



UNIVERSITY OF MINNESOTA

Department of Horticultural Science
St. Paul, Minnesota 55101

September 11, 1973

Gary F. Zimmer
Winona Area Technical Institute
1250 Homer Road
Winona, MN 55987

Dear Mr. Zimmer,

Please note the enclosed information on raspberry production in Minnesota. Information such as labor requirements and expected return over investment is not available from Minnesota.

There is no commercial blueberry production at the present time in Minnesota. The high-bush types seldom produce a crop above the snow-line. The low-bush types (wild blueberries) when used commercially have not proven profitable.

A handy fruit reference is: Modern Fruit Science, N. Childers, Horticultural Publications, Rutgers Univ, The State University, Nichol Ave., New Brunswick, New Jersey 08903.

If at a later date you desire additional information please contact me and I would be happy to meet with you in my office.

Sincerely,

Leonard B. Hertz
Extension Horticulturist

LBH:jh

Enclosures

HORTICULTURE NO. 20

LEONARD B. HERTZ

Raspberries grow well in most areas of Minnesota, although they are not well-adapted to locations with hot, dry summers and severe winters. Raspberries belong to a large group of fruits known as brambles. The three main types of raspberries—red, black, and purple—are grown in Minnesota. The red raspberry is by far the most popular and successful.

PLANTING SITE

Almost any soil is satisfactory for growing raspberries. In fact, the subsoil is more important than the surface soil. It should be well-drained but not too sandy unless irrigation is available.

Select an area with good air drainage. Poor air drainage often results in increased late spring frost injury and diseases such as anthracnose and spur blight.

RECOMMENDED VARIETIES

Selecting the right variety depends upon your fruit district (figure 1) and how you plan to use the berries. Varieties are arranged below according to approximate harvest time.

Varieties	Fruit Districts			
	1	2	3	4
Fallred (red everbearing)	X	X	X	X
September (red everbearing)	X	X		
Newburgh (red)	X	X	X	X
Boyne (red)	X	X	X	X
Latham (red)	X	X	X	X
Itasca (red)			X	X
Bristol (black)	X	X	T	T
Black Hawk (black)	X	X	T	T
Sodus (purple)	X	X	T	

X -- recommended as suitable

T -- suggested for trial

For additional information, see Horticulture Fact Sheet 3, Fruits for Minnesota.

PLANTING

Plant raspberries in the early spring as soon as the soil can be worked. Plant only highest quality nursery stock. Since virus diseases are serious in raspberries, use only healthy, disease-free plants. Obtaining plants from an abandoned patch can be costly, as they often are disease-infected.

If possible, plant in soil cultivated the previous season. It should be free of weeds, especially perennials such as quack-

Raspberries for the Home Garden



Minnesota Fruit Zones

grass. Work into the soil liberal quantities of manure or other organic matter.

Plant as soon after arrival as possible; never let the roots dry from exposure to air. Spade a deep slit in the soil, place the plant, and carefully fan out the roots. Set the plants slightly deeper than they were in the nursery. Remove the spade, and firmly press the soil around the roots. Cut back the tops to within 4 to 6 inches of the ground to encourage the production of vigorous, new canes.

PRUNING AND TRAINING

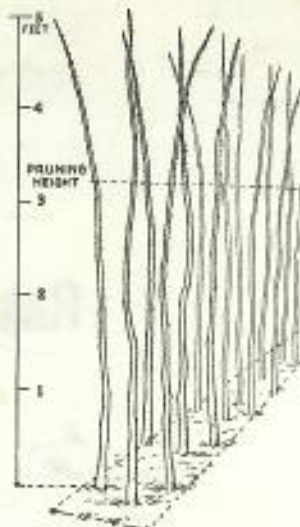
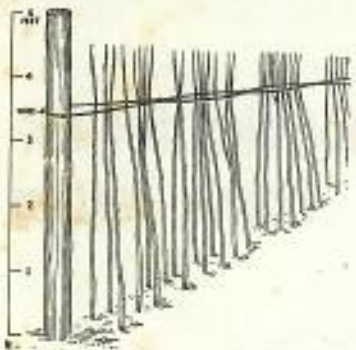
The two training systems commonly followed in Minnesota are:

Hedgerow -- New plants are set 2 to 3 feet apart in rows 6 to 8 feet apart. The spread of each row is limited by cultivation and pruning to about 1 foot. With no support (unsupported-hedgerow), cut back the canes to about 3 feet in the spring before growth starts. With support (wire-trellis-hedgerow), posts are about 16 1/2 feet apart in the rows with a wire at 3 1/2 feet on either side of the post. The canes are placed between the wires which are tied at intervals to prevent cane spread. The tops are cut back to about 6 inches above the wire in early spring.

Hill -- Raspberries are easier to keep weed-free if planted in hills instead of rows. Space plants 5 to 7 feet apart each way. In the spring tie the canes with binder twine or strips of cloth to a stake driven into the center of the hill (staked-hill). Cut the canes back to about 5 feet. Many red raspberry varieties are

Figure 2 (below). Wire trellis-hedgerow system.

Figure 3 (right). Unsupported-hedgerow system.



stout-caned and may be grown in hills by tying the canes together about 3 feet from the ground and again about 6 inches higher (teepee-hill). Cut the tops back to about 4 feet from the ground.

Black and purple raspberries need not be tied; top at 18 to 24 inches to keep them in the form of a compact bush and from growing too tall. In the early summer when new sprouts have grown out about 2 feet, cut out the tip to induce the formation of many side branches. In the next season (spring, before growth starts), cut these side branches back to 6 to 8 inches. Fruit from pruned side branches is larger than from unpruned side branches.

THINNING

Raspberry canes grow the first year, fruit the second, then die. To thin red raspberries, remove the old canes as soon as the fruit is harvested. The new canes and suckers also should be thinned, leaving three to four strong canes per foot of hedgerow and about seven strong canes per hill.

To thin black or purple raspberries, remove canes less than 1/2 inch in diameter. If all canes are less than 1/2 inch, cut out all but the two largest.

Everbearings (autumn fruiting) do not conform entirely to the usual red raspberry pattern. The fall crop is produced on canes that developed the same season; the following spring, another crop is produced on the same canes. Healthy, vigorous plants can produce heavy crops both times. However, if only a fall crop is desired, cut the canes to the ground in the early spring.

FERTILIZING

For maximum yields, fertilize your plants every year. Use a complete fertilizer high in nitrogen at the rate of about 10 pounds per 100 feet of row or about 1/2 cupful around each hill. Broadcast the fertilizer between rows and work it in the soil about May 1. If well-rotted manure is available, apply evenly between rows in the late fall or early spring.

