

# **“PERMACULTURE IS REVOLUTION DISGUISED AS GARDENING”**

**Collection of short texts on  
permaculture for beginners**



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# INTRODUCTION

In October 2021, Volunteers Center of Vojvodina organized theoretical and practical workshops aimed at introducing young people to the principles and ethics of permaculture design. This short publication is the result of a process of learning, thinking and questioning ourselves on issues such as the relationship between the three ethics of permaculture (Earth care, People care, Fair share) and practical elements/aspects of the society we live in and on which we want to, by spreading permaculture practices, have a positive impact. The texts are conceived as an introduction to permaculture for beginners and we have chosen them in accordance with the topics they cover, but also with links to current issues to which permaculture can provide certain answers. We wrote the publication within the project "Introduction to permaculture design", which is co-financed by the City Administration for Sports and Youth - Youth Office Novi Sad.

Opinions and attitudes expressed in the publication do not necessarily represent the statement of the City Administration for Sports and Youth - Youth Office Novi Sad.

We would like to thank: Dušan and Nata Petrović, Predrag Momčilović and all participants in the workshops on permaculture we organized this year.



# ABOUT PERMACULTURE

## Permaculture: Degrowth, sustainability and food Predrag Momčilović

As degrowth, also permaculture has its roots in the early 1970s. David Holmgren and Bill Mollison originally developed the concept of permaculture as an academic work. Aware of the unsustainability of the agricultural system, they set out to consider alternative ways of producing food, which would be in harmony with nature. Permaculture is a coin of two words: permanent (as constant, lasting) and agriculture. As cultural and social aspects became more and more relevant in the design of permaculture projects, they turned the word agriculture into culture. The first book was published in 1978, and soon after the second in 1979. The first book is exclusively focused on food production, while the second book deals with other needs of the human community, in order to live in harmony with nature. The concept of permaculture was defined for the first time then, but the idea itself is not new and has been practiced for thousands of years in different parts of the planet. However, in the 1970s, the energy crisis, the impact of industrial agriculture on the environment, as well as concerns for food security and sovereignty in a globalized world contributed to the development of this concept.

It is becoming increasingly clear how political decisions in one part of the world can, as a side effect, cause hunger and poverty in another part of the world. Permaculture, as well as degrowth, initially started to expand from the academic sphere, and soon after that it went beyond the framework of the faculties and started to be applied in practice. Most authors who write about permaculture, as well as those who apply permaculture practices in their daily lives, agree that theoretical and practical knowledge about permaculture must be available to everyone.

The spread of permaculture ideas coincides with the simplification of language and with the permaculture stepping outside of the academy. Basic manuals and basic permaculture courses have become more accessible and understandable to non-professional people as well as people of different ages.

The basic idea of permaculture is that human society should behave as a sustainable ecosystem, and that the stability of the ecosystem depends on numerous factors. The current way of food production takes place in an ecosystem that is not in balance and in which one species dominates, while others are disappearing.

If we look at modern society as an ecosystem, it is clear that we are completely dependent on technology based on fossil fuels and the ideology of constant growth, which this technology follows. Both permaculture and degrowth start from the point of view that for a sustainable society it is necessary to break the distinction between the social and the natural and that only a system in which there is no separation between these two concepts can really be sustainable.

# PEOPLE CARE



## Let's Talk People Care: Decolonizing Permaculture

**Silvia Di Blasio, Ethical Pathways**

“There hasn't been enough work done around permaculture principles translating them for the people care ethic, so now there's this misconception that permaculture is about farming and gardening, which it isn't—it's mostly about relationships. It's about looking at systemic problems and finding relationship-based whole system solutions—and one of most vital systemic issues, along with the status of women, is cultural and racial inequity.” ~ Pandora Thomas, permaculturist and activist.

I still remember how excited I was about my first PDC. I had decided to risk money I didn't have and time away from my family for the first time in my life. I had read books, watched videos and tried a few things myself, but I wasn't prepared for the shock of a full PDC.

