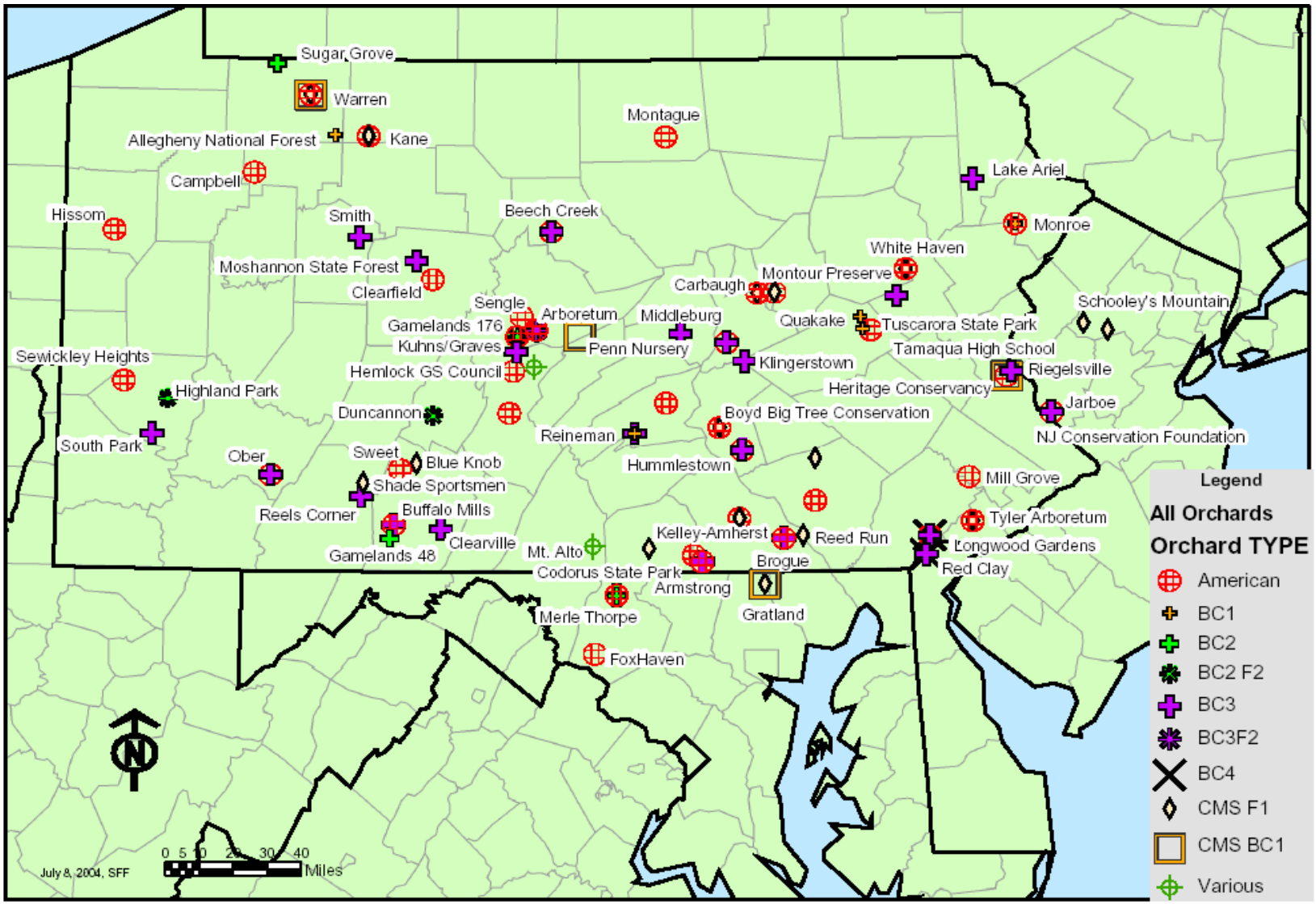
2005 PA-TACF Spring Report

PA-TACF Chestnut Orchards



2004 PA-TACF Harvest and Distribution Summary
2005 Spring Report
March 15, 2005

Resistance	Seed Type	Total
Clapper	BC3	448
	BC3F2	1859
	BC4	133
Clapper Total		2440
Douglas	BC2	100
Douglas Total		100
Graves	BC3	424
	BC4	170
Graves Total		594
Various	F1 (A x C)	1529
	F1 (C x A)	559
	BC1	355
Various Total		2443
	American	6626
	Chinese	94
Total		9163
Grand Total		12297

