



## SONOMA STATE UNIVERSITY

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1801 East Cotati Avenue  
Rohnert Park, California 94928-3609

April 7, 1997

Mr. Gregg Young  
1150 Road D  
Redwood Valley, California 95470

RE: Research Protocol #793

Dear Mr. Young:

I write to inform you that your research project entitled "North Coast Fertilizer Dealer Survey" cannot be officially approved by the Committee on the Rights of Human Subjects. The Committee does not act upon requests for approval to undertake research which has already been done.

I did review your protocol however, and I can ascertain that this was a study which would have been considered exempt from review under Category A2. The subjects were all adults who were invited to voluntarily participate in the telephone interviews that you conducted.

Since the Committee acts on behalf of the University in matters related only to the involvement of human subjects in research, our inability to approve your protocol does not mean that your master's thesis will not be accepted. That decision is made by the Dean of Academic Programs based on a more comprehensive set of criteria.

Sincerely,

Katie Pierce  
Executive Secretary

cc: Dr. Paul Crowley

# Soil Analysis

Report No. \_\_\_\_\_

Name \_\_\_\_\_ Date Sampled \_\_\_\_\_ Sample Depth \_\_\_\_\_

Field I.D. \_\_\_\_\_ Acres \_\_\_\_\_ Crop \_\_\_\_\_ Soil Type \_\_\_\_\_

% Organic Matter \_\_\_\_\_ pH \_\_\_\_\_ CO<sub>3</sub> \_\_\_\_\_ HCO<sub>3</sub> \_\_\_\_\_

Cation Exchange Capacity (CEC) \_\_\_\_\_ Saturation Percentage \_\_\_\_\_

Soil Cations	Lbs/ac ft Total	% CEC Present	% CEC Optimum	% Water Soluble	Lbs/ac Required
Calcium (Ca)			65-75%		
Magnesium (Mg)			10-15%		
Potassium (K)			3-5%		
Sodium (Na)			0-5%		
Hydrogen (H)			0-20%		

**Reserve Minerals:**

Calcium - CaCO<sub>3</sub> Equivalent \_\_\_\_\_ Phosphorus (P<sub>2</sub>O<sub>5</sub>) \_\_\_\_\_

Macro Nutrients	Lbs/ac ft Present	Lbs/ac ft Optimum	Micro Nutrients	Lbs/ac ft Present	Lbs/ac ft Optimum
Nitrate (NO <sub>3</sub> )		25-100	Zinc (Zn)		4-12
Phosphorus (P <sub>2</sub> O <sub>5</sub> )		150-250	Manganese (Mn)		36-48
Potash (K <sub>2</sub> )			Iron (Fe)		48-64
Sulfur (SO <sub>4</sub> )		48-72	Copper (Cu)		3.6-4.8
			Boron (B)		2-4

**LIMESTONE REQUIREMENT \_\_\_\_\_ tons/ac-ft**

## GLOSSARY

## Terms:

Adsorption - attraction and bonding of an ion to an oppositely charged surface.

Aerobic - growing conditions in the presence of oxygen.

Aggregate - a mass of soil glued together by clay, organic matter, or microbial gums.

Agricultural mineral - any substance sold for stimulating plant growth that contains 5% or less nitrogen, available phosphoric acid, or soluble potash singly or in combination, or that contains only secondary or micronutrients.

Alluvial - soil deposited by running water.

Anaerobic - growing conditions in the absence of oxygen.

Anion - ion with a negative charge.

Base saturation - clay adsorption by sodium, calcium, potassium, magnesium

Cation - ion with a positive charge.

Cation exchange - exchange between an ion adsorbed on a soil colloid and a plant root or soil solution.

Cation exchange capacity - total number of exchangeable cations a soil can adsorb. A measure of the soil's ability to hold nutrients that are cations.

CDFA - California Department of Food and Agriculture.

Chemical Symbols - N - nitrogen, P - phosphorus, K - potassium, Ca - calcium, Mg - magnesium, Na - sodium, Zn - zinc, Mn - manganese, Fe - iron, Cu - copper, B - boron.

Deciduous - woody plants which drop their leaves seasonally.

Exchangeable base - a cation, excluding hydrogen or aluminum, held on exchange sites that can be easily replaced by another cation at a given pH.

Hydraulic conductivity - measure of ease of water movement through a soil

Lime requirement - amount of calcium carbonate needed to raise acid soil to a given pH

Micronutrient - essential element used in small quantities by plants.

N-P-K - Fertilizer term for nitrogen-phosphate-potash; often the percentage of each.

Pan - a hard compacted or cemented layer that slows water percolation and root penetration.

Petiole - the part of a leaf connecting the blade to the plant stem.

Percolation - movement or infiltration of water downward.

Permeability - measure of ease of penetration of gases, liquids or roots through soil.

Phytophagous - plant eating insects or mites

Resistance management - delay or prevention of adaptation in pest species to any human health or plant protection mechanisms including chemical, cultural, biological, or biotechnological control.

Percentage base saturation - percentage of the cation exchange capacity occupied by cations other than hydrogen or aluminum

Tilth - physical condition of a soil in terms of how easily it can be tilled or cultivated.

Veraison - The turning of color and softening of grape bunches, signifying the beginning of ripening.

Waterlogged soil - filling of the pores with water; low in oxygen, from poor drainage or excess moisture.

Weathering - natural process that breaks down rock into nutrients.