My experience was bitter sweet: I ended up confused and disappointed even when I was being exposed to huge paradigm shifts: the best quality of my first permaculture teacher was his ability to bring others to teach most modules (something that as a teacher myself I highly recommend, as no-one knows it all, more when you are new at teaching).

The settings were amazing, we went to both city and rural “demos”

and were exposed to many ways to “do” permaculture. The structure of the course and the “container”, however, made me feel unsafe, itraffic, wasn't considered. I was told that “in the future, all will have to ride bikes” so I better catch up! That was the first time I thought: this type of “permaculture” isn't then for the elder, the sick, the chronic pain ones, the disabled, the ones who didn't have the privilege to learn how to bike (or buy/rent one)...In many occasions, I voiced concerns about what I saw as imposed (on the landscape or a community) and not very sustainable or resilient (example: bikes are great, but they are not made of air...not all tools work in all settings).

But soon I learned there inadequate and disempowered: I recall a time when all the participants were supposed to bring or rent bikes to visit different demos in one afternoon. The fact that two of us lived really far and didn't have working bikes (nor cars to transport them) and, in my case, felt unsafe of riding in was not much room for discussion...I was a bit different from the rest, who were mostly young, childless and white, Canadian middle-class people: I was an immigrant, had an accent, was older and suffered from chronic pain and health issues.

I never saw any of those 12+ participants again and from social media learned that many went back to their lives. Many expressed frustrations with permaculture and didn't practice again. After years of studying with other mentors as a learner, teacher assistant or co-instructor, I started noticing all the core pieces we missed in that first PDC, with People Care being the most visible of them all.

I had similar experiences in many other groups: some people always had the louder voices and self-appointed themselves as leaders. There was a double standard even for some who wrote nice books and articles and called themselves social justice or Earth warriors: in most cases, people were expected to know the ropes and codes of conduct that small elite had already achieved: if you didn't bring that, you were not part of the club...

I don't think so...I've learned that behaviours follow structures and systems, and structures and systems follow stories: when you want to change a pattern, you need to change not only the visible, acting pattern, but the structures and systems in your life that make it possible and even desirable. You also have to change the story that makes those patterns OK, credible, acceptable, even admirable. Otherwise, you end up with "do as I say but not as I do" attitude.

And this is exactly what we are un-doing in this first ever online all-women-led PDC: we are teaching permaculture, but we are also examining the stories, the structures, the systems and re-designing the patterns that have historically declared that women, and particular old women, women of colour, women with chronic health issues, and those in visible and invisible "minorities", including the LGBTQ community, those living below poverty levels, those working survival jobs, those who couldn't afford school, are disposable, non-important...because at the end of the day, that is what's People Care and Fair Share mean: we don't need more swales or herb spirals, we need compassionate but brave people who invite everyone to the table and explore together what's what their lives, livelihoods, landscapes and communities need.

Join us! Let's change the stories we tell, the structures and systems, the patterns, the outcome...

# PEOPLE CARE



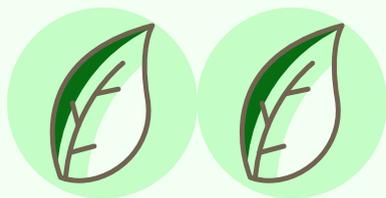
## The Vegan Book of Permaculture Graham Burnett

“Moving towards a more plant based diet is not only better for planetary health; it also makes sense for our own well-being. Excessive animal products tend to clog and acidify the body system, and have been linked to many diseases including cancer, diabetes, high blood pressure, heart problems, constipation, obesity and allergies. By contrast, studies have shown that a well-planned vegan wholefood based diet can not only reduce the incidence of these illnesses, but also greatly improve general health.

Poor husbandry practices engendered by mass-scale animal farming have been linked to potentially devastating diseases of humankind such as BSE, E. coli, salmonella poisoning and bird flu. The indiscriminate use of antibiotics in animal feed poses yet another risk to human health. Half of all antibiotics produced are fed to farm animals, both to combat disease and promote faster growth. The result is that many diseases, including meningitis, enteric fever and septicaemia, can develop antibiotic resistance and become ‘superbugs’. Furthermore, such antibiotics can also find their way onto our plates via the animal products based food chain and in turn weaken our own immune systems.

