, cacao and tea. The farmers affiliated with this mark profit from better quality, cost effectiveness and productivity by implementing sustainable methods on their farms. Farmers negotiate a premium in addition to the market price that buyers pay as an acknowledgement of the added value of Utz certification. Farmers do not receive price guarantees. See: www.utzcertified.org

Chapter 4

Animal (welfare)

4.1 Introduction

The attention and concern for animal welfare is not something that just developed out of the blue. This topic has been on the social and political map since the early 1980s. In the Nota Rijksoverheid en Dierenbescherming (Animal Welfare Policy Document) published in 1981, the government acknowledged the intrinsic as well as the economic value of animals. This policy document ultimately led to an amendment to the Dutch Animal Health Act, which was later renamed the Animal Health and Well-being Act in 1993.

It may be said that over the last 10 to 15 years, animal welfare has grown to become an issue which neither the primary and processing sector nor the supermarket retail trade can avoid any longer. A perfect example of this is the castration of piglets (without the use of an anaesthetic) to prevent so-called ‘boar taint’ from occurring in pork. Thanks in part to the campaign carried out by the Wakker Dier organisation protesting this method, measures have been taken to prevent this procedure. In addition to castration under anaesthetic, detection methods have also been developed for application before and after slaughter which can reduce the chance of buying a pork cutlet with boar taint to a minimum.

There are now various products on the market (chicken, pork, beef, eggs) which have been produced in an animal-friendly manner. The market share of these products, approximately 3%, is still rather modest at present. It may be assumed that this percentage will increase considerably in the coming years. Supermarket chain Albert Heijn’s decision to sell only animal-friendly pork starting mid 2011 will undoubtedly lead to a further increase in the market share of animal-friendly meat in supermarkets.

This section provides a brief summary of the most important issues at work in the various sectors. This will be followed by a focus on the various initiatives, brand concepts and quality marks, and finally, a presentation of the market figures.

Well-being vs. the environment: conflicting interests

Sustainability is and will remain a complex subject. Take animal welfare versus the environment, for instance. According to a report from the Planbureau voor de Leefomgeving (Netherlands Environmental Assessment Agency), fine particulate emissions have been increasing since 2004. The assessment agency blames this increase on the growth in the free-range chicken contingent, among other factors. The agency also asserts that the production of ammonia from animal-friendly poultry farms and the land use (per chicken) are higher than the more standard farms.

4.2 Most important issues

The problem with animal welfare is that there is no clear definition of this available. There are various definitions in use, each of which is based on developing insights and which apply diverse criteria. An essential document in this discussion is the report from the Brambeel Commission, which formulates the five freedoms for animals. These are the following:

- freedom from hunger, thirst or improper nutrition
- freedom from thermal and physical discomfort
- freedom from pain, injury or disease
- freedom from fear and chronic stress
- freedom to be able to display natural, species-specific behavioural patterns

As is set out in the Animal Welfare policy document, animals who are suffering from pain or stress are not necessarily cases of 'poor animal well-being'. What is relevant here is the frequency, duration and intensity of stress, pain and other discomforts resulting from human intervention and actions. The reasoning is that pain and stress also occur in nature, and are therefore not always avoidable. This also applies to transport to the abattoir. This stress can however be reduced by loading the animals in a more careful manner.

The passages below address the most prominent welfare problems affecting dairy cows, calves, pigs and poultry. Initiatives are also discussed which are designed to eliminate these problems once and for all.

Pasturing

According to an analysis performed by Wageningen UR, the most important welfare problems found among dairy cows are the pressure of infection at the farm (mastitis and foot rot), hard, wet and slippery floors; and a lack of exercise. In addition, the aspects of stall climate and resting comfort are not always satisfactory.

One factor that can increase dairy cows' freedom of movement is pasturing, in which cows spend at least six hours per day in the pasture for a minimum period of 120 days. The 'pasturing season' runs from the spring to the autumn. In 2005, an average of 85% of the dairy cows grazed in the pasture, quite a significant percentage. This percentage did decrease because dairy farms have grown in size (number

of cattle). Since the farm land area did not grow along with the number of animals, farms now have fewer square metres of meadows per animal at their disposal. Additionally, pasturing is more labour-intensive for a farmer.

Research has shown that pasturing can have a positive influence on the health and well-being of dairy cows, such as the condition of the udders, hoof and leg health, and fostering natural behaviour. It must also be mentioned here that pasturing also brings with it health risks such as heat stress and an increased chance of parasites. The pasture grazing can also lead to metabolic problems.

