

Van Gennep Publishing

With
an essay by
Charles Mann,
author of
*The Wizard and
the Prophet*

Growing Resilience

Feeding the city
in challenging times



Feeding the city 3

Edited by Janno Lanjouw and Erica Moore

Growing resilience

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Feeding the city in challenging times

The 2020-2021 Flevo Campus yearbook

Van Gennep Publishing, Amsterdam

Inhoud

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First edition April 2021

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Essay selection and coordination by Janno Lanjouw

Translations commissioned and edited by Erica Moore

Cover design by Baukje Stamm of Wunderwald

Text design by Machteld Hardick

Made possible in part by Flevo Campus

ISBN: 9789462645371

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Foreword

We are pleased to present this year's Flevo Campus Yearbook – the third in the series. Like its predecessors, *Feeding the City 3* brings together a collection of essays about how to feed the world – and especially cities, given that since the beginning of this century the majority of the world's population are city-dwellers. And like its predecessors, topical issues play an important role.

But 2020 was a year like no other. The COVID-19 pandemic, which has held the world in its grip for over a year, will have far-reaching consequences for most of the world's people. It has made us face an uncomfortable truth. For all our technology and know-how, our laws and social structures, our good intentions, and our willingness to make sacrifices, life can be precarious.

Our food system is also precarious – a fragile equilibrium. Luckily food supplies were never seriously under threat during the pandemic. With a few exceptions, the producers and transporters that supply our food were able to proceed without any major problems. That's not to say the process always ran smoothly. A huge surplus of potatoes piled up, because demand imploded when restaurants and fry shops were forced to shut their doors. Infection swept through the US meatpacking industry, whereby workers fell ill and supplies dwindled. We sometimes found the grocery store shelves close

to bare, but were told there was plenty of food if we'd just resist the urge to stockpile. And those are just a few examples of how sensitive the system can be to unexpected shocks.

Solidarity was also much in evidence. All over the Netherlands (and further afield), local food-sourcing initiatives sprung up. *Support Your Locals* launched in Amsterdam and soon spread to cities across the country, as consumers thronged to buy food straight from local farmers and other producers in the vicinity. Researchers Anke Brons and Sigrid Wertheim ask in this collection how this development fits in with our ambitions to grow a resilient and sustainable food system.

Sustainable or not, these sorts of short food supply chains, where you buy directly or almost directly from the producer, experienced something of a revival during the first lockdown. This seems to back up the inspiring case made by campaigner Sebastiaan Aalst in his contribution to this essay collection. Aalst points out that in the debate about food, "the consumer" is often portrayed as an unscrupulous bargain-hunter who only has eyes for the price. In fact, he shows, we're a pretty sound bunch. Once you look beyond the dogmas of the advertising industry, you find solid citizens with a social conscience.

Aalst was one of winners of the essay competition organized by the Flevo Campus early in 2020: He won in the opinion category. The winner of the research category was Marian Stuiver, leader of Wageningen University & Research's Green Cities project, whose essay examines moral aspects of the food system. The student category was won by Kelly Streekstra, for an essay based on her master's thesis about the future of meat consumption worldwide. These are all topics that will command more attention in the years to come.

Like it or not, meeting our daily food requirements has a huge impact on our lives and on the planet that sustains us. This enormous operation repeats itself day in day out, and it is vital that we organize the whole process as effectively as we can. In a sense that can be seen as the *raison d'être* of the province of Flevoland, its land reclaimed from the sea expressly to create some of the most productive croplands in the world. It is certainly a spectacular achievement, but we can't afford to rest on our laurels. The system requires continual upkeep and calls on us to apply new insights.

Or perhaps we'd do better to apply very old insights. Before you dive into this book, I'd like to draw your attention to the essay by Charles Mann, renowned science journalist and author of *The Wizard and the Prophet*. He wrote for Flevo Campus about the role indigenous agricultural methods might play in feeding modern cities. Mann tackles the topic without lapsing into sentimentalized longing for the small-scale agriculture and food production "of old." Instead, as he shows in his essay, there are simply many more ways to produce food than we tend to believe possible.

Investigating such possibilities is precisely what Flevo Campus is all about.

Jan-Nico Appelman
member of the Flevoland Provincial Executive

Too good to be true? How Brexit could give Britain the most progressive food policy in Europe

By Herman Lelieveldt, translated from the Dutch
by Laura Martz

Take back control. That was the slogan the Brexiteers used in their successful campaign to get their fellow Britons to vote to leave the European Union. Food, and fishing in particular, featured prominently in that campaign. For more than 40 years, British fishers had looked on with gritted teeth as crews from other EU member states filled their trawlers with “British” fish. With Brexit, things will change. The UK will be back in charge of its own fishing grounds. Or at least that’s what Britain’s 12,000 fishers thought when the UK voted on June 23, 2016, to leave the union.

Anyone with a sense of the challenges facing the food system will be salivating like those British fishers at the prospect of being released from the ponderous decisionmaking machine that is the EU. Just imagine. Exiting the union will mean relief from costly agricultural subsidies that are so set in stone that they mainly reward land ownership and hardly look at how that land can be sustainably farmed. It means the country can make its own decisions on whether to allow pesticides and how to weigh up the dangers of, say, neonicotinoids against the profits their use brings to farmers. It means the freedom to make choices around the perennially tricky subject of genetic engineering: will we make using new CRISPR-Cas technology

easier or subject it to requirements as strict as those around conventional breeding?

A wealth of political opportunities and choices opens up on the consumer side too. For example, Britain can now set its own recommended limits on sugar, salt, and fat content. It will be back in charge of food labeling and can choose to introduce simple *traffic light* categories (red, yellow, green) if that will get people to make healthier choices. The UK can apply anti-trust law less dogmatically, giving businesses more latitude to make agreements, if that means food will be produced in more sustainable and animal-friendly ways. What's the British take on all this? Contrary to what you might expect after the chaos around Brexit, the UK is rolling out a National Food Strategy, which sets out an unprecedented ambition to make the country a leader on sustainability.

To assess the UK's food policy in the run-up to Brexit, it's useful to look at how it relates to food policy being written in the EU. To compare the two, we must recognize that European food policy is forged in the national capitals as well as in Brussels. In this essay I will therefore briefly compare the Dutch, European, and British plans. In the case of the Netherlands, that means Agriculture Minister Carola Schouten's plan for circular agriculture; in the EU, the new Farm to Fork Strategy, launched last spring amid the COVID-19 pandemic. I will contrast food policy made within the hyperconsensual, layered context of the EU labyrinth and the Dutch "polder model" on the one hand with the potentially more decisive solo path the British have opted for on the other. Instead of the consensus-based politics whereby Dutch policymakers shuffle forward inch by inch, Britain operates under a largely two-party system, with an instant changing of the guard after

every parliamentary election. Since 2019 the Conservatives have had an old-fashioned comfortable majority in the House of Commons, enabling Boris Johnson to push through his new food policy with little resistance and few changes. (It bears mentioning that the UK government doesn't have full control over food policy in Britain – some powers are devolved to Wales, Scotland, and Northern Ireland – but we will leave that complication aside for now.)

With the EU withdrawal date now behind us, will the UK actually succeed in regaining control over its food policy? Will Brexit advance a more sustainable food system, or will Britain acting on its own become a pawn of the big trade blocs, submitting to the diktat of the US or Asia after 40 years of subjugation to the EU? Brexit is a test case for the question of whether a nation today can truly take charge of its own policy.

Valuable and connected: the Dutch ambitions

Two years ago, Carola Schouten, the Dutch Minister of Agriculture, Nature and Food Quality, surprised friend and foe alike with the policy note "*Agriculture, nature and food: valuable and connected*," in which she made circular agriculture the cornerstone of her policy. It was a bold statement, precisely because Schouten didn't get bogged down in specific measures right away but limited herself to setting out nine principles designed to serve as a touchstone for new policy. Closing cyclical processes is of course paramount: the global back-and-forth movement of food and feed has to end. Yet Schouten deliberately leaves unanswered the question of precisely how local those cycles need to be. She also introduces other guidelines for agricultural policy without getting into detail: for instance, it should allow farmers to earn a living,

and it should pay sufficient attention to animal welfare.

At the end of the document, Schouten notes, “The government relies on society’s capacity to make the transition to circular agriculture.” It was an ominous sign. Here, as in so many other tricky areas (the climate, energy, healthy living), rather than taking the lead, the cabinet opted to “invit[e] everyone in the business community, civil society organizations and other governments to get involved, to contribute ideas and to take initiatives.”

The ministry’s subsequent *Plan of Action* thus also proved disappointing. The follow-up note is a lifeless official document that expertly rebrands existing policy as furthering the transition to circular agriculture while passing the buck to the sector and the regions for the umpteenth time. It frames circular agriculture as a techno-optimism-driven improvement in efficiency that squares the proverbial circle by letting Dutch farmers work in a greener, more animal-friendly, and profitable way while remaining competitive on the international market.

Two weeks before the Plan of Action came out, it became clear that the idea was a nonstarter. That’s when the Council of State called a halt to existing Dutch nitrogen policy and thereby to many construction projects. A commission led by former Interior Minister Johan Remkes concluded that it was time to face facts and advised the cabinet to take drastic measures. In the agricultural arena, none were forthcoming. Partly in response to fierce protests by farmers, the ruling coalition didn’t dare order major reductions in livestock numbers. It merely lowered the speed limit and bought out pig farmers on a voluntary basis (using funds already earmarked for that purpose) and instituted new feed practices as a quick

fix for the nitrogen problem.

But the farmers successfully fought that measure too, since it turned out using different feed didn’t help much. And so Schouten’s plans went nowhere. They ran up against public opposition and never really got beyond the confines of the ministry.

From Farm to Fork: the EU’s ambitions

Anyone hoping to see a radically different step in the direction of new policy is better off looking to Brussels. For over a year now, we’ve had a European Commission that’s made climate its top policy priority, under the banner of a European Green Deal. The commission launched the Farm to Fork Strategy as one of the deal’s first, explicitly framing food as a sustainability issue. Moreover, the EU is taking a comprehensive approach: the Green Deal brings together food production and consumption for the first time, thereby making the switch from agriculture policy to food policy and considering all the suppliers in the chain.

The EU wants farmers to farm more sustainably, food producers to reduce waste, and consumers to make healthier choices. And Europe’s targets are ambitious: by 2030, it wants to see pesticide use halved and the percentage of agricultural land under organic farming raised to 25%. It wants consumers to eat fewer animal products and more plant-based ones and fill their carts with healthier groceries, aided by easy-to-read labels that encourage better choices. And Europe wants to make it easier for businesses to make agreements with competitors, as long as that benefits sustainability.

The European Commission improves on Schouten’s note by charting a clear and ambitious course. Still, it’s too soon

to put out the flags. When the commission issues a strategy, it's only a first step; it's the member states and the European Parliament that determine how much of that strategy will ultimately find its way into law. The commission knows such plans always end up being diluted, so it aims high. Thus, the food policy that will ultimately flow from this strategy will certainly be more comprehensive and sustainable than before but nowhere near as revolutionary as the commission's plans look now. Moreover, it will be years before they take effect in the form of regulations. And last but not least, the strategy is virtually silent on the Common Agricultural Policy, on which the EU spends €50 billion a year – 40% of its budget. Greening food policy will only work if that huge pot of CAP subsidies is greened too.

But that won't happen under the current proposals, some 3,600 scientists warned in an open letter published in March 2020, in the runup to negotiations over the EU's new six-year budget. The EU plans formulate sustainability goals far too vaguely and give member states too much leeway to decide the extent to which they want to base subsidies on sustainability. The most important change that needs to be made, the scientists write, is to stop automatically giving farmers a fixed sum per hectare and make sustainable farming a condition of eligibility.

Looking at the Dutch and European plans together, we see that a more sustainable food system in the Netherlands and in Europe is still a long way off. The Dutch cabinet is in no hurry, and the EU is still busy translating the European Commission's ambitions into specific policy. Time, then, to cross the Channel and see which way the wind is blowing in Britain.

The National Food Strategy: the UK's ambitions

In summer 2019 the UK government asked Henry Dimbleby, founder of the Leon restaurant chain and the Sustainable Restaurant Association, to take a close look at the nation's food system for the first time in 75 years. Dimbleby's assignment was clear: the UK needed a new plan in light of the changing climate, a growing population, and rising levels of disease caused by unhealthy eating. Brexit presented the perfect opportunity to face up to those challenges. How could the UK make the most of it?

Dimbleby and a team of officials from the Department for Environment, Food and Rural Affairs (DEFRA) did a massive amount of work to identify the various problems. They held more than 180 meetings with stakeholders, talked to citizens in focus groups, studied British consumer behavior, and plowed through piles of scientific literature.

The results are impressive. The report is a gripping read full of fantastic infographics. Moreover, Dimbleby's team succeeded in incorporating the COVID-19 pandemic in its analysis. (Those graphics alone, showing how the virus drove up certain product prices, make the report worth a look.) According to Dimbleby, the pandemic only underscores the necessity of finally tackling Britain's obesity epidemic.

He got exactly what he wanted. Before the report was even out, Prime Minister Boris Johnson – who had ended up in intensive care with COVID-19 and acknowledged his excess weight was a factor – announced a laundry list of measures. “I am delighted to be pipped to the post,” Dimbleby writes in his introduction. “And because these policies are liable to cause protests in some quarters, I have kept the supporting arguments for them in Chapter 3.”

And thus Dimbleby achieved what he had been originally asked to do: Figure out how Brexit could be employed to build a better food system. In brief, questions around Brexit revolve around three interlinked issues: how can we produce, consume, and sell food more sustainably? It's the trade issue that makes the discussion around sustainability so complex. If every country could be completely self-sufficient and produce its own food, achieving sustainability would be a piece of cake. The additional costs farmers and other producers would be compelled to pay would be passed on to consumers automatically. People would have no choice but to pay higher prices, because they wouldn't be able to get food any other way.

But we don't live in that kind of world. Take fishing, for example. Fish don't respect political borders. And neither do fishers or fish lovers. Britain exports three-quarters of the fish caught in its waters, particularly mackerel and herring. In exchange, it imports vast quantities of cod and shrimp. Two-thirds of the fish eaten in Britain comes from abroad.

No country in the world is completely self-sufficient, nor should it aim to be. But today's globalized food system represents the opposite extreme. Price alone determines the flow of goods. And those trade flows make it hard for an individual nation to make its own food system more sustainable independently of what happens elsewhere.

And this is Dimbleby's answer to the question of how we can unite free trade and sustainability. "We must still produce things where they cost the least," he writes. "But we need to understand these costs not just in terms of pounds, euros, or dollars, but in terms of carbon emissions, biodiversity losses or the exhaustion of scarce water resources."

A new trade policy necessitates a balancing act between sticking to your own standards and simply acquiescing to those of your trading partner. You can't just close the borders to food that doesn't meet your standards: the World Trade Organization won't let you. But nor can you simply submit to the dictates of the big trading blocs when you've just crawled out from under the EU's yoke.

Dimbleby's solution is to make trade agreements that give preference to products that meet British standards. They will qualify for a lower import tariff than goods that don't. He says this policy works well in Australia and New Zealand, so it should work in the UK. And he's entirely pragmatic about trade with the EU: European standards are so close to British ones that tariff walls won't be necessary. He's hoping European borders will simply remain open to British food.

Dimbleby's strategy is endorsed in DEFRA's plan for the future of agriculture post-Brexit, issued in early 2020. It affords the UK an opportunity to redesign its system of agricultural subsidies, coordinated from Brussels for decades. Under the heading "Public money for public goods," DEFRA clearly spells out how it believes tax money should be spent in the agricultural sphere. If the British government has its way, direct payments made to farmers simply for owning agricultural land will be phased out over six years. The money thus freed up will be used for the new Environmental Land Management scheme, which will promote clean air, clean water, landscape management, and increased biodiversity. So while the EU's Common Agricultural Policy *impedes* efforts to improve sustainability, the UK can use the freed-up funds to *encourage* it.

Will the UK make good on its word? We will see in the

coming years. But it's a promising start. It wouldn't be the first time a Conservative British government surprised us with a progressive food policy. In 2016 David Cameron's government announced a tax on soft drinks, which since its introduction in 2018 has become the gold standard for the rest of the world. In this sense, the EU needn't mourn Britain's departure. Post-Brexit, the UK will function as a testing ground for policy that, if it proves effective, can be adopted in the EU too.

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II

From food to George Floyd. How the concept of *terroir* helped me realize racism is in the very soil

By Stephen Satterfield

The first time I got the idea that I'd uncovered something about how the world works was in 2005. It had started with Willamette Valley pinot noir made by a soft-spoken man with a love of French culture in general, and Burgundian wines in particular. He made wine in a garage and moonlit as a hospitality instructor at a local culinary school in Portland, Oregon, where I was one of his students. In Wine Studies I, drinking wine was called "tasting" and was taught with the care and seriousness of a PhD course.

I can't remember if it was before or after that first trip to Africa that it came to me, but it was somewhere around then. I'd been reading about racism in the South African wine industry, and how its violent colonial origins mirrored the horrors of my own country. Black laborers worked in misery and isolation, born onto plantations and vineyards and predestined for a life of discrimination and disenfranchisement ranging from degrading to deadly. The fact that I was reading about this and not memorizing the names of the Deuxième Cru is revealing of my priorities at the time.

I felt not so much *bothered* by the overwhelming whiteness of the wine industry, as I was disenchanted by it. But I wasn't about to let my disdain for the institution of wine detract from

my deep affinity for the product itself. Besides, it was the world of wine to which I owed my aforementioned epiphany, or the key to enlightenment. Or in the industry: *terroir*.

Though it has been more broadly used to describe various kinds of agricultural spoils, in the context of wine, *terroir* is central. It conveys the essence of the end product through a systematic analysis of the inputs. Terroir summons history, soil, climate, aspect, seasons, and humans to explain how a wine came to be. It is a cumulative story based on provenance, environment, and intervention, which I also believe to be a brilliant way to understand people, with their own stories and struggles and identity. As a journalist without credentials, *terroir* became my method – the equivalent of what they call the 5 Ws: It is nature's *who, what, when, where, and why*. Terroir explains, in infinite detail, how something became what it is. Even after I left the wine industry, this way of looking at the world never left me. I began to think about the *terroir* of all kinds of things, and as a Black man, I was especially fixated on the *terroir* of racial inequality in the United States. It is a perilous foundation of genocide and racism older than the country itself.

Something I say often, but that always bears repeating, is that the foundational relationship between Black and white Americans is one of labor and exploitation. In order to protect and justify the profitable, but immoral practice of slavery, a complicitness was required among white Americans in the dehumanization of so-called African-Americans, brought forcibly, over centuries, and by multitudes of millions. We are now more than 400 years into the experiment of the hyphenated descendants of those captured and tortured. We are a mere four decades into the experiment of legal integration

into society, and the resistance against it is as violent as ever.

When that Minneapolis police officer murdered George Floyd, the outpouring of support from white communities was, for many Black people, a confounding (and agitating) response. Why now? What makes this time different? After all, this was certainly nothing new. One in 1,000 Black men is likely to die at the hands of the police. And the very officer who knelt on George Floyd's neck as he wailed and wept to death had already murdered an indigenous person in 2011 and had 18 other complaints on his record.

Or take the deeply racist “war on drugs” back in the 1980s under the Reagan administration, which saw Black imprisonment rise from 300,000 to 2 million souls. Or the countless studies of today chronicling that Black people are two times as likely to die from COVID-19 as whites. And so too the brutal inverse: Black infants are more than twice as likely to die at birth than their white or Asian counterparts.

A compelling and practical theory to explain what made George Floyd the tipping point is that COVID-19, and the subsequent quarantine, screen time, and compiling loss of life, as well as the absence of “distractions” like sports, all came together perfectly for this generational movement for racial justice. While perhaps true, this also presents a shocking indictment of the complicity and complacency that means it takes a once-in-a-hundred-years set of circumstances for people to consider the value of Black life *and* affirm that yes, it is even okay to say so on both your personal and corporate social media accounts. The global outpouring of support for the Black Lives Matter movement has been heartening, as is the adjacent cathartic dialogue in countries all over the world, including the Netherlands. There where anti-Black racism

may not be elevated to the level of casual conversation, it is a conversation that's now at least closer to the surface, even if that means it's still subsoil.

