

Plant Evaluation Observations

Coleus (*Solenostemon scutellarioides*)

Harry P. Leu Gardens, Orlando, Florida

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Coleus (Solenostemon scutellarioides) is the common name for a group of plants with large colorful leaves native to tropical Asia, Africa and Australia. Several species are grown as ornamentals. Plants of the genus *Solenostemon* are in the family Labiate (mint family). The form is small- to medium-sized herbaceous annual and cultivars are variable from 8" to 364" tall with a similar width, but taller when grouped together in mass plantings in the shade. The average coleus is upright pyramidal to upright rounded growth in habit. Coleus is grown primarily for the impact of its foliage. Although the mounding plants will produce spikes of late-season flowers, most gardeners pinch them off to redirect the plant's energy back to the leaves. Flowers are usually 6" to 10" long, thin, spike-like, and ornamenteally insignificant inflorescences are light purple-blue in color, at the terminus of each central and axillary shoot and are potentially in bloom from July through early October. Foliage of coleus is usually a highly variegated mixture of green, cream, red, purple, burgundy, and/or pink. Leaves range from 3" to 8" long. Coleus function best in beds, foundations, borders, planters, hanging baskets, or containers. They provide a bold texture and a thick density in the landscape. It is, however one of the first annuals (along with Impatiens) to be stunted or killed by light frosts.

Description

Coleus plants that have ornamental leaves are descended from *Solenostemon blumei*, which has nettle-like, bronze-colored leaves. The colors of their foliage range through yellow, red, crimson, and pink. The flowers that are produced on the varieties grown for their colorful leaves are hardly noticeable. Others have plain green leaves but bear gorgeous spikes of blue flowers in the winter. They are not good as houseplants, but will survive in a greenhouse having a minimum night temperature of 55-60 degrees with a 5-10 degrees rise in the daytime and a fairly humid atmosphere. *S. fredericii* is an annual or biennial plant that has deep purple flowers in late winter or early spring. It grows 3-4 feet tall.

Propagation

Coleus can be easily raised from seed. Seeds are sown in early spring in pots containing light sandy soil. They are covered lightly with soil and glass is placed over it in 65-75 degree temperatures. The seedlings are then set 1 inch apart in flats of well-watered soil and shaded until established. They are then potted separately. Cuttings of shoots, 2 inches long, are inserted into sand, vermiculite, or other rooting mediums at any time of year. They should be kept in a warm, moist propagating case or be covered with clear plastic or a jar until they have formed roots. After they have rooted, they are treated as seedlings. When they have almost filled up their pots with roots, they should be transplanted into larger pots that are filled with the same kind of soil mixture as described above in the potting section, but with the addition of a little bone meal and dried cow manure. The last repotting should be into pots ranging from 6-9 inches.

General Care

Even moisture, excellent drainage and regular applications of a nitrogen-rich fertilizer are the plant's only requirements. Poorly drained soils and excessive watering will damage coleus. Plants suffering from "wet feet" will be stunted, leaves will turn a muddy brown, and leaf margins will be scorched. They are tolerant of average soils, soils of various pH, heat, and occasional drought (with wilting of the foliage). Foliage and upper stems will wilt during the dry periods of summer, but will recover during the evening or with irrigation. Plants should not be allowed to dry out, however. Use of soaker hoses is highly recommended. Coleus grown in containers are more susceptible to drought and should be planted in a very well drained soil mix that is watered more frequently. For a mid-summer growth boost, fertilize in June, July and August with a liquid fertilizer at half the usual dilution. Coleus is highly resistant to serious disease or insect problems when grown outdoors in properly prepared beds or containers. Some pests to watch for include mealy bug, aphids and whiteflies. Some disease problems to watch for include stem rot and root rot.

The Evaluation Project

Traditionally, most coleus will grow best in part shade or dappled light. Varieties that are not sun-tolerant will bleach and discolor in full sun. However, several new cultivars are available that will thrive in full, hot sun. They are listed in the cultivar listings below.

Harry P. Leu Gardens (USDA hardiness zone 9b) conducted trials on 195 cultivars and species of *Solenostemon* in 2000 and 2001. Not all selections were grown during the two-year trial.

