OREGON VEGETABLE Digest

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1959 Vegetable Variety Recommendations

Pole Bean Blossom Drop Sprays May Increase Yields

Use of growth regulator sprays to reduce blossom drop of pole beans has been tested for three years. Increases in yield from these sprays--in some cases small and not statistically significant--were obtained in 1956 and 1958, but in 1957 yields decreased.

Three growth regulators were tested in 1957 and 1958 and one in 1956. These materials were dissolved in water, a spreader added, and plants sprayed to the point of runoff. In 1956 TPA (N-metatolyl phthalamic acid) at 100 ppm (parts per million) was applied on July 16, one week before the first pick, and on July 25, after the first pick. In 1957 and 1958, TPA at 100 ppm, 4-CPA (para-chlorophenoxyacetic acid) at 25 ppm and GA (gibberellic acid) at 25 ppm were tested. In 1957 three applications were made--on July 18, one week before first

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In This Issue . . .

Some new vegetable introductions are listed below, along with old standbys. First, let's remember these things about vegetable varieties:

- Try new ones on a small scale before switching too quickly to large acreages.

- Consider that there is a never-ending parade of varieties of certain vegetable crops and that cautious, reasonable testing of promising new varieties may pay big dividends.

- Be sure of the specific requirements of the processing and market garden trade regarding varietal types.

Lack of universal adaptation of given varieties is due to the interaction of the plants' inherited makeup and such "environmental" conditions as soil, temperature, rainfall, day-length, diseases, and insects.

Once you find a good strain of a given variety, try to test seed stock a year ahead and get a reliable seedsman to furnish seed from such stocks. This is helpful with market garden varieties in particular. In general, varieties used for large-scale processing are kept in good shape through continuous close attention to roguing and new seed stock development.

With certain vegetables, such as cabbage, for example, you may find considerable differences between strains of a given variety, depending upon seed source. In this case, strain tests are valuable.

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1959 Variety Recommendations . . . (Continued from page 1)

You have these sources of information on varieties: (1) experienced growers, (2) seedsmen's descriptive lists, (3) fieldmen, (4) county agents, (5) seedsmen's representatives, (6) extension specialist, and (7) vegetable breeders at OSC. No one is able to keep up with all variety developments in every one of the vegetable crops. In some cases, consult several sources for your information. In the breeding and testing program at OSC we are able to keep fairly well up to date on the varieties of the most important vegetable crops. With others, we are unable to test all of the new introductions and so can only say that certain ones may be promising on the basis of tests elsewhere.

Asparagus: Mary Washington, California 55. Newer ones are Viking, Waltham Washington. Tom Davidson, Umatilla Branch Experiment Station, Hermiston, Oregon, has been doing the asparagus variety testing work in the station.

Beans, Green Bush: Tendercrop (a new U. S. Department of Agriculture bean of promise; seed supply likely short this year); Wade (a good home garden variety); Topcrop, Seminole, Tendergreen. Several of the OSC bush beans, of a new, distinctive bush habit, derived by hybridization with Blue Lake, show promise, but none have been released as varieties and seeds are available only for small trials in this area.

Beans, Green Pole: For processing -- FM-1, FM-1P, and FM-1K; Asgrow 231, Asgrow 228; for curly top area of Eastern Oregon -- Columbia. Home gardeners may wish to plant Oregon Giant or Kentucky Wonder. Available for small scale trial, OSC 190, a good home garden Blue Lake type, and a few other Blue Lakes of possible interest to processors.

Beans, Wax Bush: Puregold.

Broccoli: Waltham 29, Northwest Waltham, Medium strains (varies with seedsmen).

Beans, Lima Pole: Christmas, Oregon (a white "runner" bean of scarlet runner type).

Beans, Lima Bush: For large pods, Fordhook 242, Concentrated Fordhook; for small pods, Early Thorogreen and Clarks Bush.

Beets: For processing -- Detroit Dark Red. Also for home gardens -- Green Top, Bunching, Seneca Detroit.

Brussels Sprouts: Catskill.

