REGIONAL CHANGES IN PRICE OF RED OAK LUMBER

William G. Luppold

Abstract: Nearly 25 percent of eastern hardwood sawtimber is of species classified as red oak. There also is considerable regional variation in the attributes of red oak species and the price of the resulting red oak lumber. Since the late 1980s, the price of red oak lumber in the Northern region has been increasing faster than in the Appalachian and Southern regions. These differences seem to be due to the more consistent color and grain characteristics of select oak species that are found in higher proportions in the Northern and Appalachian regions.

Introduction

Nearly 25 percent of the hardwood sawtimber in eastern forests is of the red oak species group (Powell 1993). The current volume of red oak timber in the eastern forests is a result of forest disturbance in the latter part of the 19th century and the early part of the 20th century. The specific nature of disturbance varied among areas of the East, but included fire, initial cutting of specific softwood species in a quasi-shelterwood manner, loss of competing species due to imported pathogens, and agricultural use.

Before the 1970s, red oak lumber was not in high demand as an appearance lumber (Frye 1996). However, since 1975 increasing volumes of red oak have been exported and red oak has become a predominant species for furniture, cabinet, and millwork (Forbes 1993, Doud et al. 1992, Briggs and Bialozynski 1995, Frye 1996). This increase in demand has caused oak lumber prices to increase faster than prices of all other hardwood lumber with the exception of high grade cherry. The high volume of red oak sawtimber combined with the increasing lumber prices have resulted in red oak being the most important hardwood species group in economic terms.

Although prices of red oak lumber have increased in all regions, in recent years they have increased faster in the Northern region than in the Appalachian and Southern regions. In this paper I examine the oak resource and analyze how differences in this resource affect red oak lumber price trends. This analysis focuses on the Northern, Appalachian, and Southern regions as defined by the "Hardwood Market Report" (Figure 1).

The Red Oak Resource

Eastern red oak is not one species but a group of at least 11 commercial species (Burns and Honkala 1990). These species traditionally have been grouped as select red oak or other red oaks.2 The select red oak grouping contains species with a greater probability of developing into high-grade hardwood sawtimber than species classified as other red oaks. Select red oaks normally have color quality and

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2Select red oak includes cherrybark (Quercus falcata), northern (Quercus rubra), and Shumard (Quercus shumardii) oaks.
consistency desired by many buyers of red oak. Still, large amounts of other red oaks species are used to produce hardwood lumber.

The Northern region contains only 17 percent of the eastern sawtimber but includes more than one-quarter of the eastern select red oak (Table 1). Northern red oak is the major select red oak species in this region, which also contains the lowest proportion of other red oaks. The Appalachian region contains more than half of the select red oak sawtimber in the eastern United States. As in the Northern region, northern red oak is the major select red oak species in this region. Most of the other red oak in the Appalachian region is scarlet or black oak.

More than one-third of the eastern hardwood sawtimber is in the Southern region. Although this region contains 40 percent of the eastern red oak, more than 80 percent of the red oak in this region is classified as other red oak species. The predominant other red oak species in this region is southern red oak while the predominant select red oak is cherrybark oak.

**Price Trends**

Inflation-adjusted price series for red oak lumber in the Northern, Appalachian, and Southern regions for grades First and Seconds (FAS), No. 1 Common (1C), and No. 2 Common (2C) are presented in Figures 2-4. It must be noted that prices published in the "Hardwood Market Report" represent an average price for commonly available wood in a specific region. Black oak produced in Wisconsin
Table 1. Characteristics of oak sawtimber resource in Northern, Appalachian, and Southern hardwood regions.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Northern region</th>
<th>Appalachian region</th>
<th>Southern region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sawtimber volume, in billion board feet</td>
<td>145,261</td>
<td>418,656</td>
<td>291,553</td>
</tr>
<tr>
<td>(Eastern percentage)</td>
<td>(17.0)</td>
<td>(48.9)</td>
<td>(34.1)</td>
</tr>
<tr>
<td>Red oak sawtimber volume, in billion board feet</td>
<td>25,684</td>
<td>91,207</td>
<td>86,611</td>
</tr>
<tr>
<td>(Eastern percentage)</td>
<td>(12.6)</td>
<td>(44.8)</td>
<td>(42.5)</td>
</tr>
<tr>
<td>Percent of hardwood sawtimber resource in select red oak</td>
<td>13.31</td>
<td>9.80</td>
<td>5.58</td>
</tr>
<tr>
<td>Percent of hardwood sawtimber resource in other red oak</td>
<td>4.38</td>
<td>11.99</td>
<td>24.13</td>
</tr>
<tr>
<td>Percent of select eastern red oak</td>
<td>25.23</td>
<td>53.54</td>
<td>21.22</td>
</tr>
<tr>
<td>Percent of other eastern red oak</td>
<td>5.01</td>
<td>39.55</td>
<td>55.44</td>
</tr>
</tbody>
</table>


Figure 2. Price of FAS red oak lumber in the Northern, Appalachian, and Southern regions, 1975 to 1995 (in constant 1982 dollars).
Figure 3. Price of 1C red oak lumber in the Northern, Appalachian, and Southern regions, 1975 to 1995 (in constant 1982 dollars).

