

OSMOCOTE & MINOR ELEMENT FORMULATIONS & RATES FOR GROWING NURSERY STOCK IN CONTAINERS

Osmocote, a resin coated slow release fertilizer, is the mainstay of the fertilizer program used to produce containerized woody ornamentals in British Columbia. To date no trials have ever been carried out in B.C. to compare various formulations of osmocote or to establish appropriate rates for its use.

During 1979 a fertilizer trial was established to determine which formulation (s) is most appropriate for B.C. growing conditions, the rates to be used, and the length of time the different formulations will last in our sawdust:peat mixes.

Minor elements were also included in the trial to determine if increased levels of our locally manufactured Saanichton minor elements would be of benefit and to compare them to Fritted trace elements and Sierra's new Micro Max trace elements.

Cornus elegantissima, *Prunus cistena*, *Thuja occidentalis* 'Smaragd' and Rhododendron 'Cunningham White' liners were potted in May in a 3:1 sawdust:peat mix containing 3 lbs/ yd³ superphosphate, 5 lbs/ yd³ Dolomitic limestone and 2 lbs/ yd³ Gypsum. Saanichton minor elements were used in all treatments except those containing Micro Max or Fritted Trace Elements. The Saanichton minor elements were mixed using 16 oz. dry fertilizer to 1 gal. boiling water. The standard rate used was 16 fl. oz. per yd³.

The thirteen treatments used were Osmocote 18-6-12 at 8, 10 and 12 lbs; Osmocote 19-6-10 + Fe (Sierrablen) at 8, 10 and 12 lbs; Osmocote 18-5-11 at 12, 15 and 18 lbs; Osmocote 18-6-12 at 8 lbs. and 18-5-11 at 12 lbs, with 24 oz. Of Saanichton Minor Elements; Osmocote 18-6-12 at 8 lbs. with 24 oz. of Micro Max and Osmocote 18-6-12 at 8 lbs. with 8 oz. of Fritted Trace Elements. Salt conductivity and pH readings were taken every two weeks from all treatments during the growing season. All readings were done on a saturated extract basis. The salt readings were used as a guide to determine the time Osmocote lasts in our mixes and to guide the timing needed for top dressing.

The *Thuja occidentalis* 'Smaragd' cuttings were potted to 4" containers. In these small pots conductivity levels dropped rapidly from initial readings of 3000-5000 micromhos down to 1000 micromhos in the first 4 weeks. At 10 weeks, levels in all treatments were too low (below 1000 micromhos) and were topdressed with 2 tsp. of Osmocote 14-14-14. Osmocote 18-5-11 at 12 lbs. had the lowest reading while 18-6-12 at 12 lbs. and 18-5-11 at 18 lbs. could have gone a short

period longer without top dressing. By October there were no observable differences between the treatments.

Cornus elegantissima were potted to 1 gal. pots and placed in outdoor beds. Salt levels in the *Cornus* never dropped low enough to require a top dressing. The readings leveled off quite rapidly and remained within optimum growth levels for 18 weeks. The two 18-5-11 plots (at 15 and 18 lbs) and the high rates of 19-6-10 + Fe (at 12 lbs) and 18-6-12 (at 12 lbs) remained the highest throughout the summer. Initial growth in these plots was poor, but by October had caught up to the lower rates in height. Osmocote 18-6-12 at 8 lbs. with additional Saanichton Minor Elements (24 oz.) had significantly better growth than the same rate of Osmocote, but with less minor elements. Osmocote 18-6-12 at 12 lbs/ yd³ was obviously too high a rate for our conditions and watering practices.

Rhododendron 'Cunningham White' rooted cuttings were potted to scotch pots in May and grown in a poly covered greenhouse. The highest rates of 18-6-12, 19-6-10 + Fe and 18-5-11 were omitted, as it was felt these rates may injure the plants.

By far, the largest differences between the treatments were observed in the Rhododendron plots.

When average heights and numbers of side shoots per plant were compared, those treatments with taller plants did not have the greater number of shoots. With Rhododendrons a short bushy plant is far more desirable than a tall spindly one.

The results indicated that 18-6-12 at 10 lbs/ yd³ produces a plant with the most shoots and height not significantly different from others. This plant should be considered the best treatment.

The use of Micro Max instead of Saanichton Minor elements at 16 oz., significantly shortened the height of the plants when 18-6-12 was used at 8 lbs. An increase in shoots also occurred, however the difference was not significant. A shorter, bushier plant was observed where the Saanichton minor elements were increased to 24 oz.

Two thirds of the Rhododendron plots were topdressed in August. All topdressed plants showed a significant increase in color within 3 weeks of topdressing--indicating that none of the Osmocote formulations or rates used supplied enough fertilizer to last an entire season.

Six basic conclusions can be drawn from this trial:

1. None of the Osmocote formulations or rates used in the trial provided enough fertilizer to last an entire season without topdressing.
2. Fertilizer is available to plants immediately at potting (deduced from initial conductivity readings), making additional soluble fertilizer at potting unnecessary, in fact undesirable. The soluble nitrogen added to Sierrablen 19-6-10 + Fe is unnecessary in coastal B.C., and if used at higher rates on salt sensitive plants, could cause damage.

3. Osmocote 18-6-12 at 8 lbs/yd³ (our standard rate) is probably too low and can be used to advantage at 10 lbs. if careful watering is practised.

4. Saanichton minor elements incorporated at 16 fl. oz./yd³ may be too low. Additional trace elements may be required, if plants are to remain in the same mix for two seasons.

5. Micro Max trace elements did not significantly increase growth or quality in these plots, however they very well may when used in combination with higher rates of Osmocote. Indications were that growth and quality of 'Cunningham White' Rhododendrons was slightly better.

6. Data collected with onset of growth in Spring 1980 will more clearly indicate what rates, formulations and types of minor elements should be used in producing woody ornamentals in coastal British Columbia.

Table I - Heights and Numbers of Side Shoots of Rhododendron 'Cunningham White' grown in various fertilizer regimes, and topdressed. Data taken October 3, 1979

Treatment	Ave. height (inches)	Ave. # Shoots/Plant
18-6-12 @ 8 lb. Saanichton Minors @ 16 oz.	8.90 a	5.45 abc
18-6-12 @ 10 lb. Saanichton Minors @ 16 oz.	7.30 ab	7.60 a
19-6-10 + Fe @ 8 lb. Saanichton Minors @ 16 oz.	7.15 ab	6.55 abc
19-6-10 + Fe @ 10 lb. Saanichton Minors @ 16 oz.	7.30 ab	5.75 abc
18-5-11 @ 12 lb. Saanichton Minors @ 16 oz.	8.35 ab	4.75 c
18-5-11 @ 15 lb. Saanichton Minors @ 16 oz.	8.20 ab	5.25 bc
18-6-12 @ 8 lb. Saanichton Minors @ 24 oz.	6.60 b	6.25 abc
18-5-11 @ 12 lb. Saanichton Minors @ 24 oz.	8.65 ab	4.85 c
18-6-12 @ 8 lb. Micro Max @ 24 oz.	6.35 c	7.30 ab
18-6-12 @ 8 lb. Frits 302 @ 8 oz.	7.45 ab	6.05 abc

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