

## 2014 MOSES Conference - Farming in the City

28 February 2014

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To find this handout and supporting documents on the web, please see the farmer resources page on the FairShare CSA Coalition website. Scroll down to find the 2014 MOSES conference under Conference/Workshop materials: <http://www.csacoalition.org/our-farms/resources-for-farmers/>

### Intensive Vegetable Production – Alex Liebman

Guiding questions:

- How can we maximize use of space and time while minimizing labor expenditures?
- What is the best way to build soil while maximizing production capacity of small plots?
- How do we extend the season with low-input, portable technologies?
- What is the best way to diversify our operation while not creating overbearing complexity?

Succession Planting:

Successions are vital to the success of an urban farm operation. They can make up for limitations in space by maximizing/increasing the amount of time that the ground is covered by crops.

Principles of succession planting:

- Fill each piece of land with as many crops as possible throughout the growing season
- Switch among crop families to reduce risk of insect or pest damage
- Begin as early as possible in the season and continue as late as possible
- Low-cost season extension is vital: i.e. remay and low-hoops with plastic

Important considerations for successful succession production:

1. How many days from planting until harvest?
  - Keep records for all crops
  - Group crop varieties that mature at similar rates to allow for transition of beds  
*Example: If all onions are planted in one block, keep fresh onions separate from storage onions so that beds can be opened and transitioned to succeeding crops as onions mature.*
2. How will I prepare the soil for the succeeding crop?
  - How will I handle residue from preceding crop?
    - Crops such as radishes, carrots, or lettuce heads in which the entire plant is pulled from ground are excellent preceding crops for finely seeded plants (e.g. salad mix)
    - Keep large amount of finished compost on-site for easy availability and remove plant material off field for composting
    - Mow salad greens, arugula, etc. as close as possible to ground, till lightly
    - Effective weed control is vital as limiting weed growth facilitates easier transition from crop-to-crop
  - What will I use to prepare the bed?
    - Stone's Throw Urban Farm uses a BCS walk-behind tractor with rototiller attachment for quick turnover
    - If minimal residue is present, a scuffle hoe and garden rake are effective tools
  - What are the nutrient and various cultural requirements of each crop?
    - Soil tests are vital to make sure nutrient levels are not decreasing over time; soil is not becoming more acidic, etc.

3. What are the irrigation requirements of each crop?
  - Plan crops to minimize changes in irrigation equipment throughout season  
*Example: spring planted salad greens likely do not require irrigation, tomatoes planted directly into salad greens solely require one line of drip irrigation*  
*Example: carrots --> arugula --> spinach all use overhead sprinklers, only need to install one irrigation system*

Strategies for soil building within intensive vegetable production:

1. Spring mulching
  - Hay/straw to protect soil moisture, suppress weeds, and build soil organic matter
  - Sometimes mulch WITH seed can be a blessing in disguise  
*Example: Straw advertised as “seed-free” actually had rye seeds (but no weed seeds) embedded when we mulched our tomatoes. At first we were quite aggravated, but then found that a small amount of management - weed-wacking the re-seeded rye a few times in the season - allowed us to simultaneously mulch our field, grow a rye cover crop for the whole summer, and produce excellent tomatoes.*
2. Spring cover-crops
  - Underseeding clover beneath straw mulch can improve germination of clover, allows clover to slowly grow throughout the season, while mulch keeps weeds to a minimum.
3. Fall mulching
  - Leaf collection from alleyways: Hundreds of pounds of biomass can be collected with pick-up truck and trailer in a matter of minutes.
  - Landscape companies are often pleased to dump shredded leaves at urban farm sites.
  - Need to be careful not to acidify soil or add too much carbon. Carbon increase can be mitigated by selective application of nitrogen fertilizer to root zone of crop
4. Summer cover-crops
  - In late summer, broadcast seed beneath existing crops (e.g. kale, tomatoes). Effective cover crop mixes might be oats and peas or rye and vetch
  - We have experimented with a buckwheat cover crop between tomato beds for several years
    - Does not stand up well or regrow with repeated trampling
    - Buckwheat also performed well between rows of cucurbits
  - For cover crop success:
    - Germination is highly moisture dependent. Irrigate if necessary
    - Seed heavily if soil conditions are poor. Seed may be relatively cheap compared to the soil cover and erosion control that is contingent upon good cover crop establishment.

