

STANWORTH



CROP CONSULTANTS

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HOW TO TAKE A QUALITY TISSUE SAMPLE

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DEFINITIONS

- BOTANY
 - LEAF VS PETIOLE
- LEAF, THE PLANT “FACTORY”
- PETIOLE, THE PIPELINE TO THE “FACTORY”



LEAF

- LEAF ANALYSIS,
TOTAL NUTRIENTS
FROM ASHING
SAMPLE
- MEASURES
CURRENT
NUTRIENT STATUS
OF PLANT



PETIOLE OR MIDRIB



- MEASURES SOLUBLE NUTRIENTS “IN THE PIPELINE”
- FASTER TURN-AROUND TIME FROM LAB
- MORE PREDICTIVE ON NUTRIENT STATUS



PLANT PART TO SAMPLE

- FIRST MATURE LEAF
 - USUALLY THE 3-5TH FROM THE APEX
 - GRASSES, FIRST TO BOW DOWN FROM THE TIP
- BASAL STEM, EARLY SEASON WHEAT, BARLEY, OATS
- FLAG LEAF, WHEAT
- LEAF OPPOSITE EAR, CORN

WHAT IS THE
PURPOSE
OF THE SAMPLE?

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graph TD; A[WHAT IS THE PURPOSE OF THE SAMPLE?]; A --- B[DIAGNOSIS OF A PROBLEM?]; A --- C[NUTRIENT MANAGEMENT?];
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DIAGNOSIS OF
A PROBLEM?

NUTRIENT
MANAGEMENT?

