Farmers for Food & Soil Health

From Traditional Soil Degradation to Soil Conservation by Understanding Soil Biodiversity - The Case of Annual Crops

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GCAN – Global Conservation Agriculture Network

APAD – Association pour la Promotion d'une Agriculture Durable

FAO Global Soil Partnership – Plenary Assembly - Rome - June 4th 2024

A Key Threat is the Impact of Traditional Farming Practices : Erosion, SOM & Soil Life Depletion, Water Management

Tillage is the Killer of Soil Biodiversity by destroying its Habitats & Trophic Chains

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Maximum disturbance, killing living organisms

SOIL TILLAGE DESTROYS BIOLOGICAL AND ECOLOGICAL INTEGRITY OF SOIL SYSTEM

Before first tillage

After first tillage

After second tillage

Depletion of ORGANIC MATTER

Interacting cycles : H_2O, C, N

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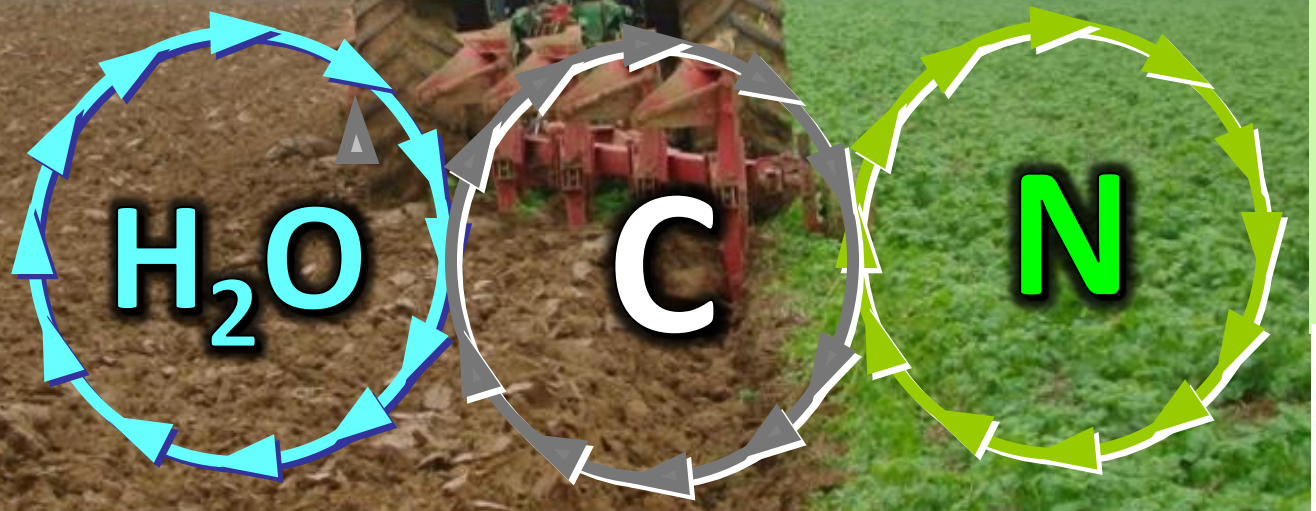
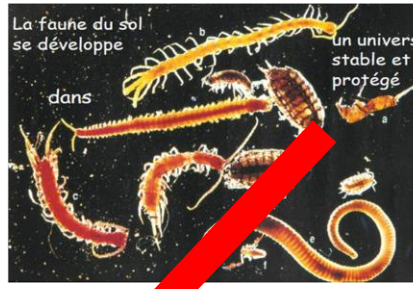
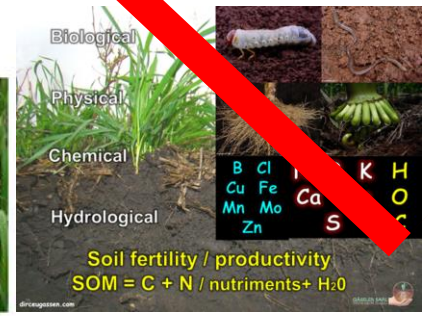
ORGANIC MATTER DEPLETION

Disturbance breaks natural cycles



Physical, chemical and biological processes





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Don Reicosky

Impact of TILLAGE on Soil, Water, Biodiversity…

Global Conservation Agriculture Network

Erosion, run-off, pollution :

- soil particles,
- nitrates,
- phosphorus,
- pesticides…

… CROPS

References on Soil Degradation
Sustainable Soil Management, MRV methodology

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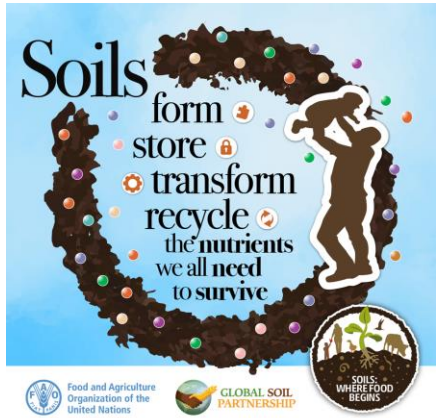
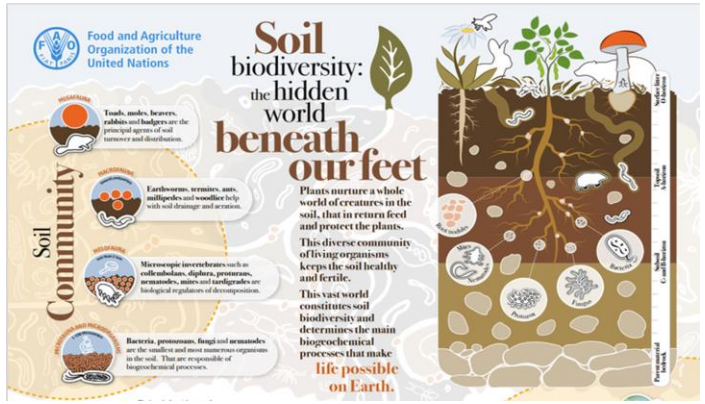
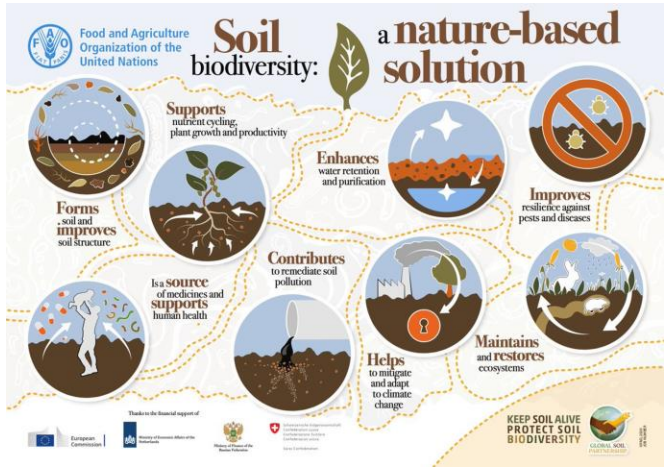
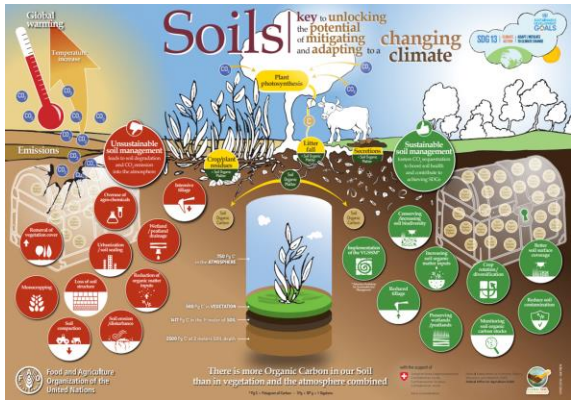