Sample successions:

Crop	Date	Notes
Salad Mix	4/15 - 5/12	Mow to ground, add 1" compost, till, shape bed, allow 1 week for decomposition before planting succeeding crop
Carrots	5/19 - 8/1	- keep clear of weeds, compost plant residue off-field, add 1" compost, till, reshape, plant succeeding crop immediately
Spinach	8/2 - 9/15	- water well during August heat for adequate germination/growth, harvest in early Sept., recut early Oct.

Crop	Date	Notes
Onions	4/15 - 7/25	- Keep clear of weeds (as best as possible), plant similar varieties for even maturation, compost weeds off-field, add 1" compost
Kale	8/1 - 12/1	- use kale transplants (started 6/20) for improved success, harvest throughout fall/early winter
Rye/vetch/clover cover crop mix	9/10	- Underseeded after final cultivation of kale planting, broadcast and scratch with rake/ho

Crop	Date	Notes
Salad mix	4/25	Plant densely
Tomatoes	5/15	Transplant <i>directly</i> into salad mix, clear 4" diam. circle for each plant. Harvest salad mix <i>around</i> developing tomato plants.
Buckwheat cover crop	6/10	Direct seed in between tomato rows (keep records, adjust dates to time flowering with development of tomato flowers for pollinator attraction)
Leaf mulch	11/1	Clear tomato plants, compost off-field, apply collected leaves on to field ~3-4 inches depth

Crop	Date	Notes
Mammoth clover	4/15	Field prepped, clover broadcast and incorporated with tiller in final bed preparation
Peppers	5/20	Transplanted
Straw mulch	6/10	Peppers hoed around plant, clover begins to cover entire field, straw mulch laid to smother weeds

## Labor Management – Claire Strader

Resources for selecting the team:

- Farm Commons – [www.farmcommons.org](http://www.farmcommons.org). The section on “Resources for Farmers and Advocates” has many resources including guides on internship and apprentice programs as well as resources for hiring employees and worker shares.
- *Internships in Sustainable Farming: A Handbook for Farmers* by Doug Jones, 1999. Available on the NOFA website at: <http://mofga.org/Portals/2/Files/internshiphandbook.pdf>

Getting buy in from the crew:

- Formal and informal learning opportunities
  - Annual Orientation – for everyone, including worker shares and volunteers
  - Monday morning field tour – for interns and regular staff
  - Classes – as simple as a book discussion or as detailed as a workshop on crop planning
  - Discussions in the field and over lunch
  - Field tours of other farms
  - Intern solo week – where the interns run the farm on their own for a week culminating in the final CSA pickup of the season
- Provide excellent training and then create opportunities for interns and regular staff to take on some training and supervisory responsibilities. These opportunities, if managed well, can:
  - Reinforce and enhance workers’ knowledge of the tasks by requiring them to train others
  - Increase workers’ sense of responsibility to a job well-done and to the farm overall
  - Allow workers’ to practice important time and labor management skills themselves
  - Deepen workers’ understanding of the farmers’ job
  - Create a sense of pride in workers’ individual and team abilities

Resources for training and leading the crew:

<http://www.csacoalition.org/our-farms/resources-for-farmers/> scroll to the “2014 MOSES Conference”

- *Troy Community Farm Intern Training Manual* by Claire Strader, 2004, updated for 2012  
Includes detailed information on how things are done on the farm, complete with photos and the full 2012 crop plan. All interns read the manual in their first week on the farm and use it as a reference throughout their internship and beyond.
- *Troy Community Farm Worker Handbook* by Claire Strader, 2007, updated for 2012  
Includes information for all interns, worker shares, and volunteers who will work on the farm and guides the on-site orientation that all workers attend in May. All workers read the handbook before arriving on the farm and have the opportunity to actually see the tools and facilities and to ask questions during the orientation.
- 2012 Troy Intern Class Schedule
- Troy Harvest Task Sheets: <http://tinyurl.com/ky2rkcg>  
This link will take you to the harvest task sheet information on the SARE site. The development of these sheets was funded by SARE. Scroll to the bottom of the page to find links to the final report and the task sheets themselves. The sheets are used by the crew leaders to help teach and supervise harvest tasks.

