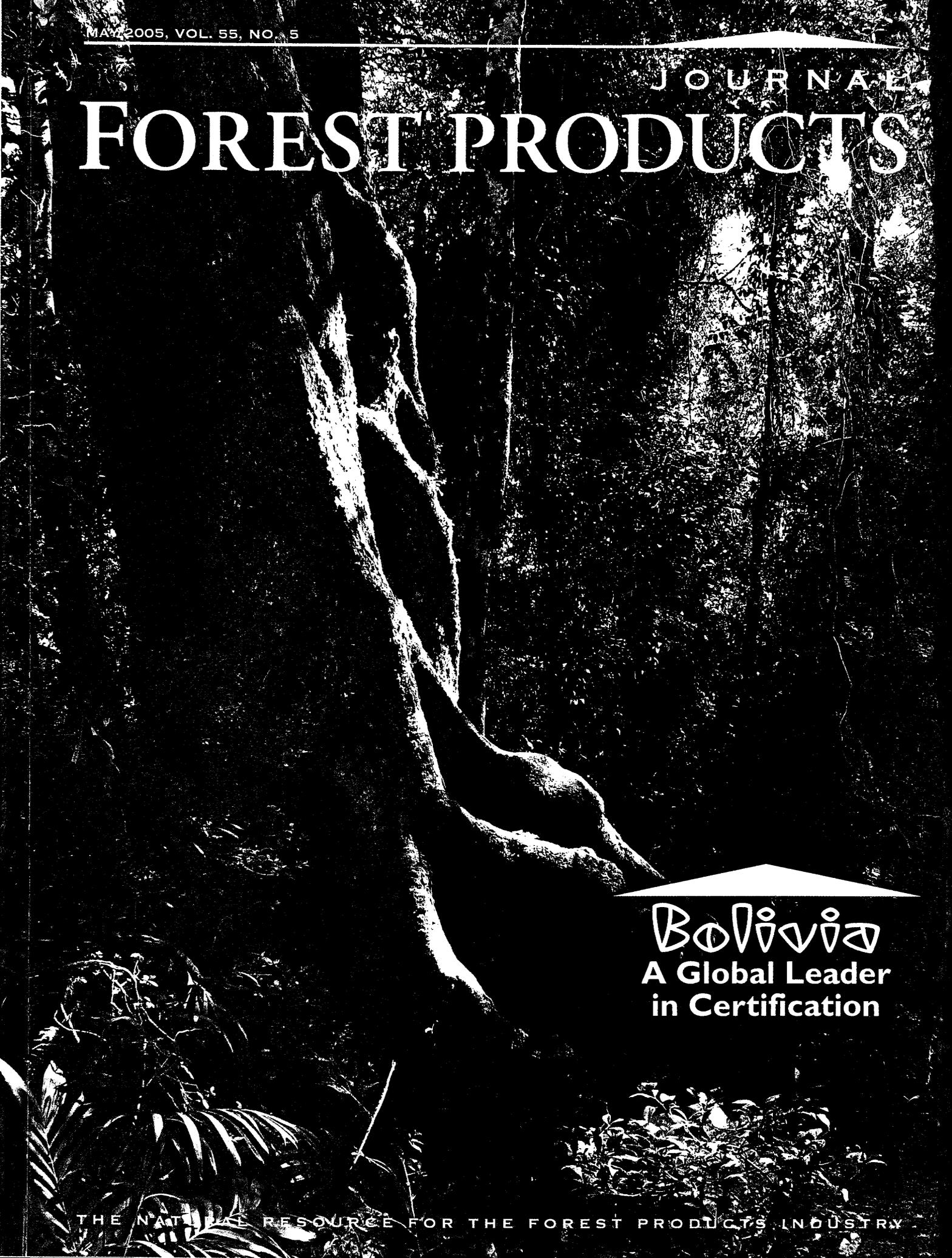


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How does species name affect consumer choice? An analysis and implications for cabinet door marketers

