

## STICKER COST STUDY

Presented by Washington-Idaho-Montana Kiln Club

A study of lumber stickering costs has been made by twelve members of the Washington, Idaho, Montana Kiln Club. Its purpose has been to learn how to secure the best value for the sticker investment by studying sticker types and costs versus service life.

Procedure

A uniform method was set up in conducting the study by the use of a "Sticker Cost Study" form. This form was used to determine sticker costs at different plants which had variations of material types and handling methods. A study period was set up during which sticker replacement was observed and the factors involved were assigned to their causes. The Tables No. 2, 3 and 4 show the results observed. The form used in this study is included at the end of the report. Some results have been deleted because of the small number of samples submitted. However, complete results under any specific plant condition can be secured by making a similar study.

It was necessary to establish a basic price for materials to permit an equal evaluation of the factors to be compared. The 1956 Yearly Western Pine Association Price Summary was used for an average industry F.O.B. dry lumber price for the stock reported being used for stickers. These prices were as follows:

Table 1. Costs of Producing Stickers

Lumber	Material cost per M bd. ft.	Mfg. cost of stickers/M bd. ft.	Total cost per M bd. ft.
Fir & Larch selects	\$132.00	\$25.00	\$157.00
Mixed species Common grades trims, edgings salvage, etc.	\$ 40.00	\$25.00	\$ 65.00
White Fir #5 common	\$ 35.00	\$25.00	\$ 60.00

All study mills reported their manufacturing costs. These averaged \$25/M bd. ft. of stickers made. This figure was used to standardize the evaluation because of a lack of better information. It is logical to assume that more stickers can be made per man-hour per thousand board feet of select stock than from low-grade salvage types of lumber such as edgings, mass pitch common, etc. Costs of making stickers from low-grade stock and salvage will be higher than this assumed average of \$25.00.

Costs were computed for each survey as shown in the following illustration:

Footage dried - - - - 2,960,000 bd. ft.  
 Stickers discarded = 1,515  
 1 x 1-3/4 x 9' sticker = 1.32 bd. ft.  
 Material cost \$132.00/M bd. ft.  
 Manufacturing 25.00  
 \$157.00/M bd. ft.

Sticker cost = \$.157/bd. ft. x 1.32 bd. ft./sticker  
 = \$.207 per sticker

Average bd. ft.  
 dried/sticker  
 discarded =  $\frac{2,960,000 \text{ bd. ft. dried}}{1,515 \text{ stickers discarded}} = 1,953 \text{ bd. ft.}$

Average sticker  
 cost/M bd. ft. =  $\frac{$.207 \text{ per sticker} \times 1,515 \text{ stickers discarded}}{2,960 \text{ M bd. ft.}}$   
 of lumber dried = \$.106/M bd. ft. of lumber dried

### Results

Table 2 records total and average sticker costs from the 12 studies.

Table 2. Tabulation of All Sticker Study Reports Received.

Sticker length	Total stickers discarded	Total lumber dried	Average cost per sticker	Average sticker cost/M bd. ft. of lumber dried
96" to 108"	115,717	158,727,300	0.197	0.106
40" to 54"	45,111	15,541,000	.064	.127

Table 3 shows the type of sticker damage that caused their replacement.

Table 3. Number of Stickers Discarded for Various Reasons.

Description	Warp	Split and splintered	Broken ends	Broken at center	Total discarded
As reported	874	15,547	22,827	51,209	*90,457
Per cent of total	9%	17.4%	25.2%	56.5%	100%
8' to 9' stickers Automatic sticker placement		11,852	16,773	11,891	40,506
Per cent of total		29.2%	41.4%	29.4%	100%

\*Incomplete total; reason for discarding not recorded in all studies.

Table 3. Number of Stickers Discarded for Various Reasons (Continued).

Description	Warp	Split and splintered	Broken ends	Broken at center	Total discarded
Manual sticker placement		339	398	2,869	3,666
Per cent of total		10.9%	10.8%	78.3%	100%

Note that greatest sticker breakage in automatic sticker laying machines was at the ends of the stickers. This is common, due to difficulties in the mechanical tripping devices. Manual sticker laying broke more stickers in the middle. This can be explained by the dropping of heavy boards in hand piling.

Table 4. Analysis of Sticker Cost Study.