PREVENTING WINTER INJURY

Raspberry plantings in Minnesota frequently need pro-

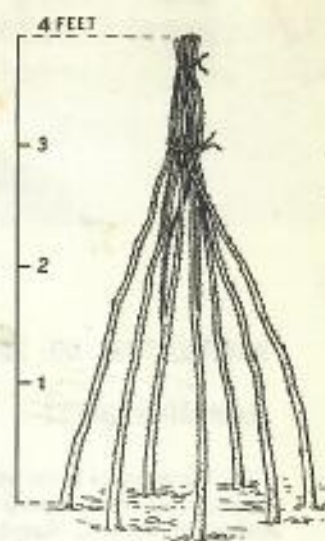
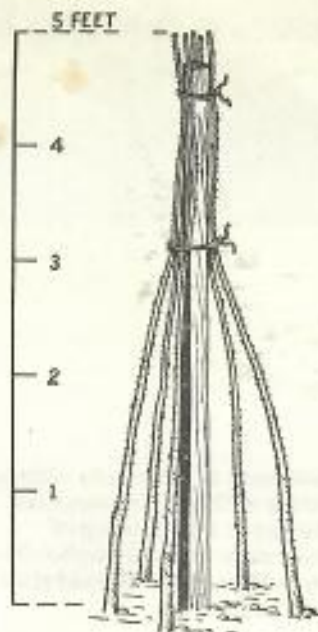


Figure 4 (left). Staked-hill system.

Figure 5 (above). Teepee-hill system.

tection from alternating cold and warm periods in late winter. Usually the canes can be protected by bending them over and holding them close to the ground with clods of dirt in late October or early November before the ground freezes. The earth clods are removed in the spring.

INSECTS AND DISEASES

Although raspberries have few insect pests, diseases are numerous and troublesome. For additional information, see Extension Pamphlet 184, Home Fruit Spray Guide, and Plant Pathology Fact Sheet 8, Raspberry Diseases.

CULTIVATION AND HERBICIDES

Successful raspberry culture requires a weed-free patch. Cultivation (including hoeing and weeding) is effective but must be repeated several times during the season. Cultivation in addition to weed control, prevents canes from developing all over the raspberry patch. Too much cane development results in competition for moisture, minerals, and sunlight, and the berries are often small and inferior.

Chemical weed control is effective in raspberries. However, weed killers (herbicides) should supplement cultivation, not replace it. They are most useful in controlling certain annual and perennial weeds within the rows or hills. Cultivate between the rows regularly even though a herbicide is used.

Simazine and diuron are effective in controlling germinating weeds in established plantings. Neither is effective for control of emerged weeds, however. Both can be purchased from your local nursery or garden center. Read the label on the container thoroughly and follow the directions carefully.

Use of commercial names does not imply endorsement nor does failure to mention a name imply criticism by the Minnesota Agricultural Extension Service.

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CHARACTERISTICS OF RECOMMENDED AND NEW RASPBERRY VARIETIES FOR MINNESOTA

Prepared by Dave Wildung, Horticulturist, North Central Experiment Station, Grand Rapids, Minnesota 55744. March, 1973.

Introduction

Raspberry acreage has declined greatly in Minnesota in the last thirty years. This decline has been due mainly to virus disease infections, winter hardiness problems, and high labor costs. Despite these factors, raspberries remain very popular in home fruit gardens. Commercial production is limited pretty much to areas near urban development that furnish a market and potential source of harvest labor.

Several factors make the raspberry attractive for commercial production in Minnesota. The fruit commands a good market price. Pick-your-own marketing systems have eliminated a great deal of the production costs and problems. The development of better weed control methods has also helped reduce production costs.

Future expansion of commercial raspberry acreage will probably depend upon improving production techniques, obtaining virus-free hardy planting stock, and development of new varieties that can be adapted to newer production practices. For example, the introduction of the new fall bearing types such as Fallred and Heritage could be of vital importance to raspberry production in Minnesota. These varieties could be mechanically pruned in the spring and all fruit harvested from new 1-year-old shoots in late summer and early fall. This practice would do much toward cutting production costs as well as lessening the winter hardiness problem to second year canes. The earlier fall fruiting habit of these two new varieties and others that may be developed in the future could signal the beginning of increased commercial acreage of raspberries for Minnesota. Along this line, the raspberry breeding program at Wyoming has produced some very hardy everbearing selections that ripen much earlier than any varieties now available. While the fruit is small, some of these might be potentially valuable. One or more of these selections may be named in the near future.

With this statement let's review the characteristics of several raspberry varieties that have been grown in Minnesota.

RED

ANELMA (Rikala). Origin: Piikkio, Finland by Hort. Res. Inst. Parentage: Rubus idaeus x R. articus. Released in 1958. Tested as P.I. 247797. Plant: V large, vigorous; spreading, V hardy in U. S. Fruit: large (2.0 cm) larger than Latham; spherical; V good color, red; flesh - V firm; quality - good; ripens in early July at Geneva, N.Y. and fruits throughout the summer. Use: home garden. Comments: has looked good at the Horticulture Center at Duluth.

BOYNE. M-534. Origin: Morden, Manitoba by C. R. Ure. Cross of Chief x Indian Summer. Released in 1960. Plant: med. tall (55-60") erect, stock and thick. Reddish often tinged with green. Foliage: med. to dark green, moderately glossy. Rugose thick leaves able to withstand strong winds. Fruit: med. size, dark red, tends to become purplish-red when over-ripe; medium glossy, fairly attractive, moderate drupelets, med. to small, cohere, tender and juicy. Flavor - aromatic, spritely, medium acid. Good for processing. Dana recommends it in Wisconsin, superior to Latham in hardiness and productivity. We like it in Minnesota. Has been productive at Grand Rapids with no sign of winter damage. Yield on a 1969 planting was equivalent to 2200 qts/acre in 1971 and 3400 qts/acre in 1972. It has large fruit that are dark in color, but tend to be a little soft. The canes are strong and vigorous. Highly recommended in Minnesota.

CANBY. U.S. Dept. of Agric. and Oregon Agric. Expt. Sta. Viking x Lloyd George. Introduced in 1953. Tested as Oregon 549. Berries large, good color and flavor, keep well as a fresh-market berry. Adapted to good soils in western Ore. and Wash. Fruit - bright red, conic, V attractive, has excellent keeping qualities, fruit production habit is excellent. Canes are tall, straight and vigorous. Does best on deep, loose, open textured, well-drained soils. Missouri observations - has done very well (in 1961), may suffer some winter damage. Canes strong, upright, with nearly no thorns. Berries - large earliest fruit sometimes 1" long. Had done well for 3 years under both hot, dry as well as cool seasons, thinks it has a V good future in the Midwest. Dana - some plantings have done beautifully in northern Wisconsin and will get by in the Madison area. He feels it might be of more value in areas where continuous winter cold is assured as opposed to more southerly areas where more variable winter conditions exist.

CHIEF. Origin - Minnesota Fruit Breeding Farm, self-pollinated seedling of Latham. Introduced in 1930. Was formerly known as Minn. 223. Very hardy for cold areas. Highly productive. Fruit rather small, ripens early. Good quality, suitable for freezing, moderately early, hard to pick in hot weather, round to conic, bright red, less suckering than Latham, nice type of plant, vigorous and upright, reddish canes. Maybe of value in colder areas where better varieties cannot be grown. Resistant to mildew and mosaic. No longer recommended in Minnesota.

CITADEL. Origin: College Park, Maryland by I. C. Haut, Md. Agr. Exp. Sta. Introduced in 1966. Mandarin x (Md. selection (Sunrise x Oregon 420). Bush: suckers sparingly southward; extreme vigor, high resistance to leaf spot disease. Hardiness to low temperatures northward untested. Fruit: red, very large, skin dark red, flesh very firm, resembles Willamette, may pick with difficulty under some conditions, ripens late-mid season. Recommended for Middle Atlantic States. Tested by Gilbert at Sturgeon Bay, Wisconsin and has looked quite interesting.