In short, western expectations for meat and dairy to be available on the table three times a day, seven days a week, 52 weeks a year are globally unsustainable by any standards. The vegan way might not be the solution for everybody, but I believe we will all need to at least think about lifestyles and diets that are less dependent on animal products and the inputs these entail if all Earth Citizens are to live and eat well in a sustainable future.

# EARTH CARE



## Work with Nature, Not Against Her: The Vegan Book of Permaculture

Graham Burnett

Francis Bacon's assertion in the early 1600s that we must 'bend nature to our will' has informed our species' relationship with this fragile planet for much of the modern era. Now in these days of desertification, flooding, global warming and mass extinction, we are seeing just how futile and plain wrong-headed such a philosophy truly is. Putting massive efforts into attempting to 'tame nature', such as by creating and maintaining bare soil by plough, is not only energy consuming, unsustainable and destructive, it is also unnecessary when we can meet the needs of people and the environment by working in harmony with natural systems.

## The Problem Is the Solution: The Vegan Book of Permaculture

Graham Burnett

Or, as Bill Mollison didn't quite say, "You haven't got an excess of slugs, you've got a frog deficiency..." In other words, it is how we look at things that makes them advantageous or not. Sometimes a simple change of perspective can help us to see that what at first appears to be a difficulty or a challenge can in fact be a gift...

As another example, the arrival of wild plants on our plots is inevitable; what we do have a choice about is our approach to them.

Are they 'weeds', against which a constant yet futile war of attrition is waged, or are they a resource, valuable in at least parts of the garden even if we don't allow them to dominate in our productive areas? Such plants increase biodiversity, act as 'dynamic accumulators' (that is, they mine the subsoil with their roots to bring up minerals that may be deficient on the surface), attract beneficial wildlife and can be harvested for compost or mulch

material. Many are even edible or medicinal, or have a host of other uses and properties that are now largely forgotten.

There are also many situations in life that can be transformed from adversity to opportunity when viewed from a fresh angle. For example, being made redundant from a highly paid but under stimulating or ethically compromised job could actually provide a chance for a person to think about 'downsizing' their lifestyle in ways they might not otherwise have considered. Maybe they could free up time for reskilling or become more self-reliant in the quantities of fresh food they are able to grow rather than commuting to the office, or could find other ways of making a living that are more in accord with their interests and passions.

## **Maximise Diversity: The Vegan Book of Permaculture**

**Graham Burnett**

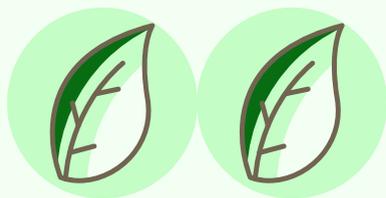
In the 21st century the world largely relies on some 20 or so staple crops. Yet the Cornwall based permaculture growing and research project Plants For A Future<sup>1</sup> lists over 7,000 species of plants that are edible or otherwise useful to peoplekind that we can grow in the UK alone.

In a permaculture growing system each function should be supported by many elements.

In other words, nothing should be indispensable as its loss or failure can be disastrous. A person who has had only one well paid but highly specialised job throughout their working life would be less able to cope with redundancy than somebody who has several small incomes earned from a variety of sources. In the same way, the farmer who grows as wide and diverse a range of edible and useful plants as possible, for example fruit and nut trees, vegetables, salads, grains and cereals, and fungi (a polyculture), still gets to eat if some of them don't make it to harvest. On the other hand, their neighbour who gives all of the same area of land over to a single crop of wheat (a monoculture) starves if it fails. The other side of the coin is that every element in the system should have many uses.

Permaculture people tend to spend a lot of time emphasising the importance of planting trees. This is because of the multiplicity of their yields and functions. Not only do they provide food crops in the form of fruit, nuts, berries, beans and leaf protein, they also supply bio-fuels, timber, coppice, medicines and fibre as well as a myriad of beneficial effects for wildlife and for planet-wide systems. These include soil building, maintaining fertility, checking erosion, driving global water and air cycles, regulating temperature to name but a few.

