

SEASONING DEGRADE IN KILN DRYING LUMBER

By

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This degrade survey was made by Dr. John P. Krier, Professor of Wood Utilization at Montana State University and the author during the summer months of June, July, August and September of 1954, 1955, and 1956 at the Anaconda Company plant, Bonner, Montana.

This report summarizes the results of that survey, which is divided into five main parts. The reduction in grade due to: 1. Seasoning defects. 2. Manufacturing defects. 3. A combination of manufacturing and seasoning defects. 4. A combination of Natural, seasoning and manufacturing defects. 5. Logging damage.

The above five categories were set up for the following reasons:

Seasoning defects include only surface checking, end checking and brown stain as all other seasoning defects are affected by the inherent qualities of the board itself, and manufacturing processes before and after kiln drying. Warp, crook, cup, etc., are very often the result of uneven sawing. If lumber is properly stickered and has very little variation in thickness, it will be held straight during the seasoning process; providing, of course, that proper kiln schedules are used and seasoning stresses are relieved. End split is an interesting category. It is probably safe to assume that it is an exaggeration of end checking. End Checks were found to be present in the log and the extent of the checks in the green lumber were marked. After kiln drying, there was very little extension of these checks, however, after planing there was a considerable amount of end split. This observation led to a check of the amount of heel present on planer knives. It was concluded that end checks, plus low moisture content, plus excessive heel on planer knives results in end split. Broken knots, knot holes, loose knots, etc., are a result of low moisture content plus excessive heel on planer knives and also increased planer feed speeds without increasing the number of knives in the planer heads. Fewer knife cuts to the inch result in more torn grain around knots and more damage to the knot itself. Other manufacturing defects and logging damage need no explanation here.

The first problem in setting up a degrade survey is to determine how the results should be expressed. It was assumed that they would be desired as a "percentage." Percentage of what? Since a board can degrade one, two or more grades during the manufacturing process, volume in Bd. Ft. or loss in grade does not give an accurate picture. The actual loss in dollars and cents is what we want to know. An example: Common pine, heart, loss, on the basis of volume (Bd. Ft.) was 32.2%; on the basis of grades, 22.8%; while the loss in value was 10.1%. Changing prices will change the per cent loss in value.

This survey includes the following categories: 1. 4/4 x R.W. x 16' Ponderosa Pine, Heart, Common. 2. 4/4 x R.W. x 16' Ponderosa Pine, Sap, Common.

3. 4/4 x R.W. x 16' Ponderosa Pine, Selects & Shop. 4. 4/4 x R.W. x 16' Douglas Fir and Western Larch Selects. 5. 5/4 x R.W. x 16' Ponderosa Pine Shop.

Procedure

1. One kiln charge or approximately 43,000 bd. ft. was used as a sample in the first two categories, a half kiln charge was used for the others.
2. The rough green stock was graded right off the green chain.
3. It was stacked, kiln dried, and unstacked using standard equipment and schedules and sorted, by width only, on the dry chain.
4. The lumber was next sent to planers in small batches to get random sampling of machine work and to sample the planer knives in varying degrees of sharpness and heel.
5. The final grading and recording of data was done after the planers.

The lumber was graded green and followed through by the same grader to minimize human error. Variations in judgment by the grader and changes in appearance after being planed were called "grader's option" and amounted to approximately 5% of the sample. Bias on the part of the grader due to previous judgment was eliminated by positioning him such that he could not see the markings designating previous grade placement. Adjustments were made in the original tally to place the boards in their proper category. The original survey included grading after the kiln but it was found that it did not contribute much to the study and was subsequently dropped. The grade assigned at the green chain ignored man-made defects such as tong holes, trimmer saw cuts, etc., in order to indicate those as defects which occurred either in the sawmill or in the logging operations.

Table 1 shows the kiln drying schedule used for each sample. A conditioning period was used on Ponderosa Pine shop and selects. All samples were kiln dried on our normal schedules, and conditioned if that was the normal practice. Moisture content ranged from 10 to 14% in the common samples and 7 to 10% in the selects and shop.

Data collection and handling was done personally by the individuals supervising the study.

The size of sample on the first two runs was one kiln charge or approximately 43,000 Bd. Ft. The sample was changed to 1/2 kiln charge or approximately 21,500 Bd. Ft. on the last three.

Marking of individual pieces was done as follows:

1. In the rough green state, end checks were marked with crayon on the faces to indicate the extent of checking and the grade was recorded on the end of each piece.
2. The green pieces were further marked to record location of knot holes or sloughed knots in these original boards.

3. Where crook was evident in the green boards, they were approximately marked so as not to be confused with boards so warped in kiln drying.

4. After stacking in kiln cribs the ends of each piece were color coded to maintain their crib identity and permit segregation of degrade due to location within the kiln.

The degrade factors found in this survey are listed below in the order found in Table 4.

A. Natural Defects:

1. Shake Opening (or show-up) - This was classified as a natural defect. It was relatively difficult to detect in all cases in the rough green state; therefore, it was catalogued separately as it appeared in the grading following kiln and planer operations.

2. Pitch Pocket opening - By its nature this occurred during planing operations. The pitch pocket itself is a natural defect which would be hidden in some cases in the rough board but which easily could appear after the planer had surfaced-off a layer of wood.

B. Seasoning (Kiln Drying) Degrade:

1. Face Check - A seasoning defect not very much in evidence in this study. It is more often associated with inadequate protection of yard lumber or very poor kiln drying practices, or poor kiln construction.

2. Brown Stain - A chemical stain appearing in the kiln on boards cut from salvage logs. It was observed that the appearance of brown stain occurred only when blue stain, rot and worm holes were present. This proved to be a serious defect in 5/4 shop.

C. Manufacturing Defects:

Sawmill Operation:

1. Thin Boards - A manufacturing degrade which was not evaluated until after the planing operation, where its extent was fully evident. Boards suffering from this degrade cause varied from thinness the entire length to a thinness in spots. The latter reflecting wavy sawing which probably came either from sawing too fast or neglecting to properly lower the saw guide. This defect may also possibly be a reflection of saw dullness.

2. Narrow Boards - A manufacturing degrade caused by inaccurate sawing or faulty edging. As with the thin boards it was often evidenced by intermittent skip on the edges reflecting wavy sawing.

3. Saw-torn Grain - A defect distinct from planer-torn grain, occasioned either by dull saws or attempting to saw too fast, or both. This was one of our largest single causes of manufacturing degrade.

4. Wavy Sawing - The boards which showed skips in dressing on the edge or face after surfacing were called wavy sawn boards. This is in contrast to

the original survey where a board was called thin or narrow if any part of the board had this defect.

5. Mechanical:

- a. Dog Hole - A very minor degrade factor which caused a degrade of only one board in the whole survey.
- b. "Nigger" Break - Caused by hard use of the log turner. Not a serious cause for degrade in this study but very much in evidence and detracting from the looks of many finished pieces, although not in itself the principal cause of degrade.
- c. Saw Cut (Trimmer) - This degrade factor appeared only twice and apparently is caused when a trimmer saw is not dropped in time, allowing the next board to be partially cut.
- d. Axe Cut (Log Deck) - A very minor item being caused by too deep an axe cut in the process of cleaning rocks and dirt from the log while on the log deck.
- e. Machine Gouge - Not a serious cause of loss here, but in a number of cases a blemish making a low line piece in a grade.

Planer Operation:

1. Planer-torn Grain - When this defect was distinguished from sawmill-torn grain it was found to cause relatively little degrade. However, it did appear on a large number of pieces and although not of sufficient severity to cause a change in these common grades it did detract from the looks of the board and it does exert a degrading influence on select lumber.
2. Planer Face Snipe - A degrading influence found in a large number of pieces; however, not sufficiently serious to cause much change in grade but certainly a blemish upon the board. Believed caused by varying thickness boards following one another in the planer. Presumably could be cured by more uniform sawing or by blanking to a uniform size.
3. Planer Edge Snipe - Occurring in about the same quantity, seriousness, and from the same type causes as face snipe.
4. Planer Edge Scallop - A relatively minor cause of degrade and of infrequent occurrence, usually caused by a chip or a piece of extraneous matter causing misalignment in the planer and usually noticed by the off-bearer and rapidly corrected.
5. Planer break-up - This indicates an isolated case where practically the entire board went up the blowpipe at the planer; possibly caused by over-riding the end of the preceding board due to the bow of the piece.
6. Cracked Knots (Round-live) - A frequent occurrence indicating a beating of the knots in the planer operation. This occurred in a large number of pieces; however, it was credited with change in grade of relatively few since it was not the principal cause of the degrade. Presumably caused in this case by excess heel on the knives. The cracking of live knots such as this is relatively hard to avoid in overly dry lumber but this was not judged the case in this instance.

7. Knot Wood Break - An exaggerated case of the preceding two defects. Not only was the knot broken but the wood surrounding it was also broken or cracked. A cause of loss in grade in practically all occurrences.

8. Beveled Edges - This was an unusual type of degrade which appears occasionally. Apparently a piece of wood lodges under one edge of the board, in the space between the top and bottom heads and the side heads, forcing it to go through the side heads at an angle.

9. Planer Test Board - This is a small but consistent loss. When the planing machines are set up, one board is used to check all measurements and usually this board is degraded.

10. Planer Face Skip - A minor degrade caused by planing the lumber slightly too thick. These boards are in grade except when skips in dressing occur due to the excess thickness.

11. Machine Burn - This degrade occurs whenever a board stops in the machine.

12. Planer Face Ripple - An improvised name for boards which have a wavy appearance on the face. This is usually caused by a thick board following a thinner one or it may be caused by not having the pressure bar down tight enough. Either of the above reasons will allow the board to vibrate in the machine.

