Oregon Vegetable Digest

Volume 26 | Oregon State University, April 1977 | Number 2

Harvest dates tested on bush bean varieties

Five varieties of bush beans were planted in 36-inch rows on May 28, 1976, at the OSU Vegetable Research Farm. About 600 pounds of 8-24-8 fertilizer were banded at planting. An equal number of seeds was planted per plot and the following average stands of plants per foot of row resulted: 'Asgrow 290'-6.9 plants/ft., 'Galamor'-4.7, 'Oregon 58'-6.6, 'Oregon 1604'-5.6, and OSU 3745-1-6.9. These varieties vary in inherent sizes of pods as well as time for optimum maturity for highest yield and quality. Six once-over harvests by hand were made for each variety except 'Asgrow 290,' on the following dates: August 6, 9, 11, 13, 16, and 19 (70 to 83 days from planting to harvest). Harvest dates for 'Asgrow 290' were August 11, 13, 16, 19, 20 and 23. Plots were 12 feet in length and pods from the four replications were combined for grading.

Yield and sieve size data in Table 1 show that all varieties except 'Galamor' had maximum yield at the fourth or fifth harvest date and did not change much at later harvests. During the harvest period, average yield for all varieties was 4.0 tons per acre for the first harvest and 6.9 tons for the sixth harvest date. Size of pods changed from 74 to 30 percent sieve sizes 1-4 for harvest dates 1 and 6. 'Oregon 58' produced the lowest percentage of pods size 1-4 at the first harvest while 'Asgrow 290' had the highest percentage of pods 1-4.

Average change in yield per day for all varieties was 0.2 tons per acre and pods sieve sizes 1-4 changed about 3 percent per day. Largest changes were during the early harvest period. For every 1 percent change in sieve size 1-4 pods, yield change averaged .064 tons per acre under the conditions of this test.

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Days from planting to 10 per cent bloom were 49 for 'Oregon 58', 'Oregon 1604' and OSU 3745-1; 52 days for 'Galamor' and 54 days for 'Asgrow 290'. The average daily temperature during the 14-day harvest period was 62^{o}F. Days from planting to harvest to obtain about 50 percent sieve size 1-4 pods were estimated to be 69 days for 'Oregon 58,' the earliest maturing variety, to 83 days for 'Asgrow 290,' the latest maturing variety.

These results show that for making variety comparisons it is necessary to consider the particular seasonal variation in climate, potential yield and size of pods, and economics of return. Pod quality factors were not evaluated in this study but are recognized as important in any variety comparisons.

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Table 1. Effects of harvest dates on yield and sieve size distribution of five bush bean varieties, 1976

	Harvest Dates													
	1		2		3		4		5		6		Variety avg	
Variety	T/A[a]	%	T/A	%	T/A	%	T/A	%	T/A	%	T/A	%	T/A	%
Asgrow 290	2.5	97	3.4	87	3.6	68	6.9	45	6.4	65	6.8	38	4.9	67
Galamor	2.1	87	3.0	70	3.4	62	3.8	59	4.7	37	5.6	35	3.8	58
Oregon 58	5.4	41	6.4	24	6.7	21	8.4	24	8.3	11	8.2	16	7.2	23
Oregon 1604	5.4	61	5.8	40	6.3	40	8.0	29	8.2	18	7.6	15	6.9	34
OSU 3745-1	4.4	83	5.1	68	5.7	69	7.0	59	6.9	42	6.2	45	5.9	49
Harv. date avg.	4.0	74	4.7	58	5.1	52	6.8	43	6.9	35	6.9	30		

[a]Yield in tons per acre; percent sieve size 1-4.

Onion maggot and thrips management

The two most common insect pests of onions in the continental United States are the onion maggot (Hylemya antiqua) and the onion thrips (Thrips tabaci). Maggot losses are too well recognized to need description here, but damage inflicted by thrips may require some explanation. The "rasping-sucking" mouth parts -- characteristic of thrips -- lacerate the epidermal cells of the onion leaves, allowing the sap to exude for the tiny insects to suck up, and causing the death of the cells so damaged. The result is a scarring and "silvering" of the foliage and a general wilting of the plant if the leaf surfaces are extensively damaged. Yield loss can occur if severe foliage injury takes place early. However, attempts by various workers to demonstrate significant increases in yield from thrips control with chemical sprays or dusts have usually failed. Factors involved are use of more thrips-tolerant cultivars and the failure to quantify economic levels of thrips populations.

