

Organic Farm Yield and Profitability

from NEON, NASS, and other sources

From SARE Ecosystem Study

- Abby Seaman, PI
- Studied winter squash and potatoes on 4 organic and 4 IPM farms in NYS

Squash* Yield and Quality

	Organic	Conv.	Sig.
Total Yield (T/A)	7.4	9.0	ns
Marketable Yield (T/A)	5.7	8.3	ns
Percent Culls	7.8	6.0	ns
Percent Sugar	9.5	11.1	ns

* Waltham Butternut

Potato* Yield and Quality

	Organic	Conv.	Sig.
Total Yield (cwt/A)	156.6	280.3	*
Marketable Yield (cwt/A)	138.6	268.0	*
Percent Culls	7.5	4.4	ns
Percent Dry Weight	21.0	21.6	ns

* Superior

Squash Economics

	<u>Per Acre</u>		<u>Per Ton</u>	
	Organic	Conv.	Organic	Conv.
Income	\$7,029	\$4,169	\$1,200	\$500
Expense	\$3,687	\$1,938	\$858	\$400
Return over Variable Cost	\$3,342	\$2,231	\$342	\$100

Potato Economics

	<u>Per Acre</u>		<u>Per cwt</u>	
	Organic	Conv.	Organic	Conv.
Income	\$8,004	\$2,998	\$53.00	\$10.75
Expense	\$2,420	\$1,722	\$23.79	\$9.46
Return over Variable Cost	\$5,584	\$1,276	\$29.21	\$1.29

From Spiral Path Farm

- Central PA
- 60 acres fresh market vegetables
- Wholesale markets

Table 3. Marketable yield (\pm standard error) and quality of 'Mt. Fresh' tomatoes in 2002 and 2003. Data is presented by early vs late planting date. In 2002, 2 fields were planted early and harvested 4 times, and one field was planted late (harvested 2 times). In 2003, 2 early and 1 late planted field were harvested 2 times each.

Field	Planting Date	Percent Marketable No.	Percent Physiol. Disorders ^z	Percent Pest Damage ^y	Ave Fruit wt (oz)	Yield per plant (lb)	Yield per acre (100 lb)
<i>2002</i>							
Early	30-Apr	53 (1)	31 (1)	16 (1)	5.1 (0.1)	6 (1)	367 (48)
Late	15-Jun	86 (1)	7 (1)	7 (1)	6.1 (0.3)	11 (1)	626 (40)
Average		64 (5)	23 (4)	13 (2)	6.0	8 (1)	453 (77)
<i>2003</i>							
Early	29-Apr	86 (1)	9 (1)	5 (1)	9.6 (0.1)	7.7 (0.2)	449 (14)
Late	15-May	88 (3)	9 (4)	3 (2)	7.4 (0.4)	8.4 (0.8)	487 (50)
Average		87 (1)	9 (2)	3 (1)	8.9 (0.3)	8.0 (0.3)	462 (17)

^z Percent of total fruit culled due to physiological disorders, such as small size, catfacing, blossom end

^y Percent of total fruit culled due to pest damage, such as insect feeding or disease symptoms.

Table 5. Marketable yield of butternut squash 'Nicklow's Delight' from three fields in 2002 and one field in 2003, at Spiral Path Farm, Loysville, PA.

Year	Percent Marketable wt	Ave. fruit wt (lb)	Fruit wt per plant (lb)	Fruit no. per plant	Marketable No. per acre	Marketable yield per acre (100 lbs)
2002	95 (2)	2.4 (0.1)	4.6 (0.4)	2.0 (0.2)	8407 (880)	195
2003	62 (20)	3.9 (0.5)	1.6 (0.3)	1.3 (0.1)	6760 (500)	87 (14)

From Paradise Farm

- Lancaster County, PA
- 4.5 acres fresh market vegetables
- Wholesale markets

Table 7. Yield of NEON focal crops sampled at Paradise Organic Farm, 2002 and 2003.

