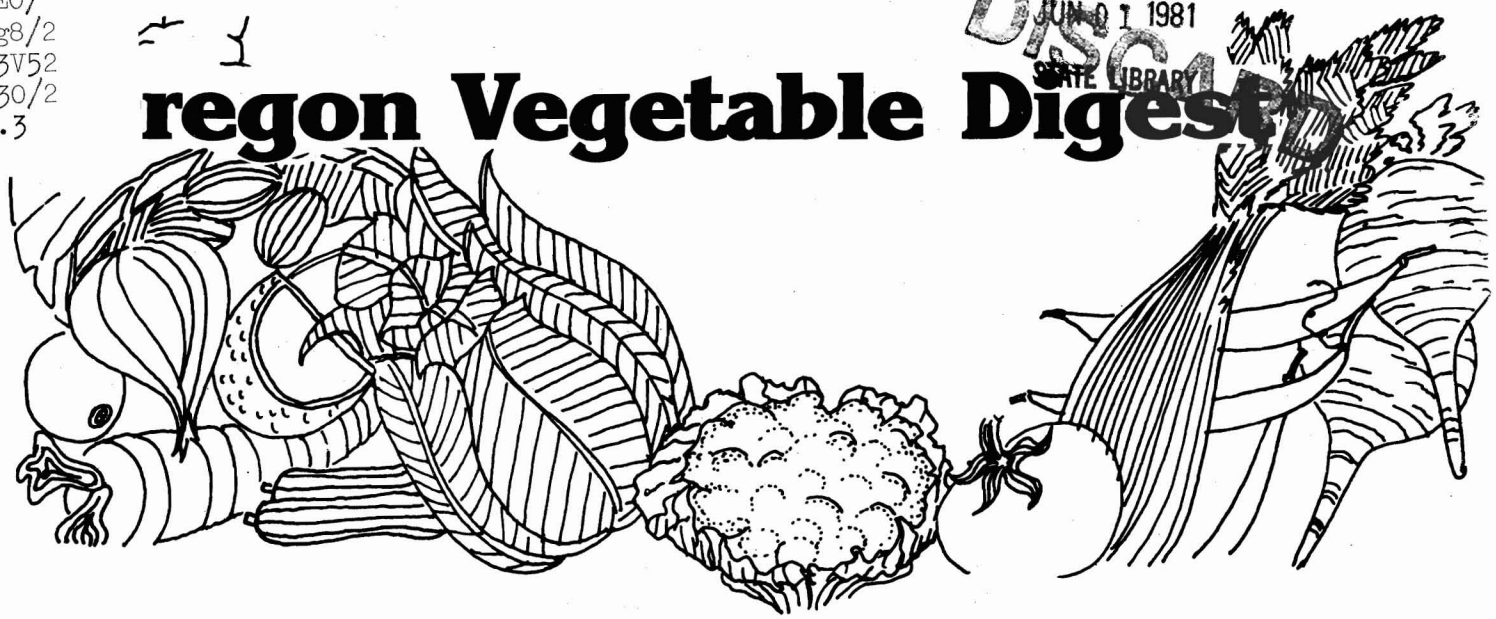
Oregon Vegetable Digest



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Progress in OSU Bean Breeding

Evaluation of OSU bean breeding lines in 1980 included both small replicated plot trials, Tables 1 and 2, and larger commercial trials (Table 3). The released varieties Oregon 17, 83, and 91 were included in both plot and commercial trials. Plot trials included two plantings, May 5 and June 16 (Tables 1 and 2) for all entries, including 10 commercial varieties or breeding lines (one, 9217, is a wax variety).

Planting 1 was subjected to cold weather in the germination and seedling stages, and also involved a hard soil profile. Yields, in part, were a reflection of poor early growth conditions and root rot severity.

Planting 2 was subjected to heat during flowering, which resulted in some pod set problems. This also caused increased variability between replications, thus reducing the accuracy of yield comparisons.

General comments and notes on disposition of experimental lines included in the 1980 trial follow:

4335 - Brought out of storage in 1979 because of some processor interest in an early, large sieve bean, and increased in California in 1980. Performance in 1980 was fair. 1980 seed increase of 215 pounds probably should be used up and the line discontinued.

4755-1 - 4755-2 - Yield in 1980 was excellent in plot trials, especially in planting 1 where these lines yielded about 160 percent of Oregon 1604, and 127 percent of Oregon 1604B. Panel evaluations indicated that fiber problems would be of no concern. OSU 4755-1 is discontinued because seedstocks have developed an excessive number of off-types. OSU 4755-2 has been released as a commercial variety, 'Oregon 55'.