And subsoil is something I now always pay attention to. As a wine professional, to be able to speak with authority on terroir, at some point your career careens into the realm of amateur geologist. Decoding the soil will tell you a lot about the condition of the grapes, and the very best winemakers will tell you that it's the quality of the fruit, and not anything in particular that they're doing, that is ultimately the leading indicator of quality. In other words, while everyone is busy judging the quality of the wine based on the age of the barrel or the fanciness of the bottle, the experts know that to understand wine, you need to understand what's below the surface. The bottle is what we're marketed; the soil tells the story of what's inside.

Though the recent and sustained protests against police brutality have dramatically shifted public opinion on racial inequality in the United States, most of the country has yet to fully absorb just how much *all* systems in our land, even the ones that seem impossible to taint with racism, are impossibly tainted by racism. Even food. And it's all about the origins.

The food system in the US, like every other system in the country, is a racist one. Understanding this manifestation requires a sober assessment of the ways in which the ruling white society has dehumanized Black citizens at every turn. To call it inequality is to use polite language for things brutal. To name it systemic racism is to obfuscate the impact. *Structural violence* seems a more precise term.

We have known since 1896, when Harvard University's first Black PhD, W.E.B. DuBois, showed the lingering remnants

of slavery and white supremacy were linked to the negative environmental and social conditions for Philadelphia's Black community. Structural violence fuels neighborhood instability, and unstable neighborhoods lead to unstable homes and traumatic outcomes. The Federal Housing Authority appraisal manuals blatantly promoted residential segregation, instructing banks to "prohibit the occupancy of properties except by the race for which they are intended," proving the agency's direct role in the ghettoization of Black neighborhoods up through the mid to late 20th century.

I distinctly recall suburban neighborhoods of the early 1990s, like the one I grew up in, being white, and then, as more Black families like mine moved in, swiftly less so. My vanishing neighbors were part of a phenomenon known as *white flight*, a self-explanatory commentary on their response to families like mine moving in. But it wasn't just the white families that left, so too did the amenities that had followed them to the suburbs to begin with. At first white Americans fled Black people, leaving them isolated and underserved in ghettos across the US. As middle-class and upwardly mobile Black families themselves left these underserved communities, the amenities that once enticed them to the suburbs, namely good schools and grocery stores, vanished nearly as quickly as they'd come. Black people in the United States have been so dehumanized, white citizens literally pack up their lives and leave at the sight of them arriving in the community.

And what do you get after a century of enforced segregation? Compounding wealth for the ruling class and worsening poverty for the rest. Segregation of racial groups has been a crucial means of dehumanization, and explains why intermixing in schools, marriages, sports, neighborhoods, and

politics was so violently opposed in the US, with considerable bloodshed. Dehumanization has emptied the crevices of the hearts and minds of white Americans where righteous indignation and outrage are supposed to live. The weight of this truth has been immobilizing for most white Americans, and they likely retreat to a well-practiced presentation on personal responsibility to deflect deeply repressed and unresolved feelings of guilt. It's far easier to blame the victim than to be vulnerable and accountable. There's no outrage left for the violent system, only for those abused by it. This dehumanizing and this misdirected blame is how we numb ourselves to the atrocities that surround us everyday.

In the United States, the quality of your schools and health care, like most other quality-of-life indicators (food access is another), depends on where you live. If you have to get in the car for groceries, that almost certainly implies the same is true for healthcare. And when schools are funded based on the revenues from property taxes, it means that when you are poor then so too is your education. It means college is then likely out of reach, and a reasonably well-earning or otherwise distinguished career nearly out of the question.

That was the case in 1927 when my grandfather, a brilliant man who built refrigerators and pot stills and houses with his bare hands, was admitted to Illinois State. When he arrived they realized the young man who had tested so well was in fact Black, and the decision to admit him was reversed. He had to move to Gary, Indiana, like a generation of hundreds of thousands of Black folks with meager opportunities escaping the racial violence of the South and pursuing whatever work was available to them. For my grandpa, all that was available was the life of a mill worker, a fate passed down to my father

until he broke away from the industrial decline and inevitable employment collapse in steel manufacturing. My father headed for Atlanta, where I was born.

Instead of a generational asset – the proverbial family farm – my siblings and I have been the beneficiaries of the trauma of unfulfilled dreams and unmet potential. But Black folks are every bit as resilient as we are oppressed, and some of our most important justice and liberation work has been tied to the land. My father learned to love food from his mother, a woman who picked dandelions to make wine, grew her own vegetables, and raised her own chickens. My father, who taught me how to love food, made the introduction through processed links of sausages and out-of-the-box pancake mix with racist iconography. It wasn't that he didn't know how to cook, it was that in a matter of decades, Black families lost our relationship to the land because we lost our homes, our farms, and our time, which belonged increasingly to jobs that held our tenuous labor hostage with the promise of pensions and healthcare that may or may not have been delivered upon.

Understanding gentrification as violent is not an intellectual leap once you know about racialized ghettoization and white flight. Around the same time that redlining was keeping Black families out of residential communities, US Department of Agriculture (USDA) loans, for which Black farmers were not eligible, were keeping white farmers on their property during lean times, and Black farmers landless and indebted at the first sign of trouble. Black landowners in the South lost 12 million acres of farmland over the past century – mostly from the 1950s onward. Between 1910 and 1997, black farmers lost around 90% of the land they owned. White farmers lost only about 2% over the same period.

We lost not only the land, we lost knowledge of the land. We lost critical health strategies, preventative care rooted in diet, made possible through our land-based knowledge. This was the same knowledge that had provided lifesaving supplemental food when enslaved families were forced to subsist on unreasonably small weekly rations of moldy salt pork and corn.

As The Atlantic reported earlier this year, “While most of the Black land loss appears on its face to have been through *legal* mechanisms – “the tax sale; the partition sale; and the foreclosure” – it mainly stemmed from *illegal* pressures, including discrimination in federal and state programs, swindles by lawyers and speculators, unlawful denials of private loans, and even outright acts of violence or intimidation.”

Terroir is based on the land, and the land, or nature, is where I have always gone for answers. Terroir taught me that when the fruit is not properly developing, you examine the unseen factors – the soil, the aspect, the positioning of the vine. The goal is not to produce homogeneous and uniform fruit, but rather, distinctive and expressive grapes, celebrated for their nonreplicable uniqueness. But even the finest fruit can wither on the vine.

Black people are saying it’s time. We must become our own vignerons of our own dominions. As we know, this is not a future that’s possible in isolation, for in a racist society, liberation is reliant upon the dominant group. Don’t run from Black lives. Humanize Black lives. Advocate for Black lives. None of us is free until we are all free.

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III

On our appetite for meat, meat substitutes, and post-meat proteins

By Kelly Streekstra, translated from the Dutch by Erica Moore

“This one’s vegetarian lasagna, and this one’s lasagna.”

My mother beams as she points to the two dishes on the dinner table.

“Is the second one also vegetarian, Mom?” I ask. She opens her eyes wide. “This one’s made with spinach, and the other one’s, you know, lasagna.”

After a short pause, she looks sheepish. Caught again. “OK, OK,” she backpedals. “The other one’s made with meatless ground beef. But I wanted to see if your Dad would notice!”

For the last few months, my Mom’s been trying to cut down on how much meat she and my father eat. And she’s not alone. About 50% of people in my home country of the Netherlands call themselves *flexitarians*, meaning they skip the meat at evening meals three or more days a week.¹

A similar trend can be seen in Dutch government policy. One of the aims of the National Climate Agreement, for instance, is to reduce our consumption of animal proteins to 40% of total protein consumption by 2050. Today’s share is 60%.²

It’s no coincidence that the Climate Agreement looks to

reduce meat consumption. Food production is responsible for a quarter of the greenhouse gas emissions worldwide. More than half that – some 7 billion metric tons of carbon equivalents annually – comes from livestock.³ Yet meat and dairy provide the world's population with only 13% of its calories and 37% of its protein. If we look at land use, things get even more skewed: Some 77% of the land available for agriculture is currently used for meat or dairy production.

Then there are the ethical concerns. Livestock far outnumber wild mammals worldwide. In the Netherlands alone, we slaughtered 622.6 million chickens, 16.6 million pigs, 2.1 million cattle, and 566,500 sheep in 2019.⁴ A considerable portion of these animals never even makes it to our plates: According to a 2016 estimate by the Dutch environmental organization *Milieucentraal*, some 49 million kilograms of meat go to waste in this country each year.⁵

And the global population is projected to consume more meat, not less, in the years to come. Particularly in emerging economies like China and Brazil, the demand for meat shows rapid growth.⁶ The United Nations Food and Agriculture Organization (FAO) predicts that livestock production worldwide will go from 258 million metric tons of meat in 2006 to 455 million metric tons in 2050, an increase of about 77%.⁷ If we want to reduce the strain this scenario puts on the climate, the environment, and the animals themselves, then we'd better hope this growing demand for meat won't be met by animal products alone.

Here's the good news: Countless companies are now dedicated to developing alternatives to animal protein – be they mycoprotein, cell-based, plant-based, soy, or cricket. But that search for alternatives reveals something interesting. Even as

we're devising products to reduce meat consumption, we're presuming our desire to eat meat will continue unabated. How does that make any sense? And how could we do things differently?

Meat substitutes: faking the real deal

Let's take a step back. If you want to stop eating meat this year, you've got more options than ever for meeting your protein needs. Aside from familiar alternatives like nuts and tofu, there are plenty of other meat substitutes available in grocery stores and restaurants. These plant-based products closely emulate the look and feel of meat. The color change when you sear it in the pan, the smell, taste, and texture, even the names – veggie burgers and chick'n nuggets and beyond sausage – you'd almost think you're eating real meat. Not surprisingly, numerous experiments show it's getting difficult to tell meat and meat substitutes apart. And the strategy seems to work: According to the Good Food Institute, the US market for plant-based meats was worth \$939 million in 2019, up 38% from 2017. Similarly, a Nielsen survey shows that sales of meat substitutes in the Netherlands increased by 30% in 2019.⁸

In our efforts to recreate nature's flavors, we've developed another technological triumph: cultivated meat. Also called cultured meat, clean meat, or cell-based meat, this is no meat substitute. It's real meat. The difference lies in how it's produced. When you provide stem cells with the proper growth medium and nutrients, they'll grow into a piece of meat. No need to raise a whole cow. You could compare a cultured meat burger to a plant cutting, but then from an animal.

Now we're no longer talking about an alternative product, but about an alternative means of production. Cultivated meat

is not a *meat* substitute. It's an *animal* substitute. However, it will take at least another 5 to 10 years before the technology, the industry, health and safety regulations, and society at large are ready for cultivated meat production on any sizable scale.⁹

Say we *do* manage to meet the world's growing demand for meat with these alternatives. Then we're looking at a far more sustainable and animal-friendly future than in a scenario where global livestock numbers double by 2050. And meat substitutes and cultivated meat just might be the fastest and most effective means we have of helping meat lovers change their ways.

Yet something about this image of the future doesn't add up.

A future full of meat

For eight months, I researched the future of meat for my master's thesis. I developed a number of scenarios for the future, describing production practices for meat and other foods. It soon became clear to me: A vision for the future where products like vegan nuggets or cultivated hamburgers play a major role is one where the collective love of meat still exists. In fact, it's a future where that love endures, unchanged and unchallenged.

Jaap Korteweg runs the Vegetarian Butcher, the plant-based meat substitute business he founded in 2010. In a recent interview he explained, "My hope is that in 30 years, we'll no longer use chickens for the chicken we eat."¹⁰ Korteweg envisions a massive change in human behavior. In his future we'll all be eating plant-based meat alternatives. But his underlying assumption is less revolutionary: What people want, in 2020 or in 2050, is chicken.

And pioneers of cultivated meat are even more certain that the demand for meat is here to stay. They have their sights set on a market segment of consumers who'll want "real" meat far into the 21st century. The enormous investment needed for cultivated meat is something they expect will pay for itself in the long run. That makes sense if you're convinced the average consumer in 2050 will still want a steak, porkchop, or sausage on their plate.

And so the producers of cultivated meat and meat substitutes alike seem to be saying a revolution is possible: We can produce meat or meat-like products and get people excited about them. But they're also assuming that whatever happens, consumers will always want to eat meat. Does that mean these techno-optimists are cultural pessimists?

Now it's not unreasonable to expect that our collective desire for meat will be with us for some time to come. Delve into the history of culinary traditions, and you'll find meat as far back as you can see. In the Dutch documentary *Need for Meat*, filmmaker Marijn Frank has her brain activity measured by an addiction expert. Turns out her response to meat registers as stronger than her response to sex.¹¹

If you design products for a future of cultivated meat and meat substitutes, then craving meat isn't just expected. It's required. And that has a downside. In our attempts to find substitutes, we're reaffirming meat's place in our diet. That means the race with "real" meat seems doomed from the start. However well the alternatives manage to mimic the taste and texture of animal meat, consumers are then faced with choosing between a replica and the real deal. In a future where we still crave meat, it's to be expected that there will always be a group of consumers only satisfied with the real thing.

Reducing the amount of meat consumed is then likely the best we can do.

Moreover, while cultured meat and meat substitutes may be more animal friendly and environmentally friendly than meat from livestock, these processed products are not as sustainable as a 100% vegan diet. If our desire to eat meat persists, then perhaps we'll have to accept that. But is our appetite for meat really that tenacious?

Is our appetite for meat a given?

Perhaps you see where I'm going with this: The idea of a persistent appetite for meat is a dubious one. First of all, there's the fact that many people don't eat meat (or meat substitutes) and suffer no ill effects. So people are clearly capable of living their lives without meat. And even if our taste for meat turns out to be something we're born with, that doesn't mean we can't change.

Take a look at the market for meat and meat substitutes today, and you'll see an assortment of products, all geared to consumer "demand." And the consumer is buying meat. When consumer purchasing power goes up, people have historically bought *more* meat. No wonder the FAO has predicted an increase in meat consumption worldwide.

Purchasing habits, however, don't tell the whole story. What people buy isn't entirely representative of what people want. And do we consumers really want animal meat? We seem more and more conflicted.

According to Cor van der Weele, a professor of humanistic philosophy at Wageningen University & Research, there's one phenomenon that's often overlooked in studies into socio-cultural processes of change: the ambivalence phase.¹²

Renee Lertzman, who researched psychodynamic processes with respect to environmental issues for her doctoral dissertation at Cardiff University, also describes this phenomenon of ambivalence: Any change in behavior is preceded by a period of mixed feelings.¹³ We should not confuse that period of ambivalence with a phase in which we're *for* or *against*, or unaware. Think of it as a time when we're susceptible to doubt. The phenomenon is a familiar one in medicine and psychology and is considered a crucial stage in the process of behavioral change.

That crucial stage? We're in it. Culturally speaking, that is. Open any major newspaper in my country and you'll see a piece on more sustainable or animal-friendly food, or the dark side of the meat or dairy industry. The Netflix documentary *The Game Changers*, on the benefits of a vegan diet for athletes, was a hit. In the Dutch House of Representatives, the Party for the Animals has won seats in every election since 2006. At the same time, it's still easier to find a meal *with* meat than without it. And since 2019, thousands of Dutch farmers have protested the government's plans to reduce livestock numbers in this country and strengthen the laws governing animal welfare.

How we emerge from the ambivalence phase is critical for the changes we're facing. The fact that there are alternatives to meat gives us the chance to talk about that ambivalence. Van der Weele's research, for instance, looked at how thinking and talking about *cultured* meat can help break open discussions about *animal* meat and any misgivings people may have. After sharing their concerns, her research participants began to find butchered meat stranger and cultured meat more palatable.¹⁴

Once enough people make the switch to cultured meat

and meat substitutes, the ambivalence disappears. Our moral conscience is soothed, because things improve somewhat. After all, fewer animals have to die and our eating habits will have less impact on the planet. But substitutes don't help curb our collective appetite for meat or phase out our meat-centered food culture. If we assume that's truly an option, then we're missing an opportunity here: The current phase of ambivalence gives us the chance to root out that desire for meat altogether.

As for whether that's too much to ask? We simply don't know. So maybe we shouldn't give up on the idea just yet. What if the reduce-and-replace strategy turns out not to be enough to head off a full-blown climate crisis? Then we'll again enter a phase of ambivalence, work our way through it, and arrive at decisions. One can imagine the vegans of the future may criticize our recent triumphs as falling woefully short. Sometimes doing *better* just isn't good enough.

Some cultured meat experts are already anticipating that possibility. If cultured meat can't be produced sustainably, they hope this will become evident sooner rather than later, so we can put a stop to its development.

Post-meat proteins

At the dinner table, my father's warm laugh rings out. My mother has just confessed to the great lasagna deception of 2020. Dad's the loyal meat lover, one of those people who in his younger years would have had steak every day if he could. Now he, too, wants to eat less meat. He'd love to be proved wrong, but doesn't expect there will ever be a true meat substitute with all the same flavor.

Turns out that may not be necessary. "You don't have to try

to fool me," he says. "I'll always know it's not meat, but I don't mind. This is delicious too. And that's what matters."

It seems to me that the rapid rise of meat substitutes has already shaken up future prospects for intensive livestock production. That gives producers of meat substitutes room to expand, but it also gives us the chance to find other ways to work towards a sustainable, animal-free diet. And it invites us to take a critical look at the idea behind meat substitutes: Are these products the end goal, or can the replacement strategy evolve?

That's why I hope we will continue to consider whether – and how – things can be different. Maybe what we need is a different approach, one where protein alternatives don't try to mimic meat, but are delicious, appealing products in their own right. Not meat substitutes, but meat successors.

Post-meat proteins can be the next step in making products to replace meat, or a whole new product line that we develop today. The ingredients for such an approach? Pleasing our palates, while at the same time opening the door to a food culture that's not built around the desire for meat. The following menu could become part of how we think about the future of food.

- STARTER

Let's recognize that the techniques already at our disposal can produce incredibly tasty food. Meat has been an invaluable model in that respect. We know what appeals to a generation that grew up with meat culture; those are our tools of taste and temptation. The thing to remember is that it's the qualities themselves that hold appeal, not just as part of the complete experience that is meat.

= MAIN COURSE

We design a new protein product and get rid of references to meat on packaging and in product names. The low-hanging fruit is coming up with new names for veggie burgers, chik'n nuggets, and vegan sausage. By letting go of the meat frame, we stop glorifying meat culture and start highlighting the possibilities of protein. That makes the race to win over consumers easier: We no longer have to beat meat. The alternatives are simply delicious.

= DESSERT

Now that we're no longer stuck within the confines of the concept of meat, it frees us to dream up what comes next. Each new product is a chance to find that perfect combination of flavor, look and feel, consistency, and form that will appeal to the consumer. That's how we grow the cultural status of an entirely new product. We create a culinary competitor for that age-old meat experience – but a sustainable one, without the ethical objections.

Sound too pie-in-the-sky? I get that. But there are grounds for hope, certainly in light of the swift developments we're seeing. Who's to say we're not about to dig in to a vastly more satisfying food experience.

Notes

- 1 <https://www.wur.nl/nl/Dossiers/dossier/Vleesconsumptie.htm>.
- 2 <https://www.klimaatkoord.nl/documenten/publicaties/2019/01/08/achtergrondnotitie-landbouw-en-landgebruik-impact-consumptie-op-klimaat>.
- 3 31% livestock and fisheries, 6% cropland for animal feed, 16% other land use

for livestock. Combined, some 52% of food emissions. That accounts for 26% of the global emissions (52.3 billion metric tons of carbon equivalents). See the land use data page and the page on CO2 and greenhouse gas emissions: <https://ourworldindata.org/environmental-impacts-of-food>.

- 4 <https://opendata.cbs.nl/statline/#/CBS/nl/dataset/7123slac/table?fromstatweb>.
- 5 That's 7% of the total food waste of 700 million kg. Figures come from a *Milieu-centraal* factsheet on food waste in the Netherlands: <https://www.milieucentraal.nl/media/3725/factsheet-voedselverspilling-huishoudens-mei-2017.pdf>.
- 6 See the bottom of page 45 in the UN FAO report: <http://www.fao.org/3/a-ap106e.pdf>.
- 7 See page 132 of the same report.
- 8 (8.1) The Good Food institute is a nonprofit working internationally to accelerate alternative protein innovation. With the SPINS retail sales data released March 3, 2020, they made the following analysis of the plant-based protein market: <https://gfi.org/resource/marketresearch/>.
(8.2) The Nielsen study found an increase of 30% in sales of plant-based meat substitutes in 2019, which was first reported by Distrifood: https://www.distrifood.nl/assortiment/nieuws/2020/03/recordgroei-verkoop-vleesvervangers-101132255?_ga=2.174834914.1787418691.1598882180-1386835357.1578146748.
- 9 This is the average minimum as estimated for the European Union. I'm basing this figure on interviews with experts and the literature study for my master's thesis.
- 10 <https://www.trouw.nl/nieuws/het-idee-dat-vlees-lekkerder-is-zit-echt-tussen-de-oren-zegt-vegetarische-slager-jaap-korteweg~b264b99d/>.
- 11 See the documentary *Need for Meat*, by Marijn Frank. You can watch the trailer here: <https://www.idfa.nl/en/film/9ba2f6d8-9071-4295-95b4-a4474376b6d0/need-for-meat>
- 12 See also <https://www.wur.nl/nl/show/Cor-van-der-Weele-Willen-Weten-wel-niet-vleeskweekvlees-1.htm>.
- 13 You can find more info on Renee Lertzman, her TED Talk, and her dissertation

Environmental Melancholia: Psychoanalytic Dimensions of Engagement on her website: <https://reneelertzman.com/>.