# EARTH CARE



## Overview of Intensive Agriculture: The Mini Farming Bible

Brett L. Markham

Intensive agricultural techniques, and their productivity compared to traditional row gardening methods, have been well documented in the past several decades, and certain methods have been used for centuries. They all share a number of common characteristics.

All of the intensive methods use raised beds and grow vegetables much more closely than traditional row methods and therefore require less land—thus requiring less water and labor while reducing the need for weeding. Intensive gardens produce the same amount of food in 20% of the space or even less than that, leading to greatly reduced costs.

Traditional row gardening is one-dimensional—that is, a straight line. A small furrow is dug with a hoe, and seeds are sprinkled in from a packet. After the seeds germinate, the farmer goes back down the row and thins plants to the recommended spacing. Each row takes its own space, plus space for walking paths on either side, and the walking paths become compacted under foot traffic.

The entire area—rows and paths—is watered and fertilized. Because the rows are exposed to the drying effects of sun and wind on both sides, mulching is required to conserve water and prevent weeds. The typical 100-foot row takes up at least 300 square feet of space. As a basis of comparison, the expected yield of carrots for that row is about 100 pounds.

Row gardens adapted from commercial agriculture are wasteful of space and resources on a home scale. In contrast, intensive mini-farming is three-dimensional. Seeds are planted in the raised bed using within-row spacings in all directions, giving a two-dimensional space, and crops such as pole beans are grown on trellises, adding a third dimension. This vastly increases the quantity of a given crop that can be produced per unit area. In the case of carrots, a garden bed 4 feet wide and 6 feet long (24 square feet) will yield 100 pounds of carrots. That's the theoretical yield, but in practice I've found 32 square feet are required to get a full 100 pounds.

Still, that's an amazing increase in space efficiency! Using trellising and pole beans instead of bush beans and indeterminate (vining) tomatoes instead of determinate (bush) tomatoes will also increase the yield per Plant.

Using row gardening, the farmer has to fertilize, mulch, weed, and water 300 square feet of space to get 100 pounds of carrots. But by using raised beds and intensive gardening techniques that use close spacing, the farmer has to fertilize and water only 24 square feet—less than 1/10 the space and thus less than 1/10 the fertilizer and water. The cost savings are immense, and the intensive farmer can also dispense with mulching, because the plants are growing so closely together that they shade each other's stems and the ground, conserving moisture and shading out weeds. The shade provided by growing plants closely is also helpful in protecting beneficial soil microbes from the damaging effects of ultraviolet radiation from the sun. (Last season I kept records of how much weeding was required per 100 square feet averaged across crops as diverse as broccoli and tomatoes, and because of the living mulch aspect of intensive gardening, less than 30 minutes per season were required per 100 square feet.)

Along with close spacing, intensive agriculture emphasizes vertically grown crops such as cucumbers, vining tomatoes, and pole beans. There are two reasons for this. First, using the third dimension of height allows you to get more production per unit area. Second, vining varieties produce more total food yield over the course of the season. Growing crops vertically on a trellis also makes harvesting easier, reduces diseases, and has the aesthetic advantage of growing consistently straight cucumbers. So that crops grown on a trellis don't shade out other crops, trellises should be constructed on the north side of raised beds. The ultimate height of a trellis depends somewhat on what is being grown but also on your convenience. For most people, a trellis can be six or even seven feet high without causing inconvenience.

# Learning and Observation: The Mini Farming Bible

**Brett L. Markham**

Intensive agricultural practices are constantly being refined, extended, amended, and developed by well-known practitioners and by individual farmers. Agriculture is, at its heart, a biological rather than industrial process. As a result, it is subject to laws of nature that we humans are only

beginning to understand. The path to success with intensive agriculture, as with any other endeavor, is through constantly expanding knowledge.

A constant input of new information is most easily and economically acquired through a library. Land-grant universities have a substantial selection of agricultural books and magazines available, and use of the facility is not limited to students. Likewise, the Internet has a wide array of resources available.

