Increasing Values Through Bucking Practices: Manufacturing Logs

Our title emphasizes that bucking (cutting a tree into sections) is in fact a manufacturing process. Manufacturing logs is not a haphazard activity where you make cuts according to whim or follow a single rigid procedure. Bucking involves meeting purchaser specifications, employing a variety of cutting procedures, maintaining quality control, and making decisions that influence product values. These are complex activities characteristic of any manufacturing process.

Two related approaches help maximize product values from woodland properties. The first is maintaining the product value in logs manufactured from your woodland. These quality control activities include meeting proper trim requirements, avoiding slant cuts, making cuts to avoid slabs and breaks, and generally bucking to avoid waste and product loss.

The second approach is improving log values by bucking to meet measurement or marketing factors. Log values can be improved by bucking to take advantage of diameter breaks, to improve the log grade, and by bucking to meet special product requirements.

The complementary approaches of maintaining and improving product values determine the process of the logging process of woodland owners.

Characteristics of log manufacturing

Whether you do the bucking yourself or use a contract logger, you should understand certain characteristics of log manufacturing. Bucking is most frequently done as soon as the tree is felled. In some cases, trees are moved to a landing where they are bucked to log lengths. Some mills prefer to do their own "merchandising" and haul tree-length or long segments to the mill for processing.

Bucking is an irreversible decision: Once you start the cut in the tree, you have determined the value of the log you are cutting and the potential value of the remaining logs in the tree. This characteristic demands careful evaluation of the tree before bucking.

You measure lengths and diameters; you look at surface characteristics, such as knot size and distribution; and you evaluate defects with bucking strategies in mind. Each tree requires this careful analysis; however, once you attain these skills, the analysis becomes fairly quick.

The potential for value improvement with bucking practices can be substantial for individual trees. Gains (or losses) can be easily 20 to 30% depending on a single cut. In some cases, a miscut may cause an entire log to be wasted (creating a cull log).

Log manufacturing must be viewed with market conditions in mind. The relationships and bucking recommendations in this circular are built on the relative prices of different grades of logs, poles, or other special products, and prices in domestic and export markets.

There can be shifts in relative prices that would nullify certain recommendations, although the analytical approach would still be valid. For example, the rise and fall of pole prices could greatly influence bucking decisions.

You should start with a clear understanding of current prices and specifications and then apply them to your specific situation. You will see examples later in this circular.
how to use this information, but you will need to collect prices and specifications for your own time frame and markets.

Bucking also requires knowledge of the log measurement system used (scaling system). Much of the confusion in log manufacturing centers around the use of the Scribner scaling rule used by many buyers and sellers. This rule has many steps or breaks in the way log volumes are determined (see figure 1).

If you were to sell logs by weight or cubic measurement, much of the confusion caused solely by Scribner scaling would be eliminated. You need a Scribner log volume table and the specific scaling rules for your area to make bucking decisions (see “For further reading,” page 15). While other log scales are sometimes used for transactions (International, Brereton, Doyle, etc.), this circular uses the more common Scribner measurement and scaling rules of the Columbia River Log Scaling and Grading Bureau (see “For further reading”).

There may be some further confusion over whether west side or east side scaling practices are employed, even though the same Scribner rules and tables are used in both. Differences between these scaling practices are outlined in Extension Circular 1127, *Maintaining Timber Products Harvested From Your Woodland* (see “For further reading”).

The geographic boundary for the use of east side or west side practices is not precisely located. It is basically the crest of the Cascade Mountains, but it also depends on where the logs are scaled, the buyer’s requirements, and your contract specifications.

