



Season extension on our farm



Soils for Season Extension

- The best soil for season extension is the soil that you currently have.....
But...

Soils

- Sandy loam to Sandy is ideal
- Too sandy can be hard to irrigate early and late
- Too wet can be fine but needs to be bedded up well.... good for spinach and long season crops as holds nutrients well

Soil temperatures

Matching crops to soils

- different crops have different soil requirements
- sweet potatoes loves very sandy soil
- carrots need deep friable soils
- spinach is fine with clay as long as it is bedded up
- Melons love dry fertile soil

Land and Soil profile

Soil type	Crops	Acres
Bernardston-shaly silt loams	stays dry, early and late greens, melons, tomatoes, stony	4
Hamlin Silt loam	root crops, great for radishes, beets, carrots- no stones	8
Hartland sandy loam	class 1, general purpose, no stones	4
Vergennes Silty Clay	somewhat heavy, winter squash, brassicas, spinach, beans	5
Hoosick Gravelly sandy Loam	Sweet potato heaven...	1

Fertility management

- Season extension is not easy on the plants...
- therefore we want the best environment we can create
- Our goal is to create the BEST soil we can

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Account Number: 7027

Client: ALI

Sample ID: 1103

Field ID: 1103

Submitted By: MICHEL KERNICK

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Form ID: 1103

Field ID: 1103

SOIL ANALYSIS REPORT

Analysis Method:

Element	Unit	1103		1103		1103		1103		1103		1103		1103	
		ppm	%	ppm	%	ppm	%	ppm	%	ppm	%	ppm	%	ppm	%
Nitrogen	ppm	100	0.15	100	0.15	100	0.15	100	0.15	100	0.15	100	0.15	100	0.15
Phosphorus	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Potassium	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Calcium	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Magnesium	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Sulfur	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Zinc	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Copper	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Manganese	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Boron	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Iron	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Chloride	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Fluoride	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Silica	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Carbon	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Hydrogen	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01
Oxygen	ppm	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01	100	0.01





Disease

management

- Season extension is exposing crops to sub-ideal environments
- Early and late plantings are more vulnerable to wet, cold conditions which make them ripe for disease.
- As well, the soils are not warm which means that leaf yellowing/dieback is more prevasive- which leads to more disease.



Fighting disease...

- good soil health
- variety selection
- adding mycorrhizae
- not working the soil too early or too late- the clump test
- good air circulation- giving plants nessesary space, and uncovering so they can dry out
- clean seed, propagation trays, equipment

Sprays a last resort

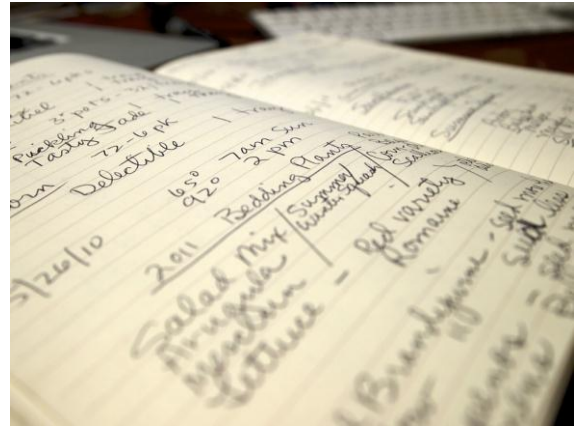
- Regalia, rootshield, actinovate
- Oxidate
- Double nickel, greencure, milstop, copper





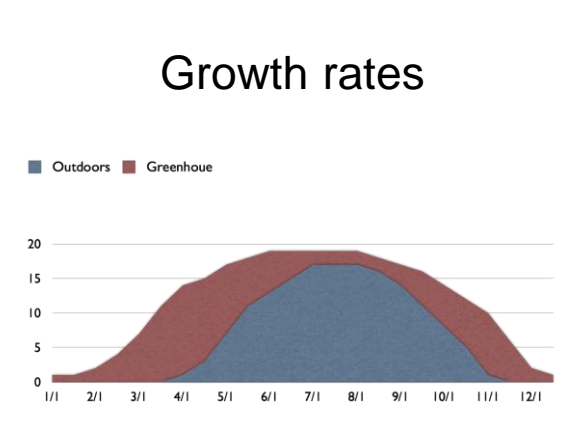
Planning our Season Extension

- look at what the market needs/is missing
- look at your weather patterns
- think about the growth patterns depending on the season