13. Mechanical:

- a. Breakage -
- b. Cross Grain Break - The incidence of cross grain was mostly associated with swell in butt logs. A natural defect in a sense, but thought rather to be classed as generated through logging and sawing practices. The breakage of this cross grain is almost invariably due to the rough handling of an inherently weak piece.
- c. Buggy Edge & Carrier Break - Seldom serious enough to cause a loss in grade in this common lumber; however, in many pieces this detracted from the looks of the piece. More care in handling is obviously indicated.
- d. Handling Break - A catch-all group added to take care of boards which showed breaks, but for which no definite reason could be assigned. Some examples might be a board cut from a log which was damaged in falling or while being unloaded into the hot pond or a weakness due to compression failure.
- e. Corner Break - An almost certain cause for loss in grade; of relatively frequent occurrence and generally due to rough handling. One major source of this breakage is in the butting of stacked cribs at the dry kiln. This is generally not due to faulty stacking but rather to the occasional occurrence of a long untrimmed board. A number are also broken in the course of transporting and piling due to unevenly pulled load ends, or by the pulling cable hook when charging or discharging a kiln.

- f. Face Marks (Handling) - Shop lumber must be graded from the worst face, therefore, small dents and mars on a board would degrade. Such things were caused by rough handling, nail heads on the bunks, dirt, chips and even gravel.

D. Combination Manufacturing and Seasoning Degrade:

1. Crook - A "seasoning defect" which was quite important as a degrading influence both in itself and contributing to planer defects. Misnamed as a seasoning defect since a sizable amount was evident in the freshly cut green lumber. Represents a release of inner stresses of the tree. Development in seasoning can be minimized by proper stacking, but even-thicknesses of lumber are needed for effective stickering.

2. Cup - This is commonly conceded to be a major degrade in wide boards. It is related to the anatomy of the tree, but comes into prominence through improper stickering or the inability of being held in position due to variation in thickness of lumber.

3. Roller Check - This is generally assumed to be associated only with cases of fairly severe cup. However, this study indicated that although we had no degrade from cup we did have roller check in several boards. It is not felt that this is cause to doubt the cause and effect relationship between the two, but rather is cause to suspect that relatively little cup is necessary in order for a board to be checked by a tight roller. It may have also been that the existing cup was masked in our data by the controlling influence of a more serious defect.

4. End Split - This degrade was catalogued following the planer operation. It is probably safe to assume, however, that this was an exaggeration of the end checking found after kiln drying, which in turn generally started as fine end checks in the green piece. To follow this a step further the end checking in the green piece presumably started in the log in the woods or while decked. Hence we may have to travel some distance from the mill to eliminate this degrade.

5. Planer Crook Hook - An improvised name for a hooking of the end of a board containing crook. This commonly occurs when such a board is fed into the planer with the convex side to the straight edge. In most cases the hook was sufficiently severe that from 2 to 4 feet should have been trimmed off the end before grade recovery could be accomplished.

6. Planer Hook Break - An improvised name for the relatively few cases where the severity of the crook hook was such that the board was broken at the point of hooking.

7. Crook Edge Skip -

E. Combination Manufacturing, Seasoning and Natural Degrade:

1. Checked Knots - Practically every knot examined after drying was checked to a varying degree. The underlying cause is in the grain orientation of the wood itself. Although abundant in occurrence it was not proportionately

high in causes for loss of grade. At present there is no known practical way to keep knots from checking during drying.

2. Loose Knots - The same differential shrinkage which causes some knots to check during drying causes others to loosen. There were surprisingly few loose knots causing degrade following kiln drying. However, loose knots following planer operation were the most serious single cause of degrade. Under present circumstances some of this loosening in the planer is unavoidable, however, the same factors which caused live knots and wood to be broken in the planing undoubtedly contributed largely to the loosening of knots.

3. Knot Holes - As with loose knots, surprisingly few knot holes caused degrade after kiln drying. Also, as with loose knots, the planer operation caused a surprisingly large number of knot holes to appear and presumably for the same causes as previously indicated.

4. Sloughed Knots - From both kiln and planer operations about equally. Very few edge knots were observed which did not slough. In some cases the planer operation successfully dressed-out the sloughed knots or their holes. In other cases they were not only not dressed-out, but were actually opened up by a heavy cut of the side head. An expert planer feeder can do much to "save" boards by alert and proper workmanship.

5. Spike or Branch Knot Crack - This type of knot is to be avoided whenever possible in sawing as it is a serious cause of low grades and causes a marked weakening of the board. It is not surprising that a number of these cracked the board. This cracking is generally associated with a crooking of the board containing spike or branch knots predominately on one edge. If they are not cracked in handling, the side pressure in the planer will usually accomplish the job.

Results:

Table 2A, B, C, D, and E show the change in volume in each grade, and the change in value from the initial green chain grade to the final grading after the planers. There is no loss in volume shown as the full value is figured down to the chippable wood. A separate rip and trim study was made on each sample to show the recovery of grade and the amount of clear stock which would be available for gluing operations. The table clearly indicates the losses in the higher grades and the gain in volume in the lower grades. The summary at the bottom of the table shows both the dollars and cents losses in value per thousand board feet and the percentage of value lost in the manufacturing process.

The total loss in bd. ft. for each degrade factor and the loss by grades is shown in tables 3A, B, C, D, and E. There are 48 degrade factors listed and some would appear to be very minor in importance. The purpose of a degrade survey, however, is not necessarily to determine the amount of degrade, but how to minimize that which is occurring. This can be done only when there is a complete breakdown of degrade factors. Elimination of any one of these factors, regardless of the amount lost, would mean greater profits, not only in the actual saving of the amount lost by the degrade, but in lowered costs brought about by the elimination of extra handling.

Table 4 is a summary of loss in value per thousand board feet for each degrade factor. The first five columns indicate the losses in each of the categories studied. Column 6 shows the average loss per thousand bd. ft. for each factor. The average loss by groups is shown in column 7. There are seven groups listed in the table, two of which were not considered as being important. "Natural Defects" which include "shake opening" and "pitch pocket show up" is one where only the inherent weaknesses of wood are brought out. "Yard Storage" could be a very important group but the sample was too small to be of any significance. Column 8 shows the percentage of the average loss per thousand bd. ft.

Mechanical defects were grouped together in table 4 but they are separate in table 3. These mechanical defects could be minimized, but with more difficulty than some of the others.

The sawmilling operation was charged directly with the greatest amount of degrade. Variation in thickness of lumber causes a wide variety of degrading through the seasoning processes and the final surfacing. Extra costs of handling these degraded boards amounts to a sizable sum and narrows the margin of profit.

An interesting point is the comparison of losses caused by improper sawing and those caused by the various defects associated with knots. A total of 5936 bd. ft. was degraded by knot holes, loose knots, etc., as compared 3064 bd. ft., or slightly over one-half, directly attributable to the sawmill. The loss in value, however, is nearly reversed. The sawmill losses amounting to \$3.60 per M bd. ft. as compared to \$2.68 per M bd. ft. credited directly to losses in which knots were the main factor. Most of the loss in the sawmill was caused by thin or wavy sawn boards and was the main cause of degrade in the select and shop lumber.

It was noted as the study progressed that apparently there was no relationship between crib position in the dry kiln and degrade loss.

There is a definite relationship between degrade by "cup" and "roller check" and the width of the boards. Nearly all of the loss from these two factors appeared in the 10- and 12-inch widths.

It also became apparent that better sorting of lumber is necessary in order to do a proper job of seasoning. Species must be separated, heart must be separated from sap, lumber from down timber must be dried on different schedules than that from live timber. Wood having a great variation in weight such as found in larch dries much better when separated into heavy and light groups. Segregation is the answer to many seasoning problems.

A degrade survey of this kind can be very valuable in determining where we can make improvements. Some of the total loss can be reduced by better manufacturing practices, some may necessitate purchasing better equipment, better seasoning techniques, and conditioning may help; but keep in mind that every plant must make its own survey, as degrade factors in one plant may have no bearing on what may be occurring in another.

TABLE 1
Kiln Drying Schedules Used

| Species | Thickness & Grade | Hours Drying Time | Temperature | |
|---------|--------------------|----------------------|-------------|----------|
| | | | Dry Bulb | Wet Bulb |
| Pine | 4/4 Heart Common | 0 | 130 | 100 |
| | | 21 | 135 | 100 |
| | | 35 | Pulled | |
| | | | | |
| Pine | 4/4 Sap Common | 0 | 130 | 100 |
| | | 21 | 135 | 100 |
| | | 35 | 140 | 100 |
| | | 46 | 145 | 100 |
| | | 55 | Pulled | |
| | | | | |
| Pine | 4/4 Shop & Selects | 0 | 130 | 110 |
| | | 24 | 135 | 110 |
| | | 48 | 140 | 110 |
| | | 72 | 145 | 110 |
| | | 84 | Cond. 165 | 160 |
| | | 89 | Pulled | |
| | | | | |
| Larch | 4/4 Selects | 0 | 135 | 120 |
| | | 36 | 140 | 120 |
| | | 66 | 145 | 120 |
| | | 88 | 155 | 130 |
| | | 104 | 160 | 130 |
| | | 120 | Pulled | |
| | | | | |
| Pine | 5/4 Shop | 0 | 130 | 110 |
| | | 30 | 135 | 110 |
| | | 60 | 140 | 110 |
| | | 84 | 150 | 120 |
| | | 96 | 155 | 120 |
| | | 108 | Cond. 165 | 158 |
| | | 114 | Pulled | |
| | | | | |