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Abstract

Consumers choose products based on various tangible and intangible attributes. Previous research has shown that there is a difference between appearance-based and word-based evaluations of wood species. However, little research has been done on how this difference affects consumer choice. This study examined how the presence or absence of a species name affects a cabinet door's popularity in the Pacific Northwest (including Alaska). The results showed significant differences between appearance-based and species name-based preferences for cabinet doors. For example, respondents chose cherry and red oak cabinet doors more often when the doors were labeled with the species name than when they were not labeled. In contrast, red alder was chosen less often when the doors were labeled with the species name. This suggests that certain species names should be emphasized in cabinet door marketing while others should be avoided. Age and income demographic segments are analyzed and managerial implications are discussed.

The U.S. cabinet door industry is an integral part of the total forest products industry. It is estimated that the U.S. cabinet door industry consumed 484 MMBF of lumber and employed 125,000 people in 1999 (Olah et al. 2003). In this era of globalization, it is essential for North American firms to understand the dynamics of cabinet door consumer behavior in order to remain competitive.

Consumers purchase forest products based on a bundle of product attributes. These include both tangible product attributes and non-tangible attributes such as service, reputation, and sales person assistance (Sinclair 1992). One important non-tangible attribute that has been identified in the marketing literature is

ambience (Betancourt and Gautschi 1990). Consumers seek out products that evoke certain feelings, and this has important marketing implications for forest products. Wood characteristics such as texture, knots, and coloration affect the consumer's attitude towards the wood (Broman 1995). Certain species have been linked to various ambiances. For

example, Fell (2003) found that red oak has a classic ambience, sugar maple a modern ambience, and birch a warm ambience. However, a study by Bumgardner and Bowe (2002) found that relatively few consumers could identify wood species visually and, therefore, rely on species names for cues when purchasing wood products. Furthermore, this study showed that respondent's name-based evaluations of species often differed from their species appearance-based evaluations. For example, when asked to describe "oak" based solely on their preconceived perceptions of species name, respondents used terms such as formal, warm, expensive, and stately. In contrast, when asked to describe oak based solely on visual characteristics, respondents used terms such as casual, cold, inexpensive, and modest.

With certain cabinet doors, these preconceived perceptions have been shown to translate into an increased or decreased willingness to pay (Nicholls et al. 2004). While previous literature has identified a disparity between preconceived perceptions and visual percep-

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Table 1. — Favorite cabinet door: species name versus no-name exposure.^a

Species	Category	n	Mean	Percent change	t-test
			(%)	(no name to name) (%)	
Cherry	Name	114	23.8	47	3.00**
	No name	84	16.2		
Maple	Name	105	21.9	-12	-1.06
	No name	128	24.8		
Red alder heavy stain	Name	68	14.2	-25	-1.94*
	No name	97	18.8		
Red oak	Name	62	12.9	72	2.83**
	No name	39	7.5		
Hickory	Name	55	11.5	-13	-0.80
	No name	68	13.2		
Red alder moderate stain	Name	42	8.8	-21	-1.29
	No name	58	11.2		
Red alder unstained	Name	33	6.9	-13	-0.63
	No name	41	7.9		

** = significant at the 0.05 level; * = significant at the 0.01 level.

tions of species and how this affects willingness to pay, no empirical research has been done on how this gap affects consumer cabinet door preferences. The purpose of this research was to examine how the presence or absence of various species names can affect a cabinet door's potential market share.

Data collection

A survey was administered to home-show attendees in Anchorage, Alaska, and Seattle, Washington, during September and October 2002. Respondents were asked to select their favorite cabinet door from a group of seven doors: cherry, maple, red oak, hickory, red alder with no stain, red alder with a moderate stain, and red alder with a heavy stain. Demographic data on age, income, gender, and state residency were also collected.

