Field Planning for a Beginning Vegetable Farm

Lacewing Acres' PFI Field Day 8/7/16

ACEWING

Chapter

ACRES

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

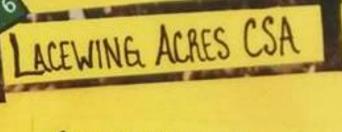


2016

58 member CSA Some restaurant sales

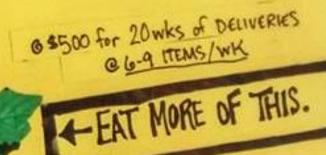
Dropped the farmers' market





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CERTIFIED DEGANIC VEGETABLES



G FARM LOCATED JUST LOWILES FROM DOWNTOWN AMES

OPTIONAL HOME DELIVERIES \$115/SEASON

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MORE

EARN

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: <u>Rodale Institute</u>, <u>Business Handbook</u>



Lacewing Progression – Plot size, layout & Bed system

(MASCHED

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:
 - <u>http://www.neon.cornell.edu/croprotation/</u>
 <u>SARE</u>

Excel for Rotation Planning

1				3 Acres							Acre #4 Acre #5				
2			Field #:	0	1	2	3	4	5	6	7	8	3	9 10	
			Winter												
				Allium/Early Mix &		, 별									
4			Spring	Greenhouse		Ę.				Early Legumes					
		5				/ Egg/ Toma clover, Long sse									
		2015		Allium &	*Potatoes - MULCH*	/Eg ctr			Early Col Crops into	late-summer and					
-			Summer	Greenhouse	(& Swt Pots mg fam)	e e c			mid-summer	fall Col crops					
					Mulched/Oats&Pea	ns/P lens	Cucurbits - leave clov	er paths &	Late Legumes/Oats	Oats/Peas/Amendm					
6			Fall	Tunnels	s Cover	Ton unc	2 * 2 * 2 * 2 * 2 * 2 * 2 * 2 * 2 * 2 *		Peas Cover ents				Alfalfa, managed by Prairie Bloom Farm		
			Winter	Full season & early	Alliums/Winterkille		Rye	Rye	Rye	Rye	Alfalfa	Alfalfa		í	
8			Spring	Col Crops into mid-	d 0&P			Early Legumes							
9		2016		summer											
1		2				Early greens,		Toms/Peps/Egg/Tom							
				Late Legumes/Oats		legumes and roots,	*Potatoes - MULCH*	toes - MULCH* a underseed clover,		Cucurbits, with some early		Successions of cover crops to prep for late			
1				Peas Cover	Late Col & Legumes	Late Col crops	(& Swt Pots mg fam)	Long-season Goose			2016, early 2017 plantings		Alfalfa, managed by Prairie Bloom Farm		
2			Winter Spring						Option: Overwinter A	· ·	Julia Slocum:				
1	1				Clover	Clover	Winterkill	Winterkill	low tunnels, or Oats/	Peas			RyeVetch	RyeVetch	
1	2					Early Legumes	Early Mix	Alliums/Buckwheat			A Thistle problem here Potatoes to cultivate				
		2017						or legumes as they			heavily, then mulch				
					Early Col Crops into	late-summer and	mid season	come out of			C	urbits - leave			
1	2		Summer		mid-summer	fall Col crops Oats/Peas/Amendm	Legumes	production	*Potatoes - MULCH*	a swirrots mgram)	clover paths &	clover paths &			
1	4		Fall	Tunnels Rotation			Late Mix/Oats/Peas	Late Mix/Oats/Peas	Garlic/Alliums		underseed clover	underseed clover		ns/Pepps/Eggs/Toma &:	
	-			runners kotation							after last cultivation after last cultivation		TEORIG-SERSON COU		
1	5		Winter		Winterkill		Winterkill		Garlic/Alliums		Clover	Clover			
1			Spring		Early Mix										
	_	8 1	-			A11:/m									
🛚 🕨 🔸 🕨 Crop Rotation 🖉 2016 Heldover 🦯 2015 Untreated Non-organic Seed 📝 Org 2016 Seed 🧹 2016 Not Organic 🏒 江															

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: <u>http://articles.extension.org/pages/67876/using-cover-</u> <u>crops-in-organic-systems:-resources-and-research-from-sare</u>

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

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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-soconfident 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









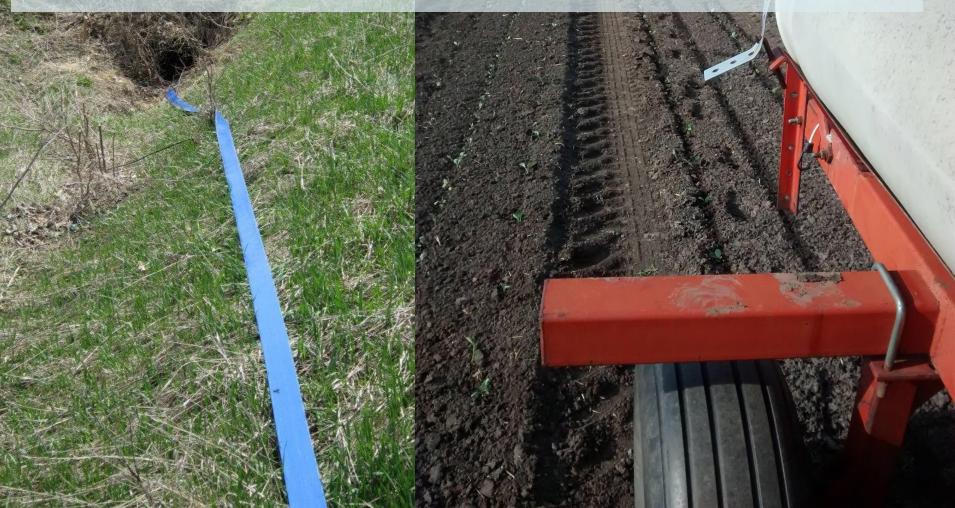




Irrigation

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? ③

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To the field!