WHAT	WHERE	#	PURPOSE	GPA
B3F2s (Clapper)	Arboretum	1859	200 to greenhouse test	yes
GRAVES (B3/B4)	Sengle	122	finish off lines	yes
	TNC	223		yes
	Saufley	150	more of a silviculture test - laid out w/ Fred	yes
	Chandis	45	continued playing around.	yes
	TRASHED		some came to me dried out	not technically
CLAPPER (B3/B4)	Smith	350		yes
	MD-TACF	207		yes
	McKechnie	24	investigation of reversals	yes
BC1	Penn Nursery	130	CMS	
	Heritage Conservancy	75	CMS	
	Hissom	30	Douglas Resistance	
	Tuscarora	24	Douglas Resistance	
	Stone Valley		Demonstration	

WHAT	WHERE	#	PURPOSE	GPA
F1	Stone Valley	120	Carlson - experiments	
	Tumblin (new)	100	CMS - Cumberland	
	Shade Sports (replace)		CMS - Somerset	
	Blue Knob (replace)		CMS - Bedford	
	Reed Run (replace)		CMS - Lancaster	
	Yohe (replace)	99	CMS - Adams (99 max, prob not all those)	
	Camp Mack (replace)		CMS - Lancaster (York)	
	Leffel (replace/timber)	622		
	New Jersey (replace/new)	101	CMS - New Jersey (Morris)	
	Air Products		CMS - Schuylkill	
	Tuscarora		CMS - Schuylkill	
Americans (major)	Tim Phelps	1000	Silviculture	
	Dave Loftis	500	Silviculture - arranged through Fred and Ron Myers of NCFS	
	Paul Sisco	200	for testing Carolina orchards and movement of seed	
	Sherrett Chase	67	Mini Provenance test	
	Clint Neel	100	grafting	
	Milford EF	200	at least. American testing, several lots	
small lots going anywhere and everywhere for land testing and other purposes. Will send out full distribution sheet b/f board meeting				
Am/F1/B1/B3/opB2F3	Joe James	587	Phytophthora Research	

Chapter Holdings

Seed_Type	Resistance	# Planted	# Alive	%Alive	# Inoculated
American		4944	1984	40.13%	71
Chinese		544	208	38.24%	34
European		25	13	52.00%	
Japanese		64	56	87.50%	
F1	39	1407	358	25.44%	35
BC1	Clapper, Douglas, Meiling, Musick, Nanking, USDA Japanese	798	262	32.83%	52
BC2	Douglas	449	242	53.90%	
BC2F2	Clapper	1672	651	38.94%	
BC3	Clapper, Graves	8819	4850	54.99%	533
BC4	Clapper, Graves	328	126	38.41%	
BC3F2	Clapper	1269	1065	83.92%	
Grand Total		20458	9997	48.87%	725

Seed_Type	Resistance	# Planted	# Alive	%Alive	# Inoculated
American		4897	1960	40.02%	71
	Graves	47	24	51.06%	
American Total		**4944**	**1984**	**40.13%**	**71**
Chinese		544	208	38.24%	34
Chinese Total		**544**	**208**	**38.24%**	**34**
European		25	13	52.00%	
European Total		**25**	**13**	**52.00%**	
BC1	Clapper (*)	202	52	25.74%	
	Douglas	105	19	18.10%	
	GM65-11	58	13	22.41%	
	Leffel North	80			
	Meiling	39	7	17.95%	
	Musick	110	58	52.73%	9
	Nanking	133	60	45.11%	43
	USDA104061	71	53	74.65%	
BC1 Total	**8**	**798**	**262**	**32.83%**	**52**
BC2	Clapper	164	106	64.63%	
	Douglas	143	47	32.87%	
	Japanese	142	89	62.68%	
BC2 Total		**449**	**242**	**53.90%**	
BC2F2	Clapper	1672	651	38.94%	
BC2F2 Total		**1672**	**651**	**38.94%**	
BC3	Clapper	5053	2589	51.24%	511
	Clapper (MD)	86	69	80.23%	
	Graves	3678	2192	59.60%	22
BC3 Total		**8819**	**4850**	**54.99%**	**533**
BC4	Clapper	70	43	61.43%	
	Graves	258	83	32.17%	
BC4 Total	**2**	**328**	**126**	**38.41%**	

