

**RUBBER MANUFACTURERS ASSOCIATION  
ASSESSMENT NHTSA CONSUMER RESEARCH AND  
REVIEW OF RMA CONSUMER RESEARCH  
AUGUST 2009**

The agency sought to gauge consumer input regarding possible labels to communicate information about tire fuel efficiency, traction and tread wear. NHTSA hired Strat@comm, a public affairs firm, to conduct a series of focus groups – two each in Scottsdale, AZ; Oak Park, IL and Baltimore, MD. A total of 54 people participated in the six focus groups.

Strat@comm's focus group report noted that the goals of the research included:

- Explore reactions to consumer expectations for the program
- Measure feedback related to the effectiveness of the communication materials used to convey the information (labels)
- Gauge consumer preferences, likes and dislikes through five label designs presented to determine how best to design a consumer friendly label for the program<sup>1</sup>

As the Strat@comm report notes, however, focus group research does not deliver statistically relevant information about consumers' views.

In reviewing these findings, it is important to remember that qualitative research, by design, is not meant to be projectable within accurate statistical ranges. Focus groups allow for the understanding and investigation of group consensus, not individual reactions. Qualitative research offers insight into the thematic and directional information of the participants.<sup>2</sup>

### **Focus Group Research Limitations**

Focus group discussions are useful in identifying potential trends in consumer preferences and also allow for useful input for follow-up research. Undertaking additional quantitative and qualitative research would have been helpful to better understand consumer preferences.

The focus group sample size of 54 people contains a margin of error in excess of 13%. A larger and more scientifically selected sample of consumers would provide better information with which to judge consumer preference. Also, in a focus group setting, judgments can be made in a group, rather than an individual setting. This can result in preferences to be influenced by comments and dynamics of the group. As a tire purchasing decision is more of an individual rather than a group experience, supportive

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<sup>1</sup> NHTSA Rolling Resistance Focus Group Research presented by Strat@comm, p. 3

<sup>2</sup> NHTSA Rolling Resistance Focus Group Research presented by Strat@comm, p.4

research in helping to design an appropriate communication medium for tire information should reflect individual, not group, decision-making.

Follow up survey research would have permitted the agency to improve alternate label design, ask additional probing questions about labels and gain an understanding of individual consumer input.

### NHTSA's Label Choices

NHTSA indicates that the focus group results are indicative of consumer preference despite the limitations of such research. While the NPRM states the agency's intent to conduct further research, NHTSA has indicated that additional research on labels will focus on icons to be used to represent the rating factors on the label.

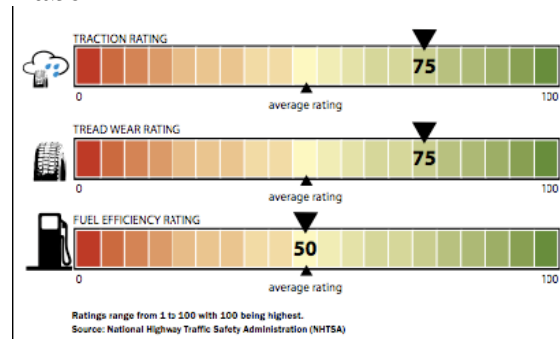
In this notice, we are proposing a label based on the rating scale and presentation that tested best with consumers and that promises to improve the operation of the market in terms of three factors (fuel economy, safety, and durability) that matter to consumers.<sup>3</sup>

NHTSA's focus group research tested several potential labels of varied design.

