

# Remineralize the Earth

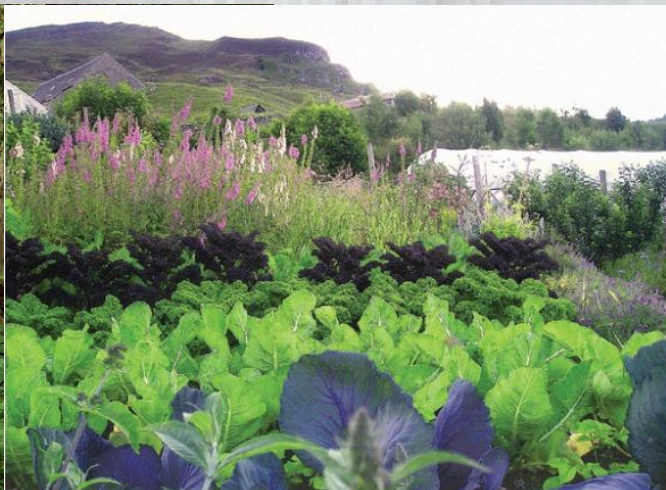
...better soil, better food, and a better planet.

III Congresso Brasileiro de Rochagem, November 8 - 11,  
2016, Pelotas/Rio Grande do Sul, Brazil

# Remineralization is a Paradigm Shift: From Scarcity to Abundance

## A Blueprint for a New Earth

Remineralization utilizes finely ground rock dust and sea-based minerals to restore soils and forests, produce higher yields and more nutritious food, and store carbon in soils to stabilize the climate.



# Remineralization is a Paradigm Shift: From Scarcity to Abundance

## Impacting Health and Healthcare

1965



Today



### Nutrient Density

On average, you would need to eat 5 apples a day to equal the same nutrition as 1 apple in 1965.

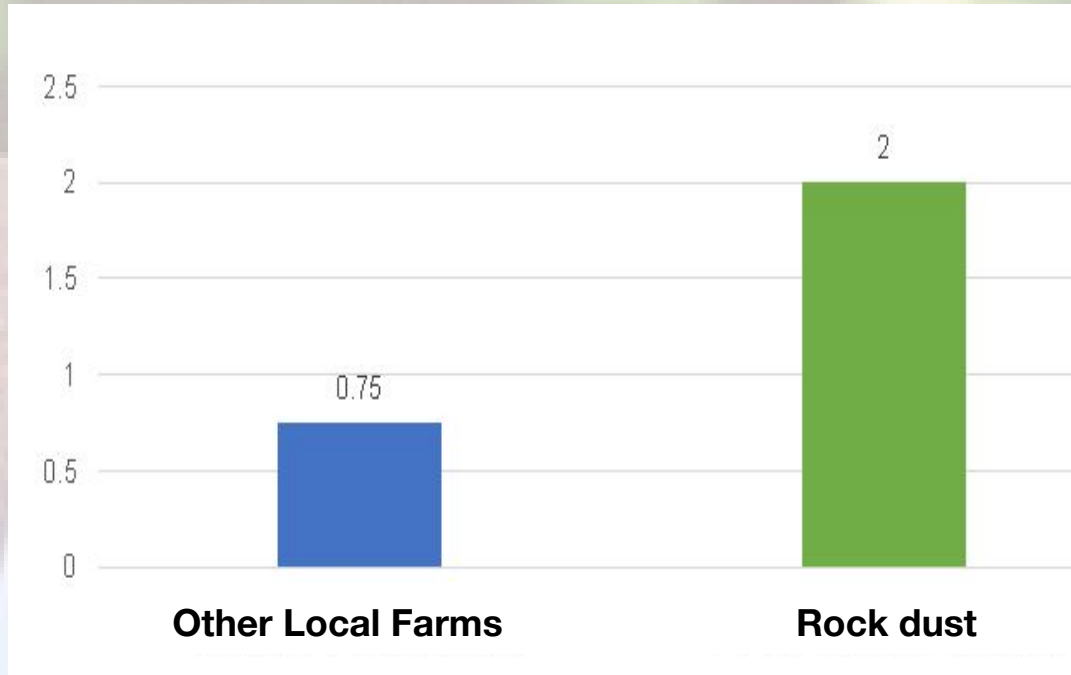
***Now imagine*** producing as much as 2-4 times the increased yields for agriculture **while at the same time** enhancing the nutrient quality of the food we eat.