Seed_Type	Resistance	# Planted	# Alive	%Alive	# Inoculated
F1		20	9	45.00%	2
	70	15			
	711	49	11	22.45%	
	Abundance	19	4	21.05%	
	Brushtown	11			
	Buglar	4	2	50.00%	
	C711	44	27	61.36%	
	Chamberlain	16	1	6.25%	
	Cherry	9	4	44.44%	
	Chinese	10	2	20.00%	
	Chunking	55	8	14.55%	
	Codorus	30	5	16.67%	
	Crane	33	5	15.15%	
	Crosby	7	2	28.57%	
	DeBacco	80	32	40.00%	
	Eck	16	4	25.00%	
	Empire	9	1	11.11%	
	Fat Camp	3	2	66.67%	
	Harbold	30	7	23.33%	
	Irwin	70	17	24.29%	
	Kuling	39	8	20.51%	
	Leffel	25	6	24.00%	
	Leffel North	221	68	30.77%	18
	Lowman	11			
	Mahogany	36			
	Meiling	67	14	20.90%	10
	MV Chinese Demo	55	13	23.64%	5
	Nanking	113	38	33.63%	
	Oakwood	5	2	40.00%	
	Orrin	96	24	25.00%	
	Prowell	14	10	71.43%	
	PSU	20			
	Quaker Camp	20	6	30.00%	
	Ratti	21	12	57.14%	
	Robbins	23	12	52.17%	
	Scudera	2			
	Smith	34			
	SummersgillNY	34			
	Thiel	19	2	10.53%	
	Vollers	22			
F1 Total	**39**	**1407**	**358**	**25.44%**	**35**

2005 Clapper BC3 "Timeline"

Pollen Parent	# Alive	% Alive	# Inoculated	ORCHARDS **						
AB393	98	73.68%		Brogue (a)	Kuhns (a)					
AB427	530	70.29%		Codorus (c,d)	Brogue (a,b)	Thorpe (c)	Kuhns (c,d)	Ober (d)	Red Clay (c)	S. Park (c)
BE325	659	80.17%		*Riegelsville (c)*	Bch Creek (b)	Thorpe (c)	Ober (c)	Kuhns (a,b,c)		
GL96	30	17.05%		Merle Thorpe (b)	Ober (a)	Red Clay (a)	Longwood (a)	Smith (c)		
GR331	67	54.03%		Kuhns (a)	Red Clay (b)					
VA307	122	80.26%		Ober (a)	Kuhns (a)					
VA89	29	23.58%		Ober (a)	Red Clay (a)	Longwood (a)				
WV1	23	60.53%		Codorus (a)	Brogue (a)					
WV419	131	79.88%		*Riegelsville (a)*	Kuhns (a)					
GR97	83	64.84%	18	Hummlestown (a)	Red Clay (a,b,c)					
AB185	51	57.30%	12	Ober (a)	Red Clay (b)	*Bch Creek (c)*				
BE400	196	47.80%	55	Ober (a)	Red Clay (b)	*Bch Creek (a,b)*	Kuhns (c)			
CL53	251	48.08%	65	Brogue	Dornsife	Longwood Gardens	Red Clay (b)	Ober (a)	Kuhns (b)	
CL287	24	8.42%	144	Reels Corner	**Brogue (a,b)**	**Dornsife (a)**				
GR226	14	10.94%	7	**Brogue (a)**						
GR210	266	28.09%	200	Longwood Gardens	**Brogue (a,b)**	**Dornsife (a)**	**Reels C (a)**	Ober (c)	Red Clay (d)	*Bch Creek (d)*
AB39				Smith						
VA130	5	50.00%		Smith						
CL234	10	52.63%	10	Brogue						
Totals	**2589**	**51.24%**	**511**							

** Clapper BC4's not included in totals because all parents are previously represented in program.*
*** Different Letters indicate a different American parent used to create cross at certain orchards.*

Red and Small Letters = Failed Line
Blue and Bold Letters = Selected and Intercrossed Lines
Green and Plain Letters = Inoculated, but not yet selected
Underlined and Italicized = Ready for 2005 Inoculation
Underlined = Might be ready for 2005 Inoculation
No special formatting = Wait

