

The Importance of Sustainable Farming

[Agriculture](#) is a significant contributor to greenhouse gas emissions. It leads to [deforestation](#) for land conversion and methane emissions from livestock. The importance of sustainable farming becomes more relevant with the growing need for socially and [environmentally responsible industrial practices](#). Three key goals are incorporated into [sustainable agriculture](#); a healthy environment, profitability, and social and economic equality.

Broad-spectrum pesticides, being some of the cheapest chemicals in the world, are the obvious choice for many farmers. It costs only \$1.50 AUD per hectare or \$1.05 USD per hectare (Schellhorn et al., 2013). However, the use of broad-spectrum pesticides poses several problems for [biodiversity](#). Because of this, the importance of sustainable farming through methods such as [integrated pest management \(IPM\)](#) becomes even greater.

Why is sustainable farming important?

[Sustainable farming](#) is a method that aims to meet the needs of the present without compromising the living standards of future generations. It therefore focuses on minimising negative environmental impacts, promoting [biodiversity](#), conserving natural resources, and ensuring the well-being of farmers and local communities.



Sustainable farming aims to balance the needs of humanity with the well-being of the environment.

Source: [UNESCO/Fred Noy](#)

Traditional farming methods involve excessive use of chemical fertilisers and pesticides. This leads to soil degradation, [water pollution](#), and loss of biodiversity. In contrast, sustainable farming prioritises methods that emulate nature. The importance of sustainable farming is highlighted by the need for a more resilient global [agricultural system](#), which can benefit both people and the environment.

Neurotoxins from Pesticides

Many insecticides, particularly organophosphates, are neurotoxins to both insects and humans. Many have been banned in the EU and either banned or restricted in the USA. However, they are still widely used globally, and the heavy use of pesticides has resulted in weeds and insects developing resistance.

So, what are the ways to increase yields, reduce environmental impact, and deliver food more sustainably? The 2019 World Health Organisation (WHO) and Food and Agriculture Organisation (FAO) of the United Nations report discusses [global impact and mitigation](#) strategies to address the heavy use of farming pesticides.



Tackling the widespread use of harmful pesticides is crucial to achieving sustainable farming.

Source: [Pexels](#)

A Global Issue: Pesticide Management in Agriculture and Public Health

A [WHO-FAO survey](#) was developed in three parts for distribution to the relevant authorities.

- **Part I.** Registration and regulation of both agricultural and public health pesticides.
- **Part II.** Pesticide application in agriculture
- **Part III.** Public health pesticide applications, specifically for vector-borne disease control.

In total, 194 countries were targeted by the questionnaire. 56 countries responded to Part I (29% response rate), 52 to Part II (27% response rate), and 94 to Part III (48% response rate). The report notes several important findings. First, there is a lack of government regulations and guidelines concerning pesticides

worldwide. Although 35 out of 51 countries have a national [Integrated Pest Management \(IPM\)](#) policy, many lacked safety mechanisms, licensing and registration protocols, and residue tracking. They were found to have significant issues with environmental contamination from pesticides. Lastly, only more than only 50% of the countries responded with a national policy on [Integrated Vector Management](#).

Under mounting pressure around the globe, there is an ever-growing movement for change following the 2007 International Code of Conduct on Pesticide Management. In 2008, the French government initiated the [EcoPhyto Plan](#), aiming to address ecological concerns related to pesticide use. The following year, the European Union adopted the “Integrated Pest Management” policy to achieve the sustainable utilization of pesticides and prioritise to non-chemical alternatives. More recently, in 2019, the Australian government introduced The [Reef Protection Regulations](#), focusing on safeguarding the quality of [water](#) from agricultural lands.

The Importance of Sustainable farming and its Global Impact

According to the [World Health Organisation](#), more than 1,000 pesticides are used globally for food production. Pesticides are inherently toxic. They are among the leading causes of death due to self-poisoning, especially in low to middle-income nations. According to the United Nations Population Division, there will be 9.7 billion people on Earth by 2050. This is about 30% higher than the [population](#) in 2017, with the majority of this population expansion will take place in developing nations. ([WHO, 2022](#))

According to the Food and Agriculture Organisation of the United Nations (FAO), increases in crop yields and the number of times crops can be grown on the same land per year are expected to account for 80% of the increases in food production that are required in developing countries to keep up with [population growth](#). Conversely, the growth of agricultural land is only anticipated to account for 20% of new food production ([WHO, 2022](#)).

Since pesticides significantly reduce crop losses, they will continuously be used in agriculture. However, human and environmental exposure to pesticides is a

growing concern.



Integrated Pest Management (IPM) provides a pathway to more sustainable farming.

Source: [Integrated Pest Management \(IPM\)](#)

Where Science Meets Nature

The idea of integrated pest management (IPM) is not new. Its methods were used in the late 1800s by Missouri State Entomologist C. V. Riley and the Illinois State Entomologist W. LeBaron. They began within-state redistribution of parasitoids. Then in 1905, the US Department of Agriculture (USDA) initiated its first large-scale [biological control program](#), sending entomologists to Europe and Japan.

