

# Market Evaluation of Wood-Plastic Playground & Building Components

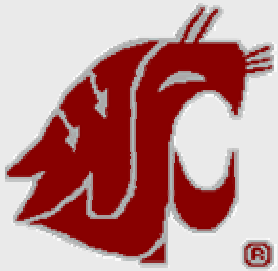
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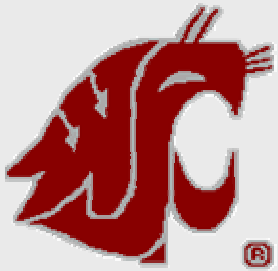
Forest Product Dept., Univ. of Idaho





# Outline

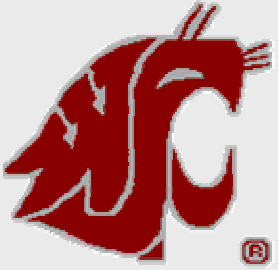
- Current & Potential WPC Markets
- Surveys Conducted
  - ✓ Parks & Rec. Officials - Playground Equipment
  - ✓ Roofing Contractors - Roofing Materials
- Survey Findings



# WPC Market

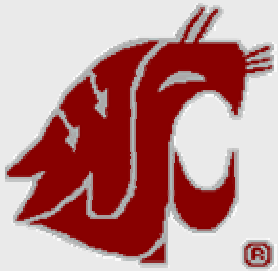
- 2002 - ~\$775 million market
- Average growth of 25% per year since 1998
- Penetrated less than 5% of the potential market

Source: Morton, Quarmley, and Rossi. 2003. The 7<sup>th</sup> Intl. Conf. on Woodfiber-Plastic Composites, Madison, WI



# North American WPC Market

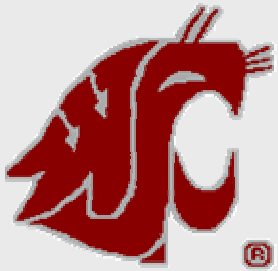
- Building products accounted for over 80% of the WPC market
  - ✓ Decking (53% of the total volume)
  - ✓ Railing Systems
  - ✓ Window & Door Profiles
  
- Short term growth - 20% per yr.



# Projected Growth

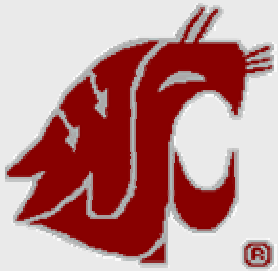
- Demand is projected to increase 290% by 2010
- Annual growth rate of 14% for next 8 years
- Banning of CCA treated wood for use in
  - ✓ Decks
  - ✓ Picnic tables, Benches
  - ✓ Residential fencing
  - ✓ Landscape timber
  - ✓ Patios
  - ✓ Gazebos & walkways
  - ✓ Playground Equipment





## James Morton - Principia Partners, WPC Conference, Madison, WI, 2003

- Look beyond decking/railing for growth
  - ✓ Market share in decking is projected to reach 25%+
  - ✓ New applications must be developed/commercialized to sustain growth
  
- New composite formulations needed
  - ✓ To expand range of applications
  - ✓ Additives to enhance composite performance

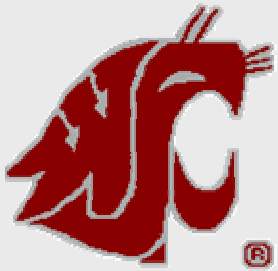


# Playground Equipment

- Plastic Lumber  
(Recycled - Post  
Consumer HDPE &  
LDPE)



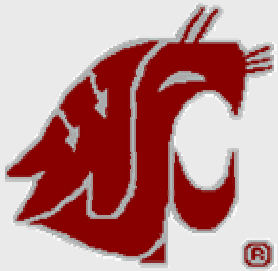
Source: <http://www.state.ma.us/osd/enviro/products/lumber.htm>



# Roofing Market

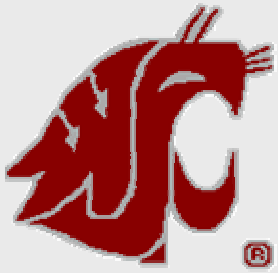
- 235 million squares US roofing industry
- Projected to expand by 1.8% per year through 2007
- Expected to reach \$11 billion in 2007

Source: Freedonia Group, Cleveland, OH



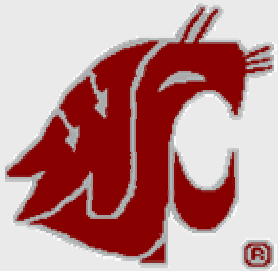
## Surveys Conducted

- Parks & Recreation Officials
- Roofing Contractors
- Pacific Northwest Region
  - ✓ WA
  - ✓ OR
  - ✓ CA
- By mail



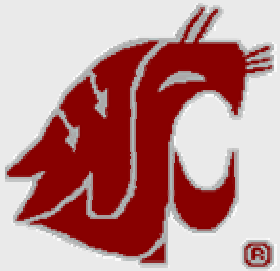
# Survey Objectives

- Understand
  - ✓ market characteristics
  - ✓ consumer acceptance of new & existing products
  - ✓ buyer perceptions & preferences
  - ✓ required product attributes
  - ✓ channels of distribution