Soil Doctor Project of Farmers



Conservation Agriculture: 3 pilars

No tillage – Direct seed
Soil aeration is achieved through soil structure and undisturbed soil life

Permanent soil cover
Crop residues, plant cover, emphasize photosynthesis

Plant diversity
In the rotation of main culture and in the cover crops
Using plants with important biomass (more C from the atmospher)
Using legumes that fix nitrogen from atmospher
Using plants for their services

Conservation Agriculture: defined by FAO 3 pillars in synergy and indissociable

Iterative system, virtuous spiral based on results

- http://www.fao.org/conservation-agriculture
- Successful Experiences and Lessons from Conservation Agriculture Worldwide. Amir Kassam, Theodor Friedrich and Rolf Derpsch. Agronomy 12. 2022.

References on Soil Degradation & Sustainable Soil Management : SoCo Study by EU JRC 2008-2009

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SoCo Study by Joint Research Center – European Commission 2008 -2009

- https://publications.jrc.ec.europa.eu/repository/bitstream/JRC50424/jrc50424.pdf
- https://esdac.jrc.ec.europa.eu/projects/SOCO/FactSheets/EN%20Fact%20Sheet.pdf
- https://esdac.jrc.ec.europa.eu/projects/SOCO/FactSheets/FR%20Fact%20Sheet.pdf

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Soil Degradation Processes, Erosion, Compaction, Organic Matter Decline

Water erosion and compaction

What is erosion?

Erosion is the loss of soil. When raindrops reach the soil, they detach soil particles. The degree to which this happens depends on the size and speed of the falling raindrops. The detached soil particles are subsequently transported by overland water flow. Some particles fill up soil voids, sealing the soil surface. Erosion occurs when the precipitation rate exceeds the infiltration rate of the soil.

(Source: Agenzia per i Servizi nel Settore Agroalimentare delle Marche, Italy)

(Source: Stephan Hubertus Gay)

What is compaction?

When pressure is applied to the soil surface, compaction takes place. This alters soil properties such as porosity and permeability. Pores become disconnected and gas and water movement through soil is impeded, leading to reduced availability of water and oxygen. Root growth becomes restricted.

Why is it important to fight against erosion and compaction?

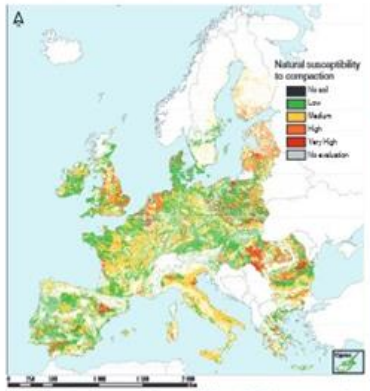
Soil is removed by erosion much more rapidly than soil-forming processes can replace it. The loss of topsoil leads to reduced fertility, resulting in lower yields. The transported soil also contributes to the contamination and silting up of waterways.

Soil compaction reduces the soil's capacity to retain water and to supply oxygen to plant roots. When a soil is less capable of holding water yields decrease, water run-off increases and soils will be more vulnerable to soil erosion.

What causes erosion or compaction?

Water erosion is a natural process; the major drivers are intense rainfall, topography, low soil organic matter content, percentage and type of vegetation cover. It is however intensified and accelerated by human activities, such as inappropriate cultivation techniques and cropping practices, changes in hydrological conditions, deforestation and land marginalisation or abandonment.

Inappropriate land management is the main cause of soil compaction. Too many livestock for a certain field size, the inappropriate use of heavy machinery in agriculture and tillage of a field when it is too wet are examples of this. Wet soils are not strong enough to offer resistance to the weight and this leads to compaction.



Map showing the natural susceptibility of soils to compaction in the 27 Member States of the European Union

Harvester for sugar beet (Source: Soil Atlas of Europe)

Compacted soil (Source: Soil Atlas of Europe)

Links with other soil degradation processes and/or environmental issues

The soil's ability to resist erosive meteorological conditions (e.g. wind, rain, running water) depends mainly on soil texture and organic matter content, which influence the water-holding capacity and the ability of the soil to produce aggregates or crusts. When erosion occurs, the loss of topsoil causes a reduction in the soil's fertility and contaminates the aquatic ecosystem. Loss of soil fertility and the breakdown of structure ultimately lead to desertification.

Soil compaction can induce or accelerate other soil degradation processes, such as erosion or landslides. Compaction reduces the infiltration rate, which increases run-off in sloping areas. Also, the presence of a layer with low permeability makes the upper part of the soil more prone to saturation with water and thus heavier. This upper part is at risk of sliding and causing landslides. On plains, compaction can cause waterlogging, resulting in the destruction of aggregates, and causing crust formation. Soil structure is improved by soil organic matter, reducing the soil's susceptibility to compaction, erosion and landslides.

Further reading

http://soco.jrc.ec.europa.eu
http://eusoils.jrc.ec.europa.eu/projects/soil_atlas/

Organic matter decline

A soil that is rich in organic matter (Source: Soil Atlas of Europe)

What is organic matter decline?

Soil organic matter includes all living soil organisms together with the remains of dead organisms in their various degrees of decomposition. The organic carbon content of a soil is made up of heterogeneous mixtures of both simple and complex substances containing carbon. The sources for organic matter are crop residues, animal and green manures, compost and other organic materials. A decline in organic matter is caused by the reduced presence of decaying organisms, or an increased rate of decay as a result of changes in natural or anthropogenic factors. Organic matter is regarded as a vital component of a healthy soil; its decline results in a soil that is degraded.

Why is soil organic matter/carbon important?

