

UNIVERSITY OF DELAWARE



PEA 2000

Delaware Variety Trials

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2000 University of Delaware Pea Variety Trials

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The 2000 Pea Variety Trials were planted at the University of Delaware Research & Education Center, Georgetown, Delaware. The purpose of these trials is to evaluate and identify varieties best adapted for our production region. Yield, quality, and maturity are important characteristics that can vary between production regions. Similar trials have been planted since 1994, with the exception of 1998. This year, the trials were planted on two planting dates, reflecting our commercial situation. Growers and processors generally use early maturing varieties during the first half of the planting season, and longer maturing varieties on later plantings. Of course, later plantings are exposed to warmer conditions, thus generating quicker accumulations of heat units, which is why longer maturity varieties are used in later plantings.

Materials and Methods

Early Trial

The early trial was planted on March 10, 2000. Fertility was done according to soil test. The field was disked on March 3. On March 7, 0-0-60 was applied at 120 lbs./A, broadcast and the field was disked and ripped. Pursuit herbicide was applied at 3 ounces/A, pre-plant incorporated with 30% UAN at 18 gallons/A on March 10. The field was worked using a field cultivator to incorporate the herbicide and nitrogen as well as prepare the seedbed. Nineteen varieties were planted using an Almaco drill with 9 rows, spaced 8 inches apart. Eight seeds per foot of row were planted of each variety. Final stand counts are reported in the results. Plots were 6' x 50' in size using a randomized block design with 3 replications. Lannate was applied to the trial on April 21, 2000 for aphid control. The trial was irrigated with a linear overhead sprinkler system. One to 1.5 inches of water was applied per week, as needed.

Late Trial

The late trial was planted on May 2, 2000. The field was disked and ripped on March 7, 2000. The field was disked on April 14. Fertility was done according to soil test. On May 1, 0-0-60 at 200 lbs./A, 0-46-0 at 150 lbs./A were broadcast on the field. May 2, 34-0-0 at 180 lbs./A was broadcast on the plots. Pursuit herbicide at 3 ounces/A, pre-plant was applied and both were incorporated with a field cultivator. Twenty-five varieties were planted using an Almaco drill with 9 rows, spaced 8 inches apart. Eight seeds per foot of row were planted of each variety. Final stand counts are reported in the results. Plots were 6' x 50' in size using a randomized block design with 3 replications. Post herbicide applications were made for heavy weed pressure – Basagran at 2 pints/A on May 26 and Poast at 1.5 pints/A on June 6. The trial was irrigated with a linear overhead sprinkler system. One to 1.5 inches of water was applied per week, as needed.

Harvest Procedure:

Each variety was harvested as near to a tenderometer reading of 100 as possible. Pre-harvest samples were taken 2-3 days prior to reaching this maturity level whenever possible. All three replicates were harvested for each variety on the same day.

Plants were pulled from a 25 foot section. Vines were weighed and fed into a stationary FMC combine. Shelled peas were collected and washed (removing leaves, stones, and other trash). The clean, shelled peas were weighed. A sub-sample was put through a size separator that segregated peas with a diameter of 12/32 inch or greater (#4 sieve size); between 11/32 and 12/32 inch (#3 sieve size); between 9/32 and 11/32 inch (#1&2 sieve size); and peas smaller than 9/32 inch (trash). Three tenderometer readings were taken from each sample. The average is reported.

Ten plants were taken from each variety on the day of harvest and the following measurements were taken: vine length (cm), useable pods/node, pods/plant, and pod length. The data reported is the average of ten plants. The number of peas/pod is the average of ten pods.

Weather data and heat unit accumulation for both trials are included in the appendix. The tenderometer was checked and calibrated by Dr. Charles McClurg, University of Maryland.

Results & Discussion

Yield, maturity, size distribution, and plant characteristics are reported in Tables 1 and 4. Gross yields include small peas on the trash tray (less than 9/32 inch). Net yields have subtracted the percentage of trash. Net yield adjusted to a tenderometer reading of 100 is determined using the procedure and chart developed by Pumphrey et. al., which is included. Adjusting the yield to a common maturity is important when making yield comparisons. The inverse relationship between yield and quality is well-known with peas. Therefore, it is important to consider maturity, as indicated by the tenderometer reading, and size distribution when evaluating the data in these tables. T- readings increase with maturity, as does yield. Size distribution data reflect not only patterns of maturity, but also the basic size characteristics of a variety. Certain varieties have an inherently smaller sieve size than others, e.g. petit peas are smaller than standard peas. There are also gradations between the petit peas and standard size peas.

Final stand counts are reported in Tables 3 and 7. Plants per yard ranged from 15 to 29 in the early trial and 14 to 24 in the late trial. There were statistically different populations in the both trials, which should be taken into consideration when comparing yield data between varieties.

The size distribution data in the sieve size columns reveal whether the variety produces predominately large or small peas. This is important as processors determine the possible utilization of a variety.