TABLE 2A - SUMMARY SHEET
 4/4 x R.W. x 16' Heart, Common, Pine

| Thickness & Grade | Width | True Initial Gr. Chain Volume | True Final Finished Volume | Change in Volume + or - | Change in Processing | Current Price/M Whole-sale | Value of True Initial Volume | Value of True Final Volume | Cash Change in Value + or - |
|-------------------|-------|-------------------------------|----------------------------|-------------------------|----------------------|----------------------------|------------------------------|----------------------------|-----------------------------|
| 4/4 Heart | In. | Bd. Ft. | Bd. Ft. | Bd. Ft. | % | Dollars | Dollars | Dollars | Dollars |
| D & Btr. | 4" | 21-1/3 | 10-2/3 | - 10-2/3 | - 50.0 | 194.00 | 4.14 | 2.07 | - 2.07 |
| | 6" | 40 | 32 | - 8 | - 20.0 | 196.00 | 7.84 | 6.27 | - 1.57 |
| | 8" | 160 | 96 | - 64 | - 40.0 | 198.00 | 31.68 | 19.01 | - 12.67 |
| | 10" | 53-1/3 | 26-2/3 | - 26-2/3 | - 50.0 | 200.00 | 10.67 | 5.33 | - 5.34 |
| | 12" | 32 | 32 | 0 | 0 | 215.00 | 6.88 | 6.38 | 0 |
| #1 Com. | 4" | 21-1/3 | 5-1/2 | - 16 | - 75.0 | 132.00 | 2.82 | 0.70 | - 2.12 |
| | 6" | 176 | 104 | - 72 | - 40.9 | 132.00 | 23.33 | 13.73 | - 9.60 |
| | 8" | 1706-2/3 | 746-2/3 | - 960 | - 56.3 | 132.00 | 225.28 | 98.56 | -126.72 |
| | 10" | 13-1/3 | 13-1/2 | 0 | 0 | 133.00 | 1.77 | 1.77 | 0 |
| | 12" | 144 | 48 | - 96 | - 66.7 | 138.00 | 19.87 | 6.62 | - 13.25 |
| #2 Com. | 4" | 101-1/3 | 69-1/3 | - 32 | - 31.7 | 115.00 | 11.66 | 7.97 | - 3.69 |
| | 6" | 1112 | 856 | - 256 | - 23.0 | 114.00 | 126.77 | 97.58 | - 29.19 |
| | 8" | 15360 | 11200 | -4160 | - 27.8 | 113.00 | 1735.68 | 1265.60 | -470.08 |
| | 10" | 560 | 306-2/3 | - 253-1/3 | - 45.2 | 113.00 | 63.38 | 34.65 | - 28.73 |
| | 12" | 3968 | 2080 | -1888 | - 47.6 | 115.00 | 456.32 | 239.20 | -217.12 |
| #3 Com. | 4" | 138-2/3 | 165-1/3 | + 26-2/3 | + 19.2 | 72.00 | 9.98 | 11.90 | + 1.92 |
| | 6" | 576 | 672 | + 96 | + 16.7 | 72.00 | 41.47 | 48.38 | + 6.91 |
| | 8" | 7738-2/3 | 10234 | +2495-1/3 | + 32.3 | 74.00 | 572.66 | 757.32 | +184.66 |
| | 10" | 800 | 653-1/3 | - 146-1/3 | - 22.4 | 74.00 | 59.20 | 48.37 | - 10.83 |
| | 12" | 4672 | 4832 | + 160 | + 3.4 | 74.00 | 345.73 | 357.57 | + 11.84 |
| #4 Com. | 4" | 53-1/3 | 80 | + 26-2/3 | + 50.0 | 51.00 | 2.72 | 4.08 | + 1.36 |
| | 6" | 224 | 384 | + 160 | + 71.4 | 52.00 | 11.65 | 19.97 | + 8.32 |
| | 8" | 2090-2/3 | 4074-2/3 | +1984 | + 95.0 | 57.00 | 119.17 | 232.36 | +113.14 |
| | 10" | 506-2/3 | 800 | + 293-1/3 | + 58.0 | 54.00 | 27.36 | 43.20 | + 15.84 |
| | 12" | 1624 | 2984 | +1360 | + 83.8 | 54.00 | 87.70 | 161.14 | + 73.40 |
| #5 Com. | 6" | 24 | 24 | 0 | 0 | 31.00 | 0.74 | 0.74 | 0 |
| | 8" | 202-2/3 | 501-1/3 | + 298-2/3 | + 147.3 | 31.00 | 6.28 | 15.54 | + 9.26 |
| | 10" | 13-1/3 | 40 | + 26-2/3 | + 200.0 | 31.00 | .41 | 1.24 | + 0.83 |
| | 12" | 96 | 192 | + 96 | + 100.0 | 31.00 | 2.99 | 5.95 | + 2.97 |
| Factory | 6" | 72 | 88 | + 16 | + 22.2 | 129.00 | 9.29 | 11.35 | + 2.06 |
| | 8" | 352 | 416 | + 64 | + 18.2 | 129.00 | 45.41 | 53.66 | + 8.25 |
| | 10" | 13-1/3 | 26-2/3 | + 13-1/3 | + 100.0 | 129.00 | 1.72 | 3.44 | + 1.72 |
| | 12" | 304 | 384 | + 80 | + 26.3 | 129.00 | 39.22 | 49.54 | + 10.32 |
| Shop | 6" | 24 | 80 | + 56 | + 233.3 | 82.50 | 1.98 | 6.60 | + 4.62 |
| | 8" | 298-2/3 | 512 | + 213-1/3 | + 71.4 | 82.50 | 24.64 | 42.24 | + 17.60 |
| | 10" | 106-2/3 | 173-1/3 | + 66-2/3 | + 62.5 | 82.50 | 8.80 | 14.30 | + 5.50 |
| | 12" | 16 | 288 | + 272 | +1700.0 | 82.50 | 1.32 | 23.76 | + 22.44 |
| TOTAL | | 43,416 | 43,205-1/3 | | | | 4,148.52 | 3,718.59 | -429.93 |
| Breakage | | | 210-2/3 + 210-2/3 | | | | | | |

Recovered from Breakage: Short Lumber 10.45
 Box Lumber 3.22
 Chippable Wood .10

Tot. Value Loss 13.77
 416.16/
 Kiln Charge
 Or 10.0% or \$9.59/M Bd. Ft.

TABLE 2B
 4/4 x R.W. x 16' P. Pine, Sap, Common

| Thickness & Grade | Width | True Initial Gr. Chain Volume | True Final Finished Volume | Change in Volume + or - | Change in Volume + or - | Current Listed Price Wholesale | Value of True Initial Volume | Value of True Final Volume | Cash Change in Value + or - |
|-------------------|-------|-------------------------------|----------------------------|-------------------------|-------------------------|--------------------------------|------------------------------|----------------------------|-----------------------------|
| 4/4 | In. | Bd. Ft. | Bd. Ft. | Bd. Ft. | % | Dollars | Dollars | Dollars | Dollars |
| C & Btr. | 4" | 5-1/3 | 0 | - 5-1/3 | - 100.0 | 250.00 | 1.33 | 0 | - 1.33 |
| | 10" | 13-1/3 | 13-1/3 | 0 | 0 | 256.00 | 3.41 | 3.41 | 0 |
| D & Btr. | 4" | 176 | 117-1/3 | - 58-2/3 | - 33.35 | 209.00 | 36.78 | 24.52 | - 12.26 |
| | 6" | 88 | 48 | - 40 | - 90.91 | 211.00 | 18.57 | 10.13 | - 8.44 |
| | 8" | 32 | 10-2/3 | - 21-1/3 | - 66.67 | 213.00 | 6.82 | 2.27 | - 4.55 |
| | 10" | 13-1/3 | 0 | - 13-1/3 | - 100.00 | 215.00 | 2.87 | 0 | - 2.87 |
| #1 Com. | 4" | 21-1/3 | 10-2/3 | - 10-2/3 | - 50.0 | 137.00 | 2.92 | 1.46 | - 1.46 |
| | 6" | 176 | 16 | - 160 | - 90.91 | 136.00 | 23.94 | 2.18 | - 21.76 |
| | 8" | 138-2/3 | 0 | - 138-2/3 | - 100.0 | 135.00 | 18.72 | 0 | - 18.72 |
| | 10" | 40 | 13-1/3 | - 26-2/3 | - 66.67 | 135.00 | 5.40 | 1.80 | - 3.60 |
| #2 Com. | 4" | 1077-1/3 | 624 | - 453-1/3 | - 42.08 | 120.00 | 129.24 | 74.88 | - 54.36 |
| | 6" | 2456 | 1232 | -1224 | - 49.84 | 119.00 | 292.26 | 146.61 | -145.65 |
| | 8" | 3018-2/3 | 1088 | -1930-2/3 | - 64.38 | 118.00 | 354.08 | 126.36 | -227.82 |
| | 10" | 1920 | 933-1/3 | - 986-2/3 | - 51.39 | 118.00 | 226.56 | 110.13 | -116.43 |
| | 12" | 3824 | 1296 | -2528 | - 66.11 | 120.00 | 458.88 | 155.52 | -303.36 |
| #3 Com. | 4" | 853-1/3 | 869-1/3 | + 16 | + 1.87 | 72.00 | 61.44 | 62.59 | + 1.15 |
| | 6" | 1176 | 1536 | + 360 | + 30.61 | 74.00 | 87.02 | 13.66 | + 26.64 |
| | 8" | 1728 | 1962-2/3 | + 234-2/3 | + 13.58 | 80.00 | 138.24 | 157.01 | + 18.77 |
| | 10" | 600 | 1080 | + 480 | + 80.00 | 79.00 | 47.40 | 85.32 | + 37.92 |
| | 12" | 1856 | 2352 | + 496 | + 26.72 | 79.00 | 146.62 | 185.81 | + 39.19 |
| #4 Com. | 4" | 304 | 586-2/3 | + 282-2/3 | + 92.99 | 51.00 | 15.50 | 29.92 | + 14.42 |
| | 6" | 376 | 1152 | + 776 | + 206.38 | 60.00 | 22.56 | 69.12 | + 46.56 |
| | 8" | 384 | 1621-1/3 | +1237-1/3 | + 322.21 | 70.00 | 26.88 | 13.49 | + 86.61 |
| | 10" | 200 | 573-1/3 | + 373-1/3 | + 186.65 | 67.00 | 13.40 | 38.41 | + 25.01 |
| | 12" | 544 | 1840 | +1296 | + 238.24 | 67.00 | 36.45 | 123.28 | + 86.83 |
| #5 Com. | 4" | 64 | 101-1/3 | + 37-1/3 | + 58.28 | 34.00 | 2.18 | 3.45 | + 1.29 |
| | 6" | 72 | 184 | + 112 | + 155.55 | 34.00 | 2.45 | 6.26 | + 3.81 |
| | 8" | 21-1/3 | 277-1/3 | + 256 | +1201.88 | 34.00 | 0.73 | 9.40 | + 8.71 |
| | 10" | 13-1/3 | 146-2/3 | + 133-1/3 | +1002.26 | 34.00 | 0.45 | 4.99 | + 4.54 |
| | 12" | 32 | 224 | + 192 | + 600.00 | 34.00 | 1.09 | 7.62 | + 6.53 |
| Factory "C" | 6" | 56 | 56 | 0 | 0 | 136.00 | 7.62 | 7.62 | 0 |
| | 8" | 160 | 149-1/3 | - 10-2/3 | - 6.31 | 136.00 | 21.76 | 20.31 | - 1.45 |
| | 10" | 13-1/3 | 13-1/3 | 0 | 0 | 136.00 | 1.81 | 1.81 | 0 |
| | 12" | 176 | 176 | 0 | 0 | 136.00 | 23.94 | 23.94 | 0 |
| Shop | 4" | 96 | 176 | + 80 | + 83.33 | 83.50 | 8.02 | 14.70 | + 6.68 |
| | 6" | 40 | 184 | + 144 | + 360.00 | 83.50 | 3.34 | 15.37 | + 12.03 |
| | 8" | 85-1/3 | 394-2/3 | + 309-1/3 | + 362.60 | 83.50 | 7.13 | 32.95 | + 25.82 |
| | 10" | 40 | 80 | + 40 | + 100.00 | 83.50 | 3.34 | 6.64 | + 3.30 |
| | 12" | 96 | 576 | + 480 | + 500.00 | 83.50 | 8.02 | 48.10 | + 40.08 |
| Breakage | | 0 | 272 | + 272 | | | | 17.57 | + 17.57 |
| TOTALS | | 21,986-2/3 | 21,986-2/3 | | | | 2,269.17 | 1,858.55 | -410.62 |