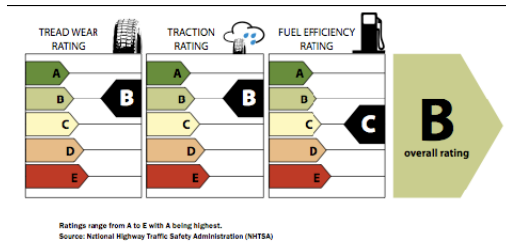
#### Label A



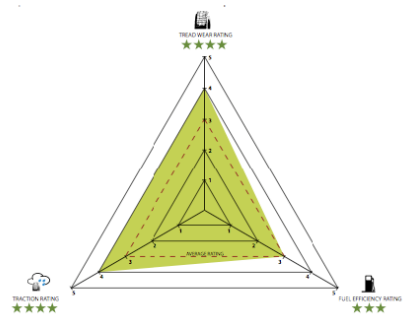
#### Label B



#### Label C

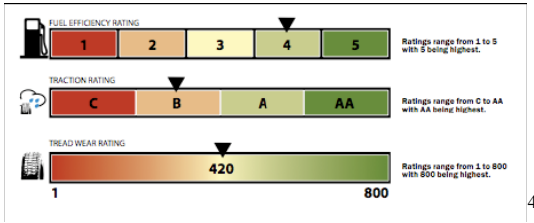


#### Label D



<sup>3</sup> 74 Federal Register. at 29544, June 22, 2009

## Label E

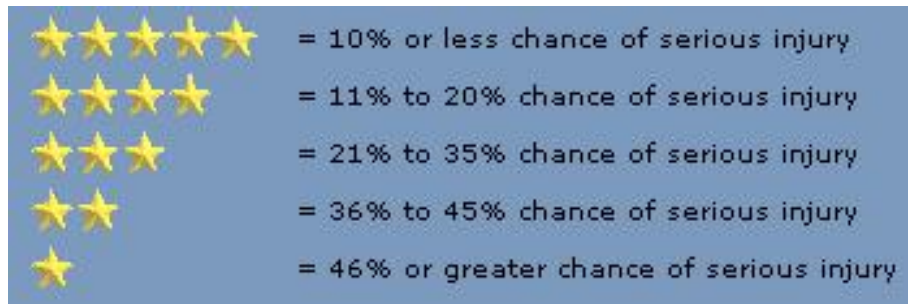


NHTSA’s focus groups’ consensus was for Label B. Focus group participants found favor with the apparent precision of the label’s 0-100 rating scale as well as the red-to-green color scheme.

NHTSA chose four other label choices to test. One of the labels, Label A, was a star-theme. The design of this label was very different than NHTSA’s own star rating system for vehicle crashes. Also, it was unlike other star-themed ratings for hotels or restaurants that are fairly well-known to consumers (see Fig. 1, Fig 2 and Fig. 3). The three remaining labels included a design that was vertically oriented and provided an overall rating based on the three criteria (Label C); a triangular shaped label (Label D) and; a horizontal bar design that incorporated existing rating information for tread wear and traction (Label E).

In the NHTSA focus group research, Label A (star-theme) scored second best while the other three were criticized by focus group participants for a lack of clarity (Label D, in particular); confusion (Label C) and difficulty to understand (Label E).

**Fig. 1 – NHTSA 5 Star Crash Rating System**



**Fig. 2 -- Expedia.com Hotel Star Rating**



1 star lowest; 5 stars highest rating.

<sup>4</sup> NHTSA Rolling Resistance Focus Group Research presented by Strat@comm, p. 7-8

**Fig. 3 – Netflix Movie Rating System**



The NHTSA focus group participants were provided with label choices of significant differences. Label A (stars) was shown in black and white to some groups and in color to others. Label C was the only label to use a summary “overall rating” while the other four did not. This “overall rating” label also was the only one to use “grade” scores (A, B, C, D, E) with no clear indicator of low-to-high and the only one to use a vertical rating format.

The preferred label choice among NHTSA’s focus group participants came in large part because of its “precision” ratings. Each of the three rating factors was ascribed a single numeric score on a 0 to 100 scale; clearly implying a consistent gradient of rating values that simply does not exist in the real world. As RMA notes in accompanying comments to this NPRM, such precision measurement in these ratings would be misleading.

Focus group participants were not provided, for example, with information suggesting that within a 0-100 rating, a tire with a fuel efficiency grade of “70” may not be appreciably different than one with a grade of “60” or “80.” RMA has advocated a categorical rating for tire fuel efficiency as the most appropriate rating method.

NHTSA’s focus group research represents a plausible first step in ascertaining consumer preferences on tire information. Additional research based upon this initial project could have yielded improved understanding of consumer preferences. Follow up survey research would have permitted the agency to improve label design, ask additional probing questions about labels and gain an understanding of individual consumer preference rather than group input experienced in the focus group setting.

Unfortunately, the 54 participants cannot be considered a useful statistical representation of overall consumer preference for particular tire information.

### **RMA Survey Research**

RMA conducted a 1,000 respondent online survey to further test consumer preferences for receiving tire information. The survey had a margin of error of 3% versus the 13% margin of error in NHTSA’s 54-person focus groups. Online survey research is able to effectively and efficiently reach consumers, particularly when surveys must include visual elements. The survey was conducted by FrederickPolls, an Arlington, Virginia-based company that created the survey questionnaire. The survey was presented to

consumers through Research Now, an international company specializing in online survey research.

