GROWTH OF SANSEVIERIA TRIFASCIATA 'LAURENTII' IN SOUTH FLORIDA

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Abstract. **Five methods were used to evaluate field growth of Sansevieria trifasciata 'Laurentii'. Plants grew most rapidly from 9 to 12 inches to 12 to 15 inches high. Growth was slowest when plants attained a height over 24 inches. Greatest height increase occurred during January through March. During a plant's first 10 months, height increased steeply and then tapered off. During summer, height increased slowly. Sprouts which emerged in May, August and September grew fastest. Those emerging in December and January were slowest. After 4 years and 2 months beds spread from a single plant row to a width of 44 inches. Numbers of plants increased greatly during September through December. Production of new plants decreased during January and February and increased during March through June. Top weights of individual plants after 1 year's growth varied from 224 grams to 536 grams, the mean being 338 grams.**

Sansevierias, members of the lily family, are indigenous to coastal areas of Africa, Arabia and India (4) and are among the more tolerant houseplants to a wide range of conditions from moist or dry soil, high or low light, thrive in practically any soil type and they are notably insect and disease free (1).

Sansevierias thrive out-of-doors in South Florida (2) since their introduction in about 1800. Plant types have been divided into 3 groups (2), I: cylindrical leaved, II: those with wide, flat leaves and III: plants with long, narrow leaves, such as *S. trifasciata* 'Laurentii'.

Sansevieria trifasciata 'Laurentii' (de Wildm.) N.E. Br. originated in the Belgian Congo and has an attractive leaf with a yellow margin. Unlike cultivars with all green leaves, Laurentii must be propagated by division as leaf cuttings result in a loss of the yellow margins (3). One report suggests that the yellow is due to virus infection (5).

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Sansevierias are also grown for fiber in the Yucatan, Mexico area where the soil is similar to that in South Florida. Commercial fiber plantings in Yucatan and ornamentals in South Florida have existed continually for 25 years (5).

Studies of nutritional requirements showed that 100 pounds of nitrogen and 25 pounds of potassium per acre per month helped plants attain marketable size quickest. Addition of phosphorus to virgin soil did not improve growth over a 4-yr period.

Little is known about growth of the 'Laurentii' cultivar. Therefore, an experiment was conducted to follow the plant's growth from the time a lateral bud appears above ground to the maximum height of the plant's leaves.

Commercially, sansevierias are sold as 6 to 9 inches, 9 to 12, 12 to 15, 15 to 18, 18 to 24 and occasionally taller plants. Customarily a saleable plant has at least 3 leaves; 2 of the shorter leaves must be at least three-fourths as tall as the tallest leaf. For this reason the above sizes were considered when measuring growth.

Table 1. Average time required to reach marketable sizes, December to December.

	Size (inches height)					
	6-9	9-12	12-15	15-18	18-24	Over 24
Days	43	73	98	138	173	258

Table 2. Average number of days required to reach marketable sizes from sprouts emerged during various months of the year.

Month labeled	Sizes (height in inches) 6-9	9-12	12-15	15-18	18-24
	Days to attain size				
Jan.	33	53	83	118	153
Feb.	38	53	68	83	123
Mar.	38	48	63	78	93
April	28	43	58	73	93
May	23	33	48	68	83
June	23	38	53	73	88
July	28	43	53	73	88
Aug.	23	33	48	63	83
Sept.	23	33	48	63	83
Oct.	28	43	58	83	93
Nov.	33	48	63	73	93
Dec.	43	53	78	103	128

Methods and Results

Field plots consisted of four 100-ft rows of *S. trifasciata* 'Laurentii'. Each row was divided into 10 equal plots.

Growth Rate

The rate of growth was studied by 5 methods. In the first instance 4 newly emerged sprouts were labelled in each of the 40 plots during December. As the sprouts grew through the various commercial sizes, the time required to reach each size was recorded. This study ended 1 yr later, in December. The average number of days required to reach the marketable sizes were calculated for 160 sprouts (Table 1).

Plants grew fastest from sizes 9 to 12 inches to 12 to 15 inches. Slowest growth occurred while leaves were attaining height above 24 inches.

The top weights were also used as a measure of growth. Weights varied from a minimum of 224 grams to a maximum of 536 grams. The average was 338 grams in 1 year.

In another study, 1 sprout in each plot was labeled during each month of the year. The effect of season upon growth was measured, showing that sprouts which began in May, August and September grew fastest to reach 18 to 24 inch heights. Those buds which began in December and January were slowest (Table 2). These results were derived by observing 480 sprouts.

A third measure of growth was the weight of a 2-ft. portion of each of the plots after 4 yr. This growth occurred from December 1969, when a bed consisted of a single row of plants, to

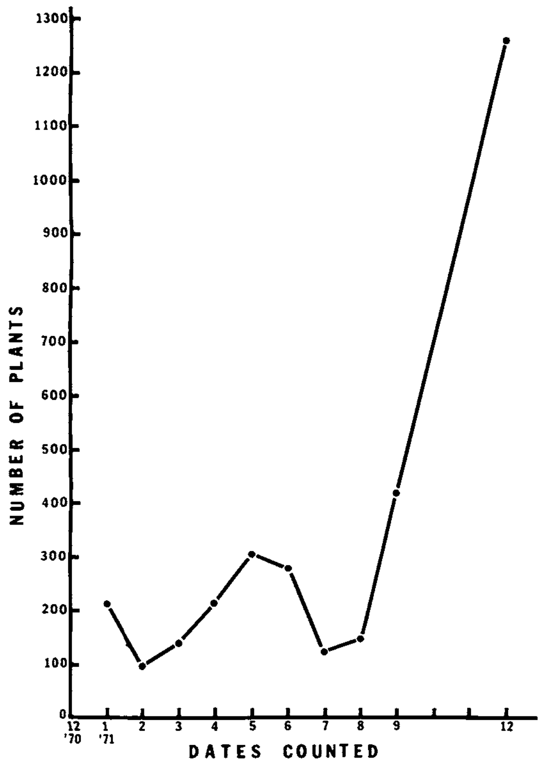

Fig. 1. Seasonal increase in number of plants in a 1-yd.-old planting, non-accumulative.