Breakage recovered: Short lumber 11.86
 Box lumber 5.59
 Chippable wood .12
 \$17.57

Total value loss \$410.62/Kiln Charge or 18.1% or \$18.68/M Bd. Ft.

TABLE 2C
 4/4 x R.W. x 16' - P. Pine Selects & Shop

| Thickness & Grade | Width | True Initial Gr. Chain Volume | True Final Finished Volume | Change in Volume + or - | Change in Volume + or - | Current Listed Price Wholesale | Value of True Initial Volume | Value of True Final Volume | Cash Change in Value + or - |
|-------------------|-------------|-------------------------------|----------------------------|-------------------------|-------------------------|--------------------------------|------------------------------|----------------------------|-----------------------------|
| 4/4 | In. | Bd. Ft. | Bd. Ft. | Bd. Ft. | % | Dollars | Dollars | Dollars | Dollars |
| C & Btr. | 4" | 2496 | 1557-1/3 | - 938-2/3 | - 37.61 | 250.00 | 624.00 | 389.33 | -234.67 |
| | 6" | 4488 | 2496 | -1992 | - 44.38 | 252.00 | 1130.98 | 628.99 | -501.99 |
| | 8" | 3648 | 1802-2/3 | -1845-1/3 | - 50.58 | 254.00 | 926.59 | 457.88 | -468.71 |
| | 10" | 2400 | 1120 | -1280 | - 53.33 | 256.00 | 614.40 | 286.72 | -327.68 |
| | 12" | 3104 | 1296 | -1808 | - 57.93 | 266.00 | 825.66 | 344.74 | -480.92 |
| | Wider | 936 | 549-1/3 | - 386-2/3 | - 41.39 | 266.00 | 248.98 | 146.12 | -102.86 |
| D Select | 4" | 912 | 1152 | + 240 | + 26.32 | 209.00 | 190.61 | 240.77 | + 50.16 |
| | 6" | 2376 | 2816 | + 440 | + 18.52 | 211.00 | 501.34 | 594.18 | + 92.84 |
| | 8" | 2624 | 2933-1/3 | + 309-1/3 | + 11.79 | 213.00 | 558.91 | 624.80 | + 65.89 |
| | 10" | 1586-2/3 | 1533-1/3 | - 53-1/3 | - 3.35 | 215.00 | 341.13 | 329.67 | - 11.46 |
| | 12" | 2336 | 2448 | + 112 | + 4.79 | 230.00 | 537.28 | 563.04 | + 25.76 |
| | Wider | 121-1/3 | 177-1/3 | + 56 | + 46.17 | 230.00 | 27.91 | 40.79 | + 12.88 |
| #2 Com. | 4" | 0 | 5-1/3 | + 5-1/3 | 0 | 120.00 | 0 | 0.64 | + .64 |
| | 6" | 96 | 136 | + 40 | + 41.67 | 119.00 | 11.42 | 16.18 | + 4.76 |
| | 8" | 277-1/3 | 309-1/3 | + 32 | + 11.54 | 118.00 | 32.73 | 36.50 | + 3.77 |
| | 10" | 26-2/3 | 40 | + 13-1/3 | + 50.00 | 118.00 | 3.15 | 4.72 | + 1.57 |
| | 12" | 128 | 176 | + 48 | + 37.50 | 120.00 | 15.36 | 21.12 | + 5.76 |
| #3 Com. | 4" | 5-1/3 | 21-1/3 | + 16 | + 300.00 | 72.00 | 0.38 | 1.54 | + 1.16 |
| | 6" | 64 | 216 | + 152 | + 237.50 | 78.00 | 4.74 | 15.98 | + 11.24 |
| | 8" | 106-2/3 | 202-2/3 | + 96 | + 90.00 | 80.00 | 8.53 | 16.21 | + 7.68 |
| | 10" | 26-2/3 | 80 | + 53-1/3 | + 200.00 | 79.00 | 2.11 | 6.32 | + 4.21 |
| | 12" | 32 | 80 | + 48 | + 150.00 | 79.00 | 2.53 | 6.32 | + 3.79 |
| #4 Com. | 6" | 16 | 152 | + 136 | + 850.00 | 60.00 | 0.96 | 9.12 | + 8.16 |
| | 8" | 21-1/3 | 245-1/3 | + 224 | +1050.00 | 70.00 | 1.49 | 17.17 | + 15.68 |
| | 10" | 26-2/3 | 106-2/3 | + 80 | + 300.00 | 67.00 | 1.79 | 7.15 | + 5.36 |
| | 12" | 32 | 160 | + 128 | + 400.00 | 67.00 | 2.14 | 10.72 | + 8.58 |
| #5 Com. | 6" | 0 | 16 | + 16 | 0 | 34.00 | 0 | 0.54 | + 0.54 |
| | 8" | 10-2/3 | 53-1/3 | + 42-2/3 | + 400.00 | 34.00 | 0.36 | 1.81 | + 1.45 |
| | 10" | 13-1/3 | 80 | + 66-2/3 | + 500.00 | 34.00 | 0.45 | 2.72 | + 2.27 |
| | 12" | 0 | 16 | + 16 | 0 | 34.00 | 0 | 0.54 | + 0.54 |
| Factory "C" | 6" | 2664 | 3216 | + 552 | + 20.72 | 136.00 | 362.30 | 437.38 | + 75.08 |
| | 8" | 4618-1/3 | 5280 | + 661-1/3 | + 12.13 | 136.00 | 628.15 | 718.08 | + 89.93 |
| | 10" | 2986-2/3 | 3600 | + 613-1/3 | + 20.53 | 136.00 | 406.19 | 489.60 | + 83.41 |
| | 12" | 2656 | 3616 | + 960 | + 36.14 | 136.00 | 361.22 | 491.78 | +130.56 |
| | Wider | 18-2/3 | 325-1/3 | + 306-2/3 | +1642.85 | 136.00 | 2.54 | 44.25 | + 41.71 |
| Com. Shop | 4" | 202-2/3 | 517-1/3 | + 314-2/3 | + 155.25 | 83.50 | 16.92 | 43.22 | + 26.30 |
| | 6" | 448 | 496 | + 48 | + 10.71 | 83.50 | 37.41 | 41.42 | + 4.01 |
| | 8" | 416 | 672 | + 256 | + 61.54 | 83.50 | 34.74 | 56.11 | + 21.37 |
| | 10" | 493-1/3 | 786-2/3 | + 293-1/3 | + 59.46 | 83.50 | 41.19 | 65.69 | + 24.50 |
| | 12" | 256 | 448 | + 192 | + 75.00 | 83.50 | 21.38 | 37.41 | + 16.03 |
| Moulding | 4" | 5-1/3 | 330-2/3 | + 325 | +6132.03 | 209.00 | 1.11 | 68.11 | + 67.00 |
| | 6" | 8 | 592 | + 584 | +7300.00 | 211.00 | 1.69 | 124.91 | +123.22 |
| | 8" | 10-2/3 | 224 | + 213-1/3 | +1993.40 | 213.00 | 2.27 | 47.71 | + 45.44 |
| | 10" | 0 | 200 | + 200 | 0 | 215.00 | 0 | 43.00 | + 43.00 |
| | 12" & Wider | 16 | 344 | + 328 | +2050.00 | 230.00 | 3.68 | 79.18 | + 75.44 |
| Breakage | | 0 | 85-1/3 | + 85-1/3 | 0 | 0 | 0 | 1.99 | + 10.99 |
| TOTALS | | 42,710-2/3 | 42,710-2/3 | | | | 8536.71 | 7622.11 | 914.60 |

Breakage Recovered: Short lumber 10.09
 Box lumber .85
 Chippable wood .05
 10.99

Total value loss \$914.60/Kiln Charge
 or 10.71% or \$21.40/M Bd. Ft.