Heat unit data, when coupled with the tenderometer readings, indicate the relative maturity for each variety. In general, predicted heat units as reported by the seed company are close to the actual heat units. However, differences as large as 100 heat units between predicted and actual did occur in some cases. The progression of maturity as reflected by pre-harvest sampling and final harvest tenderometer readings are reported in Tables 2 and 5. Please note in the attached weather data the high temperatures that occurred during flowering of the early trial caused all varieties to flower simultaneously and then mature earlier than expected. If we compare suggested and actual heat units for the commercial variety E.F. 680, we see that this variety matured much sooner in this year's trial.

Heat Unit Comparison of E.F. 680

Year	Suggested H.U.	Actual H.U.	H.U. Difference
1999	1220	1200	20
2000	1220	1062	138

Comparison of Date of Full Flower, Average Temperatures and Heat Unit Accumulation for the University of Delaware Early Pea Variety Trials in 1999 and 2000.

Year	Date of Full Flower	Average Day Temp °F	Average Night Temp °F	Average Heat Unit Accumulation During Full Flower Period
1999	5/13-5/27	77	56	24
2000	5/7-5/13	87	62	35

FP 2237 was the highest yielding variety in the early trial when the t-reading was adjusted to 100. 91018-39 was the highest yielding variety in the late trial when the t-reading was adjusted to 100.

We hope you find this data informative and useful. If you have questions, please feel free to contact us.

ACKNOWLEDGEMENTS:

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Participating Seed Companies	
Agri Sales, Inc. – California	Ordbend, California
Agro Seed Service	Bree Belgium
Asgrow Seed Co.	Kalamazoo, Michigan
Crites-Moscow Growers, Inc.	Moscow, Idaho
Novartis Seed Co. – Rogers Brand	Boise, Idaho
Pure-Line Seed, Inc.	Moscow, Idaho
Sharpes International Seeds, Inc.	Sleaford, Lincolnshire, England
Upper Valley Seed Co.	Shelly, Idaho
W. Brotherton Seed Co.	Moses Lake, Washington

Processing Companies	
Agri-Link Foods	Bridgeville, Delaware
Charles H. West Farms	Milford, Delaware
Del Monte	Napierville, Illinois
Hanover Foods, Inc.	Clayton, Delaware
J. G. Townsend's, Inc.	Georgetown, Delaware
John Cope's Foods, Inc.	Rheems, Pennsylvania
Saulsbury Bros., Inc.	Ridgely, Maryland
Seabrook Bros.	Seabrook, New Jersey

We wish to thank Victor Green and the staff at the University of Delaware Research & Education Center, Georgetown, for their assistance in planting and irrigating the trials.

The plots could not have been harvested without the assistance of the following students: Andrew Turner, Rusty Tressler, John Gordy, Derrick Dickerson and Joe Taylor.

Special acknowledgement to our co-author of this report, Dr. Jim Glancey, Department of Bioresources Engineering, who built or re-built the viner and other equipment that facilitated the successful completion of the trials.

Table 1. Yield, Maturity, Size Distribution and Plant Characteristics of the 2000 University of Delaware Early Pea Variety Trial.