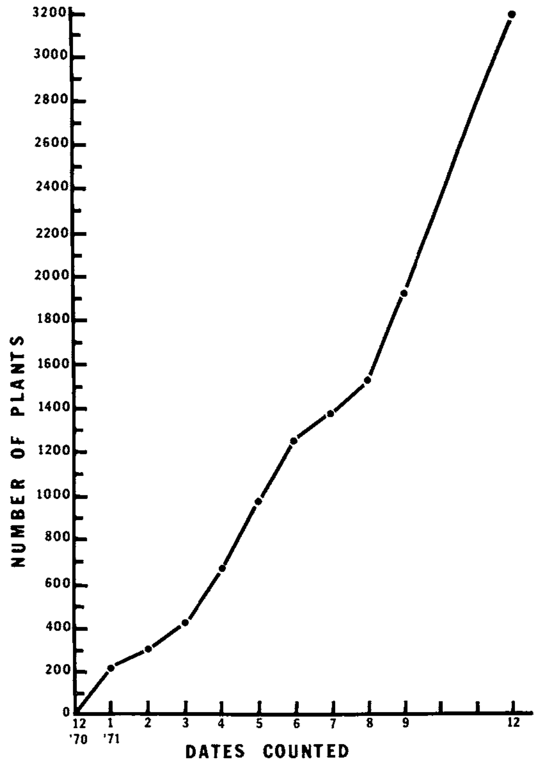

Fig. 2. Seasonal increase in number of plants in a 1-yr.-old planting, accumulative.

Table 3. Seasonal growth as indicated by increased number of plants.

Season	Average plants/plot	Duncan's range[z]
12-7-70 to 3-11-71	110	a
6-12-71 to 9-9-71	172	b
3-11-71 to 6-12-71	201	b
9-9-71 to 12-14-71	313	c

[z]Figures followed by the same letter are not significantly different at the 1% level.

Table 4. Seasonal increase of plant height in inches.

Months	Average increase	Duncan's range[z]
Nov.	0.56	a
Dec.	0.61	a
Oct.	0.70	a
Sept.	1.40	b
June	2.01	c
May	2.03	c
Aug.	2.20	cd
July	2.51	de
April	2.96	ef
March	3.27	f
Feb.	4.06	g
Jan.	4.07	g

[z]Figures followed by the same letter are not statistically different at the 1% level.

February 1974, when plots averaged 44 inches wide. These 2-ft. samples varied from a minimum of 28 kg to a 55 kg maximum. The mean was 47 kg.

It should be noted that within a period of 4 yr and 2 months the beds grew from a single plant row to approximately the width of a commercial bed.

The fourth measurement of growth was to determine the number of plants within each plot on a monthly basis for a year after planting. Appearance of new plants decreased during January and February and increased during March through June. After a pause in July and August, numbers increased dramatically. There appears to be a seasonal response, the great increase from August through December (Fig. 1). This steep rise in numbers is typical of the logarithmic phase of growth of most organisms (Fig. 2).

This first year of growth was broken down into 4 seasons and evaluated by analysis of variance. Table 3 shows that fewest plants appeared in winter and most appeared in autumn.

A fifth measure of growth was the rate of plant growth to maximum height. The average heights of 4 plants per plot were recorded monthly. The amounts of growth each month were compared by analysis of variance. During summer months, despite higher temperatures and heavy rainfall, increase in height was only moderate. Slowest height increase took place during October, November and December, fastest occurred in January, February and March (Table 4).

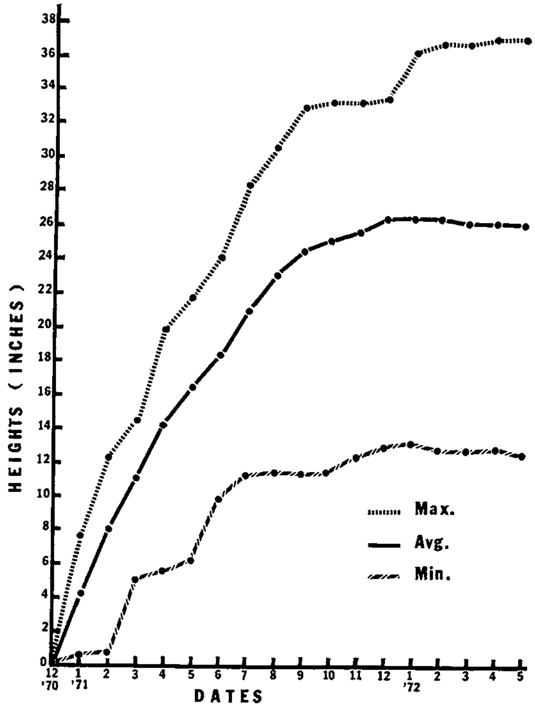

Fig. 3. Accumulative monthly increase in plant height, 1-yr.-old planting.

Another expression of monthly change in height is presented in Fig. 3. Height diminished after a maximum as the pointed tips of leaves were shed. Height increased during the first 10 calendar months.

Commercial growers may be helped by knowing the number of days required to reach marketable sizes from sprouts begun at various times of the year and the rate of spread to commercial bed width.

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