**Source:** Changes in *USDA Food Composition Data for 43 Garden Crops, 1950 to 1999*

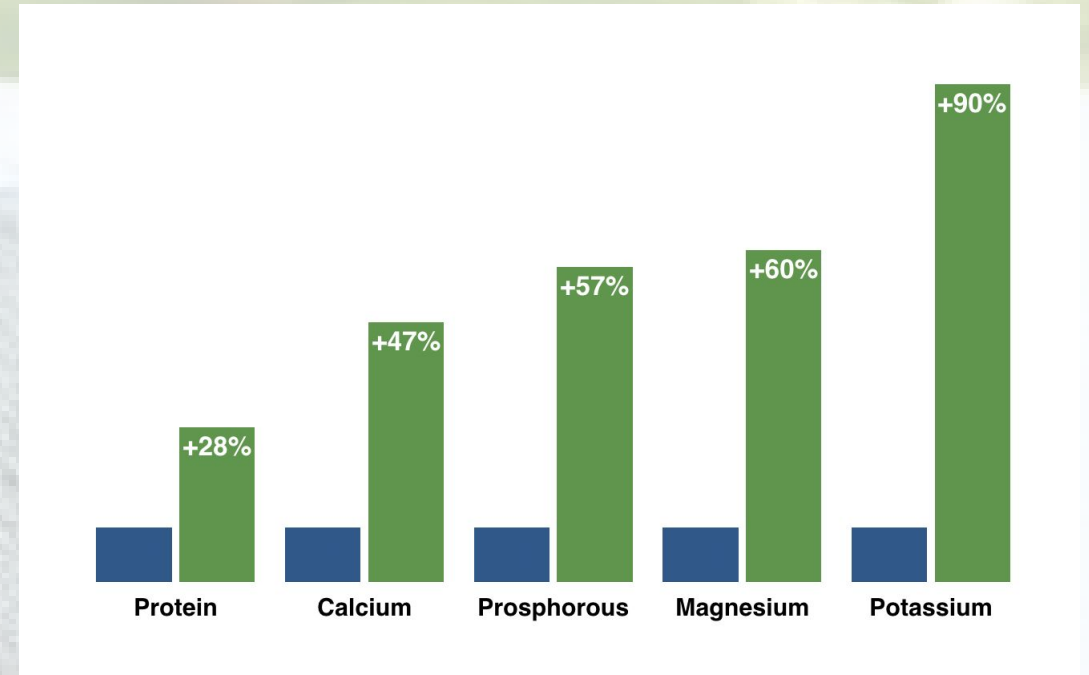
Donald R. Davis, PhD, FACN, Melvin D. Epp, PhD and Hugh D. Riordan, MD



# Remineralization is a Paradigm Shift: From Scarcity to Abundance



Glacial rock dust produced **65 bushels** of corn per acre, compared to **25 bushels** per acre from other local farms – with no irrigation.



Increases in nutrients compared with the same type of corn grown with chemical fertilizers nearby.

**Source:** John D. Hamaker, co-author with Don Weaver, *The Survival of Civilization* Michigan, 1976-1977

# RTE is Facilitating the Paradigm Shift and Movement

We facilitate a worldwide movement that brings together gardeners and farmers, scientists and policymakers and the public to create better soils, better food and a better planet.



Essential Plant Nutrients	
Macronutrients	Micronutrients
Oxygen (O)	Iron (Fe)
Hydrogen (H)	Manganese (Mn)
Carbon (C)	Zinc (Zn)
Nitrogen (N)	Copper (Cu)
Phosphorus (P)	Molybdenum (Mo)
Potassium (K)	Boron (B)
Sulfur (S)	Chlorine (Cl)
Calcium (Ca)	
Magnesium (Mg)	