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Since the acceptance in the late 1950's of seed-furrow treatments of diazinon, ethion and Trithion for onion maggot control, many newer pesticides have been tested. Some of these materials have shown a suppressing effect on thrips populations for part of the growing season. In 1970-72, Dr. Louis Getzin of the Western Washington Research and Extension Center at Puyallup conducted field tests with 2 systemic insecticides which had been found to give seasonal control of the onion maggot. Greenhouse studies showed that onion plants translocated sufficient quantities of both compounds from treated soil to kill thrips for at least 8 weeks. Field tests were set up in eastern Washington soil with carbofuran (Furadan) and fensulfothion (Dasanit) furrow treatments. Periodic thrips counts showed that both materials kept thrips populations at a lower level than in the untreated plots for a period of about 18 weeks.

Getzin pointed out the possibilities of thrips management based on 2 considerations: (1) Suppression of thrips numbers was all that was necessary, since thrips feeding will not reduce yield or grade significantly unless there is severe early damage, and (2) that the suppression of the thrips populations could be accomplished by the same chemical treatment as used annually for maggot control. Of added interest is that aerial spraying, resorted to heavily in eastern Oregon, is hazardous to pollenating bees necessary for the production of alfalfa seed. There is also evidence that aerial application of thrips sprays is not effective because of the low gallonage used.

Onion maggot control tests in western Oregon muck soil in 1973 were examined in mid-summer for possible thrips suppression. The counts indicated that some treatments were reducing thrips populations below those in the untreated checks. Additional studies were felt justified.

In 1974, an experiment was set up on sandy loam soil in the Willamette Valley to test 5 furrow treatments in comparison with several foliar spray treatments for thrips control. Thrips damage was extensive before the end of summer -- silvering of the foliage being severe in the checks and guard rows. There was a definite suppression of thrips populations in the Furadan and Dasanit plots until the 15 August count (16 weeks after treatment) when Dasanit no longer appeared to be effective. No real suppression was observed with diazinon until 31 July (about 13 weeks after treatment), when numbers of thrips in the diazinon plots were found to be about one-half of those in the untreated plots. Dyfonate and Lorsban showed no indications of effecting thrips control.

A special test was set up in 1975 in mineral soil to study the effects of several seeding-time treatments on thrips populations and on grade and yield of mature onions. Adult thrips populations were significantly suppressed during a 6-week, mid-summer observational period by Furadan, Counter and isophenphos (BAY 92114), all applied in the seed furrow. Counter, however, reduced the stand of seedling onions below that of the untreated plots. All 3 materials reduced nymphal thrips populations and the degree of plant injury caused by thrips feeding. Furadan showed no significant differences in graded onions from the check; Counter had more jumbo grade (over 3 inch diameter), but fewer total or medium grade onions; and isophenphos showed higher numbers of jumbo grade, only. Isophenphos also produced the highest total yield. Temik, Dasanit (bow-wave application) and CGA-12223 gave high yields of desirable grades without having significantly reduced thrips populations. Although the onion maggot was not involved, stand losses from unknown sources may have been prevented by some of the treatments.

An attempt was made in 1976 to prove that a combined maggot and thrips control treatment, applied at seeding time, could be used in onion-growing areas of the state to increase the yield of desirable grades of bulb onions. Tests were conducted in eastern Oregon mineral soil (pH - 7.6), in western Oregon mineral soil (pH - 6.0), and in muck soil. At the Malheur Experiment Station phytotoxic effects, expressed in lowered seedling stand, were noted for Temik, Dasanit and CGA-12223 granular furrow treatments. Thrips counts ran very high -- more than 600 per 10 plants in one or more replications of all treatments -- although some (not significant) suppressing of populations was seen in the Furadan and isophenphos plots. Harvest yields reflected the early phytotoxic effects, and were not different when this factor was taken into account by analysis of covariance. Maggot damage in the Malheur test was too low to be a factor.

In the western Oregon muck or peat soil, low seedling stands were obtained with the Temik furrow application, Dasanit granular bow-wave and the CGA-12223 granular furrow treatment. The best stand count was in the Dasanit 8ec liquid furrow treatment. Thrips counts in all plots were too low to be meaningful. Maggots destroyed 25 percent of the untreated check onions, with only 2.5 percent loss in the standard diazinon plots. Even better maggot control was obtained with Temik 15G, isophenphos 15G, CGA-12223 20G, Furadan 10G, Counter 15G and Dasanit 8ec. However, graded weights and numbers of onions showed no significant differences after adjustment for varied seedling stands and maggot losses.

The 1976 western Oregon mineral soil test compared isophenphos, one of the most promising materials, with the untreated check. Seedling stand counts indicated no phytotoxicity, and 3 thrips population counts showed suppression in numbers until about 4 August. Weights and numbers of bulbs at harvest were higher in the isophenphos plots but not significantly so.