Both years, care for the plants was consistent. The trial bed was located in full sun with compost amended sandy soil. Soil ph was 6.8. Ground cover fabric was spread over the entire area to control weeds and x-shaped slits were cut into the fabric for planting on 36" centers. For aesthetics, the bed was mulched with a thick layer of pine straw. The plants were watered by an automatic sprinkler system and fertilized with a 20-20-20 liquid application 60 days after planting. No pruning or staking was performed. Dead or broken branches were removed as needed. Dead plants were removed and noted. If it fell over it stayed down. No regular spraying for pests was conducted, though in the first evaluation year one application of horticultural oil for mealy bugs was made.

Evaluations were conducted about every 4 to 5 weeks. Each cultivar was evaluated on the following criteria: growth habit, color, health (including pest and disease resistance), and general vigor.

All the cultivars were segregated into five distinct groups; 1.) low and creeping varieties 2.) Small varieties (under 24" tall), 3.) Medium varieties (25" – 36" tall), 4.) tall varieties (36" +) and 5.)

those representing the Florida City series hybridized by Lake Brantley Plant Corporation, a nursery in Central Florida.

Observations

Data specifics for each group were gathered for two years and the top six performers in each are listed below.

Low Creeping Varieties (suitable for baskets or groundcovers)

Black Sunn: Weeping branches cloaked with rich mint green leaves centered with a cranberry-mahogany design plus rose veins. Good spreader with no fading of color.

Green and Gold: Small yellow lime leaves with deeply scalloped edges and straw tones flamed centers. Stayed healthy and vigorous throughout entire trailing period.

Red Trailing Queen: Dark purple-brown leaves ledged with red & green. Spreads to five feet wide on the ground and almost two feet high. Showed no disease or fading of color.

S. pentherii: Sharply fragrant, softly sueded green tidy leaves. Very vigorous spreader to 18" tall.

Tell Tale Heart: Small heart leaves of livid olive quite dramatically centered chocolate maroon, veined pink. On the ground gets about 12" high and spreads well.

Small Varieties (12" 24" tall)

Charlie McCarthy: Very compact plant, growing to a maximum of two feet but mostly around 18" high. Small mint green leaves with a tinge of purple. Clean plant with no discernible pest problems. Perhaps the best of the entire trial.

Butter Cutter: Very petite plant never reaching over 12 inches. Bright yellow &

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ochre leaves that are ruffled. Late in the fall the color began to wash out some.

Camellia: Subtle melting of roses, mauves, pinks, avocado and champagne tones which held up well despite full sun exposure. Health was good despite a slight tendency to flop.

Dark Frills: A sport in India Frills with a very dark dramatic center fingering. Reaches 12" tall. A cute ruffled plant goof for containers or hanging baskets.

India Frills: Compact mounding plant with tiny leaves of ochre, pink and purple. Very delicate effect. Would be good in baskets.

Thumbelina: Tiny clustered green leaves with burgundy centers. An excellent plant which forms a nice compact mound.

Medium Varieties (24" – 36" tall)

Brilliancy: Upright plant with bright carmine leaves brightened by parsley green scalloped edges. Color stays good even in sun. Health good.

Grace Ann: One of the best in the trials. Saber-like, green leaves fading to light green with delicate pink centers. A very full plant with great color even at the end of the season.

Kiwi Fern: Slim fingered leave profile of carmine red with the tip of each elongated scallop rimmed in bright ochre. Average height of 30" - 36". Color remained brilliant the entire season. The many blooms on short spikes were an added benefit.

Lime Frills: Chartreuse lime leaves with cream-colored netting. Frilled and ruffled. Plant holds up well, stays erect and color stays true.

Rosa: Petite leaves with ruffled edges of light green with lemon white centers with flecks of pink, violet & rose. A compact plant that reaches 2 feet in height. Even in the sun, the color was bright and consistent.

Tilt A Whirl: Curly circular leaves of muted heather to rust bronze with jagged

lime edges and feathered centers. Will reach 2 to 2 ½ feet. Flopped somewhat but color was strong.

Tall Varieties (36" +)

Fack: Colored chocolate purple with dark cabbage rose centers and bug-green scallops. At the end of the trials it was 4' tall and holding up well. The color was a little faded but not much.

Hurricane Louise: Tall plant with feathery quince toned leaves with rose centers framed by rusty cranberry halo, pale white eye. At the end of the trials it was 4 feet tall, full & upright and very healthy.

Inky Fingers: Much branched wide habit with amber & olive 'Duckfoot' type fingered wide leaves with central blood red & purple figuring. It was 3 feet tall at the end of the trials and was holding up well. It is a big spreader.

Ruffles: Rose red with ruffled edges. Very full plant that stays erect. Color holds up well.