Soil organic matter is a source of food for soil fauna, and contributes to soil biodiversity by acting as a reservoir of soil nutrients such as nitrogen, phosphorus and sulphur; it is the main contributor to soil fertility. Soil organic carbon supports the soil's structure, improving the physical environment for roots to penetrate through the soil.

Organic matter absorbs water – it is able to hold about six times its weight in water – making it a lifeline for vegetation in naturally dry and sandy soils. Soils containing organic matter have a better structure that improves water infiltration, and reduces the soil's susceptibility to compaction, erosion, desertification and landslides.

On a global scale, soils contain around twice the amount of carbon held in the atmosphere and three times the amount found in vegetation. Europe's soils are an enormous carbon reservoir, containing around 75 billion tonnes of organic carbon. When soil organic matter decays, it releases carbon dioxide (CO_2) into the atmosphere; on the other hand, when it is formed, CO_2 is removed from the atmosphere.

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Conservation Agriculture

Conservation agriculture

What is conservation agriculture and why is it useful?

Conservation agriculture (CA) encompasses a set of complementary agricultural practices:

- minimal soil disturbance (through reduced or no-tillage) in order to preserve soil structure, soil fauna and organic matter;
- permanent soil cover (cover crops, residues and mulches) to protect the soil and contribute to the suppression of weeds;
- diversified crop rotations and crop combinations, which promote soil micro-organisms and disrupt plant pests, weeds and diseases.

Conservation agriculture aims to boost agricultural production by optimising the use of farm resources and helping to reduce widespread land degradation through the integrated management of available soil, water and biological resources combined with external inputs. Mechanical tillage is replaced by biological mixing of the soil, whereby soil micro-organisms, roots and other soil fauna take over the tillage function and soil nutrient balancing. Soil fertility (nutrients and water) is managed through soil cover management, crop rotations and weed management.

Disc harrow used for reduced tillage operations (Germany) (Source: Stephan Hubertus Gay)

Implementation

Conservation agriculture is typically implemented through the following steps, each of which lasts for two or more years.

- First phase. Inversion ploughing is stopped, and reduced or no-tillage techniques implemented instead. At least a third of the soil surface has to remain covered with crop residues, and cover crops should be introduced following the harvest of the main crop. Disc, spike or rotary harrows are used (direct drills in case of no-tillage). Yield reduction may occur.
- Second phase. Natural improvement of soil conditions and fertility occur thanks to the organic material originating from the natural degradation of residues. Weeds and pests tend to increase and must be controlled, chemically or by other means.
- Third phase. Diversification of the cropping pattern (crop rotations) may be introduced. The overall system stabilises progressively.
- Fourth phase. The farming system reaches an equilibrium and yields may improve in comparison with conventional farming. This reduces the need to use chemicals for weed and pest control, or to supplement fertility.

Farmers need training for each phase. Experience may be acquired in the field but yields and profits may be lower in the short term. The system is unsuitable for compacted soils, which may first require loosening.

Direct seeder (no-till equipment) in operation (Source: Jana Epperlein, Gesellschaft für konservierende Bodenbearbeitung e.V., Germany)

Benefits

Several benefits arise from the application of CA, some of which (improved yields, biodiversity, etc.) become obvious once the system reaches stability.

- The organic carbon stock, biological activity, above- and below-ground biodiversity and soil structure are all improved. Higher biological activity results in the formation of well-connected, mostly vertical soil macro-biopores that increase water infiltration and resistance to severe packing. Soil degradation – in particular soil erosion and run-off – is greatly reduced, often leading to increased yields. Reduced soil and nutrient losses, in combination with more rapid pesticide breakdown and greater adsorption (due to the higher organic matter content and biological activity) also result in improved water quality. Carbon dioxide (CO_2) emissions are lowered as a result of the reduced use of machinery and increased accumulation of organic carbon. CA practices could sequester between 50 and 100 million tonnes of carbon annually in European soils, the equivalent of the emission of 70-130 million cars.
- Labour and energy inputs related to land preparation and weeding are greatly reduced.
- Fertiliser requirements and soil restoration interventions are reduced.

Drawbacks

- Typically there is a transition period of five to seven years before a conservation agriculture system reaches equilibrium. Yields may be lower in the early years.
- If seasonal factors are not taken into account, the inappropriate application of chemicals may increase the risk of leaching due to the more rapid movement of water through the biopores.

Sustainable agriculture and soil conservation
Soil-friendly farming systems and practices
Fact sheet no. 5

Corn cultivated under no-tillage: residues from the previous crop are still visible under the corn canopy, covering the soil (Germany) (Source: Jana Epperlein, Gesellschaft für konservierende Bodenbearbeitung e.V., Germany)

- If crop rotations, soil cover and/or crop varieties are not adjusted to optimal levels, more chemicals may be needed to control weeds and pests.
- Nitrous oxide (N_2O) emissions increase in the transition period.
- Farmers need to make an initial investment in specialised machinery, and need to have access at a reasonable cost to cover crop seeds that are adapted to local conditions.
- Farmers need extensive training and access to skilled advisory services. Compared to conventional farming, a fundamental change in approach is required.

Success stories

In Europe, no-tillage accounts for up to a tenth of Finland and Greece's utilised agricultural area (UAA), and up to five percent in the Czech Republic, Slovakia, Spain and the United Kingdom. Reduced tillage is being implemented on almost half of the UAA in Finland and in the United Kingdom, and on a quarter of the UAA in Portugal, Germany and France. In the Midi-Pyrénées region (France) in 2006, on average three quarters of the winter crops and one quarter of the spring crops were under reduced tillage. In the same year, cover crops accounted for a fifth of the spring crops area, three times higher than in 2001.

Further reading

http://soco.jrc.ec.europa.eu
www.fao.org/ag/ca/
www.fao.org/ag/catd/
www.ecaf.org/First.html
http://kassa.cirad.fr/
www.sowap.org/

Performances of farmers who have succeeded and persisted over years

- Yields maintained or improved

- Soil and ecosystem improved :
  - Organic matter : **+ 1 % in 10 years**
  - Biodiversity : **Earthworms X 5**
  - Reduced pollution : **NO3 /2**
  - C sequestration : **1 to 4 tons / ha/ y**

- Increased competitvity

- Reduction in inputs :
  - Fuel, energy : **/ 3**
  - Fertilizers : **- 30 %**
  - Chemicals : **/ 2**
  - Time : **/ 2**
  - Money : **300 €**

