

ECOLOGICAL ORGANIC AGRICULTURE

Definitions, principles and practice of Ecological organic agriculture



Training of Multipliers
Refresher course 2023
Sam Nderitu

Module 1 – Basic Lessons

1. WHY Organic?
2. Origin and History of Organic Agriculture (OA)
3. Principles and Definitions of OA
4. EOA Production Systems – Wider context.
5. Integrating Livestock in Organic Agriculture

1. WHY Organic Agriculture?

1. Brainstorm terms describing Ecological organic agriculture

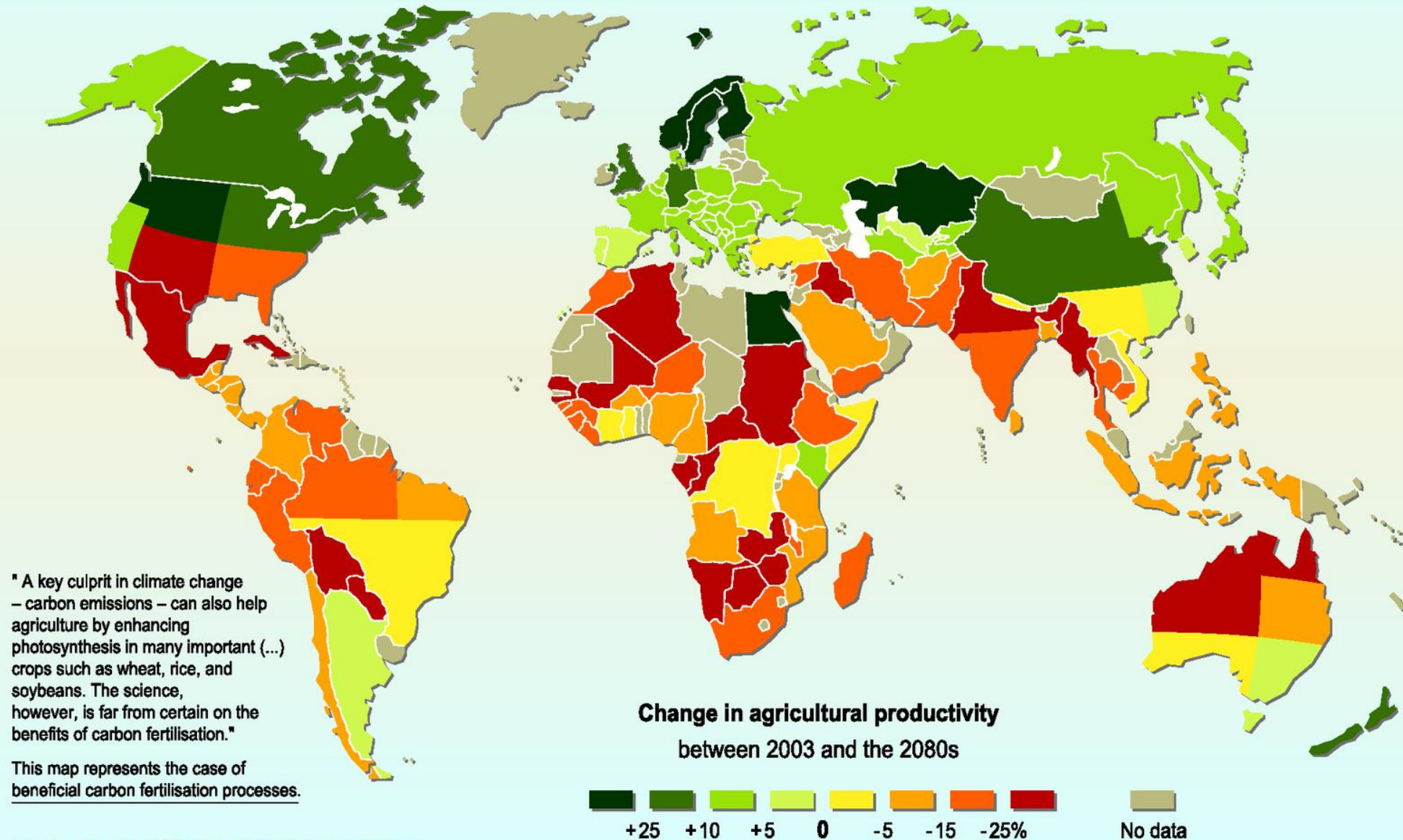
- a) Organic agriculture
- b) Permaculture
- c) GROW BIOINTENSIVE Agriculture
- d) Sustainable Agriculture
- e) Conservation Agriculture
- f) Fukuoka –
- g) Biodynamic farming
- h) ---
- i) ---

