NORTHERN HARDWOOD NOTES

A Case History Of Even-age Management

Here is evidence from an actual hardwood stand on the Argonne Experimental Forest in northeastern Wisconsin that even-age management works.

Four intermediate cuttings (thinnings) over 26 years have changed the stand structure (number and size of trees) so that the final objective of quality saw logs is being met. The thinnings were made at about 7-year intervals beginning when the stand was 51 years old. Note how the proportion of basal area in sawtimber-sized trees has increased:

Thinning	Stand age	Date	Percent of basal area in sawtimber trees
	Years		
1 st	51	1956	31
2nd	59	1964	39
3rd	66	1971	49
4th	74	1979	74
Current stand	77	1982	81

How fast structure changes depends both on the method of thinning and how fast **a** species grows. The stand illustrated is predominantly sugar maple-a slower grower-so the stand would be expected to change more slowly than other species managed under the even-age method.

The changes above show that current management guides work, and work rapidly. For instance, the annual growth of saw logs increased from 205 board feet after the first thinning to 429 board feet per acre over the 3 years after the fourth thinning. (Extended drought from late 1974 into 1977, and mortality from Dutch elm disease, seriously reduced growth between the third and fourth thinnings). Current board foot volume is 6,305 (in trees 9.6 inches and up).

Look at how tree quality has improved over a recent lo-year period:

Year	Percent of saw log trees in tree grades		
	1	2	3
1971	5	18	77
1981	28	35	37

You can see that the periodic thinnings generally have removed the low-grade, and high-risk trees. Currently, most of the trees in grade 3 are there because of small diameter only.

At final harvest this stand will yield large volumes of high-grade products. Characteristically though, merchantable heights will mostly be less than two 16-foot logs compared with more than three logs in all-age management. We estimate that fewer than a tenth of the trees will reach two logs, although the butt log should be grade 2 or better.

When the stand reaches economic maturity, all trees will be removed to release the sugar maple regeneration below. Clearcutting can be used in this stand because regeneration became established after the second thinning and should persist until the stand matures. When the entire overstory is removed in a single cut (following periodic thinnings), the new stand will respond to increased light without danger of losing the site to herbs and brushy pioneer species, as would occur if no thinnings were made.

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