

The case for the New Zealand Government to invest in Regenerative Agriculture as part of its Covid 19 economic recovery package

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EXECUTIVE SUMMARY

As the Government undertakes the long-term project of smoothing the coming economic shock caused by Covid-19, we urge you to use fiscal stimulus tools to begin the transformation of primary production in New Zealand towards a cleaner, higher-value and more resilient sector through investment in regenerative agriculture.

The primary sector today lacks diversity and a large proportion of its exports are low-value commodities. It is dominated by high-input monocultures, the majority of them producing meat and dairy. This is causing severe and sustained environmental harm, which is in turn negatively affecting human health and cultural well-being. New Zealand cannot meet its emissions reductions aspirations if its primary sector continues to be dominated by ruminant livestock. Nor can we expect to restore the health of our rivers, lakes and drinking water.

The Covid-19 fiscal and infrastructure spending is an opportunity to shift the nation to regenerative organic farming — a production system that will help reverse the damage done to our water, soil, climate and biodiversity. It is an opportunity to diversify and add value to the food, fibre and timber we produce, allowing us to cut ruminant livestock numbers, while taking advantage of the global market growth in environmentally sustainable products and plant-based foods. It is an opportunity to build a more resilient primary production sector able to weather the oncoming environmental and market storms of the 21st century.

Investing in regenerative agriculture is an opportunity to make significant progress towards two of the eight objectives in the Government's *Economic Plan for a productive, sustainable and inclusive economy*. The first objective - to move our economy from volume to value and the seventh objective - to ensure land use delivers greater value and better environmental outcomes.¹

Finally, it is an opportunity to fulfil the Prime Minister's ambition, stated in the Opening Address to the United Nations Climate Action Summit in September 2019 - "*We are determined to show that we can be the most sustainable food producers in the world.*"² Government investment in regenerative farming is an opportunity to turn these inspiring words into tangible action.

Around the world, many Governments have recognised the environmental and social benefits of regenerative organic farming and increased public spending and policies to support it. We

¹ Ministry of Business, Innovation & Employment, 2019. Economic Plan: for a productive, sustainable and inclusive economy ([Link](#))

² Beehive, 2019 Opening address to United Nations Climate Action Summit. ([Link](#))

recommend the New Zealand Government follow suit and make the following investments, all of which are already in practice internationally:

- 1. Provide one-off grant funding for agroforestry³, cover-cropping⁴ and reduced tillage⁵.**
 - a. For the establishment and initial maintenance of trees, and for the first three years undertaking these practices to allow farmers to gain experience in them.
- 2. Construct plant-based food⁶ manufacturing facilities and diversified, value-added food, fibre and timber processing.**
 - a. Provide grant funding for the processing of regenerative organic and plant based foods, and by constructing these processing facilities directly.
- 3. Invest in R&D, training and advisory services for regenerative organic farming**
 - a. Fully fund regenerative organic advisory services, cover the costs of organic certification and inspection, establish a centre of research excellence in regenerative organic production, and substantially increase the funding to regenerative organic research.
 - b. Convert state-owned farms into Regenerative Farming Training Centres with training facilities and long-term research trials.
- 4. Finance the construction of organic compost and seed facilities**
 - a. By constructing large-scale facilities that target major urban waste streams and by providing grant funding for on-farm construction of compost infrastructure.
- 5. Finance the fencing and replanting of streams, wetlands and marginal land.**

Any work the Government does to invest in regenerative agriculture must be done in partnership with Māori to transform the land-use sector in ways that honour Te Tiriti o Waitangi. There are several Māori-led initiatives and organisations already working in the food and farming sector and they should be integral part of any Government planning or work on the agricultural sector.

³ Agroforestry is also known as; alley cropping, silviculture, silvopasture and silvoarable. It is the integration of trees into livestock, cropping and/or horticulture farms, often in rows. The trees are usually high-value timber, fruit, nut or forage. Agroforestry also includes the integration of riparian margins and windbreaks but for the purposes of this briefing these practices are excluded from the definition.

⁴ Cover-cropping also known as green manures: is the practice of growing plants for the purpose of enhancing the quality of soil, rather than for harvest.