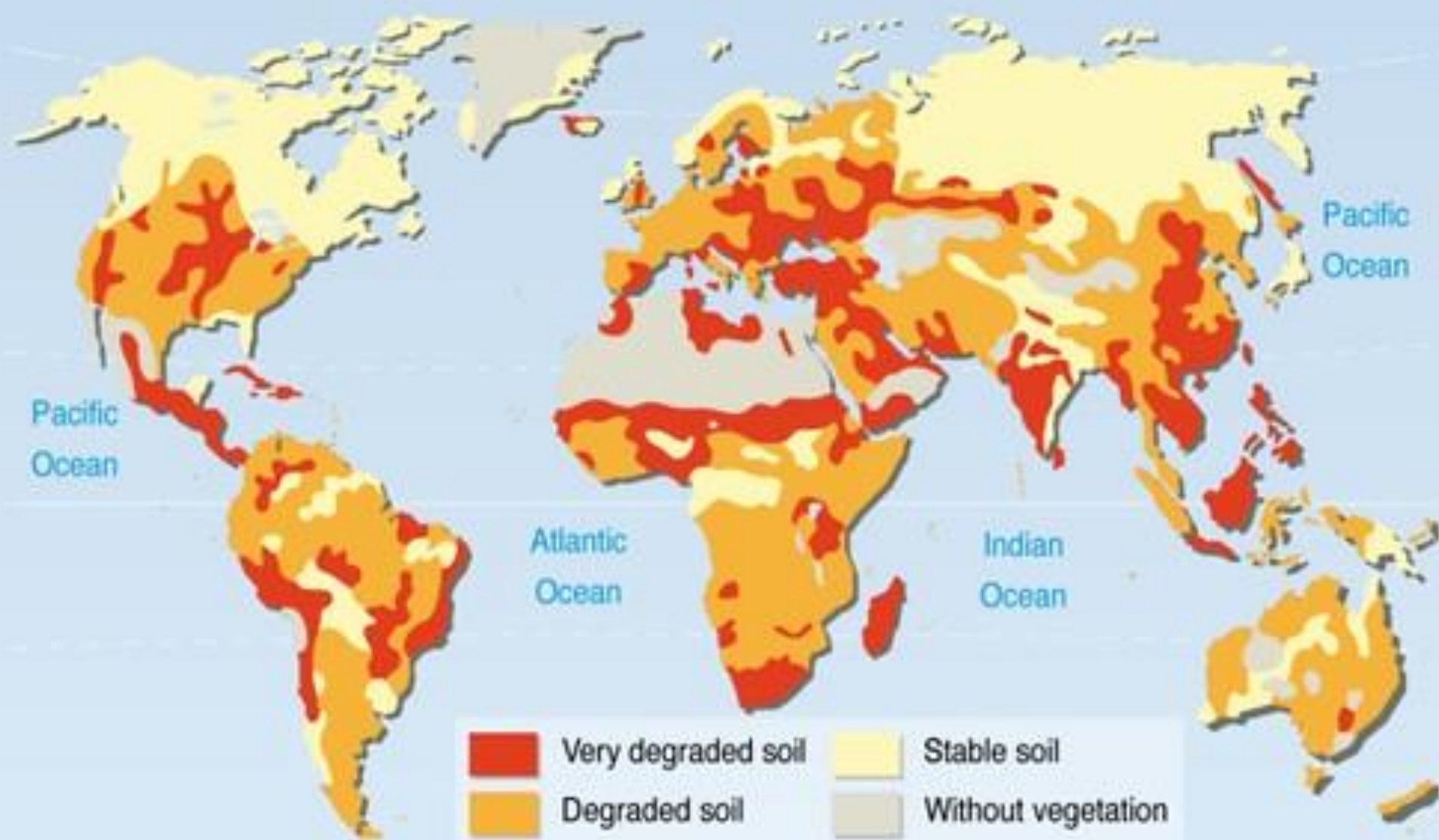
Try to come up with a definition...