2005 Graves BC3/BC4 "Timeline"
March 15, 2005

Pollen Parent	# Alive	% Alive	# Inoculated	ORCHARDS **				
AB171	57	62.64%		Graves (a)				
AB247	66	30.41%		Buffalo Mills (a)	Hummlestown (b)	Moshannon State Forest (c)	PSU - Graves (c)	Silver Ridge (a)
AB248	232	69.25%		Graves (a,b)	Silver Ridge (a)			
AB419	214	69.26%		Graves (a,b)	Buffalo Mills (a)			
BE134	137	61.99%		Graves (a)	Buffalo Mills (a)	Lake Ariel (b)		
BE138	297	63.19%		Hummelstown (a)	Graves (a,b)	Silver Ridge (b)		
BE395	175	50.14%		Moshannon (a,b,c)				
B3119	*83*	*56.85%*		Longwood (a,b)				
GL185	95	40.43%		Graves (a)				
GL239	282	78.99%		Graves (a,b)	NJCF (a)			
GL356	95	62.50%		Graves (c)	NJCF (a,b)			
GL443	210	80.15%		Graves (a,b)				
GL94	54	69.23%		Graves (a)				
GL98	85	45.21%		Graves (a)	NJCF (a)			
BG125				Reineman (a)				
GR137	26	45.61%	20	Hummelstown (a,b)				
WV480	164	48.09%	2	Hummelstown (a)	Moshannon (a)	Klingerstown (b)	Lake Ariel (b)	
WV167	1	7.69%		Graves (a)	Reineman (b)			
GL59	2	66.67%		Graves (a)				
	2275	**57.80%**	**22**					

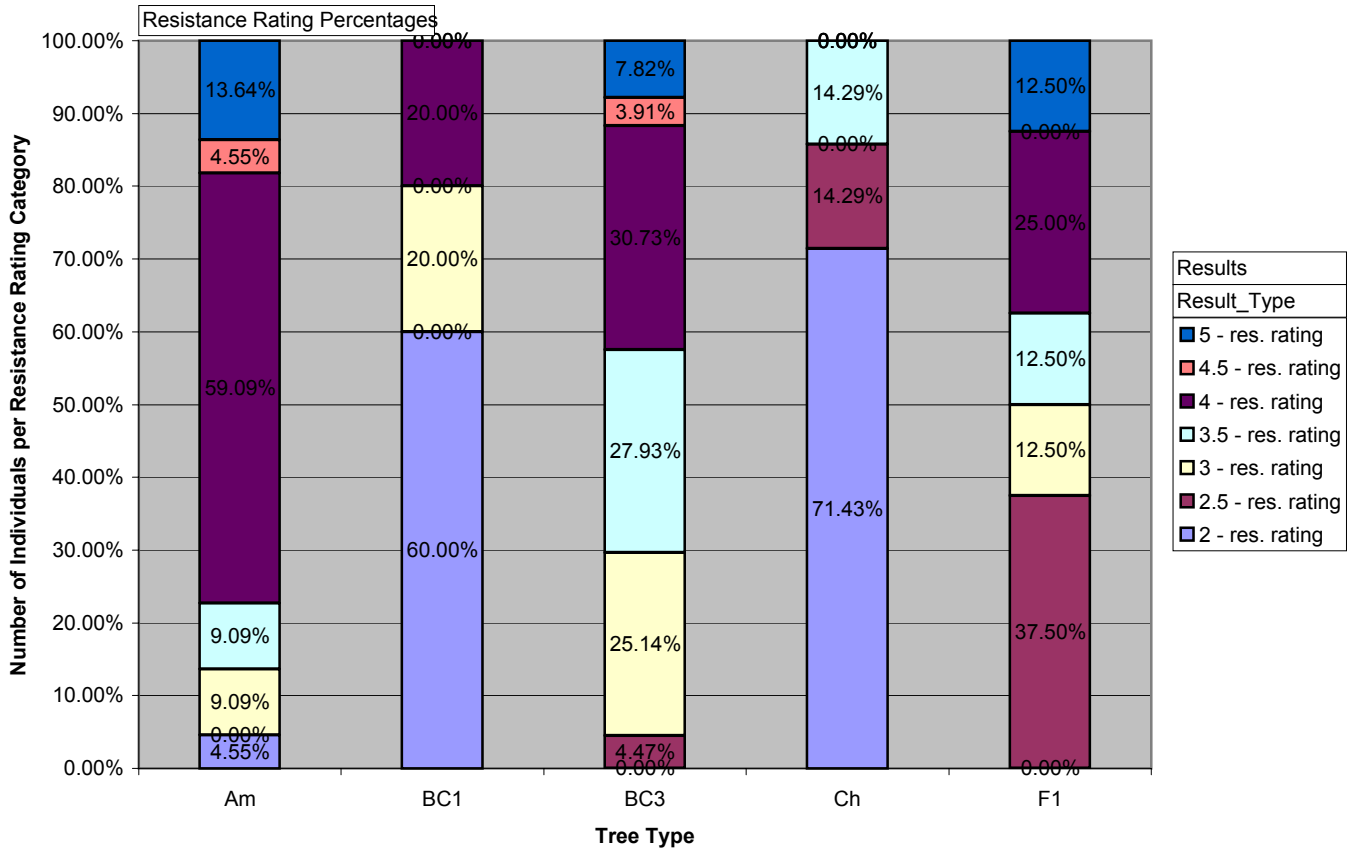
** Underlined Parents are BC3 Pollen Parents*
*** Different Letters indicate a different American parent used to create cross at certain orchards.*

