

virginia home food production

FERTILIZER RECOMMENDATIONS FOR SMALL FRUITS IN THE HOME GARDEN

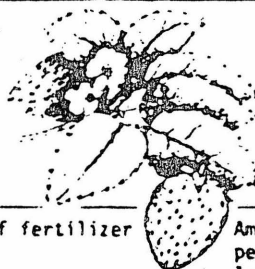
DEPARTMENT OF HORTICULTURE



January 1942

426-328

STRAWBERRIES



Age of beds from planting	Time to apply fertilizer	Kind of fertilizer	Amount to apply per 25' of row length ¹	Method of application
1st growing season	at planting time (mid-March to mid-April)	none	--	--
	2 to 3 weeks after planting	ammonium nitrate (33% actual nitrogen)	2 to 4 ounces	spread uniformly in a band 14" wide over the row when foliage is dry. Brush fertilizer off the leaves to avoid leaf burn.
	first or second week of August	same as above	4 to 6 ounces	same as above
2nd growing season ²	as soon as harvest has ended for the season and beds have been renovated	same as above	4 ounces	same as above
	first or second week of August	same as above	6 to 8 ounces	same as above

NOTE:

1. These recommendations are based upon matted-bed widths of 14" to 16". Rates of application will need to be adjusted accordingly if wider or narrower beds are used.
2. Repeat recommendations of 2nd growing season for each succeeding year.

Strawberry plantings are commonly harvested for several years in the home garden before they are replaced with new plantings. It is, therefore, extremely important that the soil be tested at least a year before planting, and that pH (soil acidity), phosphorous, potassium, calcium, and magnesium be adjusted where necessary. The recommended amounts of lime and fertilizers should be applied carefully so that over- and under-applications are avoided. Lime should be applied 6 months to one year before planting, while phosphorous and potassium may be applied as close as 2 weeks before planting. Preplant applications of lime, phosphate, and potash may be sufficient for the life of the planting, and, for this reason, only nitrogen containing fertilizers need be applied on an annual basis.

The amount of nitrogen fertilizer needed for best performance of any crop will be affected by numerous factors including: amount of organic matter in (or added to, e.g., leaf mold or manure) the soil; soil type; amount and seasonal distribution of rainfall (or irrigation); prevalence and control of diseases or insects; effects of shading from trees or buildings near the garden; competition from weeds; or *cetera*. "Recommendations" should therefore be treated as guidelines or a starting point from which the home gardener may expect reasonably good results, but which can be modified as required.

The timing for nitrogen applications to strawberries is based upon certain recognizable stages in the development of a plant and the flowering process. They should be made at the times suggested in these recommendations.

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Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, and September 30, 1917, in cooperation with the U. S. Department of Agriculture, Milton R. Genger, Interim Dean, Extension Division, Cooperative Extension Service, and the Polytechnic Institute and State University, Blacksburg, Virginia 24061. M. J. Harding, Sr., Administrator, 501 Extension Program, Virginia State University, Petersburg, Virginia 23807.

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GRAPES



Age of vines from planting	Time to apply	Method of application	Kind of fertilizer ^{1,4}	Amount to apply ^{2,3}
At planting	none	--	--	--
1st growing season	soon after growth starts in the spring	spread uniformly in a 4" band around, but not closer than 10" from, the trunk.	sodium nitrate (16% actual nitrogen)	2 ounces or 1/4 cup per plant
	6 weeks after first application	same as above	same as above	same as above
2nd growing season	just before growth starts in the spring	spread uniformly in a 24" band around, but not closer than 12" from, the trunk.	same as above	4 ounces or 1/2 cup per plant
3rd growing season and each growing season thereafter	same as above	spread uniformly in a 36" band around, but not closer than 12" from, the trunk.	same as above	2 ounces per year of plant age, up to a maximum of 8 ounces or 1 cup per vine

NOTES:

1. Grape varieties differ in their nutrient requirements, particularly for nitrogen. The needs of each variety and of individual plants within a variety are in turn affected by a number of outside conditions. Some of the conditions which affect variety and individual plant nutrient requirements include: the type and productivity group of the soil; the amount and seasonal distribution of rainfall (or irrigation); trellis height and the distance between vines (i.e., the space and trellis area allotted to each vine); the pruning and training system; fruit thinning practices and the amount of fruit left to mature on the vine. These and other factors may act to increase or decrease shoot growth in a given year, and one or more may need to be changed if altering the fertilizer program fails to give the desired results.
2. New canes (current year's growth) should average lengths of 3' to 6' on mature (3 years and older) bearing vines. If most new canes are less than 3' long at pruning time, then add an extra 2 ounces of sodium nitrate per vine to the regular recommendation. Add 2 more ounces of sodium nitrate per vine in each following year until new canes average 3' to 6' in length. Similarly, if shoots average more than 6' in length, reduce applications by 2 oz. each year until vigor is sufficiently lowered.
3. It may be necessary to substitute other kinds of fertilizers when the recommended kind is not available or when soil tests, leaf symptoms, or tissue analyses indicate that phosphates, potash or other nutrients are deficient in the soil. When substitutions are made, be sure to adjust the amount of substituted product to supply the quantity of actual nitrogen recommended above.
4. Method for calculating the amount of a substitute fertilizer which will give the same amount of actual nitrogen provided by sodium nitrate:
 - a. Multiply the number of pounds of sodium nitrate recommended by the percent nitrogen in sodium nitrate (16% = 0.16) to determine the amount of actual nitrogen recommended.
 - b. Divide the amount of actual nitrogen recommended (as calculated in step "a." above) by the percent nitrogen in the new source to find how much to apply.
 - c. EXAMPLE OF THE ABOVE CALCULATIONS
 [Substitute ammonium sulfate (20% N) for 8 oz. sodium nitrate]:
 - i. (8 oz. sodium nitrate) X (.16 actual nitrogen in sodium nitrate) = 1.28 oz. actual nitrogen.
 - ii. (1.28 oz. actual nitrogen recommended) ÷ (.20 actual nitrogen in ammonium sulfate) = 6.4 oz.

