

# Fertilizer Guide

FG 48  
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## Loganberries, Boysenberries, and Marion Blackberries (Western Oregon - West of Cascades)

Loganberries, Boysenberries, and Marion blackberries are among several types and varieties of caneberries grown in western Oregon. Fruit is produced on current season fruiting clusters which develop from canes produced the previous year. Canes that have produced a berry crop are normally removed after harvest before the new canes are trained and pruned. Root systems are perennial.

*Good fertilizer usage helps produce profitable crops of these caneberries. However, fertilizer is no substitute for good management such as selection of adapted caneberry soils and sites; use of high quality plants; disease and insect control; shallow cultivation; weed control; rodent control, particularly for field mice; and timely harvest. Irrigation improves yields in most fields.*

Recommendations are based on a row spacing of 10' with plants spaced 5-6' apart in the rows.

*Soil tests should be used as a guide to good fertilizer practice.*

Recommended soil sampling procedures should be followed in order to estimate fertilizer needs. The Oregon State University Extension Service agent in your county can provide you with soil sampling instructions, soil sample bags, and information sheets.

Soil samples should be taken at least 6-9 months before new fields are planted in the spring. This will permit application of lime, if necessary, before planting.

### NITROGEN (N)

Less N is needed during the planting year than in fields 2 or more years old. In new fields, apply the N in continuous bands shortly after setting the plants. Band N 4-6" to both sides of the row taking care not to disturb recently set plants. N can be banded with phosphorus (P) and/or potassium (K).

N may be banded in late winter or early spring of the second growing season. Bands should be placed at the edge of the root zone.

Losses of N from surface band applications of urea can occur where the fertilizer is not washed into the soil by rain or irrigation soon after application.

By the start of the third growing season, most growers prefer to broadcast N and other

fertilizers. Surface banding may be satisfactory, but continuous banding of N can cause detrimental acidification in the band.

N recommendations are:

	Apply this amount N lb/A
Planting year	30-40
Feb.-Mar., 2nd year	40-60*
Feb.-Mar., 3rd year	60-70

\*Maximum N for established Boysenberries is 50lbs/A.

### PHOSPHORUS (P)

*P moves very slowly in the soil. Band placement in the root zone gives most efficient results from P.*

In new fields, P is usually banded with N or N and K. Place bands 4-6' to both sides of the caneberry rows and 4-6" deep.

If equipment is available, P should be banded below the soil surface on established plantings. Place P bands at the edge of the root zone and no deeper than the depth of cultivation.

If the OSU soil test for P reads (ppm):	Apply this amount of phosphate (P <sub>2</sub> O <sub>5</sub> )-lbs/A
0 - 20	100-120
20 - 40	80-100
40 - 60	60- 80
Over 60	None

### POTASSIUM (K)

K is needed in relatively large amounts by these caneberries. There appears to be some correlation between adequate K levels and firm berries.

In new fields, K may be broadcast and plowed down before planting. This is particularly desirable if the potassium application exceeds 60 lbs K<sub>2</sub>O/A.

A split application of K may also be used in new fields, if the application exceeds 60 lbs K<sub>2</sub>O/A.

From 1/2 to 2/3 of the K application can be broadcast and mixed before planting and the remaining 1/2 to 1/3 can be banded with N and P after planting. No more than 40-60 lbs K<sub>2</sub>O/A should be included in an N-P-K mixture banded after planting. Excessive amounts of banded K may cause burning of new feeder roots, particularly in sandy soils.



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In fields two years old or older, K can either be banded or broadcast, alone or in combination with N, P, and possibly other fertilizers.

If the OSU soil test for K reads (ppm):	Apply this amount of potash (K <sub>2</sub> O)-lbs/A
75 - 150	80 - 100
150 - 250	60 - 80
250 - 350	40 - 60
Over 350	None

#### SULFUR (S)

Dormant sprays of lime-sulfur or calcium polysulphide compounds supply enough sulfur for these caneberries. If S sprays are not used, the fertilizer program should include 20 lbs S/A each year.