- 14 See Van der Weele, C., & Driessen, C. (2019). "How Normal Meat Becomes Stranger as Cultured Meat Becomes More Normal; Ambivalence and Ambiguity Below the Surface of Behavior." In: *Frontiers in Sustainable Food Systems* 3 (August 2019), pp. 1-12. <https://doi.org/10.3389/fsufs.2019.00069>.

IV

Consumerkind. What happens when people are seen only as bargain hunters

By Sebastiaan Aalst, translated from the Dutch by Elizabeth Manton

In his best-selling book Humankind: A Hopeful History, Rutger Bregman makes a compelling case that human nature is essentially good. That more than anything, human beings want to help out, not disappoint other people, go with the flow, and feel good about their own behavior. That on the whole, people want to be decent and kind. At the same time, our society seems to be founded on distrust and a negative view of humanity. This essay picks up the thread of Bregman's argument for a positive view of human nature and zooms in on the role of the consumer. More specifically, the food consumer.

If there is one kind of human that tends to be viewed through a negative, reductionist lens, it's the consuming human, the epitome of the *Homo economicus*. We humans, it seems, have evolved from hunter-gatherers into bargain-hunters. This "human as consumer" all too often stands in stark contrast to the "human as citizen." Witness all the criticism heaped on the average consumer for falling far short of his or her ideals as a citizen.

When did this notion of the *price-conscious consumer* develop and come to dominate the market? It makes sense to

look to the 1980s, the decade of neoliberalism's political rise. Led by neoliberalist policies, governments and public institutions increasingly came to view citizens as customers, and to treat them as such in more and more areas of their lives. Yet this only partly explains the general advent of consumerism, and gives us no answer at all to the question what prompted the perception that food consumers are so price-minded as to be more or less indifferent to other societal and personal values like transparency, health, and sustainability.

In fact, the idea of the price-conscious consumer goes back farther, to the time of the Spanish philosopher José Ortega y Gasset. His 1930 book *The Revolt of the Masses* already warned of an excessive economism in liberal elite thinking of his day, and of its blunting effect and the mounting indifference it spread across all layers of society. But, as a cultural philosopher, Ortega y Gasset was so repelled by economics that he said nothing of the part played by money, let alone of market forces and price formation.

Instead of going all the way back to the foundations of thinking about price, a more interesting approach to our question is to investigate when price became such a dominant factor in our food consumption and supply. In my country of the Netherlands, 2003 was an inflection point. That's the year supermarket chain Albert Heijn cut prices on thousands of its products, unleashing a price war that persisted in the Dutch grocery world for years. Even today, average price levels in the Netherlands are low compared to neighboring countries, leading Statistics Netherlands (CBS) to declare in 2016 that "Dutch food consumers nab the best deals in Western Europe." Indeed, prices in the Netherlands now fall under the European mean.

The fact that the Dutch spend on average just 8.1% of their income on food (Statistics Netherlands, 2018) should in theory make it easier to opt for quality in one's grocery basket or cart. In reality, the opposite is true. In her 2006 book *Nieuwe spijswetten: over voedsel en verantwoordelijkheid* ("New Food Laws: On Food and Responsibility"), Louise Fresco, President of the Executive Board of Wageningen University & Research, remarked: "Dutch consumers actually appear to care more about the price than about the quality of food products. The upshot of this high price-consciousness on the part of Dutch consumers is an abundance of cheap food on supermarket shelves."

Low prices have become so normalized that it seems many consumers have come to view them as a right. Commercial tap into this by warning people they're being overcharged by other vendors, and anybody who doesn't constantly have their "price radar" on is basically asking to be cheated. This feeling is actively cultivated. Marketeers know better than anyone that if they can shift the focus to a product's price, nothing else about it matters. All of which combines to put even more pressure on prices.

But is the food consumer¹ as fixated on price as everyone assumes? Or is this an effect of something else? Are there any examples we can look to for inspiration – examples of ways

1 In discussions about food, the term *consumer* is a hybrid term, referring to both eating as a physical activity and buying as a social transaction. Much has been written about the relationship between the physical eater, the economic buyer, and the political citizen, and how all three converge in the consumer-citizen. The many-headed hydra that is the consumer-citizen takes on even more monstrous proportions in the food consumer-citizen. Source: "Good Taste – the embodied normativity of the consumer-citizen" (Annemarie Mol, 2009).

to talk to consumers besides the language of bargains, steals, and deals? Though Bregman in his book describes countless situations in which people prefer to do good if only they're given the chance, he doesn't consider food consumption as such. He does show that for instance prison systems which allow inmates more freedoms also experience fewer incidents and need for interventions relative to other penal systems. Limit those freedoms and you create a monster that in turn needs to be tamed.

Could something similar be happening with consumers? Is our one-sided emphasis on price-consciousness creating a monster? Which we then try to tame to limit the harm and ecological impact of our choices, and their repercussions for our health? Or stated in more positive terms: If we assume that most food consumers are generally pretty decent human beings, what opportunities does that create?

Blame price incentives

Consumption sociologist Hans Dagevos observes there is a movement, or "subcurrent," of people he calls *consuhumans*. These are individuals who feel uneasy about their "dulled and detached relationship to food" and who endeavor to "make responsible consumption choices based on environmental and social considerations."

Where it was long easy to dismiss this subcurrent as an elite niche, more recently quite a few articles and consumer studies have come out revealing this same unease among a growing share of the public. A study published by the Dutch consumer league (*Consumentenbond*) in July 2020 for instance revealed that consumers wish manufacturers would reduce the sugar and salt content in their food products. Many producers are

taking steps in that direction already but, according to consumers, not fast enough. In a survey conducted by the Netherlands Agricultural and Horticultural Association (LTO), 62% of respondents stated they would pass up weekly specials on fresh meat (in Dutch, "*kiloknallers*"), for instance, if the added cost benefited farmers and the environment. The common denominator here seems to be that more and more consumers want quality on the supply side to change so they in turn can consume differently. This is an interesting reversal of the notion that supply always follows demand.

The debate about the food environment and the "obesogenic society" shows that supply in fact largely drives which foods we choose. Though pretty much everybody would like to lead a healthier lifestyle, the number of people with overweight and obesity has been climbing for decades. According to scientists like Jaap Seidell, Professor of Nutrition and Health at VU Amsterdam, the problem isn't an individual shortcoming – say, a lack of willpower or self-discipline – but that human beings are displaying normal behavior in an abnormal setting. It's only to be expected that in our predominantly unhealthy food space we'd cave to the cornucopia of sweet, salty, and high-fat food.

This is an example of something known in the social sciences as a *structure/agency* dilemma. To look at overweight and obesity through the prism of agency – a person's ability to make their own decisions – is to place responsibility primarily with the individual consumer. An individual is after all free to make their own choices, and individuals have an autonomous and free will that guides their behavior. So, when people make unhealthy choices, the agency perspective ascribes it to a lack of information, willpower, self-discipline, or a combination thereof.

Those who view the situation through the structure prism, on the other hand, see factors that hamper autonomous action and perceive behavior much more as the outcome of interactions between individuals and their environment. In an obesogenic society, this perspective stresses the role of the food space, which is the sum of the structure and quality of the physical and social environments, the food that is available, and the influence of marketing.

Scientists tend to agree that how we behave in practice is almost always attributable to the interplay of these two perspectives. Yet, in recent decades, the one-sided emphasis on consumers' individual responsibility has denied this reality. We view the price-conscious consumer as an expression of the autonomous consumer who makes their own choices. The reality is rather that price incentives are all around us, and hence have a structuring effect. Put differently: the overabundance of discounts and price incentives undermines our ability to make decisions autonomously.

The increasing focus on – and calls for – imposing or raising taxes on meat, exempting or lowering those on fruit and vegetables, introducing a sugar tax, and *true pricing* (a method of reflecting all kinds of hidden costs in the market price of a product, such as harmful effects on people and the environment) can be understood as a need for different price incentives that chime with the values we hold as consumers. Consumers can't all be lumped together, of course, but this shows the need exists among a growing share of the public.

Helping people move to a sustainable, healthy system

That many consumers are open to fair pricing implies an intrinsic motivation to change. The concurrent call for additional measures shows a growing awareness that agency or more options alone won't be enough to change our behavior, since price in its current form undermines our ability to make autonomous decisions aligned to our values. Exemplifying this is a supermarket manager who a few years ago (I can only assume unwittingly) said, "We don't do inspiration." Attractive, healthful, and inspiring recipes might have ended up negatively affecting his shoppers' price perceptions.

What will it take to break through the status quo and step up the transition to more sustainable and healthier food systems? How can we get consumers to make choices more explicitly attuned to values like transparency, health, and sustainability? This question was at the heart of a report released by the Netherlands Environmental Assessment Agency in July 2020, entitled *Voedselconsumptie veranderen. Bouwstenen voor beleid om verduurzaming van eetpatronen te stimuleren* ("Changing food consumption. Building blocks for policies to promote more sustainable eating patterns"). In it, researchers concluded that "Food routines are shaped both by consumers and by other actors such as industry, civil society organizations, food influencers, and governments. Changing food routines therefore requires a collective effort: consumers cannot do it alone." Recognition of this fact, and that only a collective effort can change food consumption patterns, must direct policy in the years ahead.

The Dutch government meanwhile finds itself in a paradoxical position. Two sentences from a 2007 report commissioned from Wageningen University & Research by

the Ministry of Agriculture, Nature and Food Quality illustrate this. “Society is entrusting the Ministry with increasing responsibility for matters of food quality. At the same time, the Ministry is striving to reduce government’s regulatory role and to transfer responsibilities to citizens and industry.”

The National Prevention Agreement concluded between the Dutch administration and the food industry in 2018 clearly shows that paradox in action. On the one hand, it reaffirms government’s role as custodian of public health and food quality. On the other, the measures announced in the report show that same government enacting its role with obvious reluctance. Simply put, collective effort and deregulation rarely go together. Symptomatic of this is a statement Deputy Secretary for Health, Welfare and Sport Paul Blokhuis made on September 3, 2020 in an interview with Dutch daily the *NRC Handelsblad*. He acknowledged a tax on sweetened beverages had “promise” but went on to say he wouldn’t pursue it, because manufacturers had already pledged to reduce sugar content in their soft drinks.

Less market, more oversight

The time has come to *politicize* the food space we consumers navigate. And I don’t mean make it charged and divisive. I mean make our food environment the subject of policy and public debate, so that we’re making deliberate decisions about these important matters. After all, the current situation isn’t some law of nature, but the sum of an infinite number of political choices. For too long we’ve denied this, preferring to believe there could be such a thing as a value-free consumer society in which government serves no other purpose than to uphold the market.

We need to reframe our food environment and the excessive availability and marketing of sugary, salty, and high-fat foods as a political choice that we can counter with an alternative. The first step is to break through existing social norms – those unwritten rules of behavior – that persistently override the desire of individual consumers to make healthy, sustainable choices. To step outside the domain of the market and into that of politics. We already make rules for sustainability and animal welfare. We can come up with common standards for our food, too. That would also level the playing field, so market parties can compete on values besides price alone.

Most of the examples mentioned, from a consumption tax on meat to a sugar tax, true pricing, and guaranteeing a fair price for farmers, could help to create that new level playing field. And the options aren’t limited to sweeping national policies. Already, a growing number of towns and cities are exploring what role they can play. Take London’s law against junk food ads on public transit. A ban on selling junk food near schools is gaining wider traction, and could be extended to prohibit discounts on fast food, energy drinks, and other sweetened beverages. Such measures deserve serious consideration in cities, which are expected to be home to some 70% of the global population by 2050. To a large extent, the freedom of choice and health of those future consumers will be determined by how municipal and local administrations decide to shape their food environments.

For a start, this means not automatically siting shopping centers with chain supermarkets to serve new residential developments, as characteristically happens in so many places. Because there is another way. The Dutch national campaign Support Your Locals, launched shortly after the COVID-19

pandemic broke out, reveals that when you appeal to people's sense of solidarity, many are willing to pay a little more and venture outside the standard selection and practices of the big grocery retailers.

Research by Dutch supermarket chain Jan Linders and others shows the decision to buy local tends to be driven less by flavor or price and more by solidarity with regional producers. Cities and regions can support those producers by showcasing them in local hubs and by investing in shorter supply chains. Fast-growing areas, like Almere, need to consider what values underpin such a space. We must leave behind that cynical view of the average consumer and make way for examples that show, yes, consumers can be swayed and triggered by values other than price.

The transition to a sustainable and healthy food system is impeded not by an utter lack of values on the part of consumers, but by the fact that those values are insufficiently built into our physical and social surroundings. In an environment that floods you with bargains and discounts, you can't help but be conscious of price. As Hans Dagevos puts it: "Overvaluing the price factor seems to be matched by undervaluing other principles that together determine the multivalent food choices consumers make." Until those other factors are taken seriously by retailers and other suppliers, they won't be decisive in the choices we make as consumers.

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V

Good food. How our moral choices shape the food system

By Marian Stuiver, translated from the Dutch by Megan Hershey

The COVID-19 pandemic has brought home the importance of a food system that provides all members of society with access to nutritious food. In the early days of the pandemic, some people rushed to stockpile groceries, while others scrambled to begin their own vegetable gardens. Campaigns popped up, like Support Your Locals, urging people to buy local goods straight from the producers. Countless examples from around the world show global food security being put to the test. Supply chain disruptions and the collapse of informal economies have been particularly hard on vulnerable groups, including farmers and people living in megacities. The time has come to design a sustainable system that will ensure food security for all the world's inhabitants while addressing inequality, environmental degradation, and climate change.

What would such a food system look like? Different experts have different views on the future of food. Heated debates are raging among the various camps: globalists, localists, and two groups that have been dubbed *prophets* and *wizards* (the latter of which includes ecomodernists). Globalists argue in favor of global food chains, in which food is produced wherever it can be done cheapest and most efficiently, since there will

only be more mouths to feed as time goes on. Localists believe that producers and consumers should invest in smaller, more sustainable food chains. The terms *prophet* and *wizard* were coined by science journalist Charles Mann to describe two diametrically opposed viewpoints on food systems. Wizards argue that innovation and sustainable technological development are key to meeting global food needs. A subset of wizards, the ecomodernists, similarly put their faith in technology. They believe that artificial intelligence, drones, sensors, blockchain, and big data can be used to influence the behavior of both producers and consumers. This, in turn, will give rise to a new generation of farmers who will build smart farms, and to a new breed of consumer who will remain informed and work to develop thriving food communities. Prophets, on the other hand, warn that we must adjust our consumption patterns based on what we now know about ecosystem loss. They believe we must drastically limit consumption to reduce pollution and lessen the strain on the planet.

As we go about our daily lives, we must learn to navigate the different truths espoused by these and other experts – not only at the grocery store, as we’re choosing which carton of eggs to buy, but also when evaluating conflicting scientific theories. We often make decisions based on emotion rather than reason. And many of us no longer trust authorities who tell us that there is an objective morality or truth. We have grown disillusioned with the modern era, which promised us truth, reason, scientific rigor, and competent, efficient government, but has thus far failed to deliver. Everything seems up for debate. Institutions and experts present their own truths, arguments, facts, and values, leaving us to choose which to embrace and which to reject.

In this essay, I will discuss the debate surrounding our food system from a sociological perspective. At its core, sociology seeks to study and understand the social practices that dictate things like our behavior, the way we treat others, and how we come up with new ideas. I will be applying a well-known sociological concept called the *double hermeneutic*. The term *hermeneutics* originated in the fields of theology and philosophy and refers to the theory and practice of interpreting texts. The natural sciences operate under a *single hermeneutic*, in which scientists seek to understand and interpret the natural world. This relationship is strictly one-way, as the natural world does not seek to understand us. Social scientists, however, engage in a double hermeneutic process: as they attempt to understand how people interpret the world, the objects of their study can apply concepts from the social sciences to explain and shape their own worldview. And so a variety of terms from the social sciences have entered the popular lexicon, including *psyche* and *free will*, as well as *food system* and *tipping point* (in reference to climate change).

I will be examining two community initiatives that have given rise to new ideas about the food economy. These local programs in Amsterdam and Washington, DC, establish *food hubs* based on the core values of equality and connection. Both cities are growing increasingly segregated. Depending on where they live, city residents may have vastly different opportunities to improve their incomes and living conditions. The existence of urban *food deserts* – areas in which residents have virtually no access to fresh fruits or vegetables – is just the tip of the iceberg. At the neighborhood level, income, education, and job prospects are all sharply divided along spatial and cultural lines. The divide between urban and rural areas

is also characterized by inequality. While people in certain urban areas may lack access to jobs and healthy foods, people in rural areas may struggle for other reasons: fewer services, rising farmland prices, restrictive zoning laws, environmental degradation, etc.

The founders of these two initiatives seek to connect food production to the city's natural environment and provide urban residents of all backgrounds with better access to food, health, and opportunities to prosper. They also hope that their experiments will lead to the development of new moral concepts that can be used to establish interconnected, equality-based food systems in other cities. Our current food system makes it extremely difficult for people to make responsible choices when it comes to food. In fact, the system actually makes it easier to choose anything *but* locally, sustainably produced food, despite the fact that there are plenty of viable options for doing so, as the following two examples will show.

The social entrepreneurs who run these two programs aim to encourage people living in nearby communities to make conscious choices by showing residents how they'll benefit. Helping to design the food systems in which they participate not only adds value on a personal level, but it also returns morality and ethics to the equation when it comes to everyday food practices.

De KasKantine: an inclusive food hub in Amsterdam

De KasKantine (Dutch for "the greenhouse cafeteria") is a mobile urban farm and restaurant currently located among the concrete office buildings in Amsterdam's Nieuw-West district. It is run by engineer and urban nomad Menno Houtstra, who was born and raised in this part of Amsterdam. Each year, he

and his staff move their mobile restaurant to a new location, where they will live and work.

Menno draws his inspiration from the life and work of his late cousin, Robert Jasper Grootveld (1932-2009). Grootveld was a prominent figure in Amsterdam's counter-culture movement, an anti-smoking activist as early as the 1960s, and a passionate urban gardener. He built floating gardens out of styrofoam blocks, which he covered with nets and tarps before adding a layer of soil in which to grow plants.

Like his cousin, Menno plants trees and shrubs, sows grass, and grows vegetables in vertical gardens and straw bales. He also fights food waste by collecting leftover produce from local supermarkets. Menno's goal is to create a better, greener environment for all Amsterdammers. He has embarked on an experiment to find out what kinds of lifestyles can develop when you appeal to neighborhood residents' skills and interests and make use of existing green spaces.

Green spaces make up roughly 27% of Amsterdam's Nieuw-West district. Along with the Bijlmermeer neighborhood, which is 26% green, it is among the greenest areas in Amsterdam, which has a citywide average of 17%. Both Nieuw-West and Bijlmermeer have highly diverse populations. In the 1960s, many of the (predominantly white) residents left these neighborhoods and moved to new developments outside Amsterdam, while ethnic minorities began to move to the city. Today, residents of Nieuw-West and Bijlmermeer are eager to make use of the city's green spaces, but the quality of these spaces is often sadly lacking. Existing green spaces are often difficult to access or even unsafe.

Menno: "We want to show that members of this community have the right to shape their own surroundings. This raises the

issue of ownership, since everything around here is controlled by real estate developers – by people with money – while the people who actually use these spaces don't have much.”

The area is bustling with activity. Converted shipping containers house startups that deal with things like the circular economy and food systems. Nestled among the containers and office buildings is De KasKantine, which serves meals on a donation basis: patrons pay what they can afford. The restaurant strives to waste as little as possible. They make meals with leftover produce from area grocery stores as well as vegetables that they grow themselves using innovative techniques like vertical gardening. Menno generates his own energy and has been experimenting with his own water collection and purification system. De KasKantine can be seen as an experiment on how to create green value in an urban environment without negatively impacting the surrounding areas by ensuring that the system is fully circular.