All cabinets were made from clear lumber, free of knots or other character markings, and cabinet dimensions were chosen to reflect the sizes that consumers would likely purchase for their kitchens. Three of the sample doors were constructed from red alder, with varying levels of stain, to determine if the effect of introducing species name was consistent across different finishes (heavy stain, moderate stain, or unstained). The remaining four doors were constructed from hickory, red oak, maple, and cherry, and were all unstained.

To empirically measure reactions to species name, two independent sample groups were drawn from the same home-show sample frame and shown the cabi-

net doors: control sample (no species name provided); treatment sample (species name provided).

The control sample was shown the cabinet doors and asked to choose their favorite cabinet door without being given any species name information. The treatment sample was shown the cabinet doors labeled with the species names and asked to choose their favorite cabinet door. The surveys were distributed in groups of 50 and then rotated to assure ample representation in both the control and treatment samples for different times and days of the show.

Methodology

Four methods were employed for the data analysis. First, a Chi-square test was used to check for independence between the name exposure and no-name exposure sample proportions. Second, independent sample t-tests were used to measure significant differences between the mean percentages of times a given cabinet door was chosen in the species name exposure and the no species name exposure samples. Third, analysis of variance (ANOVA) with a Tukey post hoc test was used to compare the variance in these proportions across age and income brackets. Fourth, logistic regression was used to measure the significance, sign, and magnitude of age, income, and gender (coded as 1 = male, 0 = female) as predictor variables for the dependent variable of choosing (coded as 1) or not choosing (coded as 0) a given cabinet door. One regression model was fitted

for each of the control and treatment samples across 7 cabinet doors for a total of 14 models.

Results

The overall percentage of respondents that chose a given cabinet door as their favorite varied from 7 to 25 percent (Table 1). A Chi-square test was performed on species name by exposure (name versus no name) and the results were significant at the $\alpha = 0.01$ level (Chi-square = 21, $df = 6$). It is interesting to note that when consumers were shown the species name, the ranking of the three most popular cabinets changed from:

- 1) maple
- 2) heavy stained red alder
- 3) cherry

to:

- 1) cherry
- 2) maple
- 3) heavy stained red alder

Several of the cabinet doors showed significant differences between the name exposure and no-name exposure regimes. For example, red oak increased in popularity from 7.5 to 12.9 percent (72% increase), and cherry increased from 16.2 to 23.8 percent (47% increase). In contrast, heavy stained red alder decreased in popularity from 18.8 to 14.2 percent (25% decrease).

As explained earlier, there were three red alder cabinet doors with three different finishes. The analysis showed a correlation between the darkness of the finish and the popularity of the cabinet door, with the dark stain being the most popular (Fig. 1). This result was consistent in both the name exposure and no-name exposure samples.

Regional demographics

Census data for Anchorage and Seattle were compared to the sample demographics for the respective cities (www.census.gov). In both cities, the sample had a higher age and mean household income than the general population (Table 2). However, the target sample was homeowners, and the higher age and income of the sample group reflects that homeowners are generally older and more affluent than the general population.

There were significant differences in the proportion of species chosen as favorite cabinet door between Seattle and Anchorage for maple, hickory, and red alder with a heavy stain (Table 3). In Seattle, red alder with a heavy stain tied

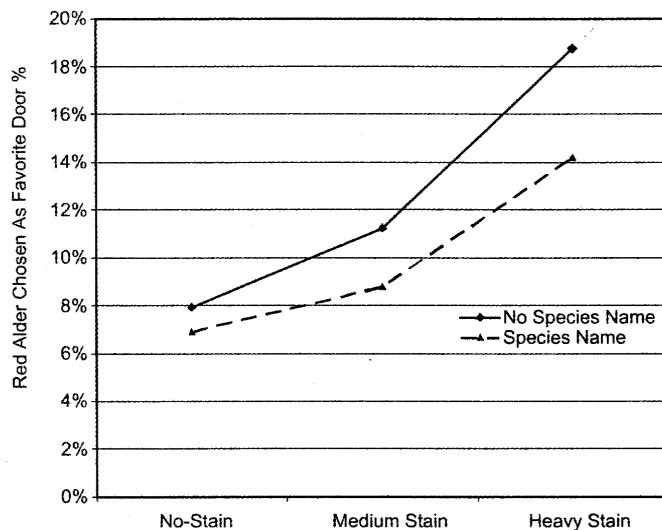


Figure 1. — Popularity of red alder by stain level.