What can we conclude from all of the above? Several materials are known to be better than diazinon for maggot control, but phytotoxicity with a few may be a limiting factor. Although suppression of thrips numbers for more than half the growing season can be demonstrated for at least 2 materials, the action may not be strong enough to cope with high populations without help from 1 or 2 effective foliar sprays. Finally, the need still exists for data on economic threshholds of thrips numbers at different stages of growth, below which no additional treatment would be of financial benefit.

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Spinach varieties evaluated at Klamath Falls

Twenty-four spinach varieties were planted in a replicated trial (four replicates) in 12-foot long plots with rows 12 inches apart. This trial was conducted at the Klamath Falls Experiment Station to determine if any of these varieties would be suitable for mid-summer production at this high altitude location. The Klamath basin has a wide range of soil types, which could be suitable for spinach production, and a short season which limits production of most other vegetables. Summer temperatures are often warm during the day and always cool at night. Maximum and minimum monthly temperatures for June and August, 1976, were 2.5 and 3.8 degrees below normal, respectively.

The plot was planted on May 12, 1976, and received 100 pounds N and 60 pounds P_2O_5. Irrigation by overhead sprinklers was applied as required. The soil type in the plot area was a Fordney fine sandy loam.

Of the 24 varieties planted, 18 showed some possibility and are shown with complete notes in Table 1. An additional 6 varieties listed at the bottom of Table 1, were unacceptable for consideration.

Four varieties stood out in the trial: 'Bonus', 'Nores', Experiment #7241, and XP 1129 Hybrid. Overall performance for 'Bonus' was good, mean yield was 15.90 T/A; the variety had smooth pointed leaves and bolting was just starting. 'Nores' - overall performance was good, mean yield was 14.59 T/A; there were a few bolting plants which appeared to be off-types; the variety had smooth, pointed, thick leaves. Experiment #7241 - overall performance appeared to be excellent, mean yield was 20.36 T/A; there was no bolting at the time of evaluation; the variety had smooth leaves and appeared to have a high yield potential. XP 1129 Hybrid - overall performance was good, mean yield was 15.03 T/A; it had semi savoyed leaves and was just beginning to bolt; it appeared to have a yield potential second only to Experiment #7241.

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Table 1. Performance of spinach varieties, Klamath Falls, Oregon, 1976

Variety	Seed source	Vigor[a]	Bolting	Leaf type	Leaf thickness	Leaf stemminess	Comments
Bloomsdale, Am. Lng. Std.	Dessert Seed	2	2	semi savoy	4	2	Fair (2), 80% bolting, yield (4), sweet flavor, semi savoy
Bloomsdale, Wisconsin	Northrup King	4	1	semi savoy	3	3	Poor stand, small plant, semi savoy, 100% bolting
Bonus	Northrup King	4	3	smooth	3	3	
Bounty	Northrup King	2	3	semi savoy	3	3	OK, poor stand, small plants, semi savoy 10%
Crystal	Dessert Seed	3	2	smooth	3	1	Smooth leaf, bolting on the few plants, poor stand
Duet	Northrup King	2	5	smooth	4	4	Fair, small plant, no bolting, smooth leaf, poor stand
Grandstand	Asgrow	5	3	semi savoy	4	3	
Jewel	Dessert Seed	1	3	savoy	4	3	
Nores	Northrup King	3	5	smooth	3	3	
Norgreen	Northrup King	3	3	smooth	4	2	OK (3), bolting just starting, semi savoy big leaf, yield 4
Northland	Northrup King	–	5	smooth	2	2	
Resistoflay	Asgrow	3	3	smooth	3	3	Fair, small plant, smooth pointed leaf, 10% bolting
Viroflay	Asgrow	4	1	smooth	2	3	OK (2), bolting well along, smooth pointed leaf, yield 3
Winter Garden	Dessert Seed	2	1	semi savoy	2	3	
Exp. #7241	Keystone	5	5	savoy	3	3	
F-1 Hybrid Western	T. Sakata	3	2	smooth	3	3	OK (2), bolting just starting, smooth pointed leaf, yield 3
XP 1128 Hybrid	Asgrow	5	2	savoy	5	3	Fair (2), bolting 80%, yield 4, savoy
XP 1129 Hybrid	Asgrow	5	3	semi savoy	5	4	

Unacceptable varieties:

Variety	Seed source	Comments
Benkei Hybrid	Takaii	
Bloomsdale, Lng. Std. dk. gr.	Northrup King	Poor (1), 80% bolting, yield (2), semi savoy
High Pack Hybrid	Asgrow	
Hiyoshimaru Hybrid	Takaii	
New Asia Hybrid	Takaii	
Savoy Supreme	Northrup King	Poor, semi savoy, 100% bolting, small plant, yield 2

[a]*Ratings: 1 = poor, susceptible, etc., 5 = excellent, resistant, etc.

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