detected on Mars soil, or in Martian meteorites



# RTE is Facilitating the Paradigm Shift and Movement

**Local Projects: Educational Models, Community Projects, and Research**

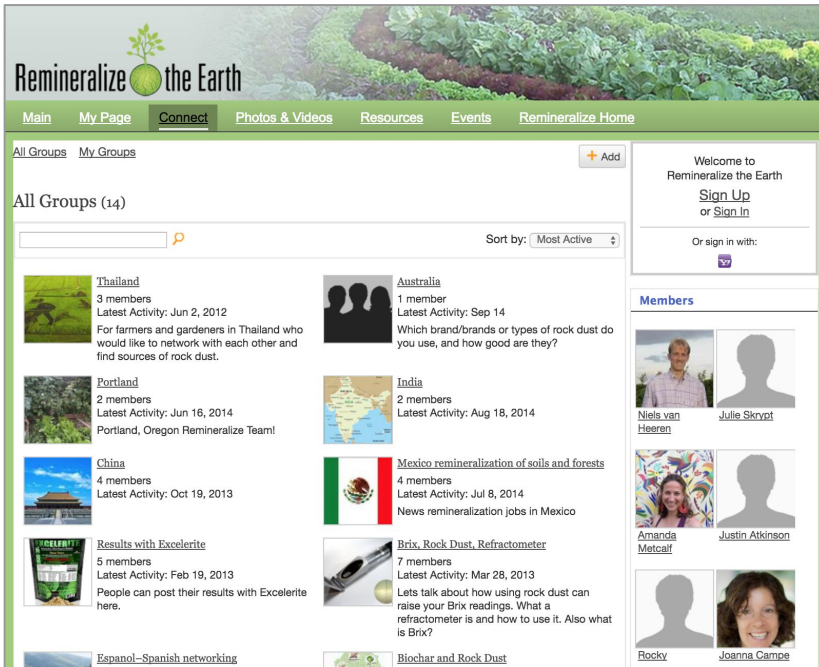


**Class research project of Paulo  
Freire Social Justice Charter School**



# RTE is Facilitating the Paradigm Shift and Movement

## RTE's Online Social Community



<http://remineralize.ning.com/groups>

## University of Massachusetts



Professor Stephen Herbert, with Brix Meter indicating nutrient density.

## New Harmony Farm CSA



Dr. Thomas Goreau, weighing the harvest to get the yield.