Table 3. — Location by favorite cabinet door.^a

	Total	Seattle	Anchorage	t-test
	----- (%) -----			
Maple	23.4	21.0	27.2	-2.30*
Red alder heavy stain	16.6	20.8	10.0	4.60**
Cherry	19.9	20.5	18.9	0.61
Hickory	12.4	10.3	15.5	-2.40*
Red oak	10.1	9.5	11.1	-0.83
Red alder moderate stain	10.0	9.8	10.4	-0.26
Red alder unstained	7.4	8.0	6.5	0.91

^a = significant at the 0.05 level; ** = significant at the 0.01 level

Table 4. — ANOVA analysis of mean household income by favorite cabinet door (no-name exposure).^a

Species	n	Mean income (\$)
Red alder unstained	32	99,444 AB
Red alder heavy stain	63	86,222
Red alder moderate stain	40	85,784
Cherry	101	81,133
Red oak	60	75,270
Hickory	50	74,500 A
Maple	96	72,583 B

^a n = 442; F = 4.12; p = 0.00; species sharing the same letter showed significant differences at p = 0.05 level using a Tukey HSD post hoc test.

with maple as the most popular door. In contrast, the Anchorage market showed a higher preference for maple and hickory. Cherry was strong in both markets. Specific results unique to each species are discussed in the following sections.

Unstained red alder

The segment that chose unstained red alder in the no species name regime dis-

tinguished itself as having the highest mean income of \$99,444 (Table 4). The logistic regression coefficients showed a significant positive correlation between choosing unstained red alder and income when respondents did not know the species name (Table 5). However, this relationship disappeared when respondents were shown that the cabinet door was red alder.

Hickory

Hickory was significantly more popular in Anchorage than Seattle (Table 3). For respondents selecting hickory as their favorite cabinet door, the name exposure regime had significantly higher mean income and age than the no name exposure regime (Figs. 2 and 3). Income differences were measured controlling for age and income remained significant. Hickory distinguished itself from other species as having the highest mean age in the name exposure regime (Table 6).

Age was the most important predictor variable for the species name "hickory"

Table 2. — Mean household income and age of respondents.

	Seattle n = 610	Anchorage n = 386
Sample age (yr.)	47.4	46.9
Census age (yr.)	35.9	32.7
Sample income (\$)	86,628	77,729
Census income (\$)	61,580	69,711

in the name exposure logistic regression model (Table 5). There was a significant positive correlation between choosing hickory and age when species name was known. However, this relationship was not maintained when respondents based their choice on visual appearance only. Overall, the results showed that the name "hickory" appeals to older higher income market segments.

Maple

The sample segment that preferred maple showed significant differences in mean income between the name exposure and no name exposure regimes (Fig. 2). Higher income segments chose maple more often when the species name was identified. Maple was the lightest shade cabinet door and the number one choice for the Anchorage sample in the no-name exposure regime. This may reflect a preference for lighter shades in Alaska kitchens to offset the dark winters. There was a significant negative correlation between choosing maple and income level in the no-name exposure logistic regression equation. Overall, the higher income market segment did not like the appearance of maple until they found out it was "maple." Thus, the mean income for respondents that chose maple increased from the second lowest position of \$72,583 to the second highest position of \$89,896 when the cabinet door was labeled. This is an excellent illustration of how using a species name as part of a marketing strategy could be used to attract a higher income segment.

