

Beyond Harvest Data: Looking Deeper to Find Causes of Yield Fluctuation

Raw Data for Summer Squash/Zucchini Harvest

	July	August	Sept	Total
2007	2862	1952	267	5081
2008	1110	1810	759	3679
2009	1279	1807	754	3840
2010	243	2480	1397	4120
average	1374	2012	794	4180
max	2862	2480	1397	6739

Initial Possible Conclusions

- 2007 is an anomaly and 4180 is a good average
- Capacity is 6700 if all goes well
- Early/Late succession plantings are boom or bust



Strips between garlic ready for planting - 2010

Split Out Zucchini from Summer Squash

	July	Aug	Sep
ssq 2007	1567	1098	194
ssq 2008	524	1042	523
ssq 2009	492	1038	417
ssq 2010	103	1296	824
average	672	1119	490
max	1567	1296	824

	July	Aug	Sep
zuke 2007	1295	854	73
zuke 2008	586	768	236
zuke 2009	787	769	337
zuke 2010	140	1184	573
average	702	894	305
max	1295	1184	573

Summer Squash

- Wide fluctuations early and late
- 1119 is a sound average for August yield

Zucchini

- Smaller range early and late – less to lose or gain in the fall
- Possible gain in August to reach capacity levels

Both

- Could have a much bigger benefit concentrating on early season than late if 2007 is to be believed



2007 First Planting

Eliminate Possible Row Foot Difference Variables

	PER FOOT	FIELD
ssq 2007	6.3	T1
ssq 2008	4	SW 1
ssq 2009	3.2	T2
ssq 2010	2.7	T3/E5
zuke 2007	4.9	T1
zuke 2008	2.7	SW 1
zuke 2009	2.9	T2
zuke 2010	2.5	T3/E5

Per Foot Yield of Multipik by Planting

	p1 July	p1 Aug	p1 Sep	p2 July	p2 Aug	p2 Sep	p3 Aug	P3 Sep
2007	7.5	3.9	0.3		2	0.5		
2008	0.9	3.6	0.1		2.4	4.2		
2009	2.2	2	1	1.3	2.9	0.8		0
2010	0.6	3.9	0.3		2.9	2.4	1.2	1.7

Remove variable for different cultivars and investigate different successions of that variety.

- Increase in September could be largely due to 3rd planting
- August yields remain consistent
- Parallel between 2008 & 2010
- Very wet 2007 fall results in early end of 2nd planting.

Possible Conclusion: There may be a cumulative problem in our fields. Or we have widely variable soil health.