Cabbage: Danish Ballhead, Golden Acre, Copenhagen Market. Strains of these types resistant to fusarium yellows should be used where the soil-borne pathogen is present. Club root resistance will likely be incorporated in cabbages in the next few years.

Carrot: For processing -- Red Cored Chantenay, Royal Chantenay, Nantes. For the gardener the Red Cored Chantenay will hold up longer in the fall without as much cracking and rotting as Nantes. Market garden types -- Imperator, Gold Pike, Gold Pak, Chanticleer, Morse Bunching.

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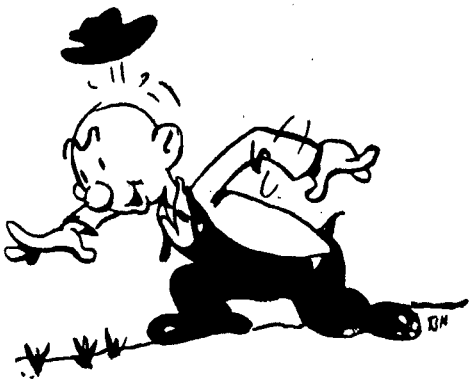
Cauliflower: Snowball X, Snowball Y, Early Snowball, Snowdrift.

Celery: Utah (many strains of this long, green petiole type are now on the market).



Cantaloupe: All of the familiar varieties such as Spear, Pike, Oregon Delicious, Hales Best, and Hearts of Gold are somewhat late in Western Oregon in the usual summer season. In Eastern Oregon the still later maturing Crenshaw can be grown. No distinctly high quality early melon has yet been developed. None of the fusarium varieties such as Ioquois, Harvest Queen, Delicious 51, Fusarium Resistant Honey Rock are distinctly early melons.

Corn, Sweet: For processing -- Golden Cross Bantam. For earlier maturity in home and market gardens -- Pot O Gold, Golden Beauty, Seneca Golden, Golden Jewel, Golden Early Market.

Cucumber: For pickling -- Snows Perfection or MR 17 (mosaic resistant). For slicing -- the F_1 hybrids, Burpee Hybrid, Sensation Hybrid, Surecrop Hybrid. These are also good for greenhouse production.

Eggplant: Black Magic (early F_1 hybrid), New Hampshire, Black Beauty (old later variety).

Lettuce, Head: Pennlake, 456, early strains of Great Lake.

Lettuce, Leaf: Oak Leaf, Salad Bowl.

Onion: Danvers Yellow Globe (Western Oregon), Sweet Spanish (Eastern and Southern Oregon). New hybrids are constantly under trial. Growers should watch these new developments closely. Pink root resistant storage types should be available in a few years. Resistance to mildew is likely much further away.

Peas: Perfection (many strains, including dark freezer types); Thomas Laxton, Laxton 7, Alaska. New virus resistant types should be observed in the next few years. For the home gardener who plants the very tall-growing type, Alderman. Wando is also good in the home garden, but is short.

Pepper: Early Calwonder, Pennwonder. If mosaic is a problem, Yolo Wonder, although it is rather late. Vinedale for a small fruited, very early type.

Summer Squash: Zucchini (the dark green F_1 hybrids are excellent), Caserta, Yellow Straightneck, Yellow Crookneck. White Scallop performs only fair here.

Winter Squash: Golden Delicious, Banana, Hubbard (all the various types perform well), Table Queen, Buttercup, Butternut, Sweet Meat, Uconn (bush acorn), Bush Buttercup, Dickenson (usually late).

Rhubarb: Valentine, MacDonald, Riverside Giant. All have their weaknesses. A few OSC rhubarbs will be available for trial in two years.

Tomato: Early, determinate, nonstaking types -- Victor, Bounty, Gem, Pennheart, some OSC lines available for trial. Medium early determinate -- Wasatch, Pritchard; good hybrids of medium maturity -- indeterminate, stake well: Moreton hybrid, Big Boy hybrid, Big early

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hybrid, Burpee hybrid; early indeterminate: Valiant, Faribo Hybrid E; indeterminate, non-hybrid, medium early, stake well: Queens, Stokesdale, Red Jacket (potato leaf), Glamour. Glamour has better crack resistance than most varieties, although it is by no means highly resistant. In the next few years many new varieties can be expected. Campbell 135 is rather crack resistant but somewhat late here. Ace is large fruited and of good quality, but somewhat late.

