

**FOR 2542 - Forest Inventory  
Stand Stocking**  
David Larsen

Stocking is a concept that is important in forest management. The Society of American Foresters define stocking as "... an indication of the number of trees in a stand as compared to the desired number for best growth and management: such as well-stocked, over-stocked, partly stocked." Gingrich (1964, 1967) developed a chart to express stocking of upland hardwoods (Figure 1). This chart illustrates the relationship between basal area, number of trees, average diameter and stocking percent. Three other lines are found on the chart and are usually labeled with letters. First is the A-line which represents the "average maximum stocking," which is the combination of density, basal area at which the trees each have the minimum area needed to grow at an acceptable rate. Second is the B-line which is the "maximum tree area line," which is the combination of density and basal area at which the trees each have the maximum area each tree can use but no space is wasted. Third, is the C-line, which is the line at which it is believed that the stand will take 10 years to grow to the B-line.

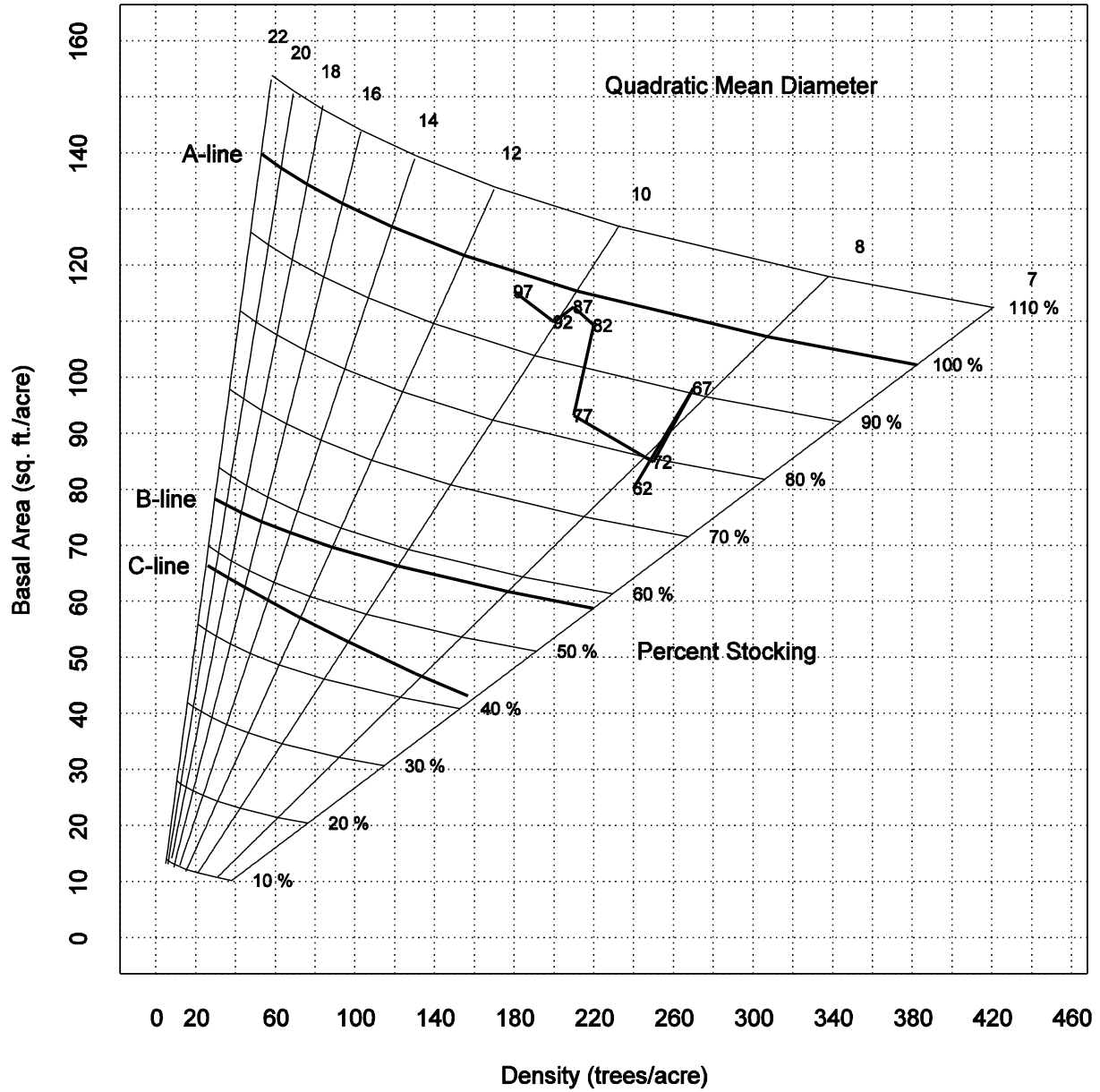
Reinike (1933) developed an alternative density management diagram. This diagram modified by Long (1985) plots log diameter over log density. These diagrams are very useful in conifer plantations.

Figures 2 and 3 are examples of a Gingrich stocking diagram and a density management diagram with CFI plot data for the last 30 year from plot 1.

## References

- Gingrich, S. F.**, 1964. Criteria for measuring stocking in forest stands. *Proceeding of the Society of American Foresters meeting* pp. 198-201.
- Gingrich, S. F.**, 1967. Measuring and evaluating stocking and stand density in Upland hardwood forests in the central states. *Forest Science* 13(1):38-53.
- Long, J. N.** 1985. A practical approach to density management. *Forestry Chronicle* 61:23-27.
- Reineke, L. H.** 1933. Perfecting a stand-density index for even-aged forests. *Journal of Agricultural Research* 46:627-638.

### Pioneer CFI Plot 1



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