Research Now adheres to a professional code of conduct for online panels. The ESOMAR (<http://www.esomar.org/index.php>) code of conduct takes into account recent developments in technology and privacy issues in conducting market, opinion and social research. All ESOMAR members agree to abide by the ICC/ESOMAR Code and are subject to ESOMAR's disciplinary procedures. Applying the ICC/ESOMAR Code is ESOMAR's primary responsibility in cases involving a member. The revised ICC/ESOMAR International Code on Market and Social Research was approved by ESOMAR members and is binding from 1 January 2008.

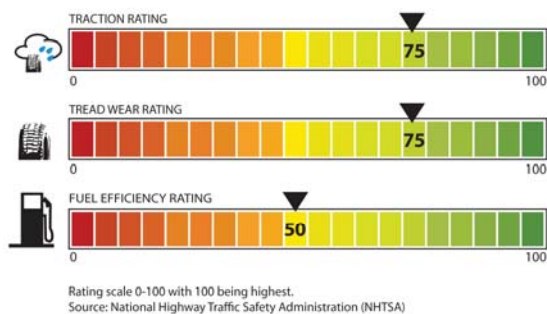
The survey allowed for a better methodology to reflect individual, rather than group, nature of evaluating tire information. Respondents were first asked a series of questions about each individual label. To minimize the potential for “order bias”, respondents were divided into five groups of 200 and each group was shown a different label as the first choice.

After respondents answered questions about each individual label, they were shown all five labels and asked comparative questions.

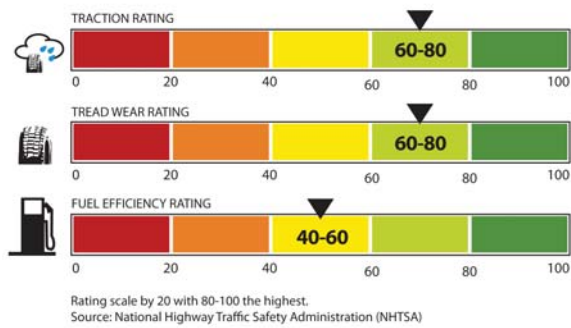
## Graphics

The RMA research presented respondents with graphics that addressed shortcomings identified in the NHTSA focus group research thereby providing improved choices of conveying tire information. The graphics included:

“**Thermometer**”: The same 0-100 scale, red-to-green choice used in the NHTSA focus groups.



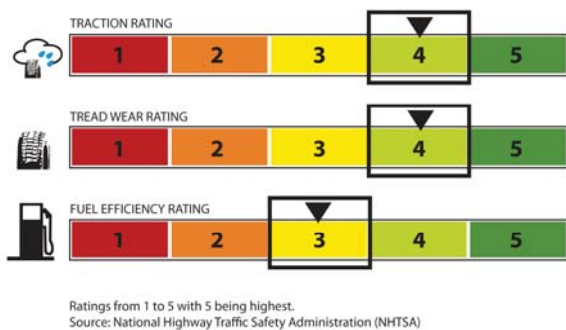
“**Thermometer Category**”: A categorical rating scheme using a 0-100 scale but divided into five categories, 0-20; 20-40; 40-60; 60-80; 80-100.



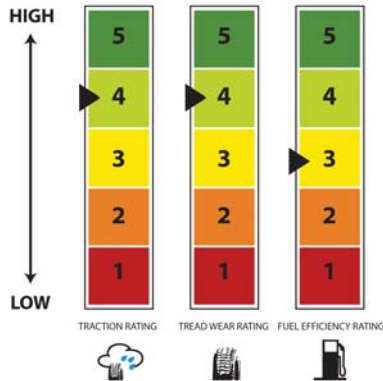
“Stars”: A “Stars” themed label that used five stars for each rating category – fuel efficiency, traction and treadwear. The rating was indicated by stars that were shaded and unused stars were clear.



“5 Box Horizontal”: A horizontal bar graphic numbered 1-5 using a similar color scheme as the 0-100 scale graphic.



**“5 Box Vertical”**: A vertical bar graphic numbered 1-5 using a similar color scheme as the 0-100 scale graphic



Ratings from 1 to 5 with 5 being highest.  
Source: National Highway Traffic Safety Administration (NHTSA)

To measure consumer preferences the survey used many of the same questions posed to NHTSA’s focus group participants. Additional questions were included to better gauge consumer understanding of the information presented.