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Table 1. Green bean yields, planting 1 (May 5), Corvallis, Oregon, 1980[1]

No.	Line[2]	Parentage or source	Average stand	Harvest 1				Harvest 2				Harvest 3				Stand Adj. Tons[3]
				Days	%	Tons	Adj.	Days	%	Tons	Adj.	Days	%	Tons	Adj.	
1	1604	-	134	78	51	4.4	4.5*	80	33	5.5	4.6					4.4
2	1604B		136	78	56	4.9	5.2	80	45	6.1	5.8					5.7
3	4091	B5713-1	131	78	68	5.0	5.9	81	47	6.8	6.6*	84	39	6.4	5.7	6.6
4	4091W	"	118	78	66	4.5	5.2	81	50	6.0	6.0*	84	39	6.4	5.7	6.0
5	4091C	"	136	78	72	4.5	5.5	81	54	5.7	5.9*	84	38	5.8	5.1	5.8
6	4117	B5713-4	135	78	45	4.7	4.5*	80	33	5.6	4.6					4.4
7	4335	B5192-7-2	148	78	43	4.6	4.3*	80	43	6.3	5.9					4.1
8	4755-1	B6519	140	81	64	6.1	7.0	84	55	7.4	7.8	86	46	7.9	7.6*	7.4
9	4755-2	"	61	81	78	5.1	6.5	84	59	5.8	6.3	86	52	7.0	7.1*	7.5
10	4794	B6625	136	80	55	5.2	5.4*	81	57	5.3	5.7					5.3
11	4843-1	B6647	138	79	77	5.1	6.5	81	70	6.3	7.5*	84	57	5.8	6.2	7.4
12	4843-2	B6647	125	79	68	5.1	6.0	81	57	6.2	6.7*	84	55	7.5	7.9	6.7
13	4862	B6843-2	140	80	69	4.9	5.8	81	54	5.8	6.0*	84	46	6.4	6.1	5.9
14	4883	B6849-3	132	81	65	5.9	6.8	84	45	6.1	6.0*	86	39	6.9	6.1	6.0
15	4884	B6849-8	140	79	80	4.8	6.2	81	70	6.1	7.3	84	54	8.1	8.4*	8.3
16	4886	B6849-9	120	81	65	5.5	6.3	84	50	6.7	6.7*					6.7
17	4905	B6897-1-1-1	104	80	73	5.0	6.2	84	47	6.6	6.4*	86	38	8.2	7.2	6.5
18	4907	B6897-1-1-3	140	80	69	5.3	6.3	84	48	7.1	7.0*	86	37	7.5	6.5	6.8
19	4908	"	132	81	70	4.9	5.9	84	51	6.6	6.7*	86	42	6.8	6.3	6.6
20	4910	B6897-1-1-4	133	80	67	5.7	6.7	84	39	7.2	6.4*	86	30	7.8	6.2	6.3
21	4911	"	94	84	46	6.4	6.2*	86	25	7.2	5.4					6.3
22	4999	B6953-3-2-1	111	79	73	5.5	6.7*									6.8
23	5002	B6953-5-2	41	80	54	5.8	6.0	81	54	5.4	5.6*					6.2
24	5022	B6958-1-1-1	87	79	58	4.8	5.2	81	51	5.9	6.0*					6.2
25	5028	B6958-11-1	81	78	54	4.4	4.6	80	36	5.2	4.5*					4.9
26	5052	B6971-3-2-1	133	81	63	5.6	6.3*									6.2
27	BBL 53	Asgrow	139	84	95	5.2	7.5	86	77	5.7	7.3*					7.2
28	BBL 290	"	137	86	88	5.4	7.5	88	78	5.7	7.3*					7.2
29	WHP-3	Idaho Seed Bean	118	84	90	5.6	7.8	88	73	5.8	7.1*					7.1
30	WHP-4	"	128	80	94	4.5	6.5	84	78	5.6	7.2	86	69	6.0	7.1*	7.1
31	E6211	Ferry Morse	136	80	60	5.2	5.7	84	49	5.2	5.2*					5.1
32	Early Bird	Maffei	122	78	56	3.8	4.0	80	46	4.4	4.2*					4.2
33	Galamor	Gallatin Valley	140	80	87	2.7	3.7	84	58	5.0	5.4	86	55	5.0	5.2*	5.1
34	Lakeland	Sun	138	85	54	4.0	4.2*									4.1
35	9217	Keystone	140	78	79	3.7	4.8	81	65	4.7	5.4*					5.3
36	NCX 8014	FMC	74	78	55	2.7	2.9*	80	36	3.2	2.8					3.2

[1] Means of 4 replications; subplots of 5' were harvested from 20' plots on each harvest date; rows 36" apart; days = days from planting; % = percent 1-4 sieve grades; tons = tons/acre; adj. = tons/acre adjusted to 50% 1-4 sieve.