⁵ Reduced tillage also known as conservation tillage, including direct drilling and zero till: is the practice of reducing the intensity and frequency of soil tillage, and the retention of plant matter on the soil surface.

⁶ The term “Plant-based food” is commonly used to refer to the following foods that are made from plants and without any animal derived ingredients; milk, other dairy, meat and eggs.

CONTENTS

The following briefing outlines:

1. The case for Government support of regenerative organic farming
2. The characteristics of high-input monoculture and regenerative organic production
3. A summary of the environmental benefits of regenerative organic farming
4. A summary of environmental impacts of high-input monocultures
5. Government funding that has led to the dominance of the high-input monoculture production system.
6. Recommendations for Government investment in regenerative organic production including international examples of similar Government support

Appendix 1 outlines

7. A summary of common regenerative organic farming practices
8. A summary of each study referred to in the regenerative organic farming benefits section along with their full references.

THE CASE FOR GOVERNMENT INVESTMENT IN REGENERATIVE FARMING

Government investment is effective

Internationally, many Governments have allocated significant public funding towards regenerative organic farming. Research shows that governmental support increases the number of farms and land under certified organic production.⁷ It can be assumed the same effect would occur for regenerative organic farms. The United Nations Food and Agriculture Organisation is urging governments to support regenerative farming. It states:

“Agroecology can help transform the way we currently produce and consume food to build healthier and more sustainable food systems. But this calls for the full engagement of governments and policy makers. Only with significant commitment at the policy level, will we see the scaling-up of agro-ecological approaches.”⁸

Economic Benefits

Organic and plant-based products are high-value sectors that are experiencing strong growth, However, due in part to a lack of government support in New Zealand they have remained small sectors that have not yet achieved the economies of scale that would enable New Zealand to maximise value from these sectors. According to Plant & Food Research:

“The opportunity for New Zealand is in manufacturing high-value plant protein foods, sourcing ingredient streams from trusted sustainable and diversified production systems that meet our future climate change challenges, and delivering premium products into the ‘flexitarian’ diets of our international customers.”⁹

⁷ IFOAM-Organics International, 2017. Guidelines for public support to organic agriculture ([link](#))

⁸ <https://www.ifoam.bio/en/news/2018/04/05/future-policy-awards-2018-scaling-agroecology>

⁹ Sutton K, Larsen N, Moggre G-J, Huffman L, Clothier B, Eason J, Bourne R. 2018. Opportunities in plant based foods – PROTEIN. A Plant & Food Research report prepared for: MPI. ([Link](#))

Growth in plant-based foods has been unprecedented in the past 5 years as illustrated below:

- UBS investment bank predicts that the global plant-based market will have a Compound Annual Growth Rate (**CAGR**) of over 30% up to 2025, and reach US\$50 billion by 2025¹⁰
- In the USA in the year 2017-19¹¹:
 - Total retail sales of plant-based foods grew 17%. In comparison, total retail food sales grew just 2% in the same period
 - Retail sales of plant-based; meat grew 23%, yoghurt by 55% and cheese 41%
 - Plant-based milk now represents 13% of the total retail milk market
- European markets are also experiencing strong growth. In Denmark and Germany, the market for meat substitutes showed an annual growth of between 15–20% in 2016.¹²

The global organic food and beverage market also shows strong and sustained growth;

- The value of the New Zealand organic export market grew 42% between 2015-2018¹³
- The global market for organic grew 397% between 2000-2016 - a CAGR of 10.5%¹⁴
- Some estimate it will reach US\$679 Bn by 2027, with an estimated CAGR of 17.05%¹⁵
- In the European Union, the market for organics is growing faster than the area of production leading to high levels of imports. In Denmark for example, imports increased by 180% between 2008-2017; and by 20% in 2016-2017 alone.¹⁶

Environmental benefits

Discussed in detail in section 3.

PRIMARY PRODUCTION IN NEW ZEALAND

High-input monoculture is the dominant production system for most land-uses in New Zealand. It is also commonly referred to as “intensive”, “conventional”, and “industrial”. It is characterised by large volumes of inputs, such as agri-chemicals, which are used to grow monocultures—the same crop, plant or animal over large areas.¹⁷ New Zealand is also dominated by animal agriculture with a comparatively minor amount of land in plant-based food production.