Variety	Harv. Date	DAP	Suggested Heat Units	Actual Heat Units	Average				Sieve Size				Vine Wt./ Plot (Kg)	Average of 10 Plants				Avg. of 10 Pods	Seeds/ lbs	Seed Source
					Tender-ometer	Gross Yields lbs/A	Net Yield lbs/A	Net Yield Adj. To 100 T lbs/A	% Trash ≤9/32	% 1&2's 9/32 & 10/32	% 3's 11/32	% 4's 12/32 & ≥		Vine Length (cm)	Pods/ Node	Pods/ Plant	Pod Length (cm)	Peas/ Pods		
CMG-330F	5/30	81	1300	1186	120	6598	6329	5359	4	14	30	52	80.3	42.2	1.18	2.0	6.7	7.4	2422	Crites-Moscow
R99 112	5/24	75	1250	1062	123	6203	5927	4942	6	24	37	33	67.7	46.2	1.34	5.1	6.3	6.7	3060	Asgrow
FP 2237	5/30	81	1310	1186	99	5933	5657	6087	5	14	32	49	93.8	42.2	1.72	3.1	8.4	7.9	2400	Rogers
FR305	5/23	74	1170	1030	112	5612	5482	4836	2	15	29	54	73.8	33.9	1.46	3.5	7.3	7.4	2320	Brotherton
13046	5/24	75		1062	118	5481	5280	4517	4	16	32	48	73.9	38.6	1.72	4.3	6.4	5.7	2300	Upper Valley Seed
Jaguar	5/30	81		1186	112	5427	5356	4705	2	13	33	52	78.2	36.8	1.65	4.3	6.7	5.9	2273	Sharpes/ASI
Tonic	5/30	81	1300	1186	124	5421	5292	4440	2	4	14	80	66.4	44.5	1.84	3.5	5.8	5.0	2288	Brotherton
620	5/23	74	1100	1030	120	5372	5208	4389	3	6	21	70	68.5	38.7	1.33	4.8	6.0	4.7	2018	PureLine
FP2230	5/24	75	1200	1062	113	5198	5146	4456	1	6	25	68	68.1	36.3	1.79	4.3	5.5	3.9	2300	Rogers
E.F. 680	5/24	75	1220	1062	111	5094	4958	4464	3	8	19	70	58.1	44.7	1.33	2.8	6.7	5.9	2040	Rogers
June	5/24	75	1160	1062	131	5056	4904	3949	3	20	38	39	60.6	42.7	1.23	3.8	6.7	5.3	2416	Brotherton
876	5/24	75	1164	1062	137	4855	4806	3749	1	9	30	60	60.1	42.4	1.08	3.9	6.7	5.7	2284	PureLine
EX 85 0414 8	5/20	71	1200	973	91	4751	4389	5629	8	40	39	13	62.2	50.8	1.57	3.3	5.2	4.7	2370	Asgrow
27	5/25	76	1300	1090	116	4740	4375	3957	8	36	48	8	64.8	40.4	1.52	4.1	5.9	5.7	2594	PureLine
EXP A	5/25	76	1280	1090	108	4293	4096	3837	5	20	32	43	63.0	30.9	1.64	4.1	7.0	5.6	2395	Crites-Moscow
SH35.2	5/25	76	1300	1090	97	3641	2723	3822	25	63	11	1	77.3	43.7	1.76	6.7	6.1	5.9	3290	Sharpes/ASI
8925	5/23	74	1164	1030	97	3580	3202	3730	10	43	38	9	64.0	46.2	1.72	4.3	6.2	4.5	1974	PureLine
FR606	5/23	74	1210	1030	102	3438	3239	3351	6	18	30	46	54.7	42.9	1.76	5.1	7.3	5.6	1936	Brotherton
7088	5/24	75		1062	116	3116	2397	2614	23	62	14	1	57.1	32.6	1.52	5.0	5.3	5.8	3800	Agro Seed Service
LSD 0.05					7	984	970	848	4	6	7	10	13							

Table 2. Tenderometer Readings for the 2000 University of Delaware Early Pea Variety Trial

Days after Planting:		68	69	70	71	72	73	74	75	76	77
Date:		17-May	18-May	19-May	20-May	21-May	22-May	23-May	24-May	25-May	26-May
Actual Heat Units:		896	928.5	957.5	973	991	1008	1029.5	1061.5	1090	1114.5
Trt.	Variety	Suggested Heat Units									
1	FR606	1210			86			98 102			
2	8925	1164			92			98 97			
3	620	1100			99			120			
4	E.F. 680	1220			85				111		
5	Jaguar								84	84	86
6	876	1164							122 137		
7	Tonic	1300							<82		<82
8	FP2230	1200							102 113		
9	13046								107 118		
10	FR305	1170			92			112			
11	EX 85 0414 8	1200	<82	86	91						
12	EXP A	1280							100	108	
13	FP 2237	1310							<82		<82
14	June	1160							117 131		
15	CMG-330F	1300							<82	85	83
16	27	1300							99	116	
17	R99 112	1250			86				123		
18	SH35.2	1300			82				96	97	
19	7088				82				106 116		
T-Readings: Regular print is the t-reading for pre-harvest sampling. Bold print is the average t-reading at harvest for three replications.											

Table 2. Cont'd

Days after Planting:	78	79	80	81
Date:	27-May	28-May	29-May	30-May
Actual Heat Units:	1136	1154.5	1171	1186
		Suggested		
Trt.	Variety	Heat Units		
1	FR606	1210		
2	8925	1164		
3	620	1100		
4	E.F. 680	1220		
5	Jaguar	106 112		
6	876	1164		
7	Tonic	133 124		
8	FP2230	1200		
9	13046			
10	FR305	1170		
11	EX 85 0414 8	1200		
12	EXP A	1280		
13	FP 2237	107 99		
14	June	1160		
15	CMG-330F	116 120		
16	27	1300		
17	R99 112	1250		
18	SH35.2	1300		
19	7088			
T-Readings: Regular print is the t-reading for pre-harvest sampling. Bold print is the a				

Table 3. First Flower, Full Flower, First Flowering Node and Average Stand Count Data for the 2000 University of Delaware Early Pea Variety Trial.

Variety	Date of First Flower	Date of Full Flower	First Flowering Node
FR606	5/5	5/9	10
8925	5/4	5/7	10
620	5/4	5/7	8
E.F. 680	5/5	5/8	10
Jaguar	5/7	5/11	12
876	5/4	5/8	9
Tonic	5/7	5/9	11
FP2230	5/5	5/8	10
13046	5/5	5/8	9
FR305	5/4	5/8	9
EX 85 0414 8	5/4	5/7	10
EXP A	5/6	5/8	10
FP2237	5/7	5/13	12
June	5/5	5/8	9
CMG 330F	5/7	5/11	10
27	5/6	5/9	10
R99 112	5/4	5/8	10
SH35.2	5/7	5/9	11
7088	5/5	5/9	10