### **RMA Research Results**

A full analysis of RMA's survey research written by Frederick Polls is included as an attachment to RMA’s comments to NHTSA’s NRPM.

Unlike the NHTSA 54-person focus group research that showed a clear preference by participants for the “Thermometer” 0-100 scale graphic, the RMA 1,000 respondent survey produced a different conclusion.

### **Categorical Rating System is Highly Rated**

Respondents clearly expressed that a categorical rating system is consumer friendly, communicates information effectively, is easy to understand and is visually appealing. Consumers initially expressed similar viewpoints for the 0-100 rating scale in the “Thermometer” graphic.

When told that the 0 to 100 scale would not deliver greater precision than the other rating options, respondents to the RMA survey overwhelmingly stated that another label choice should be used. While 29% of respondents chose the 0 to 100 rating as their most preferred this support drops to 19% when respondents are informed that it would not precisely rate tires. None of the other RMA graphic choices implied a level of precision similar to the “Thermometer” graphic.

Each of the five labels was presented as a first viewed choice by equal number of respondents. Of the five tested labels, the NHTSA focus group preferred label, “Thermometer,” scored lower on its initial showing than the star-themed label or the 5 Box Horizontal label on five rating dimensions.

When asked questions about each individual choice, “Thermometer” scored lower than several of the other labels.

**Question Sequence After Viewing Each Individual Label**

	COMPLETELY AGREE	SOMEWHAT AGREE	DO NOT AGREE
a. I fully understand what ratings a tire has based on this label. _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. The layout of this label is visually appealing. _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. The symbols used are easy to understand. _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. The language and terminology used are easy to understand. _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. The graphic layout of this label clearly communicates a tire’s rating. _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**“Thermometer” Scores**

- 11 points lower than "Stars" and "5 Box Horizontal" among respondents who fully understand the label.
- 5 points lower than "5 Box Horizontal" among respondents who found the label visually appealing.
- 11 points lower than "Stars" among respondents who agreed that symbols are easy to understand.
- 7 points lower than "Stars" or "5 Box Horizontal" among respondents who found the language and terminology understandable.
- 5 points lower than "5 Box Horizontal" among respondents who agreed that the label clearly communicates the rating.

**Top Scoring Label**

The “Stars” label scored highest when respondents were asked to choose their favorite among all five choices.

Stars	33%
Thermometer	29%
Five Box Vertical	16%
Five Box Horizontal	15%
Thermometer Category	8%

Additionally, on three out of four other comparative measures, "Stars" scored best. The "Stars" choice bested the other four choices in "Easiest to Understand," "Consumer Friendly" and "Communicates Most Effectively." Only on the measure of "Providing Relevant Information for Consumer Purchase" does "Thermometer" place first with "Stars" second. "Thermometer" is second on the other three measures.

When all respondents ratings of all five labels are compared on the five measures, the percent who "completely agree" that each of the attributes applies to that label are at about the same or slightly lower level for "Thermometer" than they are for "5 Box Horizontal" on all attributes or "Stars" for most of the attributes.

"Thermometer" is clearly not significantly preferred over the other graphic labels tested and in fact, falls short on a number of measures against two of the other labels tested in this research.

**Question Sequence Comparing All Five Labels**

After viewing all five labels, which label...? [MARK FOR EACH]

	<b>1</b>	<b>2</b>	<b>--LABEL--</b> <b>3</b>	<b>4</b>	<b>5</b>
a. Appeals to you the MOST? _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. Did you like the LEAST? _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. Gives you the most relevant information to make a purchase decision? _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. Is easiest for you to understand? _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. Is most consumer-friendly? _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. Communicates the information most effectively? _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Summary**

- Focus group research, as stated in the Strat@comm report, does not reflect or indicate consumer preferences. Instead, focus groups can be helpful in identifying certain trends or to learn some information about why consumers lean toward one preference or another.
- Based solely upon focus group research, NHTSA cannot say that any single label choice presented to a mere 54 focus group participants represents actual consumer preference. The margin of error for such a small sampling is 13%.
- RMA’s online consumer survey is more indicative of consumer preference. The sampling size of 1,000 respondents has a margin of error of only 3% and the respondents were screened to represent a cross section of the U.S. driving public.
- Unlike the NHTSA consumer research, RMA’s findings do not indicate a preference for a 0-100 rating scale as presented in the NHTSA NRPM. Consumers found other tested rating systems in the RMA research to be easier to understand; better able to communicate information and more visually appealing.