TABLE 2D
 4/4 x R.W. x 16' - Larch Select

| Thickness & Grade | Width | True Initial Gr. Chain Volume | True Final Finished Volume | Change in Volume + or - | Change in Volume + or - | Current Listed Price Wholesale | Value of True Initial Volume | Value of True Final Volume | Cash Change in Value + or - |
|----------------------|-------|----------------------------------------|-------------------------------------|----------------------------------|----------------------------------|-----------------------------------------|---------------------------------------|-------------------------------------|--------------------------------------|
| 4/4 | In. | Bd. Ft. | Bd. Ft. | Bd. Ft. | % | Dollars | Dollars | Dollars | Dollars |
| V.G. Sel. | 4" | 1104 | 992 | - 112 | - 10.34 | 140.00 | 154.56 | 138.88 | - 15.68 |
| D & Btr. | 4" | 4655-1/3 | 4104 | - 551-1/3 | - 11.82 | 125.00 | 581.92 | 513.00 | - 68.92 |
| Sel. | 6" | 10297 | 8317 | -1980 | - 19.24 | 130.00 | 1338.61 | 1081.22 | -257.40 |
| | 8" | 3021-1/3 | 1988 | -1033-1/3 | - 33.99 | 135.00 | 407.88 | 268.38 | -139.50 |
| | 10" | 1146-2/3 | 513-1/2 | - 633-1/3 | - 55.20 | 140.00 | 160.53 | 71.87 | - 88.66 |
| | 12" | 1508 | 922 | - 586 | - 37.09 | 142.00 | 214.14 | 130.92 | - 83.22 |
| #3 & Btr. | 4" | 21-1/3 | 514 | + 492-2/3 | +2050.00 | 55.00 | 1.17 | 28.27 | + 27.10 |
| | 6" | 112 | 1700 | +1588 | +1428.00 | 67.00 | 7.50 | 113.90 | +106.40 |
| | 8" | 64 | 865-1/3 | + 801-1/3 | +1252.00 | 67.00 | 4.29 | 57.98 | + 53.69 |
| | 10" | 0 | 433-1/3 | + 433-1/3 | 0 | 67.00 | 0 | 29.03 | + 29.03 |
| | 12" | 16 | 570 | + 554 | +3460.00 | 67.00 | 1.07 | 38.19 | + 37.12 |
| #4 Com. | 4" | 0 | 138-2/3 | + 138-2/3 | 0 | 42.00 | 0 | 5.82 | + 5.82 |
| | 6" | 8 | 360 | + 352 | +14400.00 | 52.00 | 0.42 | 18.72 | + 18.30 |
| | 8" | 21-1/3 | 200 | + 178-2/3 | + 848.00 | 52.00 | 1.10 | 10.40 | + 9.30 |
| | 10" | 0 | 186-2/3 | + 186-2/3 | 0 | 52.00 | 0 | 9.71 | + 9.71 |
| | 12" | 0 | 32 | + 32 | 0 | 52.00 | 0 | 1.66 | + 1.66 |
| #5 Com. | 4" | 0 | 10-2/3 | + 10-2/3 | 0 | 31.00 | 0 | 0.33 | + 0.33 |
| | 6" | 0 | 32 | + 32 | 0 | 31.00 | 0 | 0.99 | + 0.99 |
| | 8" | 0 | 53-1/3 | + 53-1/3 | 0 | 31.00 | 0 | 1.65 | + 1.65 |
| | 10" | 0 | 13-1/3 | + 13-1/3 | 0 | 31.00 | 0 | 0.41 | + 0.41 |
| Breakage | | 0 | 29-1/3 | + 29-1/3 | 0 | 0 | 0 | 0.90 | + 0.90 |
| TOTALS | | 21,975 | 21,975 | 0 | 0 | 0 | 2873.19 | 2522.13 | -351.06 |

Breakage Recovered: Short lumber 0.84
 Chippable wood 0.06
 0.90

Total Value loss \$351.06/1/2 Kiln Charge or
 12.22% or \$15.97/M Bd. Ft.

TABLE 2E
5/4 x R.W. x 14 & 16 - P. Pine Shop

| Thickness & Grade | Width | True Initial Gr. Chain Volume | True Final Finished Volume | Change in Volume + or - | Change in Volume + or - | Current Listed Price Wholesale | Value of True Initial Volume | Value of True Final Volume | Cash Change in Value + or - |
|-------------------|-------|-------------------------------|----------------------------|-------------------------|-------------------------|--------------------------------|------------------------------|----------------------------|-----------------------------|
| 5/4 | In. | Bd. Ft. | Bd. Ft. | Bd. Ft. | % | Dollars | Dollars | Dollars | Dollars |
| D & Btr. | 4" | 6-2/3 | 6-2/3 | 0 | 0 | 215.00 | 1.50 | 1.50 | 0 |
| | 8" | 90 | 51-2/3 | - 38-1/3 | - 42.60 | 220.00 | 19.80 | 11.37 | - 8.43 |
| | 10" | 58-1/3 | 14-7/12 | - 43-3/4 | - 75.00 | 225.00 | 13.13 | 3.28 | - 9.85 |
| | 12" | 110 | 92-1/2 | - 17-1/2 | - 15.90 | 235.00 | 25.85 | 21.74 | - 4.11 |
| | 16" | 26-2/3 | 0 | - 26-2/3 | - 100.00 | 235.00 | 6.27 | 0 | - 6.27 |
| Factory "C" | 10" | 225 | 208-1/3 | - 16-2/3 | - 7.41 | 171.00 | | | |
| | 12" | 157-1/2 | 80 | - 77-1/2 | - 49.20 | 171.00 | | | |
| | 14" | 113-9/12 | 113-9/12 | 0 | 0 | 171.00 | | | |
| | 16" | 53-1/3 | 26-2/3 | - 26-2/3 | - 50.00 | 171.00 | | | |
| | 18" | 30 | 0 | - 30 | - 100.00 | 171.00 | | | |
| | | | | | | | Total Value | | |
| | | | | | | | 99.11 | 73.32 | - 25.79 |
| #1 Shop | 6" | 77-1/2 | 68-3/4 | - 8-3/4 | - 11.29 | 132.00 | | | |
| | 8" | 410 | 385 | - 25 | - 6.1 | 132.00 | | | |
| | 10" | 1402-1/12 | 1254-1/6 | - 147-11/12 | - 10.55 | 132.00 | | | |
| | 12" | 2872-1/2 | 2427-1/2 | - 445 | - 15.48 | 132.00 | | | |
| | 14" | 985-5/6 | 778-3/4 | - 207-1/12 | - 21.00 | 132.00 | | | |
| | 16" | 483-1/3 | 356-2/3 | - 126-2/3 | - 26.20 | 132.00 | | | |
| | 17" | 81-1/2 | 81-1/2 | 0 | 0 | 132.00 | | | |
| | 18" | 356-1/4 | 266-1/4 | - 90 | - 25.21 | 132.00 | | | |
| | 19" | 63-1/3 | 0 | - 63-1/3 | - 100.00 | 132.00 | | | |
| | 20" | 133-1/3 | 100 | - 33-1/3 | - 25.00 | 132.00 | | | |
| | 21" | 65-5/8 | 0 | - 65-5/8 | - 100.00 | 132.00 | | | |
| | 22" | 73-1/3 | 73-1/3 | 0 | 0 | 132.00 | | | |
| | 24" | 40 | 40 | 0 | 0 | 132.00 | | | |
| | | | | | | | Total Value | | |
| | | | | | | | 929.89 | 769.81 | -160.08 |
| #2 Shop | 6" | 57-1/2 | 56-1/4 | - 1-1/4 | - 1.78 | 106.00 | | | |
| | 8" | 901-2/3 | 901-2/3 | 0 | 0 | 106.00 | | | |
| | 10" | 1891-2/3 | 2004-1/6 | + 112-1/2 | + 5.95 | 106.00 | | | |
| | 12" | 5190 | 5517-1/2 | + 227-1/2 | + 4.38 | 106.00 | | | |
| | 13" | 21-2/3 | 21-2/3 | 0 | 0 | 106.00 | | | |
| | 14" | 1090-5/6 | 1229 | + 138-1/6 | + 12.66 | 106.00 | | | |
| | 15" | 150 | 150 | 0 | 0 | 106.00 | | | |
| | 16" | 1336-2/3 | 1436-2/3 | + 100 | + 7.49 | 106.00 | | | |
| | 17" | 170 | 170 | 0 | 0 | 106.00 | | | |
| | 18" | 772-1/2 | 862-1/2 | + 90 | + 11.67 | 106.00 | | | |
| | 19" | 59-3/8 | 95 | + 35-5/8 | + 60.15 | 106.00 | | | |
| | 20" | 200 | 233-1/3 | + 33-1/3 | + 16.67 | 106.00 | | | |
| | 21" | 0 | 65-5/8 | + 65-5/8 | 0 | 106.00 | | | |
| | | | | | | | 1255.24 | 1350.68 | + 95.44 |
| #3 Shop | 6" | 20 | 30 | + 10 | + 50.00 | 76.00 | | | |
| | 8" | 336-2/3 | 386-2/3 | + 50 | + 14.84 | 76.00 | | | |
| | 10" | 289-7/12 | 385-5/12 | + 95-5/6 | + 33.10 | 76.00 | | | |
| | 12" | 625 | 882-1/2 | + 157-1/2 | + 25.20 | 76.00 | | | |
| | 16" | 80 | 133-1/3 | + 53-1/3 | + 66.67 | 76.00 | | | |
| | 17" | 28-1/3 | 38-1/3 | 0 | 0 | 76.00 | | | |
| | 18" | 90 | 120 | + 30 | + 33.33 | 76.00 | | | |
| | 19" | 0 | 27-3/4 | 27-3/4 | 0 | 76.00 | | | |
| | 20" | 33-1/3 | 33-1/3 | 0 | 0 | 76.00 | | | |
| | | | | | | | Total Value | | |
| | | | | | | | 136.39 | 173.96 | + 37.57 |
| #2 Com. | 8" | 0 | 13-1/3 | 13-1/3 | 0 | 119.00 | 0 | 1.59 | + 1.59 |
| #4 Com. | 12" | 0 | 37-1/2 | 37-1/2 | 0 | 56.00 | 0 | 2.10 | + 2.10 |
| | 14" | 23-1/3 | 23-1/3 | 0 | 0 | 56.00 | 1.31 | 1.31 | 0 |
| #5 Com. | 16" | 26-2/3 | 53-1/3 | 26-1/3 | 100.0 | 31.00 | .83 | 1.66 | + .83 |
| Breakage | | 0 | 17-1/2 | 0 | 0 | 0 | 0 | .99 | + .99 |
| TOTALS | | 21,602-1/3 | 21,602-1/3 | | | | 2489.32 | 2413.30 | - 76.02 |

Breakage Recovered: Short lumber
Box lumber

0.54
0.45
0.99

Total Value loss \$76.02/1/2 Kiln Charge or 3.05% or \$3.52/M Bd. Ft.

