

Community  
*Growing Points*

# Roots demystified

By Jean English

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LINCOLNVILLE (Jan 26): Robert Kourik's 1986 book "Designing and Maintaining Your Edible Landscape Naturally" comes off my shelf regularly, for its abundance of clearly presented, specific information about gardening with edibles, and with great appreciation for Kourik's friendly and often funny (but to-the-point) writing style.

Now "Roots Demystified," to be released April 1, joins that book on and off the shelf. (2008, Metamorphic Press, P.O. Box 412, Occidental, CA 95465; robert-kourik.com, 168 pgs., large paperback, \$25)

Kourik starts right off with the importance of roots. For example, "... the area occupied underground by tree roots can be up to five times more, or greater, than that of the foliage above ground, and ... frequently, one-half or more of a plant's mass is located below the surface of the soil."

Knowing how roots of specific plants grow, he says, "can change your own gardening behavior in terms of protecting roots, nourishing the soil, ensuring well-placed soil fertility measures, and the wise use of water and mulch."

After describing how roots grow, from the microscopic level of an individual root's hair cell to an entire root system of a tree, Kourik has a short chapter on soil structure and texture with some revealing facts.

For instance, "it takes 65 million clay particles to fill up the same amount of space as one grain of sand." So that's where all that nutrient-holding surface area comes from ... This chapter also discusses the importance of humus and mulch. Kourik is big on mulch. "I like to mulch a lot, mulch a lot, mulch a lot," says one subhead.

Subsequent chapters discuss the root systems of lawns, prairie plants, shrubs, trees (including fruit trees) and individual vegetables. This is where Kourik introduces the amazing drawings of

root systems made by John Weaver (1884-1966), who was professor of plant ecology at the University of Nebraska for 47 years.

Weaver "went into the trenches to excavate the root zones of plants" and "spent countless hours following and mapping roots and the patterns they made beneath his feet."

Kourik found Weaver's drawings "hidden in a dusty agricultural library at the University of California at Berkeley" in the early 1980s. These works of art and science inspired Kourik to write "Roots Demystified," to reproduce and comment on the agricultural and horticultural significance of rooting patterns, and on ways to enable roots and crops to grow best.

Farmers and gardeners will find much useful information in this book — such as how to grow carrots in raised boxes of soil, if your native soil is less than ideal for the crop; and the effects of spacing on carrot production, if your native soil is dry.

Kourik talks about gardener/author Steve Solomon's experiment with growing dryland carrots a foot apart within rows and 5 feet apart between rows, with no supplemental irrigation, and ending up with very sweet, 5-inch-diameter carrots weighing more than 1 pound each by the end of the season.

He talks about protecting the fine root hairs of cabbage with mulch rather than late cultivation, which might do more harm than good; about salad mix crops to grow when flea beetles are a problem; what soil conditions best promote nodulation in legumes; and where to place fertilizer and mulch for best rhubarb production (lest you have a shortage of rhubarb).

A chapter on surface cultivation and no-till gardening relates the fascinating gardening techniques of a 1950s-era British market gardener and encourages gardeners to limit cultivation for the sake of good soil structure and plant growth, and to limit loss of carbon dioxide to the atmosphere.

"Our planet's soil contributes ten times more carbon dioxide to the atmosphere than all of humankind's activity," says Kourik.

Reading about growing crops (especially potatoes) in hay bales topped with a nitrogen source (Kourik mentions an inch of blood meal or several inches of fresh manure) and 4 inches of soil has me itching for spring to try this technique; and his "mighty-good garden mounds" — piles of landscape and garden waste (including wood chips, grass clippings, kitchen waste and so on)

topped with at least 4 inches of soil — brought to mind the prize-winning cauliflower that Jack Kertesz grew in a similar mound last summer at the Maine Organic Farmers and Gardeners Association's Common Ground Education Center.

Kourik presents good and interesting information on growing trees in "Roots Demystified" — from producing quality tree seedlings in air-pruning tubes (and listing a few growers who sell such seedlings), to proper mulching practices and selecting trees for specific conditions.

The information about mycorrhizal associations with soils and plants, especially trees, is just one more fascinating topic covered in this excellent, highly readable book.