Agenda

- Overview of Brooklyn Grange
- Conservation Areas:
  - Compost and Nutrient
  - Water
  - Soils
WE WROTE A BOOK ABOUT THE FARM

The book describes our experiences from an entrepreneurial standpoint. The story includes technical decisions and problem solving, marketing, business decisions, and the complexities of running a sustainably minded business in the real capitalist world.
2010 – 1st Farm
2012 – 2nd Farm

NYC DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP)

$600K

$120K

$100K

LANDLORD

BG
Vegetable Sales Channels

- Wholesale (restaurants and grocers)
- Markets
- CSA
NEW YORK CITY
5 MILE RADIUS (8 KM)
Chickens
Composting
Agenda

- Overview of Brooklyn Grange
- Conservation Areas:
  - Compost and Nutrient
  - Water
  - Soils
Composting
MICRO-BIN COMPOST SYSTEM

Bottom View (Looking Up)

- Back panel
- Right side panel
- Detail 3, Sheet 13
- Perforated pipe oriented with the holes facing down.
- Pressure treated 2x4 footer board, laid flat
- Front slip boards
- Left side panel
- 6'
- 2x6
- 2x4

O₂Compost
Compost Systems & Training

BARN PROS
EQUESTRIAN FACILITIES
NATIONWIDE

Reviewed by: Peter Moon, PE
Bottom View (Looking Up)

Designed by: Derrick Santos, EIT
Micro-Bin 4x6 T&G

2012

12 of 15
# Soil Report

**Job Name:** Brooklyn Grange  
**Company:** Brooklyn Grange  
**Date:** 4/25/2017  
**Submitted By:**

<table>
<thead>
<tr>
<th>Sample Location</th>
<th>BNY West</th>
<th>BNY East</th>
<th>LIC West</th>
<th>LIC East</th>
<th>E-MH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab Number</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>Sample Depth in Inches</td>
<td>143</td>
<td>144</td>
<td>145</td>
<td>146</td>
<td>147</td>
</tr>
<tr>
<td>Total Exchange Capacity (M.E.)</td>
<td>16.82</td>
<td>19.63</td>
<td>15.31</td>
<td>15.66</td>
<td>6.47</td>
</tr>
<tr>
<td>pH of Soil Sample</td>
<td>7.4</td>
<td>7.6</td>
<td>7.6</td>
<td>7.5</td>
<td>6.4</td>
</tr>
<tr>
<td>Organic Matter, Percent</td>
<td>29.54</td>
<td>19.65</td>
<td>14.33</td>
<td>13.06</td>
<td>2.45</td>
</tr>
</tbody>
</table>

## Anions

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SULFUR:</td>
<td>p.p.m.</td>
<td>17</td>
<td>59</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>Mehlich III Phosphorus:</td>
<td>P / O</td>
<td>981</td>
<td>1508</td>
<td>960</td>
<td>1061</td>
</tr>
</tbody>
</table>

## Exchangeable Cations

<table>
<thead>
<tr>
<th></th>
<th>Desired Value</th>
<th>Value Found</th>
<th>Deficit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALCIUM:</td>
<td>lbs / acre</td>
<td>5110</td>
<td>6290</td>
</tr>
<tr>
<td>MAGNESIUM:</td>
<td>lbs / acre</td>
<td>729</td>
<td>644</td>
</tr>
<tr>
<td>POTASSIUM:</td>
<td>lbs / acre</td>
<td>524</td>
<td>612</td>
</tr>
<tr>
<td>SODIUM:</td>
<td>lbs / acre</td>
<td>29</td>
<td>39</td>
</tr>
<tr>
<td>Calcium (90 to 70%)</td>
<td></td>
<td>75.96</td>
<td>80.12</td>
</tr>
<tr>
<td>Magnesium (10 to 20%)</td>
<td></td>
<td>18.06</td>
<td>13.67</td>
</tr>
<tr>
<td>Potassium (2 to 5%)</td>
<td></td>
<td>1.60</td>
<td>1.97</td>
</tr>
<tr>
<td>Sodium (5 to 3%)</td>
<td></td>
<td>0.38</td>
<td>0.44</td>
</tr>
<tr>
<td>Other Bases (Variable)</td>
<td></td>
<td>4.00</td>
<td>3.80</td>
</tr>
<tr>
<td>Exchangable Hydrogen (10 to 15%)</td>
<td></td>
<td>0.00</td>
<td>3.80</td>
</tr>
<tr>
<td>Boron (p.p.m.)</td>
<td></td>
<td>0.84</td>
<td>0.97</td>
</tr>
<tr>
<td>Iron (p.p.m.)</td>
<td></td>
<td>176</td>
<td>194</td>
</tr>
<tr>
<td>Manganese (p.p.m.)</td>
<td></td>
<td>32</td>
<td>37</td>
</tr>
<tr>
<td>Copper (p.p.m.)</td>
<td></td>
<td>5.03</td>
<td>6.54</td>
</tr>
<tr>
<td>Zinc (p.p.m.)</td>
<td></td>
<td>19.25</td>
<td>25.8</td>
</tr>
<tr>
<td>Aluminum (p.p.m.)</td>
<td></td>
<td>128</td>
<td>88</td>
</tr>
</tbody>
</table>

**Logan Labs, LLC**
Agenda

- Overview of Brooklyn Grange
- Conservation Areas:
  - Compost and Nutrient
  - Water
  - Soils
Irrigation

- Manifold with 10+ zones for watering.
- Combination of drip and aerial zones, on timer
- Includes Mazzei fertigation unit

- Drip Irrigation system
- 2 lines per row
- 8” Spacing of holes
Wobblers
Water Use at Navy Yard Farm

Gallons Per Month

- 50,000
- 100,000
- 150,000
- 200,000
- 250,000

2016
2017

Year:
- Jan
- Feb
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December
Agenda

- Overview of Brooklyn Grange
- Conservation Areas:
  - Compost and Nutrient
  - Water
  - Soils
Relative size of soil grains (photo courtesy of U. of Nebraska-Lincoln Cooperative Extension at http://www.ianr.unl.edu/pubs/fieldcrops/g964.htm#sw/)

Soil Contents
- Air 25%
- Water 25%
- Mineral Particles 45%
- Organic Matter 5%

Organic Matter
- Humus 80%
- Roots 10%
- Organism 10%

chart source: http://www.physicalgeography.net/fundamentals/101.html
Soil Structure and Its Effects on Absorption

- **Single Grain**
  - Rapid

- **Blocky**
  - Moderate

- **Platy**
  - Slow

- **Granular**
  - Rapid

- **Prismatic**
  - Moderate

- **Massive**
  - Slow
Green Roof Media
FLL\textsuperscript{1} Particle Size Distribution Graph
for Intensive Systems

![Graph showing particle size distribution for FLL guidelines on soil composition with clay, silt, sand, and gravel fractions.](image)

- **FLL Guidelines:**
  - Intensive Green Site

- **Graph Axes:**
  - Y-axis: % Sum of Particles
  - X-axis: Particle Size (mm)

- **Legend:**
  - FLL Limit
  - Sample SM06000 (Data points represent particle size measurements)
THANK YOU

EMAIL: ben@brooklyngrangefarm.com
Appendix
Quick Harvester – *Farmer’s Friend*
4-Row Seeder

Johnnys
Tilther
Johnnys

https://goo.gl/photos/LL1pFiyySqd3JhLA
THANK YOU
EMAIL: ben@brooklyngrangefarm.com