“If many little people, in many little places, do many little things, they will change the face of the world.”

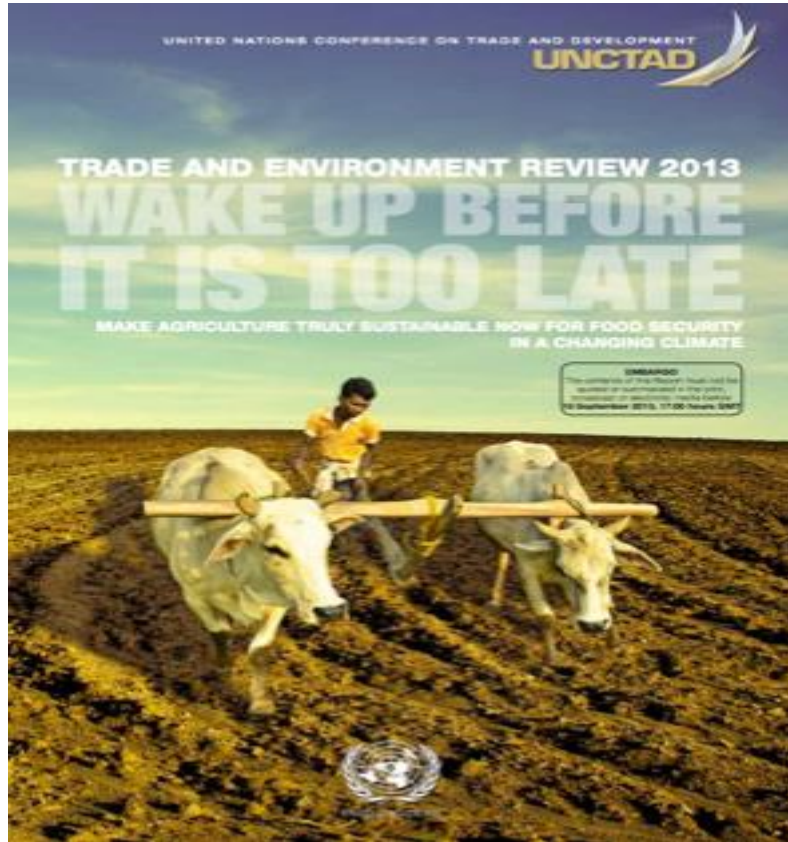
Projected impact of climate change on agricultural yields





Source: UNEP, International Soil Reference and Information Centre (ISRIC), World Atlas of Desertification, 1997.

Organic has answers



- Organic agriculture offers real solutions in the sustainable agriculture discourse.
- Knowledge intensification opposed to input intensification.
- Paradigm shift in our understanding of Food and Agriculture systems is needed.
- The world is ready and in need for these answers...

2. History & Pioneers of Organic Agriculture:

We stand on the shoulders of giants...

- Evidence of plant cultivation 23,000 years ago
- Animal husbandry 10,000 – 13,000 years ago
- Squash grown in Mexico 10,000 years ago
- Evidence of the use of manure, compost, ashes 10,000 years ago



- Modern industrial agriculture born in the early 20th Century
- The “Green Revolution” born in the 1940s
- GMO technology approved in 1994

Which should be the “convention”?

Organic 1.0: The pioneers

Rudolf Steiner

- Biodynamic farming was born from a series of agricultural lectures in 1924 given by Austrian philosopher and social reformer, Rudolf Steiner (1861 – 1925).



