



Figure #53: Alfalfa can grow roots to dozens of feet deep. Yet, like the taller peach tree, shown here, most of the water absorbed comes from the top foot of soil. With water, nutrients follow.

important. The aerobic-loving soil life needs to breathe. The deeper you go, the less aerobic you get, and the number of beneficial soil flora will rapidly diminish.

Studies done with agricultural plants provide a lot of useful information. Alfalfa and peach trees get most of their moisture (along with nutrients) from the top one to two feet of the soil. [See Figure #53.] Figure #54 details the depth at which various plants and trees “gather” most of their water. Figure #55 shows the nutrient levels of absorption for a black walnut tree, two alfalfa plants, and Taiwan hardwoods.

Figures #53, #54, and #55 are of economic crops—fruit trees, alfalfa, cotton, and corn. I have been unable to find similar data for the depth at which native trees absorb moisture, except for the 30-year-old mesquite tree example in Figure #56. [See page 93.] There seems to be little incentive

to do such research with noneconomic or merely ornamental trees. I am making an unsubstantiated assumption that ornamental trees will have similar absorption patterns as fruit trees because they are planted in about the same way, which means that the taproot is usually destroyed in the process.

In some special cases, roots will grow back up from rather deep placement in the soil to range within two inches of the surface. Figure #56 shows a small 30-year-old mesquite tree (*Prosopis glandulosa*), 25 inches tall and 35 inches wide, growing in southern New Mexico, its roots penetrating more than 18 feet into the soil. The researchers concluded that, along with generating deep roots to gather moisture from heavy rains seeping far underground, mesquite roots “grow...upward, to utilize minor precipitation events that only wet the soil to a depth of a few centimeters (about three-quarters