Produce More

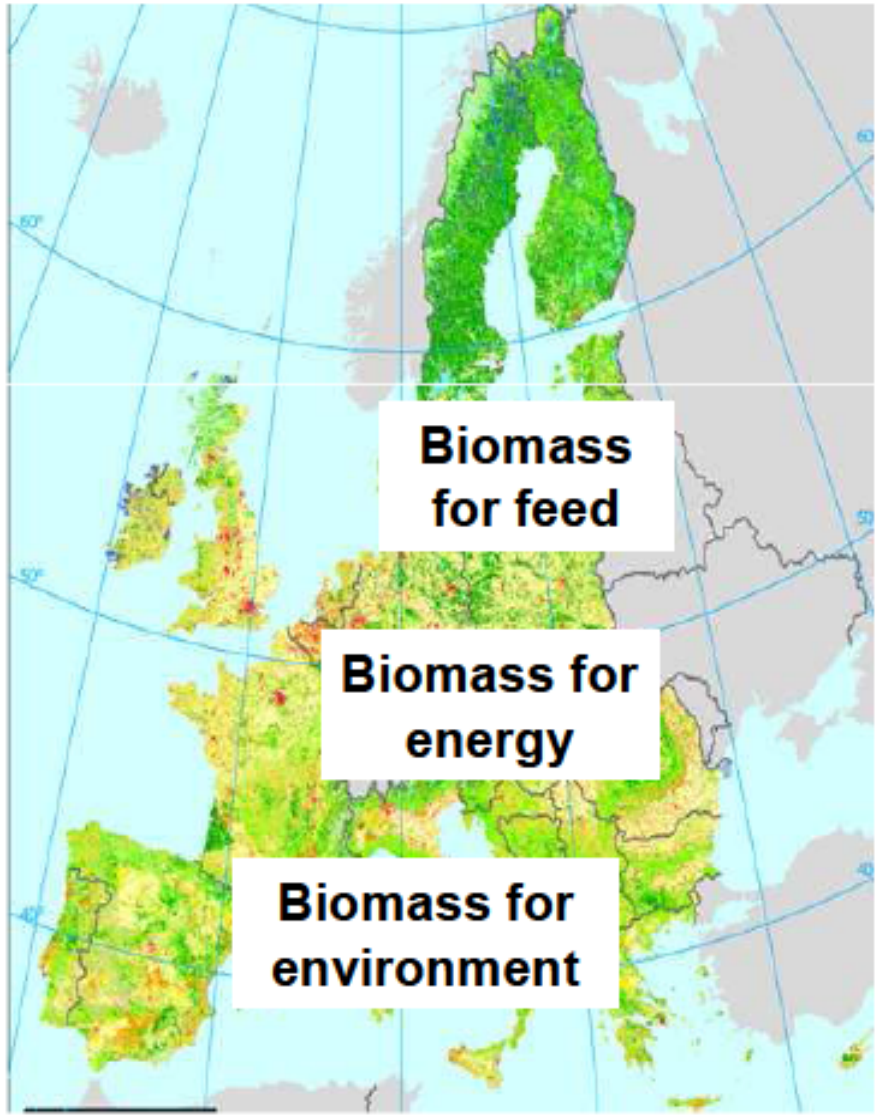
Produce Better

Be more competitive

With less

Western Europe SoCo study JRC 2009

Potential for added production in UE



97 millions ha arable soils in Europe (25)

(Source : agreste. Agriculture)

⇩

Intensive Conservation Agriculture

on 50 % acreage = 50 millions ha

⇩

Additional productions :

60 millions tons of grain
= 20 millions tons 1st generation Biofuel
= 40 millions tons oil cakes, and..

100 millions tons biomass
= 19 000 mWh de biogaz

Carbon Credits
= 110 millions tons C / year

Value : + 80 billions € /year

Conservation Agriculture

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Highest Biomass

Highest Biodiversity

Highest Soil Fertility

Highest Yield

Manifesto for Climate 2015 COP21 by the Global Conservation Agriculture Network

PARTNER of

GLOBAL SOIL PARTNERSHIP

THE OHIO STATE UNIVERSITY

School of Environment and Natural Resources
Ohio Agricultural Research and Development Center

Carbon Management and Sequestration Center (C-MASC)

9 November 2015

Dr. Benoit Lavier
President
APAD (Association for Promotion of Sustainable Agriculture)
Rue du Midi
21450 Etormay, France

Sub: Support for Soil Carbon Sequestration Initiative

Dear Dr. Lavier,

I am very pleased that the French Minister of Agriculture, Mr. Stéphane Le Foll, is proposing the "4 pour mille" initiative 'to sequester' carbon in soil to mitigate climate change and advance food security. We were very pleased to welcome Minister Le Foll and his entourage to the Carbon Management and Sequestration Center (C-MASC) at The Ohio State University, and to discuss the potential and opportunities of "4 pour mille" initiative. **The "4 pour mille" initiative, based on the natural process of improving soil C stock, is among the most appropriate options to address the global climate change.**

Conservation Agriculture (CA) is an important soil management practice that reduces risks of water runoff and soil erosion, sequesters carbon in soil, and enhances soil's resilience to climate change. I started research on CA throughout West Africa at IITA (Nigeria). **CA is the best option to conserve soil and water, moderate soil temperature, improve earthworm activity, and sustain soil functionality and agronomic productivity.**

I strongly support APAD and other organizations involved in the creation of a global CA communication network (G-CAN).

All three initiatives proposed at COP-21 are highly commended and strongly supported by the C-MASC.

Best regards,

Rattan Lal
Distinguished University Professor of Soil Science, SENR
Director, Carbon Management and Sequestration Center
President Elect, International Union of Soil Science

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We are the GCAN
Global CA farmers Network

4 PER 1000
SOILS FOR FOOD SECURITY AND CLIMATE

MOROCCO : Conservation Agriculture in dry area

الجمعية المغربية للزراعة الحافظة

Association Marocaine de l'Agriculture de Conservation

Aziz Zine El Abidine, farmer
AMAC (Morocco)

Tillage

Conservation Agriculture

CA stops EROSION

Crop Implementation :
Advantages of No-Till (ZERO TILLAGE)

- **Fuel consomption**: reduced by **66 %** (from 15.000 to 5.000 liters)
- **Working time** reduced from 6 h/ha to 1h/ha = **5 h/ha** saving
- **Savings** : **50** €/Ha
- **Better and faster access** to the fields after rainfalls :
  all operations made in better coinditions

On-Farm Evolution of Soil Organic Matter (%)

Soil type	Horizon (cm)	Years	TILLAGE	CA	Growth	Per Year
Vertisol	0-25	7	1,8 %	2,8 %	+ 1 %	+ 0,14 %
Sandy-Loam	0-25	7	1,2 %	1,8 %	+ 0,6 %	+ 0, 08 %

Growth of SOM content :

0,8 to 1,4 % in 10 years

1,3 to 2,1 % in 15 years or more ?