Micro Climates

- Occur on the top of a slope, by large bodies of water, in areas shielded by large natural barriers
- Can be 3-5 degrees warmer than surrounding areas
- Our granville field is constantly 3-4 degrees colder than the home farm



We always double
our last few plantings



Frost-sensitive crops

- Tomatoes including cherries
- peppers
- eggplant
- cucumbers
- squash
- okra

Hardy Crops

- Arugula
- Mesclun
- Lettuce Mix
- Spinach
- Asian greens
- Carrots

Succession plantings



- Squash and cucumbers
- beans
- lettuce and greens
- radishes
- beets, carrots
- herbs

Pick an date...

And then just keep on planting....

Get rid of the pre-conceived notions
of when crops can be produced

Looking at frost dates

- how early can you reasonably plant sensitive crops without heat?
- use a construction heater for those few days that it gets cold
- have rowcovers at the ready...











Flaming basics

- either used for stale seed bedding (before the crop is planted or blind cultivation (before the crop is up)
- idea situation: plant, wait till seeds are germinating but not above the soil yet, flame, seeds come up in weed free bed
- flame midday when plants and ground are dry
- hot as possible



Parsnips just coming up







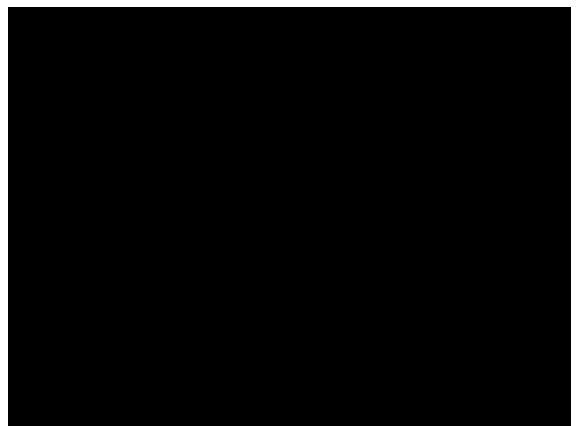






Biotello

- starts to breakdown within 2-3 months- gone by spring
- twice the cost of regular plastic(\$350 for 5000 ft)
- NOT OMRI yet- Certified in Europe, Canada
- has changed the way we farm- we are now adding organic matter easily while growing crops







What do row covers actually do?

- Trap heat and warms the soil
- reduce wind desiccation
- cut sunscalding/burning on crops
- keep frozen greens from thawing too quickly
- traps moisture reduces irrigation needs







Post-Harvest
and Storage





QuickTime™ and a Motion JPEG OpenDML decompressor are needed to see this picture.





harvest utensils











Root Celler

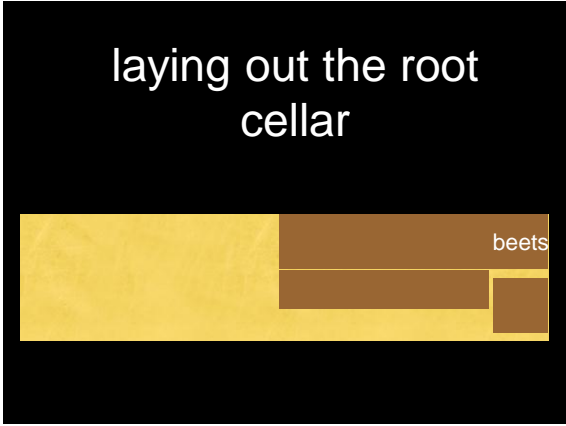
- 40 x 8 x 9 insulated shipping container
- Movable, no need for building around it
- \$15 thousand invested- holding \$60 thousand in product.
- 3 HP condenser- 2 evaporators