- When told that the 0 to 100 scale would not deliver greater precision than the other rating options, respondents to the RMA survey overwhelmingly stated that another label choice should be used. While 29% of respondents chose the 0 to 100 rating as their most preferred, this support drops to 19% when respondents are informed that it would not precisely rate tires.
- “Stars” emerged as the label preferred most in the RMA survey when respondents evaluated all five choices. “Stars” also scored highest when compared to the other labels for “easiest to understand,” “most consumer-friendly,” and “communicates most effectively.”
- Based on RMA’s research, consumers express a preference for tire information to be communicated using a star rating.

# RESULTS OF AN ONLINE SURVEY

## EVALUATION OF TIRE LABELS BY CONSUMERS NATIONWIDE

AUGUST 2009

### Methodology

- Total Sample Size: n=1,000
- Eligibility: Adult Drivers and Vehicle Owners
- Interview Dates: August 11-13, 2009
- Interview Method: Internet
- Client: Rubber Manufacturers Association
- Margin of Error: Plus or minus 3% at the 95% confidence level

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## I. Survey Methodology

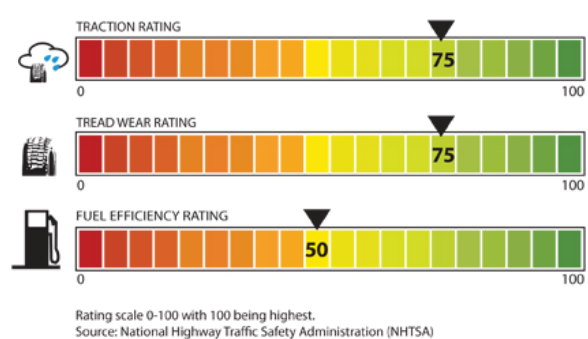
This analysis is based on the results of 1,000 interviews with adult consumers aged 21 or older who passed a set of screen questions that mirror those used by NHTSA in its January 2009 focus group project that similarly assessed consumer reaction to potential tire label graphics. Eligible on-line survey participants have the following qualifications.

- The sole or shared decision maker responsible for making decisions about vehicle service and repair;
- “Very” or “somewhat” concerned about vehicle safety; and
- Either purchased a new tire within last 3 years or plan to make a new tire purchase within the next year.

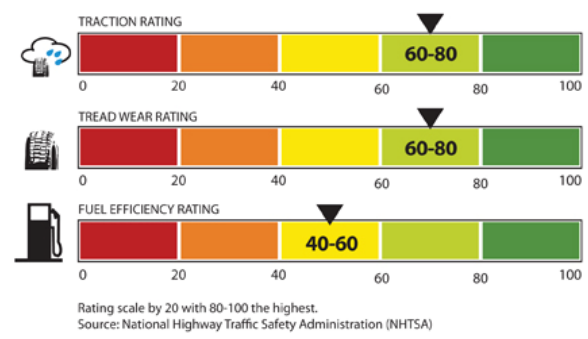
Other sample characteristics: Gender is 51% female, 49% male; and, 94% had their vehicle serviced within the last 2 years.

The five Tire Labels tested and referred to in this survey are:

*THERMOMETER*



*THERMOMETER CATEGORY*



*STARS*

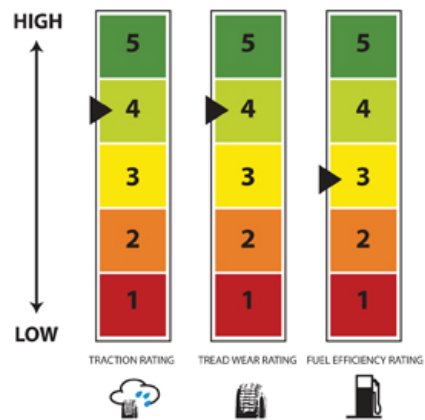


## 5-BOX HORIZONTAL



Ratings from 1 to 5 with 5 being highest.  
Source: National Highway Traffic Safety Administration (NHTSA)

## 5-BOX VERTICAL



Ratings from 1 to 5 with 5 being highest.  
Source: National Highway Traffic Safety Administration (NHTSA)

Each of the 1,000 survey respondents was assigned randomly to one of 5 cells of  $n=200$  each. Each cell was then first exposed to one of the 5 tire labels and asked the five follow-up questions before seeing any of the other 4 tire labels. This “first exposure” test produces a “monadic” style research design where impressions of each label can be compared against independent random samples seeing only one of the other labels.