Menno: “We want to show that there's no difference between consumers and producers or between citizens and consumers. We want to release people from anonymity and dispel the mystery surrounding food. We want consumers to be less consumer and more citizen, and we want citizens to be producers. That's why we grow and prepare foods together with neighborhood residents. We collect produce that would otherwise have been thrown away and we use it to make meals that people can eat in exchange for a donation.”

One of the ways that Menno strives to promote equality is by introducing the concept of the *giving economy*. Community members can participate in De KasKantine on various levels: as unpaid suppliers, as employees, or as customers. The city government, local supermarkets, and property owners in the

area are also welcome to contribute with in-kind donations. “Instead of financial support, we ask if they have any resources that could be used to benefit the community. They could grant us access to recycling facilities so we can scavenge valuable materials or allow us to install solar panels on their roofs. Or they could permit us to use abandoned buildings and empty lots for our neighborhood restaurants and startups. This kind of help enables us to save good food that would otherwise be thrown away by supermarkets.”

New partnerships have emerged from the initiative that are addressing urban issues like sustainability, equality, and diversity. For example, Menno helped found a market hall in Amsterdam where food can be produced, prepared, and consumed, and he actively lobbies for community rights to ensure that neighborhood residents are granted more control over local services and facilities. *Community rights* is a relatively recent term that refers to the view that the people living in a given area should be given a greater say in how their communities develop. By championing community rights, Menno hopes to ensure that his employees and fellow residents are given more power – and more resources – to make their community greener.

Inclusivity in DC: the Urban Food Hubs Model

In January 2019, I traveled to Washington to meet up with Sabine O'Hara, who pioneered the concept of Urban Food Hubs. During my visit to the US capital, I found it to be a microcosm of the challenges currently facing urban food systems across the globe. DC is one of the most prosperous metropolitan regions in the US, and unlike many other areas along the East Coast, it is still growing. Unfortunately, this

growth doesn't benefit everyone equally.

Washington is divided into eight wards that show signs of segregation and inequality when it comes to race, socioeconomic status, education, and health. The neighborhoods to the east of the Anacostia River are home to the highest percentage of Black residents and have the highest unemployment rates, the lowest average household incomes and education levels, and the highest percentage of diet-related health problems. Across the US, many disadvantaged communities lack access to healthy, affordable food. This is also true of the area east of the Anacostia, where there are shockingly few supermarkets, making it difficult for residents to obtain unprocessed fruits and vegetables or other fresh foods.

Sabine O'Hara developed the Urban Food Hubs concept to address issues like these. Her goal is to improve not only residents' economic outcomes, but also the social and environmental context in which economic activities take place. Urban food hubs help to forge new connections between consumers, urban food systems, and the environmental/social context. The food hub concept can be broken down into four main components: 1. food production within urban food hubs (such as community gardens, greenhouses, and indoor farming) using bio-intensive methods and hydroponics; 2. food preparation that adds economic value to the community; 3. food distribution to local restaurants and niche markets; 4. closing the loop through composting, rainwater harvesting, rain gardens, and other technological innovations relating to green infrastructure.

O'Hara's food hubs also generate business opportunities for local residents. Potential jobs include providing health assessments and nutrition counseling, growing vegetables and herbs

for restaurants, supplying specialty ingredients to restaurants and local grocers, installing green roofs that can be used to grow food or serve as event spaces, and cultivating native seedlings to be planted in city parks.

One tool for implementing the Urban Food Hubs model is a practice known as *timebanking*. Timebanking offers a way for people who are shut out of the monetary economy to purchase products, food, and services by offering their own services for a certain period of time. Everyone has something to contribute to their local food hub, whether it be physical, mental, or social labor. On one of my visits, an unemployed man named Thomas was earning time credits by helping the cook wash vegetables for an hour. Participants in the time banking system can use their time credits to purchase help from others. Contributions can flow from person to person, from person to organization, or from organization to organization.

Timebanking strengthens community ties and offers an equitable way for urban residents to exchange services. People can use their unique skills and expertise to help others, and in turn, they can receive help with the things they need. Integrating both labor and purchasing power into food hubs in this way leads to greater equality among city wards and across the region as a whole, making these kinds of food systems not only efficient and environmentally friendly, but also socially responsible.

Food hubs strengthen ties not only between neighborhoods, but also between urban areas and the surrounding region. Food co-ops, for instance, link local and regional farms to urban consumers. The rising popularity of co-ops is actually something of a back-to-the-future scenario: a century

ago, DC was home to over 300 food co-ops. Today, O'Hara's team is working to establish a network of co-ops that can coordinate food production using apps and platforms that provide up-to-date information on supply and demand in the area. This generates valuable data about the types of foods that can be grown and purchased depending on the climate and the season, and it also allows local food hubs to function as part of a greater regional network.

The team is also investing in a new "learning network" made up of farmers in the greater DC area. This network offers farmers a way to share their expertise and discuss topics like sustainability, marketing, and how to lobby the government for better agricultural policies. This type of exchange can lead to innovative new food production techniques and more sustainable cultivation methods. Farmers can share production methods and learn better land management practices that make the soil healthier, prevent nutrient loss, replenish freshwater reservoirs, and improve air quality.

Healthy food environments for urban residents

The initiatives in Amsterdam and Washington are both examples of high-quality food hubs in which both citizens and producers can make safe, healthy, and equitable choices that revitalize local economies and create new jobs. Experiments like these are invaluable because they help drive the introduction of new concepts like circularity, timebanking, the giving economy, food equity, community rights, and more. These concepts, in turn, help connect people with the origins of their food, with their surroundings, and with one another. Food hubs provide city dwellers with the tools they need to be ethical consumers, with an awareness of what they bring

to local and global food systems. There is room within food hubs for both wizards and prophets – for experimenting with technological innovation while respecting the limitations of the natural environment.

As multiple food hubs are established in cities around the world, a movement could emerge with the potential to shape an entirely new food system. Cynics might claim that food hubs are nothing but a breeding ground for anti-globalism, but this critique is nothing new. For years, the food debate has been divided into two camps: those who champion local food systems and those who say that these types of systems are inherently elitist and will never be able to generate enough food to feed everyone. Both camps tend to lump anyone who tries to find a middle ground in with the opposing camp.

I began this essay by arguing that a new food system is essential to solving problems like inequality, environmental degradation, and climate change. But developing this new system will take more than just growing foods locally or making a few lifestyle changes. It would be misguided to think that we can return to an idealized version of the past, with small-scale production methods, farmer's markets, and quaint regional specialties. And even small farms can benefit from incorporating new technologies and techniques that have developed in other parts of the world. The glorification of local foods is at best a marketing ploy and at worst, downright foolish. Why would anyone want farmers – no matter where they live – to turn back the clock and return to a time before technological advances? To do so would be to ignore some of the very real problems facing the world today.

The programs in Amsterdam and Washington show that it is possible to transcend the "local vs. global" debate. Globalism

without localism is empty, and localism without globalism is blind. The key is to develop practices that reconnect consumers with what they eat, making them more aware of where their food comes from and its impact on the rest of the world – a kind of global inclusiveness that manifests itself locally. Localists and globalists, prophets and wizards are all perfectly capable of working together to develop innovative solutions that can have a global impact but also respect the environment, the community, and the existing urban infrastructure.

In order to solve the global food problem, we must start by making a difference at the local level. There are a number of ways of accomplishing this. First, we can promote inclusivity by ensuring that community members of all backgrounds have access to food and health services. Second, we can help people get in touch with the food cycle and the natural origins of their food. Third, we can experiment with the development of new, highly efficient technologies with global applications. And finally, we can raise awareness about global food issues and ensure that people understand the choices available to them.

The sociology of our food system

Discussions about food often tend toward the moralistic, with experts insisting that people must behave in a certain way. But beneath all that moralizing lies a sociological issue. Sociology is, at its core, the study of social practices – the ways in which people behave and generate new ideas. When it comes to the debate about how our food system should be organized, different experts have fundamentally different views of human behavior. According to some, human beings are rational agents – the so-called *Homo economicus* – who are capable of making informed, logical choices about what to eat. This

view is popular among those who believe that lifestyle changes are the key to forging a new food system. Then there is the theory that the system itself must be changed. People have to be coaxed and nudged toward new behaviors, the idea goes, because we are creatures of routine and inherently averse to change. According to this view, if we change existing regulations and markets, people will automatically adapt.

There is a certain tension between the different views of humanity that are tacitly assumed by the various camps within the food debate. Are we free, enlightened beings capable of making rational choices, or are we easily influenced – even dominated – by our environments, by those in power, by advertising, and by the system as a whole? But instead of debating human nature, what if we were to shift our focus to humanity's ability to make ethical choices? What if we assume that both reason and habit are guided by morality – the hierarchy of values that people apply when making choices? This hierarchy is not inherently rational or habit-driven, but it does require a certain degree of self-reflection. We humans are not robots; we are thinking creatures, who continue to learn and adapt.

Even if morality is the basis for our behavior, consumers must still make choices based on a series of contradictory “truths” and expert opinions. Take, for example, the dizzying array of products available in the supermarket or the wide variety of restaurants in a single area, each of which represents a certain set of values. It is becoming increasingly difficult to choose among all of these products and their associated moral stances. One product might be marketed as *sustainable*, while another is *local*, another is *affordable*, and yet another is *healthy*. Each supermarket display and restaurant meal stands

for a diverse set of moral values.

The examples in Amsterdam and Washington, DC, show that we can forge new value sets centered around establishing a more inclusive global food system. The stories we then tell are not simple, but they are important. They're about developing systems that offer people equal access to food and health, and about fostering inclusivity at the neighborhood, regional, and global levels. They're also about how we can use technology to better connect our food system to the urban and regional ecology. In this case, inclusivity isn't limited to people, but also extends to the soil, water, air, flora, and fauna.

Establishing new value sets like these calls for strong leaders who understand how their actions will ripple onward through space and time. I'd like to explore this idea with the help of an old Dutch folktale known as "The Lady of Stavoren," which shows how unethical behavior can have far-reaching consequences. The story takes place in Stavoren, a once-prosperous port city that fell into decline toward the end of the Middle Ages. It's about a wealthy merchant's widow who cared only for riches and who ignored the plight of the city's poor.

One day, the widow commanded the captain of one of her merchant vessels to go in search of the most valuable treasure in the world. He returned with a shipload of wheat. Furious, she had the entire cargo thrown overboard into the harbor of Stavoren. A mysterious stranger warned her that she would live to regret her actions and that she might one day be grateful for a handful of wheat. In response, the woman cast her ring into the sea and declared scornfully that she had as little chance of falling into poverty as she did of ever seeing her ring again. Some time later, a fisherman brought the woman a fine fish. When it was cut open, the woman was horrified to find her

ring in its belly. Soon afterward, she fell into destitution and eventually died penniless.

This story is rich with symbolic meaning. First, it is a cautionary tale about the fleeting nature of wealth and a reminder to value food as the basis of all life. Then there is the woman herself, who seems to embody the saying "pride goes before a fall." This saying seems to echo the words of the prophets mentioned earlier in this piece, who warn of the toll our pursuit of wealth and prosperity is taking on the planet. Or is it perhaps a better match for the wizards, who know that it is impossible to stop humanity from chasing after prosperity and argue that we should instead focus on using our wealth for good, steering our resources toward sustainable development? And then there is the wheat. According to the story, after it was poured into the harbor, the wheat washed onto a sandbank, where it grew and grew until it clogged up the harbor of Stavoren, cutting the city off from trade routes and plunging it into poverty. In other words: think carefully about the choices you make, as they can have unintended consequences. The ring, which returned in the belly of the fish, symbolizes how our decisions can come back to haunt us when we least expect it.

The story of the Lady of Stavoren reminds us that the choices we make about food today will ripple onward through time and space. We have seen that our actions can directly affect the physical world around us – for example, the ways in which people in urban areas dispose of their waste can have an impact on the flora and fauna in faraway meadows and oceans. And in terms of time, we now know that our food choices can also affect the future – for example, continuing to eat meat on such a large scale will deplete valuable resources,

while choosing to eat prepackaged vegetables will generate more waste. If we choose to eat fast food, we're supporting that particular value chain. And if we buy our produce from a local grocer, we help their business stay afloat.

Seen from this perspective, our meal choices take on an ethical component and force us to think about the consequences of our actions. We cannot simply sit back and blame the system for our own choices, even if that system is full of contradictory claims and destructive practices. Because if everyone shares the blame, then everyone can hide behind everyone else and ultimately no one is at fault.

Instead, we must act on the basis of responsibility. Being a moral human being means accepting responsibility for right and wrong, no matter how difficult it may be to fully anticipate the consequences of all our actions. The pursuit of an ethical food system – with truly good food for us all – is a noble pursuit indeed.

VI

What indigenous agriculture can teach us about feeding tomorrow's cities

By Charles C. Mann

It's a classic October day in the northeastern United States – sky as blue as heaven, maples blazing in the hills, a whiff of frost in the air. Wrapped up against the autumn wind, masked up against the coronavirus, a dozen teenaged boys and girls cut through a field of late-season maize. Gossiping among themselves, they snap off the ears, drop them into plastic sacks, and empty the sacks into a plastic tub. The tub is attached by ropes to a small tractor driven by an older boy. When the bin is full, he drives up a dirt track to a barn, the bin bouncing merrily behind, maize ears flying out. Laughing kids run after the tractor, tossing the ears back into the bin.

The harvest crew is made up of students from the Akwesasne Freedom School, run by and for Kanien'kehá:ka (the Mohawk nation, in English), an indigenous society on the St. Lawrence River, at the US-Canada border. Kanien'kehá:ka is one of the six societies that make up the Haudenosaunee (Iroquois confederation), which has been stubbornly resisting foreign incursions since Henry Hudson sailed to New York for the Dutch East India Company in 1609. The students were working on a Kanien'kehá:ka farm. The maize was a traditional Haudenosaunee variety called Iroquois shortnose.

"This is food for us," said Kanatakeniate (Tom Cook), the

elder who had taken me to the site. Unable to resist temptation, he had walked into the field and started pulling out maize. “It’s food that means home – I can’t explain it any better than that. It’s food that means we are in charge of our own lives.”

A long-time native activist, Kanatakeniate had helped launch the farm, then mostly bare land, in 2015. The project had begun small, with Freedom School students raising chickens. Now they were harvesting more than five acres of maize. And they were just one of a hundred or more new indigenous farms in Haudenosaunee territory – and hundreds more across North America.

All of these farms are part of a growing drive to relaunch indigenous agriculture – not only in North America, but in places like Amazonia, Australia, and west Africa, too. The “food sovereignty” movement sees ancestral foods as essential to culture – just ask the French about bread or the Italians about pasta. Returning to traditional diets, Kanatakeniate told me, is essential to restoring indigenous peoples’ health, which has been ruined by “commods”: the cheap, government-provided commodity crops that have led to catastrophic levels of obesity and diabetes.

If the food-sovereignty movement reaches its goals, it will affect the lives of the 5-million-plus indigenous people in the Americas. But the increased attention to indigenous agriculture may have its greatest impact in a completely different arena: feeding tomorrow’s cities in a time of accelerating climate change.

Conventional agriculture focuses on extracting the maximum number of calories from the minimum amount of land. For the most part, this has meant growing concentrated monocultures of annual crops, especially cereals like

wheat and rice, with heavy doses of industrial fertilizer and irrigation water. In many ways, this system has been spectacularly successful – global levels of malnourishment have fallen steadily for 50 years. Incredibly, this progress occurred even as the world’s population more than doubled and hundreds of millions of farmers left the countryside to live in cities.

But now this system is facing unprecedented ecological tests. Climate change is expected to give Europe both more intense storms and more intense droughts, each potentially devastating to harvests. (In 2019, for example, France experienced its hottest day in history in the summer, followed by heavy flooding in the fall.) At the same time, the environmental costs of conventional agriculture have led to pressure on farmers to control erosion, cut back on fertilizers, and reduce their use of pesticides and herbicides. The result is that farmers must stop using many of the tools of conventional agriculture at the same time that one of its preconditions – stable, predictable weather patterns – is vanishing.

At first glance, the notion that ancient forms of agriculture could help with this dilemma seems absurd. Iroquois shortnose maize, for instance, has such small ears that it is guaranteed to yield less per hectare than modern varieties. And its irregular growth – most plants are short, but some are tall, and the ears are not in uniform locations on the plant – means that it must be harvested by hand, a labor-intensive process.

But that misses the principles of the Kanien’kehá:ka agricultural system. Their homeland has a notoriously unpredictable climate, with frequent late spring snowfalls, early fall cold snaps, and sudden droughts and downpours. In the Kanien’kehá:ka system, shortnose maize is a backup.

Its small ears mature so rapidly that it can produce a crop in the brief period between an exceptionally late snowfall and an exceptionally early frost. And because the plant has a short stalk, it needs less water than conventional maize, a boon in drought years. It is the kind of crop farmers grow when they both assume unstable weather will cause crop failures and need to minimize the use of water or chemical inputs – assumptions from the past that have striking resonance for the future.

Another way to put it is that indigenous agriculture transformed European farming 400 years ago, when potatoes, tomatoes, maize, and chilis arrived from the Americas. Now it may happen again.

In June of 1964 the pioneering agricultural researcher Jack Harlan traveled to southern Turkey to find the roots of modern agriculture. Walking across the slopes of the volcano Karacadağ, he discovered “vast stands of wild wheat” – the ancestor varieties to the bread and noodle wheats grown today. Harlan “walked through the field with a paper sack in one hand and stripped the ripe seed with the other.” Despite this “obviously inefficient” method, he was able to take “more than two pounds of clean grain in an hour.” In a few weeks, he concluded, a family could gather more than it “could possibly consume in a year.”

Harlan believed he had discovered the beginning of agriculture: a landscape covered with a single nutritious species. When ancient Europeans and Asians took up farming, they replicated Karacadağ’s uniform fields across the hemi-

sphere. To do this, they cut down forests and planted cereals, surrounding their fields with fences that carefully separated farmland from everything else.

Researchers like Harlan knew of indigenous farms. At the beginning of the twentieth century, another pioneering researcher, Orator F. Cook, had studied Maya agriculture in Mexico and Central America. Its methods were “primitive,” he concluded in a 1921 monograph, suitable only for “sparsely inhabited regions,” even “actively destructive” if used too often. Fascinating but obsolete, it was fated to be surpassed by the modern, Karacadağ-style agriculture brought from Europe by the conquistadors.

But Cook – and many of his later colleagues – had misjudged what he was seeing. Part of his misunderstanding was because the Maya farmers he observed had been driven from their land and were living uncertain, nomadic lives. But another part was because Maya agriculture is so different than Karacadağ agriculture that Cook couldn’t recognize its principles of operation.

The classic Mesoamerican farm is known as a *milpa*: “maize field” in Nahuatl, the main indigenous language of central Mexico. In practice, though, the term refers to something broader: the farming, not of individual fields, but of entire landscapes.

At the center of the milpa is an irregular plot of annual crops, usually centering on maize, beans, and squash – the Three Sisters, to the Kanien’kehá:ka – which are all planted together. The maize acts as a ladder for the beans to climb toward the sun; closer to the earth, the broad squash leaves shadow the ground, reducing weeds and preventing soil moisture from evaporating. Meanwhile, beneath the surface,

the beans' nitrogen-fixing roots provide nutrients needed by maize. In and around the Three Sisters grow other, secondary crops: avocado, melon, chilis, jicama, amaranth, tomatoes, tomatillos, tobacco.

Around the central plot is a border of partially domesticated shrub and tree crops: persimmon, allspice, jocote (hog plum), nancite (hogberry), mamey or sapodilla, calabash (fruit with a hard shell used to make containers), and others. Palm trees are especially important: peach palm, cohune palm, the suggestively named Mexican wine palm. Maya farmers pick palm fruit to eat and ferment, grind the seeds to make flour and oil, pluck the fronds for thatching, and cut the stems for firewood. Even the young shoots are consumed: heart-of-palm for the dinner plate, palm wine for the dinner cup.

The whole unit with its multiple, overlapping crops is an edible ecosystem that in its complexity mimics the functions of a natural ecosystem. Working a single crop in a field for many years can strip nutrients from the soil and foster the presence of diseases, insects, and weeds. In Karacadağ agriculture, farmers avoid this by rotating their crops: planting wheat in the field one year, legumes the next, then letting the land lie fallow for a year. But in many places these measures are economically unfeasible; in others, they become less effective after a few years. Then farmers deploy artificial fertilizer, which at best is costly, and at worst can inflict long-term damage on the soil.