Watermelon: Klondike (many strains), New Hampshire Midget (early Ice Box, only fair quality, very small); Charleston Gray (fusarium resistant, good shipper, too late for Western Oregon).

-- W. A. Frazier
Horticulture Department

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Blossom Drop Sprays . . . (Continued from page 1)

pick, on July 29, after the second pick, and on August 8, after the fourth pick. Two applications of materials were made in 1958--on July 29 after the first pick, and on August 7, after the third pick.

In Table 1 data are presented on yield, sieve size grades, and arbitrary dollar values. In 1956 and 1958 increases in yield, though not significant, were obtained from use of these blossom drop sprays. In 1957, however, yields were reduced because of applications of growth regulator sprays. Because of picking to smaller sieve sizes in 1957 and 1958, sieve size data indicate higher percentages in these sizes than in 1956.

Blossom drop or pod set of beans appears to be a complex problem. Research workers in other areas have suggested several factors that may influence blossom drop and pod set of bush and lima beans, including: high maximum temperatures, low minimum temperatures, lack of available soil moisture, low relative humidity, and inadequate nutrition. Inadequate fertilization of the ovules has been found to result in unsatisfactory pod set with large-seeded lima bean varieties.

The cause of blossom drop of pole beans is not clear, but observations indicate that the problem is apparently related to high maximum temperatures. The loss in yield of pole beans due to blossom drop in 1956 was reported to be quite severe in some plantings in the Willamette Valley. This loss was apparently related to a period of about 10 days of high maximum temperatures beginning in mid-July. The magnitude of loss from blossom drop when it occurs varies from season to season.

Maximum temperatures at Corvallis in July and August of 1956, 1957, and 1958 are presented in Table 2. It is interesting to note the relationship between yield trends from the use of growth regulators and the temperature data. The chemicals were most effective when temperatures were high. Research in other areas has indicated that highest yields of bush beans from hormone sprays were obtained under prevailing high temperatures, a fair increase when weather was moderately warm, and a decrease in a cool summer.

In contrast to bush and lima beans, however, pole beans bloom and set pods over a relatively long period of time. Adverse conditions may result in blossom drop and lowering yield of one or more picks but often the plants are able to recover these losses later in the season under favorable conditions.

Blossom Drop Sprays . . . (Continued from page 4)

More information is needed on timing of sprays relative to periods of warm weather, as well as other factors, such as age of plants, other materials, concentration of spray, length of time the spray is effective, duration of the high temperatures, plant vigor, and variety.

Table 1. EFFECT OF POLE BEAN BLOSSOM DROP SPRAYS ON YIELD CORVALLIS. 1956-1957-1958

Treatment	Yield tons/acre	Percent in size grades 1	2	3	4	Dollar return (less picking cost)
1956						
Check	10.90	31.8	21.8	23.0	23.4	$ 473.00
TPA	11.20	34.1	22.1	22.7	21.1	605.00
1957						
Check	10.28	73.9	16.4	7.5	2.2	904.00
TPA	9.68	72.2	17.5	7.4	2.9	828.00
4-CPA	6.67	65.9	20.8	9.5	3.8	575.00
GA	9.79	69.0	18.4	8.8	3.8	852.00
1958						
Check	9.33	63.8	25.6	8.6	2.0	774.00
TPA	9.44	64.1	25.3	8.5	2.1	780.00
4-CPA	9.46	61.7	27.5	8.4	2.4	788.00
GA	9.47	64.0	24.7	9.0	2.3	815.00

Arbitrary Values: $170 per ton for Grade 1; $150 per ton for Grade 2; $95 per ton for Grade 3; $65 per ton for Grade 4; $65 per ton Picking Costs.

