Why policy change is urgently needed

The role of organic and like-minded farming systems in providing solutions for global problems

André Leu, International Director
Regeneration International
IFOAM - Organics International Ambassador
ALGOA Ambassador
Immediate past President IFOAM - Organics International

Goesan, Korea
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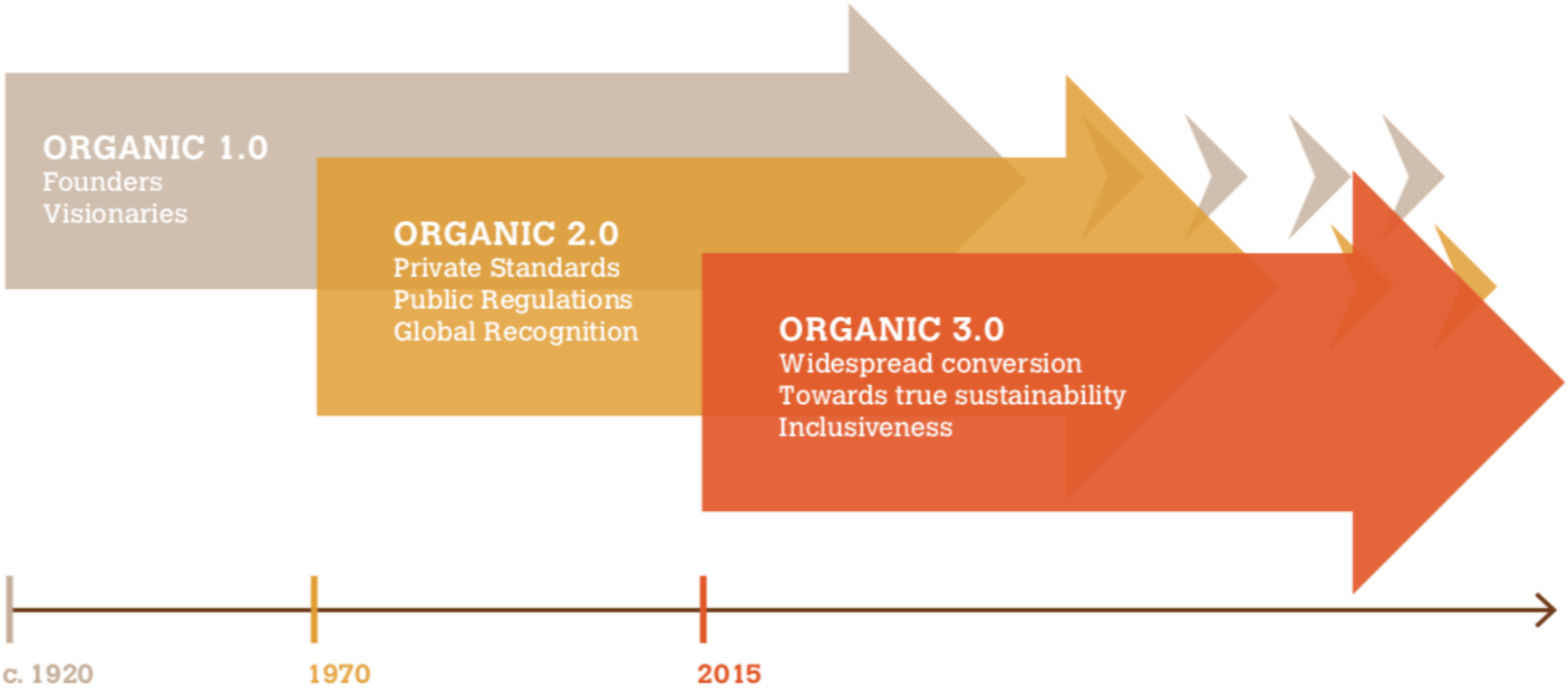
What is Organic 3.0?

The third phase of the global organic movement

FIGURE 1 | Widespread Conversion Development Towards True Sustainability Inclusiveness



Organic 3.0

Organic 3.0 positioned Organic Agriculture as a positive change agent, providing solutions for our major global problems

