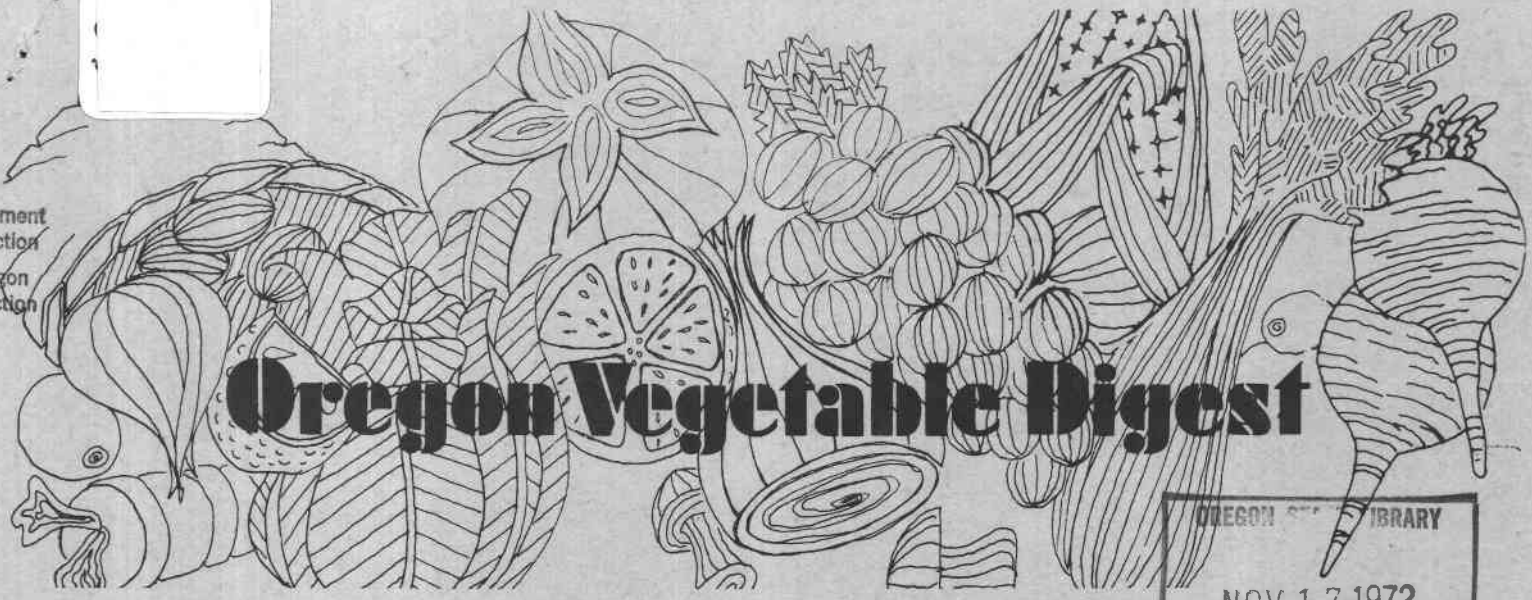

Oregon Vegetable Digest

Volume XXI Oregon State University, October 1972 Number 4

Bush beans tested in narrow rows

Six bush bean varieties were grown in "beds" of eleven, 7-inch rows at the OSU Vegetable Research Farm during 1972. A Stanhay precision seeder was used for planting on June 5. Belts were punched for a spacing of 5 inches in the row. A hole size of 18/32 inch for a seed size of about 1,350 to 1,400 seeds per pound was used. Initial stands in the row were related to seed size and germination, averaging as follows:

Variety	Seeds per pound	Spacing in row (inches)
Oregon 58	1250	6.4
Oregon 190	1800	2.6
Oregon 1604	1500	4.5
Asgrow 290	2060	2.4
Gallatin 50	1450	4.4
Tempo	1650	3.6

In This Issue . . .

Plants were thinned to an average of 5 inches in the row. Fertilizer at a rate of 50-150-50 pounds $N-P_2O_5-K_2O$/A was broadcast and disced in before planting. At planting, 25-75-25 pounds $N-P_2O_5-K_2O$/A was banded about 3 1/2 inches to the side and 2 inches below the seed. Trifluralin (3/4 pound/A) was broadcast and disced in before planting. Additional weed control was provided by the pre-emergence application of 3 pound DNPB amine per acre. Irrigation was

(Continued next page)

supplied by overhead sprinklers at intervals of 7 to 10 days. Four 1/1000-acre plots were harvested by hand for each variety on each of four dates except for 'Asgrow 290' which had only three harvests.

Differences among varieties were apparent in inherent sizes of pods, rates of maturity and yields as can be seen in data of Table 1. No control measures were used for white and gray molds and incidence was high late in the season. Most varieties were past optimum maturity on the fourth harvest date and were also affected by molds on foliage and pods. Because of later maturity, another harvest should have been made for 'Asgrow 290' but was not because of high incidence of molds.