Experience is also an excellent teacher, and hands-on experience will provide insight unavailable in a book. Along with gaining experience, a mini-farmer should keep detailed records of events and observations. I keep several journals for each year. One journal lists every plant variety to be grown that year, where the seed was acquired, and general information about that plant and its requirements. Following this are journal entries describing where, when, and how the seeds were started; transplantation information; and significant events that affected the crop up through harvest. Any pest problems are noted in the journal, along with the effectiveness of any remedies and especially information that might give a clue as to why some plants of a given crop may have been more or less affected.

## How Mini-Farming Works for You: The Mini Farming Bible

**Brett L. Markham**

Many homeowners undertake the task of gardening or small-scale farming as a hobby to get fresh-grown produce and possibly save money over buying food at the supermarket. Unfortunately, the most common gardening methods end up being so expensive that even some

enthusiastic garden authors state outright that gardening should be considered, at best, a break-even affair.

Looking at the most common gardening methods, such authors are absolutely correct. Common gardening methods are considerably more expensive than they need to be because they were originally designed to benefit from the economies of scale of corporate agribusiness. When home gardeners try to use these methods on a smaller scale, it's a miracle if they break even over a several-year period, and it is more likely they will lose money.

The cost of tillers, watering equipment, large quantities of water, transplants, seeds, fertilizers and insecticides adds up pretty quickly.

Balanced against the fact that most home gardeners grow only vegetables, and vegetables make up only less than 10% of the calories an average person consumes, (it quickly becomes apparent that even if the cost of a vegetable garden were zero, the amount of actual money saved in the food bill would be negligible.

For example, if the total economic value of the vegetables collected from the garden in a single season amounted to about \$350,3 and the vegetables could be produced for free, the economic benefit would amount to only \$7 per week when divided over the year.)The solution to this problem is to both cut costs and increase the value of the end product. This can be accomplished by growing your own seedlings from open-pollinated plant varieties so you can save the seeds and avoid the expense of buying both transplants and seeds, using intensive gardening techniques that use less land, conscientiously composting to reduce the need for fertilizers, and growing your own seedlings from open-pollinated plant varieties so you can save the seeds and avoid the expense of buying both transplants and seeds, using intensive gardening techniques that use less land, conscientiously composting to reduce the need for fertilizers, and growing calorie-dense crops that will supply a

higher proportion of the household's caloric intake. Using this combination, the economic equation will balance in favor of the gardener instead of the garden supply store, and it becomes quite possible to supply all of a family's food except meat from a relatively small garden. According to the USDA, the average annual per capita expenditure on food was \$2,964 in 2001, with food costs increasing at a rate of 27.7% over the previous 10 years. Understanding that food is purchased with after-tax dollars, it becomes clear that home agricultural methods that take a significant chunk out of that figure can make the difference, for example, between a parent being able to stay at home with children and he or she having to work, or it could vastly improve the quality of life of a retiree on a fixed income.

The key to making a garden work to your economic benefit is to approach mini-farming as a business. No, it is not a business in the sense of incorporation and taxes unless some of its production is sold, but it is a business in that by reducing your food expenditures, it has the same net effect on finances as income from a small business. Like any small business, it could earn money or lose money depending on how it is managed.

# Grow Your Own Seedlings: The Mini Farming Bible

**Brett L. Markham**

Garden centers are flooded every spring with home gardeners picking out seedlings for lettuce, broccoli, cucumbers, tomatoes, and so on. For those who grow gardens strictly as a hobby, this works out well because it allows them to get off to a quick start with minimal investment of time and planning. But for the mini-farmer who approaches gardening as a small business, it's a bad idea.

# Prefer Open-Pollinated Varieties: The Mini Farming Bible

**Brett L. Markham**

There are two basic types of seed/plant varieties available: hybrid and open-pollinated. Open-pollinated plant varieties produce seeds that duplicate the plants that produced them.