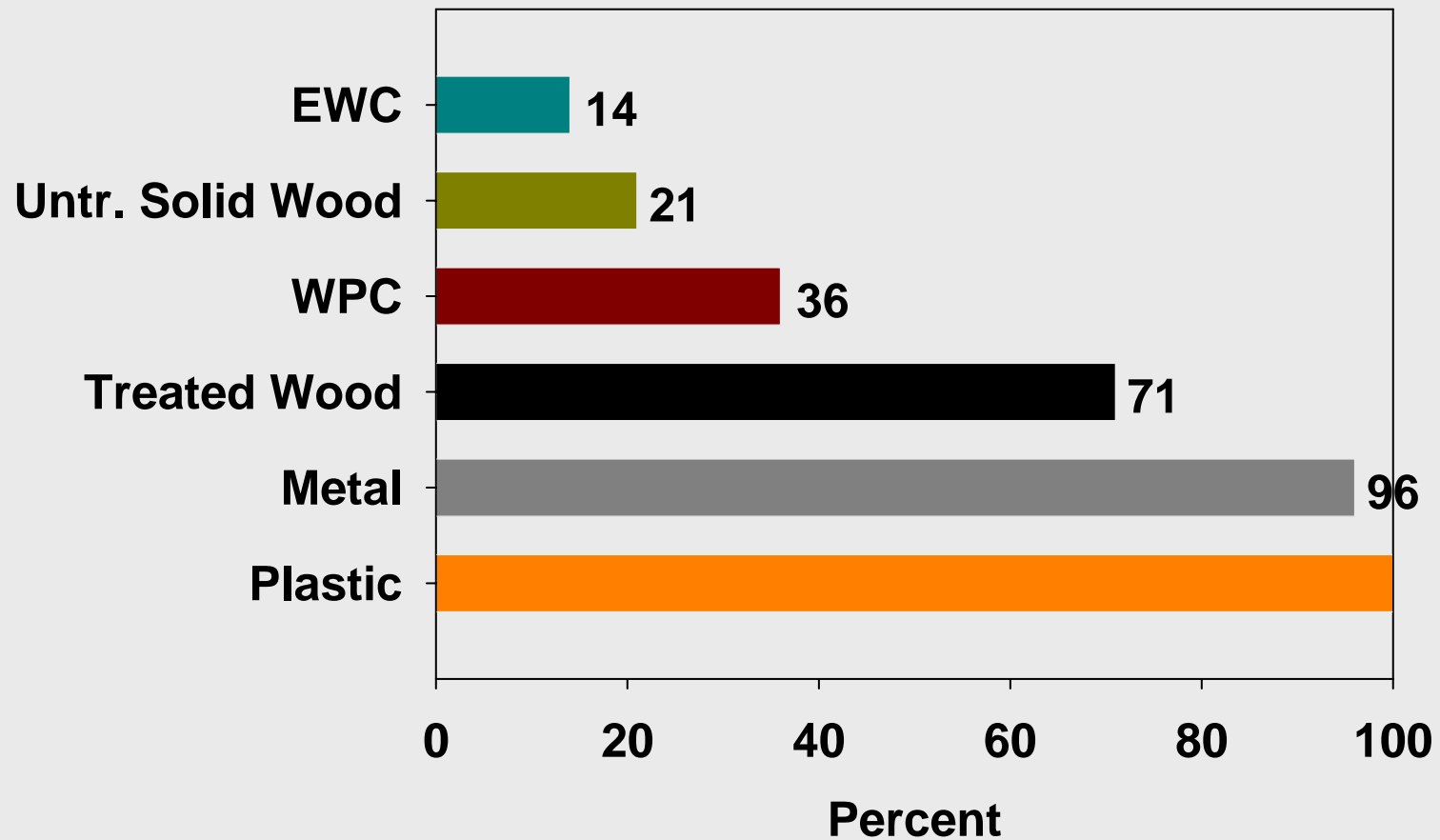


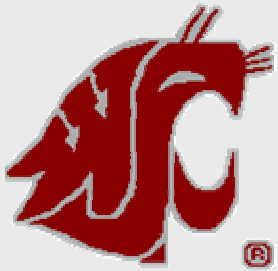
# Playground Equipment

- Parks & Recreation Officials
  - ✓ 75 surveys sent out
  - ✓ 37% Returns Rate
  
- Sample Characteristics
  - ✓ City and County level
  - ✓ 68% managed 10 or more parks
  - ✓ All have purchasing authority