Analysis of variance calculated using the harvest marked * for each variety; LSD @ 5% significance = 1.2 tons/acre.

[2] OSU lines 4117, 4883, and 4091 were released as Oregon 17, 83, and 91.

[3] Stand adjusted yield, using the harvest marked *, by analysis of co-variance.

Table 2. Green bean yields, planting 2 (June 16), Corvallis, Oregon, 1980[1]

No.		Average Stand	Harvest 1 Days	%	Tons	Adj.	Harvest 2 Days	%	Tons	Adj.	Harvest 3 Days	%	Tons	Adj.
1	1604	150	59	46	7.7	7.4*	60	42	7.9	7.3	63	30	9.9	7.9
2	1604B	150	59	62	7.4	8.3	60	57	7.9	8.5*	63	28	10.1	7.9
3	4091	150	59	57	7.3	7.8*	63	39	10.0	8.9				
4	4091W	149	59	55	6.7	7.1*	63	32	8.9	7.3				
5	4091G	147	59	60	7.3	8.0*	63	35	8.9	7.5				
6	4117	150	57	42	7.4	6.8*	58	37	8.4	7.3				
7	4335	150	57	44	6.3	5.9*								
8	4755-1	136	65	47	9.5	9.2*	67	45	10.0	9.5	70	24	13.8	10.2
9	4755-2	150	65	62	6.6	7.3	67	57	9.1	9.7*	70	23	12.7	9.3
10	4794	150	60	69	7.0	8.3	63	44	8.8	8.2*	65	44	9.4	8.8
11	4843-1	148	60	81	4.3	5.7	63	59	7.2	7.9	65	50	7.5	7.5*
12	4843-2	150	60	73	5.9	7.3	63	45	7.4	7.0	65	50	9.3	9.3*
13	4862	150	60	60	5.0	5.5	63	40	6.3	5.7*				
14	4883	150	60	79	4.9	6.4	63	53	7.3	7.5*	65	42	8.8	8.1
15	4884	148	60	86	3.3	4.5	63	61	6.1	6.8*				
16	4886	150	60	77	4.5	5.7	63	54	6.7	7.0	65	52	7.2	7.4*
17	4905	150	60	85	5.1	6.9	63	51	8.1	8.2*	65	40	10.0	9.0
18	4907	150	60	65	7.7	8.8	63	37	10.7	9.3*	65	30	10.2	8.2
19	4908	140	60	68	6.6	7.8	63	39	8.7	7.7*	65	34	9.9	8.3
20	4910	150	60	68	7.0	8.3	63	38	9.8	8.6*	65	25	10.4	7.8
21	4911	148	60	65	5.4	6.3	63	39	6.9	6.2*	65	38	6.9	6.1
22	4999	124	60	49	6.6	6.6*								
23	5002	120	60	57	6.1	6.5*								
24	5022	138	59	53	7.4	7.7*								
25	5028	143	60	46	6.9	6.6*								
26	5052	150	60	82	6.6	8.5*								
27	BBL 53	149	67	85	5.1	6.9	70	41	8.9	8.1*	72	32	10.4	8.5
28	BBL 290	150	67	89	6.3	8.8	70	53	9.2	9.5*	72	28	10.0	7.8
29	WHP-3	146	65	93	5.3	7.5	67	67	7.8	9.2*				
30	WHP-4	150	65	72	8.4	10.2	67	62	9.4	10.6*				
31	E6211	149	59	63	6.2	7.0*	63	33	8.9	7.4				
32	Early Bird	150	59	52	6.5	7.0*	63	24	9.2	6.8				
33	Galamor	147	67	74	7.6	9.4	70	40	8.5	6.7*	72	29	10.0	7.9
34	Lakeland	150	65	58	6.2	6.7	67	50	7.5	7.5*				
35	9217	150	57	84	4.4	5.9	60	48	5.3	5.2*				
36	NCX 8014	124	59	62	3.6	4.0*	63	32	6.1	5.0				

[1]Means of 4 replications; subplots of 5' were harvested from 20' plots on each harvest date; rows 36" apart; days = days from planting; % = percent 1-4 sieve grades; tons = tons/acre; adj. = tons/acre adjusted to 50% 1-4 sieve.
Analysis of variance calculated using the harvest marked * for each variety; LSD @ 5% significance = 1.7 tons/acre.

[2]OSU lines 4117, 4883, and 4091 were released as Oregon 17, 83, and 91.

Table 3. Summary of commercial production trials of OSU bean lines and varieties.