DIAGNOSIS OF PROBLEM



- NUTRIENT DEFICIENCY

- SITE SPECIFIC

- COMPARE 3 GOOD VS 3 POOR AREAS

- FOLLOW THE BOUNDARY

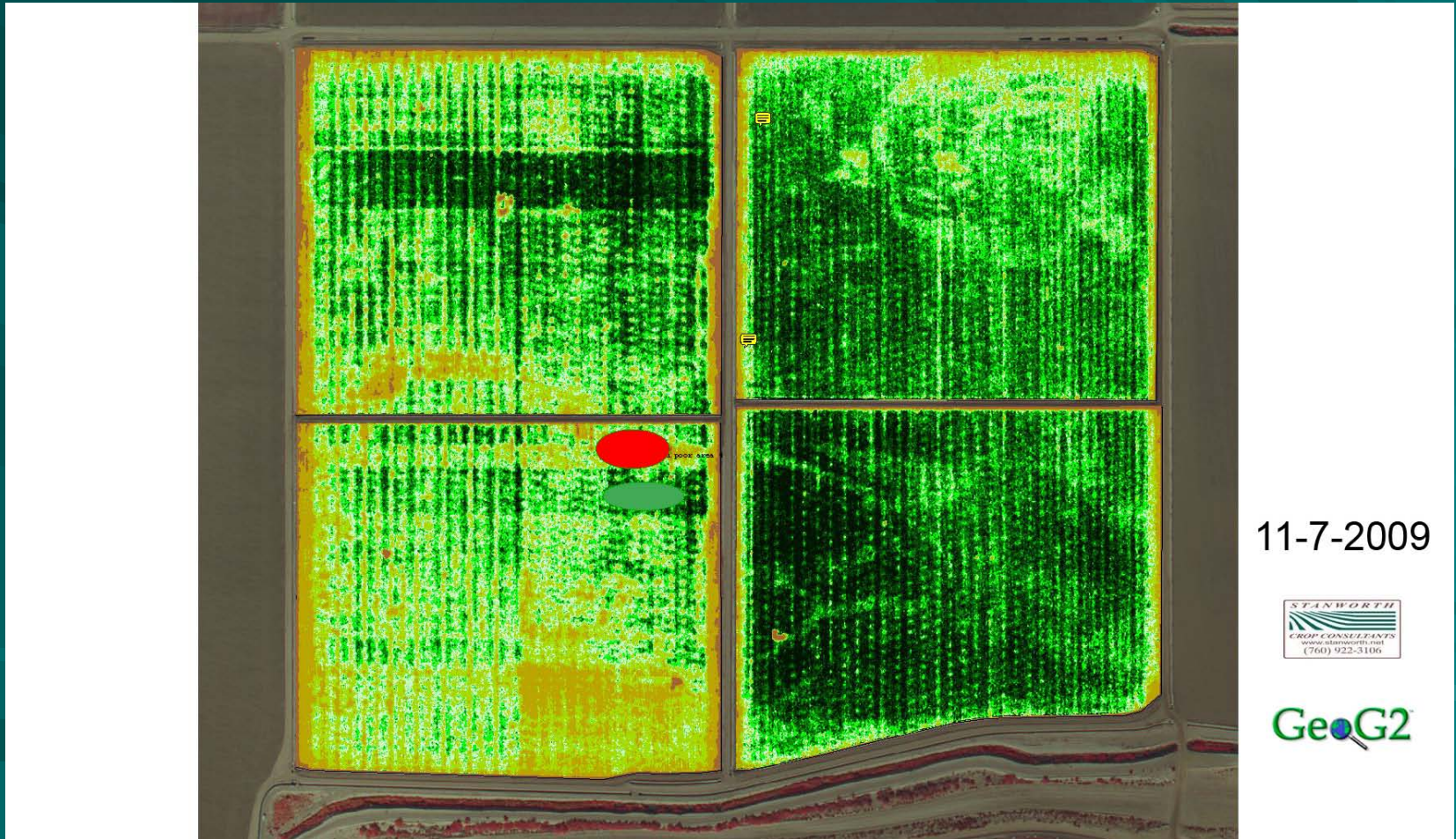
- TAKE AT LEAST 15 LEAVES/SAMPLE

- “IF THREE AGREE, YOU ARE SET FREE”

- MAY INDICATE SECONDARY PROBLEMS,
LOW P – SOIL DISEASE/ NEMATODE
PROBLEMS



CARROT FIELD



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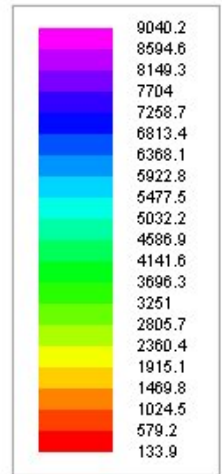
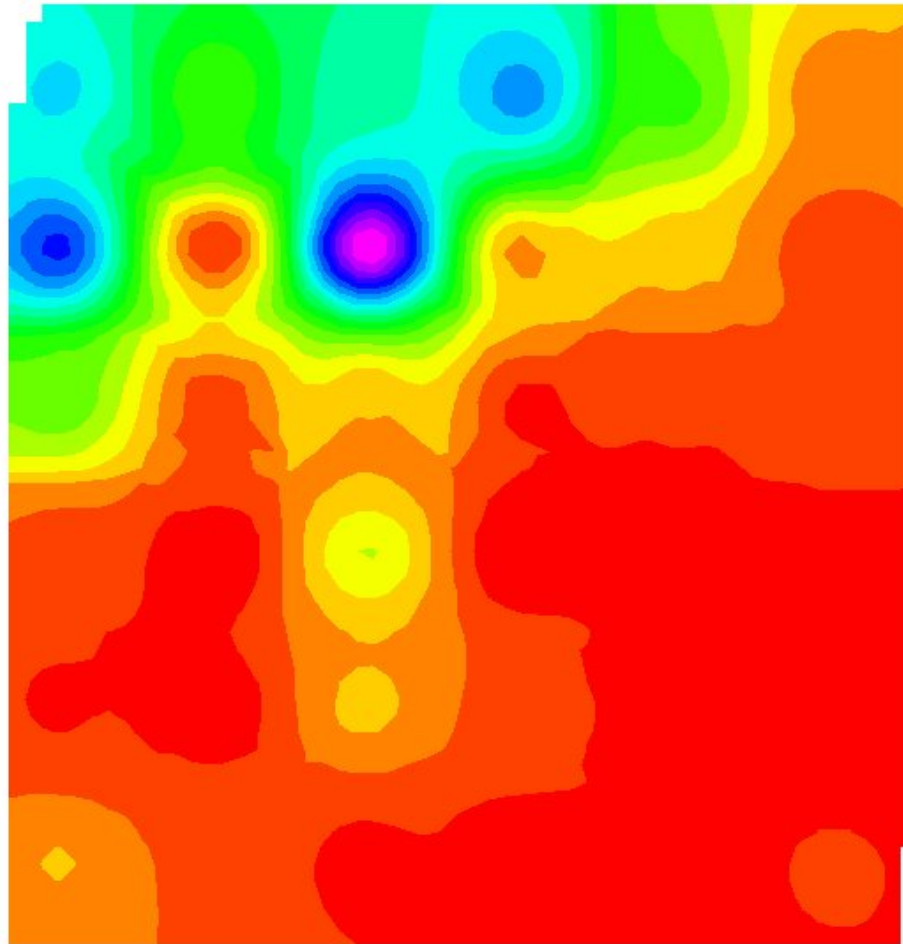