Hybrid plant varieties produce seeds that are at best unreliable and sometimes sterile and therefore often unusable. Although hybrid plants have the disadvantage of not producing good seed, they often have advantages that make them worthwhile, including aspects of "hybrid vigor." Hybrid vigor refers to a poorly understood phenomenon in plants where a cross between two different varieties of broccoli can yield far more vigorous and productive offspring than either parent. Depending on genetic factors, it also allows the creation of plants that incorporate some of the best qualities of both parents while deemphasizing undesirable traits.

Using hybridization, then, seed companies are able to deliver varieties of plants that incorporate disease resistance into a particularly good

tasting vegetable variety. So why not just use hybrid seeds? Because there's no such thing as a free lunch. For plants that normally self-pollinate, such as peppers and tomatoes, there is no measurable increase

in the vigor of hybrids. The hybrids are just a proprietary marketing avenue. So buying hybrids in those cases just raises costs, and since the tomato seeds can't be saved, the mini-farmer has to buy seeds again the next year. The cost of seeds for a family-sized mini-farm that produces most of a family's food for the year can easily approach \$200, a considerable sum! Beyond that, seed collected and saved at home can not only reduce costs but be resold if properly licensed.

Another reason to save seeds from open-pollinated plant varieties is if each year you save seeds from the best performing plants, you will eventually create varieties with genetic characteristics that work best in your particular soil and climate. That's a degree of specialization that money can't buy.

# Use Intensive Gardening Techniques: The Mini Farming Bible

**Brett L. Markham**

A number of intensive gardening methods have been well documented over the past century. What all of these have in common is growing plants much more closely spaced than traditional row methods. This closer spacing causes a significant decrease in the amount of land required to grow a given quantity of food, which in turn significantly reduces requirements for water, fertilizer, and mechanization. Because plants are grown close enough together to form a sort of “living mulch,” the plants shade out weeds and retain moisture better, thus decreasing the amount of work required to raise the same amount of food.

Intensive gardening techniques make a big difference in the amount of space required to provide all of a person's food. Current agribusiness practices require 30,000 square feet per

person or 3/4 acre. Intensive gardening practices can reduce the amount of space required for the same nutritional content to 700 square feet,<sup>5</sup> plus another 700 square feet for crops grown specifically for composting. That's only 1,400 square feet per person, so a family of three can be supplied in just 4,200 square feet. That's less than 1/10 of an acre. In many parts of the United States, land is extremely expensive, and lot sizes average a half acre or less. Using traditional farming practices, it isn't even possible to raise food for a single person in a half-acre lot, but using intensive gardening techniques allows only half of that lot—1/4 acre—to provide nearly all the food for a family of four, generate thousands of dollars in income besides, allow raising small livestock plus leave space for home and recreation. Intensive gardening techniques are the key to self-sufficiency on a small lot.

## Compost: The Mini Farming Bible

**Brett L. Markham**

Because growing so many plants in such little space puts heavy demand on the soil in which they are grown, all intensive agriculture methodologies pay particular attention to maintaining the fertility of the soil.

The law of conservation of matter indicates that if a farmer grows a plant, that plant took nutrients from the soil build itself. If the plant is then removed from the area, the nutrients

in that plant are never returned to the soil, and the fertility of the soil is reduced. To make up for the loss of fertility, standard agribusiness practices apply commercial fertilizers from outside the farm.

The fertilizer costs money, of course. While there are other worthwhile reasons for avoiding the use of nonorganic fertilizers, including environmental damage, the biggest reason is a mini-farm with a properly managed soil fertility plan can drastically reduce the need to purchase fertilizer

altogether, thereby reducing one of the biggest costs associated with farming and making the mini-farm more economically viable.

In practice, a certain amount of fertilizer will always be required, especially at the beginning, but using organic fertilizers and creating compost can ultimately reduce fertilizer requirements to a bare minimum.

The practice of preserving soil fertility consists of growing crops specifically for compost value, growing crops to fix atmospheric nitrogen into the soil, and composting all crop

residues possible (along with the specific compost crops) and practically anything else that isn't nailed down.