2010 Succession Planting I



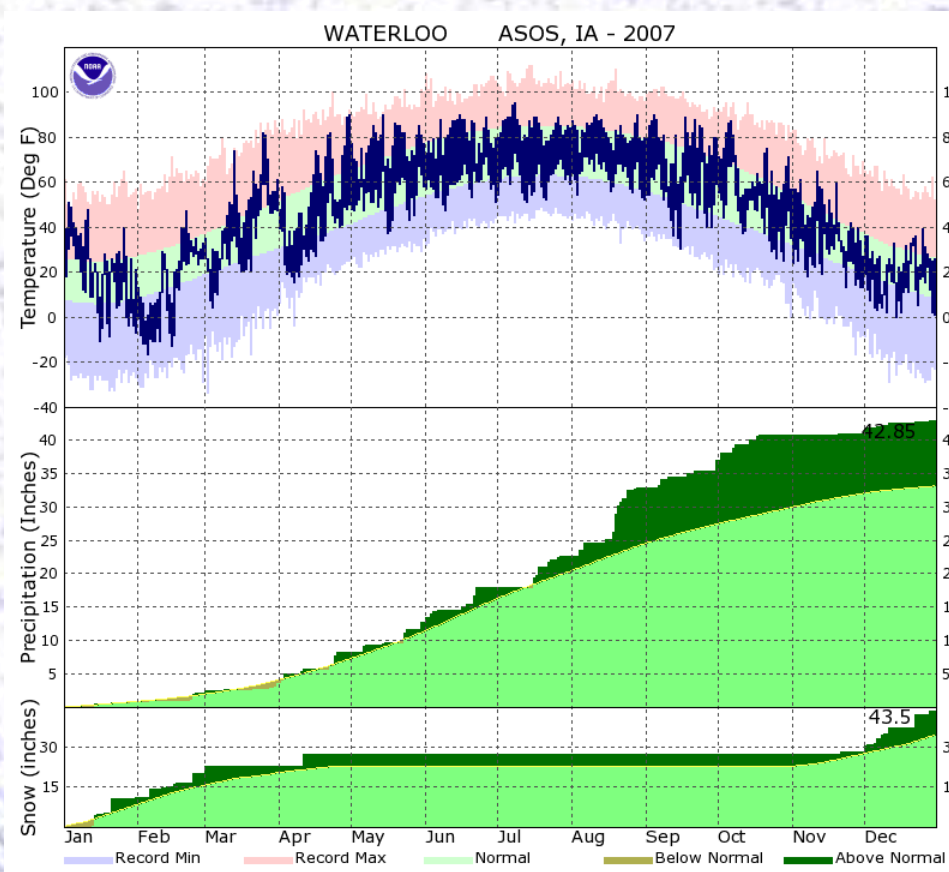
2010 Succession Planting III

Final Conclusions

- Fluctuations match weather patterns closely.
- Wet starts to 2008 & 2010 destroyed early crops, but late crops rewarded with long, late Fall
- Cool 2009 resulted in poor germination, necessitating earlier second planting and resulting lower yields for first planting.
- Soil Health tested similar for all plots with no dramatic changes from year to year in NPK and micronutrients
- August yields consistent within succession indicates Growing Degree Days are key
- Waterlogged fields may have locked up some nutrient uptake.