	Variety	No. Trials	Gross T/A	% No. Value	Net T/A	$ per Net Ton	$/acre
Overall averages:[1]	4091	20	5.9	15.5	5.0	161	822
	4091 G	5	5.8	14.6	4.9	176	839
	4094-3	1	6.4	20.0	5.1	129	666
	4117	3	3.5	13.3	3.0	162	493
	4755-1	1	5.2	12.0	4.5	145	659
	4755-2	5	6.5	14.4	5.7	172	956
	4843-1	5	6.3	14.6	5.6	182	986
	4862	2	6.6	10.0	6.0	150	882
	4883	34	5.7	12.9	4.9	155	760
	4884	1	5.1	21.0	4.0	142	573
	4886	1	4.5	11.0	4.0	140	586
	4907	3	5.9	12.3	5.1	159	815
	4911	3	7.3	16.3	6.4	150	916
	1604	34	6.2	17.1	5.2	144	743
	BBL 290	12	5.6	15.0	4.8	151	718
	Galamor	4	5.8	17.2	4.8	168	790
Paired averages:[2]	4091	9	5.4	14.4	4.6	158	730
	1604		6.5	16.9	5.5	138	758
	4091	3	6.5	12.7	5.7	158	898
	BBL 290		6.4	15.3	5.4	138	743
	4091	4	6.4	21.2	5.1	169	862
	Galamor		5.8	17.0	4.8	168	790
	4091G	4	5.8	15.8	4.7	175	809
	1604		6.2	17.2	5.0	138	712
	4117	3	3.5	13.3	3.0	162	493
	1604		6.1	16.3	5.1	151	759
	4755-2	2	7.2	13.5	6.2	154	949
	1604		7.4	17.0	6.1	148	884
	4755-2	2	5.9	13.0	5.1	166	832
	BBL 290		5.6	14.0	4.8	140	673
	4755-2	1	6.4	19.0	5.2	157	819
	Galamor		5.4	19.0	4.4	173	761
	4843-1	2	5.6	16.0	4.8	186	864
	1604		6.8	16.5	5.6	152	856
	4843-1	2	7.5	15.0	6.3	195	1209
	290		6.4	17.0	5.4	151	808
	4862	2	6.6	10.0	6.1	150	882
	1604		7.1	17.5	5.8	146	843
	4883	20	5.5	12.8	4.8	157	748
	1604		5.9	17.4	4.8	142	724
	4883	7	6.3	12.4	5.5	149	801
	BBL 290		5.4	14.4	4.7	160	736
	4884	1	5.1	21.0	4.0	142	573
	1604		7.6	20.0	6.1	135	820
	4886	1	4.5	11.0	4.0	146	586
	1604		7.6	20.0	6.1	135	820
	4907	3	5.9	12.3	5.1	159	815
	1604		6.0	15.7	5.1	150	755
	4911	3	7.3	16.3	6.3	150	916
	1604		6.2	15.7	5.3	149	782

[1] Averages for commercial varieties are for crops included in the paired comparison, not for all crops grown in the area.

[2] Averages of all crops where these specific comparisons were available. Commercial controls paired with OSU lines were not necessarily comparable in planting date, but most cases were grown at about the same time on the same farm.

4794 - Yields in 1980 were about the same as Oregon 1604. Small seed increases were made for commercial trial in 1981.

4843-1 - 4843-2 - Yields were high all season, with 4843-1 averaging as well as 4843-2, which has not been the case in some previous years. In the early trial, the average of these two lines was 160 percent of 1604, and 127 percent of 1604B. Seed supplies available for 1981 will be about 10,000 pounds total. OSU 4843-1 has been released as a commercial variety, 'Oregon 43', OSU 4843-2 will be further evaluated.

4862 - Although this line often looks outstanding in pod straightness and smoothness, its general similarity to Oregon 83 probably precludes its continuation.

4884 - Although a small supply of seed (150 pounds) is available for further trial in 1981, continuation of this line is not likely. It yielded very well in planting 1 (140 percent of 1604B), but seemed to be more adversely affected by heat in planting 2. It also may have more of a tendency for ovals and long-necked pods.

4886 - Seed increases fell short of a goal of 30,000 pounds, only about 12,000 are available for 1981. Plot yields in 1980 were higher slightly than those of Oregon 83, but the difference is likely accidental. Final disposition of this line will be determined after the 1981 season.

4907 - 4911 - Seed increase goals of 32,000 and 9,000 pounds, respectively, were achieved. Trial yields and quality were good in 1980. These lines produce large sieve pods, so may be of little interest to several Oregon processors. Seed increase rates and plot yield trials consistently indicate 4907 has more production potential than 4911. No releases will be considered until after 1981 trials. Several sister lines are being increased to compare with 4907 and 4911.

