SOIL SUSTAINABILITY

Replace Pesticides With Soil Remineralization

"Insects and disease are the symptoms of a failing crop, not the cause of it." William Albrecht.

Until now, in our society, there has been almost no effective recognition of essential biological processes to protect the biosphere as a system, and which have to be maintained for the earth to sustain human life. Soil mineral levels, soil micro-organism content, forest magnitude and quality, agricultural processes, and the recycling of wastes into new resources through biological processes, all effect the level of carbon dioxide in our atmosphere and in turn the climate in which these processes function.

CO_2 & CLIMATE

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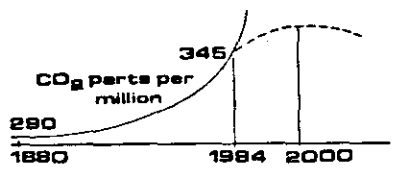
Variations in Mineral Content in Vegetables (Firman E. Bear report, Rutgers U.)

	Percentage of dry weight	Millequivalents per 100 grams dry weight					Trace Elements parts per million dry matter				
	Total Ash or Mineral Matter	Phosphorus	Calcium	Magnesium	Potassium	Sodium	Boron	Manganese	Iron	Copper	Cobalt
SNAP BEANS											
Highest	10.45	0.36	40.5	60.0	99.7	8.6	73	60	227	69	0.26
Lowest	4.04	0.22	15.5	14.8	29.1	0.0	10	2	10	3	0.00
CABBAGE											
Highest	10.38	0.38	60.0	43.6	148.3	20.4	42	13	94	48	0.15
Lowest	6.12	0.18	17.5	15.6	53.7	0.8	7	2	20	0.4	0.00
LETTUCE											
Highest	24.48	0.43	71.0	49.3	176.5	12.2	37	169	516	60	0.19
Lowest	7.01	0.22	6.0	13.1	53.7	0.0	6	1	9	3	0.00
TOMATOES											
Highest	14.20	0.35	23.0	59.2	148.3	6.5	36	68	1938	53	0.63
Lowest	6.07	0.16	4.5	4.5	58.8	0.0	5	1	1	0	0.00
SPINACH											
Highest	28.56	0.52	96.0	203.9	257.0	69.5	88	117	1584	32	0.25
Lowest	12.38	0.27	47.5	46.9	84.6	0.8	12	1	19	0.5	0.20

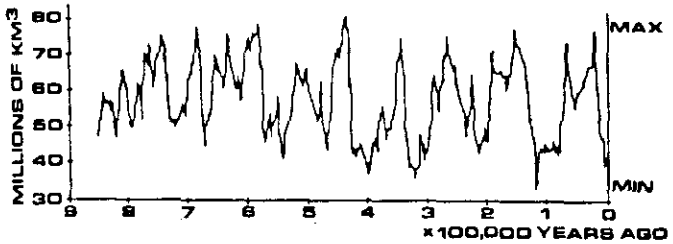
Soil Science Society of America Proceedings 1948.
Chart presented in Acres, USA March 1977

It has been said that, " we are what we eat". The question follows: what do we eat? Regardless of what one's diet is or where one lives in the world, the food eaten is deficient in t necessary minerals our bodies we designed to operate on. Our bodies take from the food we eat as plants take from the soils in which they live. Our soils are greatly depleted of all of the minerals necessary for efficient and healthy development of micro-organisms, plant, and anim life, including human life.

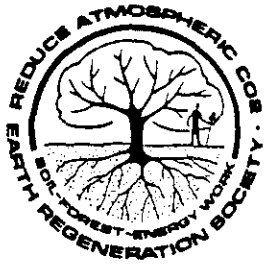
The introduction of pesticides a pollutants further destroys the health of our food.



ATMOSPHERIC CARBON DIOXIDE INCREASE AND PROPOSED REDUCTION



VARIATION OF GLOBAL ICE VOLUME



A NEWSLETTER ABOUT CYCLES OF GLACIATION, THE NEGATIVE EFFECTS OF AN INTERGLACIAL/GLACIAL TRANSITION ON LIVING SPECIES, AND A COUNTER PROGRAM

The use of fertilizers is helpful in most cases, but there had been a tendency to divert the care away from the overwhelming need to fully remineralize the soil. (Natural soil has 25 to 80 or so important minerals and trace minerals, not just the three in chemical fertilizers.) The broad spectrum of minerals in our soils is essential.