<table>
<thead>
<tr>
<th>Grades (Douglas-fir)</th>
<th>Min. diam. (inches)</th>
<th>Min. length plus trim (feet)</th>
<th>Min. volume (BF)</th>
<th>Surface characteristics (partial list)</th>
<th>Sample price per Mbf delivered ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#4 saw</td>
<td>—</td>
<td>—</td>
<td>10³</td>
<td>No knot limits; average 1 per foot of log</td>
<td>195</td>
</tr>
<tr>
<td>#3 saw</td>
<td>6</td>
<td>12</td>
<td>50</td>
<td>3⅛ knots; average 1 per foot of log</td>
<td>220</td>
</tr>
<tr>
<td>#2 saw</td>
<td>12</td>
<td>12</td>
<td>60</td>
<td>2⅛ &quot; knots; average 1 per foot of log</td>
<td>240</td>
</tr>
<tr>
<td>Special mill</td>
<td>16</td>
<td>16</td>
<td>—</td>
<td>—</td>
<td>265</td>
</tr>
<tr>
<td>#3 peeler</td>
<td>22</td>
<td>12</td>
<td>—</td>
<td>—</td>
<td>300</td>
</tr>
<tr>
<td>#2 peeler</td>
<td>30</td>
<td>17</td>
<td>—</td>
<td>75% clear</td>
<td>340</td>
</tr>
<tr>
<td>#1 peeler</td>
<td>30</td>
<td>17</td>
<td>—</td>
<td>90% clear</td>
<td>380</td>
</tr>
</tbody>
</table>

* These prices are meant to show differences between grades; they do not reflect current prices in your area.

East side scaling practices remove some of the problems of taper associated with long logs. However, the principles in this circular apply to east side scaling practices as well, but the magnitude of gains (or losses) may not be as great as those examples shown using the Scribner rule and west side scaling practices.

Some mills do in fact buy logs by weight or cubic measurement to eliminate confusion. Usually these mills want logs as long as possible, to allow them to make bucking decisions and log allocations. You should evaluate returns from your woodlands with this approach versus your efforts to manufacture logs and market them to various purchasers.

Maintaining log values

There is a set of log values from a particular tree that you can obtain only if you follow proper bucking practices. The Scribner rules and west side scaling practices are used in examples presented here to illustrate ways of maintaining log values. Table 1 provides a summary of Scribner grade requirements and some sample price differences. Current market prices in your area may be quite different than those shown for western Oregon.

Bucking for proper length plus trim

When logs are bucked into lengths required by the mill and processed through a scaling procedure, trim allowance becomes a major consideration. Some mills may employ a “special services scaling” rule that employs scaling...
Figure 1.—The Scribner step function. The inset chart at the upper left is adapted from *Official Rules for Log Scaling and Grading Bureaus*, 1982 (see page 15).
measurement in 2-foot multiples and prescribes a minimum trim allowance of 8 inches for logs shorter than 40 feet.

When logs are cut without adequate trim, the scaling procedure requires that the deduction in volume be 2 feet down to the next lower length, including trim.

Figure 2 illustrates how a 20-foot 5-inch log (as opposed to a 20-foot 8-inch log) would be scaled as an 18-foot log (with correct trim). Volume losses may be 11% on a 12-inch, small-end diameter log. You should find out whether the 2-foot special services rule is in effect for your job to help guide your bucking practices.

Normal scaling procedures use a 1-foot multiple to deduct for improper trim. This lessens, but does not eliminate, value losses. Cubic scaling is less sensitive to incorrect trim deductions, and measurement by weight may reduce incorrect trim penalties. However, log buyers may require strict adherence to specified lengths and trim specifications, with associated penalties of price reductions for incorrect lengths.

Reasons for incorrect trim include: poor measurement practices (for example, a measuring tape of incorrect length, or taping over brush with a bow in the tape); miscommunication of trim specifications; and slant cuts.

Measurements
Broken tapes must be repaired to the proper length to avoid errors. Using a stick as a measuring device is hazardous because it may be unknowingly shortened and it can shift during measurements.

Slant cuts
Another value loss is associated with slant cuts. Slant cuts occur when the bucking cut is not perpendicular to the log (see figure 3). Slant cuts can reduce the length of the log for scaling purposes, especially if later measurements are based on errors.

When trim allowances are not met, substantial scaling deductions (as described above) can occur. Slant cuts on the top of the tree are less critical if the measurement point for length plus trim is to the short point of the slant cut.