Crop	Year	Cultivar	Stand count (plants/acre)	Neon sampled yield (lbs/acre)	Marketable number per acre	Percent Marketable Yield (wt)	Average fruit/unit wt (lb)
Lettuce	2002	Two Star /New Red Fire	30,700 (700)	20,400 (3,800)	28,200 (500)	92 (2)	0.7 (0.1)
	2003	Two Star/ Volcan	32,300 (400)	19,300 (2,500)	31,800 (600)	99 (1)	0.6 (0.1)
Butternut Squash	2002	Butterboy	5100	29,800¹	na	na	na
	2003	Butterboy	3630	35,000	na	na	3.3
Tomato	2002	Jetstar	3440	79,300	na	na	na
	2003	Jetstar	3800	82,200	na	95	na
Kale	2002	Winterbor	13,800	68,300	-	94	0.8²
	2003	Blue Knight	13,800	65,200	-	94	0.6

¹ Yield of butternut and tomato based upon actual grower records.

² Kale unit wt is average for a bunch having 8-10 leaves.

From Honeybrook Farm

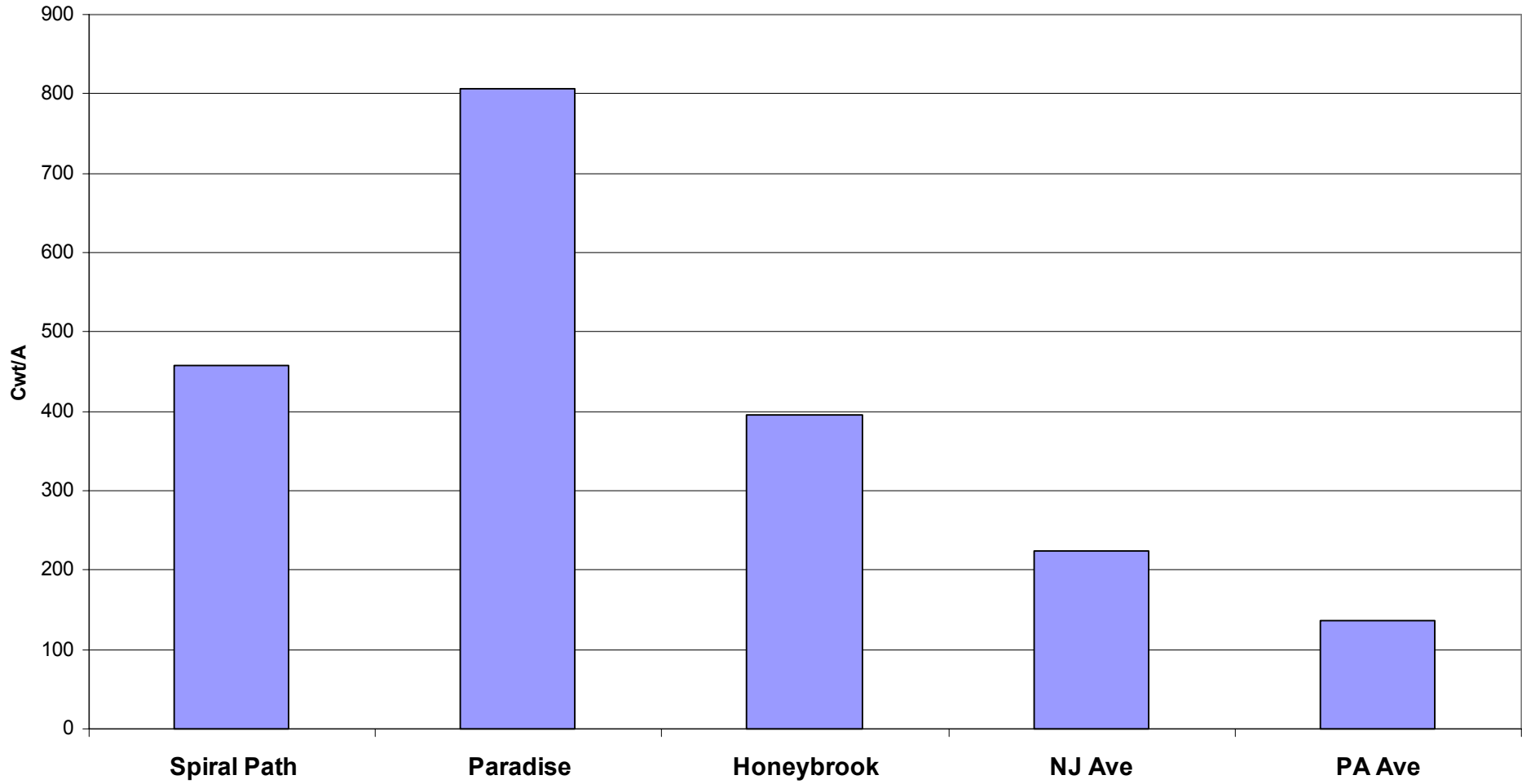
- Central NJ
- 60 acres fresh market vegetables
- Large CSA market

Table 7. Yield (\pm S.E.) of NEON focal crops grown at Honeybrook Organic Farm in 2002, 2003.