Heavy stained red alder (dark finish)

Heavy stained red alder was chosen as the favorite cabinet door twice as often in Seattle as Anchorage (Table 3). It is interesting to note that red alder Seattle/Anchorage differences were only significant in the heavy stained category and not in the moderate and unstained categories. This effect may be the inverse of the strong maple preference in Anchorage. That is, Anchorage may

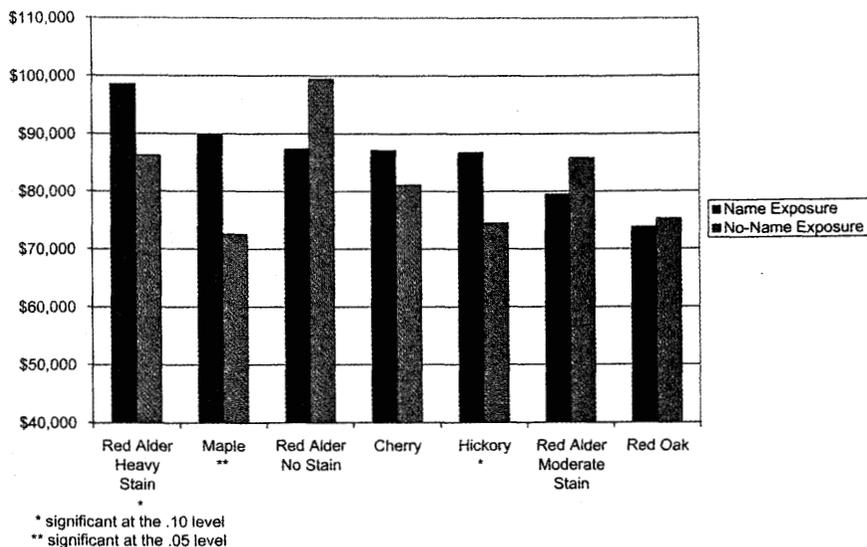


Figure 2. — Mean income by favorite cabinet door.

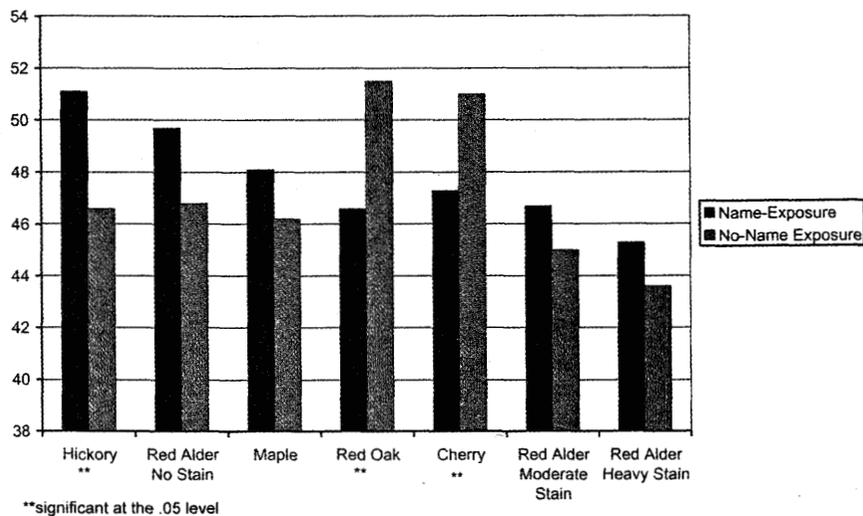


Figure 3. — Mean age by favorite cabinet door.

avoid darker shades in kitchens where winters are dark. Heavy stained red alder had a significant negative species name effect indicating that respondents chose red alder more often when they based their choice on appearance alone rather than appearance combined with species name (Table 1). The name exposure regime had a significantly higher mean income than the no name exposure regime (Fig. 2). It appears that higher income groups are more familiar with red alder and the name red alder may have a “high-class” appeal. This phenomenon was especially strong in the Seattle market. There was a significant negative cor-

relation between choosing heavy stained red alder and age when respondents did not know the species name. This relationship disappeared when respondents were exposed to the species name. One of the most interesting results was that heavy stained red alder was positively correlated with income in both the species name exposure and no name exposure regimes (Table 5). Red alder with a darker stain was popular among higher income respondents in both the name exposure and no name exposure regimes. Additionally, the appearance appealed to the youngest market segment (Tables 6 and 7).

