



The Finances of Vegetable Fertility



*WHERE TO FOCUS YOUR
FERTILIZER DOLLARS ON NEW LAND*

DEREK CHRISTIANSON - BRIX BOUNTY FARM

[HTTP://WWW.BRIXBOUNTY.COM](http://www.brixbounty.com)

DEREKCHRISTIANSON@GMAIL.COM

2017 SEMAP AG & FOOD CONFERENCE

SUNDAY FEBRUARY 26, 2017 - DIGHTON, MASS

Brix Bounty Farm – Dartmouth, MA



~7 acres veg
Started in 2008

Direct marketed

Farmstand

CSA

Market

Farming
since 2002



Fertility – One Part of Whole System



Profit = Income – Expenses (Wiswall, Richard)

- Crop Planning
- Bed Preparation
- Planting & Transplanting
- Weed Management – aka Cultivation
- Water Management
- Harvest, Post Harvest, and Marketing

Fertility – Impacts Yields... a worthwhile Expense?

Finances of Vegetable Fertility - Overview



Prior Land Use and Crop Performance

Reading Soil Maps – Web Soil Survey

Expected Yields

Resource: New England Veg Management Guide

Soil Testing & Interpretation

Nutrient Budgeting – Nitrogen Example

Creating a Fertility Plan

“Outcome” Testing – Single Variable Trials

Amendment & Fertilizer Resources

Focusing our Lens: Profitability through Fertility

At Brix Bounty:
We emphasize fertility
investments to ensure
our labor investments
are well rewarded...

Sun Peach Tomatoes
July 15, 2016





Perspective - Initial Investments and R.O.I.



Return
on
Investment

Capturing
& Converting
Solar Energy

Red Cabbage June 3, 2016

Crop Evaluation



- Examine Your Crops aka “Read the Field”
Healthy vs. Stressed Growth ? Pests, Diseases, Low Yields?



Beets May 2016

&

Sweet Corn June 2015



Prior Land Use & Crop Performance



Geology, Climate, & **Human Impact** > Soil Potential

- Conventional Corn Silage
- “Worn-out Hay Fields”
- Brush & Early Successional Woods
- Your Scenario _____

Reading Soil Maps and Soil Types



Web Soil Survey

<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

County Soil Maps – Hard Copy & Online

Reminder: Soil Maps aren't always 100% accurate

CEC (Cation Exchange Capacity) is determined by
clay and Soil Organic Matter.

a low CEC = low nutrient holding capacity > spoon feeding

Expected Yields



Focus on Nitrogen and Calcium
Potassium for fruiting crops and root crops

Alternative Strategy

Crop Density
and Plant Spacing

Crop Signaling

Red Thumb Fingerling Potatoes,
July 2016



Resource: New England Veg Management Guide



URL - <https://nevegetable.org/>

Hard Copy - \$25.00

Nutrient Recommendations for Different Crops

Good Place to Start, Review Nutrient Demands

e.g. High Demand for N & K – Celery

<https://nevegetable.org/crops/celery-and-celeriac>

A Tool: Soil Testing & Interpretation



Umass Soil Lab – Modified Morgan Analysis –
Recommended for considering Available P

<http://ag.umass.edu/services/soil-plant-nutrient-testing-laboratory>

Logan Labs – Mehlich-3 Analysis (“bank account”)

Bionutrient Food Association - <http://www.bionutrient.org/soil-test>
\$30 for Base Plus – includes cobalt, molybdenum, selenium, silicon

Comparison 3 tests from UMass:

Old Hayfield (A), Old Corn Silage (B), Mature Veg (C)

Nutrient Budgeting: Nitrogen Worksheet



See Worksheet (per acre example)

Total Nitrogen Needed _____

(minus) Organic Matter Credits

(minus) Soil Biology Credits

(plus/minus) Crop Residue/Carry Over

Nitrogen Needed to Import (or Apply) _____



Focus on Quality – Full Spectrum Priorities



Suggested to Prioritize
Calcium and Phosphorous?

Calcium required for all plant cells
= Quality Growth

Phosphorous
= Crop Energy
especially early season

Lettuce Mix - April 26, 2016
(2 weeks after transplant)

Creating a Fertility Plan



Carbon, Hydrogen, and Oxygen

Focus on Macros 1st

N-P-K + Calcium, Magnesium, & Sulfur

Traces: Boron, Copper, Iron, Manganese, Zinc, etc.

Cobalt, Molybdenum... Selenium

Silica

January 2, 2016 – “Prop” House



Initial
Fertility
Amendments
October
2015

3 Month Prior

Fertility Perspective through Time



Early Years may require:
Major initial upfront investment
(e.g. high compost market garden)

Using Liquid & Soluble Nutrients
(e.g. Organic Gem fish fertilizer, Bio-Link Trace Minerals)

Fertility investment approach depends on projected income,
longevity of tenure, local resources, etc.

Outcome Testing: a case for “Single” Variable Trials



Prove a Crop Response with Single Variable Testing for your Soils and your Crops... include a focus **on balance**

For Example... Potatoes are known to have a high demand for potassium (K).

Split 1 bed in 2 parts (a) and (b)...

- (a) Control – follow standard fertility plan
- (b) Add 100#/acre potassium sulfate + 10#/acre QB-10 (Boron)
monitor crop yields and performance

Similar K “tests” possible for beets, celery, tomatoes, etc.

Develop a Plan & Remain “Nimble” Adjust in Season



2016 Onion Crop ... it was dry

At Brix Bounty our N budget for the season included alfalfa meal composted chicken manure, and crab meal plus a starter of Chilean nitrate

Sidedressing b/c dry conditions decided > additional Chilean nitrate

Sierra Blanca Onions June 29, 2016



Amendment & Fertilizer Resources



Progressive Grower (West Wareham)
Kreher's, Lancaster Ag, Fertrell, etc.

Organic Gem (Liquid Fish in New Bedford)

NOFA/Mass Bulk Order (deadline Jan 31 each year)

Bionutrient Food Association – Mineral Depots

Crop Production Services

Fedco Organic Growers Supply

Thank You



For more information on this presentation contact:

Derek Christianson
Brix Bounty Farm
1 Seth Davis Way
Dartmouth, MA 02748
508-992-1868
derekchristianson@gmail.com