# RTE is Facilitating the Paradigm Shift and Movement International Projects



CUSAN - Cuba Delegation



Heifer International - Sahel region, Senegal



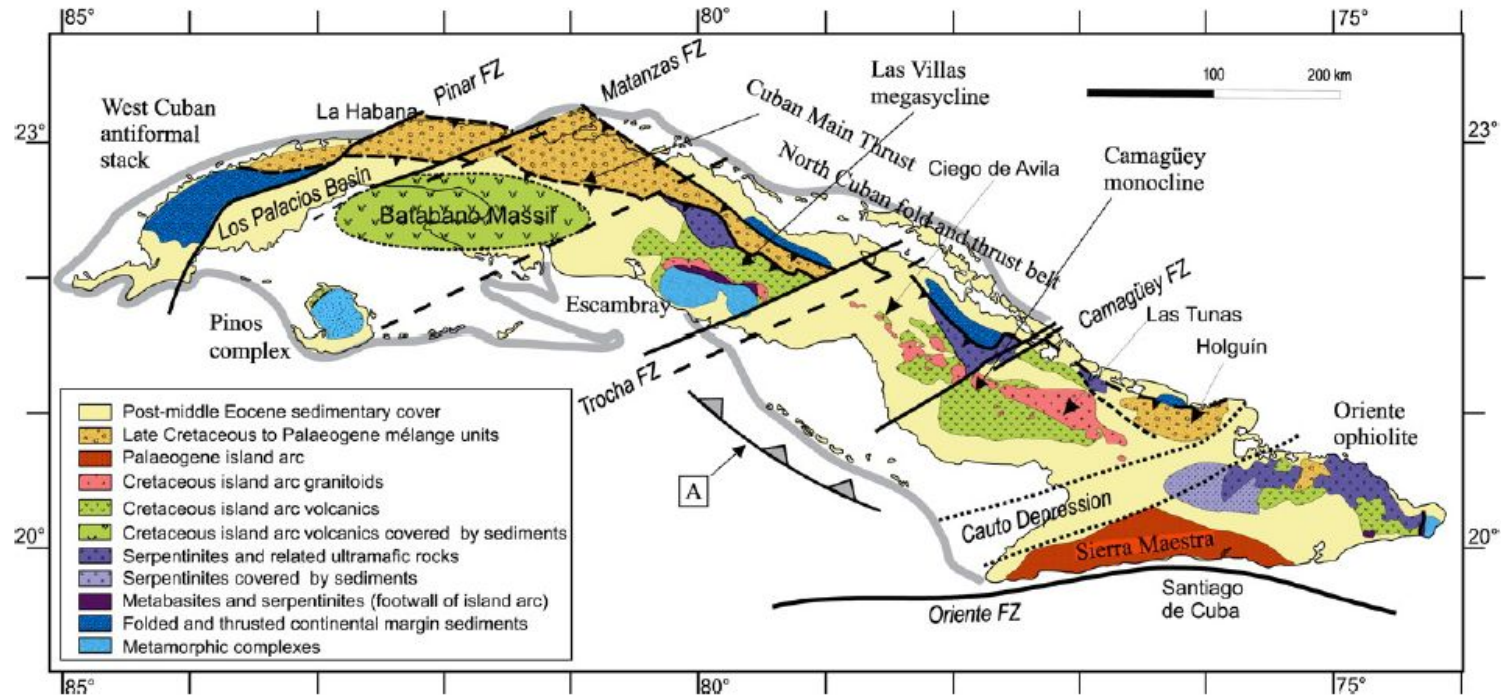
Monserrat's Volcanic Ash in Barbuda



Bahia Research Project -- UnB,  
dryGrow Foundation, RTE



# RTE is Facilitating the Paradigm Shift and Movement Using Local Sources of Rock Dust in Cuba



Small portable biodiesel rock grinder ideal for community stakeholder projects

Basalts, Granites, Sedimentary rocks are locally available. A small portable rock crusher is currently being developed that is ideal for community stakeholder projects.

# We Need to Remineralize on a Larger Scale

A photograph of Mount St. Helens erupting in 1980. The volcano is in the foreground, with a massive, billowing plume of ash and smoke rising into the sky. The background shows a hazy, mountainous landscape under a cloudy sky.

**Remineralization of the world's soils and forests will dramatically increase carbon sequestration and is crucial to stabilizing the climate.**

Mount St. Helens, Oregon, USA in 1980



# We Need to Remineralize on a Larger Scale

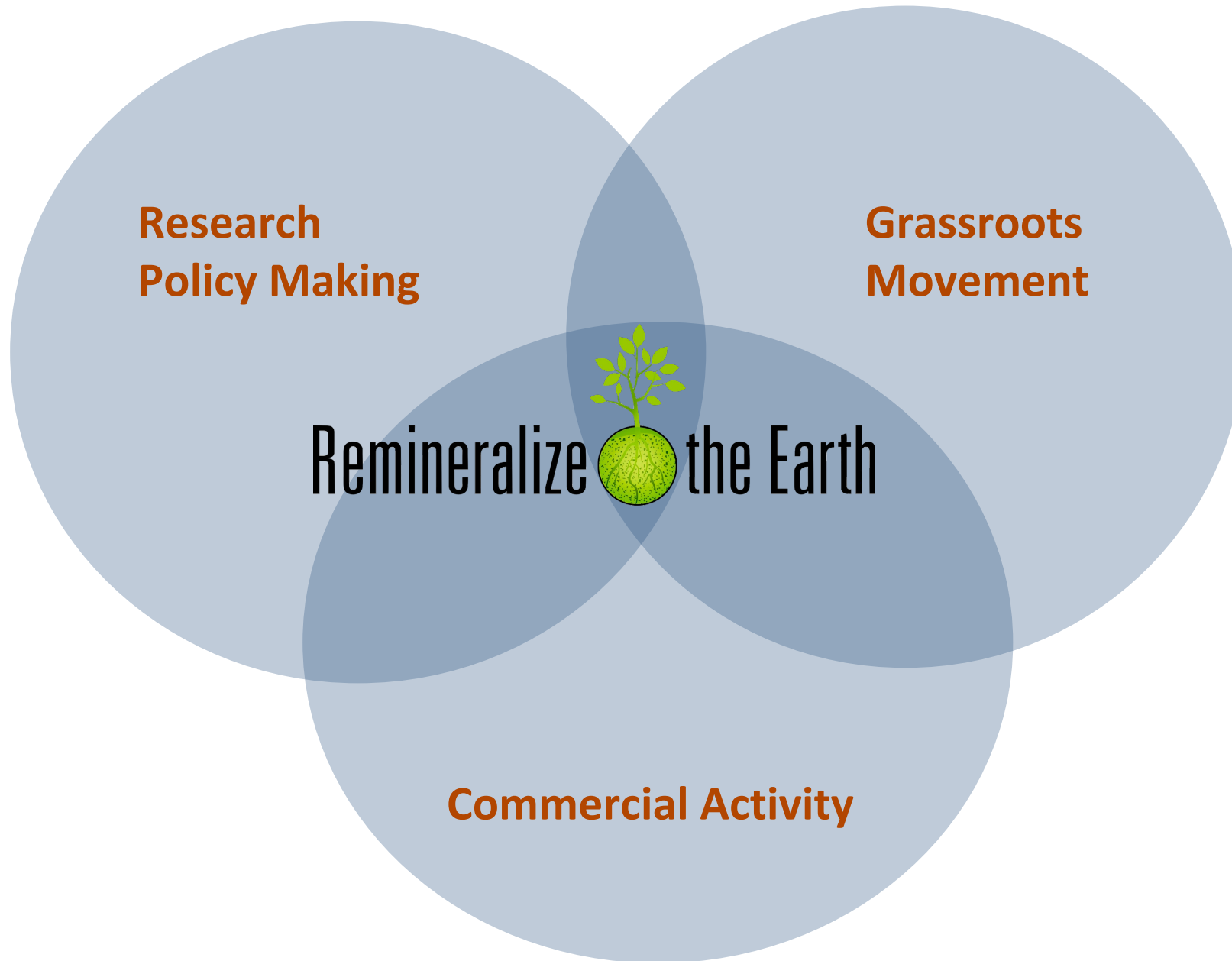
**Create Food Security in the Tropics  
Remineralize Deltas – De-acidify the Oceans**