In order to promote pasturing, several parties, including the CBL, FrieslandCampina and the Dierenbescherming (Dutch animal protection agency) set up the Stichting Weidegang (Outdoor Grazing Foundation). This initiative supports dairy farmers who consciously choose pasturing by providing them with advice and financial resources. According to the foundation, pasturing is not only beneficial for the well-being of the animals, it also contributes to a positive image of the dairy sector and the recognisability of the Dutch countryside.

From 'crated' veal calves to playful calves

Images of crated veal calves, young animals confined to a limited space, appeared in the media on a regular basis during the 20th century. In addition, the following animal welfare issues play a role: the pressure of infection, stall climate, hard, wet and slippery floors, lack of exercise and a lack of forage. Over the years, the welfare of veal calves has improved significantly. Rules have been drawn up by the EU, translated in the Netherlands as the Kalverenbesluit (Calves Production Decree), which have ensured that calves are housed in groups, among other changes. There are also stalls which are equipped with playing materials which are designed to encourage the calves' play behaviour.

Peter's Farm of Alpuro Group (since acquired by VanDrie Group) is a concept in which animal friendliness is an important element. The group size recommended by this concept is relatively high (average of 60 animals). According to the company, calves have a natural need to live in such large herds. In addition, a routine is not forced upon the animals. The calves decide for themselves when and how much they want to eat, and whether or not they want to walk, stand, lie down, play or sleep.

VanDrie Group, global market leader in veal, has taken measures to improve the welfare of veal calves both at the farm as well as during transport. The company has made agreements with the Animal Protection Agency in this regard, which relate to aspects such as feed (minimum values for haemoglobin content), climate-controlled transport, maximum transport times and improved resting comfort. In exchange for this, VanDrie's products are entitled to bear the Animal Protection Agency's Beter Leven quality mark.

Comfortable piggery

The sticking points in the pig sector relate primarily to housing. The traditional stalls do not accommodate the pigs' natural behaviour to a sufficient degree (playing, resting comfort), as a result of which the animals seek refuge in behaviour such as tail-biting while conditions such as stomach ulcers and hoof problems are more common.

Comfort Class, a joint project of LTO Nederland and the Animal Protection Agency is a system of stalls developed on the basis of the pigs' needs, such as comfortable bedding made from straw or sawdust, for example. The animals also have enough room to root and eat, something to scratch themselves on or take a shower, and to dung in a separate area in a clean manner.

In addition to the living conditions, the necessary initiatives have been set in motion to limit or modify

the procedures performed on the animals. The example which stands out the most is the castration of piglets without the use of an anaesthetic.

Exit battery egg

In the poultry sector, supermarkets played an important role in 2003 and 2004 by deciding to stop including battery eggs in their product range. Since that time, numerous producers have also stopped using battery eggs as semi-finished products in mayonnaise or biscuits.

The primary animal-friendliness issue relating to laying hens - housing- appears to have been resolved once and for all. This will certainly be the case once the EU law takes effect in 2012 which will prohibit the production and sale of battery eggs. Starting on that date however, eggs will still be permitted which are laid by chickens living in so-called ‘enriched cages’. These special cages provide more room for the chickens, and offer extra facilities such as laying nests and perches.

Apart from free-range eggs and free-run eggs (these designations are determined by law), systems and corresponding brands have also been developed which are designed to guarantee more animal-friendly farms. One initiative is the Rondeel, a blueprint for a complete company in which laying hens have three different areas at their disposal. The night quarters are designed to meet animals’ basic needs (food, water, etc.). In the outdoor enclosure, the chickens can forage and take dust baths. Finally, the so-called Bosrand provides chickens with the opportunity to forage, explore and seek shelter. The Rondeelei carries the Animal Protection Agency’s Beter Leven quality mark.

The Volwaard chicken, an initiative of Plukon Royale, ZLTO, Coppens Diervoeding and the Animal Protection Agency, is an example from the broiler sector. The aspect of limited space for the animals also plays an important role in this sector. The high growth rate of broiler chickens is another controversial issue. The above factors result in foot disorders and aggressive behaviour.

Volwaard chickens are a slower-growing breed and their meat bears the Animal Protection Agency’s Beter Leven quality mark. Volwaard chickens also have more room (and freedom of movement) and feed (grain) than ordinary chickens.

4.3 Market statistics/consumer trends

The market for animal-friendlier products rose in 2010 by an amazing 96%, as shown in the Monitor Duurzaam Voedsel (Sustainable Food Monitor) published in May 2011. When animal-friendlier and organic are combined, this increase is lower (38.4%). In total, the combined turnover of animal-friendly and organic products is nearly Ð 200 million.