The inputs commonly used include: Synthetic nitrogen fertiliser, superphosphate and other chemical fertilisers, synthetic pesticides (incl. herbicides, fungicides and insecticides), imported

¹⁰ <https://www.ubs.com/global/en/investment-bank/in-focus/2019/future-of-food.html>

¹¹ Cameron, B. and O'Neil, S., 2019. State of the industry report: Plant-based meat, eggs, and dairy. The Good Food Institute accessed [here](#).

¹² Tziva, M., Negro, S.O., Kalfagianni, A. and Hekkert, M.P., 2019. Understanding the protein transition: the rise of plant-based meat substitutes. *Environmental Innovation and Societal Transitions*. Link [here](#).

¹³ Organic Association of NZ, 2018. New Zealand Organic Market Report 2018. [Here](#).

¹⁴ Ibid.

¹⁵ <https://www.prnewswire.com/news-releases/global-organic-food-and-beverages-market-is-expected-to-reach-us-679-81-billion-by-2027--says-absolute-markets-insights-300914140.html>

¹⁶ Willer, H., Schlatter, B., Travnicek, J., Kemper, L., Lernoud, J., 2020. *The world of organic agriculture. Statistics and emerging trends 2020*. Research Institute of Organic Agriculture FiBL and IFOAM Organics

¹⁷ Kremen, C., Iles, A. and Bacon, C., 2012. Diversified farming systems: an agroecological, systems-based alternative to modern industrial agriculture. *Ecology and Society*, 17(4)

animal feed, irrigation, and treated seed.¹⁸ The practices associated with this production system include: Monocultures, high stocking rates, frequent and deep tillage, and extended periods of bare soil over large areas.¹⁹ The inputs and practices used differ depending on the type of land-use and where it is situated. A summary of the well documented negative environmental impacts of this production system in New Zealand is given in section 4.

Regenerative organic farming is not currently the dominant production system in New Zealand. However, it is currently practiced by a small number of farmers and growers. It is also known as “agroecology”, “ecological” and “biological” and includes farms operating with the market certifications of biodynamic and organic. It is characterised by the significant diversification of crops, plants and animals and the low use of inputs, none of which are synthetic.²⁰ Synthetic inputs are replaced with practices that mimic natural systems to access nutrients, water and pest control required for growth.²¹ Common practices include: Diversification, Agro-forestry; cover-cropping/green manures, intercropping, adaptive/holistic grazing, reduced tillage.²² Many of these have been developed with indigenous knowledge accumulated over millennia.²³ A short description of these common practices are listed in Appendix 1.

The inputs commonly used in low amounts in regenerative production are often produced, fully or in part, on the farm itself. They include: seed, compost and bio-fertilisers. As with high-input monocultures not all practices or inputs listed here are used on all farms, with the exception of diversification which is the hallmark of regenerative organic farming.

REGENERATIVE ORGANIC FARMING - ENVIRONMENTAL BENEFITS

A substantial body of research shows the benefits of regenerative organic farming include:

- **More resilience to drought, floods, and pest incursions;**²⁴ producing more yield than high-input monocultures in these conditions. This is generally due to healthier soils with better water holding capacity, infiltration rates, higher organic matter and lower erosion rates, as well as diversification. This is particularly important as these events are already challenging farmers and will become more intense and frequent with climate change.

¹⁸ IPES-Food. 2016. From uniformity to diversity: a paradigm shift from industrial agriculture to diversified agroecological systems. International Panel of Experts on Sustainable Food systems. Accessed [here](#)

¹⁹ Horrigan, L., Lawrence, R.S. and Walker, P., 2002. How sustainable agriculture can address the environmental and human health harms of industrial agriculture. *Environmental health perspectives*, 110(5), pp.445-456.

²⁰ Kremen, C., Iles, A. and Bacon, C., 2012. Diversified farming systems: an agroecological, systems-based alternative to modern industrial agriculture. *Ecology and Society*, 17(4).

