**Can Soil Gardens really have an Impact on Global Warming?**

By our analysis, we believe it is possible for soil gardens, if widely implemented, to reduce atmospheric CO2 locally.

What follows is a comparison of the effectiveness of optimum soil gardens vs. the amount of CO2 in the atmosphere. That comparison leads us to make the statement above.

How much carbon is sequestered in an optimum soil garden? We have sampled and analyzed two anomalous soils in suburban western Washington County that have thick, young soils of modest age. These soils have calculated rates of sequestration averaging 2,500 pounds of carbon per acre per year. These rates of sequestration are five times the average rates in the young soils we measured in nine yards last fall.

How much CO2 (in tons) is in a one square mile column of atmosphere? There are 3,300,000,000,000 tons of CO2 in the atmosphere and the surface area of the Earth is 196,900,000 square miles; therefore 3,300,000,000,000 divided by 196,900,900 equals 16,760 tons of CO2 in a square mile column.

Since CO2 is 27% carbon, there are (16,760 multiplied by .27) 4,525 tons of carbon in that square mile column. The average CO2 concentration in the atmosphere is 400 parts per million (ppm). Reducing the CO2 concentration by one (1) ppm, requires removing (4,525 tons divided by 400 ppm) 11.3 tons of carbon annually. **That is our challenge objective.**

What does that challenge equate to in terms of soil gardens? 11.3 tons of carbon (22,600 pounds) annually divided by 2,500 pounds of carbon per acre per year equals nine (9) acres of soil gardens in one square mile. Nine acres requires how many soil gardens?

* Estimate 1: We previously estimated the amount of soil surface in a square mile of suburban Washington County to be about 290 acres. Therefore, 290 acres divided by 9 acres equals three (3) percent of the soil surface (seems achievable).
* Estimate 2: If we assume an average soil garden to be 500 sq. ft., then there would be 87 soil gardens per acre (43,560 sq. ft. per acre divided by 500 sq. ft.), and nine (9) acres would require 780 (87 x 9) soil gardens (seems difficult).

Clearly, scaling-up the number of soil gardens is the challenge.

Eric Luttrell

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