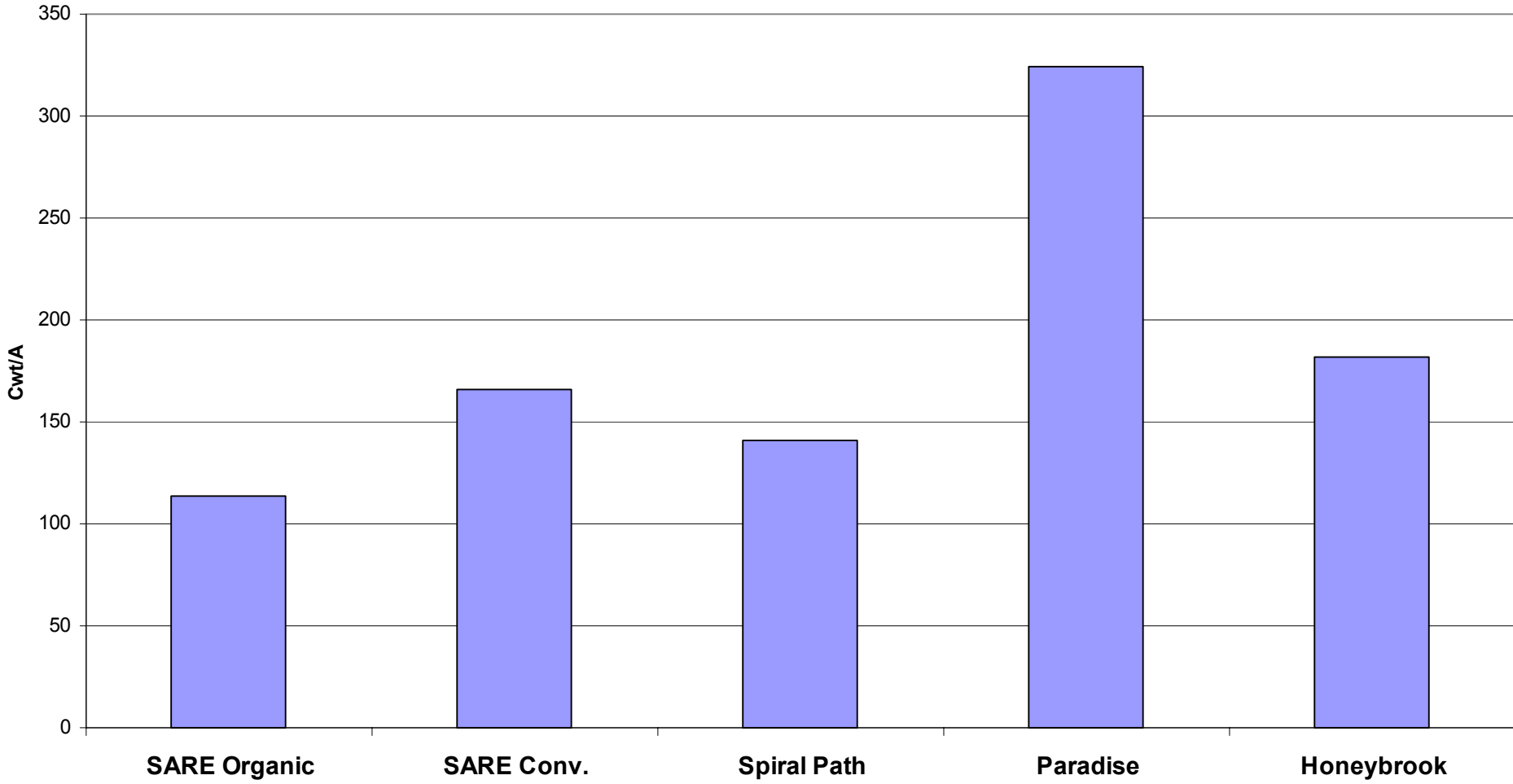
Crop	Year	Cultivar	Plant population per acre	Neon sampled yield (lbs/acre)	Marketable Number per acre	Percent marketable yield (wt)	Average Fruit wt (lb)
Winter Squash	2002	Nicklow's Delight	3330 (150)	22,100 (3,000)	9,500 (1,300)	94 (2)	2.3 (0.2)
	2003	Nicklow's Delight	3270	14,353 (2,130)	8,400 (900)	82 (3)	1.7 (0.1)
Tomato	2002	Sunbeam/ Sunbright	3630	37,100 (2,300)	70,000 (4200)	74 (4)	0.48 (0.02)
	2003	Florida / Mt. Spring	3630	42,100 (3,800)	76,200 (5400)	88 (2)	0.49 (0.02)
Lettuce	2002	Two Star/ New Red Fire	29,000 (1,100)	17,600 (2,000)	28,800 (1,100)	91 (2) ¹	0.6 (0.06)
	2003	Two Star/ New Red Fire	29,800 (400)	13,500 (1,200)	22,500 (2,900)	92 (3)	0.50 (0.03)
Strawberry	2002	N/A					
	2003	Chandler	6150 (100)	4850 (370)	125,000 (17,000)	70 (10)	0.04 (0.004)