TABLE 3A
Consolidated Degrade Data - Pine, Heart, Common 4/4 x 16 - R.W.
Sample - 43,416 Bd. Ft.

| Nature of Degrade (Principal Cause) | Ass't R.W. Pcs. | Bd. Ft. Total | Bd. Ft. by Grades | | | | | | | |
|----------------------------------------|-----------------------|------------------|-------------------|----------|-----------|-----------|----------|-----|---------|---------|
| | | | D | 1 | 2 | 3 | 4 | 5 | F.C. | S. |
| NATURAL DEFECT DEGRADE: | | | | | | | | | | |
| Shake Opening (or Show up) Total | 61 | 709-1/3 | 10-2/3 | 34-2/3 | 429-1/3 | 205-1/3 | 29-1/3 | 0 | 0 | 0 |
| Appear. after Kiln | 30 | 341-1/3 | 10-2/3 | 8 | 186-2/3 | 117-1/3 | 18-2/3 | 0 | 0 | 0 |
| Appear. after Planer | 31 | 368 | 0 | 26-2/3 | 242-2/3 | 88 | 10-2/3 | 0 | 0 | 0 |
| Pitch Pocket Opening | 6 | 69-1/3 | 0 | 32 | 21-1/3 | 16 | 0 | 0 | 0 | 0 |
| MANUFACTURING DEGRADE: | | | | | | | | | | |
| Thin | 96 | 1050-2/3 | 10-2/3 | 128 | 528 | 261-1/3 | 32 | 0 | 50-2/3 | 40 |
| Narrow | 28 | 288 | 0 | 21-1/3 | 178-2/3 | 77-1/3 | 10-2/3 | 0 | 0 | 0 |
| Saw Torn Grain | 158 | 1725-1/3 | 10-2/3 | 381-2/3 | 1141-1/3 | 170-2/3 | 10-2/3 | 0 | 10-2/3 | 0 |
| Edger Hook | 0 | | | | | | | | | |
| Edger Sweep | 0 | | | | | | | | | |
| "Nigger" Break | 1 | 10-2/3 | 0 | 0 | 10-2/3 | 0 | 0 | 0 | 0 | 0 |
| Mach. Gouge | 1 | 13-1/3 | 0 | 0 | 0 | 13-1/3 | 0 | 0 | 0 | 0 |
| Face Check | 3 | 37-1/3 | 0 | 0 | 37-1/3 | 0 | 0 | 0 | 0 | 0 |
| Crook | 70 | 725-1/3 | 0 | 85-1/3 | 525-1/3 | 114-2/3 | 0 | 0 | 0 | 0 |
| Twist & Bow | 0 | | | | | | | | | |
| Cup | 0 | | | | | | | | | |
| Roller Check | 12 | 138-2/3 | 0 | 16 | 123-2/3 | 0 | 0 | 0 | 0 | 0 |
| End Check (Kiln) | 26 | 309-1/3 | 13-1/3 | 10-2/3 | 253-1/3 | 32 | 0 | 0 | 0 | 0 |
| End Split (Planer) | 27 | 312 | 10-2/3 | 42-2/3 | 205-1/3 | 42-2/3 | 0 | 0 | 0 | 10-2/3 |
| Planer Torn Grain | 6 | 58-2/3 | 5-1/3 | 32 | 21-1/3 | 0 | 0 | 0 | 0 | 0 |
| Pl. Face Snipe | 6 | 69-1/3 | 0 | 32 | 37-1/3 | 0 | 0 | 0 | 0 | 0 |
| Pl. Edge Snipe | 1 | 10-2/3 | 10-2/3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pl. Edge Scallop | 2 | 21-1/3 | 0 | 10-2/3 | 10-2/3 | 0 | 0 | 0 | 0 | 0 |
| Pl. Crook Hook | 52 | 589-1/3 | 24 | 21-1/3 | 261-1/3 | 234-2/3 | 48 | 0 | 0 | 0 |
| Pl. Hook Break | 2 | 24 | 0 | 0 | 0 | 10-2/3 | 13-1/3 | 0 | 0 | 0 |
| Pl. Break Up | 1 | 16 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 |
| Pl. Shake Break | 2 | 21-1/3 | 0 | 0 | 10-2/3 | 0 | 10-2/3 | 0 | 0 | 0 |
| Buggy Edge Break | 2 | 26-2/3 | 0 | 0 | 26-2/3 | 0 | 0 | 0 | 0 | 0 |
| Cracked Knots | 14 | 146-2/3 | 0 | 50-2/3 | 96 | 0 | 0 | 0 | 0 | 0 |
| Live Knot Break Out | 38 | 493-1/3 | 0 | 40 | 256 | 197-1/3 | 0 | 0 | 0 | 0 |
| Knot Wood Break | 39 | 442-1/3 | 0 | 10-2/3 | 282-2/3 | 138-2/3 | 10-2/3 | 0 | 0 | 0 |
| Corner Break | 29 | 362-2/3 | 0 | 16 | 205-1/3 | 114-2/3 | 26-2/3 | 0 | 0 | 0 |
| Cross Grain Break | 12 | 160 | 0 | 0 | 42-2/3 | 117-1/3 | 0 | 0 | 0 | 0 |
| COMB. DEGRADE (NAT. & MAN.): | | | | | | | | | | |
| Checked Knots (Kiln) | 26 | 312 | 0 | 34-2/3 | 234-2/3 | 42-2/3 | 0 | 0 | 0 | 0 |
| Loose Knots (Kiln) | 18 | 208 | 0 | 0 | 149-1/3 | 58-2/3 | 0 | 0 | 0 | 0 |
| Loose Knots (Planer) | 207 | 2650-2/3 | 0 | 0 | 1554-2/3 | 1069-2/3 | 26-2/3 | 0 | 0 | 0 |
| Knot Holes (Kiln) | 14 | 146-2/3 | 0 | 0 | 24 | 122-2/3 | 0 | 0 | 0 | 0 |
| Knot Holes (Planer) | 173 | 2034-2/3 | 5-1/3 | 0 | 594-2/3 | 1326 | 106-2/3 | 0 | 0 | 0 |
| Sloughed Knots | 33 | 378-2/3 | 0 | 136 | 234-2/3 | 8 | 0 | 0 | 0 | 0 |
| Spikes/Br. Knot Crack | 18 | 205-1/3 | 0 | 18-2/3 | 96 | 80 | 10-2/3 | 0 | 0 | 0 |
| TOTAL DEGRADE VOL. | 1184 | 13978-2/3 | 100-1/3 | 1154-2/3 | 7586-2/3 | 4456-1/3 | 352 | 0 | 61-1/3 | 50-2/3 |
| TOTAL SAMPLE VOL. | 3817 | 43416 | 306-2/3 | 2031-1/3 | 21101-1/3 | 13985-1/3 | 4498-2/3 | 336 | 741-1/3 | 445-1/3 |
| % DEGRADE | 30.9 | 32.2 | 32.7 | 56.9 | 35.9 | 32.0 | 7.84 | 0 | 8.23 | 11.23 |

TABLE 3B
Consolidated Degrade Data - Pine, Sap, Common, 4/4 x 16 - R.W.
Sample - 21,966-2/3 Bd. Ft.

| Nature of Degrade (Principal Cause) | Bd. Ft. Total | C | D | 1 | 2 | 3 | 4 | 5 | F.C. | S. |
|----------------------------------------|------------------|--------|---------|--------|----------|----------|---------|---------|---------|---------|
| NAT. DEF. DEG.: | | | | | | | | | | |
| Shake Opening (or Show up) Total | 421-1/3 | - | 16 | - | 333-1/3 | 45-1/3 | 8 | - | - | 8 |
| Pitch Pock. Open. | 8 | - | - | - | 8 | - | - | - | - | - |
| Breakage | 264 | - | 5-1/3 | - | 5-1/3 | 114-2/3 | 90-2/3 | 10-2/3 | 10-2/3 | 26-2/3 |
| MFG. DEGRADE: | | | | | | | | | | |
| Thin | 72 | - | - | - | 21-1/3 | 50-2/3 | - | - | - | - |
| Narrow | 58-2/3 | - | - | - | 42-2/3 | 16 | - | - | - | - |
| Saw Torn Grain | 106-2/3 | - | 10-2/3 | - | 88 | 8 | - | - | - | - |
| Axe Cut, Log Deck | 8 | - | - | - | 8 | - | - | - | - | - |
| Crib Mvmt. Break | 5-1/3 | - | - | - | - | 5-1/3 | - | - | - | - |
| "Nigger" Break | 122-2/3 | 5-1/3 | - | - | 90-2/3 | 10-2/3 | - | - | 10-2/3 | 5-1/3 |
| Machine Gouge | 13-1/3 | - | - | - | 13-1/3 | - | - | - | - | - |
| Face Check | - | - | - | - | - | - | - | - | - | - |
| Crook | 66-2/3 | - | 10-2/3 | - | 50-2/3 | 5-1/3 | - | - | - | - |
| Twist & Bow | - | - | - | - | - | - | - | - | - | - |
| Cup | 64 | - | - | - | 64 | - | - | - | - | - |
| Roller Check | 250-2/3 | - | - | 24 | 226-2/3 | - | - | - | - | - |
| End Split | 752 | - | - | - | 514-2/3 | 237-1/3 | - | - | - | - |
| Plan. Torn Grain | 82-2/3 | - | - | 74-2/3 | 8 | - | - | - | - | - |
| Plan. Face Snipe | - | - | - | - | - | - | - | - | - | - |
| Plan. Edge Snipe | - | - | - | - | - | - | - | - | - | - |
| Plan. Edge Scal. | - | - | - | - | - | - | - | - | - | - |
| Plan. Crook Hook | - | - | - | - | - | - | - | - | - | - |
| Plan. Hook Break | 8 | - | - | - | 8 | - | - | - | - | - |
| Plan. Break Up | - | - | - | - | - | - | - | - | - | - |
| Plan. Test Bd. | 16 | - | - | - | 16 | - | - | - | - | - |
| Buggy Edge Break | - | - | - | - | - | - | - | - | - | - |
| Cracked Knots | 1037-1/3 | - | - | 168 | 757-1/3 | 98-2/3 | 13-1/3 | - | - | - |
| Live Knot Breakout | - | - | - | - | - | - | - | - | - | - |
| Corner Break | 66-2/3 | - | - | - | 48 | 8 | 10-2/3 | - | - | - |
| Cross Grain Break | 88 | - | 5-1/3 | - | 50-2/3 | 16 | 16 | - | - | - |
| Knot Wood Break | 466-2/3 | - | 5-1/3 | - | 218-2/3 | 173-1/3 | 56 | - | - | 13-1/3 |
| Tong Hole | 485-1/3 | - | 34-2/3 | 8 | 285-1/3 | 136 | 21-1/3 | - | - | - |
| Wavy Sawing | 565-1/3 | - | 26-2/3 | 32 | 394-2/3 | 74-2/3 | 37-1/3 | - | - | - |
| Handling Break | 37-1/3 | - | - | - | 37-1/3 | - | - | - | - | - |
| End Split (Fall.) | 93-1/3 | - | - | 8 | 42-1/3 | 37-1/3 | - | - | - | 5-1/3 |
| Crook Edge Skip | 290-2/3 | - | - | - | 192 | 77-1/3 | 21-1/3 | - | - | - |
| Saw Cut (Trim.) | 10-2/3 | - | - | - | 10-2/3 | - | - | - | - | - |
| COMB. DEG. (NAT. & MAN): | | | | | | | | | | |
| Checked Knots | - | - | - | - | - | - | - | - | - | - |
| Loose Knots | 1666-2/3 | - | - | 13-1/3 | 1432 | 221-1/3 | - | - | - | - |
| Knot Holes | 4112 | - | - | - | 1754-2/3 | 2240 | 117-1/3 | - | - | - |
| Sloughed Knots | 872 | - | 18-2/3 | 8 | 693-1/3 | 152 | - | - | - | - |
| Spike/Br. Knot Cr. | - | - | - | - | - | - | - | - | - | - |
| TOT. DEG. VOL. | 12112 | 5-1/3 | 133-1/3 | 336 | 7416 | 3728 | 392 | 10-2/3 | 32 | 58-2/3 |
| TOT. SAM. VOL. | 21966-2/3 | 18-2/3 | 309-1/3 | 376 | 12276 | 6213-1/3 | 1808 | 202-2/3 | 405-1/3 | 357-1/3 |
| % DEGRADE | 55.14 | 28.34 | 43.10 | 89.33 | 60.43 | 60.00 | 21.68 | 5.28 | 7.90 | 16.43 |