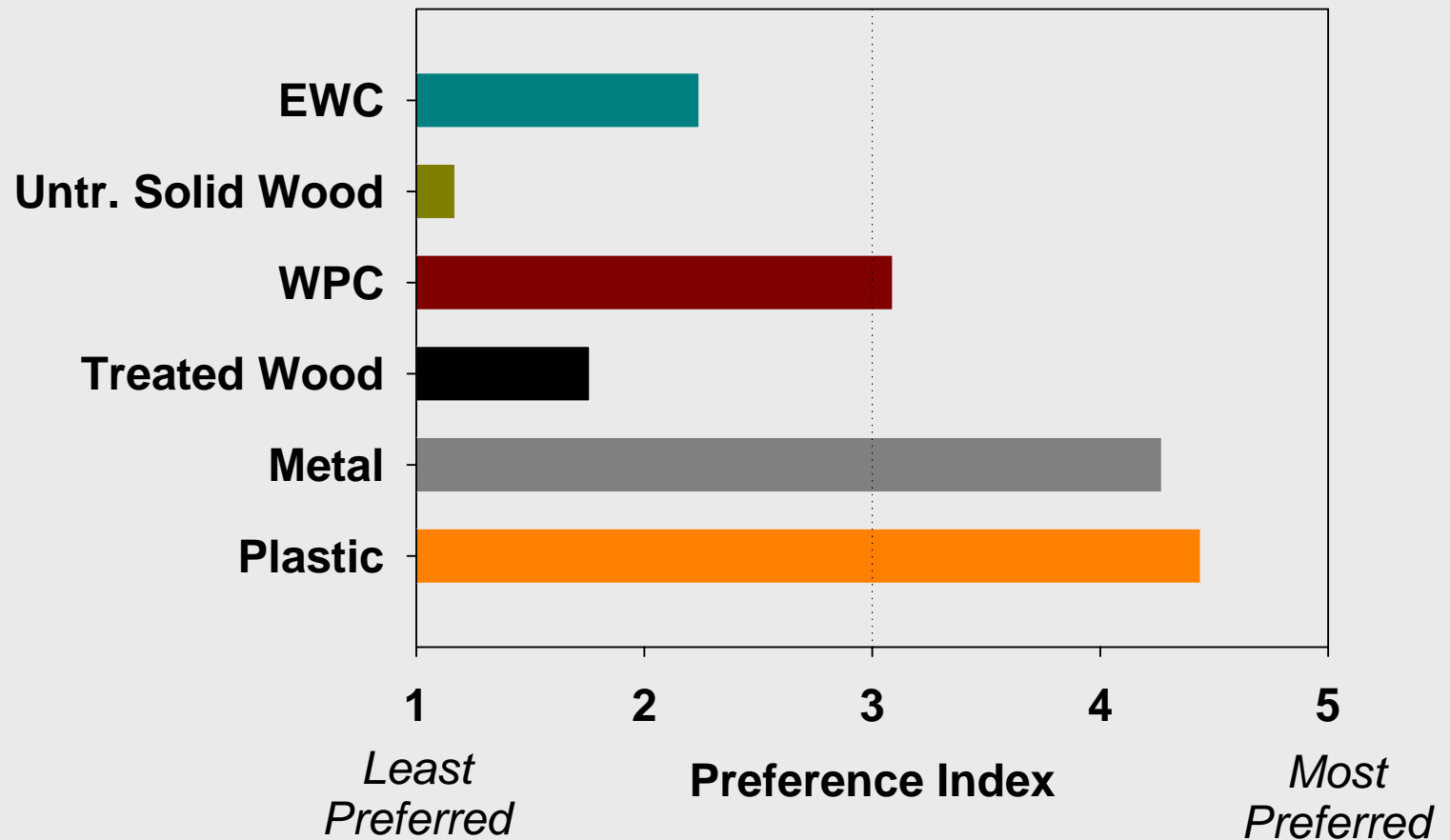


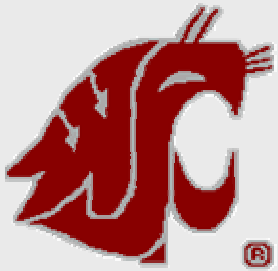
# Currently Used Materials



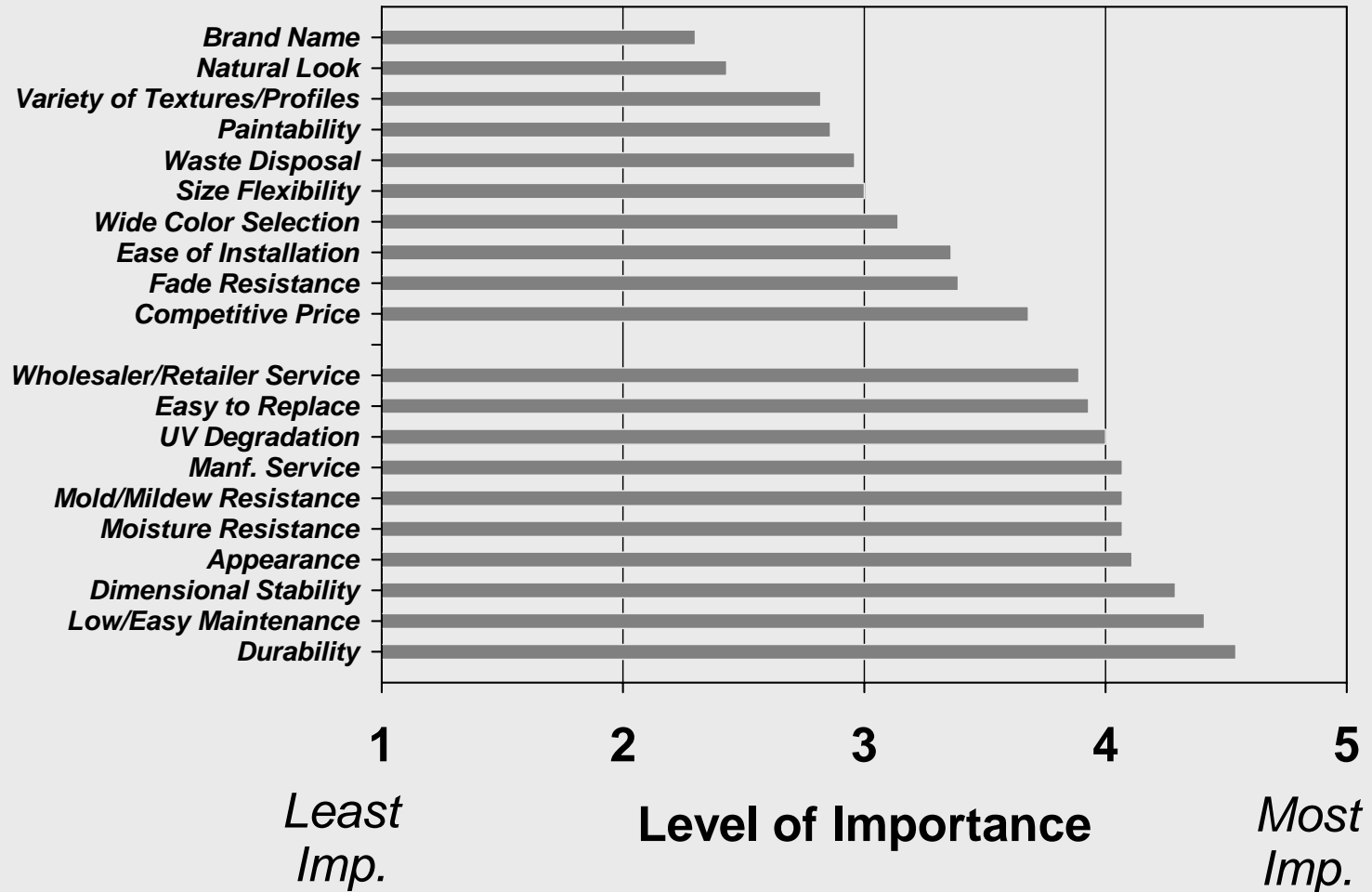


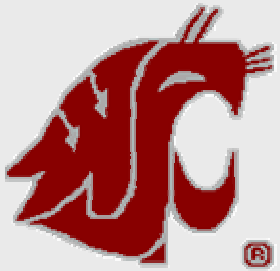
# Preference of Material



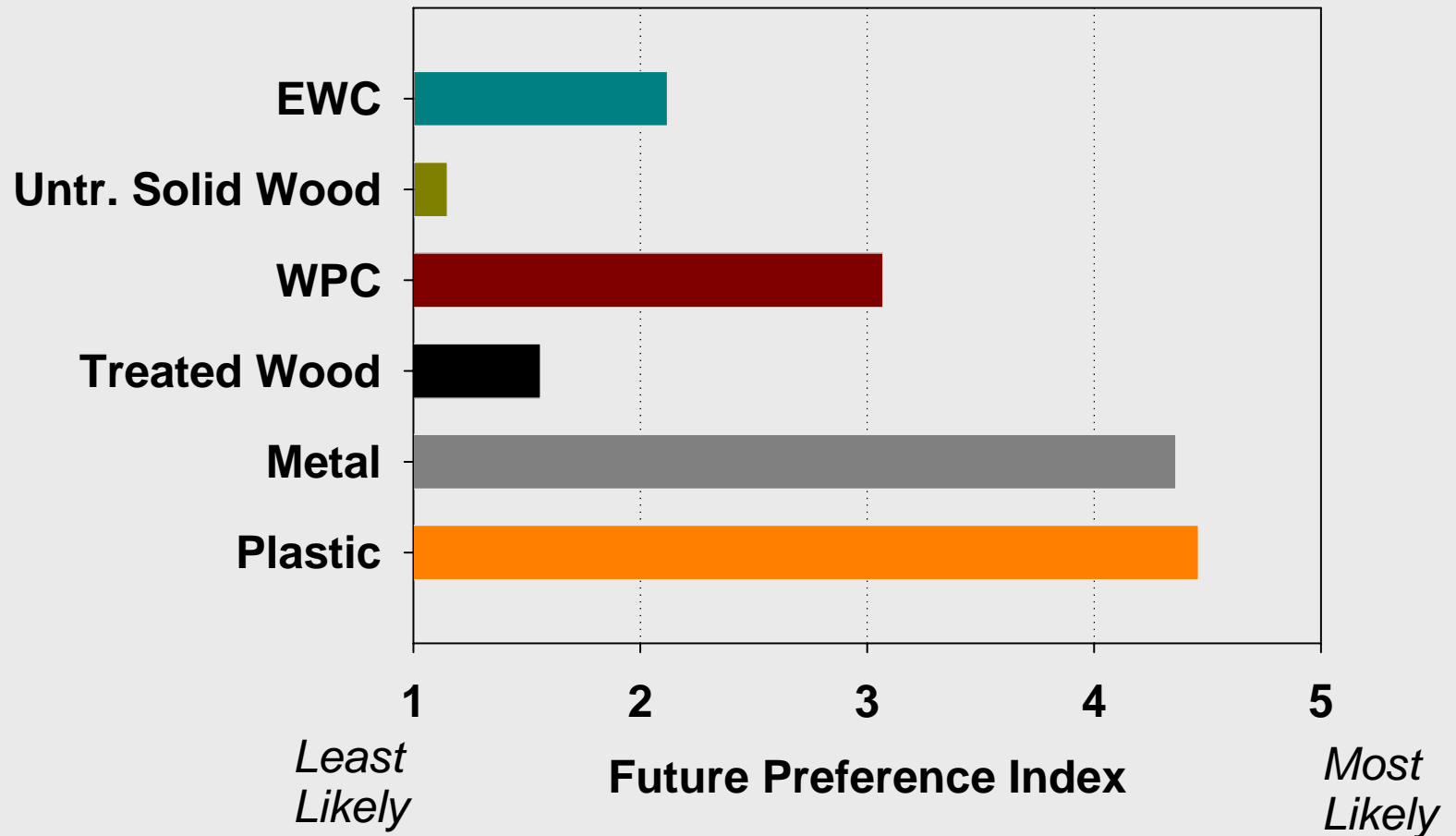


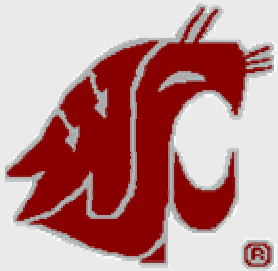