Red oak

Red oak distinguished itself as having the largest percentage increase from the no name category to the name category. Attaching the name “red oak” to this cabinet door increased the percentage of times it was chosen as favorite by 72 percent, from 7.5 to 12.9 percent (Table 1). This indicates that the name “red oak” had a strong positive influence on respondent’s cabinet door choice. There was a significant mean age difference between the two regimes, with the name exposure regime being almost 5 years younger. This result showed that while the appearance of red oak was popular with the older market segment, the name “red oak” appealed to the younger market segment. The logistic regression results showed a negative correlation between red oak and income in the name exposure regime, indicating that the lower income spectrum of the sample preferred the species name “red oak” (Table 5). Red oak also had the lowest mean income of \$73,833 in the name exposure regime (Table 8). It appears that the sample lower income segments preferred the species name “red oak” while the higher income segments preferred “red alder.”

Moderate stained red alder (medium finish)

Red alder with a moderate stain was the only cabinet door that had significant differences between male and female respondents. Fourteen percent of the female respondents selected this cabinet door as their favorite while only 8 percent of the male respondents selected it. The logistic regression models showed that this result was more pronounced when respondents did not know the species name (Table 5). The gender variable was coded as 1 for males and 0 for females so the negative significant coefficient for red alder moderate stain (no name exposure) indicates that male respondents are less likely to choose this cabinet than female respondents. This cabinet door had the second youngest age ranking behind dark stained red alder in both regimes (Tables 6 and 7). There was no significant mean income difference between the two regimes.

Cherry

Cherry had the second largest percentage increase going from the no-name exposure regime to the name exposure regime. Attaching the name

Table 5. — Logistic regression results.^a

Species	Variable	Name exposure coefficient	No-name exposure coefficient
Red alder (unstained)	Age	0.248	0.093
	Income	0.063	0.323***
	Gender	-0.106	0.419
Hickory	Age	0.318**	-0.022
	Income	0.013	-0.099
	Gender	-0.004	-0.316
Maple	Age	0.046	-0.051
	Income	0.061	-0.195***
	Gender	-0.343	-0.019
Red alder (heavy stain)	Age	-0.294**	-0.273***
	Income	0.258***	0.143*
	Gender	0.155	0.146
Red oak	Age	-0.118	0.344**
	Income	-0.342***	-0.115
	Gender	0.253	0.273
Red alder (moderate stain)	Age	-0.071	-0.122
	Income	-0.160	0.124
	Gender	-0.356	-0.521*
Cherry	Age	-0.013	0.308***
	Income	0.021	0.015
	Gender	0.364	0.110

^a Dependent variable = door being chosen or not chosen; gender code: 0 = female, 1 = male; * = significant at the 0.10 level; ** = significant at the 0.05 level; *** = significant at the 0.01 level.

“cherry” to the cabinet door increased its popularity by 47 percent (Table 1). Another unique result for cherry was its correlation with age (Table 5). There was a significant positive correlation between the choice of cherry and the age of the respondents when they did not know the cabinet door was cherry. Additionally, the mean age of respondents for the no-name regime was significantly lower than that of the name exposure regime, with mean values of 51 and 47.3, respectively. It appears that the older market segment prefers the darker tones when they do not know the species name. However, this effect is erased when exposed to the species name.

Conclusions

This research examined the difference between appearance-based and species name-based cabinet door preferences. The results are consistent with previous work showing that there is often a disparity between appearance-based and name-based evaluations of wood (Bum-

gardner and Bowe 2002). Furthermore, this study has extended previous research by demonstrating that certain species names can increase a cabinet door’s popularity while other species names can reduce it. Study results allow us to draw three general conclusions.