TABLE 3C
Consolidated Degrade Data - Pine, Shop & Select, 4/4 x 16 - R.W.
Sample - 42,710-2/3 Bd. Ft.

| Nature of Degrade (Principal Cause) | Bd. Ft. Total | Bd. Ft. By Grades | | | | | | | | |
|----------------------------------------|------------------|-------------------|---------|--------|---------|----|----|----------|--------|--------|
| | | C | D | 2 | 3 | 4 | 5 | F.C. | S. | M. |
| NAT. DEF. DEG.: | | | | | | | | | | |
| Shake Opening (or Show up) Total | 477-1/3 | 290-2/3 | 141-1/3 | 10-2/3 | - | - | - | 34-2/3 | - | - |
| After Kiln | 50-2/3 | 50-2/3 | - | - | - | - | - | - | - | - |
| After Planer | 426-2/3 | 240 | 141-1/3 | 10-2/3 | - | - | - | 34-2/3 | - | - |
| MFG. DEGRADE: | | | | | | | | | | |
| Thin | 90-2/3 | 32 | 34-2/3 | - | - | - | - | 24 | - | - |
| Narrow | 421-1/3 | 312 | 93-1/3 | - | - | - | - | 16 | - | - |
| Saw Torn Grain | 226-2/3 | 85-1/3 | 37-1/3 | - | - | - | - | 104 | - | - |
| Edger Hook | - | - | - | - | - | - | - | - | - | - |
| "Nigger" Break | 282-2/3 | 170-2/3 | 98-2/3 | - | - | - | - | - | - | 13-1/3 |
| Mach. Gouge (Kiln) | 16 | - | 16 | - | - | - | - | - | - | - |
| Crook | 1285-1/3 | 1173-1/3 | 112 | - | - | - | - | - | - | - |
| Twist & Bow | - | - | - | - | - | - | - | - | - | - |
| Cup | - | - | - | - | - | - | - | - | - | - |
| Roller Check | - | - | - | - | - | - | - | - | - | - |
| End Check (Kiln) | 72 | 45-1/3 | 26-2/3 | - | - | - | - | - | - | - |
| End Split (Plan) | 1517-1/3 | 1040 | 373-1/3 | 16 | - | - | - | 88 | - | - |
| Plan. Torn Grain | - | - | - | - | - | - | - | - | - | - |
| Plan. Face Snipe | 541-1/3 | 429-1/3 | 101-1/3 | - | - | - | - | 10-2/3 | - | - |
| Plan. Edge Snipe | 45-1/3 | 34-2/3 | 10-2/3 | - | - | - | - | - | - | - |
| Plan. Edge Scal. | 21-1/3 | 21-1/3 | - | - | - | - | - | - | - | - |
| Plan. Crook Hook | 16 | 16 | - | - | - | - | - | - | - | - |
| Plan. Hook Break | 32 | 5-1/3 | 26-2/3 | - | - | - | - | - | - | - |
| Plan. Break Up | - | - | - | - | - | - | - | - | - | - |
| Cracked Knots | 24 | 5-1/3 | 8 | 10-2/3 | - | - | - | - | - | - |
| Corner Break | 189-1/3 | 146-2/3 | 42-2/3 | - | - | - | - | - | - | - |
| Cross Grain Break | 437-1/3 | 173-1/3 | 162-2/3 | - | - | - | - | 77-1/3 | 5-1/3 | 18-2/3 |
| Knot Wood Break | 64 | - | 5-1/3 | - | - | - | - | 58-2/3 | - | - |
| Tong Hole | 1258-2/3 | 829-1/3 | 354-2/3 | - | - | - | - | 66-2/3 | 8 | - |
| Wavy Sawing | 3370-2/3 | 2037-1/3 | 696 | - | - | - | - | 637-1/3 | - | - |
| Handling Break | 226-2/3 | 160 | 42-2/3 | - | - | - | - | 24 | - | - |
| End Split (Fall.) | 160 | 106-2/3 | 40 | - | - | - | - | 13-1/3 | - | - |
| Crook Edge Skip | 885-1/3 | 381-1/3 | 488 | 16 | - | - | - | - | - | - |
| Kinked | 306-2/3 | 282-2/3 | 24 | - | - | - | - | - | - | - |
| Plan. Face Skip | 130-2/3 | 98-2/3 | 5-1/3 | - | - | - | - | 26-2/3 | - | - |
| Machine Burn | 42-2/3 | 26-2/3 | 16 | - | - | - | - | - | - | - |
| Face Ripple | 184 | 133-1/3 | 21-1/3 | - | - | - | - | 29-1/3 | - | - |
| Bell Hook Break | 48 | 42-2/3 | 5-1/3 | - | - | - | - | - | - | - |
| Dog Hole | 10-2/3 | 10-2/3 | - | - | - | - | - | - | - | - |
| COMB. DEG. (NAT. & MAN): | | | | | | | | | | |
| Checked Knots | - | - | - | - | - | - | - | - | - | - |
| Loose Knots (Kiln) | - | - | - | - | - | - | - | - | - | - |
| Loose Knots (Plan) | 125-1/3 | 34-2/3 | 90-2/3 | - | - | - | - | - | - | - |
| Knot Holes (Kiln) | 16 | - | 16 | - | - | - | - | - | - | - |
| Knot Holes (Plan) | - | - | - | - | - | - | - | - | - | - |
| Sloughed Knots | 266-2/3 | 125-1/3 | 109-1/3 | - | 16 | - | - | 16 | - | - |
| Spike/Br. Knot Cr. | - | - | - | - | - | - | - | - | - | - |
| TOT. DEG. VOL. | 12792 | 8250-2/3 | 3200 | 53-1/3 | 16 | - | - | 1226-2/3 | 73-1/3 | 32 |
| TOT. SAM. VOL. | 42710-2/3 | 17072 | 9956 | 528 | 234-2/3 | 96 | 24 | 12944 | 1816 | 40 |
| % DEGRADE | 29.95 | 48.33 | 32.16 | 6.82 | - | - | - | 9.48 | .74 | 80 |

TABLE 3D
Consolidated Degrade Data - Larch Select, 4/4 x 16 - R.W.
Sample - 21,975 Bd. Ft.

| Nature of Degrade (Principal Cause) | Bd. Ft. Total | Bd. Ft. By Grades | |
|----------------------------------------------|------------------|-------------------|-----------|
| | | V.G. | Select |
| <u>NATURAL DEFECT DEGRADE:</u> | | | |
| Shake Opening (or Show up) Total | 1677-2/3 | 26-2/3 | 1651 |
| Pitch Pocket Opening (Planer | - | - | - |
| <u>MANUFACTURING DEGRADE:</u> | | | |
| Thin | 61-1/3 | 5-1/3 | 56 |
| Narrow | 266-2/3 | 5-1/3 | 261-1/3 |
| Saw Torn Grain | 10-2/3 | 5-1/3 | 5-1/3 |
| Machine Burn | 16 | - | 16 |
| "Nigger" Break | 72 | - | 72 |
| Machine Gouge (Kiln) | - | - | - |
| Face Check | - | - | - |
| Crook | 18-2/3 | - | 18-2/3 |
| Beveled Edges (Planer) | 21-1/3 | 5-1/3 | 16 |
| Cup | 13-1/3 | - | 13-1/3 |
| Roller Check | 21-1/3 | - | 21-1/3 |
| End Split | 769-2/3 | 10-2/3 | 759 |
| Planer Torn Grain | 77-1/3 | - | 77-1/3 |
| Planer Face Snipe | 26-2/3 | - | 26-2/3 |
| Planer Edge Snipe | - | - | - |
| Planer Test Board (Thin) | 5-1/3 | - | 5-1/3 |
| Planer Crook Hook | 5-1/3 | 5-1/3 | - |
| Planer Hook Break | - | - | - |
| Planer Break Up | 10-2/3 | 5-1/3 | 5-1/3 |
| Bell Hook Break | 8 | - | 8 |
| Carrier Break | 13-1/3 | - | 13-1/3 |
| Cracked Knots (Round Live) | 8 | - | 8 |
| Kinked | 29-1/3 | - | 29-1/3 |
| Corner Break | 104 | - | 104 |
| Cross Grain Break | 117-1/3 | - | 117-1/3 |
| Knot Wood Break | 29-1/3 | - | 29-1/3 |
| Tong Hole | 176-2/3 | - | 176-2/3 |
| Wavy Sawing | 1026-2/3 | 10-2/3 | 1016 |
| Handling Break | 72 | 10-2/3 | 61-1/3 |
| End Split (Falling) | 37-1/3 | - | 37-1/3 |
| Crook Edge Skip | 93-1/3 | 21-1/3 | 72 |
| Saw Cut (Trimmer) | 13-1/3 | - | 13-1/3 |
| Breakage | 8 | - | 8 |
| <u>COMBINATION DEGRADE (NAT. & MAN):</u> | | | |
| Checked Knots | - | - | - |
| Loose Knots | 34-2/3 | - | 34-2/3 |
| Knot Holes | - | - | - |
| Sloughed Knots | 50-2/3 | - | 50-2/3 |
| Spike or Branch Knots | - | - | - |
| TOTAL DEGRADE VOLUME | 4896 | 112 | 4784 |
| TOTAL SAMPLE VOLUME | 21975 | 1109-1/3 | 20865-2/3 |
| % DEGRADE | 22.24 | 10.24 | 22.82 |