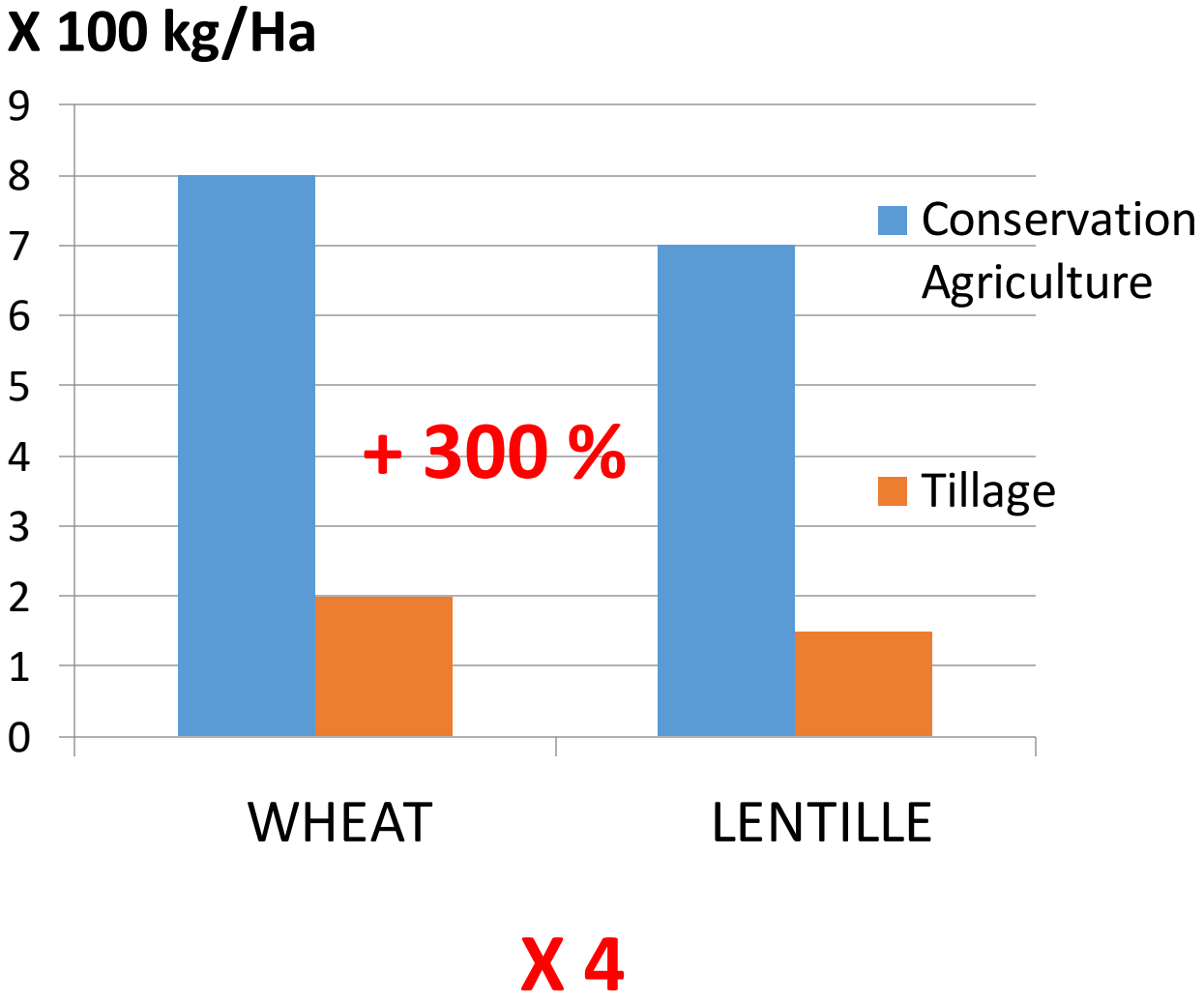
1,7 to 2,9 % in 20 years or more ?

Conservation Agriculture : Water Use Efficiency

Residue soil cover :

- Better rain water absorption (more time to infiltrate)
- Better water retention (Organic Mater)
- Evaporation slowed down (100 mm more available compared to conventional)

Yield Comparaison – Harvest 2007
(220 mm Rainfall poorly distributed)



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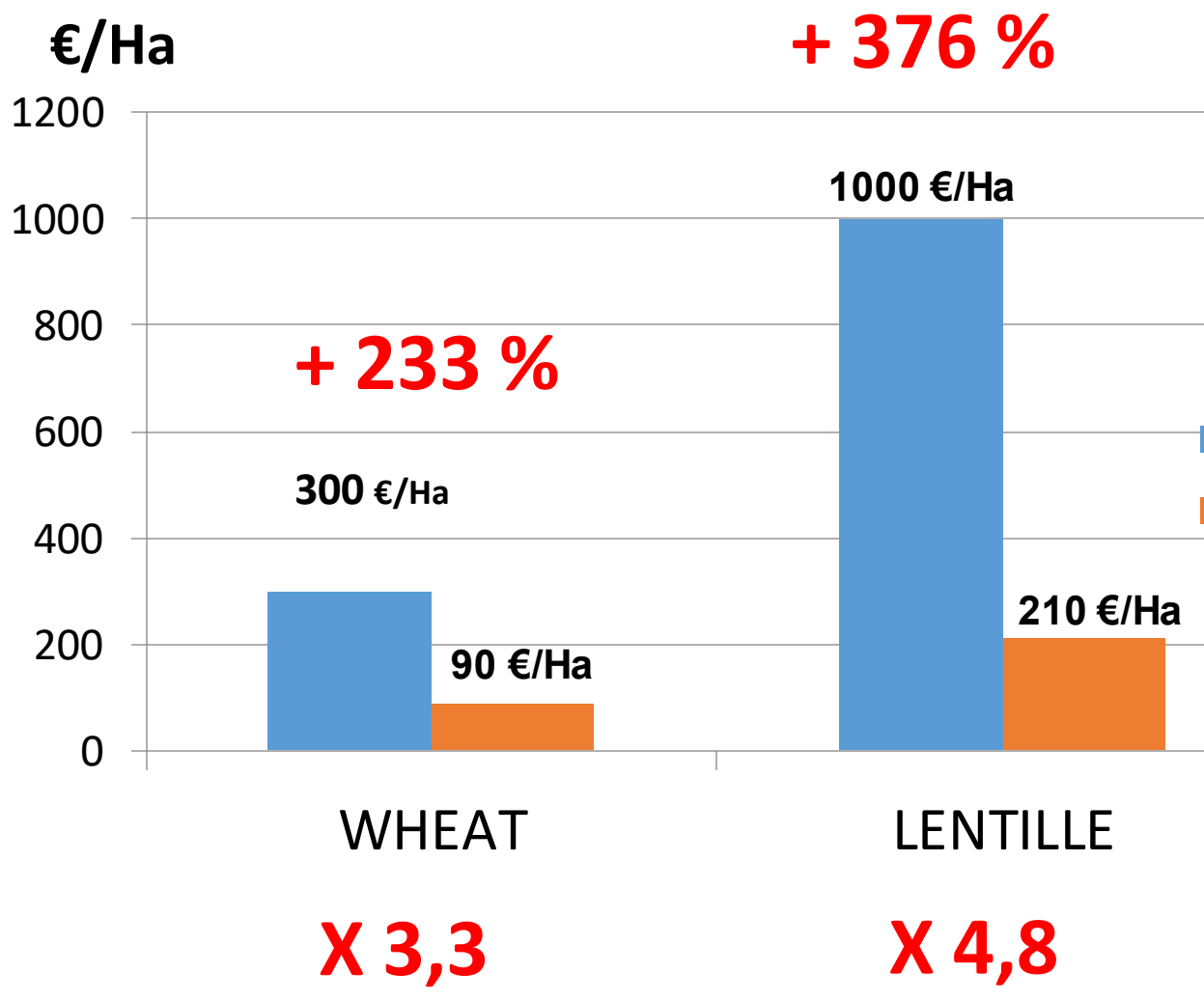