In a market (eggs, meat and meat products) that is barely showing any increase, this is a major accomplishment. The share of animal-friendlier plus organic in the market is still low (4%). The good

Expenditure on eggs, meat and meat products (x million Euros)	2009	2010	Development
Total food expenditure in the Netherlands (standard plus animal-friendlier)	5.017,1	5.025,2	0,2%
Animal-friendlier	42,3	83,3	96,9%
Animal-friendlier plus organic	143,6	198,7	38,4%
Market share – animal-friendlier	0,8%	1,7%	
Market share – animal-friendlier plus organic	2,9%	4,0%	

Source: LEI, a division of Wageningen UR, 2011

news is that, as compared to 2009, this share has risen nearly 150%.
One possible explanation for this growth is that in 2010, supermarkets carried out considerably more promotional activities with animal-friendlier products. Wakker Dier reported that the number of special offers in supermarket circulars rose 70% as compared with 2009.

The above growth percentages are far and away above the 15% norm that was agreed on in the Covenant on the sustainable development of animal products, signed by the Ministry of Agriculture, Nature and Food Quality, the Animal Protection Agency and several sector organisations. The Covenant stipulates that the turnover in animal-friendly products must rise by an average of 15% per year between 2009 and 2011. This encompasses sales in supermarkets, speciality channels and company catering facilities.

Eggs: largest segment
With a 3% share of total sales, eggs stand out in the animal-friendly product market, making this far and away the largest segment. It is however a market in which the growth - still 45.3% - falls behind the other segments. Animal-friendlier and 'other meat' products (compound products such as chopped beef) for example, nonetheless achieved an increase in sales of 352%. In the other segments, the growth percentages fluctuate between 90 and 125%.

Expenditure per product group (x million Euros) animal-friendlier	2009	2010	Growth
Eggs	17,9	26,0	45,3%
Chicken	7,8	16,8	115,4%
Pork	5,6	10,6	89,3%
Beef	7,0	15,8	125,7%
Other meat	2,5	11,3	352,0%
Meat products	1,4	2,8	100,0%
Total	**42,3**	**83,3**	**96,9%**

Source: LEI, a division of Wageningen UR, 2011

'Animal welfare is not an incentive to buy'
The rise of animal-friendly meat seems to be diametrically opposed to the findings in the Eten van Waarde (Eating Value) report/consumer study conducted by the LEI. In this report, consumers indicate that animal welfare, the environment, and justice play only a very minor role for them in their purchases. The lion's share, 96%, feels that government and business should be responsible for this.

Success of the intermediate segment
The growth figures above testify to the success of the so-called intermediate segment. Since there is a fairly large price difference between 'standard' and organic, the sales in the latter market have hit a ceiling. An intermediate segment, where the price difference lies between 10 and 20%, appeals to consumers who are open to animal-friendly products yet are not willing to pay a 50 to 75% 'premium' for them.

An added bonus is that animal-friendly meat does not necessarily have to cannibalise organic products. When the Jumbo supermarket chain introduced the Jumbo Bewust varkensvlees (responsible pork) brand in 2007, sales shot up quickly (2 1/2 times the sales for organic products), without sales for organic meat taking a beating as a result. Since that time, numerous retailers have developed 'in between' refrigerated product segments; Albert Heijn for example sells free-range meat (beef, pork and chicken) under the Puur & Eerlijk ('pure and fair') brand. In April 2011, the C1000 supermarket chain launched a new sustainable chicken range under the Onze kip ('our chicken') brand name. According to the retailer, the meat originates from a more slow-growing breed. This breed also requires fewer antibiotics, and has more room to move, among other benefits.