Breaks, splits, and slabs
Improper bucking practices can reduce values when they cause breaks, splits, or slabs. The mechanical forces of gravity or bends cause...
Measured lengths and expected volumes

<table>
<thead>
<tr>
<th></th>
<th>20 feet 8 inches</th>
<th>20 feet 8 inches</th>
<th>20 feet 8 inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>100 BF</td>
<td>50 BF</td>
<td>20 BF</td>
</tr>
<tr>
<td>Trim</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>18 feet plus trim</td>
<td>18 feet plus trim</td>
<td>20 feet 8 inches</td>
</tr>
<tr>
<td>Scaled Volume</td>
<td>90 BF</td>
<td>40 BF</td>
<td>20 BF</td>
</tr>
</tbody>
</table>

Scaled lengths and scaled volumes

Figure 3.—Slant cuts (taper 1 inch per 8 feet; 2-foot rule in effect)

A straight bucking cut from topside creates slabs

Figure 4.—Improper bucking creates slabs

Logs to fall, roll, or twist and produce slabs or splits in the log (see figure 4). Proper bucking practices are described in *Felling and Bucking Techniques for Woodland Owners* (see “For further reading,” page 15). Volume losses depend on the shape of the damage, but grade losses may be involved as well.

**Misbucking defects**

When trees contain defects or breaks, the bucking decision may determine whether the log is usable or a cull. Two common problems are simply overlooking a defect or break and not bucking out defects that lower the usable volumes of the log. When the net recovery of usable material from a log drops below one-third of the volume (33 1/3%), the log is classified as a cull.

Figure 5 shows how bucking cuts in a tree with a missed break reduce the value of the log substantially because products must be recoverable from segments at least 8 feet long. The volume between the break and the end of the log is a loss to the owner.

How many of the defects you cut out depends on the purchaser’s specifications, but several defects have severe scaling deductions. Consider bucking out breaks and splits, snowbreak, sucker limbs, and evidence of severe rot or "punky" knots or wood. The amount of rot defects you will see depends on the age and type of timber on your property.

**Avoiding other losses**

In addition to minimizing log value losses during bucking, you must avoid losses during the rest of the manufacturing process. For example, you should avoid damage to logs during skidding or yarding, loading, and other log handling. Damage occurs from machines...
Expected length
bucked without taking break into account

32 feet plus trim

Unnoticed break

24 feet plus trim
8 feet

Scaling length
Alternative length
Alternative length

Figure 5.—Missed (unnoticed) break creates cull. Because the break will not produce an 8-foot section, volume to next bucking cut is lost. Bucking above break could have saved this volume.

Figure 6 shows how taper influences the diameters of small logs to increase Scribner volume by 9 and 11%, respectively, with a single cut; however, cubic volume measurement does not change. This concept has led many landowners to buck logs as short as possible to explore the volume gains.

Figure 7 shows how an 8½-inch x 65-foot tree segments can be bucked from two segments to five segments with a corresponding volume increase of 42%. The value gain would be 3%, using the log values in table 1. But these potential gains are only part of the story.

There are some grade differences when log segments are bucked too short to meet minimum specifications. If the price differential between #2 saw and #4 saw logs is significant, the volume gains may not be reflected in value gains as much as you might expect. Also, some mills pay less for short logs (perhaps 10-15% less) because they limit their lumber manufacturing options.

A more difficult problem involves how the short logs are to be handled during logging and hauling. If short logs are bucked in the woods, there are additional bucking, skidding, loading, and hauling costs incurred. Even if you buck short logs at the landing just before loading, you still have extra bucking, loading, and hauling costs.

In fact, you cannot buck all short logs because you must have some logs for bunk and wing logs to contain the load (see Hauling Logs from Woodland Properties, “For further reading,” page 15). The bunk and wing logs may be shorter if you use a truck specifically designed to haul short logs.