COMET. Origin: Ottawa, Ontario, Canada. Introduced in 1954. Parentage: Ottawa x Madawaska. Tested as Ottawa 383. Plant: canes medium thorny (short); tall, stout, hardy, productive. Fruit: red, large, conic, flesh moderately firm, quality fair, matures 2-3 days before Latham.

DURHAM. Origin: from a parthenogenetic seed of Taylor, Univ. of New Hampshire, Durham. Introduced in 1947. Plant: hardy, vigorous. Fruit: round, deep bright red, med. size, flesh firm. Early fall crop, 2 weeks before Indian Summer, summer crop is fairly early.

FALLRED. Origin: Durham, N. H., by A. F. Yeager and E. M. Meader, N. H. Agr. Exp. Sta. Introduced in 1964. NH 7 x New York 287. Tested as NH 56-2. Bush: produces crops continuously on highly productive branched primocanes until curtailed by frost, vigorous upright, produces suckers freely, mowing of over-wintered canes recommended to eliminate hand pruning and as an aid to control diseases, tested widely, adapted to states from Maryland northward and in the central western states. Fruit: red, superior to Durham, firm, flavor good, ripens 1 week before Durham. Fall crop begins in mid-August until frost. In Wisconsin the fruit is large and of good quality, but the fruit stems are brittle and break easily. At Grand Rapids we have had a few fruit on a second year planting. The fall crop has ripened in late August. Recommended in Minnesota as everbearing type.

HERITAGE. Origin: Geneva, N. Y., by George Slate, New York State Agr. Exp. Sta. Introduced in 1969. N.Y. 463 (Milton x Cuthbert) x Durham. Tested as N.Y. 696. Bush: tall, 5-7 ft, very vigorous, hardy, suckers prolifically, primocanes very erect, sturdy, requiring no support; leaves distinctive oblong shape; in Maryland more long laterals are produced than further north where its growth is more compact. Fruit: size medium, conic, skin red, attractive, flesh very firm, quality excellent, first crop ripens mid-July, second crop about September 1 at Geneva, a month earlier in Maryland. The fruit remains in good condition on the plant even when overripe. It ripens 2-3 weeks earlier than Sept. at Geneva. Under good growing conditions a fair crop can be produced the first year. Dana - superior to other everbearers in Wisconsin. He doesn't expect much commercial planting, but is recommending it for home gardens especially in southern Wisconsin. Has excellent quality and med. size fruit. In Minnesota, Heritage is recommended in southern Minnesota and suggested for trial in northern Minnesota.

HILTON. Origin: Geneva, N.Y., by George L. Slate, N.Y. State Agr. Exp. Sta. Introduced in 1965. Newburg x St. Walfried. Tested as N.Y. 183. Fruit: large, long conic, skin red, flesh med. firm, thick; quality good, cavity small, resembles Lloyd George, clings to plant until fully ripe, ripens midseason. Plant: very productive, vigorous, hardy, support may be desirable because of very heavy crop. Largest of all reds, maintains size well throughout season, becomes dark when over-ripe. Test for commercial planting and home garden. Wisconsin recommends it for trial, but has found that it lacks quality and cane sturdiness.

INDIAN SUMMER. Origin: Exp. Sta., Geneva, N.Y. seedling 1950 (Empire x Herbert) x Lloyd George. Introduced in 1936. Fruit: red, very aromatic, soft, use for jam, quality is good in fall. Plant: very productive, vigorous, escapes mosaic. Excellent quality, fairly hardy good yielder, summer crop matures early, fruit large conical, suckers freely, late crop often killed by frost in Iowa, consider for summer crop only. No longer recommended in Minnesota.

ITASCA. Origin: Excelsior, Minn., by E. T. Anderson, Univ. Minn. Fruit Breeding Farm. Introduced in 1965. Newburgh x self, Tested as Minn 399. Fruit: med. large, similar to Latham, round, orange red, glossy, drupelets rather large, juicy, flavor pleasant, rather soft, acceptable in processing tests, hangs well, easily picked, V productive. Bush: well-adapted to cool rather humid areas of North Central Minn., vigorous, hardy, strong fruiting laterals produced, cane smooth, nearly spinefree, strong, vigorous, susceptible to anthracnose disease. Introduced for use mainly in central and northern lakes area of Minnesota. At Excelsior it has been vigorous, hardy, and V productive in some years but in others anthracnose has been bad and reduced the crop. In northern Minnesota, it has been free of anthracnose. Carries fruit well out from the foliage, fruit develops well out from the foliage. Foliage resembles Newburg. In one operation near Grand Rapids preferred to September and Latham. Since berry is rather soft, its main value is as a home or pick-your-own variety. No longer being planted widely.

JUNE. Has been recommended in Wisconsin. It is a summer bearing variety that ripens very early. The plants are moderately vigorous, productive and fairly hardy, but are susceptible to virus and often produce few new shoots. The berries are bright red, medium sized, round, attractive, moderately firm and of fair quality. They are easy to pick but must be handled carefully. Fruit ripens about 10 days before Latham.

KILLARNEY. Orig. in Morden, Manitoba, Canada by C. R. Ure, Exptl Farm, Canada Dept of Agr. Introduced in 1961. Chief x Indian Summer. Tested as Morden 532. Fruit: red, somewhat larger than Latham, skin bright med. red, very attractive, flavor-sweet, sprightly, pleasant, resembles Taylor. Rated excellent for dessert, freezing, canning, resembles Latham but brighter. Bush: moderately tall, sturdy, canes thick, v hardy, v productive, healthy, resembles Chief.

LATHAM: Origin: cross of King x Loudon. Introduced in 1920. Fruit: ripens midseason, highly productive, red, large fruit, comparatively rapid picking, v hardy, fair quality, often crumbles. Canes tall, robust, nearly thornless, reddish with heavy bloom. Fruit color bright attractive red, med. juicy, med. sweet. Drupelets med. to large, pick easily, stand up well in marketing. Good for dessert, preserving or freezing. Ripens med-late in season for long period. Subject to mosaic but resists other diseases fairly well. If planted, virus-free plants are essential. Then it does very well in Minnesota and is recommended. Now the leader east of the Rocky Mountains.

MADAWASKA. Origin: Central Experimental Farm, Ottawa, Ont. Lloyd George x Newman 23. Introduced in 1943. Tested as Ottawa 272. Plant: hardy, canes med. spiny, med. short, productive in colder regions. Fruit: fair size and quality, somewhat acid, red, medium large, skin med. dark red, flesh moderately firm, tends to be acid and dark, useful as a jam berry

MILTON. Origin: Experiment Station, Geneva, N. Y. Lloyd George x Newburgh in 1917. Introduced in 1942. Berries: bright med. red., good quality, long conic, large, ripens 2 or 3 days later than Taylor and Latham. Plants: vigorous, productive, hardy, tall, canes sturdy, easy to pick, yields satisfactory. Berries uniform throughout season. Canes comparatively free from mosaic, sucker freely. Good late variety for market and home use, one of the best for freezing.