Figure 4. Price of 2C red oak lumber in the Northern, Appalachian, and Southern regions, 1975 to 1995 (in constant 1982 dollars).
Table 2. Increase in prices of red oak lumber between peak market price in late 1970s and peak market price in the mid 1990s for the Northern, Appalachian, and Southern regions (in percent).

<table>
<thead>
<tr>
<th>Grade</th>
<th>Northern region</th>
<th>Appalachian region</th>
<th>Southern region</th>
</tr>
</thead>
<tbody>
<tr>
<td>First and Seconds</td>
<td>18.8</td>
<td>17.2</td>
<td>0.2</td>
</tr>
<tr>
<td>No. 1 Common</td>
<td>38.0</td>
<td>22.3</td>
<td>14.0</td>
</tr>
<tr>
<td>No. 2 Common</td>
<td>70.3</td>
<td>50.2</td>
<td>43.7</td>
</tr>
</tbody>
</table>

Source: Henry Jones (Editor), Hardwood Market Report

usually is sold at a lower price than the more predominant northern red oak. Similarly, cherrybark oak in Mississippi usually sells at a higher price than the more predominant southern red oak.

Figure 2 shows that prices of FAS red oak moved in a similar manner between 1975 and 1984 in all three regions. Since 1989, these prices have increased faster in the Northern than in the Appalachian and Southern regions. Prices of FAS oak in the Northern and Appalachian have increased in real terms since the late 1970s while those of Southern red oak have not (Table 2).

Regional differences in the price of 1C red oak first occurred in 1985, but these differences were even more dramatic during the late 1980s (Figure 3). Since 1992, the spread between Southern prices and prices in the other two regions is more apparent. By 1995, Northern prices for 1C red oak were 43 and 19 percent higher than Southern and Appalachian prices, respectively. Table 2 shows real price increases for 1C red oak lumber in all regions, though the increases in the Northern and Appalachian regions are more dramatic.

Prices of 2C red oak lumber diverged in 1983 but converged in 1985 (Figure 4). Northern prices again diverged from the prices in the other two regions in 1987 and have remained considerably higher since then. By 1995, prices of Northern 2C red oak were 31 and 24 percent higher than Southern and Appalachian prices, respectively. There has been a dramatic increase in real price growth in 2C red oak lumber (Table 2). It is uncertain what levels 2C red oak will reach in the next cyclical upturn because most of the increases occurred in the early 1990s.

Discussion and Conclusions

The review of price trends for oak lumber shows that prices of red oak lumber differ by region. Since the late 1980s, red oak prices in the Northern region have increased faster than those in the Appalachian region, and Appalachian prices have increased faster than Southern prices. The price of red oak lumber also has tended to increase in real terms, with the greatest increase in the lower grades of lumber. The three questions to be addressed in this section are: why are red oak lumber prices increasing, why have they been increasing differently across regions, and will these trends continue?

Recent differences in regional prices of red oak lumber appear to be the result of differences in physical attributes. Generally, the further north a species grows, the slower the rate of growth. Slower grown red oak has a higher ring count per inch; more even distribution of spring to summer wood; and a lower propensity to warp, twist, or degrade during drying. Red oak grown in Northern areas also seems to be more consistent in color within and between boards than southern red oak.
In recent years, red oak lumber with Northern attributes have become more valued as secondary hardwood processors have changed. In 1977, about 60 percent of the lumber used in appearance applications was consumed by the wood household furniture and related dimension industry (Luppold 1993). In the 1980s, lumber used by the wood household furniture industry decreased, but use by the millwork, kitchen cabinet, prefinished flooring, office furniture, and export industries increased (Luppold 1993). Many of these new users of hardwood lumber have less complex finishing systems and seek lumber with more consistent color and grain characteristics.

Another important trend is the continued international demand for red oak lumber. While exports to Taiwan and other developing Asian nations seem to originate from Southern areas (Luppold and Thomas 1991), exports to Europe tend to originate from Northern areas (Hansen et al. 1991). European and Japanese lumber buyers tend to prefer lumber with consistent color and higher ring counts and are willing to pay more for these attributes.

If current market trends continue, there will be a continual increase in the demand for select red oaks. Use of hardwood lumber by small secondary processors continues to increase. Many furniture manufacturers also have increased their demand for lighter color as style changes have been trending toward lighter finishes. Further, environmental regulations concerning volatile organic chemicals could result in limits on finishing systems at both new and existing plants. Decreasing value of the U.S. dollar against European and Japanese currencies also will continue to support international demands.

**Literature Cited**