¹ Percent marketable yield of lettuce based upon head number.

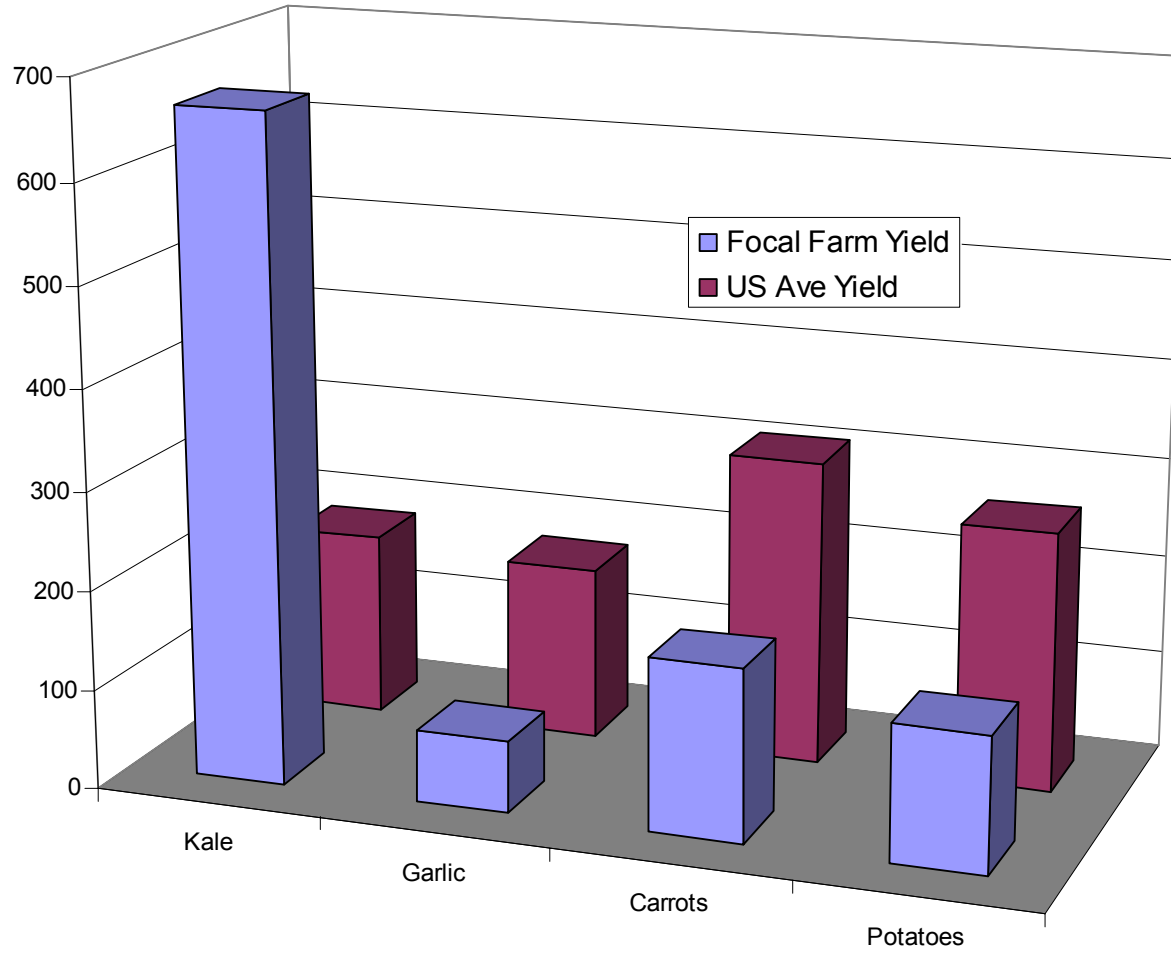
Tomato Yields, 2002-2003



Winter Squash Yields, 2002-2003



Vegetable Yields



Organic Vegetable Yields

Crop	Number of samples	Organic Yield (lb/acre)	Organic Yield SE	Average NY Conventional yields (lb/a)	% Yield in Organic
Strawberries	2	6,726	1,870	10,000	67
Garlic	3	7,217	130		
Lettuce	17	12,900	1,450	24,000	54
Onion	2	14,200	4,200	35,000	41
Parsnips	2	14,300	200	20,000	72
Potato	4	21,825	4,810	30,000	73
Carrot	2	21,900	100	26,000	84
Butternut Squash	10	22,600	2,670	30,000	75
Tomato	10	39,930	2,710	20,000	200