X 3,3

X 4,8

The impact of Farmers Networking

Aapresid internacional

NO-TILL CONSERVATION AGRICULTURE EXPERIENCE IN GUINEA

Image 3. Different stakeholders knowing the Argentine no-till planter at Bourenfe. Siguiri, Guinea.

Ing Agr Nicolás Bronzovich. nbronzovich@hotmail.com
Ing Agr Eric Aguirre. ericaguirre78@gmail.com
Lic. Mailen Saluzzio. mailen.saluzzio@gmail.com

Cooperation with AAPRESID INTERNACIONAL in Ghana, Sierra Leone

CONVERT THE CONTINENT INTO THE BREADBASKET OF THE WORLD

Know how for export

El argentino que quiere revolucionar la agricultura en África para convertir al continente en el granero del mundo

Desde Ghana (también trabaja en Sierra Leona), el ingeniero agrónomo Jorge López Menéndez comparte una realidad cruda pero motivante. El potencial de un continente que practica una agricultura como hace 50 años, pero tiene el potencial de ser el granero del mundo del siglo XXI.

Grupo. El equipo de trabajo que formó Jorge López Menéndez en el continente africano y que busca profesionalizar el manejo agronómico. Detrás, una máquina agrícola de origen argentino.

El equipo de trabajo en África. De izquierda a derecha, Chris Zaw (manager country en Ghana), Brima Pakra (operational manager en Sierra Leona) y Jorge López Menéndez.

RESULTS
From 119 $ to 4000 $ / year in 7 years

30 X

Better Family Life

La propuesta es que los agricultores progresen también en rentabilidad y pasen de los 119 dólares que ganan por año promedio, a 4000 dólares el séptimo.

Arroz.

Conservation Systems exist for all Farmers

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Animals are part of it

Complete the cycles of Carbon, Nitrogen, SOM, nutrients…
Manage weeds with long rotations
Additional income

Rotational grazing
Holistic management
Mixed animal species

They can manage soil & vegetation sustainably

Trees & Vegetables are part of it

GLOBAL SOIL PARTNERSHIP

OUR GOAL & SPECIALTY as FARMERS

GCan
Global Conservation Agriculture Network

Help All Farmers in the World to implement CONSERVATION AGRICULTURE Principles as the best Sustainable Soil Management Practices in the Heart of their Farming Systems

to improve the Lives of their Families
&
provide All Citizens of the World with a Sustainable Food System

Soil Doctors
GLOBAL PROGRAMME
GLOBAL SOIL PARTNERSHIP

Au Cœur des Sols

Drivers & Difficulties for Farmers To Implement CA

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Farmers like CA when they see

- High Yielding Crops, Fertile Soil
- Labour productivity, Profit for their family

ALL STAKEHOLDERS HAVE A ROLE & RESPONSIBILITY

Farmers need

- To see CA working well on farm
- Know-How transmitted by their colleagues

FARMERS ASSOCIATIONS

- **Answers to technical /scientific questions**

SCIENTISTS

- **Access to Water (dry areas)**
- **Access to Machinery, Seeds, Fertilizers, Crop Protection Products**
- **Freedom to innovate and adapt (low bureaucracy / taxes)**
- **Recognition from Society**

POLICIES

We need policies which discourage Tillage.

EU Farmers get subsidies for t is :
Conventional or Organic Y

(95 % of annual cr)

WHY NOT BAN TILLAGE ?

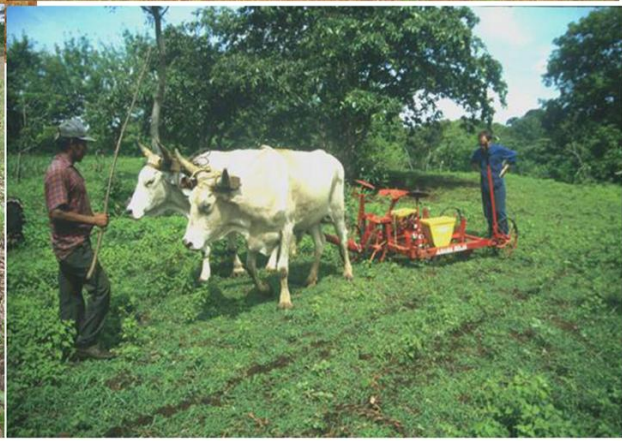
Developing Countries must not copy Europe if they want to get out of poverty & develop

Traditional practices




GCan Global Conservation Agriculture Network — Conservation Systems





SPECIFIC ADDITIONAL NEEDS FOR NON INDUSTRIALIZED COUNTRIES

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- **Autonomous and viable Farmers' Associations** — **FARMERS ASSOCIATIONS**

- **Local Experimentations / Researches** — **SCIENTISTS**

- **Sustainable Mechanization**
- **Harvest Storage**

BUSINESSES

- **Long Term access and Control of Land**
- **Water Storage and Irrigation in Dry Areas**
- **Infrastructures : Transport to Markets**
- **Good dialog with Society, Businesses, Citizens**