IPM is an environmentally-sensitive method of pest control. It uses practices and control methods to prevent pesticide-intensive activities like broadacre spraying. The [2006-07 Australian Census](#) reported that 94.3% of Australian agricultural businesses undertake IPM activities to prevent or manage weeds, pests, land, and soil.

IPM control methods

1. **[Cultural methods](#)** - Change the conditions to make them less favourable for pests. Examples include adjusting planting location, timing of crop rotation, and cultivation techniques which expose pests to predation or destruction of food, shelter, and breeding habitats.
2. **Physical methods** - Prevent pests from entering the area. This includes methods such as barriers and traps, or by physical removal.
3. **Genetic methods** - Select [pest-resistant varieties](#), developed by classical breeding or via genetic engineering.
4. **Biological (or biocontrol) methods** - Use other organisms such as predators, parasites, or microbial pathogens to suppress pests
5. **Chemical methods** - Use substances to kill or repel pests. Selecting the least toxic options first and apply them only when needed.
6. **Regulatory methods** - Prevent the entry or spread of pests using [quarantine regulations](#). These restrict the movement of materials

including crops and livestock

The importance of Sustainable Farming: Resistance from farmers

A potential obstacle to biological control is grower preference. Farmers may resort to familiar, low-cost, reliable pesticides. Countries such as Australia have adopted [green tax incentives](#) and grant programs. Such programs aim to encourage growers to adopt sustainable farming practices.

industrial agriculture

The green revolution has certainly provided the world with an abundance of food. However, it has brought ecological destruction on an unimaginable scale. One example is the [runoff from crop fields](#) containing sediments, pesticides, and chemical fertilisers, which has contributed to the smothering and bleaching of coral in the [Australian Great Barrier Reef](#) marine park. Furthermore, intensive agriculture relies heavily on mechanisation, and this dependency on fossil fuels contributes to global warming.

Across the world, there is a desire to change the way we produce and consume food. In Europe, [a movement](#) is growing that aims to make food systems more socially just, environmentally friendly, and independent from big corporations. United States-based Agroecologist Eric Holt-Giménez discussed the fact that “We Already Grow Enough Food for 10 Billion People ... and Still Can’t End Hunger” in this [Journal of Sustainable Agriculture article](#).

There is an eco-friendly alternative to industrial agriculture. Research has shown that it is possible to integrate several crops into a farm unit with good yields. These can compare favourably to the output of intensive agriculture. [Agroecology](#) offers solutions in this regard. These practices not only respect nature but also [produce wholesome food grown using organic fertilisers](#) combined with manure from farming animals.

Brazilian-based Swiss agronomist and cocoa farmer Ernst Götsch has created a model of organic farming, which he says can replace the [Green Revolution](#) that was driven by advances in agrochemistry. His [syntropic farming](#) system imitates

nature and is based on successful [agroforestry](#) methods. Ernst has also worked with farmers in Brazil who are aiming to apply the principles of organic farming to large-scale agriculture. The following YouTube video shows this, as well as his work with agricultural engineers in Brazil.

moving forward

[Sustainable farming](#) ensures the long-term health and productivity of our agricultural systems. Adopting IPM practices and [syntropic agriculture](#) can reduce our reliance on broad-spectrum pesticides. Hence, farmers can promote sustainable agriculture while still effectively managing pests. Governments also have an essential role to play, with education programs and financial [incentives](#) being a key part of the transition to sustainable farming. These programs encourage farmers to adopt more environmentally-friendly pest management practices.

why Is it essential that we focus on sustainable farming?

Prioritising [sustainable farming](#) is essential for a multitude of reasons. It addresses environmental protection, [local community development](#), and the need to meet consumer demand. Fundamentally, it strives to maintain the balance between agricultural production and environmental preservation. Additionally, adopting sustainable farming practices can create a more [resilient agricultural system](#). The goal is to meet both present and future generations' needs.

achieving the United Nations Sustainable Development Goals (SDGs) and how they link to the importance of sustainable farming

The [Sustainable Development Goal](#) to “End hunger, achieve [food security](#) and improved nutrition and promote sustainable agriculture” (SDG2) acknowledges the importance of sustainable agriculture. Furthermore, it acknowledges the connection between [sustainable agriculture](#) and empowering of small farmers, advancing [gender equality](#), eradicating rural [poverty](#), promoting [healthy](#)

[lifestyles](#), combating climate change, and other issues addressed within the collection of 17 [Sustainable Development Goals](#) in the Post-2015 Development Agenda.

Agricultural systems must become more efficient and less wasteful. From a holistic standpoint, if we are to ensure public health and environmental protection, then we must pursue sustainable farming practices and food systems.

A Thrivable Framework

Sustainable farming ensures [food security](#) and socio-economic equity for the growing global population. The THRIVE Framework represents an effort to change society towards a more 'Thrivable' future that goes beyond sustainability.

We recognise that human happiness can sometimes compete with environmental well-being. Through the [THRIVE Platform](#), we use a Ciambella chart to illustrate the 'thrivable zone' in order to provide strategic guidance.

It is important to remember that on an unsustainable Earth, there are no sustainable entities. Our long-term survival depends on [thrivability](#). At THRIVE Project, we believe we as humans can and must do more to take us from a liveable to [a thrivable future](#).