## Sample Harvest Task Sheets:

### SCALLIONS

Harvest Goal: bunches \_\_\_\_\_

Field Location: \_\_\_\_\_

# on crew: \_\_\_\_\_

Start Time: \_\_\_\_\_ End Time: \_\_\_\_\_

#### FIELD HARVEST PROCEDURE

**Equipment Needed:** • small square buckets (1 bucket for 10 bunches)  
• clipper bucket

**Harvest Method:** Jobs: 1) Harvester/Puller = lead on job 2) Clipper

*One harvester/puller should be able to pull for 3 or 4 clippers.*

#### Harvester/Puller

1. Harvest bed evenly from one end to the other unless instructed otherwise by farmer.
2. Pull one scallion bunch per harvest goal to start. More scallions may be needed to fill buckets in the end, but this method will ensure against over harvesting.
3. Pull up scallions by the bunch and quickly shake the dirt from the roots.
4. Pile scallions in convenient piles based on the # of Clippers and easy reach of Harvester.
5. When done harvesting, join the Clippers until more scallions are needed in order to fill buckets.

#### Clipper

1. Kneel on the ground with the harvest bucket laying on the ground beside you on the same side as the clipper hand. The scallion pile will be on your non-dominant side, roots facing bucket.
2. Pick up a bunch. Clip roots & dirt from the scallion close to base, but not cutting base.  
*Clippers are not sharp. It is best to jam them onto root ball and cut/rip roots away with 1 or 2 cuts.*
3. Pack scallions into bucket roots first, as full as possible.
4. Bring full buckets and all equipment to wash shed.

### SCALLIONS

Harvest Goal: bunches \_\_\_\_\_

# on crew: \_\_\_\_\_

Start Time: \_\_\_\_\_ End Time: \_\_\_\_\_

#### WASH SHED CLEANING & PACKING PROCEDURE

**Equipment Needed:** • rubber band basket • compost crates  
• deep packing crates • scissors • wet topper towels

**Cleaning/Packing Method:** Jobs: 1) Bunchers 2) Finisher (only 1 needed)

#### Prep

1. Empty 2 buckets on wash table with roots facing field. Separate clumps into individual scallions.
2. Spray roots with water under pressure to remove dirt, moving aside clean handfuls.
3. Fill remaining scallion buckets with water to loosen dirt while waiting to be cleaned.

#### Bunching *Farmer will provide an example bunch for size and quality.*

1. Clean each scallion by removing any discolored outer leaves (generally one) and hold cleaned scallions in non-dominant hand to make a bunch. (Do not put down cleaned scallions for bunching later.)
2. When bunch size and quality matches example, wrap with rubber band twice at base to keep bunch tight.
3. Pile dirty bunches together on one side of the table.
4. When table holds only enough scallions for 10-15 bunches, one buncher moves remaining scallions to one side and starts again at Prep Step 1 (skipping Step 3) while others continue bunching.

#### Final Clean/Packing – Finisher *Generally finisher is spraying dirty unbunched scallions & dirty finished bunches.*

1. Spray dirty bunches individually and move each into a clean pile, being careful not to damage leaves.
2. Measure cleaned bunch to the length of a deep crate and hold tops at the point where they should be trimmed to fit the crate, maintaining as much of the full length as possible.
3. Trim scallion tops with a sharp scissor at the point marked with your hand so that trimmings fall into a compost crate.
4. Pack trimmed bunch into deep crate with tops flush with handle side of crate for a full layer. Alternate tops to other side for second layer, and continue alternating layers until crate is full. \*  
\* Pack a consistent # of bunches into each layer and each crate for easy final count.
5. Cover with dripping wet topper towel (do not extend over edges of crate) and load packed crate in the truck.
6. Record final # of bunches on harvest sheet.

**Clean up:** Put away rubber bands. Clean wash screen. Dump compost. Spray buckets to clean and stack to dry on wash screen.