TABLE 3E
Consolidated Degrade Data - Pine, Shop, 5/4 x 14 & 16 - R.W.
Sample - 21,602-7/24 Bd. Ft.

| Nature of Degrade (Principal Cause) | Bd. Ft. Total | Bd. Ft. By Grades | | | | |
|----------------------------------------|------------------|-------------------|-----------|------------|------------|------------|
| | | D & Btr | Fac. C | #1 Shop | #2 Shop | #3 Shop |
| NATURAL DEFECT DEGRADE: | | | | | | |
| Shake Opening (or Show up) | | | | | | |
| Total | 78-23/24 | 25 | - | 30-5/8 | 23-1/3 | - |
| Pitch Pocket Opening | 130-5/6 | 13-1/3 | - | 60-5/6 | 30 | 26-2/3 |
| MANUFACTURING DEGRADE: | | | | | | |
| Thin | - | - | - | - | - | - |
| Narrow | - | - | - | - | - | - |
| Saw Torn Grain | 398-1/3 | 26-2/3 | 26-2/3 | 270-5/12 | 54-7/12 | 20 |
| Edger Hook | - | - | - | - | - | - |
| Edger Sweep | - | - | - | - | - | - |
| "Nigger" Break | - | - | - | - | - | - |
| Machine Gouge (Kiln) | - | - | - | - | - | - |
| Face Check | 251-1/4 | 14-7/12 | 37-1/2 | 199-1/6 | - | - |
| Crook | 23-1/3 | 14-7/12 | - | 8-3/4 | - | - |
| Twist & Bow | - | - | - | - | - | - |
| Cup | - | - | - | - | - | - |
| Roller Check | - | - | - | - | - | - |
| End Split | 95 | - | 36-2/3 | 58-1/3 | - | - |
| Planer Torn Grain | 33-1/3 | - | - | 33-1/3 | - | - |
| Planer Face Snipe | - | - | - | - | - | - |
| Planer Edge Snipe | - | - | - | - | - | - |
| Planer Edge Scallop | - | - | - | - | - | - |
| Planer Crook Hook | - | - | - | - | - | - |
| Planer Hook Break | - | - | - | - | - | - |
| Planer Break Up | - | - | - | - | - | - |
| Planer Shake Break | - | - | - | - | - | - |
| Machine Burn | 183-1/3 | - | - | 56-2/3 | 26-2/3 | - |
| Cracked Knots (Rd. Live) | - | - | - | - | - | - |
| Live Knot Break-Out | - | - | - | - | - | - |
| Corner Break | - | - | - | - | - | - |
| Cross Grain Break | - | - | - | - | - | - |
| Knot Wood Break | - | - | - | - | - | - |
| Tong Hole | 340-5/6 | 32-1/12 | 20 | 288-3/4 | - | - |
| Wavy Sawing | 274-3/8 | - | 14-7/12 | 151-2/3 | 90-5/8 | 17-1/2 |
| Handling Break | - | - | - | - | - | - |
| Face Marks (Handling) | 93-1/3 | - | 30 | 46-2/3 | 16-2/3 | - |
| Crook Edge Skip | - | - | - | - | - | - |
| Brown Stain | 385 | - | - | 167-1/2 | 217-1/2 | - |
| Breakage | 17-1/2 | - | - | 17-1/2 | - | - |
| COMB. DEGRADE (NAT. & MAN): | | | | | | |
| Checked Knots | - | - | - | - | - | - |
| Loose Knots | - | - | - | - | - | - |
| Knot Holes | - | - | - | - | - | - |
| Sloughed Knots | - | - | - | - | - | - |
| Spike or Branch Knots | - | - | - | - | - | - |
| TOTAL DEGRADE VOLUME | 2205-5/12 | 126-1/4 | 165-5/12 | 1390-5/24 | 459-3/8 | 64-1/6 |
| TOTAL SAMPLE VOLUME | 21602-7/24 | 322-1/12 | 545 | 7462-17/24 | 11483-3/4 | 1788-3/4 |
| % DEGRADE | 10.29 | 39.18 | 30.38 | 18.64 | 4.02 | 3.58 |

TABLE 4
Loss in Value/M Bd. Ft.

| Nature of Degrade | 4/4 P.Pine Heart, Com. \$ Loss/M | 4/4 P.Pine Sap, Com. \$ Loss/M | 4/4 P.Pine Select&Sh. \$ Loss/M | 4/4 Larch Select \$ Loss/M | 5/4 P.Pine Shop \$ Loss/M | Average Loss/M | Avg. Loss/M by Groups | % of Avg. Loss/M |
|---------------------------------------------|----------------------------------------|--------------------------------------|---------------------------------------|----------------------------------|---------------------------------|-------------------|--------------------------|---------------------|
| NATURAL DEFECTS: | | | | | | | | |
| Shake Opening | 55 | 92 | .87 | 5.16 | .26 | 1.55 | | |
| Pitch Pock. Open | .04 | .02 | .00 | .00 | .25 | .06 | 1.61 | 11.75 |
| SEASONING DEFECTS: | | | | | | | | |
| Face Check | .03 | .00 | .00 | .00 | .38 | .08 | | |
| Brown Stain | .00 | .00 | .00 | .00 | .61 | .12 | .20 | 1.45 |
| MANUFACTURING DEFECTS: | | | | | | | | |
| Sawmill Operation: | | | | | | | | |
| Thin | .83 | 1.31 | 6.06 | 3.37 | .36 | 2.39 | | |
| Narrow | .20 | .12 | 1.01 | .95 | .00 | .46 | | |
| Saw Torn Grain | 1.30 | .22 | .34 | .04 | .68 | .52 | | |
| Mechanical | .01 | .32 | .51 | .31 | .00 | .23 | 3.60 | 26.27 |
| Planer Operation: | | | | | | | | |
| Pl. Torn Grain | .04 | .07 | .00 | .22 | .04 | .07 | | |
| Pl. Face Snipe | .05 | .00 | .69 | .08 | .00 | .16 | | |
| Pl. Edge Snipe | .02 | .00 | .06 | .00 | .00 | .02 | | |
| Pl. Edge Scallop | .01 | .00 | .02 | .00 | .00 | .01 | | |
| Pl. Break Up | .01 | .00 | .00 | .07 | .00 | .02 | | |
| Cracked Knots, Live | .42 | 1.64 | .03 | .02 | .00 | .42 | | |
| Knot Wood Break | .30 | .68 | .09 | .09 | .00 | .23 | | |
| Beveled Edges | .00 | .00 | .00 | .08 | .00 | .02 | | |
| Pl. Test Board | .00 | .06 | .00 | .02 | .00 | .02 | | |
| Pl. Face Skip | .00 | .00 | .20 | .00 | .00 | .04 | | |
| Machine Burn | .00 | .00 | .11 | .05 | .13 | .06 | | |
| Pl. Face Ripple | .00 | .00 | .24 | .00 | .00 | .05 | | |
| Mechanical | .45 | .57 | 1.81 | 1.16 | .19 | .84 | 1.96 | 14.31 |
| COMB. MAN & SEAS. DEFECTS: | | | | | | | | |
| Crook | .55 | .14 | 1.23 | .07 | .06 | .41 | | |
| Cup | .00 | .12 | .00 | .04 | .00 | .03 | | |
| Roller Check | .12 | .53 | .00 | .06 | .00 | .14 | | |
| End Split | .52 | 1.15 | 2.79 | 2.34 | .14 | 1.39 | | |
| Pl. Crook Hook | .44 | .00 | .01 | .03 | .00 | .10 | | |
| Pl. Hook Break | .02 | .02 | .09 | .00 | .00 | .03 | | |
| Crook Edge Skip | .00 | .55 | 1.80 | .32 | .00 | .53 | 2.63 | 19.20 |
| COMB. MAN, SEAS. & NAT. DEFECTS: | | | | | | | | |
| Checked Knots | .23 | .00 | .00 | .00 | .00 | .05 | | |
| Loose Knots | 1.72 | 2.84 | .21 | .10 | .00 | .97 | | |
| Knot Holes | .93 | 4.87 | .06 | .00 | .00 | 1.15 | | |
| Sloughed Knots | .27 | 1.55 | .41 | .15 | .00 | .48 | | |
| Spike/Br. Knot Crack | .13 | .00 | .00 | .00 | .00 | .03 | 2.68 | 19.56 |
| LOGGING DAMAGE: | | | | | | | | |
| Tong Holes | .00 | .86 | 2.22 | .57 | .53 | .84 | | |
| End Split (Fall.) | .00 | .13 | .24 | .11 | .00 | .10 | .94 | 6.86 |
| YARD STORAGE: | | | | | | | | |
| Kinky Lumber | .00 | .00 | .31 | .09 | .00 | .08 | .08 | .58 |
| | 9.19 | 18.69 | 21.40 | 15.50 | 3.63 | 13.70 | 13.70 | |

Discrepancy is due to rounding off of totals.