Sir Albert Howard et al

- The concepts of organic agriculture were developed in the early 1900s by Sir Albert Howard, F.H. King, and others who believed that the use of animal manures **(often made into compost)**, cover crops, crop rotation, and biologically based pest controls resulted in a better farming system.
- Such practices were further promoted by various advocates—such as J.I. Rodale and his son Robert, in the 1940s and onward



Sir Albert Howard (1873-1947)

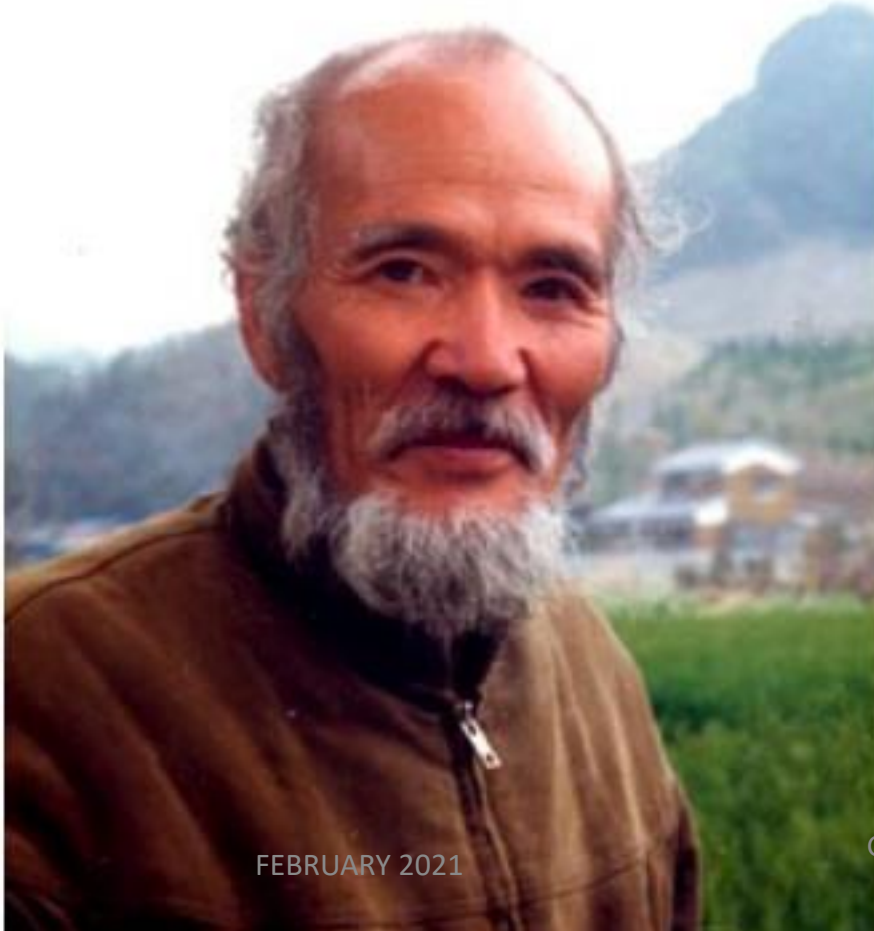


Robert Mazibuko, South Africa 1904 -1994

- Known as the “Tree Man” – a pioneer in South African organic agriculture
- Strong links to the SA Soil Association – founder member of IFOAM
- Believed that everything in nature is part of the whole, and that it is only by caring for our earth that we can really look after ourselves
- Inspiration across the historical divisions in SA society.
- Recognition in 1993 – Green Trust Award, Dept. of Environmental Affairs Conservation Award.