A big part of soil fertility is the diversity of microbial life in the soil, along with the presence of earthworms and other beneficial insects. There are approximately 4,000 pounds of bacteria in an acre of fertile topsoil. These organisms work together with soil nutrients to produce vigorous growth and limit the damage done by disease-causing microorganisms known as "pathogens."

## **Grow Calorie-Dense Crops: The Mini Farming Bible**

**Brett L. Markham**

As already noted, vegetables provide about only 10% of the average American's calories. Because of this, a standard vegetable garden may supply excellent produce and rich vitamin content, but the economic value of the vegetables won't significantly reduce your food bill over the course of a year. The solution to this problem is to grow crops that provide a higher proportion of caloric needs such as fruits, dried beans, grains, and root crops such as potatoes and onions.

# Raised Beds: The Mini Farming Bible

**Brett L. Markham**

Raised beds and properly constituted soil make mini-farming practical. Modern people in the industrialized world have a lot less spare time and a lot less available land than their ancestors.

Raised beds offer so many advantages over row gardening that it is hard to imagine why everyone except big agribusiness cartels isn't using them. Especially in northern climates, raised beds can help gardeners lengthen their growing season because they can raise soil temperature by 8 to 13 degrees compared to ground soil temperatures.

By raising the level of the soil, farmers and gardeners can start their crops earlier because excess moisture drains easily so the cold spring rains won't overwhelm new crops. Raised

beds are also easily fitted with attachments, such as cold frames.

A raised bed is essentially a bottomless and topless box laid on the ground and filled with soil. The boxes can be built from wood, plastic boards, cement, and other materials. Raised beds can be made from mounded earth, but surrounding them with a box structure limits erosion of the carefully prepared soil of the bed. Raised beds extend the season and reduce problems related to excess water.

# FAIR SHARE



## Vegan for the Land: The Vegan Book of Permaculture

**Brett L. Markham**

A vegan diet using locally grown organic produce is amongst the most sustainable.

A plant based diet requires far less land than that needed to maintain a typical western diet. Farmed animals consume much greater amounts of protein and calories than they are able to convert into produce, so far larger quantities of crops are needed to feed humans with animal products than are needed to feed people directly.

Globally the world's forests are being destroyed to make ever more room for cattle ranching or for the production of crops like soya for animal feed. These forests play a vital role in maintaining the ecological balances of the planet, regulating oxygen and carbon dioxide levels in the atmosphere, providing habitat for innumerable species of plants and animals, controlling water cycles and preventing soil erosion and the spread of deserts.

In the UK animal farming accounts for some 85% of agricultural land use, either directly for grazing or for the production of fodder crops, with two-thirds of the British cereal crop being fed to livestock annually. Yet it has been estimated that a future vegan Britain, using permaculture design and methods to increase integration of lifestyle with natural and renewable cycles, could be self-reliant in food, fertility, fibre and fuel on around one third to a half of the agricultural

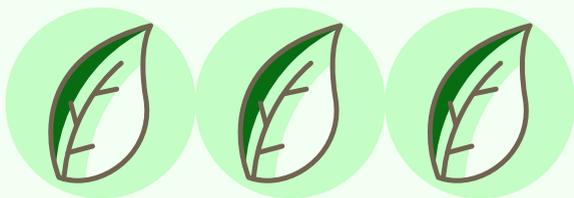
land currently available, especially if home gardens and public urban spaces were used for food growing, and land currently considered 'marginal' or suitable only for rough grazing was made directly productive by planting high protein edible or otherwise useful tree crops.

This abundance could greatly reduce the need for food imports, often from so-called 'Third World' countries that would then be free to utilise land to feed their own populations. Millions of acres could also be given over to uses such as recreation, wildlife habitat and, most importantly, reforestation projects, making a significant contribution to the reversal of the 'greenhouse effect'.

Cattle, sheep and other ruminants are a significant source of methane, a powerful greenhouse gas. Reducing livestock farming, whilst at the same time launching massive reforestation projects, could potentially not only help to lock up the carbon released by centuries of fossil fuel burning and land clearances, but also be a step towards cutting methane emissions. Thus climate change could be tackled on two fronts simultaneously. There is also the question of water as a global resource. Agriculture accounts for some 70% of fresh water usage worldwide, including the production of grain, 40% of which is fed to livestock to produce the meat-rich diet of the north.