Breeding for resistance to white mold (Sclerotinia) was started with a crossing program and initial testing of parents and some segregating populations. A test plot with corn windbreaks to reduce drying was very successful in providing white mold infection, with susceptible lines (all OSU Blue Lake material, for example) nearly 100 percent dead by early seed stage. Resistance of some kind was observed in several lines already used as parents in crosses. However, a line thought to be a prime parent, Geneva 19-2, was less resistant than 'Galamor', a commercial variety not especially reputed to be resistant. The relative value of field selection under such conditions, as compared with greenhouse tests, will be evaluated.

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Phosphorus and Clear Plastic Mulch Effects on Sweet Corn

Prices of fresh market sweet corn tend to be highest early in the season and fall rapidly as the bulk of the crop matures. Growers harvesting early stand a good chance of increasing their profit margins. Techniques used to produce early corn include planting at the earliest possible date and growing early maturing varieties. The purpose of the trials reported here was to evaluate the use of banded superphosphate (BP), over-the-row banded phosphoric acid sprays (PA), and clear plastic mulch (PM) for increased yield and earliness of sweet corn. Use of BP with corn is recommended by the OSU Fertilizer Guide. PA is known to stimulate emergence and early growth

of several crops, and the "greenhouse effect" of clear mulches also promotes growth of many crops.

Experimental plans varied slightly from year to year, but BP, PA, and PM were applied alone and in combination to plots which had recieved broadcast application of nitrogen, phosphorus, and potassium in line with OSU recommendations. BP was placed two inches to the side and two inches beneath the seed row at 50 lb/acre of P; PA was applied in a three-inch band over the seed row at the same rate. The mulch used was 1½ mil x four feet clear polyethylene. Each sheet covered a two-row bed with rows 20 inches apart and 40 inches between beds. Atrazine and alachlor were used for weed control. The variety Jubilee was used in all trials. Trials were carried out for three years with planting dates of May 15, May 4, and April 26 in 1977, 1978, and 1979, respectively. All trials were in randomized complete block design with four replications. Plot size was six rows x 25 feet. PM was slit no more than five days after seedling emergence.

PM increased both air and soil temperature. In the 1978 trials, the average daily soil temperature at two-inch depth was 58°F between dates of seeding and plastic slitting. Under PM, the soil temperature for this period averaged 64°. Mean daily air temperature was increased 9° from 52 to 61°F under PM. PA also increased soil temperature by about 1°. The darker soil surface in the PA band may absorb more heat than the surrounding soil.

No single treatment or combination had any significant effect on the final percentage emergence of the corn. However, PM caused 5 to 10 days earlier emergence. After one month, mulched seedlings outweighed non-mulched seedlings by greater than four-fold; PA and BP had no effect on seedling weight (Table 1).

PM greatly hastened maturity as seen in its effect on yield of mature ears (Table 2). Averaged over a two-year period, PM plots produced nearly three-fold greater yield of mature ears for once-over harvest than did plots without PM. Plots were harvested at optimal maturity of the most favorable treatment; a later harvest would have produced a higher yield of mature ears from non-mulched plots. Optimal maturity of check plots was about 10 days later than PM plots in both 1977 and 1978. The phosphorus treatments also enhanced maturity; the greatest effect was obtained with a combination of PA and BP.

Total ear yield also was significantly increased by PM (Table 2) but the increase was small. The combination of PA and BP also increased total yield.

Both PM and the PA-BP combination increased yield of mature ears by increasing their number (Table 3); PM also significantly increased the average weight of mature ears. Both PM and the P sources increased the total number of ears harvested. Greatest yield of mature ears and total ears occurred with the three-way combination of PM + BP + PA.

The 1979 trial included only PM and BP treatments. Plots were harvested three times at weekly intervals to estimate effects on maturity date (Table 4). BP had little effect on maturity except in combination with PM. At the first harvest date, ears from PM plots were 30 to 60 percent mature; ears from non-mulched plots had barely started to fill. Similar differences in maturity were evident at the later harvests. PM hastened maturity by about seven days for this unusually warm growing season.

In another set of experiments conducted in 1976 through 1978, BP at 33 lb P/acre greatly increased the yield of mature ears for once-over harvest with either commercial or organic nitrogen sources, but had less effect on total ear yield (Table 5).

In summary, both PM and BP or PA hastened maturity and increased corn yield. PM primarily accelerates emergence and early growth and has hastened maturity of Jubilee by 5 to 14 days in early plantings. Phosphorus treatments have been almost as consistent in hastening maturity and increasing yield, but the effect on earliness is less pronounced than that of PM. Choice of the best method depends on the price premium that can be obtained for early corn. PM material costs are in excess

of $200/acre, whereas, material costs are less than $30/acre for BP or PA. PM is probably best suited for early production for direct marketing or U-pick operations. For maximum effectiveness with PM, the seed should be planted in a furrow and the plastic must be slit or removed shortly after seedling emergence.