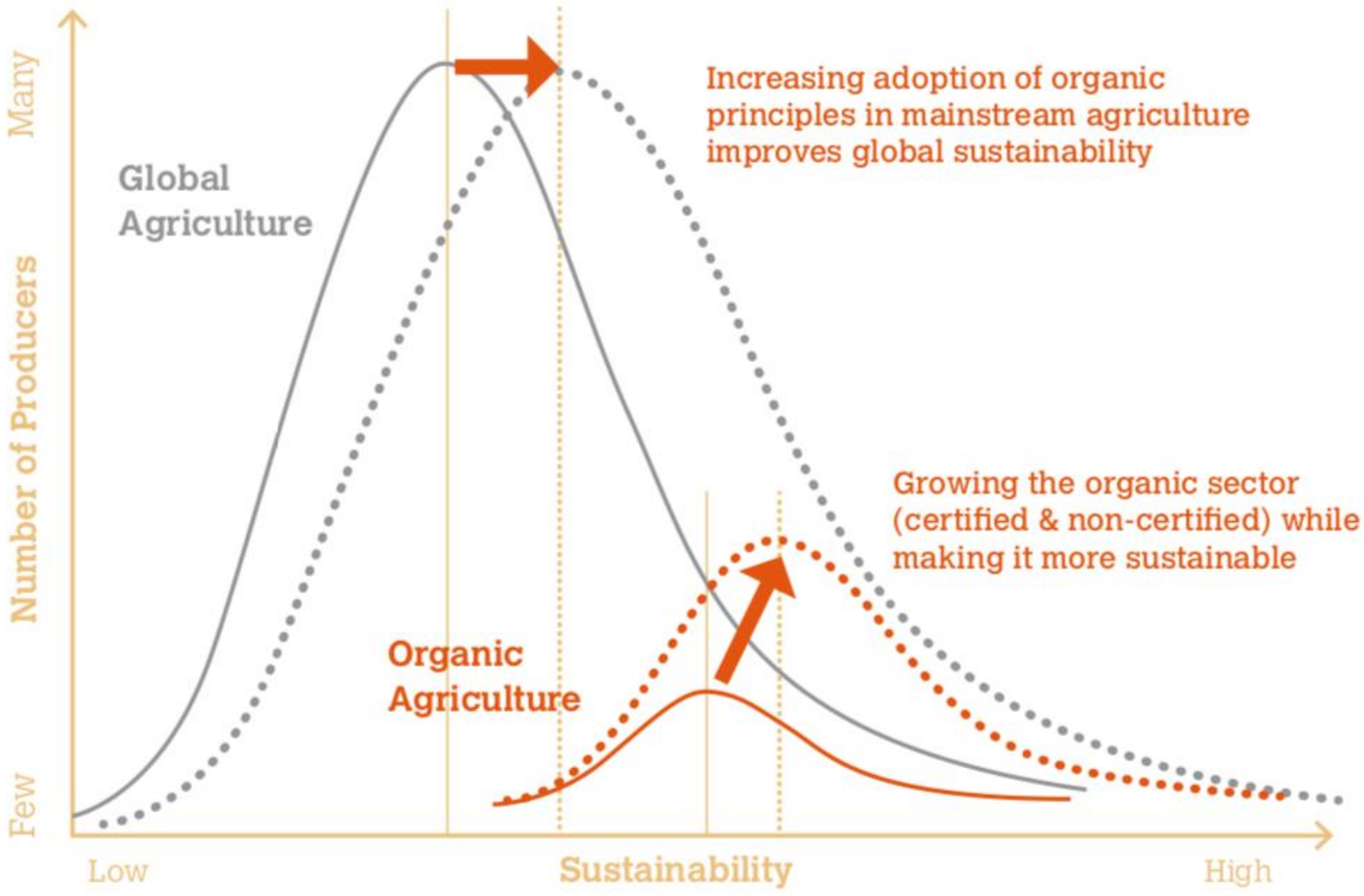
Agriculture should be a force for good, providing solutions to global issues of hunger, inequity, energy consumption, pollution, climate change, loss of biodiversity and depletion of natural resources. The positive, multi-faceted environmental, social and economic benefits of a truly sustainable agriculture can contribute solutions

Organic 3.0

he strategy for Organic 3.0 includes six main features

4. **Inclusiveness of wider sustainability interests, through alliances with the many movements and organizations that have complementary approaches to truly sustainable food and farming.**

Organic 3.0


Many
Number of Producers
Few
Global Agriculture
Increasing adoption of organic principles in mainstream agriculture improves global sustainability
Growing the organic sector (certified & non-certified) while making it more sustainable
Organic Agriculture
Low
Sustainability
High

Regenerative Agriculture

History of Regenerative Agriculture

The regenerative agriculture movement has come from from the organic movement

The term **Organic Agriculture** was popularized by J.I. Rodale in the 1940s by his magazine **'Organic Farming and Gardening'**

Rodale used **'organic'** to promote the growing and recycling of organic matter as advocated by Sir Albert Howard's book **'An Agricultural Testament'**

Howard learnt about these agricultural methods from Indian farmers

In the1980s Robert Rodale, the son of organic pioneer, J.I. Rodale's, used the term **Regenerative Organic Agriculture** to promote farming practices that **go beyond sustainable**

Regenerative Agriculture

Sustainable is defined as maintaining resources and the environment without degrading them

However in an already degraded system, it is necessary to do more than just sustain it - we need to improve it

Rodale observed that when an ecosystem is disturbed, it will naturally regenerate when the disturbance is stopped

Consequently regenerative agriculture not only maintains resources, it improves them

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REGENERATION INTERNATIONAL

COOL THE PLANET. FEED THE WORLD.