NEWBURGH. Origin: Experiment Station, Geneva, N. Y. Newman x Herbert. Introduced in 1929. Bushes low, spreading, much branched until about 3 years old. Hardy in most places, productive. Fruit: large, firm, less crumbly than Latham, flavor-mild, quality fairly good, round, v meaty, 3-4 days earlier than Latham, hard to pick until ripe. Leading market variety because of large firm berries that don't become infected with mosaic as fast as Latham. Still recommended for planting in Minnesota. Canes should be cut back or they will bear more fruits than the plants can mature properly.

POLARIS. Origin: Roseau, Minnesota by Mrs. Louise Renner. Introduced in 1972. Chance seedling. Fruit: red, characteristics similar to Latham, ripening 10 days earlier. Bush: short cane, prolific plant maker. Not adequately tested yet in Minnesota to be recommended.

REVEILLE. Origin: College Park, Maryland by I. C. Haut, Md. Agr. Exp. Sta. Introduced in 1966. (VPI 1 (Indian Summer x Sunrise)) x September. Fruit: red, very large, skin color excellent, flesh quality excellent, but too soft for commercial use, for home or roadside sales; ripens v early with Sunrise. Bush: excellent resistance to fluctuating winter temperatures. Much like Sunrise only larger, excellent quality and color. Tested by Gilbert at Sturgeon Bay, Wisconsin and has looked quite interesting.

SEPTEMBER. Origin: Exp. Sta., Geneva, N.Y. Introduced 1947. Marcy x Ranere. Berries: med. size, bright attractive red, usually firm, reliable yielder, uniform size, light bloom, drupelets numerous, good adherence, juicy, summer crop earlier and larger than Latham, fall crop a month earlier than Indian Summer, but frost often catches part of it in Iowa. Summer crop not as good as Indian Summer, but fall crop better. May be hard to pick until ripe. Qual fair in summer, good in fall. Plants: vigorous, productive, hardy, upright, med. height, moderately spiny. Widely adapted. May be worth growing for its summer crop only in parts of Minnesota. Autumn fruiting, produces an early-summer crop, in northern regions much of the fall crop may be ruined by early frosts.

SUNRISE. Origin: USDA. Introduced in 1939. Parentage: Latham x Ranere. Plant: resistant to leaf spot and anthracnose, very hardy, good quality, produces well, well suited to central Iowa, plants sometimes sucker too freely. Fruit: red, med. size, fine textured, qual. better than Latham, 2 weeks earlier than Latham, picks easily, suitable for freezing, fruit smaller than Latham, round, mildly subacid. No longer recommended in Minnesota.

TAYLOR. Origin: Exp. Sta., Geneva, N.Y. Introduced in 1935. Parentage: Newman x Lloyd George. Plants: tall, vigorous, productive, rapid propagator, canes sturdy covered with short stubby purplish prickles that rasp rather than scratch, hardy. Berries: mod. acid, long conic, large and maintain size well, med. red color, good qual., ripen with Latham, free from crumbling. Excellent for market and home garden. Susc. to mosaic.

WILLIAMETTE. Origin: Oregon Experiment Station. Parentage: Newburgh x Lloyd George. Introduced in 1943. Plants: quite hardy, v productive, vigorous. Fruit: long conic, dark red (may be too dark), large, firm, good qual., round. In western Oregon it is productive for processing. Dana has seen good plantings in northern Wisconsin and feels it might be best where continuous winter cold can be assured rather than where winter conditions are more variable.

PURPLE, BLACK, YELLOW

AMETHYST. Origin: Iowa State University. Released in 1968. Suggested for trial in Wisconsin. It has exceptional quality. At Grand Rapids it has been productive and has over-wintered well. The fruit is large, of good quality, v dark purple when ripe and rather soft. It ripens shortly after Boyne. The plants are vigorous and productive. I would recommend it for trial in Minnesota.

AMBER. Origin: Exp. Sta., Geneva, N. Y. Parentage: Taylor x Cuthbert. Introduced in 1950. Plants: v vigorous, productive, hardy at Geneva, usually tall, upright. Berries: large, high quality, long conic, moderately firm, color of light honey, last to ripen, large cavity, slight irregular, not crumbling, flavor is sweet, maintain size through the season, drupelets numerous, med. size, coherence is strong, juicy, tender, melting; sweet. High quality for the home gardener. It is not a commercial Berry. Jam is muddy colored. v prone to viruses in Minnesota but of excellent quality.

BLACK HAWK. Origin: Iowa State. Parentage: Quillen x Black Bearl. Introduced in 1954. Berries: large, 3/4 in. diam., retain size through picking season of 10 days to 2 weeks, round, shiny black with lines of grayish bloom between drupelets. Drupelets med. size, little or no tendency to crumble, firm, excellent quality, stands up well, fresh, frozen, cooked, flavor sweet to mildly acid. Plants: vigorous new shoots green and have lt green leaves, fruit borne well out, readily seen and easily picked. Superior performance on loess soils of SW Iowa and sandy soils of N.Y. Fairly hardy. In Wisconsin Black Hawk is fairly resistant to anthracnose and produces well. Recommended as a black in southern Minnesota and for trial in northern Minnesota.

BRISTOL. Origin: Exp. Sta., Geneva, N. Y. Parentage: Watson Prolific x Honey-sweet. Introduced in 1934. Plants: hardy, vigorous, productive, strong tall grower, Berries: large, black, firm, glossy, attractive, good qual, ripen in mid-season, a moderate amount of bloom detracts from the glossiness, small size of drupelets contributes to attractiveness of berries. Suffers rather severely from verticillium wilt, susceptible to anthracnose. Good cropper, ripen early. Leading variety in the Finger Lakes area of N. Y. (1970). Recommended as a black in southern Minnesota and for trial in northern Minnesota.

CLYDE. Origin: Geneva, N. Y., by George L. Slate and John Watson, N. Y. State Agr. Exp. Sta. Parentage: Bristol (black) x N.Y. 17861 (Newburgh x Indian Summer) (red). Tested as N. Y. 245. Introduced in 1961. Fruit: purple, large, flesh firm, tart, good adherence, attractive, coherent. Bush: vigorous, fruits so heavily the canes arch to ground, tolerant of anthracnose, slight winter injury at Geneva, recommended for home and commercial use, good market berry in New York State, has been consistently good since its origin. In Wisconsin it is more vigorous and productive than Sodus.

CIMBERLAND. Origin: Davis Miller, Camp Hill, Pa. Introduced in 1896. Long the outstanding midseason variety, chief fault is its susceptibility to virus diseases and anthracnose. Vigorous if free from disease. Good quality, midseason, high yielder, large black berry. Not reliably hardy in Iowa.

FALLGOLD. Origin: Durham, N. H. by E. M. Meader. Introduced in 1967. Parentage: (NH 56-1 x (Taylor x R. pungens oldhami) F₂ o.p. Tested as NH 64-2. Fruit: similar to Fallred but has yellow berries; flavor V good, ripens both summer and fall. Bush: vigorous, suckers freely, similar to Fallred, everbearing, produces on primo-canes, hardy as far north as Alaska. Probably best suited for home use.

