

Soil Health, Agriculture & Climate in New England – 4p1000 initiative April 4, 2019



Sylvain Maestracci

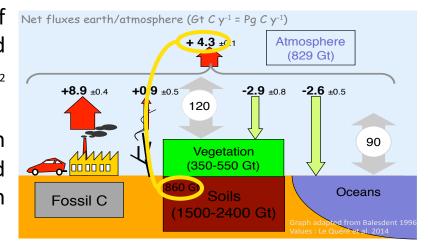
Agricultural Counselor

Embassy of France / French Ministry for Agriculture and Food



The 4p1000 initiative in a nutshell

- 4p1000, an international initiative launched in 2015 during the COP 21,
 - a simple idea: an annual increase of 4 % of the world soil surface carbon stocks would nearly compensate for the annual CO_2 increase in the atmosphere
 - of course, cannot be done everywhere on Earth, so we need active policies and involvement to promote carbon storage in agricultural area and forests



- how to do it: combat deforestation, promote agro-ecological practices that increase the quantity of organic matter in soils
- while mitigating climate change, an increase of organic matter in soils can enhance yields in crops, diminish flood risks, and enhance food security (especially in developing countries)





4p1000 governance and example of practices

A light international and multi-stakeholders platform :

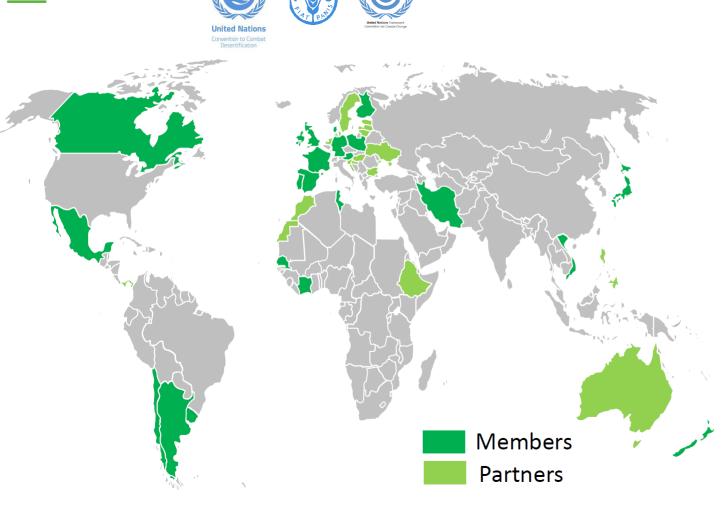
- All types of stakeholders: Countries and local governments, including France, Canada, Mexico, California, and <u>in Massachusetts: Great Barrington County</u>; farmer associations; Non-profits and NGOs; Research and universities; Companies
- Governance: a consortium for decision-making (183 members), the forum of all the partners (359) to consult and collaborate with all stakeholders, a scientific and technical committee (14 scientists) to focus on research and provide the best science
- Examples of good practices to be promoted







4p1000: Some partners and members in 2018

























































































et of reference criteria for evaluation for projects & actions – Criteria, indicators, methods and units

Soil carbon and land conservation or restauration Food security Methodology based on IPCC Permanence Supply & Crop & grass Agricultural ha) Depth> 20 (tonnes DM per ha, Field surveys ields increased Additionality cm Duration: compared to average and interpractices (reduced No leakage (Tier 1, 2 or 3) stability control or historical annual variability) 20 yrs or more variability) Fraction of area Methodology Land under soil ha) Depth> 20 ag. production (Local price per ton based on Access Costing methods cm Duration: conservation conservation/ maintained or ag. product) WOCAT restoration 20 yrs or more improved (tonnes C per Nutrients Permanence Methodology deficiencies in ha biomass & Healthy and Additionality based on IPCC production mix Semi-Quantitative soil) Mitigation safe food No leakage (Tier 1, 2 or 3) &Qualit\ Health hazards 20 vrs or more and default emission **GHG** emissions (tonnes CO2e factors; Tier 2 = N₂O & CH₄ should not be regional emission factors; Tier 3 = per ha per vr) greater than soil C sequestration (tonnes CO_{2e} Same as should not be greater than GHG above per ha per yr) balance Safeguards Adaptation e.g. GLEAM (FAO) (kg CO2e per methodology for livestock (and crops) kg ag. product) Enhanced Access and rights for land and greivances on (Qualitative) land rights land and water natural resources Reduced Time series rights (inter-annual variability (yields compared to production historical (or variability) production) controls stability Well being Promote positive community informed consent (Qualitative) relations and (gender, indigenou awareness of Reduced rights project activities production losses Insurance (avoiding losses) premiums early increased warning Improved Number and Semitraining, training and diversity of education and quantitative people Water table participation between wate stream levels table, peak (volume of water) compared to discharge and historica Critical natural rainfall Biodiversity & habitats, no Semiinvasive species ecosystem introduced quantitative services reduced use of Maintained or Plant species Shannon index toxics increased diversity: patrimonial landscape patrimonial species biodiversity MINISTÈRE DE L'AGRICULTURE ET DE L'ALIMENTATION