²¹ Magdoff, F., 2007. Ecological agriculture: Principles, practices, and constraints. *Renewable Agriculture and Food Systems*, formerly *American Journal of Alternative Agriculture*, 22(2), pp.109-117. Cambridge University Press.

²² Horrigan, L., Lawrence, R.S. and Walker, P., 2002. How sustainable agriculture can address the environmental and human health harms of industrial agriculture. *Environmental health perspectives*, 110(5), pp.445-456.

²³ Kremen, C., Iles, A. and Bacon, C., 2012. Diversified farming systems: an agroecological, systems-based alternative to modern industrial agriculture. *Ecology and Society*, 17(4).

²⁴ As evidenced in: USDA 2013, Bulluck et al 2002, Lotter et al 2003, Holt-Gimenez 2002, Mader et al 2000, Lockeretz et al. 1981, Di Falco and Chavas 2008, Drinkwater et al 1995, , Zhu et al. 2000, Krauss et al. 2011, Hassanali et al. 2008.

- **Reduction in water pollution²⁵**; through a reduction in nitrate, phosphorus and sediment losses to waterways. This is generally due to the elimination of chemical fertilisers, diversification, healthier soil practices and the lower stocking rates found in regenerative organic systems.
- **Increased levels of biodiversity²⁶**; i.e more plant, insect and animal species including a higher number of pollinators. This is generally due to diversification and elimination of pesticides.
- **Increased carbon sequestration²⁷**; in soil and plant biomass primarily due to the incorporation of agroforestry, and the increase in soil carbon stocks commonly found on regenerative farms. Emissions are also often reduced primarily by higher energy efficiency, lowered stocking rates, the elimination of imported feed from deforested areas and the elimination of carbon intensive synthetic inputs.
- **Increased soil health²⁸**, showing better soil stability, enhanced soil fertility, higher soil biodiversity, soil carbon, and activity of microbes and earthworms.
- **Higher profitability²⁹**: Primarily due to vastly reduced input costs, diversified income streams, higher yields, and in some cases higher-value market access.
- **Comparable yields³⁰**: This is often due to increased soil health and well-functioning natural systems which successfully replace synthetic inputs to provide the nutrient, water and pest control required for growth. As discussed above, this is especially pronounced during drought, flood, storm and pest and disease incursions.

These benefits are discussed in more detail in Appendix 1 (attached) which gives a short summary of each study referred to in the footnotes and the full reference. The studies provided are not indicative of the entire body of research but are included to provide a snapshot.

THE IMPACTS OF NEW ZEALAND'S DOMINANT PRODUCTION SYSTEM

In essence, the substantial body of research on the environmental impacts of high input monoculture production and intensive animal agriculture shows that it generally leads to:

- **Decline in soil health³¹** including; compaction, decreased organic matter, reduced microbial activity, and erosion of topsoil.
- **Decline in water quality³²** including; increased nutrient, pathogen and sediment loads, lowered flows from extraction for irrigation, and degrading wetland and stream habitat.

²⁵ As evidenced in the meta-analyses Mondelaers et al. 2009, Gardner and Drinkwater 2009 and Kuyah et al. 2019 as well as individual studies: NZ Landcare Trust 2019, AgResearch 2009, Selbie et al 2017, Kramer et al. 2006, Thevathasan et al 2004, Allen et. al 2004, Palma et al 2007, Lockeretz et al. 1981,

²⁶ As evidenced in the meta-analysis by Tuck et al 2014

²⁷ As evidenced by the IPCC 2000 and the meta-analysis by De Stefano et al 2018 as well as individual studies: Liebig et al 1999, Palma et al 2007, Kramer et al. 2006, Bulluck et al. 2002

²⁸ As evidenced in Reganold et al., 1993 Isbell et al. 2013, Mäder et al. 2002, Liebig et al. 1999, Kramer et al. 2006 Bulluck et al. 2002, Lotter et al. 2003, Holt-Gimenez, 2002

²⁹ As evidenced in Dairy NZ 2013, Crowder and Reagonold 2015, Chavas et al. 2009, AgResearch 2009, Landcare Trust 2019, Reagonold et al 1993

³⁰ As evidenced in Reganold et al. 2001, Tilman et al. 2012, Davis et al. 2012, Ponisio et al. 2015, Badgley et al. 2007

³¹ Ministry for the Environment and Stats NZ, 2018. Our Land 2018 Environmental Reporting Series. ([link](#))

³²Parliamentary Commissioner for the Environment 2013: Water quality in New Zealand: Land use and nutrient pollution.