BLUEBERRIES



Age of bushes from planting	Time to apply fertilizer	Kind of fertilizer	Amount to apply	method of application
1st growing season	at planting	none	--	--
	1st week of June	Ammonium sulfate (21% actual nitrogen)	2 ounces (1/4 cup) per plant	spread uniformly in a 12" wide band around, but not closer than 6" from, the transplant's stem
2nd growing season	2nd week of March	same as above	same as above	same as above
3rd and later growing seasons	same as above	same as above	1 ounce for each year of the planting's age up to a maximum of 8 ounces (1 cup) per plant in the 8th and following growing seasons	same as above, except increase the band width by 3" each year to a maximum of 2.5' in the eighth year

COMMENTS AND ADDITIONAL INFORMATION:

Blueberry root systems are typically shallow, not particularly large, and they require an acid soil in order to absorb sufficient quantities of iron and other micro-nutrients for good growth and health of the entire plant. Preplant soil tests and adjustment of soil acidity to give a pH within the range of 4.5 to 5.5 are absolutely essential. This adjustment of soil acidity may be done for the entire area of the garden where blueberries will be planted, or it may be confined to 6' wide strips centered on future row sites. In either case, sulfur should be applied at the rate of 3/4 lb. per 100 square feet of soil for each full pH unit the soil tests above 4.5 in a sandy soil. Heavier soils require the use of more sulfur to obtain the same change in pH; 1 1/2 to 2 lb./100 square feet should be used for each full pH unit of change desired on loams, sandy clay loams, silt loams, etc. As blueberry roots require good aeration, it is usually wise to avoid sites located on clay or clay loam soils.

Incorporation of organic matter tends to increase the water and nutrient holding capacities of sandy soils, which is important to the drought sensitive blueberry plant. Well decayed organic matter (eg., composted leaves, or decomposed sawdust), peat, or sphagnum should be incorporated with soil in the planting hole beneath the plant as well as in the soil used to fill in around the plant. A peck or more of organic matter/plant will be beneficial as a source of nutrients as well as improving the water relations of the plant. The gardener should realize that while a large hole should be dug so that organic matter may be mixed with soil under the plant, he must resist the temptation to insert roots too deeply beneath the soil surface. The plant should be set no deeper than the depth at which it grew in the nursery, and horizontal roots must be allowed to retain this orientation when planted in the garden; otherwise, deeply planted roots will die for lack of sufficient oxygen.

A permanent mulch of hay, peat moss, leaves, crushed corncobs, woodchips, bark, sawdust or other bulky organic material should be maintained at a depth of 5" to 6" and extending at least 2.5' on all sides of the plant. These materials will eventually decompose and release nutrients for use by blueberry plants but the decomposition process temporarily ties up nitrogen making it unavailable. This may be a more pronounced problem with finely ground materials, such as sawdust, than it is with less rapidly decomposing, smaller surface-area materials such as woodchips. It is suggested that 3/4 pound of ammonium sulfate be applied for each bushel of newly applied sawdust.

Cottonseed meal may be substituted as the sole nitrogen source in place of ammonium sulfate suggested in the accompanying chart of fertilizer recommendations. It should be applied at the rate of 1/2 pound per non-bearing plant, and 1 pound per fruit-bearing plant.

BRAMBLES



First Growing Season:

kind of crop	time to apply	method of application	kind of fertilizer ¹	amount to apply
all blackberries and raspberries	at planting	none	none	none
	just after growth starts in the spring	spread uniformly in 4" bands around, but not closer than 6" from, the transplant's stem or "handle".	ammonium nitrate	1/2 to 1 ounce per transplant
<u>'Heritage' red raspberry when grown for fall-crop only</u>	repeat the above application 6 weeks later	spread in a 4" band along, and not closer than 6" from, the row of transplant handles.	same as above	2.5 to 3.0 pounds per 100 feet of row

Second Growing Season and Each Growing Season Thereafter:

kind of crop	time to apply	method of application	kind of fertilizer ²	amount to apply
<u>all blackberries and raspberries if grown in hedgerows or as closely spaced hills, (eg., 2' to 3' between plants)</u>	just before growth starts in spring	spread uniformly in a 2' wide band over the row.	ammonium nitrate	2.5 to 3.0 pounds per 100' of row length
<u>'Heritage' red raspberry when grown for fall-crop only</u>	same as above	same as above	same as above	3.0 to 7.0 pounds per 100' of row length
Semi-erect thornless blackberry with a spacing of 6' to 8' between plants	same as above	spread uniformly in a 3' wide band over the row.	same as above	same as above
	—OR— same as above	—OR— spread uniformly in a 5' to 6' diameter circular band around, but not closer than 10" from, the plant's crown.	—OR— same as above	—OR— 3 to 8 ounces per plant

- NOTES:**
1. Lime should be applied (according to soil test results) 6 mos. to 1 yr. before planting.
 2. Phosphorous and potassium should be applied (according to soil test results) and incorporated with the soil at least 2-3 weeks before planting. Only nitrogen is recommended during the year of planting.
 3. The soil should be tested every 2 years for acidity, phosphorous, potassium, calcium, and magnesium. If these tests indicate a pH of 5.7 or higher, and medium or high levels of the above nutrients, only nitrogen is needed on an annual basis. Lower pH readings, or low levels of individual nutrients indicate a need for lime and/or a more complete fertilizer such as 10-10-10.

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