The analysis above and in figure 6 indicates that you should carefully consider your bucking practices with the effect of log taper and the scaling rules in mind. If you produce all long logs, you may be at

running over logs, decking blades that create slabs in logs, grapples pinching logs, and forks puncturing logs. Good awareness during logging by landowners and good contract administration can help maintain log product values.

Improving log values

You can actually improve both log volumes and values over standard practices by making decisions that incorporate knowledge of the scaling system and marketing factors.

The first level of improvement relies on using the taper (reductions in diameter from bottom to the top of trees) and the step function of Scribner scale. Taper is assumed to be a constant 1 inch in 8 feet for examples used in this circular; however, in reality, taper is not constant and may change diameters by 2 inches in 2 feet.

The second level of improvement involves bucking to take advantage of diameter relationships, log grade differences, bucking to isolate defects, and bucking to meet special log products (poles, for example). These activities rely both on the scaling system and marketing relationships.

Scribner scaling rules use the small-end diameter inside the bark of logs. On the top log, you can readily see the cross section; but for the other log segments, you either measure across the top of the log or measure the circumference and convert to a diameter. You must estimate bark thickness or chop off some bark to get the thickness reduction to an inside bark diameter.

Taper and scaling

Figure 6 shows how taper influences the diameters of small logs to increase Scribner volume by 9 and

This publication is OUT OF DATE. For most current information: http://extension.oregonstate.edu/catalog
Example 1

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Length</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 in</td>
<td>32 ft</td>
<td>230 BF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>39.5 cu ft</td>
</tr>
</tbody>
</table>

Total 230 BF

Example 2

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Length</th>
<th>Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 in</td>
<td>32 ft</td>
<td>90 BF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17.6 cu ft</td>
</tr>
</tbody>
</table>

Total 90 BF

Figure 6. Volume changes for cutting short logs (adequate trim is assumed); adapted from Ramsing, 1980 (see page 15).

Take advantage of diameter steps

Figure 1 shows how the Scribner log scale rule is a series of steps relating volume to diameter and length. For example, increasing the diameter from 8 inches to 9 inches on a 32-foot log will increase the volume by 20 board feet or 29%. Figure 1 is simply a graphic representation of the log volumes in a Scribner table. As the diameters increase, the more opportunity there is to take advantage of the steps (breaks) in the Scribner scale.

Even with young trees, you can take advantage of diameter effects, provided the purchaser will accept the lengths you cut. For example, let's take the same tree segment described in the previous section (8½ inches × 65 feet; taper, 1 inch per 8 feet). In figure 8, we make first...
Case 1: Long log segment-scaled

65 feet
32 ft
33 ft
13 in
8½ in

#2 saw
190 BF
$45.60

#3 saw
70 BF
$15.40

Total
260 BF
$61.00

Case 2: Routine bucking rule (cut 40- and 24-foot logs)

40 ft
24 ft

#2 saw
200 BF
$48.00

#4 saw
40 BF
$7.80

Total
240 BF
$55.80

Case 3: Cutting short logs

14 ft
12 ft
12 ft
10 ft

15 in
14 in
10 in

#2 saw
120 BF
$28.80

#3 saw
70 BF
$15.40

#4 saw
40 BF
$7.80

#4 saw
20 BF
$3.90

Total
340 BF
$77.50

Summary of cases

<table>
<thead>
<tr>
<th></th>
<th>Case 1</th>
<th>Case 2</th>
<th>Case 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volume</td>
<td>260 BF</td>
<td>240 BF</td>
<td>340 BF</td>
</tr>
<tr>
<td>#2 saw</td>
<td>190 BF</td>
<td>200 BF</td>
<td>#2 saw - 210 BF</td>
</tr>
<tr>
<td>#3 saw</td>
<td>70 BF</td>
<td>40 BF</td>
<td>#3 saw - 70 BF</td>
</tr>
<tr>
<td>#4 saw</td>
<td>70 BF</td>
<td>40 BF</td>
<td>#4 saw - 60 BF</td>
</tr>
<tr>
<td>Value</td>
<td>$45.60</td>
<td>$48.00</td>
<td>$50.40</td>
</tr>
<tr>
<td></td>
<td>$15.40</td>
<td>$7.80</td>
<td>$11.70</td>
</tr>
<tr>
<td>Percent</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-8.5%</td>
<td>+39%</td>
<td></td>
</tr>
</tbody>
</table>