Comparative factors	Average cost of each sticker	Av. bd. ft. dried/sticker discarded	Av. sticker cost/M bd. ft. of lbr. dried
I. Long stickers (8'-9' long)			
A: Select grades (Fir & larch)	\$0.224	2,212	\$0.102
Common grades (Edgings, pitch, etc.)	.129	1,073	.115
B: Thickness (Over 1")	.260	2,942	.090
Thickness (Under 1")	.186	1,710	.110
C: Hand sticker laying	.208	1,763	.123
Automatic           "	.192	1,935	.099
D: Unstacking, manual	.240	2,281	.106
Unstacking, automatic	.189	1,821	.106
II. Short sticker (40"-54" long)			
A: Select grades (pitchy)	.081	1,200	.067
Common grades (#5, Common, salvage, trims, etc.)	.035	583	.203
Width 2" to 4" (all grades, mixed species)	.085	3,860	.025
Width 1 1/4" to 2" (all grades, mixed species)	.052	583	.203
C: Hand sticker laying	.064	1,894	.131
Automatic           "		none reported	
D: Hand unstacking		none reported	
Automatic unstacking	.050	583	.203

### Conclusions

Table 4 compares several factors. Long and short stickers are reported separately.

1. I-A, Select grades appear enough better than common grades to warrant their use in spite of greater material costs. Although average sticker

costs per M bd. ft. of lumber dried appear to be only slightly higher, the down time incurred by the greater breakage rate would logically favor the use of material selected for optimum service (select grade). Loss by crook and twist in the low-grade stickers is not nearly so serious as breakage due to cross grain.

2. I-B, thicker stickers give longer service life and cost less in the long run.
3. I-C, I-D, sticker costs per M bd. ft. of lumber dried are nearly the same with automatic compared to manual stickering, both in stacking and unstacking procedures.

Part II evaluates comparable factors for short stickers:

4. II-A, select grades are again the better value over common types.
5. II-B, wide stickers increase sticker life and thus reduce the cost per M bd. ft. of lumber dried.
6. II-C, II-D, data are lacking for comparison of Automatic and Manual sticker laying with short stickers.

These studies have made a good start in pointing out the problems involved in determining sticker costs. They are not necessarily the final answer. There is need for comparative values of different species as a source of sticker material. Some species appear to be definitely superior but proof of longer life must be checked against costs. The investment in stickers is generally very large in most seasoning operations. For this reason a similar study at your own plant should prove very worthwhile. It would give complete results under any specific condition, and would show your own plant costs.

#### ACKNOWLEDGMENT

The Washington-Idaho-Montana Dry Kiln Club has made this study in cooperation with the Western Pine Association.

STICKER COST STUDY FORM USED BY ALL MILLS

- 1. Study period - months \_\_\_\_\_ days \_\_\_\_\_ Mill \_\_\_\_\_  
 Kiln foreman \_\_\_\_\_
- 2. Footage dried during study period \_\_\_\_\_ M
- 3. Stickers discarded during study period \_\_\_\_\_ pcs.
- 4. Footage per sticker discarded (#2 + #3) \_\_\_\_\_ M'
- 5. Sticker cost each \_\_\_\_\_
- 6. Sticker cost per M' dried (#3 x #5 + M' dried) \_\_\_\_\_

STICKER MATERIAL

Source	Grade	Cost per M	Species
Thick stock gang ripped	_____	_____	_____
Rough stock	_____	_____	_____
Surfaced	_____	_____	_____
Edgings	_____	_____	_____
Other	_____	_____	_____

OTHER STICKER DATA

Exact dimensions \_\_\_\_\_ Vertical grain \_\_\_\_\_ Flat grain \_\_\_\_\_

PILING METHOD

Unit package \_\_\_\_\_ Solid crib \_\_\_\_\_  
 Stacking (hand) \_\_\_\_\_ (Auto) \_\_\_\_\_  
 Unstacking (hand) \_\_\_\_\_ (Auto) \_\_\_\_\_  
 Sticker laying (hand) \_\_\_\_\_ (Machine) \_\_\_\_\_

STICKER TALLY

Species	Number Discarded for Following Reasons					Total Number Discarded
	Thickness variation	Warp	Split or splintered	Broken		
				Ends	Middle	
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

COMMENTS

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