It would appear that in narrow rows, bush bean varieties--in this and earlier tests--have potentials for hand-harvested yields of 8 to 12 tons/A with about 50 percent of pods sieve size 4 and smaller.

--H. J. Mack
Horticulture Department

Table 1. Yields (tons/acre) and sieve size distribution of six varieties of bush beans in 7-inch rows, Corvallis, 1972.

	Harvest Date							
	1 (8/4)		2 (8/7)		3 (8/11)		4 (8/14)	
Variety	T/A	% 4's & smaller	T/A	% 4's & smaller	T/A	% 4's & smaller	T/A	% 4's & smaller
Oregon 58	8.6	53	10.1	44	12.0	29	11.8	16
Oregon 190	7.0	90	7.0	80	9.6	53	9.4	38
Oregon 1604	9.9	54	12.0	48	13.0	28	12.2	13
Asgrow 290	2.0	100	--	--	6.4	96	6.8	77
Gallatin 50	4.2	95	5.2	82	6.9	59	7.5	37
Tempo	6.2	84	7.7	73	11.1	53	12.4	33

Density, row spacing affect NE Oregon bush beans

An experimental planting of bush beans was established near Weston, Oregon, to obtain information on the effect of row spacing and plant density on yield and sieve size distribution.

Fertilizer, 120-40-40-5 pounds N-P_2O_5-K_2O-Zn per acre, was broadcast and disced in before planting. Trifluralin at 3/4 pound per acre was disced in before planting. 'Wondergreen 452' bush beans supplied by Rogers Walla Walla Inc., were planted June 6. A grain drill with 7-inch row spacing was used to plant the seed at approximately 180 pounds per acre. After emergence, plants were removed from appropriate plots to establish differences in plant density and row spacing. Two plant densities were established in the 7-inch rows. The 28-inch row spacing was established by removing all plants in three of four rows. Treatments were replicated five times. Irrigation was applied five times, starting July 4 and ending August 8. The once-over hand harvest on August 14 consisted of counting all plants on a plot, picking and weighing all marketable pods, and determining sieve size distribution by putting all pods through the grader at Rogers Walla Walla Plant in Milton-Freewater.

(Continued next page)

No difference in yield of beans was measured between the two populations of beans grown in 7-inch rows. (Table 1). Yields of beans from the 7-inch rows were 2 1/2 tons per acre higher than the yield of beans grown in 28-inch rows.

Population differences and row spacing had only a minor effect on sieve size distribution. (Table 1). There was a trend for production of a higher percentage of smaller sieve size pods as plant population increased. This could be interpreted as about one day later maturity for the 7-inch row spacing compared to the 28-inch row spacing. The small percentage of size 5-6 pods and the high percentage of size 4 indicates a reasonably good set of early blooms.

These preliminary results suggest that there is a potential for increased yields from narrow row planting of bush beans in this area.

--F. V. Pumphrey
Pendleton Experiment Station
--D. J. Burkhart
Umatilla County Extension Agent (Horticulture)
--N. S. Mansour
Extension Vegetable Crops Specialist

Table 1. Effects of Population and Row Spacing on Yield and Sieve Size of 'Wondergreen 452' Bush Beans, 1972.

ROW SPACING (Inches)	POPULATION (Plants/Acre)	YIELD (Tons/Acre)	SIEVE SIZE DISTRIBUTION (PERCENT)			
			1& 2	3	4	5-6
7	346,000	8.4	13	30	52	5
7	236,000	8.5	10	28	56	6
28	94,000	5.9	7	21	61	11
	LSD 5%	1.3				

Bean planter tested at research farm

Six units of a new precision bean planter manufactured by Winslow-Pacific Company of Carlsbad, California, were tested at the Vegetable Research Farm in 1972.

The planter features a large seed hopper and narrow profile (allowing the units to be placed conveniently six inches apart), a zero velocity short distance seed drop for precision placement, and instantaneous adjustment to allow for different planting designs (diamond pattern or square pattern). Internal parts are designed to virtually eliminate seed damage and allow for a wide range of seed sizes to be planted with a minimum number of part changes. Tests were conducted with a large seeded variety ('Oregon 58' - 1250 seeds/pound) and a variety with medium sized seeds('Oregon 1604' - 1500 seeds/pound). Both were planted with the same seed ring. Openings were for a spacing of six inches in the row. Planting speeds were 2 1/2, 5 and 7 1/2 MPH. Table 1 shows the performance of each planter unit. Variability of stand occurred from a tendency of the seed to bridge in the seed hopper throat. This appears to be something that can be corrected with minor mod-

(Continued next page)

ification of the unit.

Little difference was detected in the planter performance at 2 1/2 and 5 MPH, but erratic performance resulted when the 7 1/2 MPH speed was used. The poorer performance at high speed resulted from poor penetration of the soil by the seed shoe.

