



# The World In Transition: Cleaner Consumption (Part 1)

All ecosystems are connected to food. Given what we know of climate change, the food industry needs to transform and revolutionise the way food is produced. Only then can we create an environment-friendly supply chain that takes no more than what planet Earth can give. Contributed by protein technology expert Henk Hoogenkamp.





When forests are cleared to make way for agriculture, it harms the environment. Forests act as natural carbon sinks, meaning they absorb and store carbon dioxide from the atmosphere through the process of photosynthesis. Trees take in CO<sub>2</sub> and convert it into oxygen while storing carbon in their biomass and soil. By preserving forests, we maintain this vital process that helps regulate atmospheric CO<sub>2</sub> levels. Burning or clearing forests leads to stored carbon being released back into the atmosphere as CO<sub>2</sub>. Deforestation and land-use changes contribute significantly to greenhouse gas emissions, leading to an increase in atmospheric CO<sub>2</sub> concentrations and contributing to global warming. Promoting sustainability for posterity is crucial, as it ensures our future generations have access to clean air, water, and natural resources.

Around 33% of all the CO<sub>2</sub> released is absorbed by forests. When forests are cleared for agriculture, one of the world's most effective carbon sinks will be lost. However, in spite of the good intentions of the major agritech companies, their net zero pledge has little or no contribution to meeting the COP24 climate objectives by 2025.

The Food and Agriculture Organization of the United Nations (FAO) reports that 90% of global deforestation is caused by agricultural expansion. So far, most agricompanies that have committed to net-zero carbon emissions are at risk of missing their climate targets. The primary drivers of deforestation are beef, soy, and palm oil, with coffee, rubber, cacao, and sugar is not far behind.

Younger and more affluent consumers prefer brands that support sustainable agricultural practices. In addition, there is a demand for foods that are minimally processed and taste good. These preferences translate to a focus on sustainability, health and taste.

However, no matter the transformative pathway chosen it is important to remember that sensory appeal remains the most crucial factor that influences the consumers. In affluent societies, one in three consumers will not consider buying 100% plant-based foods because of poor taste and texture. The reasons are clear: Besides the lack of flavour and colour of most plant ingredients, the proteins neither perform in the same way nor provide the same favourable taste and texture.

## Democratisation

The plant-forward movement has clearly captured mainstream and continues expanding in new territories and applications in multiple product offerings. Driven by a combination of more health, environmental, and ethical awareness, consumer demand for plant protein formulated foods continues to grow, albeit not as fast as projected. The looks of plant-based meat, bakery, snacks, and dairy-like products are set to become an enduring part of the food landscape. In most developed countries, the market for plant-based proteins as well as alternative meat and milk continues to grow. For both milk- and meat alternatives, it is important to place these in the same supermarket aisles as the traditional products. This branding and positioning strategy significantly increases the likelihood that consumers are tempted to choose these foods.



Coffee cultivation can be associated with deforestation in some regions, particularly in parts of Central and South America, Africa, and Southeast Asia. Like coffee, cacao cultivation can contribute to deforestation too. Forests may be cleared to establish cacao plantations, particularly in areas with high demand for cocoa production.





Rice field in Lao Cai, Vietnam. Weather conditions such as dry spells or heavy rainfall can cause a string of poor production years, as well as provide above-average high-volume harvest numbers.

### Many Angles to Consider

Even though industrial livestock continues to generate increase in the environmental footprint, alternative meat and dairy will not be the complete answer. Instead of just focusing on a protein transition, there must be a democracy to hear what small-scale farmers and food-insecure populations have to say. Reason being that the multinational companies — including their acquisition activities of successful startups — tend to reinforce the reliance of plant protein and over-processed food choices that dominate and polarize public debate about traditional consumption of meat and dairy. The key element in making a global sustainable food transition will be support for farmers in developing regions to move away from industrialised animal-harvest farming toward sustainable and ecologically sound livestock farming and plant-based alternatives.