# Importance of Attributes



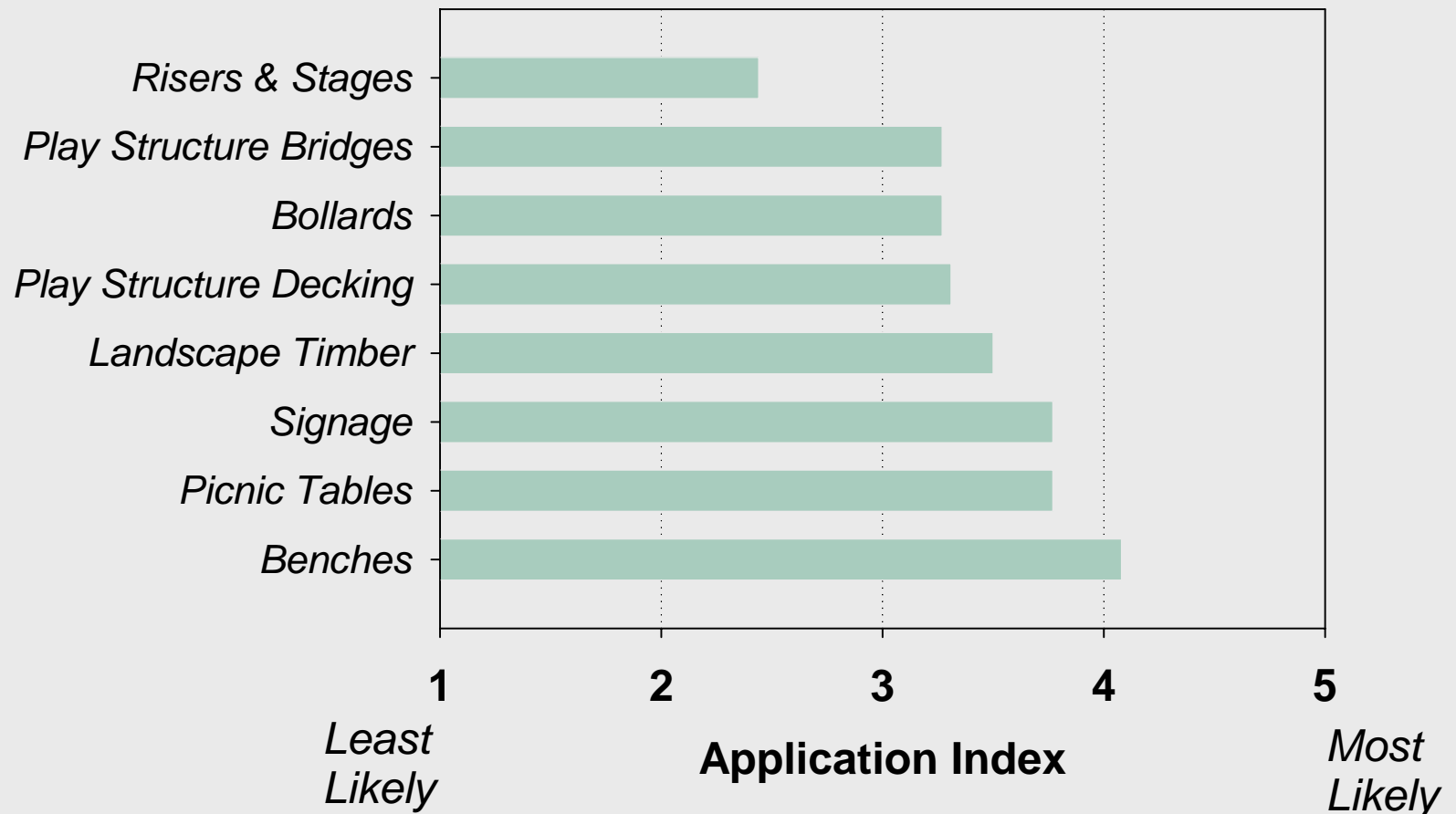


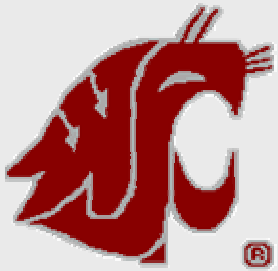
# Future Material Choice



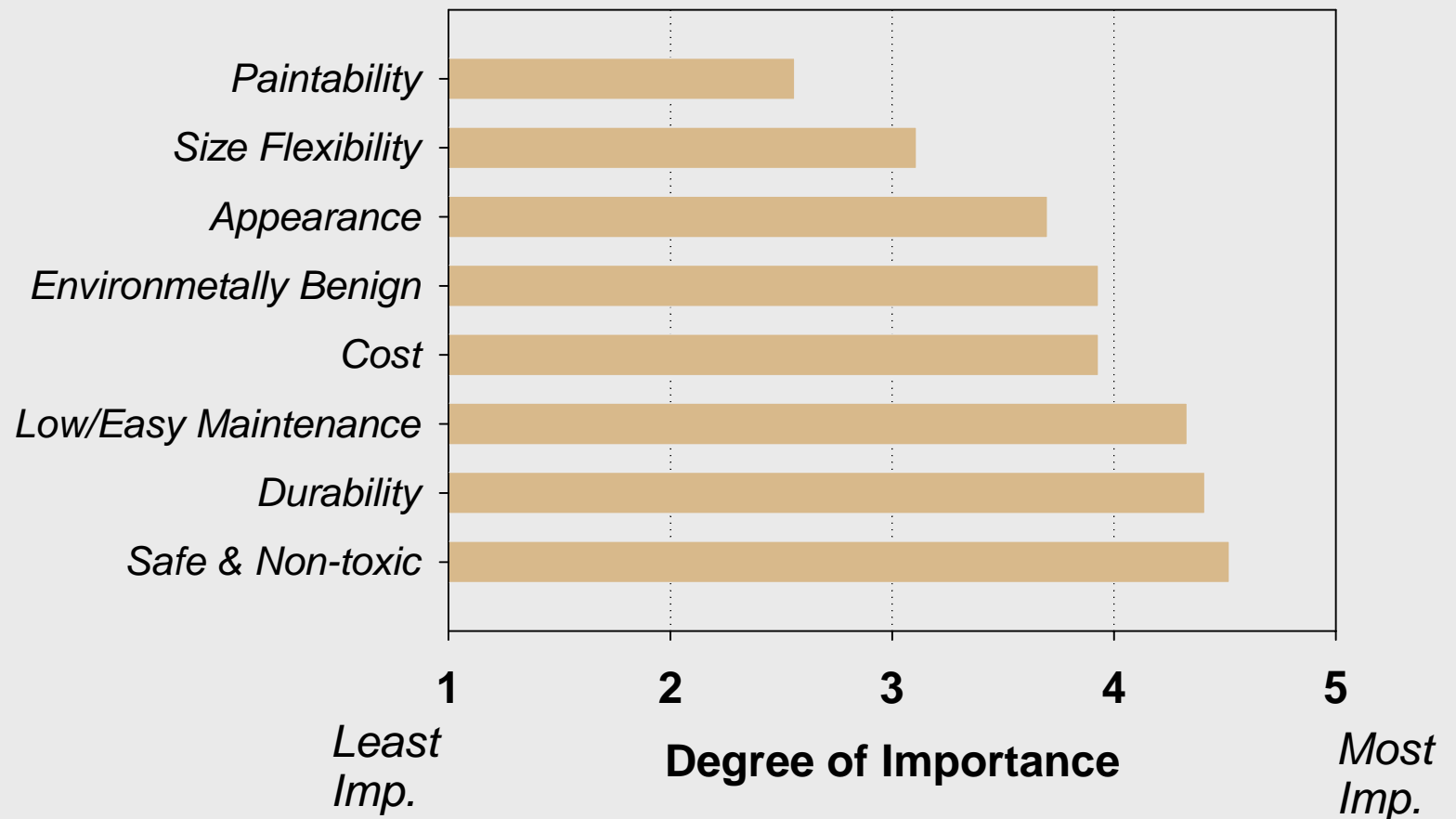


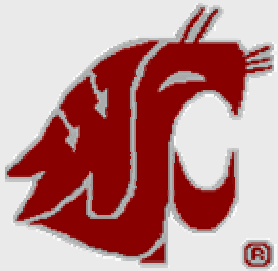
# WPC Application Preference





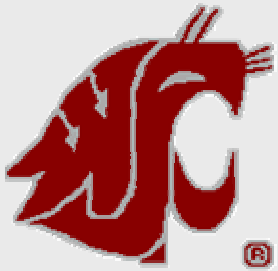
# Attributes Influencing Purchase Decisions for WPCs