In the milpa, farmers sow all those crops at once. It's as if they are rotating their crops even as they grow them. The results speak for themselves. Some of the hillsides in southern Mexico have been intensively cultivated for five or six thousand years with little loss of fertility. By contrast, much of

the Fertile Crescent, including the slopes of Karacadağ, is no longer fertile (though in recent decades some areas have been restored).

Instead of using plows, indigenous Americans cultivated their milpas with digging sticks – a technique that has long struck outsiders as irremediably primitive. (“There’s something about the word ‘stick’ that bothers people,” Clayton Brascoupé, director of the Traditional Native American Farmers Association, told me. “Maybe we should call them ‘seed injectors.’”) But land is plowed because crops like wheat and barley have small seeds that can’t develop unless they have soil loose enough for roots and shoots to penetrate. Plows are not needed for milpa crops like maize, squash, and sunflower, which have much bigger seeds that can be shoved with a stick into roughly worked ground.

Moreover, plows are a prime cause of erosion and soil depletion. By turning over the soil, they expose its organic components to the air. The oxygen in the air reacts with the organic matter, creating nitrogen-containing compounds – nitrates – that nourish plants. For a while, the flush of nitrates boosts farm yields. But after a few years the nitrates are lost to erosion (plowed soil is readily washed away by rainwater), volatilization (exposed nitrates evaporate into the air), and leaching (rainwater, passing through loose soil, dissolves the nutrients and carries them off). Digging sticks almost entirely avoid these issues. Recognizing this, many contemporary farmers sow their crops with mechanized seed drills – in essence, high-tech digging sticks.

Jane Mt. Pleasant, an indigenous researcher at Cornell University, planted the Three Sisters with traditional Haudenosaunee practices, including digging sticks, and

harvested 31 to 71 bushels of maize per acre. Examining European agricultural records in the 17th and 18th centuries, she wrote in 2015 that her test plots had “produced three to five times as much grain per acre as European wheat farmers in the same time period.”

Growing maize with beans and squash, milpa-style, slightly reduces its yield, Mt. Pleasant found. But growing the Three Sisters together increases the total amount of calories taken from the field, because the additional calories from beans and squash make up for the loss from maize. At the time of Columbus, the milpa, with maize as its focus, produced more food, acre for acre, than any agricultural system in Europe.

Conventional farms today produce much more per acre than early milpas. But that is largely due to decades of research on monoculture farms at ag-research centers like Wageningen in the Netherlands and the University of California-Davis. It seems reasonable to ask what might happen if even a fraction of that effort were devoted to developing edible landscapes.

The American chestnut once grew from Maine to Mississippi, an area of more than 200 million acres. A cousin to the familiar European chestnut, it was the most common tree in the eastern North American forest; indeed, some scientists have estimated that one out of four trees in its range was a chestnut. Mature trees could be more than 100 feet tall, with trunks 7 feet in diameter that produced strong, straight-grained, rot-resistant wood.

More important, chestnuts were *food*. Roasted fresh, ground into flour, or dried and reconstituted, chestnut was a

staple of the Native American diet for millennia. In effect, the indigenous peoples of this region had two staple crops: one, planted every spring and tended every summer, was maize; the second, planted once and lightly tended for decades thereafter, was chestnut. A Haudenosaunee rule of thumb was that the nuts from a single big chestnut tree could feed a family of four for a year.

In 1904, chestnut blight – a fungus from Asia – was spotted in New York City. As rampant as it was lethal, the disease killed more than three billion chestnut trees in the next half-century. Except for a few scattered survivors, the American chestnut seemed to have vanished from the earth.

Today, however, several types of blight-resistant hybrid chestnuts are becoming available, spurring efforts to bring the tree back. The goal is more than simply restoring a vanished species: The chestnut in this context represents a chance to bring back farming with trees – agroforestry, as it is called.

Conventional field agriculture focuses on annual row crops – wheat, rice, corn, potatoes – as staples. All of these must be regrown from scratch every year, a process requiring lots of water, often from irrigation; lots of nutrients, usually in the form of high-intensity fertilizer; and, as a rule, lots of tillage. All are costly and can have severe environmental downsides – poisoned soils, toxic runoff, massive erosion, dead zones in lakes and oceans.

By contrast, chestnuts and most other tree crops use less water and fertilizer and cause less erosion than cereals. Chestnuts have shallower root systems than many other trees but nonetheless spread out wider and deeper than row crops. Below ground, the roots help to retain water and soil; they can draw up deep nutrients invisible to annual crops. Above

ground, the canopy of leaves reduces the erosive impact of wind and rain.

Most important, as agricultural writers like Tamar Haspel have noted, chestnuts can scale. A typical acre of mature chestnut trees will produce roughly the same number of calories as a typical acre of wheat – in the ballpark of 6 million calories per acre. Chestnuts have roughly the same nutritional profile as brown rice, and it doesn't matter if people don't like the taste: It is just fine for industrial uses, such as animal feed or the production of alcohol or other chemicals.

Europeans have long practiced agroforestry – look at the chestnut orchards in Liguria and Alpes-Maritimes. But European orchards are planted Karacadağ-style, as uniform monocultures. Indeed, many chestnut groves were ripped out when potatoes came to Europe, as farmers replaced one crop with another which they believed would provide quicker returns.

Indigenous agroforestry is different. Farmers burned large areas, then managed ecological succession across them. “The first nuts to fall are the ones that are never going to ripen,” the Hoopa forest biologist Frank Lake told me. “Then come the ones with insects in them. Right after that is when you burn away all the undergrowth.” The burning, usually performed late in the afternoon on a wet day, both kills the pests in the fallen nuts and clears away forest litter so that farmers can see the nuts when they fall. “While you're harvesting you scatter seeds for undergrowth plants you want” – hazel and ferns for fiber, berry plants for dessert, wild potato for starches, and so on. “There's a seed bank in the soil, but you're tilting the balance in favor of species that are useful to you.”

The results are two-fold, Lake said. The first is that the

frequent agricultural burning drastically reduces the chance of wildfire, a constant danger in the dry summer. (Because it is done in wet weather, the fires are cool enough that most of the carbon released in the fire returns to the ground in the form of smoke and soot.) The second is to convert the entire landscape into a potential zone of production, with no separation between farms and forest. “I'm talking about relatively small groups of people with very simple tools and a lot of local knowledge,” Lake said. “By managing the forest, they transformed a potential danger into a resource, into a source of security.”

In the past, there was no particular reason for rich nations to think about these practices. But as the world's people have increasingly moved into cities, they have left ever more empty land behind. One result is the depopulation of the countryside, which has led to rural populist revolts all over the developed world. But another is the creation of increasingly large areas of unmanaged, second-growth forest.

Today, roughly 40% of Europe is covered by trees, making it one of the world's most forested areas. As the climate grows hotter and drier, those new forests are at risk of dying from drought, which in turn makes them fire-prone. Even as Europeans stare with horror at the videos of gigantic fires in Australia or the North American West, they are setting up the conditions for catastrophes of their own. In 2019 fire consumed about 1,300 square miles of European forest – 15% more than the annual average for the past decade. Britain had its worst wildfire year in recorded history.

One reason for the problem is that much of the forest is land that has so little economic value that people have essentially abandoned it. Governments are unwilling to spend the money

and lack the workforce to manage these useless but hazardous forests. That could be changed if local people were encouraged to convert them into indigenous-style productive forests. The deal could be sweetened by including the consequences for climate change.

About three-quarters of global greenhouse gas emissions, according to the Intergovernmental Panel on Climate Change, are due to industry, transportation, buildings, electricity and heat production. As the futurist Ramez Naam has put it, we basically know what to do about these emissions: electrify everything, then generate the electricity with carbon-free methods.

The remaining quarter of emissions is due to land use, and the bulk of that is traceable to agriculture. Farm emissions occur mainly because annual row crops die and rot every year and release carbon from the exposed soil when they are alive. Forests, by contrast, sequester carbon in the form of wood and vegetation, storing much of it in the soil. But that advantage vanishes when the forest is consumed by wildfire. Given these circumstances, what is lost by listening to people like Frank Lake?

Technically, the name “Sahel” refers to the arid zone between the Sahara Desert and the wet forests of central Africa – a broad east-west band that runs from Mauritania on the Atlantic to Sudan on the Red Sea. Rhetorically, “Sahel” is a watchword for famine and desertification. Until the 1950s the Sahel was thinly settled. Then people from the more crowded areas to its south shifted north, into the empty zone. Like city slickers

moving into the sticks, they didn’t know how to work this dry land. In the 1960s problems were masked by unusually high rainfall. Then came two waves of drought, one in the early 1970s and a second, worse episode in the early 1980s. More than 100,000 men, women, and children died in the ensuing famine – probably many more.

In the Sahelian nation of Burkina Faso, a Mossi farmer named Yacouba Sawadogo confronted the drought. Innovative and independent-minded, Sawadogo wanted to stay on his farm with his three wives and thirty-one children. “From my grandfather’s grandfather’s grandfather, we were always here,” he told me. Beginning in the 1980s, Sawadogo hacked thousands of foot-deep holes in his fields – *zai*, as they are called – a technique he had heard about from his ancestors. Sawadogo salted each pit with manure, which attracted termites. The insects dug channels in the soil. When rain came, water trickled through the termite holes into the ground, rather than wash away. In each hole Sawadogo planted trees. “Without trees, no soil,” he said. The trees thrived in the looser, wetter soil in each *zai*. Stone by stone, hole by hole, Sawadogo turned 62 acres of waste into the biggest private forest for hundreds of miles.

To my untrained eye, his forest looked anything but miraculous: an undistinguished tangle of small trees and shrubs interspersed with waist-high grass. Then Sawadogo showed me a photograph of his land at the time of the drought: bare reddish soil, tufts of grass, a few dusty bushes. Not a tree was in sight. For me to think his land looked undistinguished was like looking at a functioning automobile somebody built out of junk in the basement and sneering at the paint job. For his battle against desertification, Sawadogo was awarded the 2018

Right Livelihood Prize, often known as the “alternative Nobel.”

As news of his success spread, Sawadogo’s techniques, new but anchored in the indigenous past, spread far and wide. The more people worked the soil, the more trees grew. Higher rainfall was responsible for part of the regrowth (though it never returned to the level of the 1960s). But mostly it was due to the hands of thousands of men and women. Next door in Niger, Hausa and Tuareg farmers used picks and shovels to reforest more than 40,000 square miles, an area almost three times larger than the Netherlands.

Key to their success was the next step: they put cattle on their recovering land. When I visited Niger not long ago, I drove across its southern edge. For mile after mile after I passed farms that consisted of scattered useful trees with cows standing in their shadows. “Without cows, no trees,” Sawadogo had told me. “If there weren’t cows, so much of this land would still be a desert.”

His words may come as a surprise. A common response to climate change is to promote eating more plants – to living lower on the food chain. Cattle are often depicted as methane-emitting, deforestation-promoting climate villains: the essence of unsustainable foodways. Pastureland is decried as wasteful, compared to row crops. This picture is largely true – it’s hard to see the ranches slashed out of the Amazonian forest as anything but a mistake. But that isn’t always the case.

Humans can only digest specific types of plant matter: soft seeds and tender stems, leaves, and fruit. Cooking can break down the tough stalks, hard roots, and dry leaves of some species, but otherwise everything in the plant is inedible. The problem is magnified in dry areas. As rainfall declines, the plants that can survive dry conditions tend to have tough,

thorny stalks and fibrous, waxy leaves made almost entirely of indigestible cellulose.

To live well in dry places, humans have several options. One is that they can replace the natural vegetation with introduced row crops, most of which will have to be irrigated. A second is that they can introduce ruminants.

Ruminants are mammals like cattle, sheep, goats, horses, bison, deer, and camels. They have complicated, three- and four-chamber stomachs that function like fermentation chambers full of microflora that break down long, tough cellulose molecules into the sugars and fatty acids that the animal can use. Our stomachs can’t do that. If we eat cellulose, it just passes through our digestive system. But humans can eat the animals that eat the inedible vegetation.

The consequences of these two choices are unexpected. Most row crops need about an acre-inch of water per week. An acre-inch is the amount of water needed to cover an acre of land to a depth of one inch. It works out to be about 27,000 gallons. An acre of wheat or maize needs that much water every week of the growing season. In the Netherlands the growing season is about 30 weeks. The average farm-plot size in the Netherlands is about 100 acres. A little arithmetic: $100 \text{ acres} \times 30 \text{ weeks} \times 27,000 \text{ gallons/week} = 81 \text{ million gallons of water}$.

Now fill the same hundred acres with cattle. In relatively wet places like the Netherlands, a rule of thumb is that farmers can graze about one cow on every two acres – 50 cattle on an average 100-acre Dutch farm. A typical cow needs about 18.5 gallons of water per day, so 50 of them in a year need about 335,000 gallons of water. That’s a lot of water – but it’s less than 1% of the amount of water needed for row crops on the same

land. (I am using approximate, rounded-off figures to simplify the calculation. But they don't affect the overall comparison.)

In dry areas, cattle can be more sustainable than row crops. Adding trees to the cattle, as the Hausa and Tuareg have, accentuates this comparison. The trees represent a second crop. African locust for seeds and fruit; shea trees for oil and soap; marula for fruit and oil; hanza for roots that can be ground into flour; baobab and atil for edible leaves and fruit – the list of possibilities is endless. Particularly noteworthy, perhaps, is apple-ring acacia, a nitrogen-fixing species that drops its leaves during the dry season, providing animal fodder.

Strikingly, this second crop does not compete with the first (cattle), as row crops would. The busy grinding teeth of cattle clear away the underbrush, reducing the risk of wildfire and beating back competition for the trees. The trees' deep roots tap water sources that are unavailable to the cattle. The animals' manure improves the soil. Cattle, trees, and humans are bound together in a feedback loop that benefits all. One study led by the World Agroforestry Center found that land productivity had increased in the Sahel agroforestry zone by 15 to 50% between 1981 and 2003. Even as climate change made the desert hotter, in other words, traditional indigenous combinations of cattle and trees made the land greener.

Like the Sahel, southern Europe will get hotter and drier. Today, for example, Italy's main agricultural products are sugar beets, wheat, maize, and tomatoes. All will become increasingly difficult to grow in a warming world. The nation's farming future may follow a path first laid out by the Hausa, Tuareg, and Mossi.

Twenty years ago, I watched Wim Sombroek jump enthusiastically into ankle-deep mud in a pit not far from the banks of the Amazon. Born in Heiloo, in the Netherlands, in 1934, the late Sombroek was a distinguished soil scientist who had been Secretary-General of the International Society of Soil Science, Director of the International Soil Reference and Information Center in Wageningen, and the Director of the Food and Agricultural Organization's Division of Land and Water. All the while, he nourished an obscure scientific passion – the passion that had led him to splash enthusiastically into the Amazonian mud.

The mud was at the bottom of an archaeological trench in the central Amazon, in the far outskirts of the city of Manaus. The trench was deep enough to be over Sombroek's head – he would need a ladder to climb out. He extracted a dog-eared Munsell soil-color chart from a pocket and compared it to the walls of the trench, grunting in satisfaction. "This is it," he said, in my recollection. "And it's easily two meters deep."

Beside Sombroek was a wall of earth so deeply gray that it was almost pure black. This rare type of soil had been the subject of Sombroek's intense curiosity since he had come across it in the mid-1960s. Existing in miles-long swathes up and down the great river, it is known as Amazonian Dark Earth (or, in Portuguese, *terra preta* – black earth). Sombroek thought it might help feed the world.

Most soil in the Amazon basin is notoriously unfertile. Red and full of aluminum, it hardens after rainfall into something like brick in the region's harsh sunlight. The lush tropical forest can grow on this poor base because its canopy shelters the soil from sunlight and rapidly recycles its own nutrients. In most cases, these soils are unsuitable for conventional agriculture,

because row crops like cereals quickly drain their resources, and the clearing ensures that the ground is exposed to the full effects of rain and sun.

Amazonian Dark Earth is different. Not only is it of a different color, it contains many more nutrients and percolates water far better than most soils in the river basin. Whereas the hard tropical rain rapidly sluices over these soils, carrying away surface nutrients, Amazonian Dark Earth absorbs both water and nutrients, keeping them available for plants. Some Dark Earth areas around Manaus that I visited had been farmed with row crops for decades without losing their fertility – a remarkable feat in the context of the Amazon.

Most important, it was Sombroek's belief that these soils had been intentionally *constructed* by the river's first inhabitants. They had modified the landscape on a gigantic scale to make it richer and more useful. Their methods were simple. When they cut down the forest to make farm plots, they covered the resultant refuse in dirt, then set fire to it. Burning in a low-oxygen environment, the refuse turned into charcoal, which they then mixed into the soil. The buried charcoal provided a habitat for useful microorganisms, which in turn increased the level of organic matter in the soil. Slowly, over time, the first inhabitants of the Amazon used the products of deforestation to enrich the forest.

Grinning, Sombroek climbed out of the trench. His boots were covered by a thick layer of Amazonian Dark Earth. I asked if he thought similar indigenous techniques could be used to enrich soils damaged by conventional agriculture.

"Oh, certainly," he said, as I recall it. "But the larger question is this. We have thousands of cultures around the world who have dealt for thousands of years with difficult agricultural

conditions. I'm not a romantic about ancient wisdom or anything like that. But we're acting as though we, alone, have all the answers. And that assumption doesn't make any sense to me."

VII

Support Your Locals. Solidarity in a sustainable and resilient urban food system

By Sigrid Wertheim-Heck and Anke Brons, translated by Maria Sherwood-Smith

In the past year we have all become more aware of just how vulnerable our food system is. It may seem long ago now, but in the spring of 2020 empty supermarket shelves were a common sight, during a brief period of widespread hoarding. The well-oiled machine that is our food supply chain suddenly had a wrench thrown into the works. Consumer panic, breakdowns in international trade, and the shutting down of entire sectors – all disrupted supply and demand. Add to that the existing challenges for sustainability, and we were left with an uneasy question: Is our current food system resilient enough to absorb such shocks? And can it continue to provide us with food that is healthy, sustainable, and safe?

Both resilience and sustainability clearly play a role in issues surrounding urban food. What does a crisis like the COVID-19 pandemic reveal about city food supplies and what does it mean for urban areas to transition to a more sustainable food system? Most food is consumed in cities, and cities are where global and local food chains come together. It is also worth noting that more and more cities – Almere among them – are turning to a more regionally organized food supply, in part due to sustainability considerations. In

addition, market mechanisms in cities determine what food is available when, where, in what quantities, of what quality, and at what price. And precisely those market mechanisms were disrupted by the pandemic.

Cities are faced with the question of how to protect the current food supply against unforeseen shocks, while at the same time facilitating the transition to the sustainable food system of the future. This essay looks at what considerations are key if we are to achieve the kind of resilient and sustainable urban food system we need.

The COVID-19 pandemic provides important insight into how a city responds to an unforeseen crisis, and how this can contribute to the transition to a more sustainable food system. Before looking at recent developments in more detail, we will first get straight what a resilient and sustainable food system actually is, starting with a brief explanation of how resilience and sustainability are defined in the literature.

We will then take the Dutch initiative Support Your Locals as a concrete case study to see what we can learn from how it mitigated the abrupt disruptions of food production and consumption resulting from the COVID-19 pandemic, and what this can teach us about the transition to a more sustainable food system. We will show that creative initiatives prompted by local solidarity are not necessarily about restoring the food system or making it more sustainable, but above all about alleviating acute problems in the food chain. Here we can discern a tension between solidarity at the national and at the international level, between acute and longer-term problems, and between supply chain and systems perspectives (see Figure 1). A supply chain perspective is linear and focuses on the provision of food from production to consumption.

A systems perspective, on the other hand, is a broader approach, in which all activities relating to food – and its production and consumption – are linked with socio-economic and ecological consequences. We conclude that resilience during the lockdown was above all a matter of solving acute, tangible, and specific problems in the supply chain, whereas the transition to sustainability calls for a more long-term, systems-based approach with an international focus. The transition to sustainable and resilient urban food systems benefits from diversity in the production and/or consumption chains, taking into account the broader system-related implications; here solidarity extends beyond the national borders.