**The University of Copenhagen in Denmark has embarked on a 3-year project in Greenland to study glacial mud use for remineralizing depleted soils and creating food security in the tropical regions.**

**Greenland glacial mud**



# A Need for Convergence





# Our Vision: Working With You

International Projects

Research Projects

Research Database

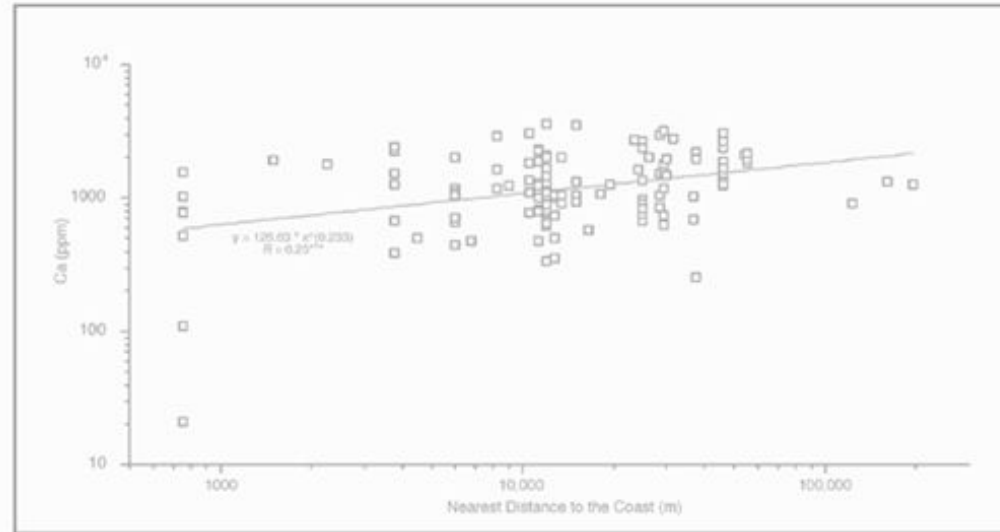
Advocate for Agroforestry Model

Portable Rock Crushers



# Our Vision: Working With You

Our research database online is dedicated solely to remineralization.



**Figure 5.** Calcium content of soils in this study as a log-log function of nearest distance to the coast in the sudden oak death-affected regions of California. Best-fit line of the data is a power law function (see equation).  $R$  is the regression coefficient; probability ( $p$ )  $\leq .001$  (\*\*\*)

**Table 1.** Summary statistics of the chemical constituents in soil samples from sites of unhealthy trees in California.