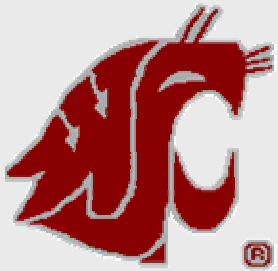
# Maintenance & Costs

- Annual maintenance costs
  - ✓ <\$2,500: 68%
  - ✓ \$2,500-\$5,000: 21%
- Frequency of material replacement
  - ✓ Less than a year: 12%
  - ✓ 1-2 years: 24%
  - ✓ 5 years or more: 56%
- Annual new material costs
  - ✓ Less than \$2,500: 78%
  - ✓ \$2,500-\$5,000: 7%
  - ✓ More than \$50,000: 11%



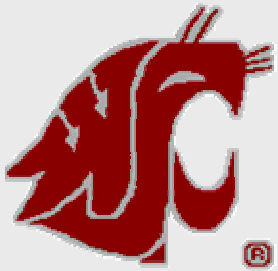
# Assembly & Standards

- In what form are playground structures purchased?
  - ✓ Pre-built/assembled: 11%
  - ✓ Partially pre-built/assembled: 48%
  - ✓ Constructed on site: 41%
- Standards (89% follow standards)
  - ✓ ASTM
  - ✓ ADA (Americans with Disabilities Act)
  - ✓ CPSC (Consumer Product Safety Commission)



# Roofing Contractors

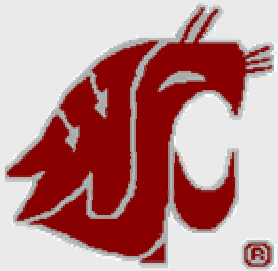
- 400 Surveys - PNW region
  - ✓ In business 3-15 years
  - ✓ Return Rate ~ 7%
  - ✓ Will be following up by mail



## Sample Pop. Characteristics

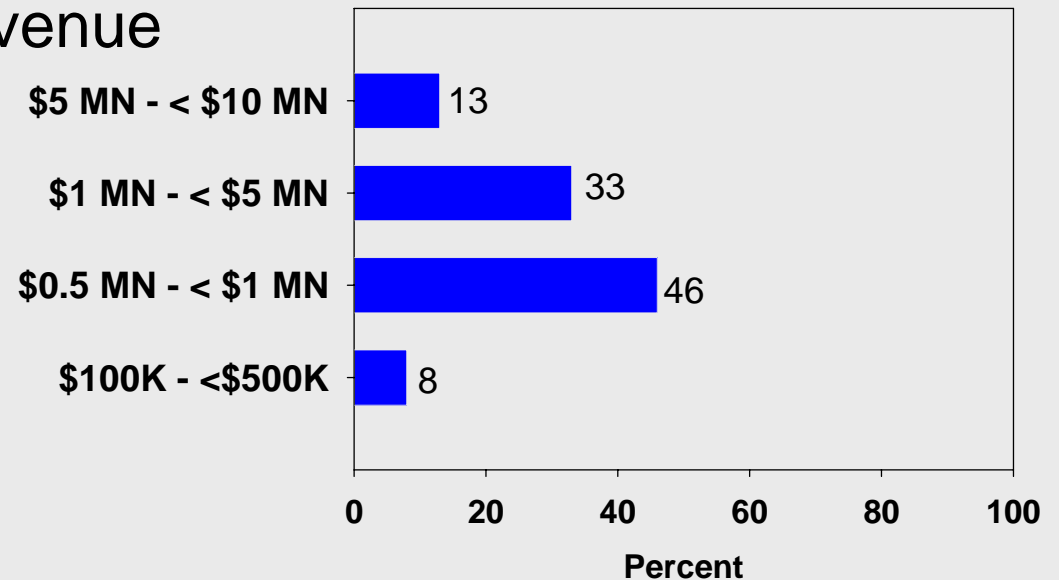
- Mean total squares installed in past 12 months = 24,138 squares
  - ✓ min. = 9 squares
  - ✓ max. = 500,000 squares
  - ✓ 1 square = 100 sq. ft.
- Avg. price of home typically roofed

\$150,000 to \$199,999	13%
\$200,000 to \$249,999	8%
\$250,000 to \$499,999	46%
\$500,000 to \$1,000,000	29%
Over \$1 million	4%