### Harvest Variables, Globalisation & Climate Change

Globalisation is partly responsible for the increase in the volume of grain and pulse crops traded. There is often a correlation between export demand and countries reducing their stockpiles to the point of possibly reducing food security. Weather conditions

such as dry spells or heavy rainfall can cause a string of poor production years, as well as provide above-average high-volume harvest numbers.

Although plant protein can play a key role in reducing the ecological and environmental footprints of global food production, there is still a risk that the over-reliance on a few crops can lead to further reduction of biodiversity. Therefore, care should be taken so that the drive for more plant protein consumption does not cause harm or issues like deforestation and loss of wildlife and biodiversity.

The global ecosystems need a reimagining of food systems to operate within nature's boundaries. Conventional agriculture is strained to a point that it is unsustainable, especially that the world might possibly run out of farmable land to feed the fast-rising population by 2050. To be compliant, food companies need to develop a vision of an economic system that prioritizes the biodiversity of nature's assets. Preferably, these objectives need to be accomplished in such a manner that capital, health, and affordability are harmonized on a platform of corporate sustainable environmentalism.



Due to agricultural expansion, deforestation and forest degradation continue to take place at alarming rates. Hence, it is imperative that new agricultural production methods are implemented without destroying valuable forest and wildlife areas.

The overall amount of protein available for human consumption may decline with rising atmospheric carbon dioxide (CO<sub>2</sub>) levels. Elevated levels of carbon dioxide can block plants' absorption (=assimilation) of nitrates, resulting to foods and crops with reduced nutritional quality. Studies have indicated that protein and nitrogen concentrations in plants decline under elevated levels of carbon dioxide –indicating that the nutritional quality of food crops is at risk as climate change intensifies.

### Clean Disruption?

There is real change when a levy or tax will be enforced on foods such as beef and dairy or shutting down active farms to forcefully achieve deep cuts in emissions by adopting circular economy strategies that reduce demand or limit export. Much to the chagrin of farmers, these government strategies are already being implemented in the Netherlands and even creating social unrest, as well as major political parliament voting upsets.

To be fair, it should be noted that the shift to higher levels of ultra-processed foods in the last decennia also significantly contributed to greenhouse gas emissions as well as destruction of wildlife habitat and monoculture, causing a debilitating ecological footprint. These ultra-processed foods are, for example, heavy additive-loaded ready-to-eat meals, margarine, and sodas.

When all these variables are implemented, only time will tell if the doom-say assumptions of the climate experts are correct in their assumptions that increased plant-based 'cleaner food' consumption will indeed meet the target of limiting global warming to 1.5C.

### Zero Deforestation Global Economy

It is estimated that the demand for crops like soybean is expected to increase by 80% in 2050. Most of the soybean is widely used as animal feed. For instance, some 60% of soy grown across the world is shipped to China and mainly used for animal feed that ultimately ends up as slaughtered meat.

Soy agriculture requires large amounts of water and is increasingly associated with driving deforestation leading to catastrophic environmental damage, including eradication of wildlife habitat. With demand for soy protein and soy oil increasing as well as land and water issues of the crop becoming unsustainable, the global population needs finding alternative protein sources. These alternatives are now being developed using sources like micro algae and cellular agriculture, including molecular farming.

Due to agricultural expansion, deforestation and forest degradation continue to take place at alarming rates. Hence, it is imperative that new agricultural production methods are implemented without destroying valuable forest and wildlife areas. Ideally, whenever possible, reforestation should be made within the framework of the transformative solutions for climate change, biodiversity, and the much-needed food security.

Legacy and startup companies should both accomplish their mission to end deforestation within the forest reserve and restore degraded forest and wildlife. Companies like these and the premier global plant protein companies should work together to accomplish these lofty goals by promoting regenerative agriculture and strive to become resource-positive companies by sourcing only sustainable crops like soybeans to accelerate the transition to a net-zero global economy.

Furthermore, it is expected that effective diligence across supply chains will ultimately be introduced and that all food sold will be mandated as guaranteed deforestation-free. Supermarkets that are in the first line of consumer-defense will likely drive these transitional changes needed to ensure that food systems deliver affordable, healthy, and ecologically sustainable foods.

In the next issue, we will explore new solutions for challenging times and more. **APP**



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