Variety	Average Stand Counts (Average number of plants per 3 foot of row; 2 locations/plot/rep)
SH35.2	29 a
FR305	26 ab
27	25 abc
7088	25 abc
CMG-330F	24 bcd
EX 85 0414 8	24 bcd
FP2230	24 bcde
Tonic	23 bcde
876	22 cdef
Jaguar	21 cdefg
FP2237	21 defgh
June	21 defgh
620	20 defgh
8925	20 efghi
EXP A	18 fghij
E.F. 680	17 ghij
R99 112	17 hij
13046	16 ij
FR606	15 j
LSD _{0.05}	4.1

Table 4. Yield, Maturity, Size Distribution and Plant Characteristics of the 2000 University of Delaware Late Pea Variety Trial.

Variety	Harv. Date	DAP	Suggested Heat Units	Actual Heat Units	Average				Sieve Size				Vine Wt./ Plot (Kg)	Average of 10 Plants				Avg. of 10 Pods	Seeds/ lbs	Seed Source
					Tender-ometer	Gross Yields lbs/A	Net Yield lbs/A	Net Yield Adj. To 100 T lbs/A	% Trash ≤9/32	% 1&2's 9/32 & 10/32	% 3's 11/32	% 4's 12/32 & ≥		Vine Length (cm)	Pods/ Node	Pods/ Plant	Pod Length (cm)	Peas/ Pods		
Starlight	6/27	55	1450	1589	136	6587	6452	5074	2	25	49	24	92.1	61.0	1.62	3.9	7.2	6.2	2590	Sharpes/ASI
EXP B	6/28	56	1615	1622	120	6429	6238	5243	3	27	39	31	133.0	44.2	1.61	2.9	6.4	6.0	2690	Crites-Moscow
91018-39	6/26	54		1549	111	6309	5906	5514	6	39	39	16	104.3	63.2	1.80	4.4	7.2	6.4		Upper Valley Seed
R99 329	6/26	54	1600	1549	135	6238	5975	4819	4	25	40	31	87.4	49.0	1.56	3.6	6.8	7.3		Asgrow
SH1130.1	6/27	55	1490	1589	105	5639	5244	5252	7	36	40	17	112.8	49.0	1.93	5.2	6.4	6.0	2270	Sharpes/ASI
56-1	7/5	63	1500	1558	133	5563	5414	4309	3	8	29	60	116.7	49.5	1.48	4.9	6.9	5.9	2978	PureLine
FR 688*	6/27	55	1530	1589	114	5492	5254	4677	4	16	35	45	93.8	61.7	1.40	4.2	7.2	5.9	2215	Brotherton
EX85 9 0473	6/27	55	1550	1589	106	5367	5223	4966	3	29	40	28	96.0	55.1	1.72	4.3	6.9	7.6	2584	Asgrow
FR 740*	6/26	54	1510	1549	123	5192	5107	4145	2	17	43	38	79.2	43.4	1.45	3.2	7.4	7.4	2384	Brotherton
FR 92	6/27	55	1400	1589	105	5111	4241	4719	17	54	24	5	98.8	43.4	1.77	6.2	6.7	7.5	3200	PureLine
FR 12	6/26	54	1450	1549	125	5051	3734	4003	26	62	11	1	96.4	49.5	1.70	4.1	6.0	6.9	3300	PureLine
R99 208	6/26	54	1500	1549	127	4985	4586	3915	8	44	38	10	73.0	51.3	1.74	4.0	7.1	6.1	2540	Asgrow
SH373.2	6/30	58	1450	1683	127	4879	4710	3838	4	17	43	36	116.3	61.2	1.42	3.4	7.2	5.9	3090	Sharpes/ASI
CMG-340F	6/30	58	1600	1683	128	4855	4727	3802	3	12	34	51	123.2	55.4	1.55	3.1	8.4	7.5	2508	Crites-Moscow
SH351.7	6/26	54	1410	1549	126	4816	3840	3793	20	65	13	2	83.8	50.8	1.60	4.5	6.1	6.1	3250	Sharpes/ASI
FR 678*	6/27	55	1540	1589	106	4691	4480	4300	5	21	37	37	93.4	54.4	1.35	4.2	8.1	7.3	2112	Brotherton
EX85 9 0474	6/30	58	1550	1683	108	4593	4409	4130	4	20	32	44	140.2	52.3	1.63	3.9	6.6	6.9	2370	Asgrow
FP2247*	6/26	54	1580	1549	111	4460	3367	2998	3	18	37	42	87.6	56.4	1.61	3.7	7.6	6.4	2400	Rogers
FR 643-11*	6/24	52	1420	1467	111	4015	3700	3493	8	34	38	20	80.2	53.3	1.45	3.5	7.4	6.2	2160	Brotherton
SH272.20	6/27	55	1380	1589	107	3912	3603	3551	8	36	36	20	94.8	53.8	1.78	4.8	6.8	6.8	2875	Sharpes/ASI
189*	6/27	55	1500	1589	109	3738	3401	3315	9	43	36	12	97.4	53.6	1.61	3.7	7.9	6.9	2378	PureLine
FP2235	6/27	55	1580	1589	107	3721	3551	3361	5	14	38	43	101.5	54.9	1.55	3.1	8.4	6.6	2325	Rogers
Rigo	6/24	52	1490	1467	119	3569	3202	2932	10	26	28	36	85.4	57.7	1.62	4.4	7.0	5.2	2200	Asgrow
91017-24-2*	6/24	52		1467	86	3383	2751	4632	20	55	20	5	91.8	49.0	1.50	2.5	8.8	7.3		Upper Valley Seed
92069-10*	6/24	52		1467	88	2583	2382	3303	8	43	30	19	71.2	60.2	1.30	2.6	9.7	7.7		Upper Valley Seed
LSD 0.05					6	808	602	522	4	8	7	9	14							