Micro-organisms and worms do not function at optimum in demineralized soils. In fact continuous use of pesticides over years kills off the micro-organisms in the soils, making the soil more and more sterile. These micro-life forms are critical for the food chain because they reduce what minerals and nutrients that are in the soil to a size in which root systems can absorb them. Once in the root systems these same elements of life provide the basis for healthy, mineral rich and fruitful plants and trees. All other dependant forms of life (from worms to humans) in turn benefit from this basic link in the food chain.

The negative effect of pesticides on the soil, and in turn the food chain, is a serious matter. The negative effect on farm workers and their offspring from pesticides is sufficient reason alone to find natural means to protect agriculture from pests. As noted below remineralizing is a most basic alternative.

"When we feed only to fill and to fool, we neglect the animal in terms of real health and natural protection against invasion by foreign proteins like the microbes. Should we be surprised, then, at the increasing animal 'diseases' and degeneration, exhibited in failing conception and in the production of midgets or dwarfs as the resulting births...? If we emphasize the production of crops only for fattening castrated males, naturally we cannot expect the animal to survive. The streams of life cannot be expected to flow in spite of us when our attention is so completly focused on economics and technology in place of on the basic biological laws of nature, by which animals, plants, and microbes must live," says Dr. William Albrecht. (Barbara B. Logan "The Mysteries of the Living Soil: William Albrecht's Work" July 13, 1986, p. 17-18.)

Sustainable Agriculture. Remineralization and crop improvement.

Rock dust with a broad natural spectrum of minerals and trace minerals essentially eliminates the need for pesticides and chemical fertilizers.

Citrus Blight disease and Azomite (mineral rich rock dust from southern Utah)

J.F.L. Childs, Senior Pathologist ret., U.S.D.A., Orlando, Florida. The following selection is taken from a letter by Mr. Childs dated November 15, 1983.

"A brief account of this strange disease is important to the understanding of certain peculiarities of Blight because (a) your Azomite corrects and controls it whereas previous to my experiments with Azomite, no case of recovery from Blight had ever been reported, (b) Blight was first reported in Florida in 1870 but is now recognized in ten foreign countries and in three other States in this country, and (c) because Blight is basically a nutritional disorder although a fungus is the "hit man" or you might say, the accessary after the fact. A similar disease situation called "short life" is widespread in peach trees in several states. In cattle, a disease called Bang's disease, Brucellosis or contageous abortion is serious in many States. Results in Florida indicate that it can be controlled with Azomite (see reference to Dr. Albrecht's research on the relation of nutrition to control of Bang's disease in bibliography). A material that corrects or controls diseases of this type is just about worth its weight in gold to the agriculturist.

Mineral Content

John Hamaker grew a corn crop on his Michigan farm soil mineralized with glacial gravel crusher screenings (46 tons per acre, just over 2 lbs./sq.ft.). Tested along with corn

Year	N	P_2O_5	K_2O	Total
1950	3,639	5,864	3,994	13,497
1955	6,521	7,553	6,439	20,513
1960	9,626	9,532	8,109	27,267
1965	16,404	13,634	11,031	41,069
1970	28,677	18,802	15,569	63,048
1975	38,859	22,784	19,937	81,580
1980 Low (est.)	53,100	28,300	23,500	104,900
1980 High (est.)	60,800	34,100	27,800	122,700

Fig. 3. World chemical NPK fertilizer use in Gg (1 gigagram equals 1 billion grams), from FAO 1976.

from the same seed grown with conventional chemical fertilizers, the mineralized corn had 47 percent more calcium, 57 percent more phosphorus, 60 percent more magnesium, and 90 percent more potassium than the chemical-grown corn. (The following entries have been taken from The Survival of Civilization, 1982, John D. Hamaker and Donald A. Weaver, p. 4.)

Organic farmer Jon Biloon of Hawaii informed the Earth Regeneration Society that he has been using rock dust on his crop land for ten years, with a recent supply obtained from British Columbia. His gardens resist compaction, erosion, flooding, and pests. He uses no chemical fertilizers or pesticides and has had little loss of crops to pests.

Organic orchardist/farmer Alvin Filsinger of Ontario, Canada, wrote to Don Weaver in 1984 that he was "applying some quarry dust, also cement kiln dust." Later in 1984: "The cement kiln dust and another plot of several acres with gravel pit crusher dust have done very well. The carrots and potatoes plot is exceptionally good; had very dry weather but crop didn't suffer at all. Another block of orchard was treated with two tons per acre of gravel dust, and part with cement kiln dust, and both were planted to a cover crop of buckwheat. It was 6-7 feet tall and we are going to harvest it for seed — outstanding yield."