Red and Small Letters = Failed Line
Blue and Bold Letters = Selected and Intercrossed Lines
Green and Plain Letters = Inoculated, but not yet selected
Underlined and Italicized = Ready for 2005 Inoculation
Underlined = Might be ready for 2005 Inoculation
No special formatting = Wait

	RESISTANCE RATING							
Seed Type	**2**	**2.5**	**3**	**3.5**	**4**	**4.5**	**5**	**Grand Total**
American	1		2	2	13	1	3	22
BC1	6		2		2			10
BC3		8	45	50	55	7	14	179
Chinese	5	1		1				7
F1		3	1	1	2		1	8
Grand Total	12	12	50	54	72	8	18	226

Preliminary Resistance Ratings for PA-TACF Trees Inoculated in early June of 2004. Ratings taken mid-November 2004. These ratings are based on a 1-5 scale, with 1 being the most resistance, and 5 being completely susceptible.

Percentages of Preliminary Resistance Ratings for all Trees in 2004 Inoculated PA-TACF Orchards



B3F2 Plans

- Clapper
  - Possible 1-2 New Lines for Arboretum
  - Medium Scale Planting through 2006
  - When Kuhns comes on-line (2007?), large-scale planting 2007-2008
- Graves
  - *1 line inoculated*
    - Created B3F2s in ~2007

PA-TACF 2005 Orchard Prose
March 15, 2005

The question of Open vs. Controlled pollination at each orchard or for each line is open for debate and is contingent on year of inoculation and how each line performs after inoculation. For example, the CL53 lines at Dornsife and Brogue failed miserably in their inoculation tests. Uninoculated members of that line were inoculated at Dornsife in 2004 and, likewise, failed miserably. Additionally, survival at each orchard over the next couple of years will determine which lines can match up with others. The only orchards at which open pollination will be used exclusively will be the Graves orchard (Graves source of resistance) at Rock Springs and the Kuhns orchard (Clapper source of resistance).

The biggest issue we face is that many American parents were used with several different Meadowview pollen parents, particularly in the Graves lines. For this reason, several major Graves BC3/BC4 lines are related already by grandparent. In order to minimize inbreeding, controlled pollination may be necessary in many orchards other than Kuhns and Graves. That said, the easiest way to minimize this risk in the Graves source will be to split up blocks, as opposed to planting all Graves B3F2s in one place. Although I would hope that at least one large area will house about half of the necessary blocks, I think about 5 should be split up among our cooperators. This will allow us to fully utilize some related lines (related by American parent) and thus increase our amount of "true" Graves lines.

