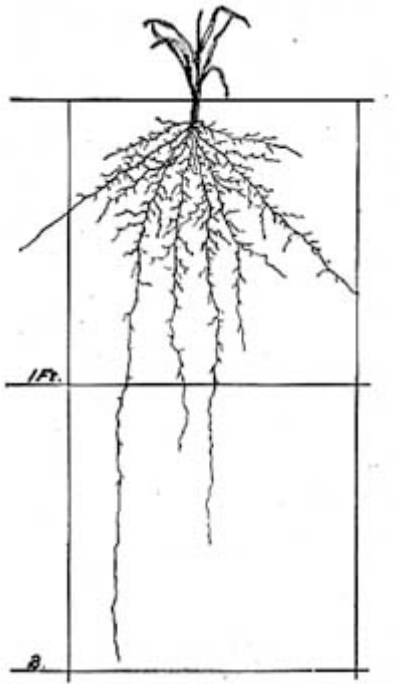
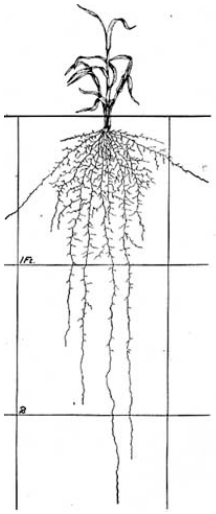
In general the plant root development depends on type of vegetation being fibrous or a Taproot System. Its full development depends on the soil type, moisture, soil temperature, and soil fertility. Upon germination of the seed the primary root takes the lead, but very, soon, two other roots appear on opposite sides of the first still others may be added, and together they constitute the primary root system.

The first roots of the secondary root system always develops within an inch or two of the soil surface. The number of roots increases somewhat in proportion to the number **o**f tillers present. Depending with the shoot development, the plant made an excellent growth underground.

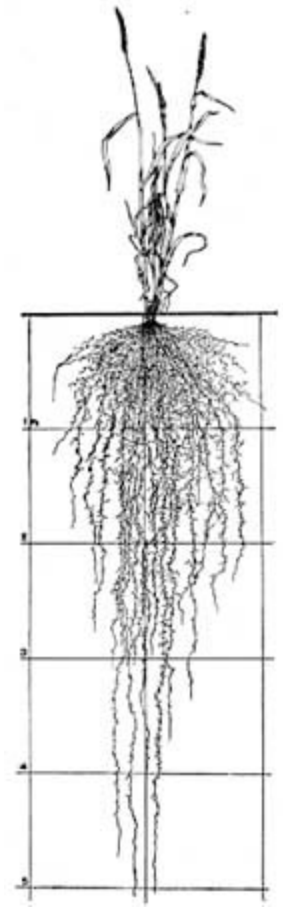
A plant that is a month old or older, two tillers and more roots developed on most of the plants. Young roots only 1 to 2 inches long (depending on the soil fertility Lateral spread normally increases. The lateral branches are much longer and secondary branches were beginning to appear.



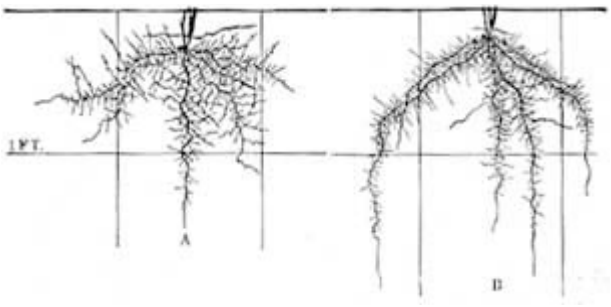
As noted in the drawing the tilling has increased. Many roots had penetrated deeper, whereas others had spread obliquely downward and, with the increase both in number and length had begun to fill in the soil volume.