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Table 1. Effect of PM, PA, and BP on Corn Shoot Weight One Month after Seeding - 1978

	mean wt. (g)				
Treatments	no P	BP	PA	BP + PA	Mean, mulch treatments[z]
+ PM	6.3	5.0	6.7	6.1	6.0[z]
- PM	1.3	1.3	1.4	1.6	1.4

[z]Means for mulch treatments differ significantly (P = .001)

Table 2. Effect of PM, PA, and BP on Corn Yield Averaged over 1977 and 1978

	Fresh wt. yield of mature ears, T/A				
Treatments	no P	BP	PA	BP + PA	Mean, mulch treatments[z]
+ PM	6.7	7.1	7.1	8.3	7.3
- PM	1.8	2.3	3.0	3.0	2.5
Mean, P treatments	4.2	5.1	4.7	5.7	
	Fresh wt. yield of all ears, T/A				
+ PM	9.9	9.9	9.8	11.2	10.2
- PM	7.4	8.3	8.9	9.1	8.4
Mean, P treatments	8.7	9.1	9.4	10.2	

[z]Means for mulch treatments differ significantly (P = .001 for mature ears, P = .05 for all ears)
LSD (.05) for P treatments = 0.6 for mature ears and 0.7 for all ears

Table 3. Effect of PM, PA and BP on Number and Mean Weight of Mature Ears - 1978

	Number of mature ears/plot			
Treatments	no P	BP	PA	BP + PA
+ PM	190	212	192	242
- PM	29	27	33	65
	Mean wt. of mature ears (lb)			
+ PM	0.69	0.69	0.77	0.68
- PM	0.63	0.60	0.64	0.64

Table 4. Effect of PM and BP on Maturity Index of Sweet Corn - 1979

Treatment	Maturity Index[z]		
Date:	8/7	8/13	8/20
Control	1.4a	2.9a	3.4a
BP	1.5a	3.0a	3.4a
PM	2.3b	3.5b	3.9b
BP + PM	2.6c	3.6b	4.0b

[z]Maturity index defined as follows: 1 = no kernel fill, 2 = kernels immature, 3 = kernels mature, 4 = kernels overmature, starchy

Table 5. Effect of BP on Mature and Total Ear Yield Averaged over Three Years

Nitrogen Applied	Percent Yield Increase with BP	
	Mature Ears	Total Ears
Zero N check	43	15
Commercial N, 200 lb/A	66	17
Poultry manure N, 150 lb/A	33	8
Sewage sludge N, 175 lb/A	37	9

Muskmelon Varieties Tested at Medford

One of the important fresh market crops in southern Oregon is the muskmelon (cantaloupe). It is a popular item in supermarkets and at local fruit stands from late July until after frost in October. A wide range of varieties is available for planting, making the choice of the most satisfactory one an important decision for the grower. Previous tests have identified several varieties that perform well under the soil and climatic conditions of the area. Among those are Ambrosia, Canada Gem, Classic, Haogen, Harper, Malheur, Saticoy Hybrid, Supermarket, and Supersprint. Some of these were grown as standards in 1980 along with several newer hybrid entries and evaluated from the standpoint of fresh market and home garden utilization.

Fifteen entries were seeded May 19 on a Central Point sandy loam soil. The experimental area received 70 pounds N, 40 pounds P_2O_5, and 24 pounds/acre S during seedbed preparation. Weed control was by cultivation, and irrigation was by overhead sprinkler. Good stands were obtained with all entries, and vine growth was satisfactory during the season.

The first ripe fruit was obtained August 26 from Alaska and Far North. Because the growing season was relatively cool, this was nearly four weeks later than early-maturing melons ripen in the Medford area. Alaska had long, somewhat football-shaped fruits of large size. For an early variety, its quality was acceptable, and while it matured early, it continued to ripen fruits throughout the season, finishing among the highest-yielding varieties. Far North had very small fruits of only fair quality and its yield total was low. Its place would only be in home gardens where earliness is desired.

Ambrosia had large, round fruits of very good quality, and its yield was high. Although it is too soft for shipping, it should be an excellent choice for local fresh market and home garden production. Supersprint is very productive, early-maturing, and continues to ripen fruits later in the season.

Canada Gem and Classic are about equal in yield, quality and ripening

season. Both are heavily netted and have ribs. Harper had nearly round fruits of good quality. It was of medium size and is well-adapted for production in the area. Saticoy Hybrid had fruits of very good quality of long oval shape, but it was quite late in maturity.