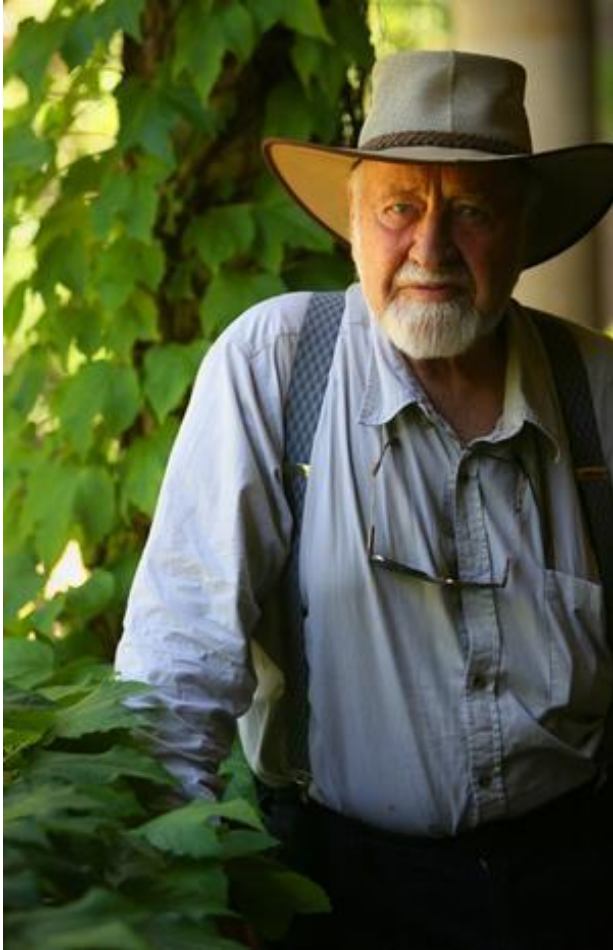
“Our ancestors understood that in nature everything is linked up or interconnected”

Masanobu Fukuoka



Fukuoka Method", "the natural way of **farming**" or "**Do-Nothing Farming**". The system is based on the recognition of the complexity of living organisms that shape an ecosystem and deliberately exploiting it

Bill Mollison and David Holmgren



Permaculture

(from "permanent agriculture")
is an integrated system of ecological and environmental design which Mollison co-developed with

David Holmgren, and which they together envisioned as a perennial and sustainable form of agriculture.

In 1974, Mollison began his collaboration with Holmgren, and in 1978 they published their book *Permaculture One*, which introduced this design system to the general public.

Alan Chadwick



(July 27, 1909 – May 25, 1980), English master gardener, was a leading innovator of organic farming techniques and influential educator in the field of biodynamic/French intensive gardening. He was a student of Rudolf Steiner.



- Director of the Ecology Action, author, educator, agricultural researcher and master trainer, John Jeavons has spent the last 43 years developing and teaching a truly sustainable closed-system/complete diet, organic food-and-soil production model that can be used by people in any climate and soil where food is grown.

The WHAT and HOW of Organic Agriculture...

Organic Agriculture is a production system that sustains the health of soils, ecosystems and people.

It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects.

Organic Agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved.
(IFOAM definition: 2008, GA Vignola)



The Principle of Health.

Organic Agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.



The Principle of Ecology.

Organic Agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.



The Principle of Fairness.

Organic Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.



The Principle of Care.