Regeneration International was conceived at the New York Climate Change meeting in 2014

OUR VISION

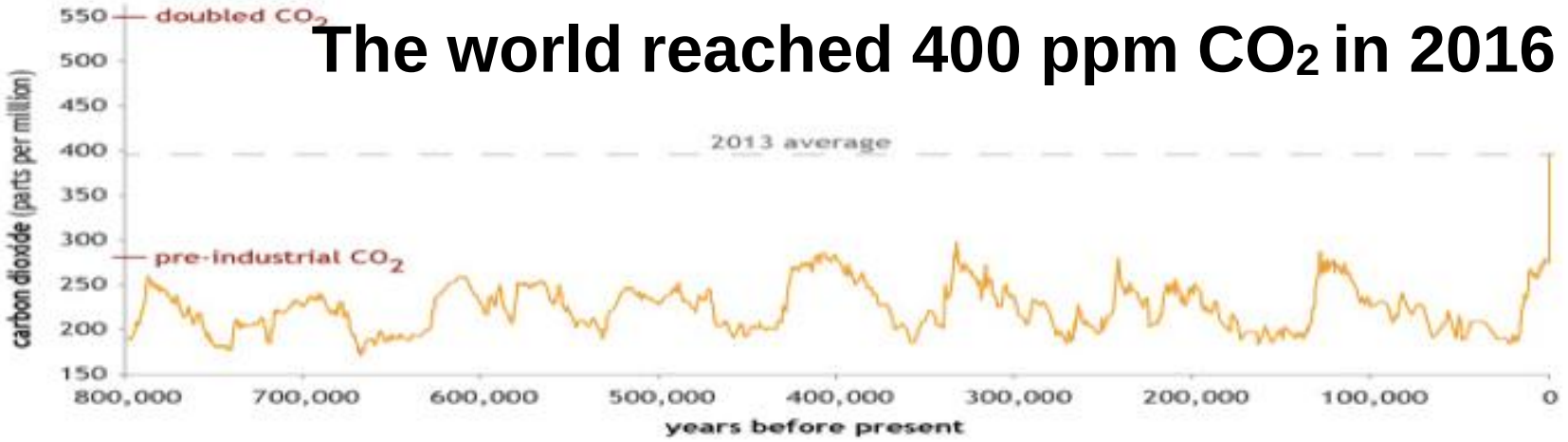
A healthy global ecosystem in which practitioners of regenerative agriculture and land-use, in concert with consumers, educators, business leaders and policymakers, cool the planet, feed the world and restore public health, prosperity and peace on a global scale.

Regenerative Agriculture

Regenerative Agriculture is now being used as an **umbrella term** for the many farming systems that use techniques such as longer rotations, cover crops, green manures, legumes, compost, organic fertilizers

Includes: **organic agriculture**, agro forestry, **agroecology**, permaculture, **holistic grazing**, sylvopasture, syntropic farming and other **agricultural systems that can increase soil organic matter/carbon**.

The world reached 400 ppm CO_2 in 2016



- The last time the world had 400 ppm, based on evidence from 3.0–3.5 Million years ago - **up to 16 C warmer (28.8 F)** (Rohling et al. Nature)

- **Sea levels were 20 to 30 meters higher (65 to 100 ft)**
- Will lead to a mass extinction event

- CO_2 levels are increasing by 2 to 3.3 ppm per year - **reached a record of 415.3ppm May 2019**
- Getting worse despite the Paris agreement

We are looking at crossing the tipping point of catastrophic climate change

Stopping Emissions is NOT Enough

Global sea levels rises will cause the atoll island countries, large parts of Bangladesh, Netherlands, Denmark, coastal USA, New York, New Orleans, Miami, London, Hamburg, Copenhagen, Stockholm, Tokyo, Yokohama, Manila, Bangkok, Calcutta, Jakarta, Shanghai, Singapore, Lagos, Sydney, Melbourne and other low lying areas to go under water

Causing a huge refugee crisis for hundreds of millions of people

It will mean increased frequency and severity of droughts, floods and storms causing food shortages and more humanitarian crises

Stopping Emissions is NOT Enough
We have to Draw Down CO_2

According to WMO Secretary-General Michel Jarraud
"Carbon dioxide remains in the atmosphere for ***hundreds of years*** and in the ocean for even longer. Past, present and future emissions will have a cumulative impact on both global warming and ocean acidification."