HURON. Origin: Geneva, N. Y. by George L. Slate, N. Y. State Agr. Exp. Sta. Introduced in 1965. Parentage: Rachel x Dundee. Tested as N.Y. 27189. Fruit: skin black, quality good, all around merit rather than any distinguishing characteristics, ripens midseason. Bush: vigorous, productive, hardy, not seriously susceptible to anthracnose. Berries are large, glossy, attractive, firm - ripen after Dundee. Promising for vigor and productiveness.

LOWDEN. Origin: Ancaster, Ont., Canada by Edward W. Lowden. Introduced in 1961. Considered to be Bristol x Sodus. Fruit: dull purplish black when fully ripe, extremely large, flesh juicy sweet, canning quality especially good, ripens fairly late, averaging July 17 to Aug 7. Bush: quite vigorous, upright, cane color distinctive, ranging from dark red to bright maroon, thorns average 1/8 in long, borne at right angles to cane. Somewhat like Eldorado Blackberry. Drought resistant, large drupelets, small seeds. Deep rooted and upright.

SODUS. Origin: Exp. Sta., Geneva, N. Y. Introduced in 1935. Parentage: Dundee black raspberry x Newburgh red raspberry. Plants: vigorous, drought resistant, relatively free from mosaic, vigorous grower, kills back some years. Berries: large, firm, attractive, not crumbly, good cropper, V large, fairly acid, good quality, later maturity. Suitable to Iowa conditions, but extensive winter damage sometimes occurs. Most commonly grown purple in Wisconsin and upper Midwest.

PLANT PATHOLOGY NO. 8—REVISED 1973

HERBERT G. JOHNSON

Raspberries grown in Minnesota are afflicted with cane blights, leaf spots, fruit rots, root diseases, and viruses. These diseases vary in importance from place to place but often limit economic crop production. Anthracnose and the virus diseases are the most prevalent and serious.

You can control the raspberry diseases that generally occur in Minnesota by:

1. Applying fungicides at various stages of crop development.
2. Applying insecticides to control insect carriers of viruses.
3. Following various cultural practices such as: roguing of diseased plants, planting certified disease-free stock, and carefully cultivating in order to reduce root injury. These practices lessen incidence and severity of some diseases.

LEAF AND CANE BLIGHTS**Anthracnose**

Gray to white spots up to one-fourth inch in diameter occur on canes (figure 1). Leaf spots are yellowish white and about one-sixteenth inch in diameter. The centers of spots on leaves may fall out.

Septoria Leaf Spot

Leaf spots occur up to one-eighth inch in diameter with gray centers. Small black specks often form in centers of the spots.

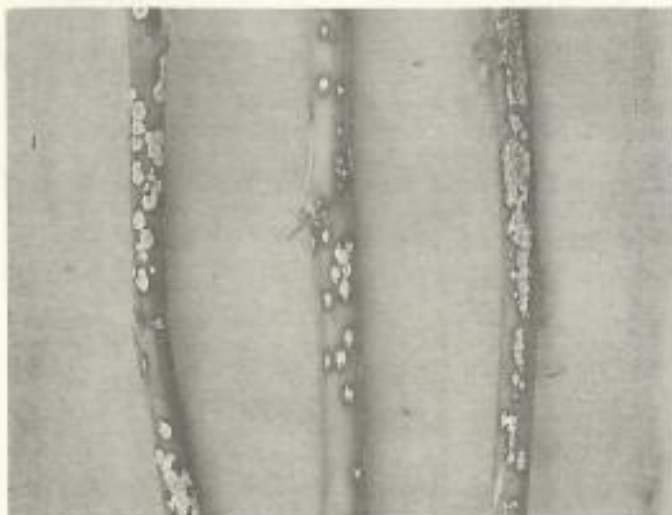


Figure 1. Anthracnose on raspberry canes. Spots on canes are gray to white.

Raspberry Diseases**Spur Blight**

Purple spots from one-half inch to several inches long form on new canes during the summer and early fall (figure 2). You can tell when leaves are infected by the large dead areas, light brown in color, that may cover half or more of the leaf surface.

You can control this disease group with chemical applications and cultural practices. Follow this schedule (see table on back page).

Spray or Dust Schedule

Minimum applications: Apply captan, Dyrene, ferbam, folpet, or zineb in spring, when overwintering cane leaves are fully expanded and again at bud stage.

Delayed-dormant spray: Apply lime-sulfur spray in early spring when leaves are one-fourth to one-half inch long (for better control).

Additional applications: If leaf and cane blight are severe, apply captan, ferbam, or zineb more frequently and postharvest (see limitations in table).

Cultural Practices

Remove and burn old canes after harvest. Thin new canes to about six for hill plantings or two per foot of row for hedge plantings.



Figure 2. Spur blight on raspberry canes. Dark areas are purple in color.

Fungicide materials		
Fungicide	Amount per gallon*	Time limitations
captan † 50% wettable powder	1 T**	No limitations.
Dyrene	2 T	Not later than 14 days before harvest.
ferbam † 76% wettable powder	2 T	Not later than 40 days before harvest and postharvest.
folpet †	1 T	No limitations.
lime sulfur (liquid)	2/3 pint	When leaves are one-fourth to one-half inch long only.
lime sulfur (dry)	Label directions	When leaves are one-fourth to one-half inch long only.
sulfur	Label directions	No limitations. May burn foliage at temperatures above 80° F.
zineb †	2 T	Not later than 14 days before harvest and postharvest.

* You may use captan, ferbam, sulfur, and zineb as prepared dusts.

† These fungicides are sold under trade names such as: captan - Orthocide 50 wettable, Orthocide Garden Fungicide, Stauffer Captan 50-W, and Stauffer Captan Garden Fungicide; ferbam - Fermate and all materials that have the term "ferbam" in their names; folpet - Phaltan; zineb - Acme Zineb, Dithane Z-78, Parzate, Stauffer Zineb, Ortho Zineb.

** T means level tablespoonful.

POWDERY MILDEW

A silvery white growth occurs on the leaf surface. Small spots may develop first but these enlarge and may cover the entire leaf.

To control powdery mildew apply sulfur at the first sign of disease (see limitation in table). Make additional applications as needed. Also follow the cultural practices recommended for leaf and cane blights.

The information given in this publication is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement by the Minnesota Agricultural Extension Service is implied.



Figure 3. Leaf curl of raspberry caused by virus.

VIRUS DISEASES

The most distinct symptoms of virus diseases are mottling, yellowing, and crinkling of leaves (figure 3). The most serious effect is a severe weakening of plants. Once a plant is infected, it remains infected; plants propagated from it will probably be infected also.

Insects transmit viruses from infected to healthy plants. Therefore, the only effective control is to remove infected plants as soon as you find them. Remove infected plants, and all plants within 3 feet of them, from certified stocks. Follow this procedure in all plantings where viruses are to be controlled. Insect control helps reduce the spread of viruses from plant to plant.

CROWN GALL

Crown gall is one of the few bacterial diseases of raspberries. Carefully inspect planting stock for the characteristic galls (rough, irregular enlargements) on the roots. Destroy all infected plants—preferably by burning.

If dead or dying plants have galls on their roots, do not plant raspberries or other brambles in the same location for at least 2 years. Root injury by cultivation or any other means may result in crown gall infection if the crown gall bacteria are present.

Issued in furtherance of cooperative extension work in agriculture and home economics, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Roland H. Abraham, Director of Agricultural Extension Service, University of Minnesota, St. Paul, Minnesota 55101. We offer our programs and facilities to all people without regard to race, creed, color, sex, or national origin.