Two open pollinated varieties, Malheur and a closely-related selection listed as ENH, were relatively late in maturity, but were high in yield. Fruit were of large size, pointed at the stem end, and were slightly football-shaped. In previous tests, Malheur has been rated excellent because of its sweetness and small seed cavity. It is soft and subject to fruit rot, particularly in cool, wet seasons.

Golden Delight had fruit of good quality, but it was late maturing. Earlisweet was of good quality and was relatively early in yield.

Minnesota Honey and G-25-VB yielded well and matured in the same time period. The latter had large fruits that tended to split as they ripened.

Haogen had fruits with some yellow specks on the skin and green interior. It was very sweet, of medium size, and it could be a satisfactory fresh market melon.

Data are shown in the following table:

Yield and Maturity of Muskmelon Varieties,
Southern Oregon Experiment Station, Medford, 1980

Entry	Fruit Yield Tons/acre	Average Fruit Size, lbs.	*Relative Maturity	Ribs
Alaska	29.3	4.1	1	yes
Ambrosia	31.6	4.3	3	no
Canada Gem	20.1	3.4	2	yes
Classic	20.6	3.6	2	yes
Earlisweet	15.5	1.7	2	slight
ENH	28.4	4.6	4	no
Far North	6.0	0.9	1	slight
Golden Delight	22.2	3.7	4	yes
G-25-VB	21.4	4.2	3	yes
Haogen	18.5	2.7	3	yes
Harper	20.3	2.5	3	no
Minn. Honey	21.2	2.0	3	no
Malheur	25.0	4.5	4	no
Saticoy Hybrid	17.0	3.5	4	slight
Supersprint	19.3	1.9	2	no
Mean	21.1	3.2		
LSD, 5%	9.7			

*Relative maturity = 1=very early; 3=medium maturing; 5=very late maturing.

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'Oregon 605' Processing Pea Developed for Willamette Valley

'Oregon 605' pea was developed for commercial freezing in the Willamette Valley of Oregon. It is resistant to enation mosaic-red clover mosaic virus complex, a limiting factor in Western Oregon pea production. 'Oregon 605' is also resistant to powdery mildew, an advantage in seed production areas and processing areas such as Northeast Oregon.

'Oregon 605' has been carried as a massed line since 1972 when it was in the F_6 generation. It was developed from a complex of crosses, starting with 'Wando' X P.I. 140295, and later involving 'Frosty', 'Midfreezer', and 'Early Frosty'.

The plant of 'Oregon 605' is of the short (Perfection) type, usually 26 inches (66 cm) in height with smaller leaves than 'Dark Skin Perfection' (DSP). First bloom is at node 16, and processing maturity is one day earlier than that of DSP. Pods are borne two per node at a high percentage of nodes. They are about 8 cm long X 1.5 cm wide, bearing up to 8 ovules per pod, with an average of about 7.5 in trials. The pods are blunt and fill may be somewhat tight at advanced maturity. The sieve size is smaller than that of DSP, averaging 4.5 compared to 4.9 for DSP in four yield trials.

Flavor and texture have been acceptable when evaluated in both large commercial trials and plot trials, but flavor is often described as somewhat bland. Color of frozen peas has been acceptable in commercial production trials, but has ranged from very good to mediocre and variable in small plot trials.

Mature seeds are wrinkled, with about 4650/kg (2110/1b).

Yields of 'Oregon 605' in various trials have been average to exceptional and it appears to have good potential. Yields in seed production have been excellent.

'Oregon 605' has good field resistance to enation mosaic virus, red clover mosaic virus, powdery mildew (Erysiphe polygoni DC), and common pea wilt (Fusarium oxysporum f. pisi (Linford) race 1 Snyder and Hansen. Limited field tests indicate it carries resistance to systemic infection by downy mildew (Peronospora viciae (Berk.) Casp.) and some resistance to a root rot complex occurring in N.E. Oregon.

Major seedstocks have been allocated to commercial pea seed producers and Western Oregon processing companies. Trial quantities are available from the author.

J. R. Baggett
Horticulture Department

News and Notes

Reflective Film Mulches Influence Insect Control and Yield in Vegetables

In field tests, the most effective film mulch in deterring insects and reducing insect damage to fruits was aluminum. The insects affected were aphids, brown stink bugs, aphid parasites, and Diabrotica spp. Mosaic virus diseases were reduced among aluminum-mulched squash (Cucurbita pepo L.) and cucumber (Cucumis sativus L.) plants. Plant growth, flowering, and fruiting were delayed in tomatoes (Lycopersicon esculentum Mill.) and southernpeas (Vigna unguiculata (L.) Walp.). (J. M. Schalk, C. S. Creighton, R. L. Fery, W. R. Sitterly, B. W. Davis, T. L. McFadden, and Augustine Day. Journal of the American Society for Horticultural Science 104(6):759-762, 1979.)

