

Field Planning for a Beginning Vegetable Farm

Lacewing Acres'
PFI Field Day
8/7/16

LACEWING
ACRES :

Chapter 1

Lacewing Acres

- Est. 2013
24 member
CSA + Ames market +
small number of business
& restaurant sales
- 2014: 40 member CSA +
Ames market + some
restaurant sales
- 2015: 50 member CSA +
Ames market + restaurant
sales + FarmTable Delivery



2016

58 member CSA
Some restaurant sales

Dropped the farmers' market



2016

LACEWING ACRES CSA

Ⓞ CERTIFIED ORGANIC VEGETABLES

Ⓞ \$500 for 20wks of DELIVERIES
Ⓞ 6-9 ITEMS/WK

← EAT MORE OF THIS.

Ⓞ FARM LOCATED JUST 6miles
FROM DOWNTOWN AMES

DROP SITES @ WHEATSFIELD + FARM
OPTIONAL HOME DELIVERIES \$115/SEASON

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LEARN MORE!

Plot Size & Layout

- Water & Electric access
- Contours /Topography
- Efficiency of harvest and weeding – Gate orientation, Equipment turnaround
- Perimeter fencing
- Pathways spacing & management
- Room to grow!

Spectrum of Structured Squares - CrazyQuiltContours!

Bed size & length

- Standardize Beds, vary length as needed
 - “Provide a deep, level, aerated and finely textured seedbed to seed or transplant into
 - Good air and water drainage – essential for plant health
 - Uniform spacing for ease of weed control and harvesting”
- Beds by hand = Lots of measuring/walking
- Beds by tractor = Width of tractor straddle
 - 4', 5', 6' beds
 - Set all tractors&equipment to this spacing
 - Rows no less than 12” apart, with at least 6” shoulder
- Useful Resources: [Rodale Institute](#), [Business Handbook](#)



Lacewing Progression – Plot size, layout & Bed system

2013

2014

2015

2016



Rotations

Control

- Pests
- Disease
- Weeds
- Rotate for nutrients
- Keep it simple...to start.
- Think about timing – what goes in early, what comes out late, what stays all year!
- Give yourself as much room as you can!



SARE's Rotation Planning Steps

- (1) organize your information,
(2) develop a general rotation plan (optional),
(3) construct a crop rotation planning map,
(4) plan future crop sequences for each section of the farm, and
(5) refine your crop sequence plan
- Lots of tools online, but some basic ones:
 - <http://www.neon.cornell.edu/croprotation/>
 - [SARE](#)

Excel for Rotation Planning

| | 3 Acres | | | | | | Acre #4 | | Acre #5 | | | | |
|----|----------|---|---|---|--|---|---|--|--|---------|---|--|--|
| | Field #: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| 1 | Winter | Garlic | Alfalfa - Will be moldboard plowed & disked early spring 2015 | | | | | | | | | | |
| 2 | Spring | Allium/Early Mix & Greenhouse | | | | | | Early Legumes | | | | | |
| 3 | Summer | Allium & Greenhouse | *Potatoes - MULCH* (& Swt Pots mg fam) | Toms/Peeps/Egg/Toma underseed clover, Long-season Goose | | | Early Col Crops into mid-summer | late-summer and fall Col crops | | | | | |
| 4 | Fall | Tunnels | Mulched/Oats&Peas Cover | | Cucurbits - leave clover paths & underseed clover after last cultivation | | Late Legumes/Oats Peas Cover | Oats/Peas/Amendments | | | | | |
| 5 | Winter | Full season & early Col Crops into mid-summer | Alliums/Winterkilled O&P | | Rye | Rye | Rye | Rye | Alfalfa | Alfalfa | | | |
| 6 | Spring | Summer | | | | Early Legumes | | | | | | | |
| 7 | Fall | Late Legumes/Oats Peas Cover | Late Col & Legumes | Early greens, legumes and roots, Late Col crops | *Potatoes - MULCH* (& Swt Pots mg fam) | Toms/Peeps/Egg/Toma underseed clover, Long-season Goose | Cucurbits, with some early greens/legumes | | Successions of cover crops to prep for late 2016, early 2017 plantings | | | Alfalfa, managed by Prairie Bloom Farm | |
| 8 | Winter | | | | | | Option: Overwinter Allium/Goose under low tunnels, or Oats/Peas | | | | | | |
| 9 | Spring | | Clover | Clover | Winterkill | Winterkill | | | | | | | |
| 10 | Summer | | | Early Legumes | Early Mix | Alliums/Buckwheat or legumes as they come out of production | *Potatoes - MULCH* (& Swt Pots mg fam) | | | | | | |
| 11 | Fall | Tunnels Rotation | | late-summer and fall Col crops | mid season Legumes | | | clover paths & underseed clover after last cultivation | clover paths & underseed clover after last cultivation | | | | |
| 12 | | | | Oats/Peas/Amendments | Late Mix/Oats/Peas | Late Mix/Oats/Peas | Garlic/Alliums | | | | | | |
| 13 | Winter | | Winterkill | | Winterkill | | | Clover | Clover | | | | |
| 14 | Spring | | Early Mix | | | | | | | | | | |
| 15 | Summer | | | | | | | | | | | | |
| 16 | Fall | | | | | | | | | | | | |

Julia Slocum:
Thistle problem here - Potatoes to cultivate heavily, then mulch

- My simplified rotation = Allium -> Brassica -> Solanacea -> Cucurbit -> Allium
- Rationale = weed control, and alternating root vs leaf/flower crop
 - Will be adjusted as acreage is added, cover cropping increases and perennials are established

Intercropping, etc.