- **Increased emissions**³³ from; ruminant livestock, loss of soil carbon, the conversion of forest to pasture, the production of synthetic inputs and coal use for milk dehydration.
- **Habitat destruction and declines in biodiversity**³⁴ from; conversion of native vegetation, the use of pesticides, water pollution, and ongoing wetland drainage.
- **Contamination** of soil with heavy metals³⁵ and pesticide residues³⁶

The use of imported inputs by New Zealand's primary sector has also had several environmental impacts offshore, particularly in developing nations.

The first nationwide assessment of some of the externalised environmental costs of the increase of dairy intensification in New Zealand has been estimated at NZ\$11.6 billion.³⁷

HISTORIC AND CURRENT GOVERNMENT SUPPORT FOR HIGH-INPUT MONOCULTURES

Successive governments in New Zealand have used public spending to develop the high-input, monoculture production system that dominates today. They have done so in five ways;

1. Through the appropriation and clearing of Māori land, primarily for pastoral agriculture, which displaced iwi and hapū and their traditional food production on that land, and through the ongoing appropriation of water for irrigation.
2. Through subsidies to farmers to increase synthetic fertiliser use,³⁸ construct on-farm irrigation,³⁹ increase stocking rates,⁴⁰ convert marginal land and drain wetlands.⁴¹
3. Through public funding for the construction of the synthetic nitrogen fertiliser factory in Kapuni, a think-big scheme, which the Government spent \$97 million (1983) on - the equivalent of \$338 million today.⁴² As well as the construction of over 50 irrigation schemes, with full or partial funding.⁴³ ⁴⁴ Subsidies to irrigation schemes are ongoing.
4. Through ongoing use of public funds to clean up agricultural pollution arising from high-input monoculture farms. This includes funding for waterway restoration⁴⁵ and for contaminated site remediation for fertiliser⁴⁶ and pesticide factories⁴⁷, and sheep dips.⁴⁸

³³ Ministry for the Environment, 2020 New Zealand's Greenhouse Gas Inventory 1990-2018 ([link](#))

³⁴ Ministry for the Environment and Stats NZ, 2018. Our Land 2018 Environmental Reporting Series. ([link](#))

³⁵ Ibid.

³⁶ Pook, C. and Gritcan, I., 2019. Validation and application of a modified QuEChERS method for extracting neonicotinoid residues from New Zealand maize field soil reveals their persistence at nominally hazardous concentrations. *Environmental Pollution*, 255, p.113075. ([link](#))

³⁷ Foote, K.J., Joy, M.K. and Death, R.G., 2015. New Zealand dairy farming: milking our environment for all its worth. *Environmental management*, 56(3), pp.709-720.

³⁸ Sheppard, R.L., 1993. New Zealand agricultural policy change: some effects. Lincoln University Agribusiness and Economics Research Unit Discussion Paper 135

³⁹ Farley, P.J., 1994. *Privatization of irrigation schemes in New Zealand*. International Irrigation Management Institute (IIMI).

⁴⁰ Ibid

⁴¹ Gow, N.G., 2007. New Zealand government's involvement in agriculture: the road to non-sustainability. In *Proceedings of the 16th International Farm Management Congress: Plenary papers, applied papers & poster abstracts* (pp. 24-27). Accessed [here](#).

⁴² Stephen Levine, 2006 *New Zealand as it Might Have Been, Volume 1* Victoria University Press,

⁴³ Farley, P.J., 1994. *Privatization of irrigation schemes in New Zealand*. International Irrigation Management Institute (IIMI).