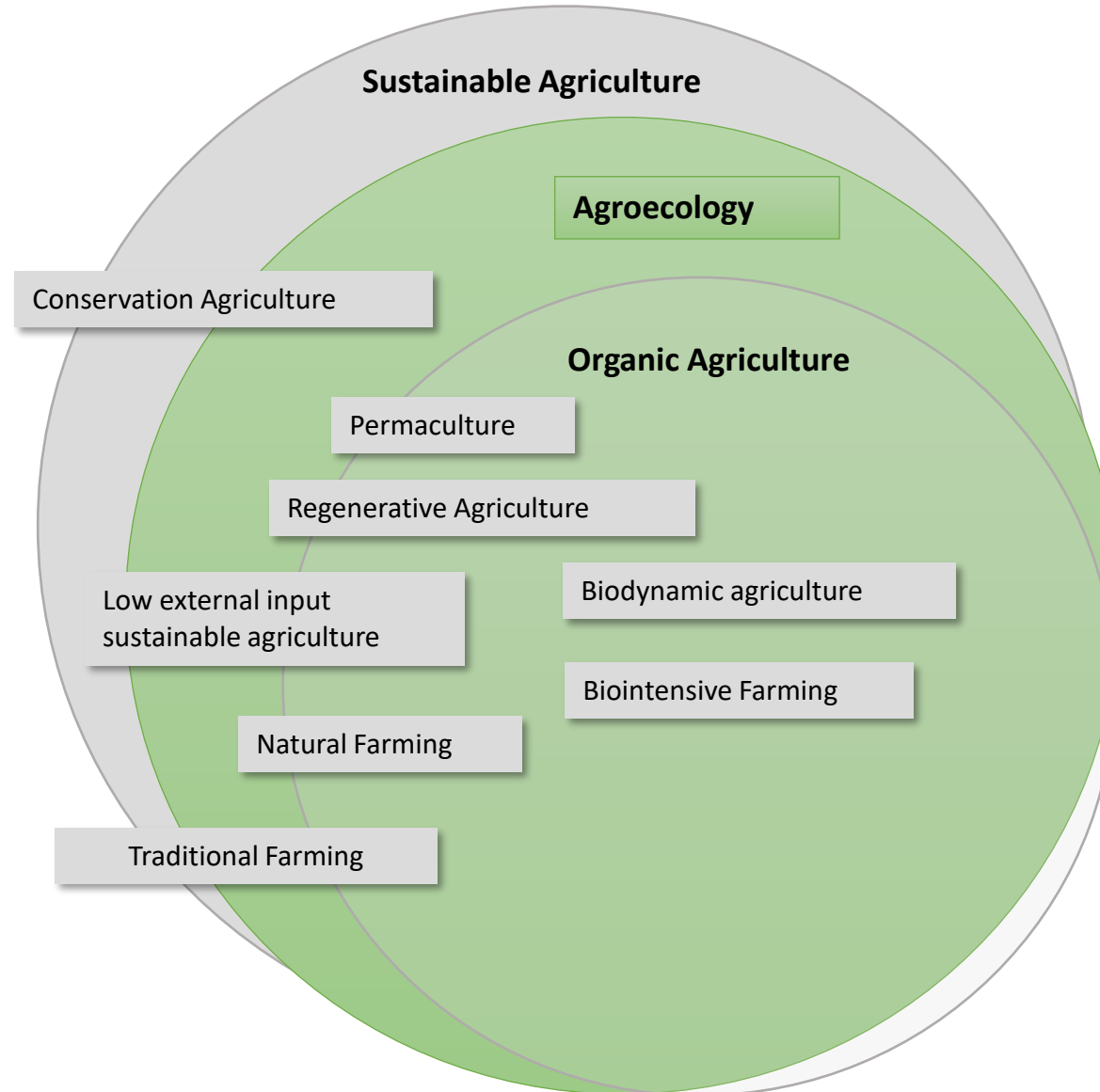
Organic Agriculture should be managed in a precautionary and responsible manner to protect the health and well being of current and future generations and the environment.