Several fertilizer materials used to supply other nutrients also contain S.

#### MAGNESIUM (Mg)

The specific Mg requirements of these caneberries are unknown. Trial applications of 15 to 20 lbs Mg/A banded after planting are suggested when the soil test value for Mg is below 1.0 meq Mg/100g of soil. The Mg can be mixed with other fertilizer elements.

Both Mg and calcium can also be supplied in dolomite lime. Dolomite should be worked into the field before planting (preferably the previous summer, fall, or earlier) at 1 to 1.5 T/A. In addition to supplying Mg, dolomite has a liming effect equivalent to ground limestone.

#### BORON (B)

These caneberries need B in very small quantities. B is extremely important for normal development of flowers and berries. Plants are very sensitive to excess B.

B should either be broadcast, boom sprayed, or applied as a foliar spray. B should not be banded. B can be added to many of the sprays recommended for caneberries.

If the OSU soil test for B reads (ppm):	Apply this amount of B lb/A
Under 0.50	2 - 2.5*
0.50-1.00	1.5- 2*
1.00-1.50	1
Over 1.50	None

\*This is for one year only. Follow with 1 lb B/A per year thereafter.

#### LIME

Loganberries, Boysenberries, and Marion blackberries are moderately tolerant to soil acidity.

Lime applications are suggested when the soil pH is 5.5 or below, or when calcium (Ca) levels are below 5 meq Ca/100g of soil. However, if total bases exceed 20 meq/100g on fine textured (clayey) valley floor soils, lime is probably not needed unless the pH is below 5.2.

The rate of lime application can be estimated from the following OSU SMP buffer table.

If the OSU SMP buffer test for lime reads:	Apply this amount lime T/A
Below 5.2	4-5
5.2-5.6	3-4
5.6-5.9	2-3
5.9-6.2	1-2

The liming rate is based on 100-score lime.

Lime should be mixed into the soil at least several weeks before planting. A lime application is effective over several years.

Some soils may have a fairly high OSU SMP buffer value (over 6.5) and a low pH (below 5.5). This condition can be caused by the application of acidifying fertilizer. In this case the low pH value is temporary and the pH of the soil will increase as the fertilizer completes its reaction with the soil. This temporary "active" acidity from fertilizer is encountered following recent applications of most N fertilizer materials. Acidifying fertilizers also have a "long term" acidifying effect on soil which is cumulative and leads to lower OSU SMP buffer readings.

Sandy soils to which fertilizers have not been recently applied sometimes record low pH and high SMP buffer values. In such cases, a light application of 1-2 tons of lime/A should suffice to neutralize soil acidity.

For acid soils low in Mg (less than 1.0 meq Mg/100g of soil) 1 of dolomite lime/A can be used as a Mg source. Dolomite and ground limestone have about the same ability to neutralize soil acidity.

Fertilizer Guide #3, "Liming Materials for Oregon," which is available from your local OSU Extension Office, provides additional information on lime.

#### MANURE

Manures contain variable amounts of all plant nutrients. All of the nutrients in manure are not completely available the first year. The following table gives the approximate average content of some nutrients in fresh manures.

Kind of Manure	Nutrient and water content (%)			
	Water	N*	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
Dairy	87	0.5	0.16	0.44
Beef	82	0.65	0.43	0.53
Poultry	73	1.30	1.02	0.50
Hog	84	0.45	0.27	0.40
Sheep	73	1.00	0.36	1.00
Horse	60	0.70	0.25	0.60

\*About 50% of the N is available the first year.

Losses of N sometimes exceeding 50% can occur during manure storage or following application to the surface of soil. N loss is least when fresh manure is spread and worked into the soil immediately. Use of manure can increase the problem with symphyliids.

The suggested P, K, Mg, B, and lime applications are based on soil test values from the Soil Testing Laboratory, OSU, Corvallis, Oregon.

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