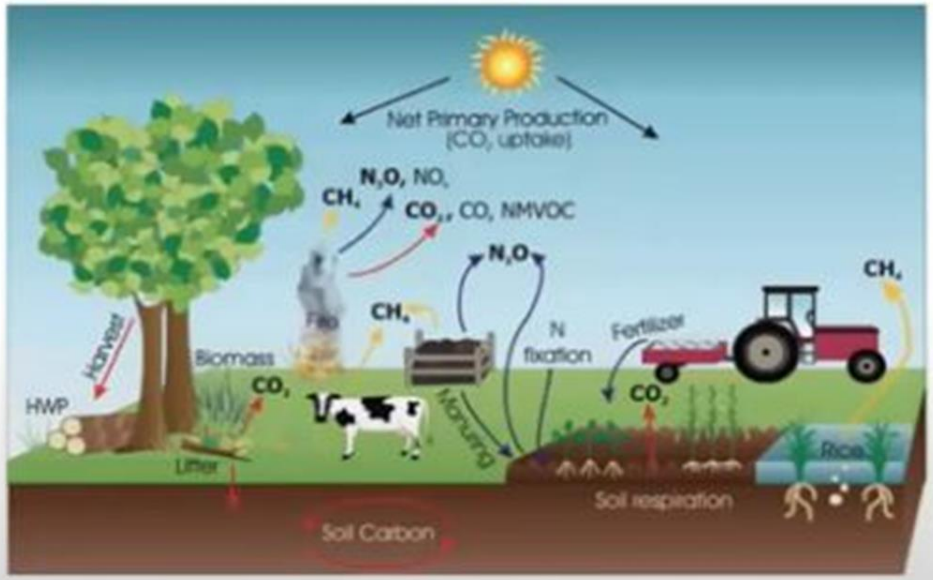
POLICY MAKERS

How to FINANCE the TRANSFORMATION of our Farms : Carbon is Money !

Carbon farming?

= managing carbon pools, flows and greenhouse gases at farm level to mitigate climate change

= the business model that aims to upscale climate mitigation by paying farmers to implement climate-friendly farm management practices



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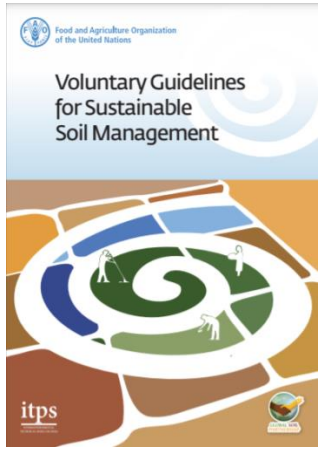
Food and Agriculture Organization of the United Nations

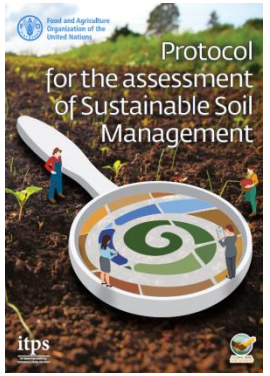
RECSOIL
Recarbonization of global soils

GLOBAL SOIL PARTNERSHIP



Green path
Healthy soils
Carbon capture and co-benefits

Carbon market path
Healthy soils
+ Carbon credits



Soil Doctors
GLOBAL PROGRAMME
GLOBAL SOIL PARTNERSHIP

Why CA and Carbon?

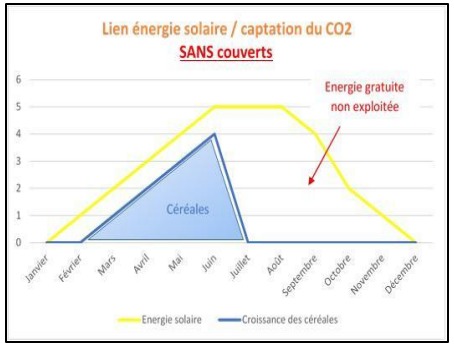
GHG emission avoided
Less 60% fuel costs by no -till
Cover with legumes: biological stock of Nitrogen available

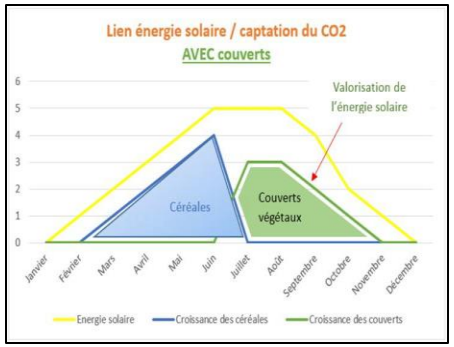
CONSERVATION
AGRICULTURE
A VIRTUOUS SPIRAL

GHG sequestration:
Soil cannot store more carbon than can be produced by the biomass it receives.
Captation of Carbone:

- Yields are similar as other pratices
- Residues remove to soil
- Permanent soil organic cover : Photosynthesis, more C

Less mineralisation: no till
Less erosion: no till + permanent soil organic cover





https://www.apad.asso.fr/images/APAD_et_reseau/ACS/Synthse_biblio_ACS_Principes_et_bnfices.pdf / https://www.apad.asso.fr/images/aucoeurdessols/2021-LIVRE_BLANC_-_ACS__CARBONE.pdf

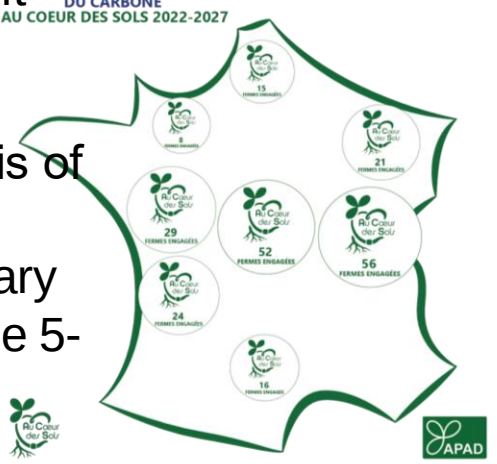
APAD's project:
"Du Carbone Au Coeur des Sols"

APAD's Low Carbon Label project notified to French Ministry of Ecology

215 farms 38 370 ha

307 521 potential credits carbon certified

- Carbon Credit certified by the French government and independant auditor
- A collective, national project
- A minimum price for farmers of €50 in 2022, calculated on the basis of the cost of agro-ecological transition.
- A formula for indexing the price according to inputs and the voluntary carbon price, so that the farmer can be sure of a fair return over the 5-year period.
- Process control at every level by a farmers' association



APAD's project is the most *(to our knowledge)* important Fields Crops collective project engaged in Low Carbon Label in France and manage from producer to buyer by farmers and for farmers.

Carbon offsetting: how does it work?

