



Pettengill Farm Salisbury Ma



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and Organic Grower

Do Now

Who grows in the winter?

# Agenda

Show pictures of growing Aquaponically in unheated Hoophouses and Cellars during recent Massachusetts winters:

1. Pettengill Farm , Winter 2015, Salisbury Massachusetts
2. Ed's cellar , Winter 2016, Amesbury Massachusetts

# Objectives

Get growers thinking of at least two ways of more cheaply growing your Aquaponics foods in Winter.































2/8/11  
1:27

Air Temp  
Under Cover  
Air Temp  
Under Cover  
Water Temp



# Water Quality Chart for Winter Exhibit Hoop Academy Aquaponics Platfc

Time	Date	Air Temp (F)	Water Temp(F)	Manual	pH Litmus paper	pH APL
	11/13/2014			55.0	7.0	7.6
	11/16/2014	40		46.8		
	11/18/2014 (1:00 pm)	46		52.7	6.7	
	11/24/14 (2:43 pm)	52		60		7
	12/1/14 (4:15 pm)	48		52		
	12/2/14 (2:45 pm)	35		44	6.7	
	12/6/14 (3:30 pm) Aquaponics	30		41	7	
	12/6/14 (3:30 pm) Salisbury				6.5	
	12/7/14 (1:00 pm)				7	
	12/8/14 (2:19 pm)	24		35		
	12/13/14 (10:50 pm)	32		40	6.7	
	12/15/2014 11:00 Ken Simmons					
	12/17/14 (5:30 pm)					
	12/20/2014 (12:00:00 PM)	41		41	6.7	
	12/23/14 (1:00 pm)	42		43		
	12/28/14 (2:20 pm)	50		48	6.7	
	12/29/14 (3:50 pm)	32		48		
	12/30/14 (3:14 pm) Tuesday Koi arrive	32		46		
	12/31/14 (2:16 pm)	32		40		
	1/2/15 (11:30 am) Friday installed water heater	50		38	7.8	7.6
	1/3/15 (10:30 am) Saturday Koi removed					
	1/6/2015	22		46.8	6.6	



1/12/15 (4:40 pm)	35	48	6.5	
1/15/15 (2:59 pm)    canaries arrived yesterday	32	46.2	6.7	
1/19/15 (3:10 pm)	45	54.9	6.7	
1/20/15 (4:08 pm)	34	53.1		
1/25/15 (2:15 pm)	44	52.2	6.7	
2/1/15 (1:26 pm)	56	47	7	
✓ 2/8/15 (1:27 pm)	✓ 25 (under right table remy 42 F)	46.9	6.7	
2/10/2015	40	45.5	7	
2/12/15 (1:30 pm)	32 (under remy left table 48 rt 46)	45		
2/16/15 (12:01 pm)	50 (under remy rt table 62 wt 40)	41.9	7	
2/21/2015 (2:10 pm )	40 (under remy rt table 54 lt 52)	51.6		7.6
2/24/15 (1:24 pm)	50 (under remy 62 )	45.1		7.6
2/27/15 (10:56 am)	62	48		
3/2/15 (3:03 pm)	49 (under remy 60)	51		7.8
3/10/15 (5:08 pm)	48	55	7	8.2
3/14/15 (3:30 pm)	40	48		7.6-7.8
3/20/15 (2:57 pm)	50	50	7.2	7.6-8.2
3/27/15 (3:59 pm)	55	55.8		8
4/4/15				8
4/10/2015	50.7	52		8.1
4/17/2015				8.1
4/19/15 changed 200 gals of WES water				
4/20/2015	7.9			
4/22/15 (5:41 pm )	50	58.8		8.3
5/1/2015 fri	52	58.8		8.1
5/5/2015 tues	68	65.8		8.3
5/6/15 wed    put cover back on fish tank	84	66		
5/7/2015 2:54:00 PM 40 new Koi arrived	89	68.5		
5/8/15 fri 3:00 pm	74	65.5		8.2
5/9/2015 sat 9:00	54	59		7.9
5/11/2015 Sunday    added Barley bag to left table	50	66.6		8
5/14/15 Thurs. Dissolved O2 maybe 6	84	66.6	7.8	8.2
5/14/2015 5:58 pm dumped 200 gals of pond water pH 8.0				8
5/15/15 Fri 2:11 dumped 1 qt vingear	70	65.6	7.7	8
5/16/15 sat planted 27 nasturtium, got sandfilters working	60	60	7.6	
5/16/15 Sat    dumped 1 qt vingear				
5/16/15 sat used pH meter on soil 6.81,7.01,6.8,6.85,6.92				











