

Annual Ring

If the tree is cut down with a saw, the layers appear on the stump as a series of concentric rings called annual rings or tree rings or growth rings.

Each year, beneath the bark, a layer of wood is added by plant to its trunk and this layer is called annual ring.

Each annual ring is composed of:

- i. Spring wood or early wood ii. Summer wood or late wood
- i. **Spring wood or early wood:** In spring, tree grows quickly, the xylem cells are large with thin walls and lighter colored. This part of ring is called spring wood.
- ii. **Summer wood or late wood:** In late summer, slow growth occurs. The walls of xylem cells are thick and dark colored. This part of ring is called summer wood.

Advantages: Annual rings provide following information.

1. It helps us to determine the age of a tree.
2. It helps us to determine that whether the year was fat (favourable) or lean year (unfavorable).

The growth occurs in vascular cambium.

In spring, vascular cambium begins dividing and adds new tissues to increase diameter at two places.

- i. **Outside the cambium:** The part of vascular cambium that grows outward becomes the part of phloem and forms secondary phloem
- ii. **Inside the cambium:** The part of cambium that grows to inner side becomes the part of xylem and forms secondary xylem.

Tree Rings

Thickness of the tree ring indicates the climate. (A thin ring- dry or cool, and a wide ring- warm or wet)

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Annual rings on the stump as a series of concentric rings