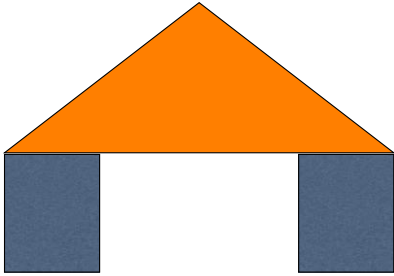
container sources

- www.keitonic.com
- www.jobsiteexpress.com
- ebay.com
- craigslist.com
- barrinc.com

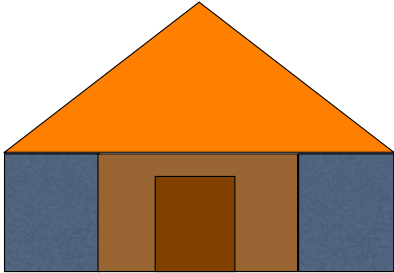


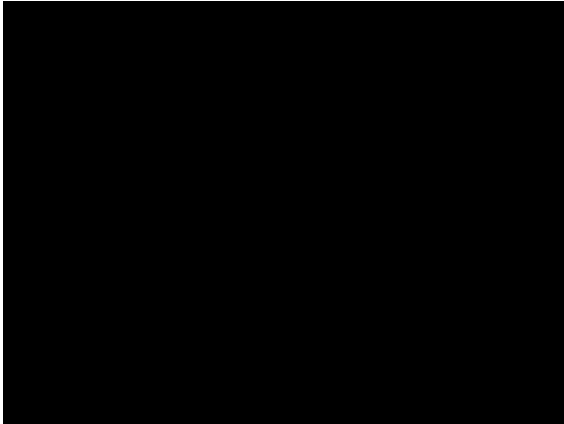


possibilities.....



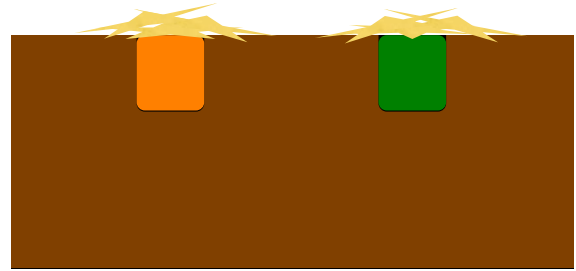
possibilities.....







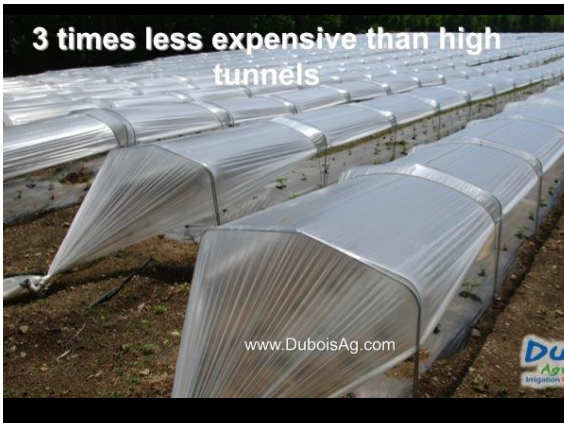
Root Pits



Jack Hedin
Featherstone Farm











- plants custom grown in Florida
- 3 rows on plastic, 8" apart
- Megaton and Lexton, Bandit for winter







Cultural techniques

- greenhouse plantings are trellised- 2 leaders clipped up
- hoop house plantings are basket-weave with 7 ft rebar in between 8 ft 2 x 2 stakes
- we pick into 2 gallon mushroom buckets and sort in washing shed







Varieties

- Socrates- smaller euro type- really good flavor
- Tasty Jade- long japanese type, customers love them!
- Diamant- good pickling variety- really productive!
- Need to pick self-pollinating varieties because of pollination