Table 5. Tenderometer Readings for the 2000 University of Delaware Late Pea Variety Trial

Days after Planting:		52	53	54	55	56	57	58	59	60	61
Date:		23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul	2-Jul
Actual Heat Units:		1432.5	1467	1507.5	1548.5	1589	1622	1652	1683	1715	1748
Trt.	Variety	Suggested Heat Units									
1	FR678*	1540			102	106					
2	FR643-11*	1420	98	111							
3	Rigo	1490	104	119							
4	FR688*	1530			93	114					
5	SH1130.1	1490			85	105					
6	FP2235	1580			93	107					
7	EX85 9 0474	1550			<82	85			108		
8	189*	1500	82		95	109					
9	FR740*	1510			119	123					
10	FP2247*	1580	82		106	111					
11	CMG-330F	1600				85			128		
12	R99 208	1500			116	127					
13	EX85 9 0473	1550			90	106					
14	Starlight	1450			104	136					
15	EXP B	1615			84	102	120				
16	SH272.20	1380		88		107	107				
17	56-1	1500									
18	SH373.2	1450			86	90			127		
19	FR 92	1400			97	105					
20	SH351.7	1410	82		116	126					
21	FR 12	1450			119	125					
22	R99 329	1600	82		127	135					
23	91017-24-2*		86								
24	92069-10*		88								
25	91018-39		107		111						

*Afila Type

T-Readings: Regular print is the t-reading for pre-harvest sampling. **Bold print is the average t-reading at harvest for three replications.**

Table 5. Cont'd

Days after Planting:	62	63	64
Date:	3-Jul	4-Jul	5-Jul
Actual Heat Units:	1784.5	1822	1857.5
		Suggested	
Trt.	Variety	Heat Units	
1	FR678*	1540	
2	FR643-11*	1420	
3	Rigo	1490	
4	FR688*	1530	
5	SH1130.1	1490	
6	FP2235	1580	
7	EX85 9 0474	1550	
8	189*	1500	
9	FR740*	1510	
10	FP2247*	1580	
11	CMG-330F	1600	
12	R99 208	1500	
13	EX85 9 0473	1550	
14	Starlight	1450	
15	EXP B	1615	
16	SH272.20	1380	
17	56-1	1500	133
18	SH373.2	1450	
19	FR 92	1400	
20	SH351.7	1410	
21	FR 12	1450	
22	R99 329	1600	
23	91017-24-2*		
24	92069-10*		
25	91018-39		
*Afila Type			
T-Readings: Regular print is the t-reading for pre-harvest sampling. Bold pri			

Table 6. First Flower, Full Flower, and First Flowering Node Data for the 2000 University of Delaware Late Pea Variety Trial.

Variety	Date of First Flower	Date of Full Flower	First Flowering Node
FR678	6/10	6/15	12
FR643-11	6/5	6/13	11
Rigo	6/5	6/13	10
FR688	6/11	6/16	11
SH1130.1	6/10	6/15	13
FP2235	6/10	6/16	11
EX85 9 0474	6/13	6/16	12
189	6/12	6/16	13
FR740	6/9	6/13	11
FP2247	6/10	6/13	12
CMG-340F	6/13	6/19	12
R99 208	6/5	6/15	12
EX85 9 0473	6/12	6/15	10
Starlight	6/10	6/15	11
EXP B	6/11	6/15	12
SH272.20	6/11	6/15	12
56-1	6/14	6/20	14
SH373.2	6/11	6/15	11
FR 92	6/11	6/15	10
SH351.7	6/9	6/13	12
FR 12	6/10	6/13	11
R99 329	6/10	6/15	12
91017-24-2	6/10	6/15	11
92069-10	6/9	6/15	11
91018-39	6/9	6/13	10

Table 7. Average Stand Count Data for the 2000 University of Delaware Late Pea Variety Trial.

