**Bucking felled trees**

***The Definition of bucking processes***: - converted of falling trees to short logs, bolts, and tree –length logs after removing the tops of trees, by using power saw or a special shears.

 Bucking can be done either directly in the stump area, at the roadside, at a separate landing, stacking yard, or in mill yard

**The Objectives of BUCKING: -**

1- Reduce the weight of products.

2-remove the defects and non-commercial parts.

 3- Make the product more suitable for transportation and manufacturing operations.

 4- Response to market requirements.

**To avoid bucking problems, it should take into account the following factors:**

1. Natural conditions and how they affect the tree which had been chosen for bucking.

2. Trees and logs around the selected tree.

3. The attitude of tree when it is bucking.

4. Dangerous and safety results when overlapping impact of all factors occurs.

**The Measurement for the purpose of bucking**

Before you cut any tree, measurement the lengths of logs that will go, and is usually done by one of the measurement tools: -

 1-wood stick

 2- Metal rod

 3- Automatic tape

The bucker man attempts to achieve the highest possible value when pointing the lengths of logs so it starts with measurement from the butt of the tree towards the top, taking into account: -

1- Type of the logs

 2- Length of logs

 3- The size of the logs

 4- The marked (pointed) position on the stem.

Consideration of the bucking processes, the benefits from all parts which have the economic value and this achieve be bucked the tree to obtain less commercial diameter in the top of the tree which varies between (2-6 inch) depending on producers and consumers wishes.

Because the butt logs are the largest and generally produce the highest grades of lumber and since lumber in longer lengths it is standard practice to cut 16 feet logs from the lower portion of a tree and shorter logs from the upper section, which usually contains more defects especially knots.

**Trim allowance**

Contain all logs except pulp wood and some products, added additional length to the length of the original log length and this known as trim allowance **which usually is around 3-6 inch for each 16 feet of log**

**The objectives of trim allowance are:**

1. Compensation of the injured part of the log during the collecting process and skidding.

2. Handling of the non-vertical tree cutting when it’s bucking.

3-To ensure you get the desired size of the lumber sawed and peeled at the mill.

Example/ Thus if a log is cut for a length of 16 ft. and no allowance is made for trim or if the allowance is insufficient, the lumber will be cut off a 14 ft. length at the trimmer in the mill, resulting in a 2 ft. loss in length of the entire lumber contents of the log. This obviously is a serious loss of merchantable lumber entirely due to insufficient trim allowance.

It is not necessary in cutting good lumber to trim more than an inch or two off each end of board; hence when more than this amount of trim allowance is included in bucking logs, then the excess loss of wood will be unnecessary and non-excused.

**Full size utilization**

The size of the wood in the particular log depend on the measurement system used in that place. Since 1825 more than 50 system appeared and now only a few is used.

The system is a specification accepted by the seller and buyer are under the sales process without problems. Among the systems used today there are three common use:

1. The global international 1 / 4 system.
2. Scribner system.
3. Doyle system.

The bigger volume of the wood is usually found in the lower part; while the upper part is, represent the smaller size.

Dilworth has said, for example, that the percentage of wood size distribution over the length the three log in which each of them16 feet as shown below.

First log 55%

Second log 35%

Third log 10%

* **Note: The board-foot is a specialized unit of measure for the volume of lumber in the United States and Canada.**
* Board foot (bf): It is a wood board with (1 foot) length, (1 foot) width, and (1 inch) thickness. This unit measures the amount of wood boards that can be extracted from a log.
* bf = (W\*T\*L) /12
* Where:
* w = width in foot.
* T = thickness in inch.
* L = length in foot.
* bf = number of board feet
* M = 1000 bf
* **Usually the letter (M) uses which means a unit of measurement for 1000 board foot.**

Based on this fact, investors are advised to apply rule called **Rule- of- thumb** and content is when being bucking for size you must cut long logs from the bottom part of the tree, and shorter logs than the upper part where the Taper factor as high as possible.

Table (1) show the size of the wood obtained when bucking the same tree in two different ways. Method (A) the shorter logs were bucking from the bottom. In method ( B )took the long logs from the bottom of the tree was a clear difference as the size has been an increase of 150 board foot, an increase of 4.6% from the volume output of the bucking by the (A) method

Table (1) is an example of the amount of the increase in volume achieved by applying rule of thumb in the bucking

|  |  |
| --- | --- |
| Bucking method B | A Bucking method  |
| size(Board ft.) | length(ft.) | diameter(in.) | log site | size(Board ft.)  | length(ft.) | diameter(in.) | log site |
| 1.640 | 40 | 30 | 1 | 1.420 | 32 | 31 | 1 |
| 1.250 | 40 | 26 | 2 | 1.100 | 32 | 27 | 2 |
| 700 | 40 | 20 | 3 | 760 | 40 | 21 | 3 |
| 240 | 24 | 16 | 4 | 400 | 40 | 16 | 4 |
| 3.830 | 144 |  |  | 3.680 | 144 |  |  |

The investor who has uses the method A, and reap, for example, 30,000 dinars for each 1,000 board foot have lost 4,500 dinars to the tree mentioned in the example, while the falling and bucking crew who pays, for example, 3,000 dinars for each 1,000 board foot it loses 450 dinars if they follow the way of A in cutting trees,

It may seem a small number, but if 20 trees of this size are cut per day, it is equivalent to 70,000 bf, the losses will be more.