For most current information: http://extension.oregonstate.edu/catalog
Figure 7 (left).—The effect of taper on log volume (adequate trim is assumed for all segments)

Figure 8.—Taking advantage of diameter steps

\[
\text{Volume gain} = \frac{270 \text{ BF} - 250 \text{ BF}}{250 \text{ BF}} = 8\%
\]

\[
\text{Value gain} = \frac{$61.80 - $57.00}{$57.00} = 8.4\%
\]

THIS PUBLICATION IS OUT OF DATE.
For most current information: http://extension.oregonstate.edu/catalog
three cuts and then four cuts to
demonstrate the volume gain by
taking advantage of the diameter
steps. We’ll use even 2-foot multi-
plies and assume adequate trim.

In making four cuts, volume
increases 8% and value increases by
8.4%. Volume increases relate
solely to the diameter steps, but
value increases relate both to
slightly more volume (20 BF) and to
having that volume in #2 saw grade
versus #3 saw grade.

Suppose much larger log seg-
ments were used as examples. The
volume gain percentage may still be
in the 5-8% range, but the absolute
volume gain may be 170 board feet!
That’s about getting a 14 inch × 24
foot log for the price of an extra
bucking cut. Value gains may reach
15-18% on larger logs.

Take advantage
of grade improvement

Table 1 shows some of the
diameter, length, and surface charac-
teristics for some segments of Douglas-
fir logs. How can these combinations
yield various grades and values from
woodland properties and still match
the requirements of the log
purchaser?

In the last example (figure 8),
segment (8½ inches × 65 feet;
taper, 1 inch × 6 feet) was cut into
four rather than three segments to
improve volume and value primarily
using diameter breaks. Can further
improvements be made by im-
proving log grade?

Figure 9 shows the same log
segment with three bucking cuts that
upgrade several of the segments into
higher grades. Because the top log
now contains at least 50 BF, it is a
#3 saw rather than a #4 saw. Also,
the middle and butt segments are
now both #2 saw. Total volume
gained is only 10 BF (3.7%), but
value gains are 7.1%.

Recall the first example of three
bucking cuts in figure 8 and
compare these to three bucking cuts
in figure 9. When diameter and
grade effects are very precisely
measured and achieved, the gain can
be very substantial, even in small
logs.

For these two examples of three
cuts each, volume gains are 30 BF
(12%) and value gain is $9.20
(16%). The intermediate step was to
make four cuts, which improved
volume, but not as much as it is the
three cut solution.

How about grade improvement in
large logs? Here the substantial
value gain can be made. Consider figure
10, where the distribution of knotholes
significantly affects volume but not
necessary volume. While the figure
does not necessarily show the knot
sizes, it does illustrate how a shift in
knot location with bucking
upgrades a #2 saw log into a special
grade, and a #3 saw log into a #2 saw
log.

A couple of 3-inch knots transfer-
red to the top log allows the middle
segment to be upgraded. There was
no gain in volume, but the value
gain was $14.95 (8.6%).

Improving log values:
Practice and feedback

The examples used to demon-
strate the potential value of improving
both log volumes and values
with bucking practices are meant to
show what gains are possible. For
many beginning buckers, it would be
difficult to achieve these gains
without substantial trial and error.
Also, you must cut what the
purchaser will accept.

Measuring log diameters to the
nearest fraction of an inch with a
caliper and agonizing over each
bucking decision may seem unreason-
able to many woodland owners.
Yet, this approach is a necessary
learning activity if you want to
achieve some of the gains described
earlier.

Consider your motivation for
improving bucking versus that of a
contractor who can sell your logs for
$220 per MBF and pay the contrac-
tor 40% of that for harvesting, you
get $88 per MBF. Every 100 board
feet you gain by good bucking will
mean you $13.20.