First, the effect of species name on consumer preferences varies depending on the species. For example, the species names red oak and cherry positively influenced respondent preferences, suggesting that species name should be emphasized when marketing red oak and cherry cabinet doors. Some firms have leveraged the positive associations of certain species to market lesser known species. Two notable examples are “heritage cherry” (birch) and “Brazilian cherry” (jatoba).

In contrast to cherry and red oak, we found that the species name red alder had a negative effect on respondent preferences. However, respondents reacted favorably to the appearance of red alder

Table 6. — ANOVA analysis of mean age by favorite cabinet door (name exposure).^a

Species	n	Mean age
Hickory	54	51.1
Red alder unstained	33	49.7
Maple	105	48.1
Red oak	62	46.6
Cherry	114	47.3
Red alder moderate stain	42	46.7
Red alder heavy stain	68	45.3

^a n = 478; F = 1.71; p = 0.116; no pair of species showed significant differences at p = 0.05 level using a Tukey HSD post hoc test.

Table 7. — ANOVA analysis of mean age by favorite cabinet door (no-name exposure).^a

Species	n	Mean age
Red oak	39	51.5 A
Cherry	84	51.0 BCD
Red alder unstained	41	46.8
Hickory	68	46.6
Maple	128	46.2 B
Red alder moderate stain	58	45.0 D
Red alder heavy stain	97	43.6 AC

^a n = 515; F = 4.12; p = 0.00; species sharing the same letter showed significant differences at p = 0.05 level using a Tukey HSD post hoc test.

with a heavy stain when they did not know the species name. Thus, red alder cabinet door marketing strategy should focus on appearance and other attributes without emphasizing the name red alder (with the exception of higher income respondents as described below).

The second conclusion is that a respondent’s income affects how he or she reacts to species name. The mean income of respondents that chose red alder with a heavy stain, maple, and hickory all increased when species name was known. Red alder with a heavy stain was especially interesting because, even though labeling the cabinet door as red alder decreased its popularity overall, it increased its popularity among higher income respondents. This suggests that the name red alder, when combined with a heavy stain, has an ambience that appeals to higher income consumers. This result was more pronounced in Seattle than Anchorage.

The third conclusion is that a respondent’s age affects how he or she reacts to species name (Fig. 3). For example, the mean age of respondents who preferred

Table 8. — ANOVA analysis of mean household income by favorite cabinet door (name exposure).^a

Species	n	Mean income (\$)
Red alder heavy stain	63	98,587 A
Maple	96	89,896
Red alder unstained	32	87,375
Cherry	101	87,139
Hickory	50	86,800
Red alder moderate stain	40	79,500
Red oak	60	73,833 A

^a n = 442; F = 2.25; p = 0.037; species sharing the same letter showed significant differences at p = 0.05 level using a Tukey HSD post hoc test.

red oak and cherry, when species name was known, was lower than for respondents who preferred red oak and cherry when species name was not known. This suggests that the species names red oak and cherry could be used to target relatively younger market segments. In contrast, the mean age of respondents who

preferred hickory, when species name was known, was higher than for respondents who preferred hickory when species name was not known. This indicates that the name hickory should be emphasized in marketing campaigns targeting older demographic segments.

There were several limitations to this research that open up possibilities for future research. First, the sample data were collected in Anchorage and Seattle and it is expected that the results would vary in different regions. Second, the sample groups were limited to five different species for their cabinet door choice and other species were not examined. Third, the stain levels were varied only with red alder and we were not able to examine how varying stain levels would affect other cabinet doors. Finally, this research was limited to cabinet doors. The results of this study have implications relevant to other forest products including flooring, moulding, and millwork. Future research could extend this study by focusing on how species

name affects consumer choice for different forest products in various regions.

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