Resilience and sustainability

In the literature, the resilience of a food system has been described as its capacity to absorb various and unforeseen disturbances and to recover from them in a way that ensures sufficient, appropriate, and accessible food for all.¹ An important aspect of this is that food systems are interlinked on various scales, from local to global. This interlinking is reflected on the plate of the individual consumer. Take the traditional Dutch breakfast staple of bread with chocolate sprinkles, for instance, which is entirely dependent on foreign-grown ingredients such as cocoa, soy, and palm oil. Or what about a classic cheese sandwich? If the milk for the cheese comes from cows fed on Brazilian-grown soy, it matters little that the dairy farmer and artisanal cheesemaker lives just down the road: The fact remains that the cheese is the product of a highly interconnected international food system. In other words, the local food supply in a city like Almere is largely dependent on food production and supply chains at the global level.

Climate change and international trade barriers (like Brexit, or the Russian boycott) had already made the resilience of the food supply an important focus of local and national policies. The pandemic, with its uncertainties and logistical crises, has trained a magnifying glass on international dependencies and geopolitical relations. Many countries, including the Netherlands, were already seeing a shift toward organizing the food system more at the national level. The COVID-19 pandemic only strengthened this shift towards greater national self-sufficiency. We saw how acute shortages of personal protective equipment for “our” healthcare workers led to a heightened sense of national awareness. There were calls for less reliance on suppliers abroad and more say over such resources within the national borders. And criticism of “rampant” globalization was not limited to the medical sector. In the realm of food, too, international chain cooperation was increasingly viewed as a problematic dependence on other countries that resulted in undesirable vulnerability.

Less dependence on other countries makes the food system more resilient. This is in line with the goal of a more sustainable food system based on shorter supply chains, which is assumed will lead to a reduction in greenhouse gas emissions. Realizing that the average meal has traveled about 33,000 km before it reaches our plates makes people keen to source as much of their food as possible as close to home as possible (either regionally or within the national borders).² In that respect the trend towards a food supply that is less dependent on other countries seems to fit with the transition to a more sustainable food system. If we consider the classic definition of sustainability, as formulated in the 1987 Brundlandt report,³ the concept also fits well with the definition of resilience

cited above. The report defines sustainability as the needs of the current generation being met without compromising the needs of future generations. So resilience and sustainability are largely complementary.

However, it remains questionable to what extent ensuring less international dependence and more local food sourcing is the right way to increase the resilience of the Dutch food supply. Food crises have various causes, one of which is climate change. And this has also caused problems in the Netherlands, where longer dry periods have aggravated the risk of smaller harvests and thus of reduced availability of “local” food.⁴ At the same time, the harvest of leafy vegetables such as spinach is jeopardized by more frequent and heavier rainfall.⁵ This too makes a local food system vulnerable, whereas to be resilient a food system must be able to supply food at all times.

What does this all mean for cities, such as Almere, whose ambition is to develop an urban food system that is both sustainable and resilient? To answer that question, we need to examine how the disturbances to the food supply due to the COVID-19 pandemic were ultimately absorbed. What happened, and what can we learn from this for the future?

Diversity and surplus for resilience and sustainability

Resilience combines two aspects: the capacity to absorb a shock, and the capacity to recover from one. The two strategies for absorbing unexpected shocks are to create a *surplus* and to ensure *diversity*.

A strategy based on surplus involves ensuring you have more of the same thing so that you can compensate in the event of shortages. Take internet access, for instance. It might be efficient

to have just one internet cable with sufficient capacity. But if that cable breaks, the whole internet is down. A resilient option would be a double internet cable, so that if one cable breaks the other can take over.

A strategy based on diversity involves ensuring variation. Again, let's take the example of internet access. In this case, you have not only a cable but also a satellite connection that can serve as a backup if there are problems.

From the point of view of efficiency, under normal circumstances both strategies are redundant. "Sustainable frugality" is often seen as efficient. In this sense sustainability in terms of efficiency is at odds with resilience in terms of surplus. But without resilience, there can be no sustainability. So the key seems to be to conserve diversity.

COVID-19 and the food supply

Preventing the further spread of the COVID-19 virus required people to avoid social contact as much as possible. This drastic disruption to daily life altered every form of routine behavior, including the buying and eating of food. People ate out less as restaurants were forced to close. They bought groceries less frequently, on average, to avoid exposure to the virus. Moreover, many households changed the way they shopped for food: More people bought their groceries online, and there were even waiting lists for online supermarket deliveries. Consumers also modified their choice of products, buying above average amounts of items with a long shelf life, like canned goods, pasta, long-life dairy products, and home baking ingredients. This made supply and demand unpredictable, which led to distribution problems in the production

and consumption chains. Large numbers of people started buying large amounts of the same products, all at the same time. Supermarkets' turnover rose, while that of restaurants vanished.

One concrete example of these kinds of problems, known as supply chain disruption, is the case of the French fry potato. There are many different potato varieties in the Netherlands, which are grown for different purposes. The varieties most suitable for French fries are mainly grown for the restaurant and catering industry, so the sudden closing down of restaurants in the Netherlands and all over the world axed sales opportunities both at home and abroad. Producers were left with a French fry potato mountain. To help them with sales and to prevent food waste, the arable farming sector launched a national campaign, Benefrietjes, calling on people to eat French fries and buy them for all their friends. The Benefrietjes example shows that disruptions to people's freedom of movement, and thus to the "normal way of doing things," can throw a wrench in the works of the production and consumption chain. In this case the well-oiled machine of the food system suddenly jammed, triggering public debate. People had to start thinking about all sorts of things that they had previously taken for granted. In this way the coronavirus served as a wake-up call to make us all more aware of our food supply, and the ensuing debate opened up space for a "new" value: solidarity. One example of this solidarity is the Support Your Locals movement.

Support Your Locals

In the Netherlands, the measures to counteract the coronavirus gave rise to a stark contrast: While supermarkets could

scarcely keep their shelves stocked, many local food producers saw demand for their wares vanish because of the enforced closure of cafés and restaurants. One food producer affected by this were the artisanal sausage-makers Brandt&Levie, based in Amsterdam. By joining forces with other local food producers in and around Amsterdam, they came up with an initiative to offer food parcels full of local produce. These were marketed under the banner *Support Your Locals*, and the resulting movement attracted many followers at the national level. Over fifty local initiatives from all over the country joined the campaign. In the province of Flevoland, for instance, the associations *Vereniging Flevofood*, *Local2Local*, and *Studio Daagsch* put together the *Flevour Box*.

Although the initiative was born of the necessity to prevent food waste and to support producers who had trouble keeping their heads above water, it did not spring up entirely out of nowhere. There was fertile ground because consumers were already paying more attention to what are known as *short supply chains*, thanks to organizations such as the Short Chain Taskforce (*Taskforce Korte Ketens*). The idea behind short supply chains is to reduce both the physical and mental distance between farmers and food consumers, foster sustainability, and bring about a reappraisal of food production. An important underlying assumption is that consumers will be more willing to pay a fair cost price for sustainably produced food, and will be more likely to include fresh and healthy produce in their diet if they know more about how it's produced. In a nutshell, short supply chains can contribute to the transition to a healthier and more sustainable food system.

In the light of this view of short supply chains, *Support Your Locals* does not necessarily stand for sustainability

and/or healthy eating. This is clear from the *Benefrietjes* initiative and the drinks and snacks box, for instance. *Benefrietjes*, first of all, promotes the consumption of French fries with a view to reducing food waste. This puts it in the sustainable category, but from a health point of view there are question marks, especially since healthy eating is particularly important in the fight against the coronavirus pandemic. People who are severely overweight run a considerably higher risk of serious illness if they contract the disease. Then there's the drinks and snacks box. Most of the food boxes in the initiative have a high proportion of fresh produce, but composition varies from one producer to another. One of the boxes on offer in Amsterdam consists almost entirely of beer and processed meats, which is at odds with the short chain objective of promoting healthy eating. The campaign was primarily born of solidarity with local food companies, and appealed to this sentiment with slogans such as *Buy local products and support Dutch taste-makers!*

Support Your Locals was a national success story, and its popularity seems to be enduring – certainly where Flevoland province is concerned.⁶ This is good news for the local food movement. The producer behind the initiative, Samuel Levie, was acclaimed as a food hero of 2020 in the Food100 list of food gamechangers, which celebrates “leaders who fight every day for a better and more sustainable food system.” Given that our aim in this essay is to examine how *Support Your Locals* relates to broader food-related sustainability objectives, we now turn our focus to forms of solidarity that play a role in the transition to a more sustainable and resilient food system.

Solidarity

Support Your Locals appeals to a broader sense of national consciousness: providing economic support to our farmers and food entrepreneurs, where “our” means “within our own national borders.” The COVID-19 pandemic has made us more conscious of our national borders in other ways too, with the sudden closure of borders with neighboring countries such as Belgium.

It is understandable and important that in times of crisis we support our fellow citizens, which makes this solidarity strongly national or even regional in focus. But as we said, our current food system is borderless, global. This is the way it has evolved, partly due to the idea, in the wake of extreme food shortages in the Netherlands during World War II, that people must never again suffer hunger. The resilience strategy of stimulating food exports also played an important role, the motto being: As long as we have food to export, we are sure to have enough for ourselves. The Flevoland polders, reclaimed land created in the post-war years for high-quality, large-scale food production, are an embodiment of that ideal.

It is important to realize, moreover, that in the areas of agriculture, trade, and the environment, the Netherlands’ policies are largely determined at the European level – and this also holds for sustainability. One example is the European Commission’s 2020 Farm to Fork strategy, which – in the words of Frans Timmermans, Executive Vice-President of the Commission – “points to a new and better balance of nature, food systems and biodiversity; to protect our people’s health and well-being, and at the same time to increase the EU’s competitiveness and resilience.” Today’s globalized food system has many undesirable facets, such as deforestation for

palm oil and soy production, but *food nationalism* is not the answer.

If we change something at the local level, we must always consider the influence of “our” food system on the rest of the world, and vice versa, since the Netherlands plays an important role in global food security.⁷ The recent call for a more internationalist perspective⁸ is certainly relevant in the European context. Dutch supermarkets have maintained close relations with farmers all over Europe for decades. Take the Murcia region in Spain, for instance: Year in, year out, Spanish farmers produce food for Dutch consumers. From the point of view both of European solidarity and of long-term food security, we should continue to cherish such relationships alongside those with “our own” food producers.

The desire for more locally produced food should go hand in hand with international solidarity. We must ask ourselves what can be produced close to home and what requires international supply chains. This involves questions such as what we believe should be available in supermarkets year round, and when we think the local supply is sufficient. The challenge is to balance changes in national and international supply chains.

We can see this balance reflected in the composition of food boxes. The “local” Flevour Box, for instance, includes a few imported ingredients for a tasty meal.⁹ The inspiration for this comes from the enclosed recipes by cookery writer Nadia Zerouali, with influences from various international cuisines. The idea behind the broad composition of the Flevour Box was also partly inspired by the multicultural make-up of the population in the cities of Lelystad and Almere: The Flevour Box was to be a food box for everyone.

But so far, the demographic reach of the Support Your Locals movement remains limited. Recent investigations by researchers at FlevoCampus into the customers for the boxes in Amsterdam and Almere revealed that the vast majority belong to higher-income groups, have an above-average level of education, and do not have an immigrant background. This shows that for the time being the local food movement remains a rather insular niche. In an earlier article we showed that the cultural and socioeconomic composition of many growing cities, including Almere, is incredibly diverse, giving rise to a wide variety of eating habits and food preferences.¹⁰

¹¹ In a resilient and sustainable food system, solidarity also means being sensitive to the diversity of urban consumers and their customs and preferences. Including “exotic recipes” is not enough. It is a matter of true social inclusiveness: Sustainable and healthy food must be available to everyone and must cater to the variety of tastes and preferences of city residents. Let’s recall that definition of resilience: sufficient, appropriate, and accessible food for all.

Sustainable resilience

That brings us back to the question of what a crisis like COVID-19 means for the transition to a more sustainable food system for cities. The pandemic intensified an already ongoing shift in cities toward a more locally oriented food system. The shock of the lockdown released a great deal of creativity, resulting in a range of innovative strategies to counter the disturbances in our food system. The shared resilience mechanism was solidarity within the national borders, often regional and urban in focus and manifesting itself in support for “our” farmers and “our” entrepreneurs.

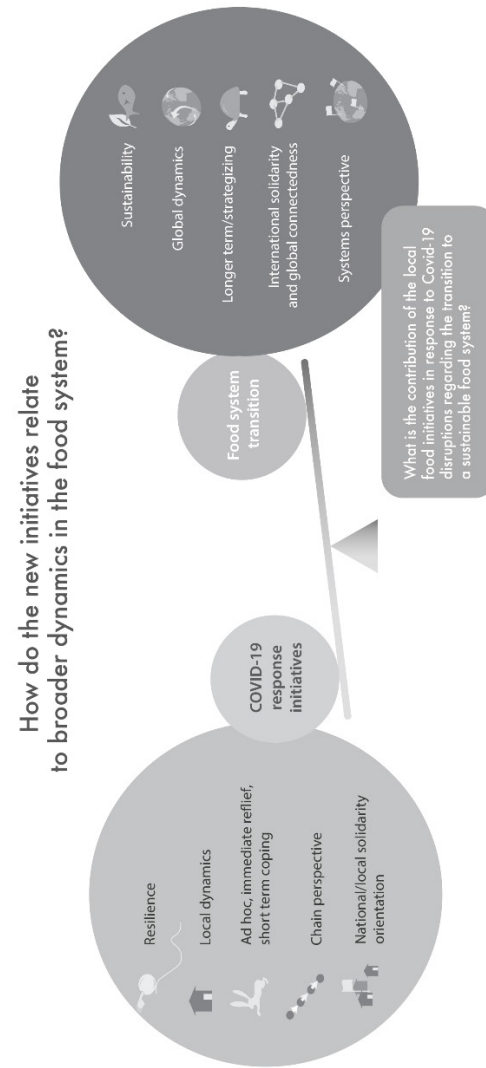


Figure 1: Balancing local resilience and global sustainability. Design: Emily Liang

In the first instance, the initiatives were directed toward *acute resilience* in the short term. But what potential do they have to contribute to *sustainable resilience* in the long term?

The greater awareness of and interest in local food and the importance of healthy eating are examples of much needed and relevant impulses for the transition to a sustainable food system. The continuing attention for Support Your Locals seems to indicate that there are indeed certain shifts underway in the food domain. This is largely the work of “our” food heroes, who are striving to create more sustainable and shorter production and/or consumption chains. But good as this innovation undoubtedly is, a resilient and sustainable urban food system calls for more and other considerations – about diversity in the production and consumption chains, for instance, both for resilience and for social inclusiveness. In addition, the promotion of national chains needs to be balanced against international solidarity. Both these considerations – diversity in the production and consumption chains and an international perspective – are necessary to ensure a resilient urban food supply that enables us to make the transition to a future-proof, sustainable, and inclusive food system.

The COVID-19 pandemic has made us aware that our food system is vulnerable and contingent. In this essay we have shown that resilience initiatives do not necessarily and invariably serve the transition to sustainability, and that the solution for a sustainable future may not necessarily lie in a local focus. Responding to unexpected disturbances in the food supply while simultaneously working toward a sustainable urban food system is a balancing exercise. We stress the importance of a broad, systemic perspective on the

transition to a truly sustainable, resilient food system to the benefit of all city dwellers. The solution is not a priori local, but short chains do play an essential role.

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VIII

Making a living from circular agriculture

By Frank Verhoeven and Joris Lohman, translated from the Dutch by Laura Martz

Can we talk about the future of the food system without using the c-word? Probably not. Since Minister Schouten of Agriculture set out her policy vision on circular agriculture in 2018, debate has been raging in Dutch society. Initial enthusiasm for the concept has gradually ebbed, and what's left of it could soon blow away on a cloud of nitrogen. The debate centers on two main perceived weaknesses: Circular agriculture is hazily defined, and it offers inadequate financial prospects for farmers. The controversy is unnecessary, Frank Verhoeven and Joris Lohman argue in the below essay. A definition of circular agriculture most certainly does exist. The big question is how farmers can earn a good living from it.

Minister Schouten wants the Netherlands to become a leader in circular agriculture by 2030. She regards the transition to circular agriculture as a necessary intervention in a highly globalized food system. We import livestock feed from Brazil, we export milk powder to China, and here at home we're literally and figuratively left with the shit.

Adopting a new system will mean bidding farewell to the postwar policy aimed at providing plentiful and cheap food for everyone that made the Netherlands one of the most

modern agricultural nations on the planet. Known abroad as the “tiny country [that] feeds the world,”¹ we’re an inextricable part of the international food web, thanks in part to the Port of Rotterdam, and we’re an important import, export, and transit hub. Minister Schouten’s policy vision on circular agriculture represents a decision to regionalize the Dutch food system and switch to exporting circular agriculture expertise instead of potatoes, milk, and onions.

Of course, things aren’t quite that simple. First of all, is it bad to export high-quality food? And if animals are eating our food scraps, isn’t that already a perfect example of circularity? Here in the Netherlands we already produce food in a highly efficient way with a low carbon footprint. If circular agriculture is about producing more with fewer materials, then we can rightfully say that the Netherlands is already an international leader in this area. “Circular agriculture?” people in the sector often say. “We’ve been doing it for years.”

Circular agriculture is only one aspect of the multidimensional challenge of moving toward sustainability. The picture changes as soon as you look at, for example, how farming contributes to nature and the landscape, or the distances that purchased livestock feed and removed manure have to travel. Then you realize that our oh-so-efficient agricultural system isn’t actually so efficient after all.

The definition of circular agriculture

A lot of research has been done on how farmers can close the cycle. From those studies we can derive the following definition: circular agriculture means optimizing a farm’s economic and social returns by using materials already present on the farm wherever possible while respecting the natural environ-

ment (that is, paying attention to soil, air, water, and nature quality and to the landscape, the climate, and animal welfare).²

You might think every farmer works in this way. Not so. In the professional literature, researchers distinguish different types of farms according to how they handle raw materials and the environment. For instance, a small minority focuses solely on maximizing production. Many of these businesses push the boundaries of the law.

The vast majority of farmers – let’s say the average agricultural business – stays within those boundaries. These farmers are aware of societal debates around farming and take advice from external agricultural advisors and associations. But they aren’t specifically focused on closing the cycle. Often, they are heavily financed by banks and have no choice but to continue to expand to keep up with rising costs.

Alongside the “average” farmers and the boundary-pushers is a group – in the Netherlands, approximately 15% of farms – that’s already working according to circular agricultural principles as defined above. They often do so using high-tech methods, deploying precision techniques to maximize efficiency – for example, to minimize greenhouse gas emissions per liter of milk. These farmers are using technology to close the cycle.

In contrast to them, another group, known as natural farmers, concern themselves not with technological possibilities but with the earth’s limits. They make the most of nature in their work, for example by maintaining extensively managed, herb-rich grasslands and forest gardens.

Finally, in between the high-tech farmers and the natural ones is a group that practices circular agriculture for the sake of sustainability. They’re already careful with the raw materials

they have on hand, they care about biodiversity, and they're earning money because they offer different products and services than most.

It's the farmers in this last group who currently come closest to the ideal of the *circular farmer*, and in our view, they will be key to implementing Schouten's circular vision. These farmers aren't especially conspicuous; they're professionals who've been looking for years for ways to reduce the amount of outside materials they use on their farms. They follow the maxim that you don't have to buy what you already have.

Their success is owed in part to a large degree of independence. They're individualistic in a positive sense: They're frugal, they approach every aspect of their businesses conscientiously, and they supply a variety of products and services. In everything they do, they prioritize the health of the soil. These farmers work in an integrated way, take a broad view, and spot opportunities. They regard every aspect of their farms and the natural environment as part of an interconnected whole. This strategy makes them less dependent on others. They are often skilled in other areas too – not only as farmers but also, for example, as breeders, business experts, or financial specialists. They are true entrepreneurs, or better: genuine professionals. Their farms are more environmentally oriented than the average agricultural business.

The transition to circular agriculture

For this last group of farmers, circular agriculture isn't vague or abstract, and it's definitely not "what we've all been doing for years" in the Netherlands. The vast majority of farmers are not yet excelling at any form of circular agriculture. However, the current generation of circular farmers can serve as an

example and an inspiration for others who would like to work in a different way but don't yet know how.

If we want the principle of circular agriculture to catch on with farmers – and their advisors and instructors and our policymakers – it will need to become a more obvious choice than it is at the moment. And for that, we'll need targeted actions and incentives. We'll need a well-supervised, practical strategy that will get farmers to systematically reduce their use of artificial fertilizers, concentrates, pesticides, and financing. This will increase overall profitability and strengthen farmers' bond with the natural environment.