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Blossom Drop Sprays . . . (Continued from page 5)

Table 2. TEMPERATURE DATA--CORVALLIS, 1956-1957-1958
MAXIMUM TEMPERATURES

Dates	1956		1957		1958	
	°F.	Days 90°F. and above	°F.	Days 90° F. and above	°F.	Days 90° F. and above
July 1-10	76.6	1	77.3	0	83.8	3
11-20	85.3	4	77.5	0	84.3	2
21-31	86.1	5	79.3	0	89.6	5
Month	82.8	10	78.1	0	86.0	10
August 1-10	77.7	0	73.9	0	86.2	3
11-20	82.9	2	78.8	0	87.6	3
21-31	78.7	2	79.5	0	86.5	5
Month	79.7	4	77.5	0	86.7	11

(From: U. S. Weather Bureau Climatological Data)

-- H. J. Mack
Horticulture Department

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Vegetable Notes

Giberellins (gibberelic acid and its derivatives) have been tried on several crops to promote elongation (stretching) of stems, petioles, and flower stalks. The material seems to overcome the need for long days for some crops. This material has received a great deal of publicity but as yet it has only very limited use in commercial vegetable production.

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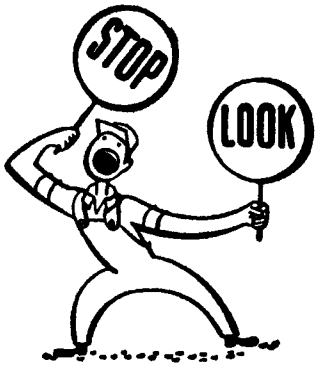
Paul Marth (U. S. Department of Agriculture, Beltsville, Md.) is quoted in Farm Journal, August 1958 in regard to a new group of growth regulating chemicals that cause "shortening" of plants. Actually the new chemicals cause the plants to remain short. At the same time there is an increase in vitality and the development of deeper green color in the leaves. These chemicals are supposed to be able to make bush beans out of pole beans and keep chrysanthemums from getting leggy. Could these chemicals be used to make mechanical harvesting of more vegetable crops possible? One of the chemicals, Ammo-1618, may be on the market soon.

New "Worms" Threatened 1958 Vegetable Crops

The 1958 season was noteworthy not only for its high temperatures and low rainfall, but for the numbers and species of "worms" which threatened vegetable crops. Some of these "worms" or lepidopterous larvae which attracted attention were well known to growers, but others were species seldom seen in the Willamette Valley or other parts of Oregon. Whether all these pests will continue to be a problem under more normal climatic conditions will remain to be seen.

Cutworms: Our two main species, the variegated cutworm (Peridroma margaritosa (Haw.)) and the black cutworm (Agrotis ypsilon (Rott.)), were more abundant than usual. Variegated cutworms have a climbing habit in their early larval stages and attack a wide variety of plants and weeds. Most of the damage last year was on beets, onions, clover, potatoes, and green beans. Many of the insecticides, such as DDT and malathion, normally used on the crops concerned, are effective against these pests when the worms are small. But the worms are difficult to kill after they attain large size unless high dosages of insecticides are used. The best protection is to keep on the lookout for them and be ready to dust or spray before the worms are big enough to cause real damage. Most damaging broods of this cutworm may be expected any time after late June.



The black cutworm is a subterranean type, doing most of its damage to seedling crops by cutting the plant off just below the soil line. Damage is most often noticed in corn fields, but the cutworm will attack beets and many other crops. Begin control applications as soon as injury is discovered and the extent of the infestation determined.

DDT (3 to 4 lbs. toxicant/acre) as an emulsifiable concentrate formulation applied through sprinkler irrigation systems has been recommended for control. For maximum efficiency, the insecticide should be fed into the line over a period of 30 minutes or longer at the end of each irrigation setting. In addition, sufficient time should be allowed to flush the insecticide out the lines.

Experimental work carried on this year showed that wettable powder formulations of DDT also could be used efficiently through sprinkler irrigation systems. This could result in substantial savings in the cost of pest control. There have been conflicting reports by growers on results obtained with DDT wettable powders. Since some wettable powders settle out rather rapidly, stir the suspension constantly as it is being fed into the system.

The recommendations for soil treatment with aldrin and heptachlor (as explained in detail in Circular of Information 540 for Diabrotica larvae, seedcorn maggot and wireworm) have been reported by several growers to be effective against cutworms in corn.