The extra heat becomes a huge amount of extra energy fueling our planet's weather systems. **The equivalent of millions of atomic bombs of energy**

It means violent and extreme weather events such as storms, droughts and floods become more intense and more frequent.

This is happening now!

Stopping Emissions is NOT Enough
We have to Draw Down CO_2

Soils are the greatest carbon sink after the oceans

Over 2700 Gt of carbon is stored in soils worldwide

Biomass 575 Gt most of which is wood. Source (Lal 2008)

Atmosphere 900 Gt

1 Gt (gigaton) = 1 billion tons

It would be most logical to remove the CO_2 from the atmosphere and put it into the soil – where it is needed

We Must Drawn Down CO_2 Now!

Ending fossil fuels and adopting renewal energy must be non-negotiable

However this will not stop catastrophic climate change

Need to draw down around 25 Gt of CO_2 per year from the atmosphere just to stabilize CO_2 levels at around 415 ppm

Further scaling up to reduce CO_2 levels

Launched in Paris in Dec 1, 2015 this initiative aims to change farming from being a major CO_2 emitter to becoming a major mitigator of CO_2 by storing it in soil as soil organic matter

The UNFCC recognizes this initiative by French Government as part of the Lima – Paris accord

32 Countries, several regions, FAO, IFAD, GEF, CGIAR and hundreds of NGOS have signed on.

IFOAM - Organics International is signature No.7 on the founding document

Changing faming from a major problem to a major solution

Pasture Cropping

Soil Kee, Australia

- **Sowing annual cover and cash crops in perennial pastures**
- **11.2 metric tons of CO_2/ha/yr Verified by the Australian Government Soil Carbon Initiative**
- **Extrapolated globally across agricultural lands would sequester 55 Gt of CO_2/yr**

Soil Carbon Sequestration

BEAM (Biologically Enhanced Agricultural Management)

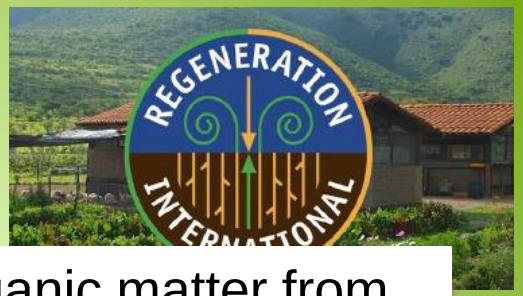
A highly aerated composting process developed by Dr David Johnson of New Mexico State University, that produces compost with a high diversity of soil microorganisms.

37.7 metric tons of CO_2 per hectare per year (published paper)

Extrapolated globally across agricultural lands BEAM would sequester 184 Gt of CO_2/yr

Picture: Regeneration International

Singing Frog Farm

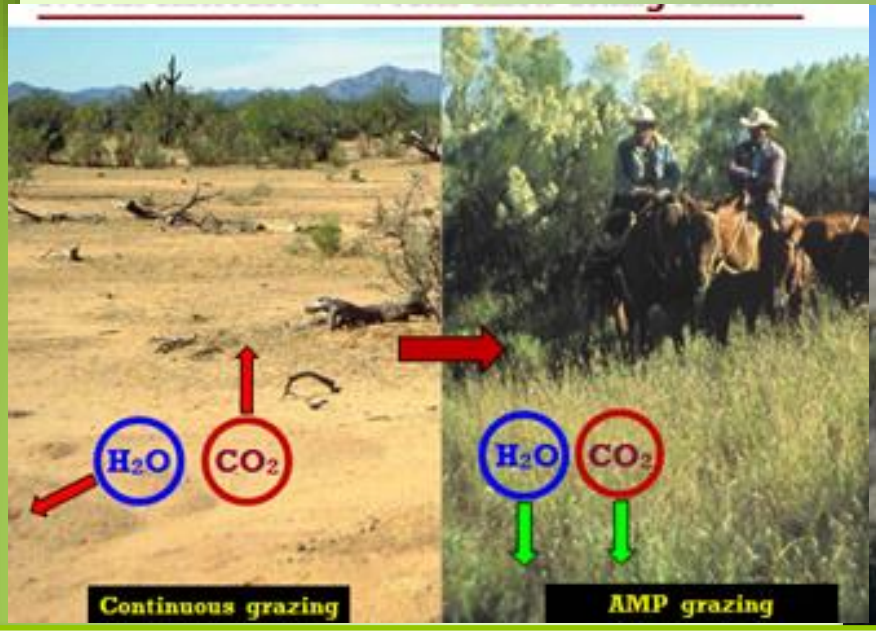


The Kaisers have managed to increase their soil organic matter from 2.4% to an optimal 7-8% in just six years, an average increase of about 3/4 of a percentage point per year - Chico State University USA

