



## Effects of Pot Color on Soil Temperature and Root Development on *Rhododendron obtusum* 'Hot Shot'

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**Purpose of study:** The root zone temperature is critical for proper root growth. One of the main factors affecting root growth is the amount of heat units accumulated within the pot. Color affects heat absorption. The objective of using different colored pots is to evaluate the effect of pot color on soil temperature and potential root development.

**Design of study:** Temperature probes were placed 3 " deep on the inside of the pot facing the southwest for maximum heat absorption. Temperatures from each pot are recorded every 5 seconds and an average of each of the 5-second pot temperatures is recorded every 2 hours during the day. Temperature data will be analyzed using a specially designed computer program.

The following colored pots are being used in the study:

- |              |                        |
|--------------|------------------------|
| 1 - Purple   | 8 - Burnt Orange       |
| 2 - Maize    | 9 - White              |
| 3 - Copper   | 10 - Terra Cotta       |
| 4 - Green    | 11 - Fiber             |
| 5 - Mauve    | 12 - Green - McCorkles |
| 6 - Burgundy | 13 - Black - McCorkles |
| 7 - Black    | 14 - Rust - McCorkles  |

**Results and Discussion:** Table 1, 2 and 3 contains information illustrating the relationship between pot colors -- Purple, Maize, Copper, Green, Mauve, Burgundy, Black, Burnt Orange, White, Terra Cotta, and the Fiber pot (somewhat gray in color) plus the Green, Black and Rust colored pots used on a regular basis at McCorkle's Nursery and plant height, diameter of plant, and dry weight respectively.

In Table 1 fiber pots produced significantly more height than the other pot colors. The McCorkle's rust and green pots produced significantly lower heights than all other color pots.

In Table 2 white pots produced significantly more plant diameter than the succeeding pots while at the same time McCorkle's rust and green pots produced significantly lower heights than all other pot colors.

In Table 3 the white pots had significantly more dry weight production than the other pots. The McCorkle green pots yielded significantly lower dry weight.



**Significance to the Industry:** The root zone temperature is critical for proper root growth. One of the main factors affecting root growth is the amount of heat units accumulated within the pot. As color affects heat absorption, pot color can be selected that will maximize plant growth.

Table 1. The Effect of Pot Color on Plant Height of *Rhododendron obtusum* Kurume azalea 'Hot Shot'

Pot Color	Height (cm)	Grouping <sup>1</sup>
Fiber	252	a
Mauve	239	ab
White	235	ab
Maize	227	abc
Purple	222	abc
Green	218	abc
Terra Cotta	218	abc
McCorkle Black	218	abc
Burnt Orange	210	bc
Burgundy	206	bc
Black	205	bc
Copper	204	bc
McCorkle Rust	195	c
McCorkle Green	194	c

<sup>1</sup> Numbers followed by the same letter within a column are not significantly different from each other based upon Tukey's HSD pairwise comparison of means at P=0.05.

Table 2. The Effect of Pot Color on Plant Diameter of *Rhododendron obtusum* Kurume azalea 'Hot Shot'

Pot Color	Diameter <sup>1</sup> (cm)	Grouping <sup>2</sup>
White	237	a
Fiber	234	ab
Maize	225	abc
Mauve	216	abc
McCorkle Black	201	abcd
Terra Cotta	200	abcd
Purple	199	abcd
Black	199	abcd
Green	194	bcd
Copper	193	bcd
Burnt Orange	186	cd
Burgundy	185	cd
McCorkle Rust	174	d
McCorkle Green	165	d

<sup>1</sup> Diameter was measured by taking a reading of plant diameter and then turning the pot 180<sup>0</sup> and taking a second measurement. The total was then divided by 2 to obtain the number.

<sup>2</sup> Numbers followed by the same letter within a column are not significantly different from each other based upon Tukey's HSD pairwise comparison of means at P=0.05.

Table 3. The Effect of Pot Color on Plant Dry Weight of *Rhododendron obtusum* Kurume azalea 'Hot Shot'

Pot Color	Dry Weight (g)	Grouping <sup>1</sup>
White	15.2	a
Fiber	14.9	ab
Mauve	12.7	abc
Maize	12.6	abc
Terra Cotta	11.2	bcd
McCorkle Black	10.9	cd
Green	10.6	cd
Purple	10.3	cd
Burnt Orange	10.2	cd
Black	9.6	cd
Burgundy	9.4	cd
Copper	9.0	cd
McCorkle Rust	8.9	cd
McCorkle Green	7.5	d

<sup>1</sup> Numbers followed by the same letter within a column are not significantly different from each other based upon Tukey's HSD pairwise comparison of means at P=0.05.