Variety	Average Stand Counts (Average number of plants per 3 foot of row;2 locations/plot/rep)
FR 12	24 a
SH351.7	22 ab
91017-24-2	22 ab
92069-10	21 abc
56-1	21 abc
SH272.20	21 abcd
EXP B	20 abcde
SH373.2	20 abcde
189	20 abcdef
FR740	20 bcdefg
Starlight	18 cdefgh
CMG-340F	18 cdefgh
R99 329	17 cdefghi
EX85 9 0474	17 cdefghi
91018-39	17 defghi
FR688	17 efghi
SH1130.1	17 efghi
FR 92	16 fghi
R99 208	16 fghi
Rigo	16 fghi
EX85 9 0473	16 ghi
FR643-11	14 hi
FP2247	14 hi
FP2235	14 hi
FR678	14 i
LSD _{0.05}	4

Table 8. T-Reading Adjustment Using Pumphery et.al. Systems*

Actual T Reading	Adj. Factor
150	130.0
145	130.4
140	130.6
135	130.0
130	128.6
129	128.3
128	127.4
127	127.5
126	126.9
125	126.5
124	125.8
123	125.2
122	124.6
121	123.9
120	123.2
119	122.5
118	121.7
117	120.9
116	120.0
115	119.1
114	118.2
113	117.2
112	116.2
111	115.1
110	113.9
109	112.8
108	111.7
107	110.4
106	109.1
105	107.8
104	106.4
103	105.0
102	103.5
101	102.0
100	100.0
99	98.8
98	97.1
97	95.4
96	93.6
95	91.8
94	89.9
93	88.0
92	86.0
91	83.9
90	81.9

* Pumphery, F.V., Ramig, R.E., Allmoras, R.R., "Yield Tenderness Relationships in 'Dark Skinned Perfection' Peas". J. Amer. Soc. Hort. Sci. 100(5): 507-509. 1975.

Heat Unit Accumulation for the 2000 University of Delaware Processing

Pea Variety Trials

(40 degree base)

Date	High.	Low	Heat Units	Early Pea Variety	Late Pea Variety
3/10/00	Planted		0		0
3/11/00	74	46	20		20
3/12/00	66	37	11.5		31.5
3/13/00	48	29	0		31.5
3/14/00	57	26	1.5		33
3/15/00	68	40	14		47
3/16/00	72	52	22		69
3/17/00	64	31	7.5		76.5
3/18/00	37	24	0		76.5
3/19/00	45	28	0		76.5
3/20/00	45	38	1.5		78
3/21/00	45	42	3.5		81.5
3/22/00	45	42	3.5		85
3/23/00	60	38	9		94
3/24/00	63	38	10.5		104.5
3/25/00	72	42	17		121.5
3/26/00	64	40	12		133.5
3/27/00	71	36	13.5		147
3/28/00	60	45	12.5		159.5
3/29/00	60	39	9.5		169
3/30/00	62	34	8		177
3/31/00	57	35	6		183
4/1/00	66	34	10		193
4/2/00	67	48	17.5		210.5
4/3/00	70	57	23.5		234
4/4/00	69	48	18.5		252.5
4/5/00	53	36	4.5		257
4/6/00	75	36	15.5		272.5
4/7/00	70	41	15.5		288
4/8/00	76	45	20.5		308.5
4/9/00	52	32	2		310.5
4/10/00	62	38	10		193
4/11/00	69	44	16.5		209.5
4/12/00	58	40	9		218.5
4/13/00	49	34	1.5		220
4/14/00	57	34	5.5		225.5
4/15/00	66	49	17.5		243
4/16/00	76	58	27		270
4/17/00	62	48	15		285
4/18/00	49	46	7.5		292.5
4/19/00	53	42	7.5		300
4/20/00	65	38	11.5		311.5
4/21/00	71	48	19.5		331
4/22/00	55	48	11.5		342.5
4/23/00	55	43	9		351.5
4/24/00	66	43	14.5		366
4/25/00	55	43	9		375
4/26/00	53	41	7		382
4/27/00	49	42	5.5		387.5
4/28/00	62	41	11.5		399
4/29/00	66	43	14.5		413.5
4/30/00	67	43	15		428.5
5/1/00	72	37	14.5		443

Heat Unit Accumulation for the 2000 University of Delaware Processing

Pea Variety Trials

(40 degree base)