**Conventional yields are general estimates

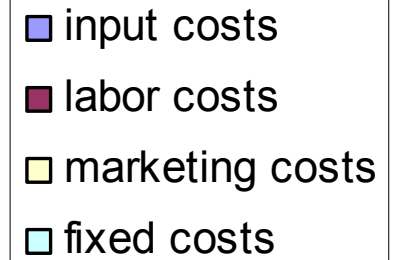
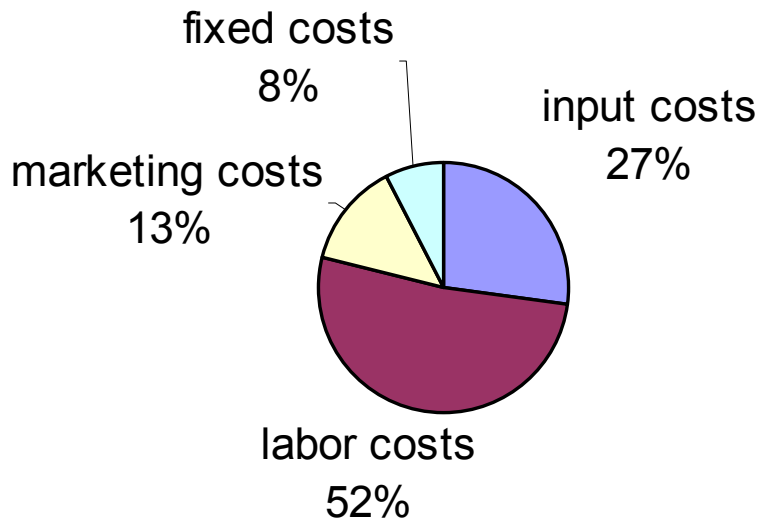
Organic Garlic Budgets

Item	Maximum	Minimum	Mean
Total costs (\$/acre)	13207.20	9968.96	11588.08
Total Variable Costs(\$/acre)	12199.28	9226.60	10712.94
Fixed Costs (\$/acre)	1007.93	742.36	875.14
Labor Costs (\$/acre)	6873.50	4257.26	5565.38
Input Costs (\$/acre)	3549.78	3243.00	3396.39
Marketing Costs (\$/acre)	1776.00	1726.34	1751.17
Labor Costs/Total Costs	0.52	0.43	0.47
Input Costs /Total Costs	0.33	0.27	0.30
Fixed Costs /Total Costs	0.08	0.07	0.08
Labor Costs /Fixed Costs	6.82	5.73	6.28