Consumers

5.1 Introduction

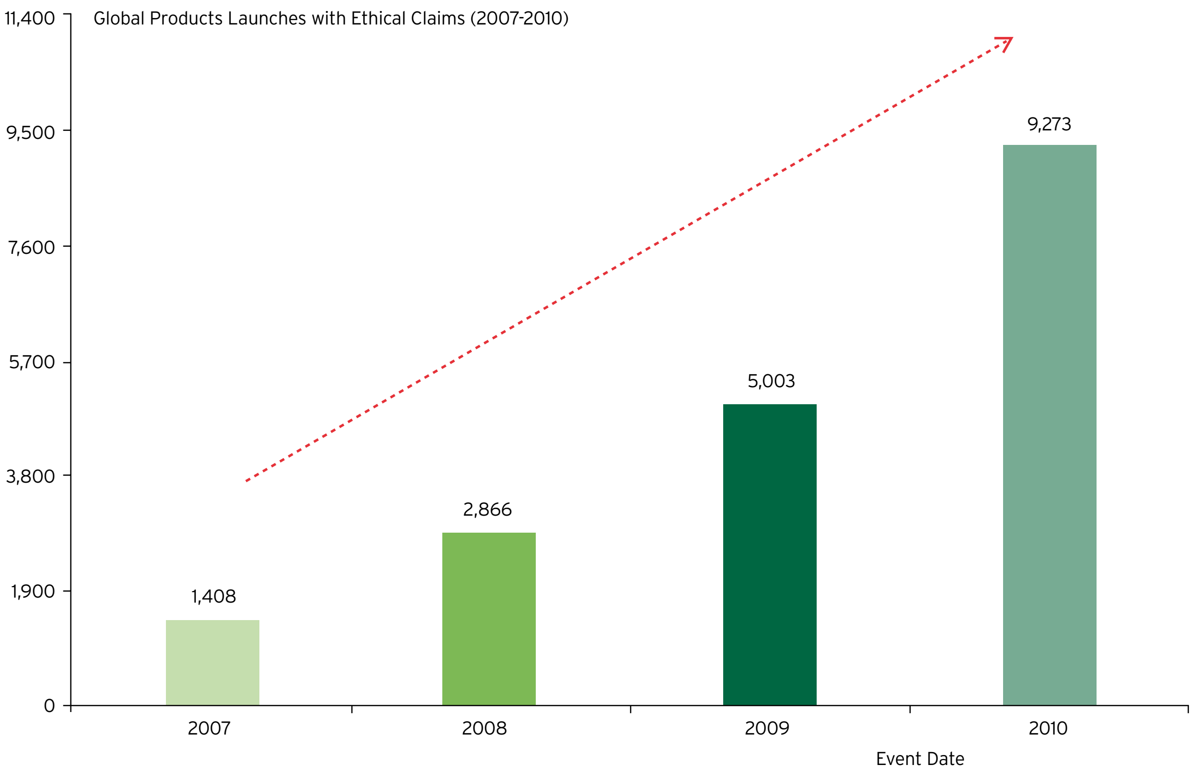
'There is no such thing as a sustainable consumer.' Far from reassuring, at least for marketing people, this was the headline for an article published in the Dutch newspaper Trouw. In this article, the author Ernesto Spruyt stated that it is not easy to provide a clear description of the sustainable consumer. "The reality is that different kinds of people buy sustainable products and services to varying degrees. What it more important is that they do this for a wide variety of reasons. The fair trade consumer has a different pattern of values than an organic consumer," according to Spruyt.
This elusive consumer provides the necessary challenges for marketing people trying to position their sustainable brands. On the other hand, Spruyt claims that this also offers advantages since nearly every consumer is open to a sustainable product or service, as long as it corresponds to the target group's pattern of values.

Price as a dominant factor

This chapter addresses the problems involved in marketing sustainable food. In practice, this appears to be difficult to develop. Yes, there are submarkets such as Fair Trade chocolate or certified coffee (including Utz) which have experienced a boom. In other product segments, sustainability is still in its infancy.

According to various studies, the average consumer is more focused on price than on sustainability. If one also takes into consideration that consumers tend to associate sustainability with higher prices, then sustainability is more likely to constitute a barrier than offer market opportunities. In addition, many consumers feel that sustainability is an all-too vague concept. The study Dossier Duurzaam (The Sustainability Files) showed that consumers have various interpretations of the concept.
Some consumers consider the Aldi supermarkets sustainable because of the simple, no-frills décor in the chain's stores. Other consumers take the level of compensation paid to top executives into consideration in their evaluation.

The rise of ethical claims



The number of introductions with an ethical claim is growing like wildfire worldwide.

Source: Innova Market Insights, 2011

Global - Top 10 Market Categories	2010 % Product Launches	Europe - Top 10 Market Categories	2010 % Product Launches
Chocolate	9,6%	Chocolate	10%
Fish & Seafood	5,9%	Fish & Seafood	6,6%
Tea	5,6%	Tea	5,4%
Sweet Biscuits/Cookies	4,8%	Coffee	4,6%
Juice & Juice Drinks	4,6%	Sweet Biscuits/Cookies	3,9%
Vegetables	3,9%	Cakes - Pastries & Sweet Goods	3,6%
Coffee	3,8%	Meat Products	3,3%
Breakfast Cereals	2,6%	Juice & Juice Drinks	3,2%
Cakes - Pastries & Sweet Goods	2,5%	Vegetables	2,8%
Meat Products	2,3%	Main Dishes	2,8%

Chocolate, fish & seafood and tea are in Europe (and worldwide) the categories where most products with ethical claims are launched.