<u>Date</u>	<u>High.</u>	<u>Low</u>	<u>Heat Units</u>	<u>Early Pea Variety</u>	<u>Late Pea Variety</u>
5/2/00	71	49	20	463	0 Planted Late Trial
5/3/00	73	41	17	480	17
5/4/00	75	47	21	501	21
5/5/00	86	58	32	533	49
5/6/00	87	63	35	568	56
5/7/00	93	64	38.5	606.5	94.5
5/8/00	90	67	38.5	645	133
5/9/00	87	70	38.5	683.5	171.5
5/10/00	87	59	33	716.5	204.5
5/11/00	77	54	25.5	742	230
5/12/00	88	58	33	775	263
5/13/00	90	61	35.5	810.5	298.5
5/14/00	75	56	25.5	836	324
5/15/00	69	48	18.5	854.5	342.5
5/16/00	72	41	16.5	871	359
5/17/00	75	55	25	896	384
5/18/00	84	61	32.5	928.5	416.5
5/19/00	85	53	29	957.5	445.5
5/20/00	58	53	15.5	973	461
5/21/00	62	54	18	991	479
5/22/00	60	54	17	1008	496
5/23/00	67	56	21.5	1029.5	517.5
5/24/00	83	61	32	1061.5	549.5
5/25/00	76	61	28.5	1090	578
5/26/00	77	52	24.5	1114.5	602.5
5/27/00	67	56	21.5	1136	624
5/28/00	63	54	18.5	1154.5	642.5
5/29/00	59	54	16.5	1171	659
5/30/00	58	52	15	1186	674
5/31/00	72	48	20		694
6/1/00	87	53	30		724
6/2/00	92	66	39		763
6/3/00	75	57	26		789
6/4/00	73	52	22.5		811.5
6/5/00	66	57	21.5		833
6/6/00	62	58	20		853
6/7/00	75	54	24.5		877.5
6/8/00	80	59	29.5		907
6/9/00	87	65	36		943
6/10/00	91	69	40		983
6/11/00	92	72	42		1025
6/12/00	94	66	40		1065
6/13/00	67	60	23.5		1088.5
6/14/00	67	61	24		1112.5
6/15/00	88	63	35.5		1148
6/16/00	87	69	38		1186
6/17/00	90	72	41		1227
6/18/00	88	72	40		1267
6/19/00	75	67	31		1298
6/20/00	82	59	30.5		1328.5
6/21/00	82	59	30.5		1359
6/22/00	83	70	36.5		1395.5
6/23/00	86	68	37		1432.5

Heat Unit Accumulation for the 2000 University of Delaware Processing Pea Variety Trials

(40 degree base)

<u>Date</u>	<u>High</u>	<u>Low</u>	<u>Heat Units</u>	<u>Early Pea Variety</u>	<u>Late Pea Variety</u>
6/24/00	87	62	34.5		1467
6/25/00	89	72	40.5		1507.5
6/26/00	89	73	41		1548.5
6/27/00	90	71	40.5		1589
6/28/00	75	71	33		1622
6/29/00	76	64	30		1652
6/30/00	80	62	31		1683
7/1/00	83	62	32.5		1715.5
7/2/00	85	61	33		1748.5
7/3/00	86	67	36.5		1785
7/4/00	86	70	38		1823
7/5/00	84	66	35		1858



March 2000

2000	Julian Date	Maximum Temperature F	Minimum Temperature F	Rainfall Inches	Maximum Soil Temperature	Minimum Soil Temperature
1-Mar	61	64	28	0.00	58	34
2	62	53	40	0.00	56	39
3	63	51	37	0.00	54	36
4	64	53	26	0.00	57	33
5	65	64	34	0.00	60	35
6	66	55	28	0.00	59	34
7	67	64	27	0.00	64	34
8	68	81	49	0.00	74	44
9	69	78	56	0.00	72	49
10	70	70	47	0.00	74	48
11	71	74	46	0.03	70	49
12	72	66	37	0.22	60	38
13	73	48	29	0.00	60	34
14	74	57	26	0.00	64	35
15	75	68	40	0.00	67	38
16	76	72	52	0.32	70	48
17	77	64	31	0.89	61	34
18	78	37	24	0.00	53	33
19	79	45	28	0.00	52	34
20	80	45	38	0.03	51	39
21	81	45	42	3.13	46	43
22	82	45	42	0.54	46	42
23	83	60	38	0.00	67	39
24	84	63	38	0.00	69	40
25	85	72	42	0.26	69	42
26	86	64	40	0.01	67	45
27	87	71	36	0.53	67	39
28	88	60	45	0.28	68	46
29	89	60	39	0.00	64	42
30	90	62	34	0.00	70	39
31	91	57	35	0.00	66	38
Average		60	37		62	39
Total				6.24		
YTD						
Average		51	31		50	36
Total				9.79		

Data Collected Midnight- Midnight
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April 2000

2000	Julian Date	Maximum Temperature F	Minimum Temperature F	Rainfall Inches	Maximum Soil Temperature	Minimum Soil Temperature
1-Apr	92	66	34	0.00	72	38
2	93	67	48	0.00	65	45
3	94	70	57	0.01	67	55
4	95	69	48	0.02	67	48
5	96	53	36	0.00	61	41
6	97	75	36	0.00	72	41
7	98	70	41	0.00	79	45
8	99	76	45	0.21	81	51
9	100	52	32	0.46	58	40
10	101	62	38	0.00	65	39
11	102	69	44	0.00	74	47
12	103	58	40	0.00	63	44
13	104	49	34	0.00	71	40
14	105	57	34	0.00	73	41
15	106	66	49	0.91	67	52
16	107	76	58	0.01	83	59
17	108	62	48	0.03	61	51
18	109	49	46	0.50	52	48
19	110	53	42	0.03	54	46
20	111	65	38	0.00	77	42
21	112	71	48	0.44	68	51
22	113	55	48	0.00	58	52
23	114	55	43	0.00	61	46
24	115	66	43	0.00	75	44
25	116	55	43	0.54	56	46
26	117	53	41	0.00	70	44
27	118	49	42	0.04	54	47
28	119	62	41	0.01	75	45
29	120	66	43	0.00	73	46
30	121	67	43	0.00	73	47
Average		62	43		67	46
Total				3.21		
YTD						
Average		54	34		54	38
Total				13.00		