The corn earworm (Heliothis zea (Boddie)) a close relative of cutworms, was unusually abundant in 1958. Growers of sweet corn for fresh market can protect their crop best by using the "daub method," which cosists of applying 5% DDT dust directly to the silks with a shaving or stencil brush. Begin applications when about one-third of the hills are showing silk and repeat twice more at 3- and 4-day intervals. Losses to corn grown for processing are normally so light in the Willamette Valley that control is not considered economical. In areas like Hermiston, where severe injury may occur every year, the recommendations of the Federal entomologists for DDT sprays directed to the ear zone are suggested. Detailed publications on this type of control are available in County Extension offices.

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New "Worms" Threatened 1958 Crops . . . (Continued from page 7)

Armyworms: Oregon is not normally afflicted with these relatives of the cutworms, but 1958 saw the appearance of one of them in damaging numbers. The beet armyworm (Laphygma exigua (Hbn.)) showed up in a number of spots in Oregon, particularly the Willamette Valley. This insect was first recorded for the United States in 1876 from specimens collected in Oregon and California. It is an annual pest in the southern states, but has not been of economic importance in Oregon until this year.

The first indications of activity were the skeletonizing of leaves and later the complete defoliation of small pigweeds in corn fields. The worms unfortunately did not stop with the weeds, but moved to the corn and in some cases to table beets and other crops. They are a small larva, reaching about an inch and a half in length, light green to black in color with distinct longitudinal stripes. The moths are silvery-gray in color and lay small batches of fuzz-covered eggs on various plants.

Control was accomplished by spraying with DDT, but again it was difficult to kill the maturing larvae. Malathion also was found to be effective. Since this is primarily a subtropical species, recurrence of the infestation is not expected under normal weather conditions.

Loopers: There are several species of moth larvae belonging to the same family as the cutworms and armyworms which are known as loopers because of their method of walking. The alfalfa looper (Autographa californica (Speyer)) was again present in mint, beets, cane berries, and some other crops, but infestations were not as heavy as in previous years. This insect is especially susceptible to virus and bacterial diseases, so chemical control measures usually are not necessary. Most of the insecticides registered for use on the crop in question will kill the younger stages. As is the case with its close relatives, the alfalfa looper is hard to kill in the mature larval stage.

Cole crops in most areas of the country are plagued annually by the cabbage looper, (Trichoplusia ni (Hbn.)), a pest not normally found in the Willamette Valley. In the late summer of 1958, broccoli growers suddenly found they had a real problem with this species. The larvae feed mainly from the under sides of the leaves, but when mature move up into the forming broccoli heads to spin their cocoons. These cocoons are practically impossible to remove in the processing plants. Considerable loss resulted from the necessity of cutting the early heads and throwing them away.

In a series of cooperative field trials in the northern Willamette Valley (involving the U. S. Department of Agriculture, Oregon State College research and extension personnel, processors, growers, and the insecticide industry), a number of insecticides were evaluated against the cabbage looper in the fall of 1958. Materials were applied as sprays and dusts by the U. S. Department of Agriculture group from Forest Grove, using their recently developed sprayer-duster. This machine was especially designed for treatment of row crops and directs most of the spray or dust up from ground level to contact the under sides of the leaves. It was found that most of the insecticides which might be used on broccoli or other cole crops were effective against the cabbage looper when proper coverage of the foliage was accomplished. Kills of 95% or more were considered excellent; around 90%, good; and in the high 80's, fair. Summarizing and generalizing, the results appeared as follows:

DDT dusts - excellent immediate and residual kills when used in excess of 3 lbs. actual per acre.

Dibrom - excellent immediate control, particularly as a dust. No residual action.

Trithion - unsatisfactory as a spray.

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New "Worms" Threatened 1958 Crops . . . (Continued from page 8)

Phosdrin - good immediate and residual kills.

Perthane - good immediate and residual kills. Dust formulations may be better than sprays. Aerial spray was ineffective.

Diazinon - Sprays not promising. No dusts tried.

TEPP dust - fair immediate kills.

Thiodan spray - excellent immediate and residual kills.