Source: Innova Market Insights, 2011

Scepticism

One consequence of the lack of a clear interpretation is that consumers have started to become indifferent. These days, every company claims that it is sustainable in one way or another. This development only magnifies the scepticism among consumers, particularly when it appears that companies present themselves as being 'greener' than they actually are. The fact is that sustainability is here to stay. The aforementioned study showed that in spite of this scepticism, approximately three-quarters of the Dutch consumers find it 'extremely important' for companies to be sustainable.

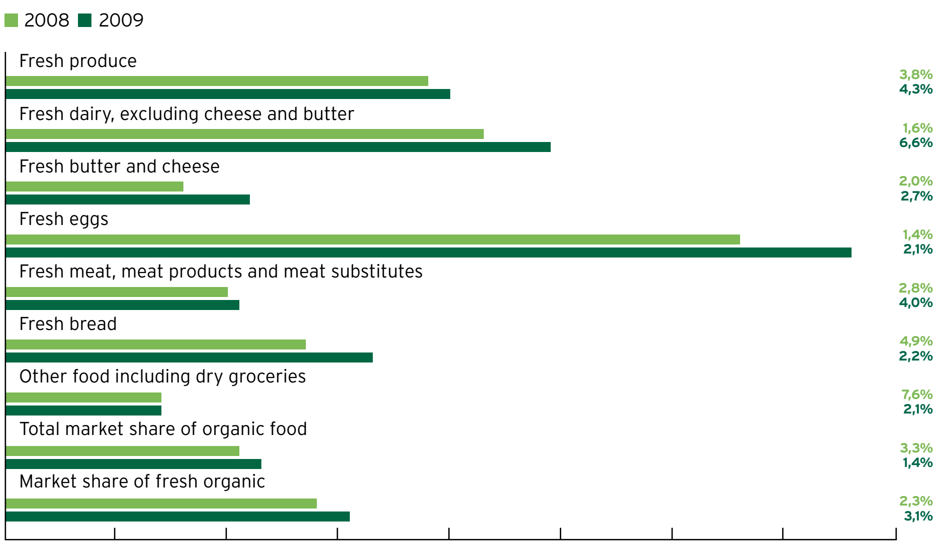
In Europe (and worldwide), chocolate, fish and shellfish and tea are the categories in which the highest number of products with ethical claims are launched. Source: Innova Market Insights, 2011

5.2 Market figures

Published in May 2011, the Monitor Duurzaam Voedsel (Sustainable Food Monitor) showed that sustainable food (food with a certified quality mark) is on its way up. In 2010, sales of these products increased by over Ð 300 million to reach a total of Ð 1.337 billion. This means that this segment is growing by nearly 30% in a saturated market. Incidentally, the total food sales (supermarket,

Fresh enjoys strong representation

At the product category level, organic is strongly represented in fresh produce, as shown in the Bio-Monitor 2009 annual report. Produce, fresh dairy and eggs, meat/meat products/meat substitutes and bread account for nearly 70% of the organic market in terms of value. This share has only increased in recent years. Apparently, consumers are more sensitive to organic products in the fresh food section than in those in the dried groceries category, perhaps because the latter category usually involves processed foods. With regard to the distribution channels, the growth is increasing in each channel. After contract caterers, the supermarket channel shows the highest growth rate, relatively speaking. The rise of the supermarket channel for organic sales can be attributed in part to the efforts of certain formulas, chains such as Dekamarkt, Plus and Albert Heijn which have included organic products at an increasing rate in their fresh and dried grocery ranges. AH (Albert Heijn) even had a separate private-label organic line until the chain integrated this range into its puur & eerlijk line. Bio+ is also an important factor in the growth of organic products. An umbrella brand for organic food, this initiative was set up to bring together organic food producers and retailers.



Market share of organic food by product group
Source: LEI Wageningen UR based on IRI Infoscan and GfK consumer panel

Expenditure on food in the sales channels measured (x million Euros)	2009	2010	Development
Expenditure on sustainable food in the sales channels measured	1.033,6	1.337,0	29,4%
The total expenditure on food in the above sales channels	37.620,8	37.716,8	0,3%

Source: LEI, a division of Wageningen UR, 2011

speciality channels and food service companies) remained nearly unchanged as compared to 2009.