To enable a transition to circular agriculture in the Netherlands, it's important to get it into the heads of farmers and the public that the tasks at hand transcend the level of the individual farmer. Circular agriculture is the responsibility of society as a whole.

Imke de Boer, a professor of livestock and sustainable food systems at Wageningen University & Research, has an interesting vision of how it could work. She argues that we should use Dutch farmland to produce food for *people* first of all, and waste streams to feed animals. Grassland plays a key role in her model. In some soils, not much can grow besides grass, and it can be a valuable soil improver in arable farming. To maximize the value of grassland, you need ruminants, like cows or sheep. In De Boer's view, livestock feed should come from agricultural biomass unfit for direct human consumption, which means grass and crop residues but also waste streams from the industry and household food scraps. There are plenty of techniques available for converting low-grade biomass into high-quality animal feed; fungi can break down the indigestible woody parts of plants, and there are other

processes involving insects. We should also optimize the use of manure to fertilize farmland.

This is about much more than what individual farmers can do. It's about circular agriculture as an overall vision for the food system, from farm to fork. Citizens and consumers will also be expected to play an active part in achieving a circular agricultural system. If circular farming is to be implemented on a large scale, then people's diets will have to change for good. We're going to have to eat less meat and waste less food. In this view, consumers have a key role to play in individual farmers' transition to circular practices.

Unfortunately, history teaches us that consumer behavior is difficult to influence. It doesn't help that the Dutch government in general subscribes to a fairly hands-off ideology. Of course, it has instruments it can use to intervene in the market; for example, it could impose taxes on certain products (like the infamous *meat tax* proposal) or reduce sales tax on fruit and vegetables. But such moves generally can't count on much public support. Still, we should demand more from the Dutch government, and the Ministry of Agriculture, Nature, and Food Quality in particular. Minister Schouten needs to finish what she started.

Making circular agriculture a reality will require more than tightening the rules, making a few tweaks here and there, and subsidizing new knowledge on the topic. The starting point needs to be persuading the average farm to switch to a circular model. To do that, not only must there be agreement around the definition, but farmers also need to know exactly what criteria they have to meet to successfully work in this way. To help, Frank Verhoeven of the sustainable farming consultancy *Boerenverstand* and Jan Willem Erisman, a professor of

environmental sustainability at Leiden University, drew up a set of key performance indicators (KPIs) in 2019 that can be used to measure all farmers against the same yardstick. They can be used to work toward policy goals and set up reward mechanisms. They will also give farmers a clearer framework for making everyday decisions on the job.

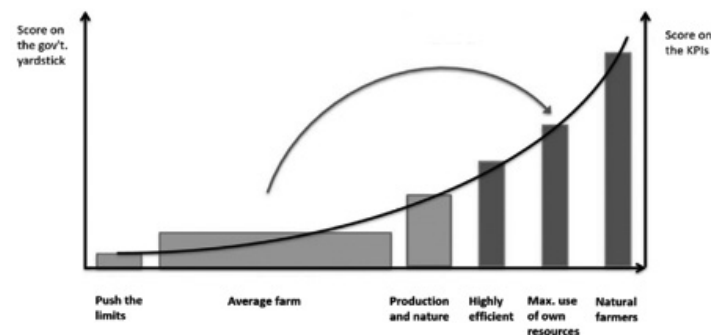


Fig.2 The scores given different types of farms on the yardstick from the Ministry of Agriculture's policy vision (left axis) and on our KPIs (right axis). Reflects the transition from average farm (light) to circular farm (dark). Bar width indicates the relative number of Dutch farms in each category.

Indicators for circular agriculture

Circular agriculture, or in fact sustainable farming, involves seven areas. Each has a corresponding KPI. The first is soil management: how the farmer treats the soil. Second is the extent to which the farmer is able to get by on their own land without adding or removing things – i.e., externally sourced materials like livestock feed and waste that can't be disposed of on the farm, such as manure – and the distance those materials have to travel.

Third is the extent to which the farm contributes to an attractive, vital landscape; fourth is the farm's contribution to biodiversity. Indicator five is the degree to which a farm approaches energy neutrality, and six is animal welfare, assessed through metrics such as antibiotic use. Finally, the seventh indicator is to what extent the farm is anchored in the larger community. Does the farmer forge connections with outside visitors? This last indicator can be expressed in the number of activities on and around the farm that draw a wider public. Farmers who score well on all the indicators are circular agriculture's frontrunners.

Eventually, this KPI yardstick will help farmers, working with other parties – the bank, suppliers, customers, interested neighbors – to move in the direction of sustainable farming. It could end the interminable debates around exactly what “circular agriculture,” “climate-neutral agriculture,” or “nature-inclusive agriculture” is. It fills out the concept of *sustainable farming*. With increased agreement around the indicators for the various areas, not only will all parties be speaking the same language, but *reward stacking* will be possible. For example, in a project currently under way in the Dutch province of Drenthe, farmers can use their KPI scores to “stack” a provincial reward for sustainability efforts, a loan interest rebate from their lender, and a bonus payment from the dairy processor FrieslandCampina's sustainability program. Thus, multiple parties help pay for farmers' sustainability efforts, and the results become more persuasive. Different bodies can use the KPIs for different purposes. The national government can use them to more effectively monitor progress toward policy goals, and hence to achieve those goals. Provincial governments can use them to issue permits and rewards.

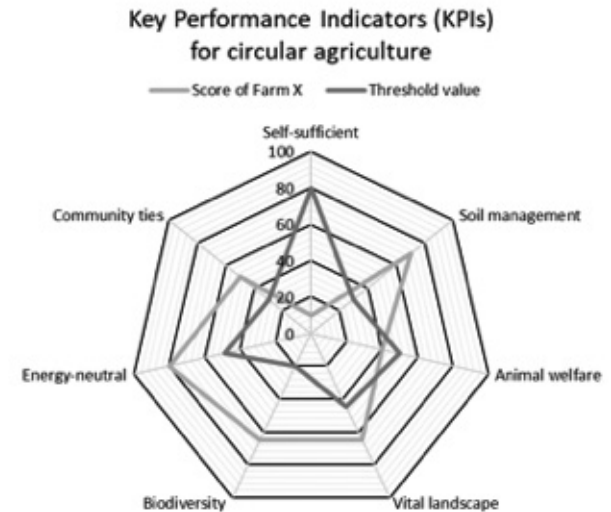


Fig.3 The KPI spiderweb: Key Performance Indicators for circular agriculture

The spiderweb diagram makes it clear that farmers are best off paying attention to all the goals and choosing the most economically attractive path within that context.

The KPI system is a work in progress. Additional indicators will relate to the farmer's chemical use and other records. Still others will have to do with the location and layout of the farm and its fields. Where does the farmer live? What kind of soil do the fields have, and what type of landscape are they in? The image below is an example of a farm's “opportunities map.” Developed by Boerenverstand, it shows which actions the farmer is already taking and where there are opportunities to do more. Examples include sowing herb-rich grassland, planting herb-rich field margins, improving water quality, and capturing carbon by increasing the levels of organic matter. Together, the KPI scores and actions form the basis for a farm's path to sustainable agriculture, as shown on the map.

Cooperation between industries offers opportunities but requires communication and mutual trust. Dairy farmers are inclined to think primarily about their own sheds and land. Crop farmers need to understand how circular agriculture benefits dairy farmers and vice versa. It would be nice if stockbreeders could be persuaded to give their animals more feedstuffs that came directly from crop farms. Fortunately, they are doing so increasingly often. Some stockbreeders have silos on their property full of feed from nearby farms. Circular agriculture isn't just a question of money but also of creating confidence and long-term prospects. And this is a task for regional alliances between parties such as citizens, farmers, water boards, municipalities, provinces, and other stakeholders who use and manage the soil and the landscape. They should take the initiative to close cycles and help farmers absorb risks and find new revenue models.



The revenue model behind circular agriculture

An oft-heard objection is that circular agriculture hurts farmers. Under the definition we use, farmers lower their costs by minimizing the use of external resources, producing less waste, considering the soil, sourcing feed nearby, and keeping their animals healthier. For years, the frontrunners have shown that working according to circular principles increases profits overall. Yet for a large group, that's still not enough to make the switch. Moreover, some achievements cost more than others. In any case, the KPI system can help to make those achievements clear and enable the stacking of rewards such as interest rate rebates from banks. Continuing with the current system, in which prices are set by global markets, leaves farmers little room to earn more from circular agriculture.

Notwithstanding any policy vision or who's currently in power, the main challenge in our view for the transition to circular agriculture is to ensure that it improves the agricultural industry's economic prospects. Below, we offer some initial suggestions for ways to boost farmers' earning capacity, and therefore the outlook for circular agriculture, at different levels of scale from regional to European.

Increasing earning power at the regional level

The agricultural sector needs to start thinking from the consumer's perspective. People don't usually drink raw milk or eat wheat or whole pigs; they buy cheese, yogurt, bread, beer, sausage. Making agriculture sustainable doesn't start with agrotechnical considerations but with the market: What sells?

Farmers could take inspiration from the Herrmannsdorfer estate in southern Germany, which focuses on producing

high-quality German staples: beer, sausage, and cheese. In the sober-minded Netherlands, a combination of slow food (emotion) and optimization of circular farming (reason) would be a more obvious sell. Picture a lane in the agricultural province of Flevoland, with a business like The Vegetarian Butcher in the middle, a shop next door selling sausage from free-range pigs fed exclusively on food waste, and a third offering brie cheese from the local grasslands alongside a restaurant and various educational and recreational activities. Here, skilled trades are placed back at center stage: There's the chef, the butcher (possibly vegetarian), and the farmer. There's space for circular startups producing duckweed, algae, lupines, insects, and so on. Everything revolves around making the best possible food. In the world of circular agriculture, the focus is often on animals eating human food waste, but the more of a processing industry there is, the more waste streams will be available for livestock farming.

Increasing earning power at the national level

Cooperatives (like Avebe, Agrifirm, FrieslandCampina, and Cosun in the Netherlands) play a powerful guiding role in the agricultural sector. The government could make a circular farming agreement with the co-ops. Agricultural advisors whose job it is to tell farmers to bring in more external materials should be told to stay away. The government must press these cooperatives to come up with stronger concepts that place a higher value on circular agriculture and farmers. Banks can play a part too – for example, by setting up a fund to manage the risks farmers face if they decide to switch to circular agriculture.

Increasing earning power at the international level

Ultimately, the biggest challenges are at the European level. Earning more money from circular agriculture will be possible if the farming and processing industries are able to explain convincingly why it's better in the long run for people, animals, and the environment. And this is the major weakness of Schouten's policy vision: It falls between two stools.

On the one hand, we in the Netherlands want to sell circular agriculture products to French, German, and British consumers at higher prices; on the other, we want circular agriculture to become the standard within Europe. Under the current market model, we can have one or the other. A protected internal market in which the EU countries agree on standards for circular agriculture and thereby set up an inter-regional circular farming economy is a fine dream, but at the moment, it is far removed from political reality.

Notes

1. <https://www.nationalgeographic.com/magazine/2017/09/holland-agriculture-sustainable-farming/>.
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IX

How a historical perspective on food can make today's world a better place

By Hester Dibbits and Lenno Munnikes, translated by
Laura Martz

We tend to approach big societal issues concerning food and diet from a monodisciplinary perspective – be it medical, health, behavioral, or sustainability. And although cooperation between related disciplines is increasingly common, it certainly isn't the norm to address urban nutritional problems armed with a cultural-historical understanding of food and eating habits. In this essay, we ask where such a novel approach might take us. What would happen if heritage and nutrition professionals joined forces? What if they worked together with policymakers, business owners, and other stakeholders, to train their gaze not only on the present, but also on what got us to this point? Flevo Campus and the Cultural Heritage lectorate program at Reinwardt Academy (Amsterdam University of the Arts), together with numerous partners, intend to find out.

After outlining what prompted this initiative, we will reference a few cases to illustrate how historical knowledge can shed light on contemporary practices relating to diet and food. Then we'll discuss the conceptual and historiographical framework that will provide the foundation for our collaborative efforts. This framework will add knowledge that will

be key to solving today's food questions. And tomorrow's.

The issues around food are so complex that the solution cannot be found in a single discipline. Rather, experts in different fields must share their knowledge and work together. What follows is a plea for interdisciplinary cooperation.

Changing ingrained habits

For decades now, researchers, politicians, policymakers, product developers, nutritionists, dietitians, and other professionals have been trying all sorts of strategies to get people to eat in healthier and more sustainable ways. The numerous examples include restrictions on unhealthy foods; attempts to stop marketing aimed at children; collective agreements to cut salt, sugar and fat content; and proposals to ban fast-food outlets near schools.

These are all well-intentioned actions aimed at improving the welfare of adults and children. In practice, however, they have met with limited success. One reason is that our eating patterns are part of our identities: We are what we eat. We consciously and unconsciously adopt all sorts of habits. We develop a taste for certain dishes that lasts not only throughout our lives but influence generations to come.

Food preferences embed themselves within us and aren't easy to change. Yet at the same time – or perhaps precisely *because* food has such a powerful effect on our lives, bodies, and feelings of well-being – as autonomous individuals, we prefer to decide for ourselves what, where, and with whom we eat.

How can looking to the past help us eat in healthier, more sustainable ways?

Making creative use of the past

Many creative entrepreneurs operating in the food industry regard the past as a rich reservoir to draw on when attempting to entice consumers to make certain choices. In marketing claims that capitalize on feelings of nostalgia and belonging, they deploy local, regional, and national factoids and traditions – sometimes rediscovered truths, sometimes pure fiction. But we believe history can be used in a different and better way.

The conscious, critical application of historical knowledge, in the broadest sense of the term, can provide a refreshing view on ingrained practices. Take vending machines. If we assume these everyday objects contain unhealthy snacks by definition, there's something to be said for getting rid of them entirely. Many people also regard them as vulgar, dirty, or unsightly.

How different things were in the early 20th century, when the vending machine was new and presented as a great technological feat. Vending machines were a core feature of *Automats*, fashionable eateries where you fed coins or tokens into a machine and then picked what you wanted to eat and drink from the compartments and fountains. In some places, it wasn't until the 1970s that the rise of mass-produced fast food gave Automats a somewhat tacky image.

But the convenience of the Automat and its vending machine technology could be put to good use as a means of selling healthy products cheaply and quickly. Especially in busy locations, such as train stations or hospitals, they could be an ideal tool for encouraging consumers to make different, healthier choices. If interdisciplinary research teams were to delve into the history of these machines, the result could be a wealth of information useful for developing the *vending machine 2.0*.

Another example, specific to the Netherlands, is the croquette.¹ Today it's regarded as a treat appreciated by all strata of the Dutch population, and high-end versions are sold at the likes of Amsterdam's Patisserie Holtkamp. In the 1920s and '30s, however, croquettes were made from leftovers by the city's Jewish butchers and sold primarily as byproducts. Knowing this gives us relevant information about how the product changed, about consumer behavior, about the places where croquettes were eaten, and about how butchers once transformed scraps into what has now become an iconic product. And all that gets us thinking about our present-day eating habits. Things weren't always better in the past, but history can give us ideas about how to make things better today.

A final example is fermentation. The practice is all the rage, but only among a select group. Enthusiasts know everything there is to know about this traditional preservation method. These *knowledge brokers* boast archival knowledge as well as practical or craft knowledge that can be put to a wide range of uses. And heritage professionals, in turn, can play an important role as information sources and researchers: Where do today's fermentation experts get their knowledge? What and who are their sources of inspiration?

Another question is why so many people are repelled by the idea of fermentation. Here, too, we believe it can be helpful to look at the food preparation methods and taste traditions that are handed down from one generation to the next. Could resistance to long-term storage of food be related to people's disgust at the overcooked vegetables they were served in childhood? Unpleasant memories of these – or, perhaps worse, of spoiled food – could kill any interest in experimenting with fermentation.

To find out what associations people have and how these relate to their personal histories and the sociocultural environments they grew up in, we must look at everyday culture. It is precisely by interrogating the everyday that we gain insight into the fabric of daily life, into how things were in the past. And we see that on the one hand, eating patterns can be tenacious, but on the other, they can change overnight, as the fermentation example illustrates.

Food culture as invention

Interrogating specific everyday phenomena from a cultural-historical perspective doesn't just yield fun facts about traditions and customs. It also gets us thinking about change and continuity, cultural transmission and appropriation, taste and identity formation, and the ethical aspects of professionals, policymakers, and others intervening in people's everyday lives. Such critical reflection is necessary for effectively addressing contemporary problems in nutrition, health, and sustainability.

Cultural-historical research on food and diet reveals the dynamics of a culture and makes short work of any approach that assumes the existence of geographically or socially delimited groups based on class, ethnicity, or religion. Eating and drinking are performative practices, actions through which people shape their lives. They do so over and over, in a slightly different way every time, depending on the historic, geographical, or social setting. For each of us, these actions interact with our experiences and expectations and end up as part of our personal "archive."

The labels we use to organize our archives and the associations evoked when we assign them vary from person to

person, but we can identify some collective patterns. On hearing the phrase “Italian food culture,” for instance, many people will picture leisurely evenings at long tables covered in white linen with handmade pasta and sauce made from overripe tomatoes. And “French haute cuisine” will conjure a tradition of exquisite meals going back centuries. So far, so lovely. Ask a French or Italian person where the best food in the world comes from and they probably won’t take long to answer. Over time, however, labels like “Italian food culture” and “French haute cuisine” have become associated with less positive things, too, such as fattening carbohydrates (Italian pasta and pizza) and animal abuse (French foie gras). Which of these images predominates depends on the context. And meanwhile, even the most stubborn traditions are subject to change; after all, every generation has to acquire them anew.

Cultural-historical research can help us to think about the idea of taste and the question of how it gets passed down from one generation to the next. The work of the French sociologist Pierre Bourdieu (1930–2002) is still very useful here.² Bourdieu draws our attention to the intergenerational transmission of taste preferences, linked to status and social capital, and the fact that everyday interaction is often precisely where our ingrained habits, individual and collective, very subtly take shape. With increasing attention being paid to the sensory aspects of taste in recent decades, new questions have arisen, and with them, a need for new research methods and an awareness of the gains that can be made through taking an interdisciplinary approach.

A national food culture (or lack thereof)

The collaborative effort we have in mind will not be limited to academically trained researchers and professionals from

different disciplines. Ultimately, we envision an intensive partnership between academics, professionals, policymakers, businesses, and citizens. The common denominator, in our view, is a shared desire to gain more insight into the relationship between our behavior and how it contributes to the general well-being of the planet and its people.

We regard paying attention to the conceptual framework we work within as a prerequisite here. How can we use the concept of identity, for instance? Identity is an interplay between image formation and praxis, between thought and action. The images we form of ourselves and others are based partly on stereotypes and clichés. (“Tell me what you eat, and I will tell you who you are.”) And they affect our actions, how we behave and deal with others.

Conversely, our actions also affect our thoughts. How we behave, treat others, and are treated by them influences our thinking. This is part of the interplay. Identities, then, are more than just mental representations. One example is the idea that the Netherlands lacks a rich culinary tradition and that all Dutch food is ultra-simple. That’s not only an idea out there, it’s one many people cherish.

Looking at the past, we notice how from the 18th century onward, in various places in the world, there arose unequivocal representations of nations believed to have their own national food cultures. The Netherlands was regarded as having none, or next to none. This had to do with a number of factors that merit the attention of the knowledge coalition we are proposing here. The Netherlands was also thought to lack a culinary history, haute or otherwise. A quick look at what the historical literature has to say about this immediately raises questions with implications for contemporary education and

the relationship between individual practice and professional intervention.

So what does the literature tell us? Scholars ascribe the Netherlands' lack of a culinary history to the absence of a grand court culture or strong aristocratic tradition in the country. Their presence is cited as the reason countries like France and Italy have a sophisticated gastronomic culture in both home and restaurant cooking. Fascinatingly, it was precisely in countries without such a culture that a new phenomenon emerged at the end of the 19th century: domestic science schools. They prepared girls for life as homemakers and taught cooking as an essential skill. In France, homemaking skills were taken for granted and therefore not taught as such in schools.

A collective food culture, whether of a nation, region, or social group, is shaped not only from below but also from above. Social power structures matter, as does the content of education. The media play an important role too. The clichés and rediscovered (or invented) traditions they disseminate help shape what we eat and where, at what time, and with whom. A meal comprising potatoes, vegetables, and a meatball with gravy is not only a cliché that confronted multiple generations of Dutch every day in the media but also a practice they were taught as children. How the practical lessons taught in domestic science schools, and more recently in dietetics education, have determined Dutch food culture could be the subject of a case study.³ Such a study could supply important insights for designing the education of the future.