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All Free Bonus Items Earned Will With Your Order-Complete Spring Be Included! You Must Order By M

"Home Grown" Flavor!
ASPARAGUS
10 Plants \$1.50

One of the easiest grown, most delicious, most nutritious vegetables! Paradise variety produces large tender tips with truly delectable flavor. Once established, this original planting will supply you with delicious fresh asparagus for years and years. Don't miss out . . . send today!

CREeping MYRTLE - 20 for \$1.98

You've often admired the pretty blue periwinkle flowers that seem to float on a dense carpet of shiny evergreen foliage! Rugged and carefree, Creeping Myrtle (*Virca minor* — Periwinkle), thrives even in dense shade where grass or flowers won't grow. Blooms each spring with masses of creamy blue blossoms. You get matured plant divisions, 20 plants cover 40 square feet. Send today.

Guaranteed All Double Blooms!
DOUBLE HOLLYHOCKS
5 for \$1.98

Incredibly beautiful background plant next to house, garage, fence. Towers 5-6 ft. tall, smoothly double blooms. Reds, whites, yellows, lilacs, etc., as available. Michigan nursery grown No. 2 seedlings, bloom year after year without replanting.

Very Fragrant!
LILY OF THE VALLEY
6 for \$1.98

"Consider the lilies of the field . . . they toil not, neither do they spin." These healthy pips bloom in spring with clusters of delicate white bell-like flowers. Intensely fragrant. The foliage retains color until frost.

RHUBARB
5 Roots \$1.00

Michigan Nursery Grown

Mouth-watering delicious. Requires very little attention, produces a new crop year after year without replanting. May be frozen or canned, superb for home-made pies. One of the easiest garden crops to grow.

The Lazy Man's Flower!
DAHLIAS
6 for \$1.98

Free blooming and fast growing, the show-offs of any garden with their huge blooms of intense spectacular color. You get blooming size roots in an assortment of dazzling colors as available: deep lavender, red, bronze, yellow, pink, white, etc. So easy to grow, Dahlias are often referred to as "the lazy man's flower".

CANDYTUFT - 10 for \$1.98

Hardy perennial is excellent for borders or rock gardens. Grows to 24-inch wide mound smothered with clusters of sparkling white blooms on 8-inch stems. Absolutely beautiful. Especially appealing when planted in rows along driveway or boundaries. You get vigorous 1-year plants. Very trouble free, pest and disease resistant.

**Amazing Value on Eating
Apple of Superior Flavor!**
APPLE TREES - \$2.95

If you like apples, you'll love the wholesome taste of these mixed varieties of red and yellow eating apples. Bears solid fruit, crisp and juicy, at a price so low you can have your own orchard! These certified healthy seedlings will mature to standard orchard size. Once mature, you'll enjoy crop after crop, year after year. Nothing tastes as good as a freshly picked eating apple. Rush your order today at this low, pre-season price!

2 for \$5.75 4 for \$10.95

Masses of Blooms, Bushels of Fruit!
PEAR TREES - \$2.95

- BARTLETT VARIETY -

If you have ever bitten into a sweet, succulent juicy Bartlett pear . . . you'll instantly recognize what an outstanding value this is at \$2.95. Bartlett is recognized world-wide as easy growing, smoothest texture, and delicate taste. Grows vigorously. Certified healthy seedlings mature to standard orchard size. Rip during summer, each sun-kissed pear delicious to eat right off the branch and plenty to put by for winter months as well.

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Far Goes Farther At Michigan Bulb!

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Planting Instructions Will
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So Sweet and Juicy You'll Love 'em!
GRAPES — \$1.98 OF VARIETIES

Never easier, never more satisfying to grow a bumper crop of delicious grapes for jellies, jams, home winemakers, or just plain good eating. We offer 3 top varieties at bargain prices! Concord, White Niagara or Red Catawba . . . all Michigan nursery grown from cuttings from proven, heavy-bearing vineyards. Concord is the best of the purple grapes, extremely productive. White Niagara is rated tops for its light golden fruit. Red Catawba is the burgundy grape of incomparable taste. Order 1 vine each, 2 vines each, or mix your order as you please. But order today—at this price, they may not last long. Guaranteed to bear, when mature each vine will produce bountiful clusters of luscious grapes! Check coupon, order today.

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CHERRY TREES
\$2.95 SWEET BING VARIETY

Recognized as the #1 sweet commercial cherry, these certified healthy seedlings will produce an abundance of dark red, sweet, juicy cherries with the desirable firm texture. Beautiful fragrant cherry blossoms each spring are an added bonus!



Easy to Grow—Low, Low Price!
BLUEBERRIES
2 for \$3.98

Yes, now you can pick giant blueberries right in your own yard. Jersey variety produces numerous grape-like clusters of powdery blue, firm, sweet luscious berries. Freeze 'em, eat 'em fresh or make pies . . . you'll love 'em! Michigan nursery grown — 2 required for cross-pollination — order now!



Beautiful Fragrant Blossoms,
Large Golden Fruit!
PEACH TREES—\$2.95

— **ELBERTA VARIETY** —
Delightfully fragrant in spring when the beautiful peach blossoms adorn the branches . . . then come the big, juicy, golden peaches that are so good for eating, canning, pies, etc. These 2-3 ft. grafted trees mature to standard orchard size. A very dependable grower.

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Produces Super Yield of Firm, Luscious Berries With The Mouth-Watering Sweet Taste!



STRAWBERRIES
15 Plants \$1.98

Here they are, the large, juicy strawberries with the mouth-watering taste. If you've never treated your taste buds to fresh strawberries from your own patch, now is the time. **SUNRISE** or **KOBE #1** variety as available, bear abundant yield of firm berries with the light red color. You may not know this, but strawberries are also an exceptional ground cover. The rich green foliage forms a weed-smothering blanket that holds its color all year round. All in all, strawberries are one of the very best garden plants, and very easy to grow.

Fresh Berries for Pies, Jelly!

RASPBERRY YOUR CHOICE RED OR BLACK BUSHES — \$1.50

If you haven't tasted fresh raspberries, don't wait any longer because the price will probably never be lower. We ship No. 2 suckers, Michigan nursery grown . . . hardy, disease resistant, easy to grow. And do they taste good!



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Unexcelled Flavor — Good for Freezing!
Your choice of Cumberland variety for black raspberries, or Latham variety for red. Both are vigorous, heavy-bearing growers . . . retain their firmness even after picking. Won't crumble or pucker. Perfect for breakfast cereal, jam, sauce! Super delicious in pies!

MICHIGAN BULB COMPANY
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Order today for delivery at proper spring planting time in your area. Every item in this 8-page sale is exactly as advertised, vigorous and healthy, tagged for easy identification, well packed for arrival in good condition. You must be satisfied on arrival or return within 15 days for full refund, including any postage you sent. Every plant must develop and flourish or we will replace it free (3 year limit). See coupon for Free Bonus items!