Recent research findings reported in Oregon Vegetable Digest during the last several years have indicated that high density planting of beans will result in substantially increased yields. This production practice requires precision planting for maximum advantage. Plants must be placed in the high density population for the best amount of interplant competition and in the greatest total yield. Precision depth control also is important to insure uniform germination of the seed for uniform maturity at harvest time. Good quality seed becomes imperative in high density precision planting. High germination levels with high vigor are necessary to establish uniform stands with a minimum amount of skips. Planters must be designed to minimize or eliminate seed damage.

The Model 24 Winslow-Pacific bean planter tested appears to have many of the features necessary to perform the functions needed for high density precision planting. More extensive tests are needed.

--*N. S. Mansour*
Extension Vegetable Crops Specialist
--*H. J. Mack*
Horticulture Department

Table 1. Effects of ground speed on number of seedlings emerged for two varieties of bush snap bean, Corvallis, 1972.

These samples represent one of four 10-foot sections of row, taken across a 250-foot planting strip. Planter No. 1-6 represent the same units in all cases.

Number Seedlings per 10 feet of Row

Oregon 1604 2.5 MPH

Sample	Planter 1	2	3	4	5	6	Avg.
I	22	22	23	17	26	23	22
II	22	19	19	27	19	21	21
III	21	5	17	22	22	21	18
IV	22	23	25	17	19	18	21

Oregon 58 2.5 MPH

Sample	Planter 1	2	3	4	5	6	Avg.
I	25	20	17	23	18	23	21
II	21	21	16	24	21	9	19
III	22	21	14	24	19	18	20
IV	22	18	20	20	20	20	20

Oregon 1604 5.0 MPH

Sample	Planter 1	2	3	4	5	6	Avg.
I	25	18	18	29	24	11	21
II	29	22	32	14	23	13	22
III	27	8	29	32	23	27	24
IV	27	18	28	18	30	17	23

Oregon 58 5.0 MPH

Sample	Planter 1	2	3	4	5	6	Avg.
I	20	19	10	31	13	30	21
II	20	13	15	26	37	22	22
III	21	0	19	29	30	11	18
IV	26	17	21	19	23	24	22

Oregon 1604 7.5 MPH

Sample	Planter 1	2	3	4	5	6	Avg.
I	23	18	21	8	18	24	19
II	19	9	23	25	15	28	20
III	35	6	25	13	27	20	21
IV	24	5	21	14	30	6	17

Oregon 58 7.5 MPH

Sample	Planter 1	2	3	4	5	6	Avg.
I	24	19	19	7	16	10	16
II	16	8	19	8	11	20	14
III	28	12	19	12	21	8	18
IV	5	15	9	15	7	19	22

Reporting needed for weed control field research

The need for prompt reporting of field data is apparent to anyone concerned with vegetable crops research. In an attempt to reduce the lag in reporting and provide a means for information retrieval, a system of information collection and computer generated reporting was used for weed control research in horticultural crops in 1971.

After considering the types of information usually collected and the desirability of maintaining flexibility in the system, it was decided there would be no particular benefit from field sensing. Because of the scope of the research and the relative costs, it was decided that cards would be used for data storage. The printout format was patterned after the one used by the International Plant Protection Center, but a new program was written to gain more flexibility.

The program can accommodate an unlimited number of plots with evaluation of up to nine species in each plot. Two to five parameters may be recorded for each species in each plot. Stand reduction and growth reduction(percentage), based on visual evaluation or from other procedures, are included regularly for all plots. The printout shows individual plot data and treatment means. The program was revised in 1972 to improve printout format by justifying for the amount of data actually included.

To use this system, four documents are used: a general information document (which is supplemented with data such as information on climate and soils which is not entered on cards), a species document, a herbicide document and a crop/weed rating document. Field entries are made primarily on the last of these. Cards are punched directly from these documents. The computer printout is reduced to 8 1/2 x 11 inches and reproduced with supplemental information to become the report.

With this system it is possible to have a report within a short time after final field evaluations are completed. Although no cost comparisons were made, it is not expected that this system would result in costs greatly different from those of the conventional reporting system. However, where a statistical analysis of the data is to be made, some saving would be accomplished by using the data cards.

Informational exchange with other researchers using (or interested in) this type of reporting system would be appreciated.

--Garvin Crabtree
Horticulture Department

Oregon Vegetable Digest **is published four times a year by the Agricultural Experiment Station, Oregon State University, Corvallis, G. Burton Wood, Director. Address correspondence to the author concerned or to the Department of Horticulture.**

POSTAGE PAID
U.S. DEPARTMENT OF
AGRICULTURE
AGR 101

U.S.MAIL

AGRICULTURAL
EXPERIMENT STATION
of
Oregon State University
Corvallis, Oregon 97331

Director

FREE: Annual Report or Bulletin or Circular or Report of Progress.

Permit 1115

POSTMASTER: Please return free if unclaimed. See Postal Laws and Regulations.