If you pay contract cutters $30
per MBF (part of the 40%), each
100 board feet gained will yield
them only $3.00 extra. You, the
landowner, have much more incentive
to use good bucking practices
and contract supervision.

There are no easy ways to achieve
optimal bucking strategies. However,
if you start with a list of what the
purchaser prefers (or will accept)
and take some sample trees, you can
use the ideas presented here to make
a list of bucking cuts to improve
volume and value. You can carry a
card in your pocket to guide
decisions. If most of your trees are
uniform, you’ll soon remember
what’s your best strategy.

Many purchasers will come to
your property and work with you on
developing log lengths that are
mutually beneficial to both parties.
They can review your timber stand
conditions to help you get the most
value while meeting their manufactur-
ing needs.
Make 3 bucking cuts
64 ft + adequate trim

20 ft
18 ft
14 in
12 in
8½ in

#2 saw
140 BF
$33.60

#2 saw
90 BF
$21.60

#3 saw
50 BF
$13.00

Total
280 BF
$66.20

Volume gain over the 4-cut solution in figure 8:

\[
\frac{280 \text{ BF} - 270 \text{ BF}}{270 \text{ BF}} = \frac{10 \text{ BF}}{270 \text{ BF}} = 3.7% \text{ gain}
\]

Value difference:

\[
\frac{$66.20 - $61.80}{$61.80} = \frac{$4.40}{$61.80} = 7.1% \text{ gain}
\]

Figure 9. — Grade improvement in small logs.

11
Figure 10—Grade improvement with surface characteristics (taper, 1 inch per 8 feet). Dot locations match in both log segments.
Given A thinning operation to be conducted by a woodland owner; tree length skidding and landing bucking; and the following price schedule and tree characteristics. Hauling by a self-loading log truck.

**Purchaser’s specifications** Logs with lengths in 2-foot multiples with 24-, 32-, and 40-foot lengths preferred.

**Minimum size** 5" x 16", or diameter + length must exceed 20—for example, 5" + 16' = 21, nothing less than 12".

**Purchase prices**

<table>
<thead>
<tr>
<th>#3 saw log</th>
<th>#4 saw log</th>
</tr>
</thead>
<tbody>
<tr>
<td>$220.00</td>
<td>$195.00</td>
</tr>
<tr>
<td>$187.00</td>
<td>$166.00</td>
</tr>
</tbody>
</table>

24' lengths and up

less than 24' lengths (15 less)

---

**Owner’s trees**

50% are 64’ to 68’ to a 5" top, taper of 1" in 10’

50% are 48’ to 52’ to a 5" top, taper of 1" in 15’

**Bucking strategy**

<table>
<thead>
<tr>
<th>Taller trees</th>
<th>Shorter trees</th>
</tr>
</thead>
<tbody>
<tr>
<td>5&quot; x 24’ + trim: 30 BF @ $195</td>
<td>5” x 24’ + trim: 20 BF @ $166</td>
</tr>
<tr>
<td>7” x 24’ + trim: 40 BF @ $220</td>
<td>7” x 32’ + trim: 60 BF @ $220</td>
</tr>
<tr>
<td>10” x 16’ + trim: 60 BF @ $187</td>
<td>10” x 24’ + trim: 60 BF @ $220</td>
</tr>
</tbody>
</table>

Total $16.52

---

**Card instructions**

Fell and top all trees at 5 foot or less. Buck trees as needed to help selling or avoid damaging equals. Buck at landing:

- Tall trees: 5" x 24’ + trim... mark first cut
- 7” x 24’ + trim... find 7’ diam. break
- 10” x 16’ + trim ... find 10’ diam. break

If any portions of trees will make a 12" x 16’ + trim, the top will be upgraded to a #2 sawlog.