Seller(s) = Farmers with good practices for soil / carbon /organic matter

X tonnes of GHGs offset

Buyer (s)

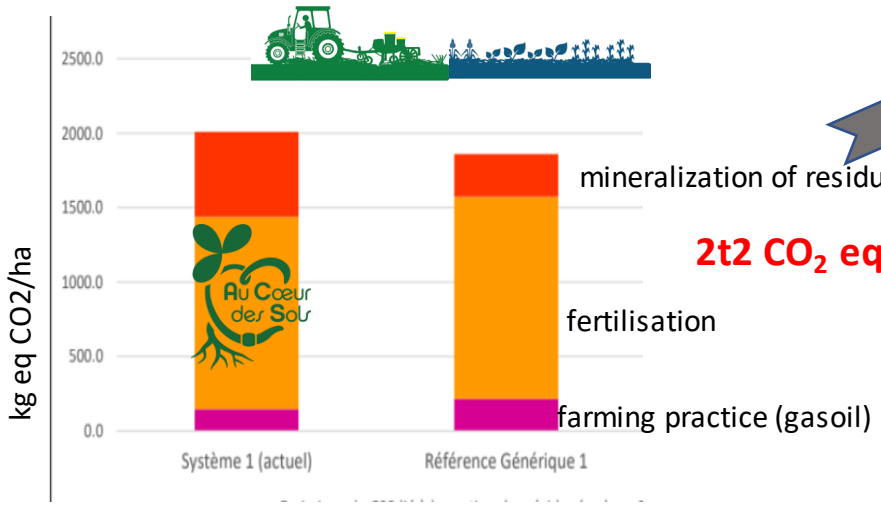
X euros paid to offset its GHG emissions and achieve neutrality

= proves the amount of GHGs offset thanks to the farmer's practices

Different methods for calculating GHGs offset using scientific methodologies, based on the practices of the farmer

First results
from the farms of APAD's project

GHG emissions



CA on a farm (*calculated by Label Bas Carbone GC method)*
vs local datas with same crops and soil

CO_2

2t2 CO_2 eq/ ha/ year

LABEL BAS CARBONE

GHG sequestration (*SIMEOS AMG agrotransfert INRAe)*

Storage in soil by increasing Organic Matter
4t CO_2 eq/ ha/ year
(average of the project)
Diversity of results

=> Positive C Balance on 75% of the CA farms (1,8t CO_2 eq/ ha/ year)

50% of the CA farms have less emissions than referensis

93% of the CA farms store more than referensis

=> Generation of 1,6 Carbon credit /ha/an estimated

* 1 t de C =44/12 t CO_2 = 3,67 t CO_2 =1,72 t Organic Matter

Conclusion:

A benchmark for the farming community...

- CA enables neutral production by storing carbon in the soil
- CA can generate 1,6t/ha/year carbon credits h
- CA is the solution for Climate Change
- Climate change is the opportunity to talk positively about CA
- Farmers need to lead carbon farming and manage market rule to ensure that the added value accrues to their farms.
- Climate change by soil conservation agriculture are just the tip of the iceberg when compared with all the other benefits of CA:
  production, water, biodiversity, resilience
- Policies, research and industry must recognize and promote CA

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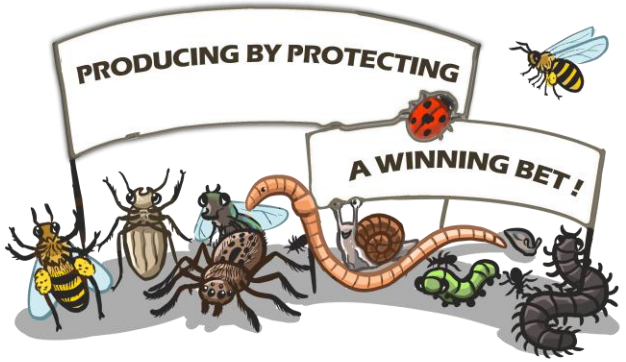


Challenge of Scaling-up

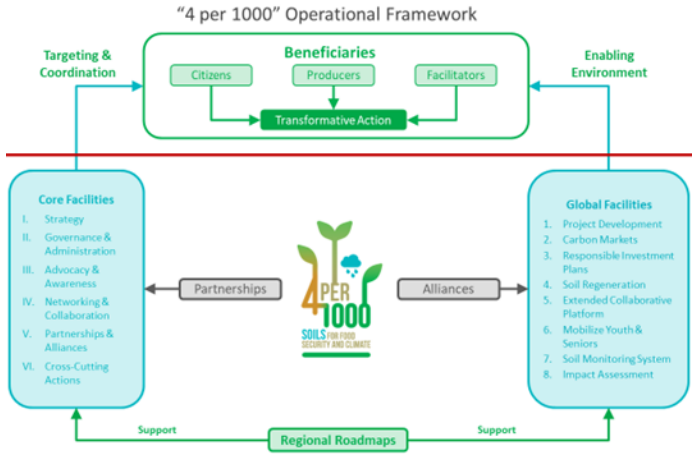
United Nations | Food Systems Summit 2021

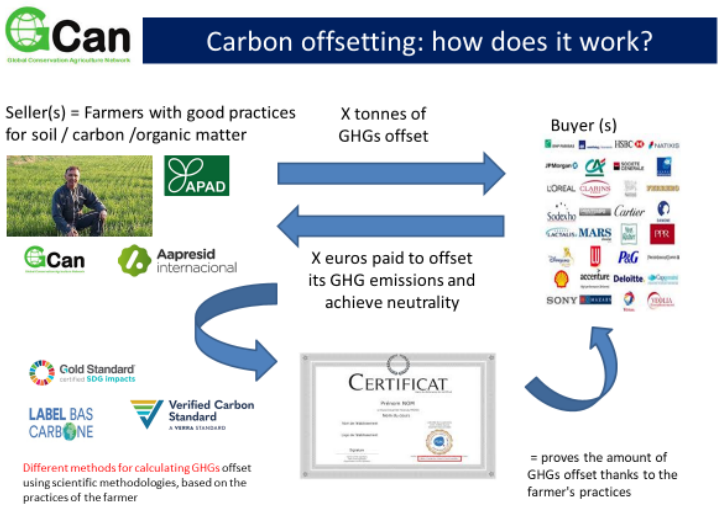
« Healthy & Resilient Food Systems as Foundation of Sustainable Development »

- **High adoption of Highly Productive Conservation Systems is vital for Food Security**
- The planet has a proven food system based on **Conservation Agriculture with more than 40 years** of experience, sustainable & resilient, improving continuously
- **Only 12% of the cultivable area are under Conservation**
- **We do not need to transform everything**, neither reinventing agroecology
- **We need to spread Conservation Agriculture everywhere**

10% growth /year =>
2030 = 30 %
2035 = 50 %
2040 = 80 %

It’s Time for All to engage with Farmers





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GCan
Global Conservation Agriculture Network

4 PER 1000
SOILS FOR FOOD SECURITY AND CLIMATE

Please Elaborate Policies With us Farmers as Partners in Parity

GLOBAL SOIL PARTNERSHIP

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