Within the sustainable products market, organic products account for nearly half (Ð 674.2 million) of total sales. This share of sales is, in fact, still on the rise (+14%), even though the growth in terms of percentage is lower than that of other segments. And this is logical, since organic is a relatively large and mature market (within sustainable food) which levels off the growth somewhat.

Fairtrade/Max Havelaar has yet to experience similar problems. Although the Fairtrade quality mark has been on the market for some time now, sales of products with this mark (plus Max Havelaar) have risen by 155.1%.

Another striking climber is Utz Certified, whose sales rose over 50%. According to an Utz spokes-person, this growth may be attributed to several factors: an increase in the number of partner companies using the quality mark, and an expansion

Expenditure distributed by product group (x million Euros)	2009	2010	Development	Quality marks measured
Vegetables, fruits and potatoes	225,9	240,3	6,4%	organic, FAIRTRADE/Max Havelaar, Rainforest Alliance
Bread & confectionery, and breakfast cereals	62,5	67,0	7,2%	organic, FAIRTRADE/ Max Havelaar
Dairy	114,6	161,5	40,9%	Certified (chocolate milk in non-perishables dairy)
Eggs	36,7	48,2	31,3%	organic, Beter Leven, free-run eggs and free-range eggs plus (in 2010)
Meat	86,9	123,4	42,0%	organic, Beter Leven, Milieukeur, Label Rouge, free-range chicken
Meat products	20,0	27,1	35,5%	organic, Beter Leven, Milieukeur
Meat substitutes	11,6	12,4	6,9%	organic
Coffee, tea, cacao	211,3	335,9	59,0%	organic, UtZ Certified, FAIRTRADE/Max Havelaar, Rainforest Alliance
Fish	83,5	108,9	30,4%	organic, MSC
Other food (including groceries)	180,5	212,3	17,6%	organic, FAIRTRADE/Max Havelaar
Total	**1.033,6**	**1.337,0**	**29,4%**	

Source: LEI, a division of Wageningen UR, 2011

of the use of the quality mark to other product groups such as tea and cacao. Coffee, tea and cacao make up the largest submarket. It is also interesting to note that this market has also realised the highest growth rate in percentage terms.
This growth has been driven primarily by Utz Certified and Fairtrade/Max Havelaar. Meat, dairy, eggs and fish have also experienced above-average growth. The product segments for which the growth percentage falls below average are produce, bread/confectionery/breakfast cereals and meat substitutes.

The price of 'sustainable'
Consumers are willing to pay more for sustainable products. The price must not be more than 6% higher than standard products, however. This information was shown in a recent study conducted at Groningen University. According to researchers, the price difference actually appears to be higher in practice, namely between 10 and 40%.
In addition, when purchasing basic products such as yoghurt or rice, consumers appear to make rational considerations. In the case of an 'indulgent' product such as chocolate, this consideration is more often an emotional one. Guilt in particular plays an important role in this regard. People who feel guilty about buying a chocolate bar will often justify this purchase by choosing a Fairtrade bar instead.

Sustainable fish is booming
The sales of sustainable fish and fish products, shellfish and crustaceans is also growing, in spite of external pressure (read: crisis), according to the 2010 Monitor Duurzaam Voedsel (Sustainable Food Monitor). The sales of MSC (Marine Steward Council)-certified products increased nearly 31% in 2010 to reach a total of Đ 110.7 million. According to Nicolas Guichoux, Regional Director for Europe at the Marine Stewardship Council, this growth is also

occurring in other European markets. "The choice to buy MSC-labelled products reflects shoppers' desire to reward fisheries that promote sustainable fishing. Even in the most difficult year economy-wise, consumers stand by their standards and values and do not avoid try to avoid ethical considerations."

5.3 The sceptical consumer

The market information above create the impression that the market for sustainable food - be it fresh or processed - is engaged in a relentless march forwards. Nevertheless, consumers' attitudes towards these products and the claims associated with them are very sceptical. The 2010 edition of The Sustainability Files (Dossier Duurzaam) shows that one-third of the respondents are mistrustful of products which the producers claim are "socially responsible" or "sustainable". According to PR agency Edelman, only one-third of all Dutch people are receptive to communication about sustainable products or services provided by companies. In this area, the Netherlands scored the lowest in the international study, out of a total of 13 countries.