Intensive no-til highly biodiverse agroecological vegetables on 2 acres

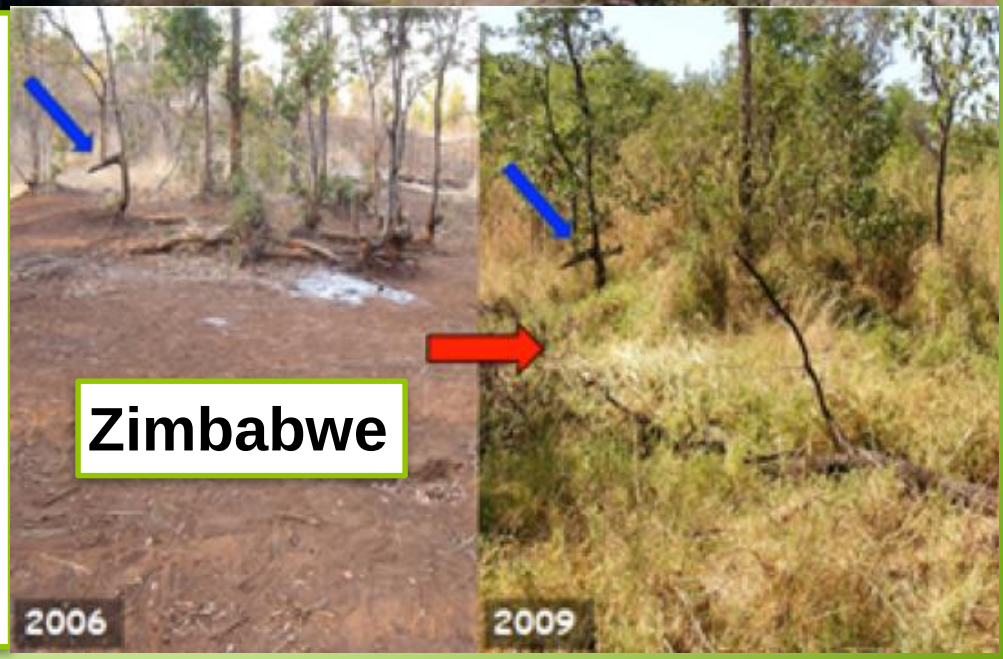
Extrapolated globally across agricultural lands would sequester 350 Gt of CO_2/yr

Regenerative/Holistic Grazing



- Regenerates degraded rangelands - 68% of Ag lands
- Increases biodiversity
- Improves water infiltration
- Increases stock carrying capacity
- Sequesters CO_2
- Biodegrades methane

Pictures:
Richard Teague



Regenerative/Holistic Grazing

'Here we show that these farms accumulated C at 8.0 Mg ha−1 yr−1.' (Machmuller et al. 2015)

8.0 Mg ha−1 yr−1 = 8,000 kgs of Carbon being stored in the soil per hectare per year.

Soil Organic Carbon x 3.67 = CO_2, means that these grazing systems have

Sequestered 29,360 kgs (29.36 metric tons) of CO_2/ ha/yr
(Sequestered 29,360 pounds of CO_2/ acre/yr)
Rangelands: 3,356,940,000 ha x 29.36 = 98.5 gt CO_2/yr

If these regenerative grazing practices were implemented on the world's grazing lands they would sequester 98.5 gt CO_2/yr

Why is policy change urgently needed?

Just transitioning a small proportion of agricultural production to best practice regenerative systems will sequester enough CO_2 to reverse climate change and restore the global climate.

- 10% of Agricultural lands under **BEAM** could sequester 18.5 Gt of CO_2 per year.
- And a further 10% of grasslands under **regenerative grazing** could sequester 10 Gt of CO_2 per year.

- This would result in 28.5 Gt of CO_2/yr being sequestered into the soil which far more than the 25 Gt of CO_2 that is currently being emitted.

We can have negative emissions and bring the world back to the pre industrial revolution levels in a few decades

They are shovel ready solutions!!!!!!!!!!!!!

Thank You