Variable	Mean	Median	Std Dev	Units	N
Al	24.3	5.3	41.7	(ppm)	70
B	0.6	0.4	0.4	(ppm)	119
Ca	1389.0	1201.5	758.7	(ppm)	136
CEC	14.4	12.4	6.6	(meq/100g)	120
Cu	1.6	1.2	1.7	(ppm)	123
Fe	75.4	68.5	78.6	(ppm)	123
K	207.1	180.6	125.0	(ppm)	124
Mg	451.9	363.6	321.9	(ppm)	124
Mn	14.8	11.5	12.9	(ppm)	123
Na	56.3	34.7	86.3	(ppm)	124
NO <sub>3</sub> -N	11.0	5.7	21.2	(ppm)	120
Org. Matter	4.8	4.2	3.4	(%)	120
P	28.4	13.5	34.0	(ppm)	132
pH	5.8	5.7	0.6		136
SO <sub>4</sub> -S	21.6	7.0	66.8	(ppm)	117
Sol. Salts	0.6	0.4	0.9	(mmhos/cm)	117
Zn	6.5	2.7	9.4	(ppm)	123

Byrophites and soil acidification effects on trees: the case on sudden oak death.

Lee F. Klinger

**Saving dying oaks using rock dust**





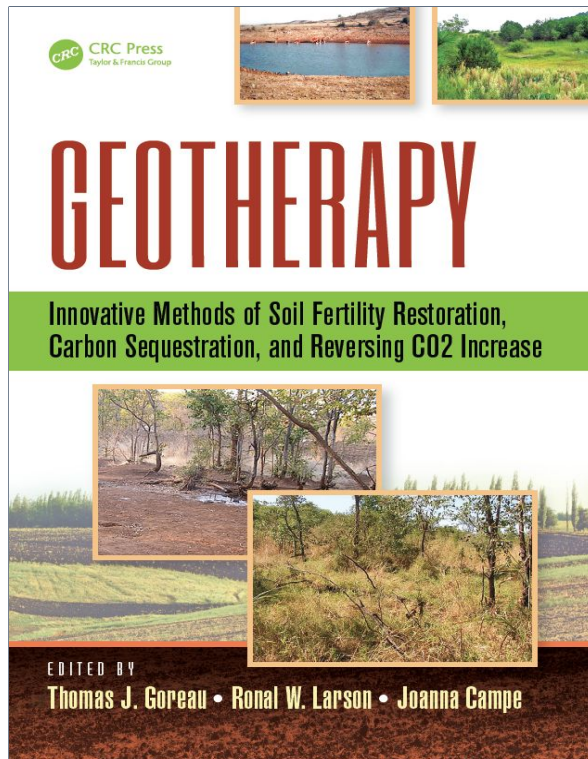
# Our Vision: Working With You

## Learning More – Keeping In Touch



United Nations  
Framework Convention on  
Climate Change

### Geotherapy Book



### Geotherapy Blog

Explore RTE's Geotherapy Book and Blog *Geotherapy: Innovative Methods of Soil Fertility Restoration, Carbon Sequestration, and Reversing CO2 Increase* is a guide to policy-making and practical steps to restore severely damaged ecosystems.

It contains new research studies with comprehensive data showing the benefits of rock dust and biochar.



Soil: The Foundation of Mineral Nutrition and Optimal Health



Restoring CO2 to Safe Levels to Avoid Severe Climate Change Impacts



Review of Geotherapy Preface: Profiles of Richard Grantham

# Our Vision: Working With You

## Partners Moving Forward

### Research

Agrogeologists  
Agronomists; Soil Scientists  
University Agricultural  
Researchers  
United States Geologic Survey  
Dept. of Interior

### Industry and Technology

Mining and Aggregates  
Soil and Ag Amendments  
Manufacturers and Distributors  
Biofuels and Biochar Manufacturers  
Biofuels technology developers  
Transport and Logistics  
Finance

### Policy

International Development  
Agencies United States  
Department of State (USAID)  
United Nations



# World Recognition for Remineralization

## Major Art Installation



***Glacial Rock Flour Garden, Palace of Versailles***

***Olafur Eliasson. 2016***

*Photo courtesy: Anders Sune Berg. neugerriemschneider,  
Berlin; Tanya Bonakdar Gallery, New York*