Edelman says that Dutch consumers have a "highly developed bullshit radar", with still some tolerance of corporate communications. If the communications focus more on products, Dutch consumers often feel this is too commercial. They are also relatively insensitive to marketing tactics which make claims that part of the sales will be donated to good causes. In general, consumers are not willing to make radical adjustments to their consumer behaviour. The 'consume less' concept, which dictates that we must eat less, travel less, purchase fewer products, is not very well-received by many people. Of course consumers want consumer goods or services to be more sustainable, but view this as being more the task of government or the business community.

Clear communication
The mistrust referred to earlier is primarily a result of the fact that consumers are not often up to speed on the great lengths companies must go to in order to make their products or services sustainable. Admittedly, the 'reverse side' is extremely complex; take an LCA analysis for example. The average consumer would drop out at the mere mention of it. Consumers' interpretation of sustainability also often differ from what the companies are trying to communicate.
The Sustainability Files (Dossier Duurzaam) study has shown, among other things, that consumers associate sustainability with the concept of treating customers well. They also view doing business in an ethical manner in relation to the wages (and bonuses) paid to top executives. The likelihood is high that consumers will be receiving conflicting messages as a result. A company that tries to limit CO_2 emissions yet also rewards its management handsomely can find itself facing serious problems.

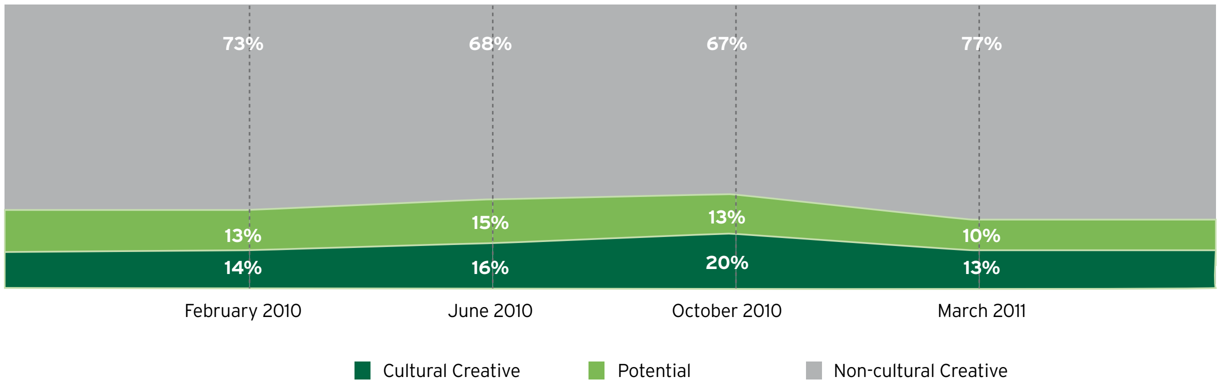
Industrial organics
The same also applies to sustainability concepts in which the production, cultivation or culture does not match consumers' expectations. In the U.S. for example, some organic meat producers are regularly under fire from NGOs because although they do use organic feed, the living conditions of the livestock are 'standard'.
Marion Nestle, a professor affiliated with New York University (NYU) and author of Food Politics and other publications calls these products 'industrial organics'. "These are organic food products which are produced on an extremely large scale," according to Nestle. She continues: "I recently visited an organic egg producer where hundreds of thousands of chickens were walking around. Granted, they were fed organic feed and satisfied other organic criteria, but this wasn't a true organic farm. Certification is not just a matter of following rules, it also involves spirit."

What do consumers want?
In their communications about the sustainability of processes and/or products manufacturers should be fully aware of what consumers actually expect. Consumer research conducted by firms MarketResponse and Schuttelaar & Partners has shown that consumers associate sustainability with the environment and measures taken in this regard. Three environment-related aspects are at the top of their 'wish list'.

The wish list of the consumer*:
1. Reduce packaging
2. Reduce waste
3. Make transport sustainable
4. Products that promote health
5. Placing quality marks on products

* N = 479 respondents (120 of which are "Cultural Creatives").
Source: MarketResponse/Schuttelaar & Partners (2010).

Cultural creatives
As the table shows, this group's membership fluctuates quite a bit. These days, there is a significant undercurrent present in society. As was already mentioned in the introductory section for this chapter, there is no such thing as a sustainable consumer. This pronouncement by Spruyt is only partially true. In their segmentation of consumers, various market research firms use the term 'cultural creatives'. This group was identified for the first time by the American researchers, Paul Ray and Sherry Ruth Anderson. In their book The Cultural Creatives: How 50 million people are changing the world, both authors concluded that nearly one-fourth of the population of the U.S. belongs to this group. In Europe, there are apparently 80 to 90 million 'CCs'.