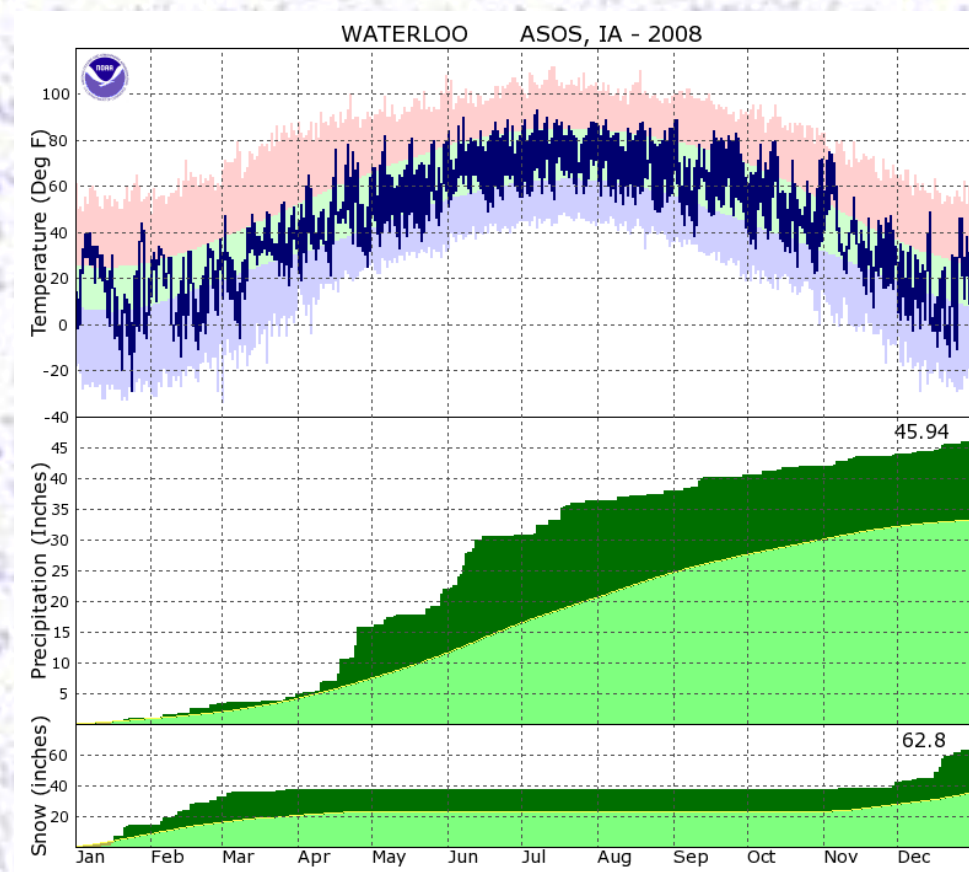
Recommendations for Future Years

- Succession One could move to transplants from direct seed and/or black plastic to heat soil
- Need to respond to wet fields, row hills are not quite adequate
- Tested for hardpan, work to break up sections with chisel plow & cover crop
- Move to four successions to take advantage of mid season strength and reduce flux on ends of the season.
- Consider growing more shorter season crops (such as these) to respond to weather extremes.
- Explore under-sewn cover crop to take up excess moisture



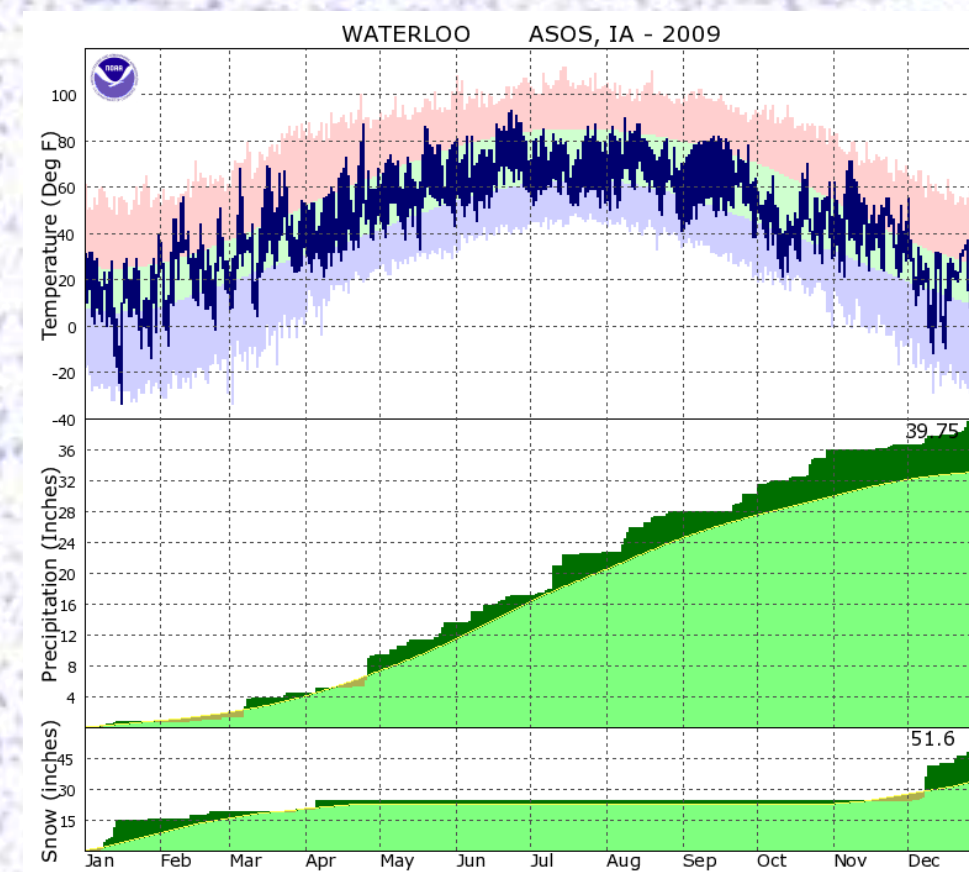
2007

Warm Spring to early Summer
Average Summer temps
Very wet fall beginning last August



2008

Below average temps most of year
Heavy rainfall Spring into Summer
Long moderate Fall and late frost



2009

Warm Spring
Slightly above average rainfall, consistent throughout year
Below average temps mid-Summer, average frost date, warm late fall

2010
Average Temperatures
Heavy rainfall late Spring through Summer
Late frost and warm Fall