Microbial spray - no immediate kills, but 70% to 80% control after 3 to 7 days, respectively. (This is a wettable powder containing spores of a bacterium specific to chewing insects.)

Judging from the results of these trials, growers could have a choice of materials, depending on proximity to harvest, cost of materials, availability, and so forth. Two important considerations are (1) early detection of the loopers in the field and (2) thorough application to contact the under sides of the leaves.

-- H. H. Crowell
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Vegetable Note

Sayre (Geneva, N.Y.) tested tomato varieties of intermediate vine type at several different spacings. That giving the highest gross return (less the cost of plants involved) was a twin-row spacing in which the row widths alternated between 4 feet and 1-1/2 feet. In other words, space between pairs of rows was 4 feet and space between the paired rows was 1-1/2 feet. Three feet between plants in the row was found to be best. This spacing requires 5,280 plants per acre.

Stevenson and Tomes (Purdue, Ind.) tested several dwarf types of tomato in 1957 at stands of 4,300 and 19,360 plants per acre. The check variety was Urbana. The best dwarf line, at the higher rate of planting yielded as follows:

1st picking	12.0 tons per acre
2nd picking	34.9 tons per acre
Total for season....	38.7 tons per acre

In 1958 these same workers increased the stand for the dwarf types up to 56,000 plants per acre (12-inch rows, 6 inches apart in the row, with alleys at standard distances to permit spraying for insect and disease control). The results have not yet been published. The aim is to study adaptability for mechanical harvest. (ASHS August 1958.)

Has Marketing Really Changed?

Marketing today is not too much different from what it was when the farmer started producing food and food products for other people than those in his own family. Sure, some changes have taken place, more people have become involved, and many "frills" have been added, but basically it's still a matter of moving farm products from the farm to the consumer in the form, at the time, and at the price the consumer is willing to pay, and of course returning the money through the marketing chain.

The same marketing functions or the parts of marketing are still with us and still have to be performed. Here again changes in methods are evident, but the same activity is accomplished. We still have the buying, selling, transportation, storage, financing, risk bearing, standardization, market information, and processing, if the latter is not considered as manufacturing.

Each of these functions is a major economic activity always found in the marketing process, and which, by continuous division of labor, has tended to become specialized.

A market today is the same as a market always has been. That is, a place where buyers and sellers trade. It can be an area, a building, or an activity such as dealing by phone, teletype, letter, or word of mouth. The important thing is that an offer and an acceptance are made. A modern building or a highly developed area is not needed to start the marketing process, but the performing of the other functions and some of the activities that facilitate marketing are usually conducted in a specific place. However, they may be repeated several times between farmer and consumer. For instance, assembling may take place several times packaging may take several different forms, and the commodity may be bought and sold repeatedly. This partially explains why marketing is so complex and why the farmer's share of the consumer's food dollar is so small.

Farmers in the past haven't paid too much attention to marketing because, (1) they assumed they could sell what they produced; (2) they were busy producing on their own farms; (3) marketing is an off-the-farm activity beyond the farmers' control; (4) marketing involves many people, is complicated, and requires study off-the-farm; and (5) the tendency is to do nothing about marketing when times are good--but to look for quick, miracle solutions when times are bad.

Today farmers are learning more about the basic principles governing the marketing of their product and are making use of the information available to them. Many are learning why the buyer is not paying more for the products offered and whether or not a neighbor received a higher price, and if so, why.

The small volume grower is probably at a disadvantage in competing with larger volume producers. He should recognize this and either accept it or take action to improve his economic position. This may be done by getting larger volume or pooling his resources with his neighbor. In today's business world it is just as human to work together as it is to go it alone. This does not mean necessarily that farmers today must form cooperatives. Pooling their resources can be done by forming a corporation or by informal arrangements with existing facilities. Another way for growers to merge to meeting market needs is to have centralized selling and packaging plants.

Although time, practices, and many facilities have changed, the fundamentals of marketing have not changed. Neither have the laws of supply and demand changed. The successful farmer of tomorrow, like the one of the past, will produce what the market wants, when the market wants it, and at a price the market will pay for the quantity needed.

-- R. H. Groder
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