Building on a tradition

In our joint search for solutions to contemporary problems in the field of diet and sustainability, we can avail ourselves

of a long tradition of cultural-historical research into eating, behavior and food. We do not need to reinvent the wheel.

There is a long history of interest in food as a cultural practice that is reshaped over and over again in everyday life. In the 18th century, the Dutch chronicler Johannes le Francq van Berkhey cast a sharp eye on changing traditions around eating and drinking, diet and health.⁴ If we restrict our gaze to the 20th century, we see that the sociocultural aspects of food, diet, and eating behavior were embraced as serious objects of study, especially from the 1960s on. The symbolic meanings attached to food and eating assumed a central importance. Scholars treated the subject in a somewhat static way, however, focusing mainly on fixed patterns, traditions, and variations on them.

They began taking a more dynamic approach to the subject in the 1970s. The scholarly literature started focusing more on production, health, and consumer behavior. In the 1980s, it began to take a turn toward haute cuisine, social differences, and aberrant eating behavior. Leading sociologists and anthropologists like Mennell, Mintz, Goody, and Fischler began publishing works on food, diet and eating behavior from within different disciplines.⁵ Where and what people ate, and with whom, became important areas of research.

Since the 1990s, scholars in the Netherlands, too, have been studying eating behavior and food from within different disciplines. The sociologist Anneke van Otterloo has written about snack culture, vending machines, and eating standing up.⁶ The social geographer Adel den Hartog has published work on the technological aspects of eating at home and outside the home.⁷ And European ethnologists have taken a markedly interdisciplinary approach to the subject. In 1996

in the Netherlands, Jozien Jobse-van Putten published the book *Eenvoudig maar voedzaam. Cultuurgeschiedenis van de dagelijkse maaltijd in Nederland* (“Simple but Nourishing: A Cultural History of Everyday Meals in the Netherlands”), in which she looked extensively at regional variations.⁸ The book came out in what we could, in hindsight, call the heyday of cultural history. Various important cultural-historical studies have been published in subfields since then, but these, like previous work, have remained largely off the radar of those who concern themselves with contemporary issues around diet and food.⁹

Looking at the academic study of diet and food today, we see that it is generally approached from a medical, health, behavioral, or sustainability perspective. Emphasis is placed largely on what is and isn’t good for us, the intake of particular nutrients by the young or old, the effects of obesity, behavioral change, climate effects, and the consumption of animal protein. While these are important topics, they tend to be written about in a fairly one-sided way, usually from a problem-driven perspective. The social, cultural, and historical aspects of food, diet, and eating still seem to belong to a separate academic sphere.

Contemporary heritage professionals, meanwhile, don’t typically take a historical approach either. In recent decades, heritage education has shifted its focus from the collection, management, documentation, and presentation of museum objects to how professionals can contribute to a multivocal approach to dealing with traces of the past. The emphasis now is less on the selection, protection, and sharing of heritage by institutions and professionals and more on the often wide-ranging emotions, experiences, and interests around it.

The change has been a fruitful one: Today’s heritage professionals are creative connectors.

As connectors, they can be particularly useful in the collaborative effort we are advocating here. But in our view, heritage can and should play a bigger role than that. It is important that professionals in all fields pay attention to history, and not just very recent history. It should be emphasized that we do not just mean knowledge gleaned from archives; more attention also needs to be paid to the lived experience of people: the corner butcher, the Michelin chef, the organic farmer.

Knowledge-sharing between all stakeholders in an authentic, realistic setting is the best way of developing and applying new knowledge. This will benefit not only education, research, and policymakers but also businesses looking to offer healthier, more sustainable, more socially responsible products without compromising on craft. Looking at complex issues partly from a cultural-historical perspective will generate new knowledge and enable the updating of existing knowledge. There is no isolated humanities-, social science-, or science-based solution to society’s food problems. The solution to making more sustainable, healthier choices possible without sacrificing the social and cultural aspects of food lies in connection. This is how we will make the world better – together.

Notes

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2. Pierre Bourdieu, *Distinction: A Social Critique of the Judgement of Taste* (London: Routledge, 1984).
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 4. Hester Dibbits, *Vertrouwd Bezit. Materiële Cultuur in Doesburg en Maassluis, 1650–1800* (Nijmegen: SUN, 2001).
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 8. With regard to this, also see the farewell address Willem Frijhoff gave on June 1, 2007, on leaving his post as professor of early modern history in the faculty of humanities at VU University Amsterdam, published as Willem Frijhoff, *Dynamisch erfgoed. Of: heeft de cultuurgeschiedenis toekomst?* (Amsterdam: SUN, 2007).
 9. For a recent overview, see “Over vette en magere jaren. Voedselgeschiedenis

vanaf de Griekse agora tot op de Amerikaanse televisie,” ed. by K. Beerden et al., special issue, *Leidschrift* 34, no. 2 (2019). In the introduction to this issue of the journal, Marlou Schrover provides an overview of the extensive literature on the history of food and eating culture.

Food culture and social media. The role of the digital in shaping sustainable practices

By Emily Whyman

When it comes to food, we are living in a societal paradox. We produce more than we can consume, while our aesthetic selection methods guarantee that lots of perfectly good produce ends up in landfills. We need to transform our food system, and this requires behavioral change and the socialization of more sustainable practices. The digital revolution can play a key role here. Social media has the potential to organize citizen-driven change, making food system change possible. Something similar has been seen with other protest movements. We have not yet experienced a coordinated response to change our behavior with respect to the food system; digitalization presents this opportunity.

From the industrial revolution to the digital revolution

The late 20th and early 21st-century economic model has enabled mass industrialization of the food system, encouraging rapid methods of production and consumption. We produce more food worldwide than ever before and now face the stark reality that more than half the world's people live in countries where more people die from being overweight than from being underfed.¹ In our industrial food societies, food is communicated sometimes as pleasure but often purely as sustenance, where the act of eating takes time away from

other, more “productive” activities. Advertising reflects our desire for efficiency at the expense of real-life experiences: We are “grabbing a bite to eat” or taking lunch *al desko*, ordering take out, getting food “to go,” or eating “on the go.” This form of communication has not only undermined public health in many Western nations, it has soured our relationship with food to one that also threatens the environment.

At the same time, it is globally acknowledged that we need to transform our food system in order to reduce greenhouse gas emissions, achieve the United Nations’ Sustainable Development Goals, and to become mentally and physically healthier.² This change has been recognized as the need for a behavioral shift in our diets – something which digital media can play a huge role in facilitating.³

With post-industrialization came the digital revolution. This has enabled much of the global population to have distributed access to rapid internet from smartphones and other portable devices, which have the potential to connect new networks and movements.⁴ With the emergence of digitization, a much broader spectrum of information is accessible online. That gives rise to a new form of knowledge distribution from wider networks, where sources of information go beyond official bodies or experts and are not necessarily regulated or even fact-based. Often, we receive information online via digital communities which connect to share images, guides, and ideas. The term *Digital Leisure Culture* can be applied to this activity, and while previously one’s sense of belonging was heavily influenced by nation, education, or occupation, that is now exchanged for the sense of belonging to online communities.⁵ This sense of belonging means that digital platforms and social media have huge potential to engage society,

promote more sustainable behaviors, host knowledge-sharing exchanges, and mobilize movements.

Digitization has also affected our relationship with food. We connect with food through many different interfaces – restaurants, take-out windows, our own kitchens, delivery services, via social media, television screens, and each other. But do we actively participate or passively watch? Some methods have distanced us, the consumer, from not only the product but also the producer. Without noticing, we often become passive users in our relationship with food. The question is whether there are more effective food dissemination methods that would ensure we actively participate in transforming the consumption culture. To do so requires a sense of belonging to a community or movement that advocates sustainable food practices.

Digital forms that enable participants to act

Roughly 45% of the world’s population now spends around 2 hours or more a day on social media.⁶ The existence of digital platforms such as Instagram, Facebook, and Twitter highlights our hyperconnectivity to imagined communities. The concept of imagined communities has been applied previously by Benedict Anderson, a political scientist and historian, to the idea of the nation-state. In short, it explains how even though members of imagined communities can never all know one another, they still feel a sense of connection. This has been further developed in media studies and applied to the acceleration of technology – in which communities begin to develop a sense of belonging through print and digital media.⁷ Social media and citizen media participation can enable physical actions, empowering people to mobilize quickly. Countless

examples include the collective action of the Occupy movements, Arab Spring, the Black Lives Matter protests, the MeToo movement, and the maker movement, which I'll get into in a moment.⁸ These networks have provided opportunities for new discourses of community.

The increase in global access to social media platforms has the potential to enable powerful participatory practices. A *participatory culture* can develop, as discussed by Henry Jenkins, Mikuzo Ito, and Danah Boyd in their seminal book on the subject from 2015. Structured as a series of conversations in which the authors take part, it starts from Jenkins' definition: "A participatory culture is one which embraces the values of diversity and democracy through every aspect of interactions with each other – one which assumes that we are capable of making decisions, collectively and individually, and that we should have the capacity to express ourselves through a broad range of different forms and practices."⁹

That brings us to the maker movement, a movement of DIY-ers, inventors, designers, tinkerers, and crafters who come up with and then build things to their own specs. Within media studies and social sciences, we say the ideology of the maker movement reflects that of a *community of practice* (to avoid the "stickiness" of the word community).¹⁰ A community of practice connects people together through a shared knowledge of crafting or making something. In this sense, the maker movement can also be seen as an imagined community due to the global networks of makers that are digitally connected and have a sense of belonging yet have not physically gathered.¹¹ Rifkin summarizes how the maker movement is empowering – the maker becomes the "consumer-producer... the main actor in its creation and production, and thus experiences

empowerment."¹² This is a powerful notion to consider in the need to transform our behavior in relation to sustainable food consumption.

The eating network

We do not yet have this kind of case or movement for food system transformation. Food is omnipresent across the media and on our screens, however, we have yet not utilized the potential of social digital media to organize food movements which specifically work to transform our food systems and health. Doing so presents opportunities: It could work to tackle loneliness and social isolation, which unhealthy eating often emanates from. Digital participation in the space of social networks can enable discussions and knowledge sharing around food practices. In this case, the passive consumer becomes an active producer of knowledge exchange.¹³ This promotes the sense of belonging that is essential to the constitution of imagined communities. Collective engagement has a huge influence on what and how we eat and crucially, how our food is produced.

Some 70% of deaths globally are caused by non-communicable diseases – unhealthy diets and lack of nutrition contribute heavily to this.¹⁴ At the same time, the food communication space is saturated with multi-stakeholders, from policy to industry to citizens. While policy and industry are regulated, food industry focus is monetary gain, not planetary gain. Policymakers are heavily lobbied by the food industry, often giving multinationals a monopoly on the market.¹⁵

The rise of digitization holds an opportunity for citizen media participation in the social food space.¹⁶ This style of

media engagement is echoed in the maker practice and allows for similarities to be drawn with that movement. This is due to the decentralization of messaging, so recipes can be shared worldwide. Clay Shirky's work on media transformation supports this idea, with the Internet as the first medium which can support the "many to many" network conversations, alongside carrying all other media. Groups can not only watch but also talk, thus consuming and producing participatory media.¹⁷

To quote the Brazilian chef Alex Atala, we all belong to an *eating network*. This network could be considered the largest social network in the world. This is very promising when looking at how much our food system behaviors need to change in order to reduce greenhouse gas emissions. We need to explore the interaction between digital and physical participation and how it could create stronger networks that work to transform the way we produce and consume food. The increased awareness that comes from working with food and participating in knowledge-sharing exchanges can help us develop more sustainable food practices that are less reliant on the big corporations that currently dominate the market.¹⁸ Moreover, the data potentially collected could feed into a more democratic food system.¹⁹

Cookbooks have historically been a central form of recipe-sharing. This form of food discourse has now been transformed by social and distributed media. Recipe-sharing, Pinterest boards, "food porn," and influencers on social media sites have widely affected our eating, cooking, and shopping habits.²⁰ This is where a food movement can learn from the maker movement. The maker movement translates digital into physical action, and vice versa. In the "prototype, document,

and share" ideology, we are encouraged by other members online (our community) to translate what we have seen digitally to a physical practice. We then begin to socialize within this space, learning behaviors from our social environment.²¹ This feeling of empowerment – of making and achieving something new – can lead to substantial behavior change. If this case is applied to food movements, it can lead to reduced reliance on global consumer corporations and the creation of more distributed, resilient, and enjoyable food networks.

An example can be seen in the open-source work of Nordic Food Lab, in which fermentation is seen as a driver for food innovation.²² Nordic Food Lab's innovative methodologies and open-source documentation of their recipes online coupled with an impressive reputation reflect how the chef also aligns with the maker – performing the acts of making the prototype, documenting the process, and then sharing it. In this way, the complex, elite world of haute cuisine becomes accessible in theory for anyone with an internet connection. And the Lab's exploration into sustainable proteins, local produce, and fermentation reflects that food creation as an empowering practice. The home cook associates meaning with the full process of food creation and consumption, which is much more empowering than the act of picking a pre-made product from a shelf.²³ This is powerful when thinking about how we can transform our consumption choices.

The dark side of digital media

Realizing the potential of the digital may prove difficult. Concepts such as the digital echo chamber and social media bubbles must be acknowledged. A large percentage of the population currently uses social media, and further research

is needed into alternative social network platforms. Social media can be seen as “a powerful communication tool that connects people to each other across distances and to build affinity. For people with countercultural or marginalized interests, the internet can help forge connections that would otherwise be difficult to build, whether because of geographic separation or other social or cultural barriers.”²⁴

Digital food communities also have a darker side, like many other online practices. This can be seen in the case of Korea’s *mukbang* (“livestream eating” in English). It’s an example of the kind of structural problem – here stemming from the deep social isolation of citizens – which social media can exacerbate, causing the onset of other health problems, rather than mitigate.²⁵

There are also questions about what degree we actively participate in online activities. After all, digital media is still relatively new to us humans. If you view the timeline of human existence as one 24-hour day, our access to digital social media has been around for mere seconds. Further research is needed to understand what elements of online movements translate digital action into physical action and personal behavior change. Lessons can be learned from existing cases – the Arab Spring and maker movement.

Despite the accessibility of online platforms, there remains a divide in tech literacy which can result in digital inequalities for children and young people. Policymakers should account for this, developing inclusive programs for those who do not have access to digital means.²⁶ This could be in the hybrid form of physical and digital space for gathering. Effective citizen engagement media and participation strategies can engage societies, collate responses, shift perceptions, and help

people navigate uncertainty in changing times. If eloquent systems are designed, we have the opportunity to utilize the digital to enable behavioral change towards food systems which acknowledge culture, identity, and community while at the same time creating sustainable, resilient food networks that can respond effectively to crisis.

Notes

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Kelly Streekstra is fascinated by the interaction between people and the emerging technologies meant to make our lives more sustainable. She's a researcher with the Athena Institute at VU Amsterdam and took part in the Dutch National Think Tank for a circular economy. While working on her master's thesis, she mapped out scenarios for the future of cultured meat, under the guidance of the future strategists at Future-consult. Her findings inspired the essay in this collection.

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Frank Verhoeven was born on a dairy farm, graduated with a degree in agricultural engineering, and started the consultancy *Boerenverstand* in 2005. He is an associate researcher in European rural development with the Rural Sociology Group at Wageningen University & Research. Over the course of his career, he has spoken with hundreds of farmers, been actively involved in innovative practical projects, and often appeared as a keynote speaker at conferences and symposiums.

Dr. Sigrid Wertheim-Heck is a lecturer in Food and Healthy Living at Aeres University of Applied Sciences in Almere and a research fellow in the Environmental Policy Group at Wageningen University. She holds a PhD in consumer sociology and has over 20 years of experience in marketing and business development in the agro-food sector. Sigrid's keen interest in urban food security worldwide drives her research

on the relationship between urban development and the provision and consumption of food.

Emily Whyman holds a Master's in Design from the Institute for Advanced Architecture of Catalonia, Barcelona, and a Bachelor's in Architecture and Urban Planning from the University of Newcastle. She has diverse experience, having previously worked developing community spaces which focus on developmental learning with neighborhoods in the realm of food sustainability. She has also worked in communications for research and innovation projects at a design center. She works to connect citizens with local, healthy food environments, culture, and community.

About the translators and editors

Megan Hershey is an American translator and editor based in the Netherlands. She holds degrees in Mesoamerican archaeology and translation studies and works with Dutch universities, marketing agencies, journalism platforms, and businesses to bring their content to an international audience. Megan translated the piece by Marian Stuiver.

Elizabeth Manton is an American translator working in the Netherlands. She holds degrees in history, art history, and translation. Recent work includes Rutger Bregman's *Humankind* and *Utopia for Realists* with Erica Moore, and *Revolution Justified* by Roger H.J. Cox. Elizabeth translated the essay by Sebastiaan Aalst.

Laura Martz is a translator, editor, and copywriter based in the UK. She helps organizations and individuals in the arts, business, academia, and the media get their messages across in clear, engaging English. A former magazine editor and newspaper reporter, she has postgraduate degrees in cultural theory, psychology, and creative writing. Laura translated the opening essay by Herman Lelieveldt as well as the piece by Frank Verhoeven and Joris Lohman and the one by Hester Dibbits and Lenno Munnikes.

Erica Moore is the founder of *the language girl*, which helps Dutch authors and organizations find their voice in English. Recent work includes the weekly *Work in Progress* newsletter by Rick Pastoor, author of the Dutch bestseller GRIP, and Rutger Bregman's latest, the New York Times bestseller

Humankind: A Hopeful History with Elizabeth Manton. Erica translated Kelly Streekstra's essay and edited this volume. She also edited the previous *Feeding the City* yearbook, *Dino nuggets, pink LEDs, and fed-up farmers*.

Dr. Maria Sherwood-Smith is a lecturer in Academic English at the Faculty of Social and Behavioral Sciences in Leiden and at VU University Amsterdam. She also works as a free-lance translator and language editor, mainly for academic publications. From 2003-2018 she was an in-house translator for the Dutch police. Maria translated the essay by Sigrid Wertheim-Heck and Anke Brons.

Journalist **Janno Lanjouw** and translator **Nico Groen** put together the original Dutch edition of this essay collection in 2020.



This essay collection is an initiative of Flevo Campus, a Dutch research institute working to develop the urban food systems of the future. Flevo Campus is a consortium of the Aeres University of Applied Sciences, the city of Almere, Flevoland Province, and Wageningen University & Research.

Flevo Campus is located in Almere, the Netherlands, on land reclaimed from the sea. Situated where some of the most productive cropland in the world meets the growing coastal corridor that includes Amsterdam and The Hague, Flevo Campus is in an ideal position to bring together the best ideas and know-how from city and countryside. Our aim? To develop resilient and sustainable food systems that can feed cities well into the future. Researchers and educators from the Aeres University of Applied Sciences work with local producers and entrepreneurs toward a better food system for us all. To make that possible, Flevo Campus is strengthening green education by putting together new degree programs at the Bachelor and Master levels, working on a multiyear research program with Wageningen University & Research and the Technical University at Delft, organizing Flevo Campus Thinktanks for young professionals, and supporting area businesses through knowledge vouchers, projects, and research.

You can find out more at <https://en.flevocampus.nl>

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Feeding the city

Even in a less eventful year, it's no easy feat: working to make our food supply healthy and sustainable. But 2020 brought a spate of new challenges. On top of a changing climate, it was the year of Brexit, Black Lives Matter, and the COVID-19 pandemic. A year of hope and loss and solidarity, of masks and worries and Zoom calls. Of infection sweeping through the meatpacking industry and sometimes, of empty supermarket shelves. It was also the year that brought the glimmering realization that everything could be different.

When so much has changed – how we work, who we spend time with, how far we venture from home – what all might be possible for food and farming? In this collection of essays, thirteen journalists, scholars, and thought leaders from the US, the Netherlands, and the UK share insight into the questions: How do we feed the city in challenging times? How can we build resilience into our food supply – and grow more resilient ourselves?

The 2020-2021 Flevo Campus Yearbook

Every year, Flevo Campus publishes the best work on feeding the cities of today and tomorrow. This year with essays by: **Stephen Satterfield, Charles C. Mann, Herman Lelieveldt, Hester Dibbits, Kelly Streekstra, Sigrid Wertheim-Heck, Anke Brons, Joris Lohman, Sebastiaan Aalst, Marian Stuiver, Frank Verhoeven, Emily Whyman, and Lenno Munnikes**