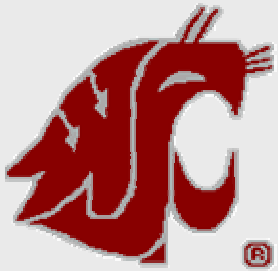
# Sample Pop. Characteristics

## ➤ 2003 Total Revenue

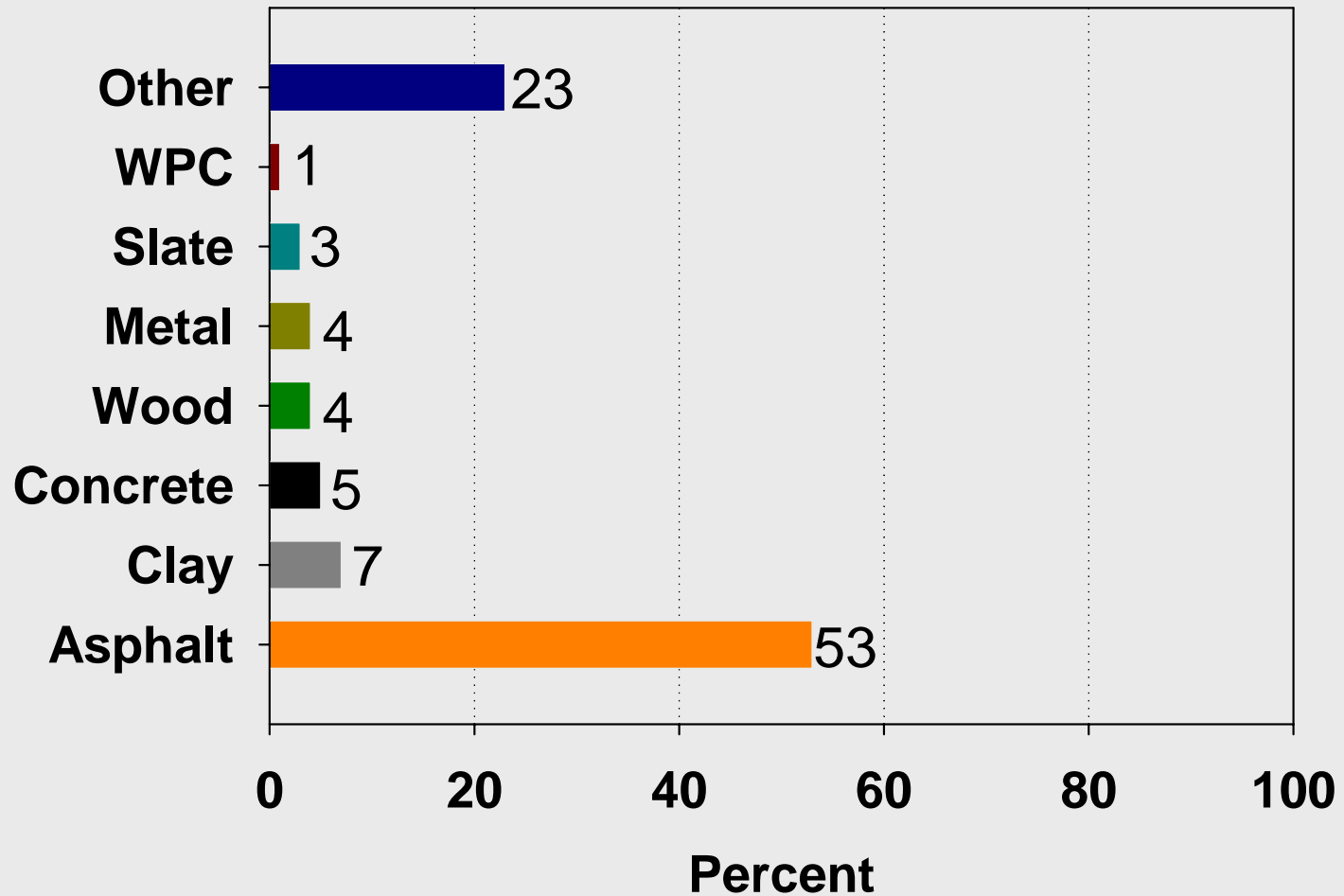


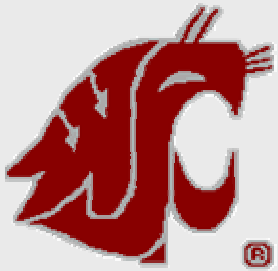
## ➤ Who do they purchase material from?