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RED FLOWERING DOGWOOD — \$3.98

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Brilliant decorative showpiece features clusters of 3-4" pink or red flowers in spring, followed by flaming scarlet leaves in fall. Grows to 30-35 ft. height. Amazing low price. Mail coupon today.
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25 rooted, certified healthy plants to make 50 feet of neat, dressy hedge. We ship the species best for your climate—*Ligustrum sinensis* or *amuraense*. Privet grows quickly into dense compact hedge with shiny green leaves... landscapes your property beautifully! Highly decorative, plant 2 ft. apart for formal protective hedge. At this low price, you can afford all you need. Rush your order today.

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We send Free Bonus items at no extra cost when you order several items at one time. It's our way of saying "Thanks" for your patronage! Check the order blank for Bonus items — they're included automatically with your order.

WHAT YOU GET

Unless otherwise specified in individual description, the evergreens, shrubs, hedges and trees offered in this pre-season sale are nursery grown from seed or cuttings, rooted, certified healthy in state of origin. Evergreens are 1-4 years old, 6-12 inches tall, check for growth ability in extremely hot southern climates. Trees are 1-2 years old, already 1-2 feet tall. (Smoke Tree is 8"-24"), never transplanted. Check coupon now for Free Bonus items!



SMOKE TREE — \$2.98

(*Cotinus coccinea*)

Very handsome ornamental lawn specimen. Goes "up in smoke" each summer as you watch in disbelief! Its billowy plumed flower stalks look just like wispy puffs of smoke... no other tree like it! Grows to 15-20 feet height. Foliage turns bluish-green after blooming, then turns fiery orange-red in fall. Provides an exciting color show practically all year round — spring, summer and fall!

2 for \$5.75 3 for \$8.50



LOMBARDY 39¢ ea. POPLARS (Minimum 5 for only \$1.95)

Tall and columnar, graceful and serviceable, priced to save big money! Easy growing in almost any soil. Hardy. Grows fast to 40-70 ft. heights. Serves as screen, wind-break, or to line centers or boulevards. Don't pass up this low price — rush your order today!

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Please send order as marked below. Include all FREE bonus items to which I am entitled. All items are covered by your NO FAULT GUARANTEE.

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Bonus for orders received by April 25. Huge 6" blooms on 6 ft. stems. Nurseries grown from seed, 1-2 years old.



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Beautiful indeed with their sparkling mixed colors. Imported Holland. Imported from Holland. (Oregon, 3-4 cm. bulb). Free bonus also get 12 Oxalis, 6 Anemones and 6 Peacock Orchids.

We send Free Bonus items as described below, at no extra cost when you order several items at one time. It's our way of saying "thanks" for your patronage! Mail the order blank today. Your Free bonus items will be shipped with your order. You will also get our comprehensive Planting Guide.

FREE — 6 PEACOCK ORCHIDS
A welcome addition to any garden with their cheerful creamy white flowers on 2 ft. stems. Imported from Holland. (Aclanthara, 4-5 cm.). Your free bonus when order totals \$5.00.

FREE — 6 ANEMONES
These Holland imported bulbs (2-3 cm.), burst into bloom in a gorgeous array of rainbow colors. Your free bonus when order totals \$8.00, and you also receive 6 free Peacock Orchids.

FREE — 12 OXALIS
Dainty deep pink blossoms decorate your landscape. Imported from Holland. (Oregon, 3-4 cm. bulb). Free bonus plus \$12.00 order plus 6 Anemones and 6 Peacock Orchids.

FAMOUS NO "FAULT" GUARANTEE
For 37 years we have offered planting stock direct-by-mail at low money-saving prices. But this is probably our best spring planting garden sale ever. Prices will probably never be this low again. Better yet, every item is covered by our famous "No Fault Guarantee," as follows:
Every item we ship is exactly as advertised... vigorous and healthy, tagged for easy identification, well packed for arrival in good condition. You must be satisfied on arrival or return within 15 days for full refund, including any postage you sent. Every plant must develop and flourish or we will replace it free (3 year limit). Send today!

MICHIGAN BULB CO., GRAND RAPIDS, MICHIGAN 49550

Trailing Ivy Leafed

GERANIUM

COMPLETE WITH
HANGING BASKET

\$1.98

2 for \$3.85



This gorgeous trailing geranium transforms room, porch, or patio into a flowery haven of tumbling, colorful blooms. Already growing in 2" pots, these extra-double geraniums cascade down and around the basket in a profusion of startling pink-reddish flowers on glistening ivy-leaved foliage. A truly radiant sight that will draw gasps of admiration!



BOSTON FERN — \$2.98

Extremely popular because it requires little care and provides a welcome splash of rich green color all-year round! Its numerous fronds arch up, out, and over the hanging basket in a living fountain of glorious green. 2 1/4" pot size plant, brings bright color and cheer to any room! Send your order now!

COMPLETE WITH HANGING BASKET

8 EACH OF
10 DIFFERENT
VARIETIES.
OUR CHOICE

CARNATION
Lilystock
Carnation
Shasta Daisy
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50 PERENNIALS
for only **\$4.98**

Expertly planned, all-in-one combination offer! You get a well-balanced assortment of low growing, medium and tall growing plants covering practically every color of the rainbow — a dazzling succession of blooms spring to fall. Michigan nursery grown, healthy, hardy, one year stock, never transplanted. Guaranteed to bloom or free replacement! Rush your order today!

100 for \$9.50



Imported From Belgium
The Begonia Capital of the World!

BEGONIAS — 8 for \$1.99

Now these drab, shady spots become a sparkling showplace of large, colorful blooms... incredibly lush, incredibly beautiful! These blooming size tubers bloom profusely, even in shade, wave after glorious wave practically all summer long. Very striking in beds or rows, can even be grown in pots to decorate porch or patio. You get mixed Camellia and Carnation type in intensely brilliant colors as available: red, white, orange, yellow, pink, etc. Watch Begonias grow and bloom in your garden this very season.

"Camellia" Type

"Carnation" Type



Ground Hugging Foliage, Mixed Colors!

CREeping PHLOX — 6 for \$1.50

Michigan nursery grown perennial (Phlox subulata), features dense evergreen foliage drenched with masses of gay, sparkling blooms in mixed colors. Flowers freely every spring. Transforms drab, troublesome areas or rock gardens into a rolling sea of color that enhances your entire landscape. Hardy 1-year plants, each plant spreads to 12 inches at maturity.

IMPORTED

Holland

GLADIOLUS

20 for \$1.00

Medium size 2 1/2-3" circ. bulbs, all ready to explode into glorious color in your garden this season. Stately and elegant, glads are a favorite. Fiery reds, deep purples, glistening whites and yellows, bi-colors, etc., as available. A tremendous bargain at this pre-season price. Send today!



40 for \$1.95



RHODODENDRON-\$2.98

Probably the most magnificent of all flowering shrubs! The leathery green foliage retains its rich color and gloss all year 'round. Erupts in spring with dozens of huge, showy flower clusters up to 12 inches across. Brilliantly vivid and colorful, the profusion of blooms are a spectacular sight to behold. We ship Oriental variety in mixed colors.



SNOWBALL BUSH-\$1.98

(Viburnum tomentosum alveticum)

A breathtaking sight each spring as it bursts forth with snowball-shaped clusters of hundreds of sparkling white flowers... so profuse you can barely see the foliage. Impressive planted in rows, especially beautiful as a single specimen. Size 8" and up. Mail coupon today.