Climate change and 4p1000 implementation in France: Agroecology projet

 France has developed a broad strategy to push changes in agriculture toward more sustainable production methods: the Agroecology projet



Goals

- Systemic approach at the farm level as well as in its relationship with local ecosystems and local agri-food chains
- Reliance on positive interactions in the agricultural ecosystem: conservation and improvement of natural resources by efficient management of inputs and practices (including enhancement of biodiversity and biological regulations)
- Enhancement of economic performance of the farm including through ecological performance

Governance

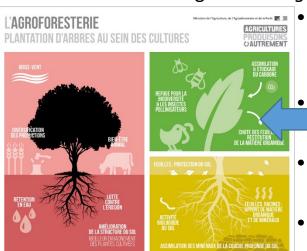
- Collective governance of the project with the main stakeholders of the sector
- Definition and implementation of a *collective and comprehensive action* plan (17 chapters; more than 70 actions)
- Modification of other policies from this new perspective, and articulation with other national strategies: National Low Carbon Strategy, National Biodiversity Strategy





Climate change and 4p1000 implementation in France: programs used

- Alongside the Agroecology project, several programs and policies are engaged in tackling the climate change challenge
 - Programs from the <u>Common Agricultural Policy</u>
 - Cross-compliance as a condition to receive surface payments
 - Green payment scheme: direct payment with ecological conditions
 - Agri-Environment-Climate measures (equivalent of Conservation programs): one measure aimed at healthy soils, measures to maintain and extensively manage grasslands and pastures -
 - Program for *Organic farming*



- <u>Legumes plan</u>: promoting planting protein crops (areas decreased in France) to limit fertilizer use and enhance farm autonomy
- Agroforestry plan: developing agroforestry as an agroecological farm system
- Research: soil is one of the four priorities of the national "Agriculture and Innovation 2025" Plan
- Outreach and Training







Climate change and agriculture policy What's done in California and Maryland



In Maryland: Healthy Soils Program

- Management of nutrients for Chesapeake Bay water quality
- Program adopted in 2017
- Healthy soil consortium that meets on a regular basis, with all stakeholders

Soil Health Practices:
Common ground
on experience
and knowledge
JUNE 19, 2018 AT THE EMBASSY OF FRANCE

- In California: Healthy Soils Initiative
 - Launched in 2015
 - For farmers, both incentive programs and demonstration projects

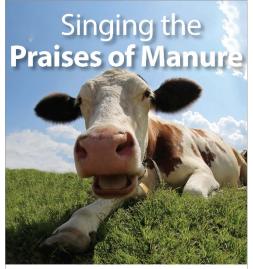






Climate change and 4p1000 implementation for instance, what can be done on a dairy farm?

- On **crops**: transform the parcel into a carbon sink
 - cover crops, to have a cover all year round (including permanent pasture)
 - no till, or <u>light tillage</u>, to avoid disturbance of top soil organic matter
 - Think legumes in crop rotation or planting: less fertilizer (and feed for cows)
- On animal husbandry:
 - manure management: a good management on parcels can contribute to further increases of carbon storage
 - Grazing management: grazing on a limited area, with quick rotations of the herd
 - Animal feed, curb the formula used: flaxseed for example reduce GHG emissions
- But first and foremost: think Organic matter



MARYLAND DAIRY FARMERS KNOW THERE'S MORE TO MANURE THAN MEETS THE NOSE. Livestock manure makes a great natural fertilizer and soil conditioner. It helps build healthy soils that are rich in organic matter and full of life—both above and below the ground.

Follow your nose and you'll see that farmers have begun preparing their fields for spring planting. They use best management practices to make sure that spreading manure does not impact local waterways and the Chesapeake Bay. Learn more.



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Thank you for your attention