*© 2016 Olafur Eliasson.*

# Thank you!



## CONTACT US

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SEA-CROP®

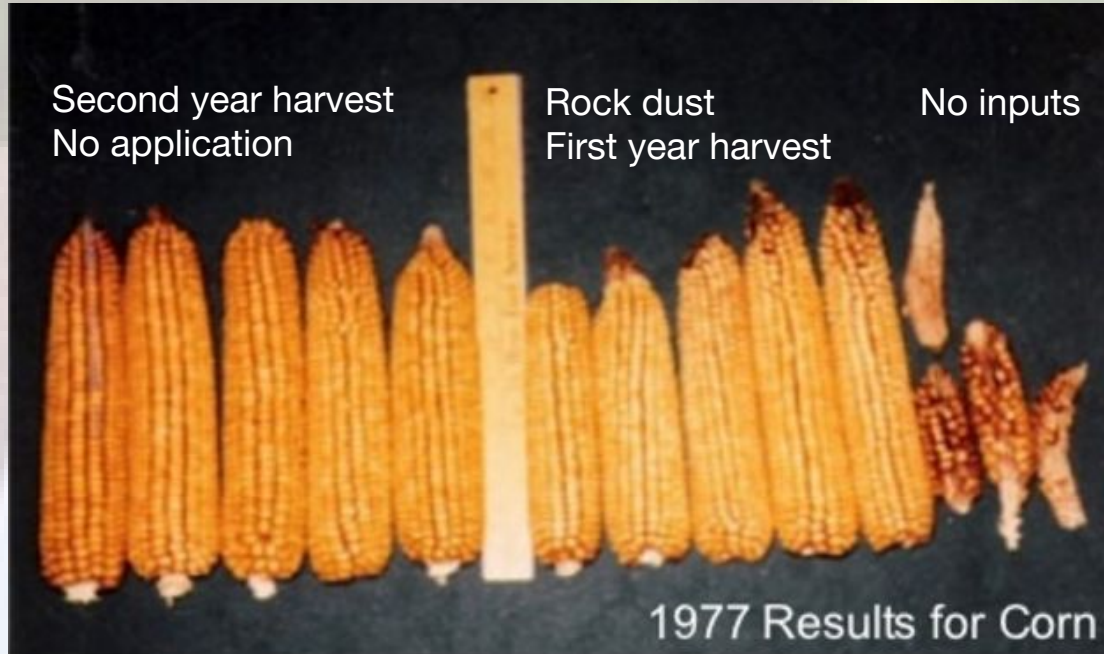




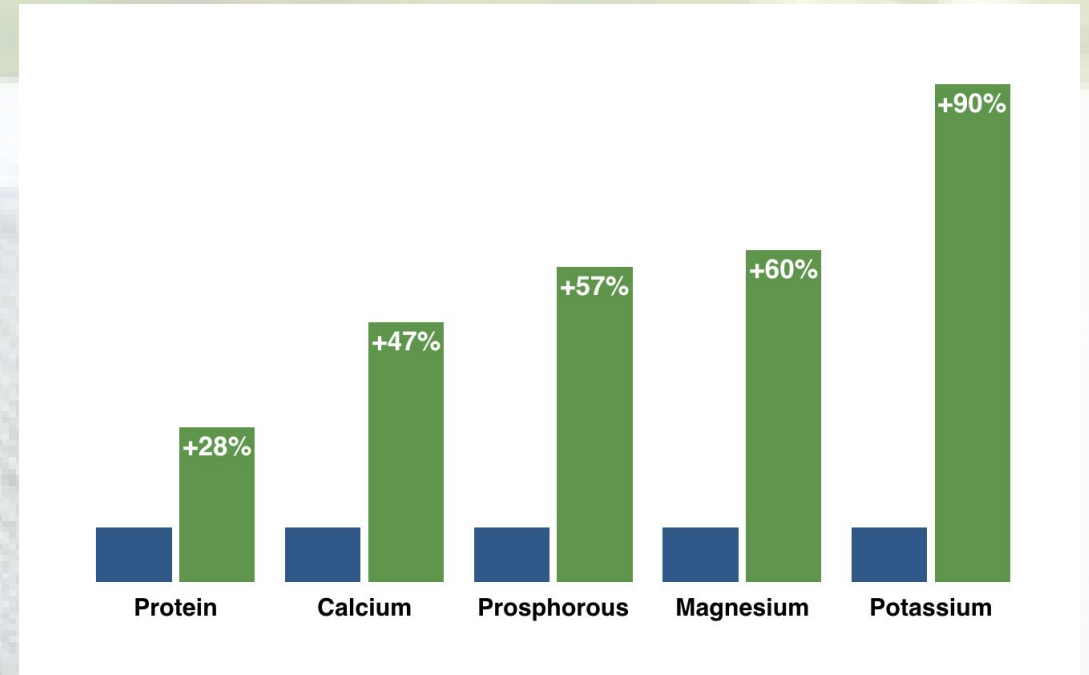
# Parking Lot

Remineralize  the Earth

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