4. The HOW:

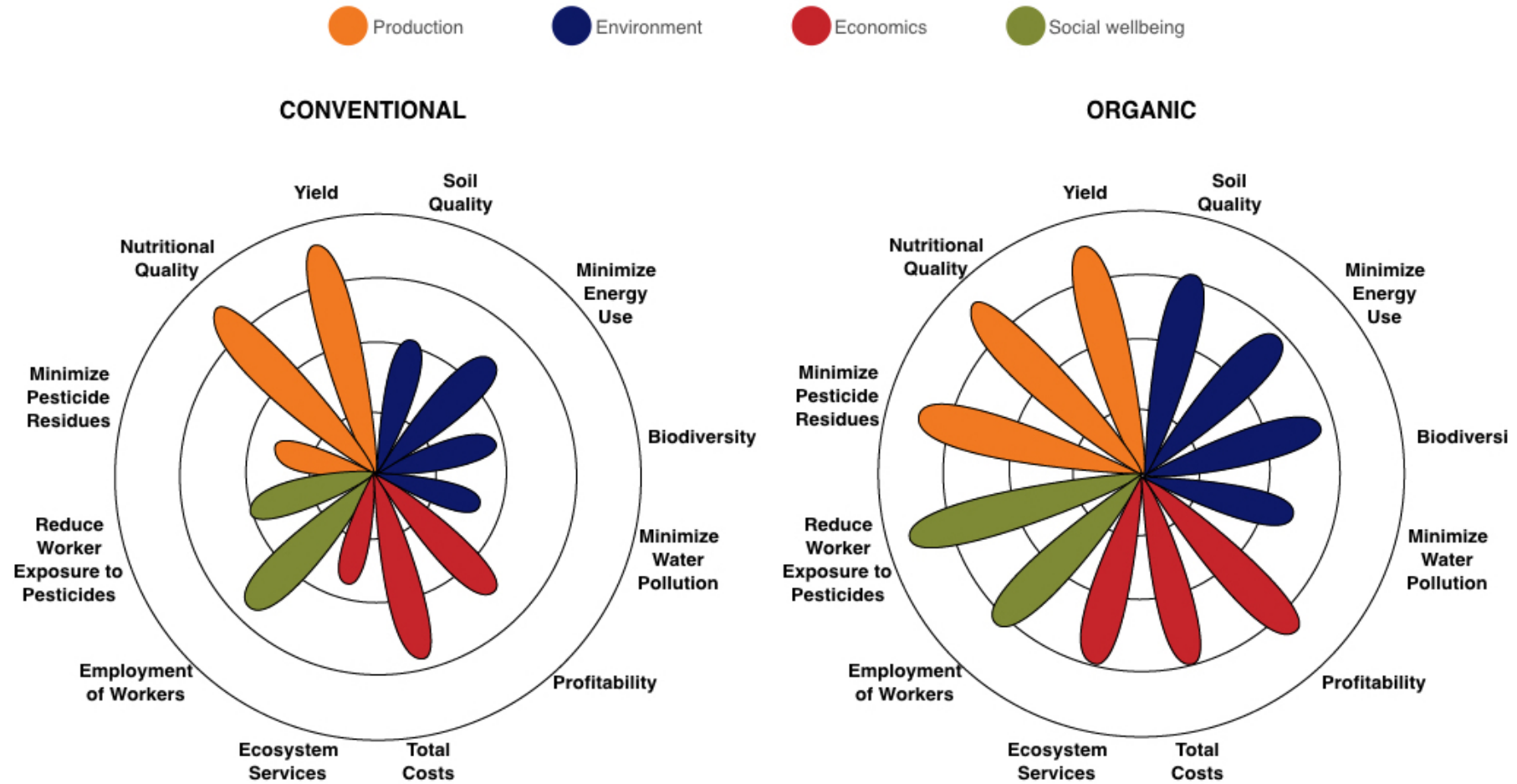
Turning a definition into practice...



SA/OA/AE: What is in, what is out



- Groups
- Use OA definition
- Try and get at least 2 practical examples of each sentence in 15 minutes.
- Feedback!



“Organic Agriculture in the 21st century” (Reganold and Wachter, 2016)
<http://www.nature.com/articles/nplants2015221>

Design, describe and map a “truly sustainable” organic farm - consider the following as input:

- *The presentation and our discussions*
- *The OA Definition and 4 Principles*
- *The Sustainability Flower!*

Do the following:

1. *Appoint: a scribe and a spokesperson that can present alone!.*
2. *Record/visualise your concept farm (draw, colour, craft, text)*
3. *List/highlight the definition and the sustainability considerations.*

Be ready to present - and defend – after 2 hours.

Integrating Livestock in Organic Agriculture

- Waste products like the faecal matter of livestock are utilised as manures and pesticides.
- Cow urine can be used as a pest repellent as well as growth promoter.
- Efficient utilisation of waste matter from the livestock farm allows farmers to reduce their dependence on synthetic soil amendments from outside and thus, curb other extravagances.



Manure is gold!

- Manure helps in improving soil structure and leads to increased water infiltration, better water-holding capacity, good nutrient retention and improves microbial diversity.
- Manure properly applied to the soil has the potential to provide numerous environmental benefits such as increased soil-carbon and reduced atmospheric carbon levels, reduced nitrate leaching and reduced soil erosion
- Manure can coat the soil surface and reduce erosion inflicted by raindrops in the same way as crop residues.



Meeting the needs of the present without compromising the ability of future generations to meet their own needs; conserving an ecological balance by avoiding depletion or destruction of natural resources.