THE LARGER PROBLEM

The question is raised, "How have the soils become depleted in minerals"? The primary forces are normal water run-off to streams, lakes and the ocean, plus erosion, leaching and overuse of the soil. What was once put in the soils during glacial periods gets moved over time to other areas (land or water) leaving the soils demineralized. It is important to understand that the earth remineralizes itself through the glaciation process. Glaciers leave moraine and loess deposits (ground up rock). These same particles are further spread out by water and wind. Volcanoes also spread minerals throughout the earth. The end of a glacial period gives rise to rich soils and bountiful plants, trees, animals and all other forms of life. This period of growth is commonly known as an interglacial period. Our interglacial period is ending at a most perilous rate.

Studies from the previous period indicates that the transition from an interglacial to a glacial period can occur in as short as forty (40) years. This does not mean of course that the earth will instantly be faced with glacial destruction. However, as National Geographic noted in its 1/87 and 2/87 issues, glaciers are in fact presently on the move and a new Ice Age is upon us. Conclusions from numerous other studies and reports substantiate this reality.

Let us keep before us that CO/2 links the physical inorganic world and the biological unlike other substances, such as methane and water vapor. CO/2 is part of the metabolic process of life. Carbon, for example, makes up approximately 45% of the trunk and branches of a tree.

CO/2 is known to be increasing dramatically. CO/2 is normally held in balance by photosynthesis and other carbon sink processes.. We know that the photosynthetic process is greatly reduced due simply to the loss of close to 50% of our forests. This reduction of our forests has been mostly due to cutting and burning by humans. However, it is also known that our trees are now simply dying, due to insects, disease, natural fires, pollutants and increased cold. Most recent scientific studies indicate that there is also a relationship between the general health of the trees, and their ability to resist natural predators. Most significant are the studies which indicate that through remineralization, the health of the trees can be substantially if not completely restored.

An Earth Regeneration Program (ERP) must be designed to reduce atmospheric carbon dioxide and establish a net decrease, expressed through regional CO/2 budgets. To survive, global net CO/2 reduction must be as rapid as possible in order to stabilize climate, before we reach a point of no return in the current transition into the next glacial period. An optimum ERP insures that more carbon dioxide is removed from the atmosphere than is emitted by all activities. CO/2 is increased through practices such as fossil fuel useage for energy in transportation, industry, manufacturing and household uses as well as through forest fires and forest dying in general. To reduce CO/2 an ERP would remineralize soil using rock dust with a broad combination of minerals and trace minerals, reforest by means of speeding the growth of present forests as well as planting new areas, energy conservation, and construction of alternative energy technology facilities. All of this would be on a local, national and international scale reorienting our social and economic goals.

A Balanced Budget for California

There are two levels of balancing the CO/2 budget which California must address. First is the in-state balance. To accomplish this, California must produce no more CO/2 than it removes from the atmosphere. Let us review the figures.

Storage of carbon	= 44 x (10.12th) grams carbon/year
Oil and gas fuel emission	= 99 x (10.12th) gr.ca/yr
CO/2 Budget would show a current net increase	= 55 x (10.12th) gr.ca/yr

In order to balance our State CO/2 Budget, California must:
(1) increase its State forest and wildland biomass by 2.2 times, while simultaneously holding fossil fuel use at the same 1984 levels (which is obviously physically impossible); or
(2) decrease the use of fossil fuels by 55%, while simultaneously preserving all present biomass storage areas; or
(3) some combination of 1 and 2 (biomass increase and fossil fuel decrease).

The second portion of California's responsibility is to perform its share of worldwide net CO/2 reduction. Currently this would mean taking approximately 460 x (10.12th) grams of carbon out of the atmosphere. This means over ten years if fossil fuel emissions were totally replaced, so one sees the magnitude of the situation we are facing.

SUMMARY

The purpose of this paper is to tie together two things: (1) the relation of remineralization of the soil to crops, pesticides and health, and (2) the relation of remineralization of forests to CO/2, climate, and the stabilization of the balance between earth and atmosphere — stop the rapidly progressing glaciation process. Immediate goals, therefore, are human food supply, health, and climate stabilization. This means massive employment in a peaceful world. This means education, organization and legislation. This means you.

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