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## 2014 MOSES Conference

### Farming in the City - Two Farm's Finances

	Claire Strader Troy Community Farm 2012	Alex Liebman Stone's Throw Urban Farm 2013	Other Farm Comparisons *
<b>INCOME (Market Break Out)</b>			
CSA	\$ 83,000	\$ 42,300	
Direct Wholesale	\$ 66,000	\$ 23,900	
Farmers Markets	\$ -	\$ 29,700	
Other (on-site farmstand & plant sale)	\$ 9,000		
Other (grants, education services)	\$ -	\$ 10,000	
<b>Gross</b>	<b>\$ 158,000</b>	<b>\$ 105,900</b>	
<b>INCOME (Land Based Break Out)</b>			
Products grown on farmland	\$ 99,000	\$ 95,900	
Products grown in greenhouse or other space	\$ 59,000		
Non-Produce income (grants, education)	\$ -	\$ 10,000	
<b>Gross</b>	<b>\$ 158,000</b>	<b>\$ 105,900</b>	
<b>EXPENSES</b>			
Employee Wages	\$ 57,500	\$ -	
Benefits	\$ 2,200	\$ -	
Workers' Comp/Payroll Taxes	\$ 8,000	\$ -	
<b>Total Labor</b>	<b>\$ 67,700</b>	<b>\$ -</b>	
<b>Payroll % of Gross</b>			
	<b>43%</b>	<b>0%</b>	<b>15% to 36%</b>
Seeds and Plants	\$ 9,000	\$ 10,330	
Soil Amendments	\$ 2,300	\$ 9,500	
Packing Supplies	\$ 4,200	\$ 1,890	
Real Estate Taxes or Rent	\$ -	\$ 2,680	
Marketing Expense	\$ 200	\$ 700	
Fuel	\$ 2,000	\$ 3,380	
Utilities	\$ 2,000	\$ 500	
Repair/Maintenance	\$ 1,500	\$ 120	
Farm Insurance	\$ 1,500	\$ 1,450	
Crop Supplies	\$ -	\$ 7,070	
Interest Expense	\$ -	\$ -	
Office, Phone, Misc.	\$ 1,000	\$ 2,400	
Harware Supplies	\$ 2,000	\$ 6,360	
Organic Certification	\$ 1,500	\$ -	
Other	\$ 4,600	\$ -	
<b>Total Expenses</b>	<b>\$ 99,500</b>	<b>\$ 46,380</b>	
<b>Net Farm Income **</b>	<b>\$ 58,500</b>	<b>\$ 59,520</b>	
<b>Net to Gross</b>			
	<b>37%</b>	<b>56%</b>	<b>27% to 48%</b>
Farmer Draw - Salary & Benefits	\$ 43,000	\$ 40,993	

### Farm Facts

Acres in Vegetables	3	2.5
Acres in fallow/managed cover crops	1	0
Total Acres	5	3
Farmers	1	4
Est. Annual Depreciation (not IRS rules)	\$8,000	\$8,153
Seasonal Operating Loans	\$0	\$0
Est. Total Farm Production Assets (no land)	\$50,000	\$44,580
Value of Dwelling	no dwelling	no dwelling
Total Farm Debt	\$0	\$14,500
Non-farm Employment and Percent	0	yes, 30%
Total Farmer Years Experience	18	12
Years in Operation on this Farm	12	3
Average Farmer Hours Worked per Week During:		
March - November	41	220
December - February	25	75
Labor (total number of seasonal FTEs) ***	4	0.75
Average daily crew size in peak season ***	12	3
Average weekly crew size in peak season ***	30	12
Total Farmer Labor Hours, extrapolated	1909.2	9481.5
Farmer Hours per vegetable acre	538	3465
Non-farmer hours per vegetable acre	2100	473

Source of Capital grants, donations, grants, donations, profits profits

Market Details CSA - 150 FSE CSA - 90 FSE  
 7 grocery stores 15 restaurant/wholesale accounts  
 on-site farmstand 1 farmers market  
 annual plant sale  
 vegetable landscaping business - not included in number

<b>Total People (FTE) per acre</b>	<b>1.7</b>	<b>1.9</b>	<b>0.6 - 1.2</b>
<b>Total Hours per vegetable acre</b>	<b>2638</b>	<b>3938</b>	<b>1251 - 2426</b>
<b>Gross per Acre \$</b>	<b>33,000</b>	<b>\$ 38,360</b>	<b>\$10,323 - \$53,786</b>
<b>Net per Acre \$</b>	<b>16,833</b>	<b>\$ 19,808</b>	<b>\$3,358 - \$16,578</b>
<b>Farmer Hourly Wage \$</b>	<b>22.52</b>	<b>\$ 4.32</b>	<b>\$2.77 - \$20.30</b>
<b>Assets per acre \$</b>	<b>16,667</b>	<b>\$ 17,832</b>	<b>\$13,090 - \$44,286</b>
<b>Assets to Gross</b>	<b>0.3</b>	<b>0.4</b>	<b>0.8 - 3.1</b>

\* Taken from other presentations with this same form format. There are no urban farms represented in this column.

\*\* Before income taxes and depreciation. Expenses do NOT include capital purchases or wages for the farmers.

\*\*\* Does not include farmers.

**These figures are presented for educational purposes only and may not correspond to official records such as IRS or state tax returns. They represent two particular farms on two specific years and provide only a starting point to examine the financial realities of running an urban farm. Numbers from other farms may vary considerably based on a host of factors including: scale, off-farm income, experience, etc.**

*Thanks to John Hendrickson (Center for Integrated Agricultural Systems, UW-Madison) for developing this format and allowing us to modify it for this purpose!*