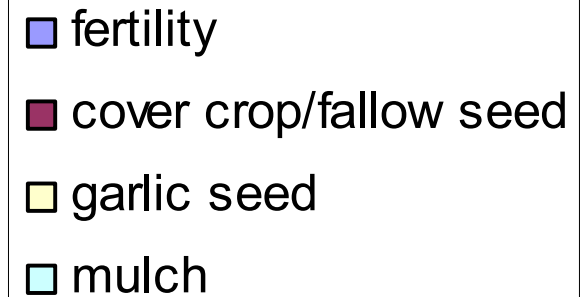
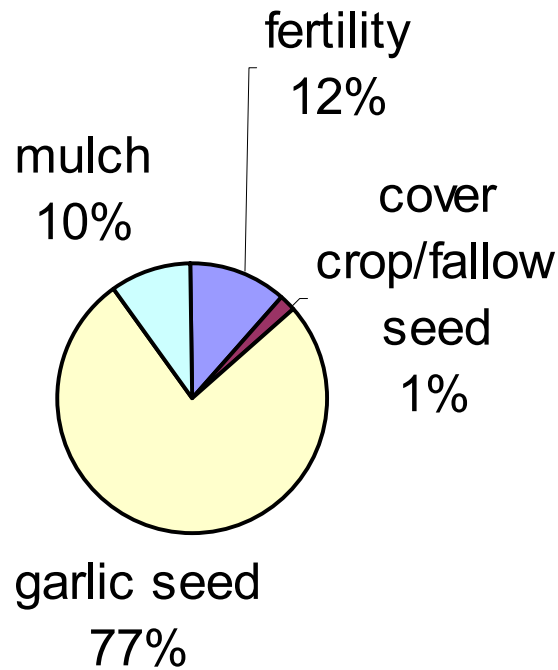
Garlic Break-Even Points

Assumed price (\$/lb)	Break-even yield (lb/acre)			
	Maximum	Minimum	Mean	
3	4402.40	3322.99	3862.69	
3.5	3773.49	2848.27	3310.88	
4	3301.80	2492.24	2897.02	
Assumed yield (lb/acre)	Break-even price (\$/lb)			
	4000	3.30	2.49	2.90
	4500	2.93	2.22	2.58
	5000	2.64	1.99	2.32

