

Root Pruning of Strawberry Transplants¹

John R. Duval and Elizabeth Golden²

In Florida annual hill strawberry production, bare rooted transplants are hand planted for establishment. Northern latitude or high elevation nurseries produce these transplants during the summer months and begin digging plants in September for winter production areas. The green-topped bare root transplants arrive in Florida with varying amounts of root development and number of mature leaves. These plants are planted on raised, black polyethylene mulch beds. Commonly, the root mass exceeds the size of the planting hole, requiring a folding of the roots (J rooting).

Rapid growth of the root system is critical for transplant establishment, and the strawberry root system should be well established within 2 to 3 months after transplanting (Galletta and Himelrick, 1990). Rapid growth insures the delivery of water and nutrients essential for flower and fruit development. The strawberry root system consists of two types of roots, large adventitious roots which differentiate slowly from the crown, and fibrous branch roots, which differentiate from the large roots (White 1927). Rapid development of fibrous branch roots is vital to transplant health as strawberry roots rarely have plant hairs. Instead of root hairs they possess

many-branched feeder rootlets with fascicles, which appear like root hairs (Wilhelm and Nelson, 1970). Feeder rootlets have no cambium, are composed only of primary tissue, have a life expectancy of a few days to a few weeks, and are concerned primarily with water and nutrient absorption. Dead fascicles are constantly replaced by new rootlets.

In trials conducted at the GCREC-Dover, root pruning to 9 or 5 cm had no detectable effect on early or total marketable weight (Table 1) or fruit number (data not presented) compared to unpruned controls. Seasonal differences in early yields were lower during the 2000-2001 season due to unseasonable cold in the Dec. and Jan. months. While root mass at planting had no effect on marketable yields at planting, smaller root masses were much easier to plant. Excessive amounts of roots must be forced into small planting holes, resulting in "J" rooting, which requires extra time and effort. Commercial growers in Florida do not currently root prune to facilitate planting but the practice may have utility in commercial fields.

-
1. This is document HS-913, one of a series of the Horticultural Sciences Department, Gulf Coast Research and Education Center - Bradenton, Florida. Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Publication date: September 2003. Please visit the EDIS Web site at <http://edis.ifas.ufl.edu>.
 2. John R. Duval, assistant professor, Gulf Coast Research and Education Center - Dover; Elizabeth Golden, biological scientist, Gulf Coast Research and Education Center - Dover, Horticultural Sciences, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, Florida 32611.

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. U.S. Department of Agriculture, Cooperative Extension Service, University of Florida, IFAS, Florida A. & M. University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Larry Arrington, Dean

Literature Cited

Darrow, G.M. 1966. The Strawberry: History, Breeding, and Physiology. Holt, Rinehart and Winston, New York

Galletta, G.J. and D.G Himelrick (Eds) Small Fruit Crop Management. Chapter 3. Strawberry Management. 1990. Prentice Hall, Englewood Cliffs N.J.

White, P.R. 1927. Studies of the Physiological Anatomy of Strawberry. J. Agric. Res. 35:481-492

Wilhelm. S., and P.E. Nelson. 1970. A Concept of Rootlet Health of Strawberries in Pathogen-free Field Soil Achieved by Fumigation. P 208-215. In T.A. Toussoun, R.V. Bega, and P.E. Nelson (eds). Root Diseases and Soil-borne Pathogens. University of California Press, Berkeley.

Table 1. Effect of root pruning on the yield of bare root strawberry transplants.

Season	Early Yield ^y (g/plant)		Total Yield (g/plant)	
	'99-'00	'00-'01	'99-'00	'00-'01
Control	136.1 ^z	97.4	343.9	462.0
Roots pruned to 5 cm	136.5	107.0	408.3	471.7
Roots pruned to 9 cm	133.4	95.3	407.5	508.7

^y - Early yield includes December and January harvest.

^z - No significant differences among treatment means were detected by Fischer's LSD (P < 0.05).