- ✓ Retailer: 20%
- ✓ Wholesaler: 72%
- ✓ Other: 8%

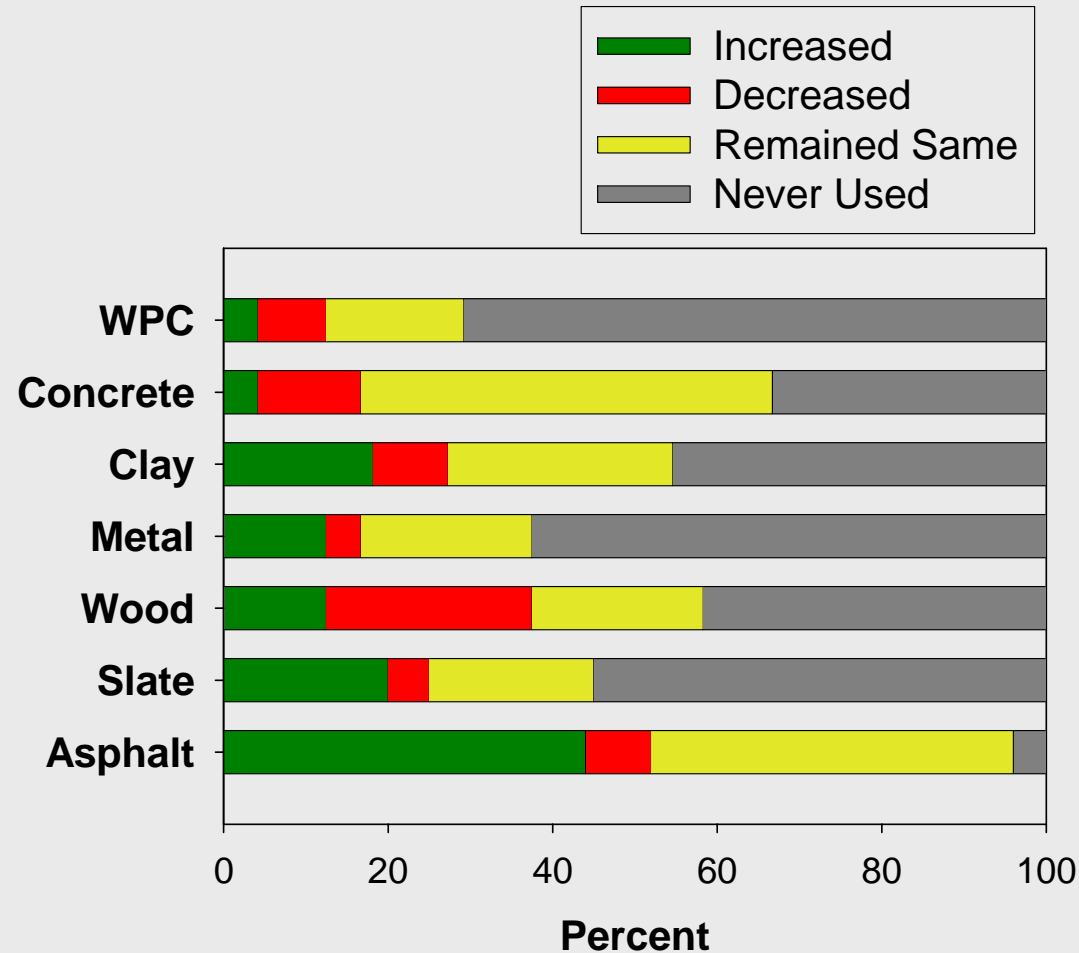


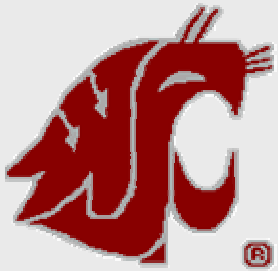
# Usage by Material Type





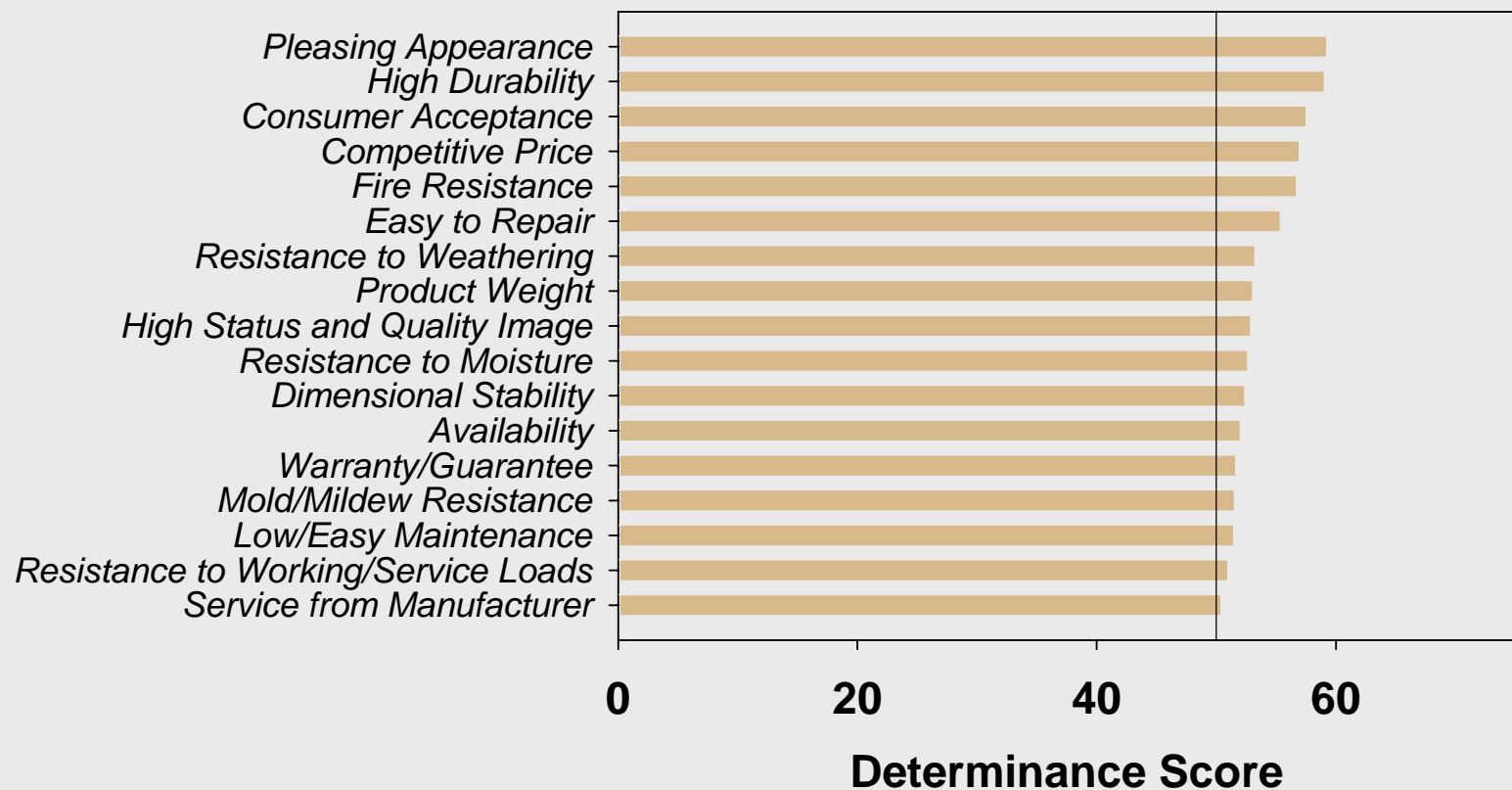
# Usage of materials in past 1 year

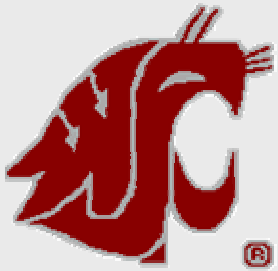




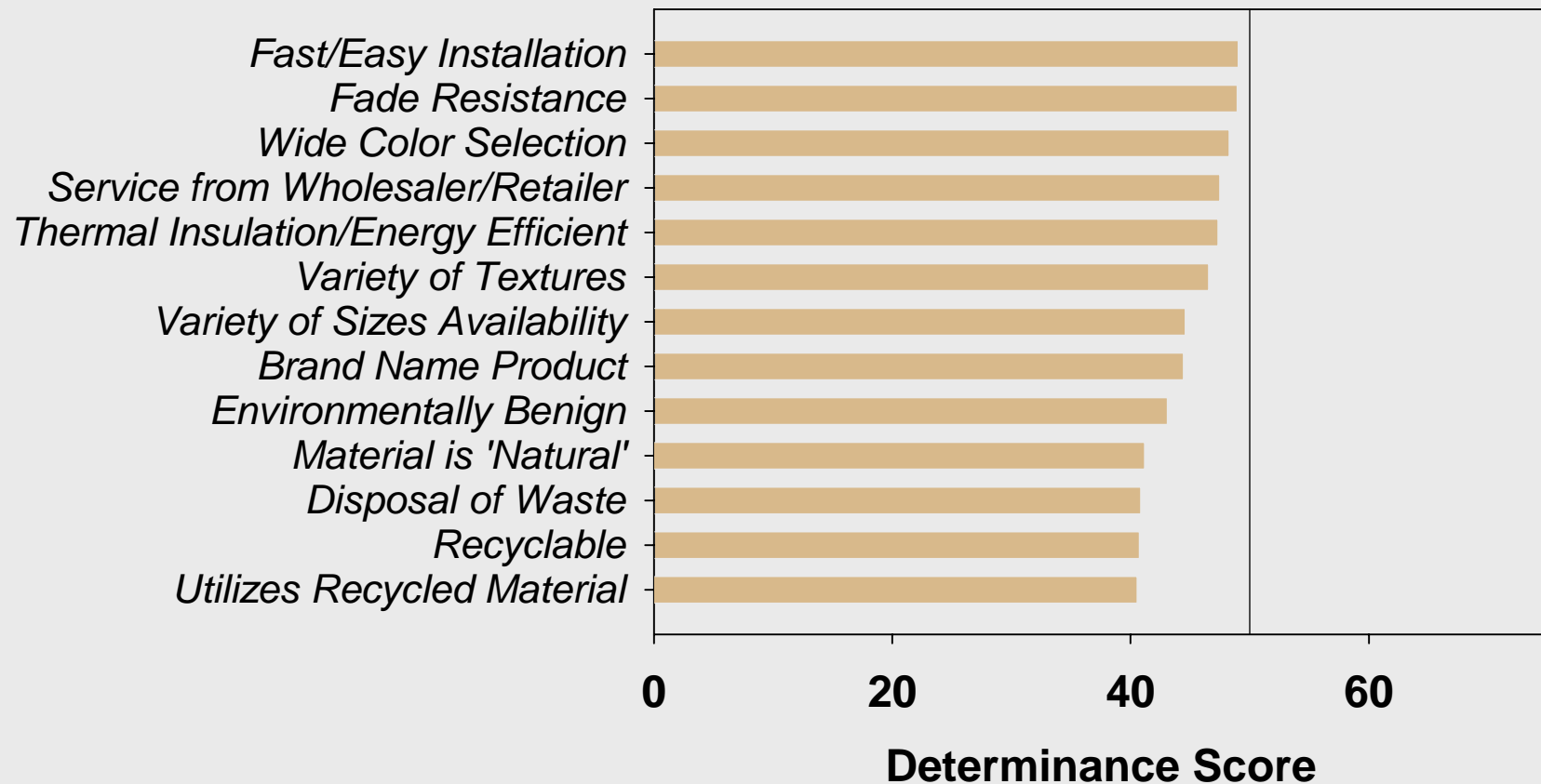
# Determinant Attribute Analysis

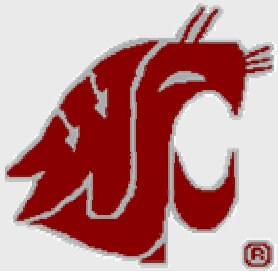
- Top differentiating attributes in consumer's view