- Short trees: 5” x 16’ + trim... mark first cut
- 7” x 32’ + trim... find 7’ diam. break

If top log will not make 16’, then cut longest log possible with a 6’ top up to 40’

**Other trees:**

**Comments**

The above card and strategy could be developed by a woodland owner who was trying to match purchaser’s specifications, log scale gains, and hauling requirements. With the above requirements, some compromises in absolute volume/value gains are made, but they amount to pennies per log to meet purchaser requirements, avoid short log penalties, and meet hauling requirements.

---

**Figure 11.**—Example of a bucking card for a woodland owner (western Oregon)
might yield 10-30% of the stems as poles. However, poles may bring 2-2½ times the price of sawlogs; so you should be very interested in poles and piling.

When you have a mix of poles, piling, and saw logs, you will have to decide which trees will make poles and piling, and then separate them from your saw logs. Some pole companies will do some remanufacturing at their mill site. If a tree segment is rejected as bucked for a pole, they will cut back the segment to the lower pole size or class.

If the cutback results in creating an option where the pole may be kept in a lower pole class at the same length or shortened in length but raised to a higher pole class, the purchaser will usually pay for the highest product that can be made from it.

If a rejected segment is long enough, they may purchase it as a saw log. If the entire tree segment is culled as a pole, they may also purchase it as a saw log. However, the saw log price will be far below a direct shipment of a saw log to your purchaser, because of the extra costs of handling. You should minimize pole cutbacks and rejects. In your gains from poles will be less than you expected.

Besides specifications for surface characteristics, sapwood, knots, straightness, etc., pole and piling have stringent diameter and circumference requirements. Knots are particularly important because they are measured on the segment after it is peeled, rather than with the bark attached.

Take our familiar 8½-inch × 65-foot tree segment and review it for pole specifications. The tree segment would apparently fall into a pole class that has a minimum top diameter of 8½ inches and a minimum base diameter of 16½ inches (both inside bark measurements) for a class 2 pole.

However, there are also minimum and maximum circumference requirements for the pole base. These measurements of circumference are taken 6 feet from the butt on peeled, dried pole, and they may limit the suitability of some tree segments. The pole may be more suitable as piling or material, which may have larger top and butt diameter limits. Various pole purchasers place different emphasis on minimum and maximum diameters as opposed to circumference measurements.

As a bucking strategy, most pole purchasers will start with butt diameter measurement and work up the candidate pole as far as surface characteristics and defects will allow. Once you get a good look at the pole, you can decide on your cut options according to purchaser specifications and prices. There are some potential gains by cutting back a pole to the next lower 5-foot or 10-foot length, provided you can raise the pole class. Gains may be in the $30-90 range for this pole-class upgrade.

It has been stated that many firms usually account for possible upgrading during their inspection at the millsite; however, if you misbuck a pole in the woods, you may lose an opportunity to make a saw log out of the top of the tree plus the 5- or 10-foot cutback section. Your best advice is to “manufacture” the highest combined grades of poles and saw logs out of your trees in the woods or on the landing.

In some circumstances, you can improve tree segment quality by “long-butting” to bring a tree segment into a pole class that is expected to yield a higher value than saw log combinations of the segment. If the rejected segment is too short to make a saw log (usually 12 feet), you have created some expensive firewood. However, because pole prices per piece may be twice those of saw log values, the practice of “long-butting” can be to your advantage.

Export products

If you can buck to optimum lengths within the Scribner rule domestic log grades and pole markets, you can manufacture logs for export. The specifications simply change to meet foreign requirements. See Extension Circular 1141, Log Exports and the Private Woodland Owner: An Overview of Operations and Markets (“For further reading,” page 15). The export market has some unique characteristics related to how sales are made through brokers and the total volumes needed for ship cargoes, etc.

From a log manufacturing standpoint, you must take extra care to make straight bucking cuts, to cut limbs flush with the surface of the log, to cut out defects, and to avoid damaging logs during handling. The desired log is a long, straight log with few knots and tight grain.

From a cost/returns perspective, if export prices are above domestic
markets in all grades and most of your timber meets export specifications, bucking for export will be to your advantage. If export prices are below some grades of domestic logs or your mix of timber only produces a portion of logs suited to exports, then the cost/returns picture is not so clear.