EVERGREEN JAPANESE YEW

Spreading or Upright — 99¢

Favorite of professional landscapers because they thrive in almost any soil and in shady locations when other evergreens do poorly. Maintain their good rich green color all year 'round. Help dress up your landscape at low cost. Usually hard to get and high priced. only 99¢ — your choice of Upright or Spreading.



(Taxus cuspidata)

Any 2 for \$1.95
Any 4 for \$3.75

(Taxus cuspidata capitata)



Masses of "True Blue" Blooms

BLUE HYDRANGEA

(Macrophylla nitida)

In late summer, explodes into huge clusters of blue blooms, so intensely blue they seem to leap right out from the bright green foliage. Absolutely stunning when planted in rows or as specimens, will draw compliments from friends and strangers alike. Tremendous bargain price for 1 year, medium size plants!

2 for \$3.85 4 for \$7.50



AMERICAN HOLLY — 3 Plants \$3.98

(Ilex fastigiata)

Especially beautiful in winter when lack of color turns your landscape dull and drab. That's when American Holly fairly glows with glistening lustrous foliage and extra large bright red berries. Heavy bearing 6-9" plants grow to 20 ft. pyramidal heights. Ideal specimens or foundation plants. Clip and mail order blank today.

MINIATURE ROSE PLANTS

Choice of Red or Yellow — \$2.98

Bloom Indoors or Out!

Only the rose has such beauty, pleasing color, and delightful fragrance. And now, amazingly, Miniature Roses can be made to leaf out and burst into bloom indoors with many doll-size roses as colorful, soft and delicate as large outdoor varieties. Can be transplanted outdoors to window boxes or summer gardens, will grow wherever ordinary garden roses flourish. Our plants are well rooted 2 1/2" pot size, ideal height and age for repotting.

MAGNOLIA TREE-\$3.98

(Magnolia soulangeana)

The free-blooming Saucer Magnolia noted for its profusion of fragrant 6-8" pink and white blooms in early spring—and for its reliable hardiness! Grows to 15-18' height with an attractive naturally rounded head. Blooms are followed by leathery green leaves. Ideal lawn specimen.

CLEMATIS VINE-\$2.98

Sturdy, rapidly climbing vine explodes into thousands of clusters of lovely violet-purple blooms mid-summer to frost. Climbs walls, fence or arbor. Jackman variety in 2 3/4" pot. Breathtaking velvety color!

Tested And Proven Among The World's Highest Rated!

ROSES ° n ° \$1.98 ° a ° c ° h

ALL 12 for \$19.95 — ANY 6 for \$10.95 — ANY 3 for \$5.85

Only the rose has such great beauty of form, pleasing color range, delightful fragrance and is so adaptable to almost every flower garden. However, since there are thousands of different varieties of roses, you can only be sure of beautiful blooms by selecting varieties that have withstood the test of time and remained popular year after year with juncester and expert alike. Each rose offered in this spring planting sale is a formerly patented variety that has been tested and proven for ease of growth, beauty and abundance of bloom, and hardiness in all parts of the country. These are strong, healthy, vigorous rose bushes. Each is already 2 years old, branched with 2 or more canes. When shipped, they are carefully packed, protected and tagged with name of variety. Easy planting instructions included. You are fully protected by our famous "NO RABBIT GUARANTEE", as spotted and listed. At only \$1.98 each, they are an amazing value!



CRIMSON GLORY

Deep velvety blossoms are highest peak of all roses and set fragrance. Blooms in profusion all summer long.



BLANCHE MALLERIN

Pure white Hybrid Tea features large, high centered blooms the whitest of them all. Vigorous grower, glossy foliage.



MIRANDY

Slender, vigorous grower produces many surprisingly large well-tinted blooms in brilliant black. "ALL AMERICAN ROSE" selection. Winner. Purplish-red ribbon center.



PEACE

Most nearly perfect rose of all. Best "ALL AMERICAN" winner. Produces masses of blooms up to 4" across. A superb rose and fall. Red tinged to lustrous, warm mahogany yellow.



TIFFANY

Large long buds unfold into luscious, elegant, blooms of beautiful warm orange. "ALL AMERICAN" winner, considered one of the most beautiful of all roses.



CHRYSLER IMPERIAL

Perfectly shaped long-stem buds open into large, velvety dark red blooms with up to 40-50 petals each. Former "ALL AMERICAN ROSE."



MONTEZUMA

Large, high-centered double blossoms of brilliant scarlet-orange. Vigorous grower. Blooms profusely in a compact bush.



QUEEN ELIZABETH

Truly one of the most breathtaking roses. Its lovely pink flowers bloom daily June to frost. Former "ALL AMERICAN ROSE SELECTION".



CLIMBING PEACE

Flowers generously all summer long with delicate, vivid yellow blossoms tinged in red or pink. Outlasts cleaners ever fence, arbor, or trellis in a rolling blanket of golden blooms.



ECLIPSE

Profuse and remarkably long pointed buds open to deep-copper, long-lasting double golden yellow blossoms that come in waves for into fall.



CLIMBING BLAZE

This cascading climber produces 2 to 3 feet of blanket of big, bright red blossoms that are readily available. Blooms all summer long in full, covering trellis, walls, fence with vivid color.

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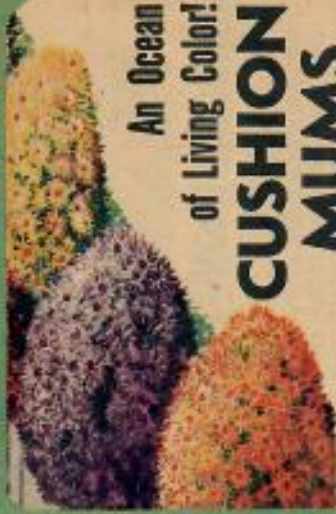
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Giant balls of flaming color to set your landscape ablaze! These hardy Michigan nursery grown root division perennials come to you in an assortment of vivid, gorgeous colors . . . reds, yellows, pinks, purples, bronze, etc., as available. Normally develop to bushy basket size, each plant drenched with masses of 1-2" blooms. Guaranteed to bloom this season. Will continue to bloom right up until frost.

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(DRAGON'S BLOOD)

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Rugged and carefree, spreads rapidly in sun or shade. The lush, semi-evergreen foliage erupts in massive clusters of fiery red blooms mid-summer to September. Easy-growing, sensational in rock gardens, "trouble spots", slopes, borders, shady areas where grass won't grow. Hardy, Michigan nursery grown, plant 6-12" apart. Bloom year after year without replanting. Send today.

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HANGING STRAWBERRY BASKET — \$2.98

Amazing horticultural sensation produces numerous clusters of firm, juicy berries, indoors! The lustrous rich green foliage and the delicate white blossoms, contrasted against the colorful light red berries, make this the most attractive of all indoor planters. You get three hardy, overbearing trailing strawberry plants. (Fragaria chiloensis, Kobe #1), complete with hanging basket. It's all-in-one . . . foliage, flowers and fruit!



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\$2.98 Unique bright orange hanging planter! Complete with Black-Eyed Susan seeds. Vines creep out sides, then bloom!



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BEGONIA BASKET \$2.98

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All-in-One Carefree Ground Cover Chokes Out Weeds, Thrives Even In Poor Soil!

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