⁴⁴ https://www.irrigationnz.co.nz/Category?Action=View&Category_id=77

⁴⁵ <https://www.mfe.govt.nz/more/funding/freshwater-improvement-fund>

⁴⁶ <https://www.beehive.govt.nz/release/initiative-prioritise-contaminated-sites-remediation>

⁴⁷ <https://www.mfe.govt.nz/more/environmental-remediation-projects/mapua-contaminated-site-clean>

⁴⁸ <https://www.beehive.govt.nz/release/government-funding-boost-contaminated-sites>

5. The exclusion of the sector from the Emissions Trading Scheme,⁴⁹ effectively giving ruminant livestock farms a free pass to continue emitting.

This Government spending has been coupled with an absence of adequate regulation to protect waterways, soil, biodiversity and the climate, as well as comparatively little support for other production systems. Moving forward, government funding should no longer go towards enabling a heavily-polluting primary production system. Public money should go to the public good.

KEY RECOMMENDATIONS FOR GOVERNMENT INVESTMENT

The following section outlines our key recommendations for Government investment in more detail and provides international examples where these recommendations are already in place. These five investments should be coupled with significant strengthening of regulation to protect waterways, soil, biodiversity and the climate, as well as financial disincentives for the use of agri-chemicals and imported feed.

1. Provide grant funding for agroforestry, cover-cropping and reduced tillage.

Capital costs of agroforestry and a lack of experience can be barriers to farmers adopting regenerative practices. To alleviate this, we recommend the following grants. Please note we are **not** recommending any permanent subsidies for the use of regenerative practices.

Agroforestry grants: For tree seedlings, fencing and associated labour costs of establishing agroforestry, and short-term financing for maintenance of trees for up to 5 years.

- Ireland and Scotland provide agroforestry grants for up to 80% of the cost of the trees and fencing, and for the first five years for maintenance.^{50 51}

Diversified pasture and cover-cropping grants: For the first three years to help farmers gain experience in pasture diversification and cover-cropping.

- The USA provides up to 3 annual grant payments to farmers for cover-cropping, to enable them to gain 3 years of experience in the practice. A higher diversity seed mix corresponds to a larger grant amount⁵².

Reduced tillage grants: for the first three years to help farmers gain experience.

- California gives grants for no-till, reduced-till, mulching and compost application⁵³

2. Construct plant-based food manufacturing facilities and provide grant funding for small-scale and value-added food, fibre and timber processing.

⁴⁹ <https://www.mpi.govt.nz/protection-and-response/environment-and-natural-resources/emissions-trading-scheme/>

⁵⁰ <https://www.teagasc.ie/crops/forestry/grants/establishment-grants/agroforestry/>

⁵¹ <https://www.ruralpayments.org/publicsite/futures/topics/all-schemes/forestry-grant-scheme/agroforestry/>

⁵² https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1082778.pdf

⁵³ <https://www.cdffa.ca.gov/healthyoils/>

Regenerative agriculture is a highly diversified production system. The current processing infrastructure in New Zealand is insufficient to support major diversification of food, fibre and timber or to support a major shift to plant-based and value-added products. There are currently very few plant-based food manufacturing facilities and they are not ideally located. According to the Institute for Plant & Food Research report to MPI, this is a major challenge to growth in our plant-based food sector.⁵⁴

We recommend the government construct these facilities directly as well as provide grant funding to farmers and processors for regenerative organic and plant-based food processing. Including for mobile processing facilities.

- Ireland - €22 million (2018) for the 'Organic Capital Investment Scheme' which provides grants to farmers or processors for facilities and equipment for preparation, grading, packing, storage, distribution and sale of organic products.⁵⁵
- Canada - invested \$132 million in the Canadian plant-based food industry.⁵⁶
- Spain - invested €250,000 in the production of plant-based meat⁵⁷

3. Finance the construction of organic compost and seed facilities

Access to organic compost and diversified organic seed is a barrier to transitioning to regenerative organic farming. To alleviate this we recommend investing in major public works projects for large-scale distributed facilities, as well as providing grant funding for on-farm construction of compost infrastructure. As outlined in the above section successive governments have subsidised the use of synthetic fertilisers, provided finance for numerous irrigation schemes and built the urea factory. Public funding must now be directed to building the infrastructure to produce regenerative organic farming inputs, as other countries have done.