First, if you can meet higher value in domestic grades with your logs than export prices for similar grades, you should cut for the best total return from your trees.

Second, some purchasers require a mix of higher valued logs in order to accept your lower quality material. If you direct your best logs to an export market, you may have difficulty selling your lower quality logs in some domestic markets. Again, you should evaluate your total returns from each marketing option.

Other special products

The previous discussion applies to any special product manufactured from your woodlands. For example, specialty markets arise occasionally for long, clear material for beams, or for clear, tightly-grained logs of various lengths for moulding stock or some other end-product requirements.

While purchasers will supply specification sheets, the best advice is, first, cut some trees to meet the ones you think meet the specifications and then get some feedback from the purchaser.

Either have the buyer come to your property or send a load or two to the mill so the buyer can look at the logs in the deck. Once you get the feedback, you can manufacture the rest of the logs. This procedure only puts a portion of your timber assets "at risk" in these special markets.

Summary

The previous discussion and examples should have convinced you that bucking is actually "manufacturing" logs. Whether you do the bucking yourself or supervise contractors who do the work for you, you must consider practices that maintain product values as well as improve product values. Volume gains and value gains can be significant by the practices described here.

By first understanding the price differentials and product specifications for the domestic saw log market, you can then compare to your returns from poles, clear export product, and any other specialty cuts. Your options for high valued products depend on the type of timber you have on your property. Bucking practices can maintain or improve your returns only if you have the appropriate timber on the first place.

The relationship between you and logging contractors or timber purchasers is a business relationship that requires prudence on your part to protect your interests. However, reputable loggers and timber purchasers will meet your needs as well as their own. They can be valuable sources of assistance to you in your harvesting operations. Make sure verbal agreements are clearly understood and witnessed; when values are significant, use written contracts to clarify responsibilities.

For further reading

For OSU Extension Service publications, enclose the amounts indicated and order from Bulletin Mailings Service, Oregon State University, Corvallis 97331.


Official Rules for Log Scaling and Grading Bureaus (Eugene, Ore.: Columbia River Log Scaling and Grading Bureaus, 1982). 48 pp. $4.00 a copy from the bureau nearest to you.


The Woodland Workbook is a collection of publications prepared by the Oregon State University Extension Service specifically for owners and managers of private, nonindustrial woodlands. The Workbook is organized into 10 sections containing information of long-range and day-to-day value for anyone interested in wise management, conservation, and use of woodland properties. The sections are Management Planning, Forest Measurements, Reforestation, Stand Management, Logging, Marketing Forest Products, Multiple Use, Forestry Issues, Business Management, and Kinds of Assistance.

The Workbook is available in a three-ring binder with tabbed dividers for each section. For information about how to order and for a current list of titles and prices, write Bulletin Mailing Office, Oregon State University, Corvallis, OR 97331—or inquire at the office of the Oregon State University Extension Service that serves your county.

The Oregon State University Extension Service provides education and information based on timely research to help Oregonians solve problems and develop skills related to youth, family, community, farm, forest, energy, and marine resources. Extension's forestry program improves Oregonians' knowledge of forest resources and their options for expanding benefits from these resources. This educational program assists forest owners, managers, processors, and users in understanding small woodland production, management, and use of all forest lands. Priority subjects are reforestation, growth, management, harvesting, processing and use of wood, protection of soil and water, and other multiple uses and values.

This publication was prepared by John J. Garland, Extension forest engineering specialist, Oregon State University.

Extension Service, Oregon State University, Corvallis, O. E. Smith, director. This publication was produced and distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Extension work is a cooperative program of Oregon State University, the U.S. Department of Agriculture, and Oregon counties.

Oregon State University Extension Service offers educational programs, activities, and materials without regard to race, color, national origin, sex, or disability as required by Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, and Section 504 of the Rehabilitation Act of 1973. Oregon State University Extension Service is an Equal Opportunity Employer.