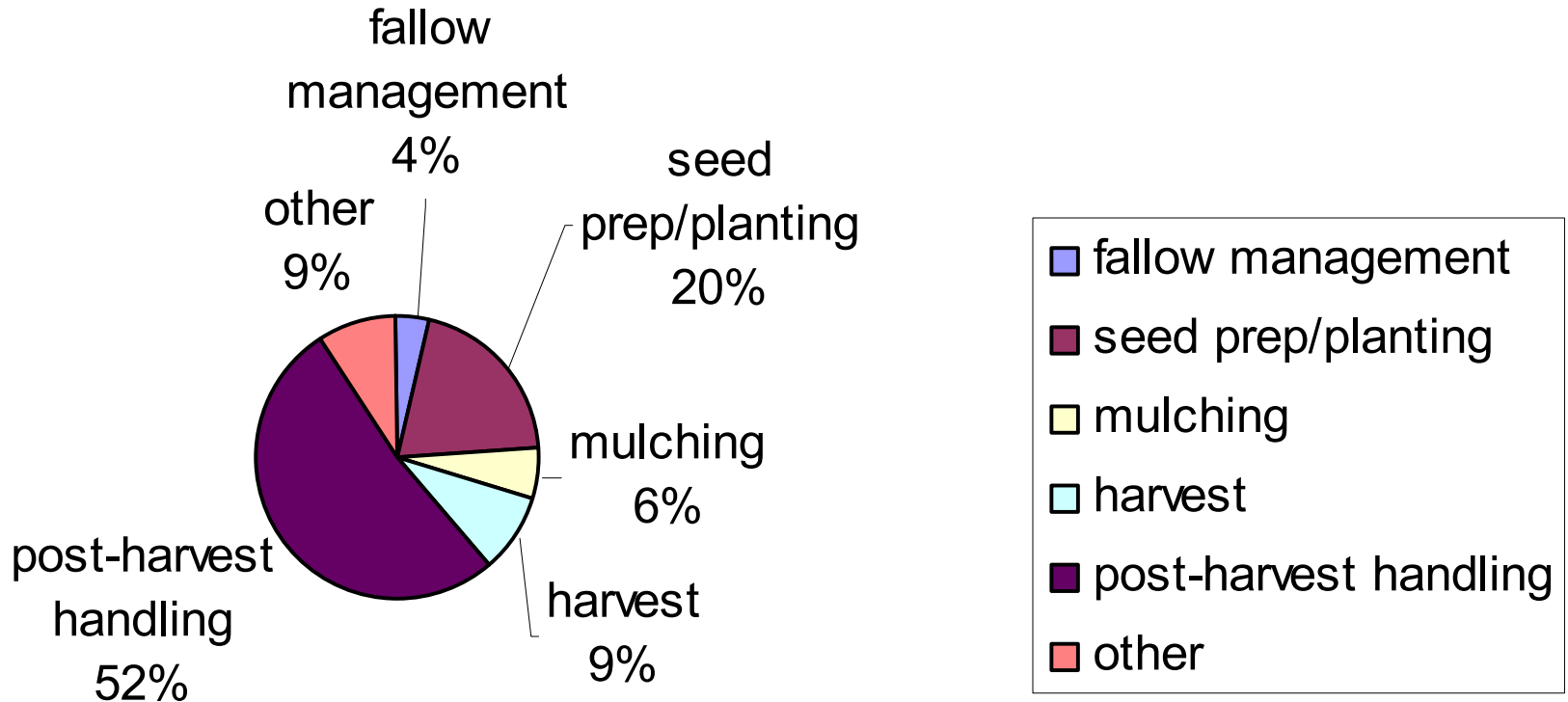
Cost Allocation, Beech Grove Garlic



Input Cost Allocation, Beech Grove Garlic



Labor Allocation, Beech Grove Garlic



Detailed Variable Costs

task	item	rate	price	cost/acre (\$)	cost/field (\$)
fallow	lime	400 lbs/A	\$2/50 lb	16	2.08
	gypsum	200lb/A	\$5/50 lb	20	2.60
cover crop	oat seed	4 bu	\$2.25/bu	9	1.17
	pea seed	100 lb	\$.30/lb	30	3.90
fertility	compost	7.5 cu yd/A	\$52.37/cu yd	392.78	51.06
seeding	seed garlic	17 lb/row x 40 rows	\$4/lb	2,720.00	353.60
mulch	straw	5 bales/row x 40 rows	\$1.75/bale	350	45.50
cover crop	rye seed	3 bu/A	\$4/bu	12	1.56
sum				3,549.78	461.47

Detailed Labor Costs

task	hr/A	\$/A	\$/field
2001: fallow management			
mow 2x	2	20.00	2.60
chisel	3	30.00	3.90
disk 2x	5	45.00	5.85
ridge	2	20.00	2.60
harrow (2x)	2	20.00	2.60
roll	0.5	5.00	0.65
spread lime and gypsum	1	10	1.30
spread compost	4.5	45	5.85
clean oat seed	\$1.50/bu	4.50	0.59
seed oat and pea (cover crop):clean/spin seed	1.5	15.00	1.95
seed oat and pea (cover crop):harrow (2x)	2	20.00	2.60
seed oat and pea (cover crop): roll	0.5	5.00	0.65
seed oat and pea (cover crop): form ridges	2.5	25.00	3.25
2002			
garlic seed prep	20 hr/row x 40 rows	800	104.00

Detailed Labor Costs (cont.)

no-till furrow	7.5 mins/row	50	6.50
planting	1.5 hr/row	600	78.00
mulching	40	400	52.00
weeding (.33 hr/row)	13.33	133	17.29
cut scapes	.5 hr/row	200	26.00
harvest	1.5 hr/row	600	78.00
sort, hang	1.5 hr/row	600	78.00
clean garlic	7.5 hr/row	3000	390.00
post-harvest clean-up	2	20	2.60
post-harvest tillage	2.5	25	3.25
clean rye seed	\$2/bu	6	0.78
seed cover crop	1	10	1.30
labor for harness, hitch, commute, watering, etc.	16.5	165	21.45
sum		6,873.50	893.56