The development of the cultural creatives in the Netherlands. Source: Marketresponse website

According to the research firm MarketResponse, approximately 15% of the residents in the Netherlands (1.6 to 1.7 million) are cultural creatives. This group shares several standards and values that relate to man, the environment and society. For example, cultural creatives are focused on themes such as equal pay and humane treatment, global ecological problems (greenhouse effect, etc.), consideration for disadvantaged members of society, etc.

According to MarketResponse, apart from the group of 1.6 million (in the Netherlands), there is another similar contingent of potential CCs. This makes this group of trendsetters in creating a sustainable society an interesting target group in general, and for food in particular.

5.4 Logos, one logo or no logo?

In the debate on the popularisation of sustainable food, the central question is whether or not logos can play a deciding role here. Several years ago, former Minister of Agriculture, Nature and Food Quality (LNV) Gerda Verburg proposed the introduction of a uniform sustainability logo. According to Verburg, this logo could put an end to the confusion among consumers about what all the different logos stand for. At the time, Verburg indicated that it would become 'extremely difficult' because a sustainability flag covers different values.

Cultural Creatives not unapproachable

Standard marketing communication does not go down well with cultural creatives. These people actively seek out relevant information. They are less likely to turn on their televisions to get this information, preferring instead to go online (social media) and read books or articles to stay informed. They are also primarily interested in the contents (what's inside) and not the 'shiny cover'. So how should you approach cultural creatives?

1. Be authentic: do not treat sustainability as a temporary marketing trick
2. Tell the sustainable stories behind the brand, product, organisation and the ideals involved
3. Use several channels for sustainable communication, in other words, not only advertising but (also) PR, events, social media, packaging, shop-floor communication, etc. are important
4. Make sure that your company and sustainable activities can be found in the media, on the Internet, and on social media sites
5. Develop a dialogue with Cultural Creatives about the subjects that interest them

Source: Dipped in Green, communications firm specialised in sustainability

Puur & Eerlijk

With its Puur & Eerlijk ('pure and fair') brand, Albert Heijn has since disproved this claim, even though this involves a private label range and not a logo. There are currently still dozens of logos out there representing various sustainability values and product ranges, too many to mention all of them here. Several examples include Rainforest Alliance, Utz, Beter Leven, and Marine Stewardship Council.

The question remains whether or not these quality marks and their corresponding logos make it easier for consumers to choose a product; after all, this is one of the purposes of a logo. A British survey conducted by the consumer organisation Which? showed that seven out of ten respondents (N=1000) would choose a sustainable product more often if it was clear which sustainability values the logo represented. The research also studied how familiar consumers were with nine different quality marks. Fair trade scored highest, and LEAF (Linking Environment and Farming) the lowest, with a spontaneous recognition score of 3%.

Sustainable brands

Using a logo is one way of promoting the acceptance of sustainable products. Another route is the use of sustainability brands. Albert Heijn took the lead in this area with its Puur & Eerlijk range. The retailer integrated the following aspects within this range: 'fair organic', Fair Trade, sustainable fishing, free-range meat and ecological. Other retailers and wholesalers have since also launched a sustainability range. Sligro, a Dutch wholesaler of products for the hospitality industry, introduced its Eerlijk & Heerlijk brand in 2010. Although the Dutch supermarket formula Plus does not have a separate range, it does have the largest selection of organic products in the supermarket sector.

Several top name-brand manufacturers have also started initiatives that point to efforts to make their brands more sustainable, such as FrieslandCampina, that encourages pasturing among its supplier farms, or Unilever, that appeals to inner beauty in its Dove line of products (non-food), instead of external appearance.
The question is which path manufacturers should take. According to an article in the Harvard Business Review, brand manufacturers must educate their customers, much as is now done in emerging economies with campaigns on the use of soap (hygiene).

Dissatisfiers versus satisfiers

"It's not about fantasies or unfulfilled desires, but how manufacturers and their products aim to make the world more sustainable. Brands can choose to follow social change, or fulfil a leadership role in this regard." There are also signs that the positioning of brands, and the communication about this, is primarily geared toward removing 'dissatisfiers', or factors that are designed to alleviate guilt. Quality marks or logos that are intended to guarantee the absence of GMOs fit within this model.

Diametrically opposed to this is the marketing of 'satisfiers'. With this approach, manufacturers must capitalise on values such as pleasure and local and traditional production. Ultimately, this positioning will depend heavily on the recipient of the message. A cultural creative will quickly see through an 'empty' marketing story.

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