The extraction of water from aquifers in India (where nearly all water is used in agriculture) exceeds recharge by a factor of two or more. Furthermore, dry-lands and desertification are spreading as forests are cut down, at least partly as a consequence of increasing pressures placed upon the land by mass-scale animal farming and feed production.

# FAIR SHARE



## Permaculture: Degrowth, sustainability and food Predrag Momčilović

Permaculture is focused on a design that adapts to the environment, in order to incorporate what already exists there, while special attention is paid to the connections between the various elements in the system. During its development, permaculture has improved ecological and sustainable design, but not enough progress has been made in the field of social permaculture. Literature and permaculture courses do not deal so much with the social aspects that create the current situation.

The food issue is not sufficiently politicized, and a deeper analysis of complex topics such as: globalized trade, privileges, discrimination, imperialism, activism and resistance, and equality of access to goods is often lacking. There is no analysis of these topics, although they all relate to our way of interacting with the environment. Thanks to its rapid development, permaculture has become a trend in many parts of the world. More and more wealthy city dwellers are practicing permaculture more for the sake of a fashion trend than for the sake of coexistence with nature.

This practice of permaculture is often completely depoliticized and is not even in line with the basic premises of permaculture, while many ideas are simplified and presented as a solution to the global crisis. Degrowth has more rounded ideas on different issues. In collaboration, permaculture and degrowth can offer a completely different picture of a world based on a different way of producing food. In addition to the individual level, permaculture projects should be applied to wider communities in combination with the theory of growing up. One possible example of the application of permaculture at a higher level is Cuba.

In the early 1990s, Cuba faced a major problem. As an island that has been under economic blockade by the United States for decades, Cuba's economy was directly dependent on the aid it received from the Soviet Union.

With the collapse of the Soviet Union, economic aid ceased to arrive and Cuba was forced to rely on its own resources. At the moment when they were faced with the possibility of being left hungry due to lack of fuel and artificial fertilizers, Cubans turned to permaculture.

Since 1993, they have been establishing cooperation with permaculture experts from Australia. This will begin the transformation not only of the way Cuba produces food, but of society as a whole. In their case, smaller farms proved to be the most productive model. Instead of once large state-owned factories, today most food in Cuba is produced by small producers and cooperatives. It is common for food to be produced in cities, so, for example, half of the total food used in Havana is grown in the city.

This decentralization has had several effects. The economic situation of the population has improved. As the former plantation-based way of growing industrially viable crops, such as sugar cane and cocoa, shifted to much more important foodstuffs, local trade among the population developed. The number of higher education institutions has also increased. The Cuban government has realized that it is much more profitable to educate people locally than to have several huge universities. In doing so, most graduate students remain in their local communities. With the use of biomass and solar energy, many smaller communities have become energy independent. Even international trade has increased, as Cuba today exports biological preparations for agriculture and natural fertilizers.

Agriculture and the food industry are the biggest polluters of water. Due to the expansion of pastures, as well as fields with crops for animal nutrition, there is a decrease in biodiversity and destruction of habitats of indigenous plant and animal species. Also, the production of food of animal origin consumes more proteins that are suitable for human consumption than it produces. The ideas of vegetarianism and veganism, despite being increasingly visible, are still marginalized in the wider social context. Veganism and vegetarianism are often seen solely as a middle-class lifestyle that, apart from empathy for animals, has no deeper political roots, nor a broader perspective.

Perfectionism and the constant need to eliminate even the smallest remains of animal products from life is meaningless today, because in modern society it is simply not feasible.

Animal body parts, waste or by-products exist in virtually every product. In the case that the vegans' attention is focused exclusively on removing even the smallest animal ingredient from every aspect of public and private life, there would be no time or strength to focus on education and wider struggle that would bring social change to change the current food production paradigm and reduce the use of animal products, which is much more productive.

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