- Philippines established and maintained over 700 organic input facilities 2011- 2016.⁵⁸
- India provides financial assistance for construction of compost and bio-fertiliser production units on farms.⁵⁹
- Brazil - €5.8m for the production, distribution and commercialization of seeds of traditional and diverse crop varieties including the construction of 600 seed banks.⁶⁰

4. Invest in R&D, training and advisory services for regenerative organic farming

Unlike many other countries New Zealand provides no regenerative organic training or advisory services, little support for organic certification, and little funding to regenerative organic research and development. We recommend the following actions to remedy this:

⁵⁴ Sutton K, Larsen N, Moggre G-J, Huffman L, Clothier B, Eason J, Bourne R. May 2018. Opportunities in plant based foods – PROTEIN. A Plant & Food Research report prepared for: MPI. ([Link](#))

⁵⁵ Dept. of Agriculture, Food and the Marine (Accessed 2020). Organic Farming - An Overview ([link](#))

⁵⁶ Ministry of Innovation, Science and Economic Development, 2018 . Press release. ([link](#))

⁵⁷ <https://www.plantbasednews.org/lifestyle/spanish-government-invests-in-plant-based-meat>

⁵⁸ IFOAM-Organics International, 2017. Guidelines for public support to organic agriculture ([link](#))

⁵⁹ Ibid

⁶⁰ Ibid

Fully fund the provision of regenerative organic advisory services; including retraining all existing central and regional government advisors in regenerative organic farming.

- Most EU Member States provide organic advice in the national extension services or parallel systems and many also have training programs eg. In Norway all farmers wanting to convert to organic can access free advice from Government advisors⁶¹
- Brazil - €215m in 2013-2015 for extension services for farmers wanting to use agroecology and organic production⁶²

Cover the certification and inspections costs for organic and biodynamic certification.

- Several EU countries and the USA cover a portion of, or 100% of these costs.^{63 64}

Establish a centre of research excellence in regenerative organic production and increase the funding to regenerative organic research

- EU -€33 million on organic research in 2016 alone (not inclusive of national spending).⁶⁵
- Switzerland -€8 million per year to the Research Institute of Organic Agriculture (FiBL)⁶⁶
- India - Gujarat state is setting up a university exclusively focusing on organic farming.⁶⁷

Convert state-owned farms into Regenerative Farming Training Centres by bringing them into regenerative organic production and building research and teaching facilities on them.

- Canada - €10m to a 200-hectare organic agriculture research site dedicated to long-term trials, training and public awareness activities.⁶⁸
- India has turned two state-owned farms into Organic Centres of Excellence.⁶⁹

5. Finance the fencing and replanting of streams, wetlands and marginal land.

Many of New Zealand's freshwater and terrestrial ecosystems have reached breaking point and the majority of our native species are threatened with extinction.⁷⁰ Additionally, there is an urgent need to increase our rates of carbon sequestration to meet our emissions reduction targets and help keep the climate from heating to catastrophic levels. Farmland occupies around 55% of New Zealand's land area⁷¹ offering huge potential to help restore our waterways to health, improve biodiversity and sequester carbon. Providing finance for the native revegetation of streambanks, wetlands and highly erodible, marginally productive land will provide thousands of jobs and significant benefits to the environment.

⁶¹ IFOAM-Organics International, 2017. Guidelines for public support to organic agriculture ([link](#))

⁶² Ibid

⁶³ Ibid

⁶⁴ <https://www.ers.usda.gov/topics/natural-resources-environment/organic-agriculture/organic-certification/>

⁶⁵ IFOAM-Organics International, 2017. Guidelines for public support to organic agriculture ([link](#))

⁶⁶ Ibid

⁶⁷ IFOAM-Organics International, 2017. Guidelines for public support to organic agriculture ([link](#))

⁶⁸ Ibid.

⁶⁹ Ibid.

⁷⁰ Ministry for the Environment & Stat NZ (2019) New Zealand's Environmental Reporting Series: Environment Aotearoa 2019. ([Link](#))

⁷¹ Stats NZ, 2008. Measuring New Zealand's Progress Using a Sustainable Development Approach ([link](#))

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