Super Duckfoot: Deeply lobed citron green splotched rose, pistachio, & freckled gold. Holds up well and lasted the second year of trials until the very end. It was 4 feet tall at the end of the trials. It did have a few mealy bugs but that was 10/04/01 and it had been in the ground since 3/13/01.

Yada, Yada, Yada: Small leaves of rich mint green with a clear pink central flame chevroned with violet eyeliner. Very vigorous spreader up to 4' high. Tends to flop but once the branches touch the ground they take root and keep the plant bushy.

Florida City Series

Altoona: Heart-shaped leaves with fuchsia focal point and splashes of valentine red finishing with jade rippled edge. Well branching, grows to 24". Frequent cutting deepens the luscious fuchsia color.

Astatula: Striking crimson red edging with an Irish green heart on a tear drop leaf.

Grows to about 30".

Okahumpka: Lush and dense lime green leaf speckled with sunny yellow and overlaid with veins of blood red. Venation pattern becomes more prominent with age.

Grows to 36". Superb grower, nice form and deep, pure coloration.

Punta Gorda: Large textured curled chartreuse leaves with wine red scalloped edging.
Excellent color even by the end of the season. Grows to only 18".

Wauchula: Vivid sanguine center with cerise undulating edge lightly touched with golden specks. Underside and stems are a rich ruby red. Grows to 36". Displayed good vigor and form.

Yulee: Webfoot type leaf with a predominantly emerald green backdrop dappled with a velvety burgundy and tipped with buttery yellow highlights. Grows to 36".
Excellent condition and good at seasons end.

Poor Performers

The plants in each group with poor coloration or those that died are listed below. The plants selected for this list were chosen from plants tested both years and both years they failed. Some of them might have performed better had they been staked.

Hallelujah: The first year reached 18" but fell apart with branches breaking at ground level. The second year it only reached 9" and rapidly fell apart.

Pineapple Queen: The first year it grew to 2' tall but the color was completely washed out. The second year it only grew to 14" and the color was gone very quickly.

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Collin's Gold: Both years it grew to 2 ½' tall but it had massive breakage. Only two branches remained at the end of the second year.

Mutated Japanese Giant: It did not perform well either year. The first year it reached 3' in height but with lots of breakage and the color was faded. The next year the plant looked wilted and again the color faded.

The Line: Both years it grew to about 14". This was a real surprise and very disappointing. 'The Line' is a well-known and sometimes overused in cooler northern climates but in the Florida trials the plant had a washed-out appearance after the first year.

Concord: The first year the plant reached 3' in height with breakage but the color was faded. The second year it only reached 1 ½' in height with uneven growth and faded color.

Night Skies: Both years it reached a little over 2' in height and tended to be a vigorous spreading plant. Later in the growing season the entire plant split apart.

Mr. Wonderful: The color was initially good but the plant soon broke apart and the color faded. The last blow was an attack of mealy bugs that soon rendered the plant nearly dead.

Coal Mine: The color was not consistent and there was a good deal of breakage after it reached 2' in height.

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Touch of Gold: Reached 3' in height and then fell over with lots of breakage.

a few of the branches set out roots and began growing foliage but the entire plant looked very unkempt.

Oompa: Grew to 2' high but looked stunted and wilted. It did have lots of blooms that looked odd on a plant so unhealthy.

Confetti: Grew to 18" tall but color was washed out and flopped a great deal.

Citron Ruffle: Reached 2 ½ ' the first year and 2' the second. Color was badly washed out and the plant broke apart.

Summary

Prior to this decade, most coleus were grown in full or partial shade for maximum color and development. Recent hybridization of Solenostemon by growers throughout the south and specifically in Orlando, Florida, has lead to numerous cultivars suitable for growing in full sun.

Notable changes in the color saturation and habit of growth were recognized in many cultivars. For instance, Florida-grown "The Line" yellow is equal to northern grown plants but the magenta-colored line, when grown in Florida's full sun was noticeably less well defined. Other selections with rich deep colors in northern climates were somewhat muted or even washed out in Central Florida. While northern counterparts often grew to 36" in some selections, the same Florida grown plants sometimes did not exceed 24".

Nearly all the coleus plants were pest free and produced sizeable plants with little or no care, with notable exceptions. Amateur and professional gardeners are often seeking alternative plants for

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full sun locations and from the data collected it is apparent that a number of selections are suitable for the hottest and sunniest of landscapes. The new generation of sun-tolerant coleus promises a bright future for this old-fashioned plant.

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