Data Collected Midnight- Midnight
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May 2000

2000	Julian Date	Maximum Temperature F	Minimum Temperature F	Rainfall Inches	Maximum Soil Temperature	Minimum Soil Temperature
1-May	122	72	37	0.00	77	43
2	123	71	49	0.00	77	54
3	124	74	41	0.00	88	47
4	125	75	47	0.00	87	51
5	126	86	58	0.00	92	59
6	127	87	63	0.00	97	63
7	128	93	64	0.00	100	65
8	129	90	67	0.00	101	67
9	130	87	70	0.00	98	69
10	131	87	59	0.12	97	65
11	132	77	54	0.00	87	56
12	133	88	58	0.00	97	61
13	134	90	61	0.01	103	67
14	135	75	56	0.00	96	64
15	136	69	48	0.00	92	59
16	137	72	41	0.00	93	53
17	138	75	55	0.01	90	60
18	139	83	61	0.00	91	63
19	140	85	53	0.00	94	65
20	141	58	53	0.14	65	59
21	142	62	54	0.56	71	57
22	143	60	54	1.11	64	57
23	144	67	56	0.00	76	58
24	145	83	61	0.10	88	61
25	146	76	61	0.00	75	61
26	147	77	52	0.00	88	55
27	148	67	56	0.13	69	60
28	149	63	54	0.13	68	56
29	150	59	54	0.01	62	54
30	151	58	52	0.00	63	53
31	152	72	48	0.00	86	51
Average		75	55		85	59
Total				2.32		
YTD						
Average		58	38		61	43
Total				15.3		

Data Collected Midnight- Midnight
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June 2000

2000	Julian Date	Maximum Temperature F	Minimum Temperature F	Rainfall Inches	Maximum Soil Temperature	Minimum Soil Temperature
1-Jun	153	87	53	0.00	95	56
2	154	92	66	0.08	102	66
3	155	75	57	0.01	89	64
4	156	73	52	0.00	95	58
5	157	66	57	0.00	85	61
6	158	62	58	0.76	67	58
7	159	75	54	0.00	82	54
8	160	80	59	0.00	91	59
9	161	87	65	0.00	100	62
10	162	91	69	0.00	105	68
11	163	92	72	0.00	108	71
12	164	94	66	0.46	108	74
13	165	67	60	0.00	78	65
14	166	67	61	0.01	73	65
15	167	88	63	0.13	90	66
16	168	87	69	0.27	91	70
17	169	90	72	0.29	100	74
18	170	88	72	0.97	94	73
19	171	75	67	0.01	80	70
20	172	82	59	0.00	96	63
21	173	81	59	0.00	90	62
22	174	83	70	0.41	86	71
23	175	86	68	0.00	91	69
24	176	87	62	0.00	100	66
25	177	89	72	0.00	104	72
26	178	89	73	0.00	105	75
27	179	90	71	0.57	107	76
28	180	75	71	0.20	83	74
29	181	76	64	0.61	87	69
30	182	80	62	0.03	89	65
Average		81	62		91	65
Total				4.81		
YTD						
Average		62	43			
Total				20.13		

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July 2000

2000	Julian Date	Maximum Temperature F	Minimum Temperature F	Rainfall Inches	Maximum Soil Temperature	Minimum Soil Temperature
1-Jul	183	82	62	0.00	93	66
2	184	85	61	0.00	103	65
3	185	86	67	0.00	102	69
4	186	86	70	0.23	92	73
5	187	84	66	0.00	93	72
6	188	83	63	0.00	101	67
7	189	79	61	0.00	96	70
8	190	79	52	0.00	98	62
9	191	84	57	0.00	97	66
10	192	91	69	0.33	99	76
11	193	76	63	0.00	79	69
12	194	80	60	0.00	90	64
13	195	81	58	0.00	96	66
14	196	79	62	0.04	85	69
15	197	76	64	0.94	82	68
16	198	79	62	0.03	83	67
17	199	84	62	0.00	87	67
18	200	89	67	0.00	89	71
19	201	74	62	0.85	77	66
20	202	77	64	0.81	77	65
21	203	81	61	0.00	85	66
22	204	83	65	0.00	81	71
23	205	79	61	0.00	81	67
24	206	72	65	0.01	73	68
25	207	71	62	0.08	71	65
26	208	79	68	0.71	78	69
27	209	77	68	0.00	78	73
28	210	83	68	0.00	81	71
29	211	82	69	0.21	82	72
30	212	85	72	0.37	85	74
31	213	86	71	0.09	85	74
Average		81	64		87	69
Total				4.70		
YTD						
Average		64	45			
Total				24.83		

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