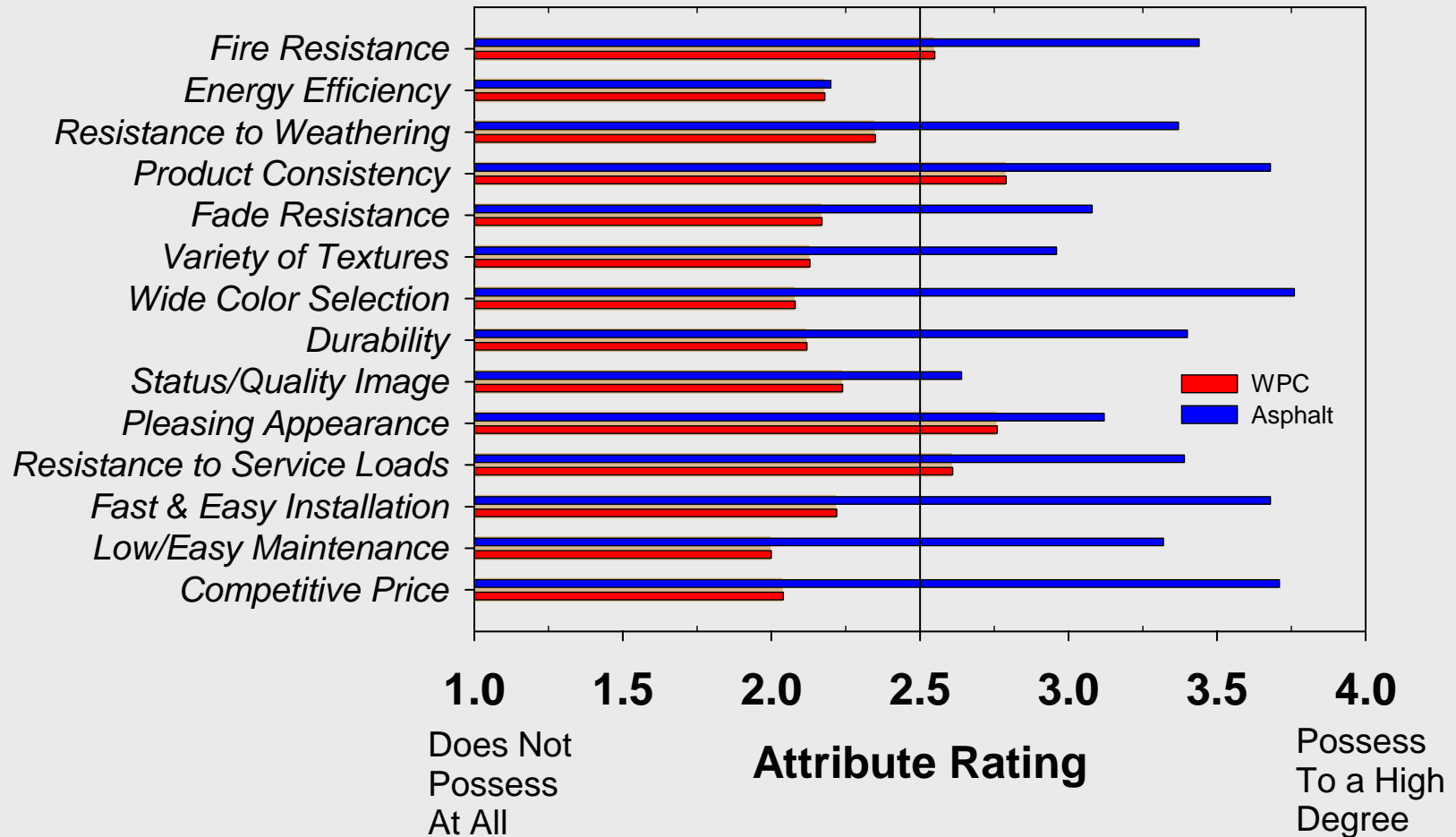


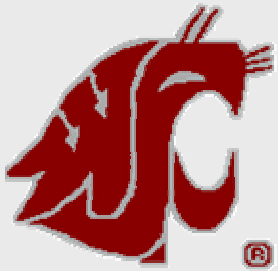
# Determinant Attribute Analysis Continued



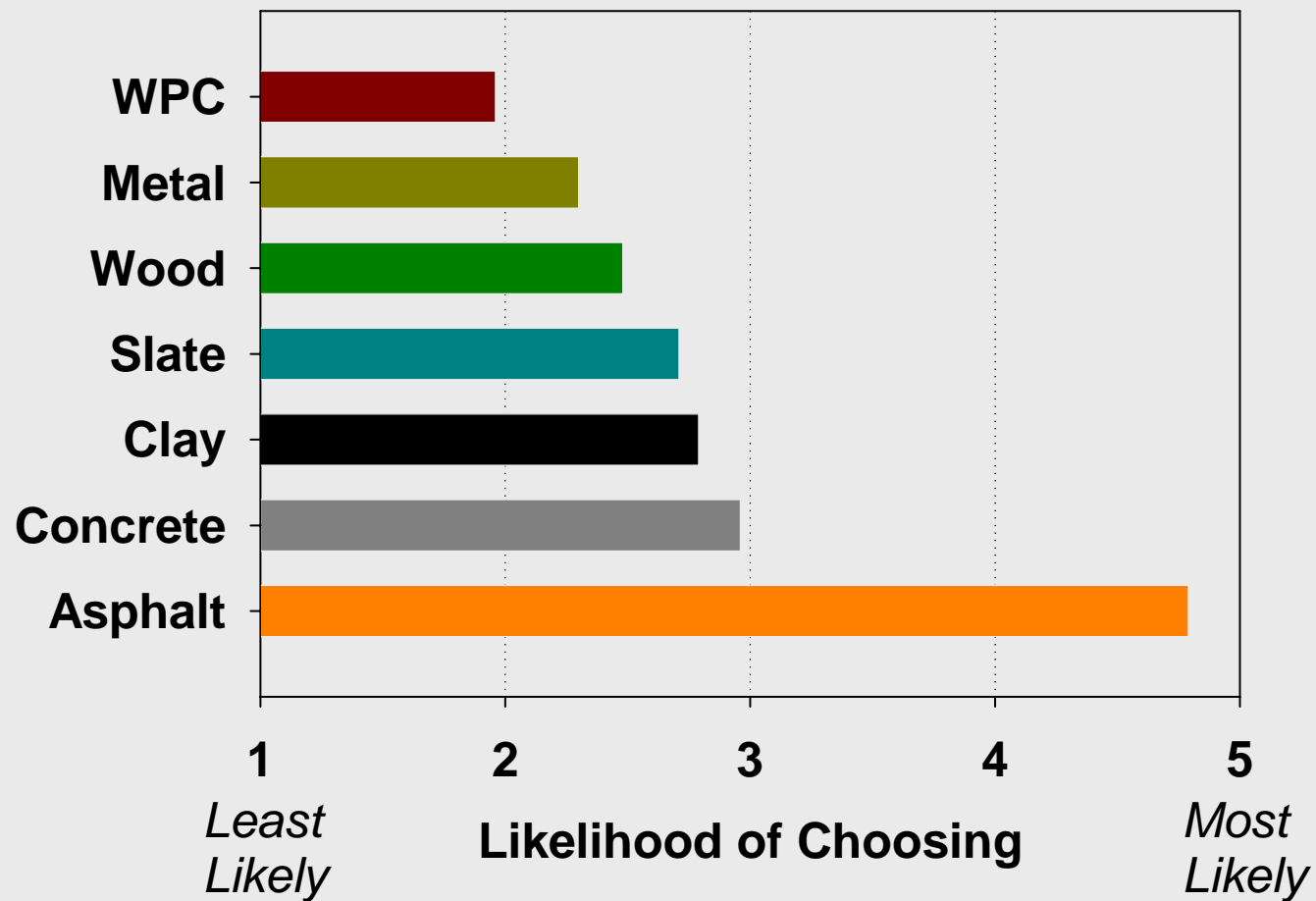


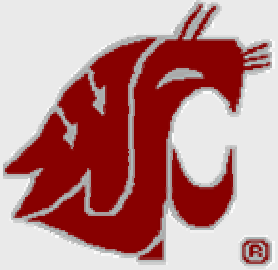
# How do roofing materials rate for each of the following attributes?





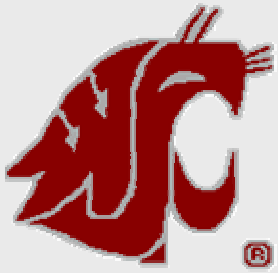
# Future Preference of Material





## WPC Awareness

- 52% indicated that they are not aware of any WPC roofing material
- 50% of the ones indicating WPC awareness, indicated that they considered WPC for roofing applications
- Plastic & WPC are confused with each other



# Acknowledgements

- Funded by USDA Forest Service,  
PNW Research Station, Portland,  
OR