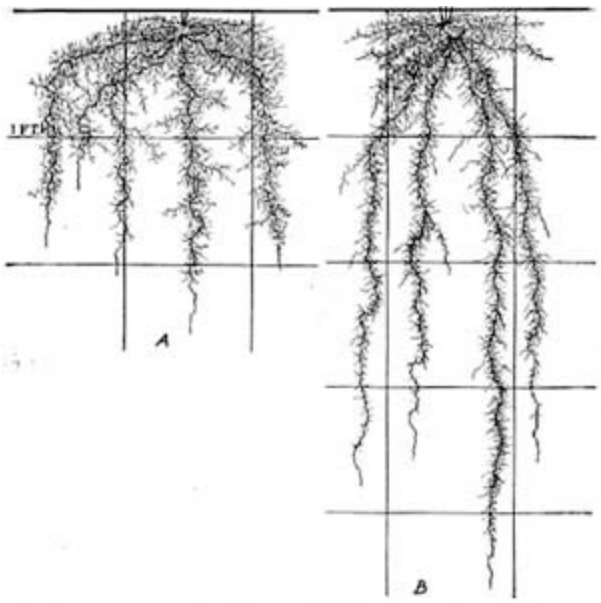


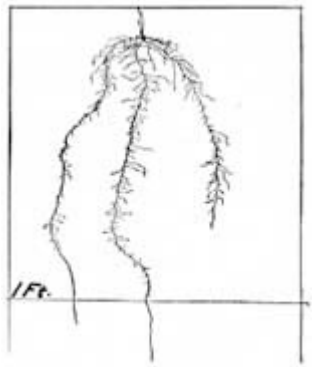
The **Mature Root System**—Usually in June or July when the crops are in blossom the plants reach in height of approx. 2.+ feet height but they reached a greater depth of over 2ft. to 4 ft in depth to the number of tillers.



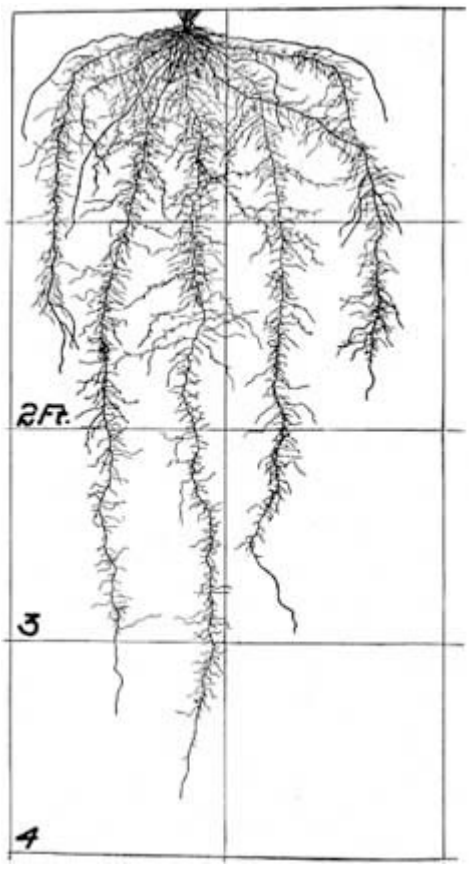
After harvesting the lateral spread may increase only slightly. The crop on the lowland was usually taller and better developed than that on the upland. No marked differences were found in the branching habit. This simply shows you that we do not see the end product of the root development (reason is that the topsoil may be too wet or too dry.)

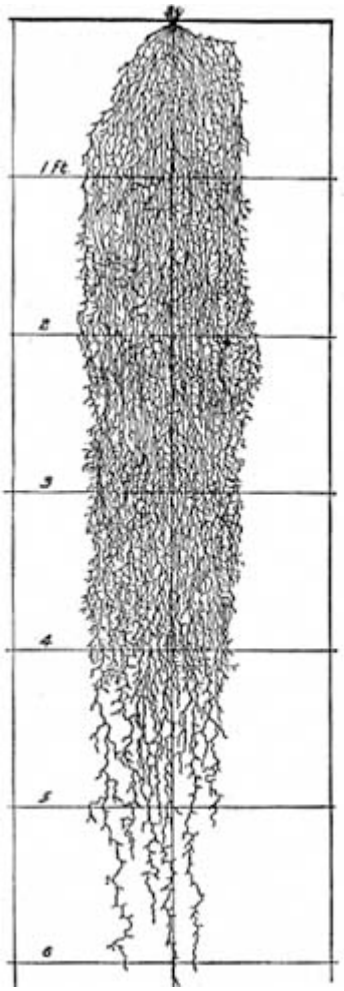






Roots of the primary system often reached depths of over 3+ feet to 4-foot level.


2Ft.
3
4



Mature root system after winter / spring months could reach a greater depth

THE INVESTIGATIONS OF THE ROOT HABITS OF WHEAT

At St. Paul, Minn., isolated clumps of spring wheat were found to have roots which spread throughout a radius of 16 inches and had a depth of penetration of more than 4 feet. downward, sending out numerous small feeders, which practically occupied the soil to a depth of 4 feet, many roots presumably penetrating a foot or two deeper. A lateral spread of 9 inches was found. Red winter wheat at Manhattan, Kan., has been shown to form a network of fine fibrous roots quite to the surface of the ground. The roots were recovered to a depth of 4 feet, although they probably extended deeper.

It has been fully demonstrated that early fall plowing increases the soil fertility.