Clapper Orchards	Open vs. Controlled	SUMMARIES
Brogue	Controlled	1996 and 1997 Orchards inoculated. Many B3F2 seed created, and this orchard is primarily responsible for the completion of PA-TACF's first B3F2 line at PSU Arboretum. Now waiting for "best" selection to flower. Do not have good feel for 2000 orchard, although the the trees were majorly affected by munching early in their lives. Expect to inoculate 2000 BC3's in 2007.
Reels Corner	Controlled	1997 Orchard inoculated. Some B3F2 seed created. Waiting for "best" selection to flower profusely.
Dornsife	Controlled	1996 and 1997 Orchards inoculated. Trees suffered slightly due to 5' tube use. Little B3F2 seed created. Waiting for "best" selection to flower a lot.
Hummlestown	Controlled	1997 orchard inoculated in 2004. Should have some *very* nice selections. 2000 planting is not well.
Red Clay	Controlled	1999 orchard inoculated in 2004. Some possible selections. May need to wait to 2006 for further inoculation. 2002 planting not great -- shallow soil.
Ober	Controlled	1999 orchard inoculated in 2004. Slightly disappointed by November evaluations. Three potential lines. Trees a bit on the small side.
Riegelsville	Controlled	Ready for inoculation in 2005. Great looking trees.
Codorus State Park	Controlled	Ready for inoculation in 2005, but may wait until 2006. Great looking trees.
Merle Thorpe	Controlled	Might be ready for inoculation in 2005, but may wait until 2006. Great looking trees.
Beech Creek	Controlled	Many 1999s ready for inoculation. Don't know that rest will ever be ready -- some soil issues, bear issues.
PSU - Kuhns	Open	Planted too close together. No fertilizer input until 2003 growing season. Some soil issues. Prune *heavily* in 2004, much to my chagrin.
South Park	Controlled	Many soil issues. Needs significant fertilizer input -- soil test in 2005. May not be ready until 2007.
Smith	Open	Not planted until 2003/2004. Will probably stand on its own.
Longwood Gardens		I don't want to talk about it.
Clearville		I don't want to talk about it.

Graves Orchards	Open vs. Controlled	SUMMARIES
Hummlestown	Controlled	Some inoculated in 2004, ready to be selected in 2005. Great looking trees. Fred very pleased w/ Inoc results
Moshannon State Forest	Controlled	Huge problems with tubes and, possibly, climate. Some deer problem although there is an electric fence. Some lines may be ready in 2005, but may need to fertilize, and wait until 2006
Buffalo Mills	Controlled	Caretaker needs young help. Trees in 2' tubes = deer buffet. Has promised me report in spring
Klingerstown	Open (maybe)	Caretaker had major farm accident in 2001 and was unable to tend to trees. Deer have put a hurting on them, but survival is good. Nice, fertile farm soil. Has promised me update in spring and says he has recovered enough to finally take on management.
PSU - Graves	Open	Fence has been erected and tubes cut down. Some soil and site problems, primarily due to shallowness and wetness. Expected inoculation date may be 2007, depending on fertilization input.
Silver Ridge	Controlled	Don't yet have a great feel for this orchard. Fence has been erected, but survival is poorer than I expect for site. May need more maintenance, but "strangers" are not allowed on property and it is difficult to track down the manager.
NJ Conservation Foundation	Controlled	Soil problems.
Lake Ariel	Controlled	*MAJOR* Soil problems. Some deer damage. Perhaps some climate issues. A shame, because caretaker is fantastic and on the ball.
Longwood Gardens		I don't want to talk about it.
Reineman	Open	Just established in 2004.

Any New Orchards will be Open Pollinated - minimum of 2 exclusive lines at each orchard, space in time so that open pollination is possible

CMS Orchards

Farm_Name	# Planted	# Alive	% Alive	Avg. Heigh		ive Report
Heritage Conservancy	65	0				
Penn Nursery	308	27	8.77%			2004
	373	**27**	**7.24%**			**2004**
Armstrong	117	68	58.12%	4.88	2001	2003
Blue Knob	78	0				
Boyd Big Tree Conservation	102	32	31.37%	1.60	2003	2003
Camp Mack	98	53	54.08%	1.02	2004	2004
Carbaugh	14	4	28.57%	5.50	2004	2004
Grayson Starner	54	32	59.26%	1.85	2004	2004
Heritage Conservancy	63	38	60.32%			2004
Kane	232	56	24.14%			2004
Mount Paul	52	0				
Ober	83	36	43.37%	4.38	2004	2002
Reed Run	89	58	65.17%	1.54	2004	2004
Schooley's Mountain	20	0				
Tyler Arboretum	40	0				
Warren	215	88	40.93%	2.93	2003	2003
Windcliff	326	156	47.85%	3.55	2003	2003
Yohe	85	0	0.00%			2005
	1668	**621**	**37.23%**	**3.17**	**2004**	**2005**
	2041	**648**	**31.75%**	**3.17**	**2004**	**2005**