Seedling Vigor in Corn

New hybrids of sweet corn (Zea mays L.) utilize genes which allow the build-up of high levels of sugar but which also lead to problems with seed and seedling vigor. In this study, ATP and various seedling vigor measurements were compared with seed germination and seedling vigor in normal and 3 corn endosperm mutants harvested at 16 to 42 days post-pollination. Germination and seedling vigor measurements (germination rate, radicle length, fresh and dry weight) showed that a shrunken-2 (sh2) corn was significantly lower in both laboratory and field tests than sugary (su), brittle (bt), and normal. The latter 3 genotypes were nearly equal in seedling vigor. Sugar levels of all mutants and normal were similar at 42 days post-pollination. Total polysaccharides in sh2 were 50 percent or more below the other three genotypes. ATP levels in seeds imbibed four hours, were generally similar in sh2 as in the other genotypes. In a time course study of 0 to 96-hour imbibition using 42 day-old seeds, the ATP content of sh2 seeds, was generally as high or higher than in the other three genotypes. It did not appear that ATP level was related to poor vigor during the early stages of germination of sh2 corn seeds. (R. C. Styer, D. J. Cantliffe, and L. C. Hannah. Journal of the American Society for Horticultural Science 105(3):329-332, 1980.)

Slide Tape Set Available

A slide tape set covering garden vegetable production on raised beds has been prepared by Duane Hatch, Lane County Cooperative Extension Chairman. The slide set and script are available for $25. For an additional $2.50, a tape is available which would help keep the 10-minute presentation on track and on time. To buy this set, contact Duane Hatch, Lane County Cooperative Extension Office, 950 SW 13th Street, Eugene, Oregon 97401.

Effects of Low Temperature, Cooling Rate, and Moisture Content on Seed Germination of Lettuce

Seeds of 5 cultivars of lettuce (Lactuca sativa L.) were adjusted to moisture contents between 5 and 22 percent and subjected to temperatures of 5, -18, -70, and -196°C (liquid nitrogen) for seven days. Seeds with moisture contents up to 18 percent were not damaged by either -18 or -196°C; however, the -70°C treatment resulted in loss of germination even with seeds containing as little as 16 percent moisture. Seeds held at 5°C showed no loss in viability. The loss in germination at -70°C appeared to be related to cooling rate. High moisture (18 to 20 percent) seeds were cooled to -196°C at different rates from 1 to 200°C/min. Germination was reduced in seeds cooled at rates slower than 25°C/min. At 200°C/min cooling rate and 18 to 20 percent seed moisture, both germination and root growth occurred although at reduced levels compared with control seeds held at 5°C. Prolonged storage (33 days) in liquid nitrogen of rapidly frozen high moisture lettuce seeds did not result in further loss of germination after the initial freezing to -196°C. (Eric E. Roos and Phillip C. Stanwood. Journal of the American Society for Horticultural Science 106(1):30-34, 1981.)

Tillering of Sweet Corn Reduced by Clipping of Early Leaves

Tiller development of sweet corn (Zea mays L.) was slowed or terminated after clipping of early leaves. Clipping reduced the size or mass of tillers more than it reduced tiller number. Both increasing stand density and early clipping reduced tillering. Planting date had little effect on tiller production, with or without clipping. (Ron P. Crockett and R. Kent Crookston. Journal of the American Society for Horticultural Science 105(4):565-567, 1980.)

Intentions for Major Processing Vegetables for 1981
(Crop Reporting Board ESCS, USDA)

Vegetable	From 1980 for Canning	From 1980 for Freezing	Overall	Total Acres
Green Lima Beans	down 13%	down 1%	down 6%	49,200
Snap Beans	down 11%	up 1%	down 8%	220,000
Beets	down 22%		down 22%	11,500
Cabbage for Kraut	up 11%		up 11%	---
Sweet Corn	up 2%	up 10%	up 4%	420,000
Cucumbers for Pickles			down 12%	93,000
Green Peas	down 10%	up 4%	down 5%	327,000
Spinach			down 11%	11,100

U. S. Agricultural Efficiency.

U.S. farmers continue to increase production efficiency: 1980 USDA figures indicate that a U.S. farmer now feeds 68 people compared with 47 in 1970. The 68 people consist of 48 in the U.S. and 20 more overseas. The American consumer spends only about 17 percent of take-home pay for food. That is the lowest of any of the developed nations in the world. People in some developing nations may spend more than 75% of their disposable income for food.

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