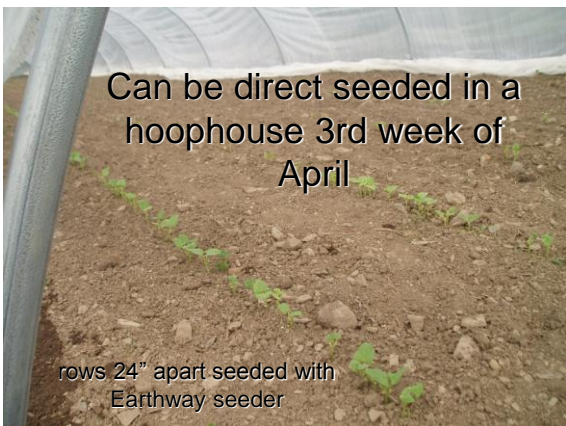
Strawberries

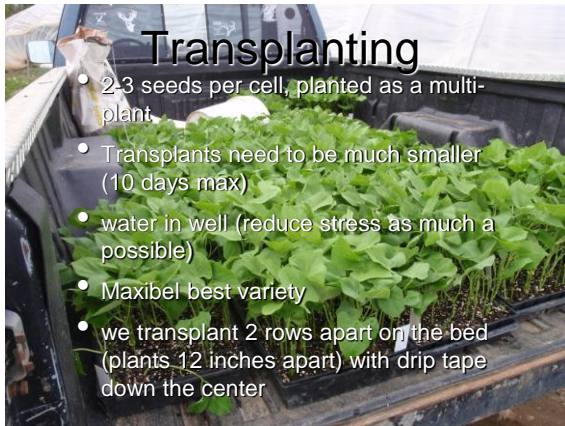
- Annual bed system- plant fall, harvest spring, till under
- Variety Chandler
- Buy in tips, propagate ourselves, plant in September





French Beans









- Spring seeding April 1st or so
- Fall planting seeded July 1st -10th
- transplanted on biotello- 3 rows 8" in row
- harvest before severe freeze



By the numbers...

- We charge \$3 a lb or 2.50 each for large fist sized
- good yield equals around \$8 per bed foot
- transplanted as soon as will come out of trays.
- average fertility although needs extra boron
- varieties: winner, kolibri, kossack



Sweet potatoes

- Favorite variety Covington
- on plastic, 2 rows 1 ft apart
- Planted with waterwheel





Cultivating constantly



Growing mid-summer



Spring harvest for
sweetest flavor



Pulling them out of
the mud





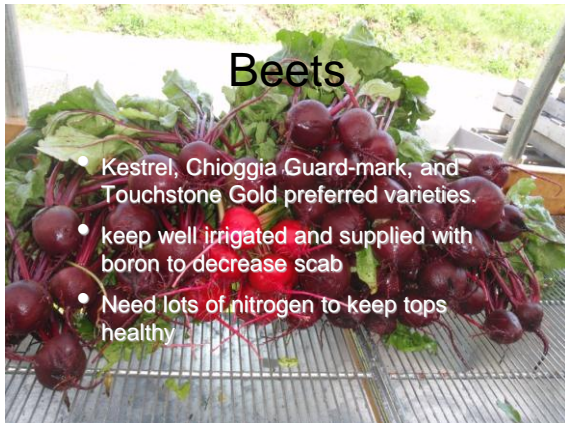
Turnips/radishes

- Member of the Crucifer family so appreciate high boron as well as steady moisture
- Hakurei turnip variety preferred during the summer and fall
- For radishes, Rover and Cherriette preferred.



Carrots

- Weed control is critical, a mixture of stale bedding, flame weeding and mechanical cultivation is key
- Bolero, Nelson, Rainbow and Yellow Sun are preferred varieties
- Watch fall carrots for alternaria and spray with copper
- LOVE loose friable soil, bed up and grow on sand



Beets

- Kestrel, Chioggia Guard-mark, and Touchstone Gold preferred varieties.
- keep well irrigated and supplied with boron to decrease scab
- Need lots of nitrogen to keep tops healthy



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