SAMPLING FOR NUTRIENT MANAGEMENT

- MULTIPLE SITE SAMPLING
 - SAMPLE DIFFERENT LOCATIONS IN THE FIELD
 - AVOID COMPOSITE SAMPLING, IT CAN MISLEAD
 - SAMPLE HEAD AND TAIL OF THE FIELD
 - SAMPLE DIFFERENT SOIL TYPES
 - LEAVES AVOID EDGES OF THE FIELD, TAKE AT LEAST 25 STEPS INTO THE FIELD (AVERAGE WIDTH OF AIR SPREADER)
- TAKE AT LEAST 15 LEAVES PER SAMPLE, (FOR YOUNG CROPS, CARROTS/LETTUCE, 40 LEAVES IS NEEDED)

SUGARBEET PETIOLE NITRATE-N VARIABILITY

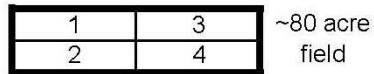
SUGARBEET PETIOLE NITRATE-N



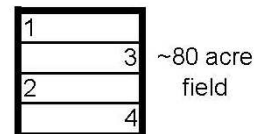
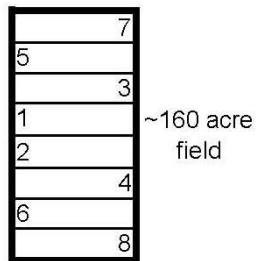
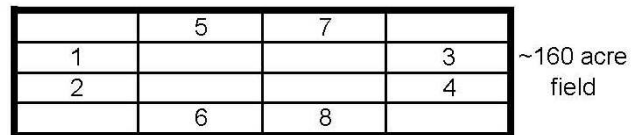
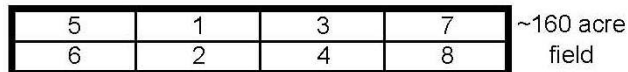
CONVENTIONAL SAMPLING FORMATS

SCC FIELD SAMPLING AREA CONVENTIONS

one sample per 20 acres



^ NORTH



SAMPLE CROPS BROCCOLI



SAMPLE CROP CARROTS



SAMPLE POTATOS



SAMPLE CROP WHEAT





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FIELD MAN'S QUICK SAMPLE CHECK-IN GUIDE

CROP	PLANT ANALYSIS		GROWTH STAGE
	PETIOLE	LEAF	
Alfalfa			Preplant
	P04-P, K midstem	Complete Whole top	Established, 1/10th bloom for whole top tissue
Bermuda	n/a	%N, Complete Whole top	Early Season Late Season, (pre-cutting)
Broccoli/ Cauliflc	NO3, PO4, K (Midrib)	Complete Analysis (leaf)	Thinning 5-6 Leaf
Carrots	NO3, PO4, K Petiole	Complete Leaf	Early Season Mid Season Late Season Pre-harvest

Corn/Sweet or field	%N, PO4-P (W.Top) 3-18in Complete ok	%N, Complete 18-72 in. Leaf Opp.Ear	Measure crop height (Inches) Tasseling Silking
Cotton	NO3-N, PO4, K Petiole	Complete Leaf	Measure crop height (inches) or plant map
Lettuce	N03, P04, K (Midrib)	Complete Leaf	Thinning 5-6 leaf Rosette (10-12lf) Heading, wrapper Leaf Pre-harvest, Wrapper Leaf
Melons	NO3,PO4, K Petiole, 6th from tip	Complete Leaf, 6th from tip	3-4 Leaf 5-6 leaf Early runner (18 in) Large fruit
Onions	none	%N, Complete Leaf	Early Season Bulbing

CROP	PLANT ANALYSIS		GROWTH STAGE
	PETIOLE	LEAF	
Sudangrass	NO ₃ -N, Quality Anal (W. Top) 3-18 in. %N		Measure crop height (W. Top) Pre-cutting top 2 leaves 18-72 in (inches)
Sugarbeets	NO ₃ , P ₀₄ , K petiole	Complete leaf	Planting Thinning Full cover Pre-harvest
Wheat/ Barley	NO ₃ -N, P ₀₄ , k (Basal stem)	N%, Complete Whole top or flag leaf	Tillering Jointing Boot Heading Milk Dough

Petiole is analyzed for NO₃-N, P₀₄-P, AND K

Complete is total analysis %N, %P, %K, %Ca, %Mg, %Na, ppm Fe, ppm Mn,
ppm Zn, ppm Cu, ppm B



TRAINING VIDEOS

Stanworth Crop Consultants, Inc - Windows Internet Explorer

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Training Videos

Soil	Plant
Alfalpa Established Alfalpa Sampling for Potassium- (Hi Low) Sampling for Phosphorus- (Hi Low)	
Pre-Plant Alfalpa Sampling Pre-Plant Alfalpa (Hi Low)	

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