- Pros: Get more crops out of same space, address weed & pest pressure – less early season tillage in less than ideal conditions – less space to row cover
- Cons: Too crowded – might cause delay! Can exacerbate pest and disease if too densely planted, Timing can be tricky & frustrating
- Use more, shorter beds for less intercropping
- *Balance ease of transitioning beds with lost space to pathways

Relay/Succession planting

- Planting one crop after another in the same space
- Essential for CSAs and consistent product at market
- Caution: It's easy to get carried away – Must build cover cropping into your planting plan!

Beginner challenge – When to till a crop in? – Might still be producing, but how much? And how long does it take to harvest?

Give yourself space!





Lacewing Progression

2013, 2014, 2015, 2016

Working toward less!

Cover Crops

- Know your objective: Build organic matter? Suppress weeds? Add nitrogen? Improve tilth? Prevent erosion?
 - Many will accomplish multiple objectives, but know your goal!
 - Overwinter or winterkill?
- Midseason cover cropping
- Start with tried & true
- Learn about more diverse plantings from more experienced growers
- Success with cover cropping often depends on proper equipment!
- Resources: <http://articles.extension.org/pages/67876/using-cover-crops-in-organic-systems:-resources-and-research-from-sare>

[Cover crop for veggie farm Farminar](#)

Cover Cropping – Lacewing Progression

Lots of challenges!

- Seeding thick enough!
- Broadcasting vs. roller vs. grain drill!
- Early enough to get established!
- Planning ahead and making it a priority for mid-season cover cropping!
- Hard in dry seasons without sprinklers!

- Getting better every year, but it's tough!

Equipment - Tillage

- Rototiller (BCS vs 3pt)
- Spader
- Perfecta
- Ferguson (Wiswall!)
- Chisel plow
- Moldboard plow
- Subsoiler



- Mark rows mechanically so you can cultivate mechanically!
- Never till when soil is too wet = planting into construction gravel...for years.

If your soil takes too long to dry out,
consider relocating!



Equipment - Weeding

- One year's seed is seven years' weed
- Know your weeds and how to prevent infestations
 - Avoid areas with seriously problematic weeds
 - Hand tools & hoes
 - ♥ Wheel hoes <-
 - Cultivation implements
 - Lely, shanks, etc
 - Cultivating tractors
 - Baskets
 - Finger weeders
 - Sweeps & more!
- Other tools: Flame weeding, burlap/ground cloth covers

Resources: Wiswall's Business Handbook, [PSU weed guide](#)

Weeding – Thoughts on Mulch

- Ground covers: landscaping fabric, layers of cardboard, black/red/silver/white plastic, etc...
- Organic mulches
 - Straw, hay, leaves – look for weed seed and put it on thick!
 - MULCH IS GREAT, BUT tough to manage if existing weed pressure is intense
 - Once it's down you've got to hand pull...



Equipment – Seeding/planting

- Earthways (single and 3row bolted together)
- Jang
- Planet Junior
- 3pt seeding implements
- Transplanters vs hand transplanting

* Lots of transplanting at Lacewing due to weed pressure and not-so-confident direct seeding technique

Equipment – Other



- MOWING!
Weed whacker,
Push mower,
Riding mower,
DR, Deck mowers,
Flail mowers
- Pull-behind water tanks
- Trailers & hay racks
- Grain drill/packers for cover crop seeding
- Hilling disks, potato diggers, Middlebuster!
- Cone spreaders! Manure Spreaders!

Contracting for the big stuff!



Lacewing's Equipment Progression



Irrigation

- Drip vs Overhead – great farminar with Chris Blanchard on irrigation
- How will your irrigation strategy affect weed pressure and cultivation?
- Day-to-day ease of use?



Cooling



Wash Station



Lessons learned the hard way...



Back up your files & TAKE PICTURES – you will forget !
Don't till while too wet – they aren't exaggerating. It is not worth it.
Use "Rite in the Rain" notebooks or keep master copies in a safe, waterproof place! – EVERYTHING WILL GET WET. No, really.
Don't let thistle go to seed. Ever. Anywhere near your field. Evereverever. :/
Give yourself as much space as possible!
Kill rodents. :/ Even the babies. They will destroy everything.
Muster patience when direct seeding – a good stand is essential for efficient weeding and harvesting!
Keep field edges mowed, and don't try to use them for pollinator strips.
Use proper lifting techniques and use machines/carts for heavy loads as much as possible. WORK REDUCTION!

Other thoughts...





Questions? 😊

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To the field!