This survey was conducted using a nationwide sample with interview dates of August 11 through 13, 2009.

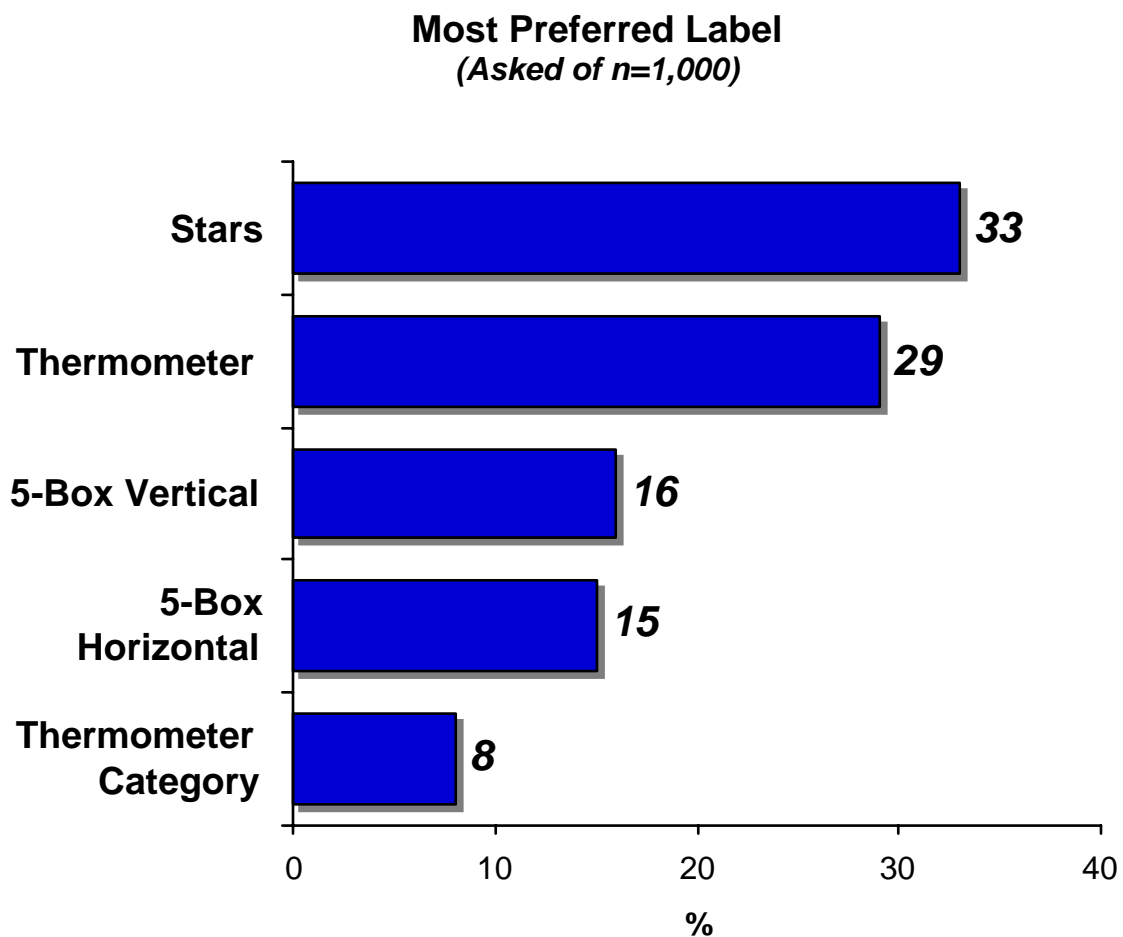
## II. Overview Summary of Findings.

Whereas NHTSA qualitative research among 54 respondents produced a clear winning label for consumer preference – *THERMOMETER* vs. the field of other 4 graphic labels tested in NHTSA focus groups—this quantitative research among 1,000 respondents shows **two other** label graphics to be at least as popular or more preferred than the 0 to 100 *THERMOMETER* scale label.

Moreover, when consumers are informed of the inaccuracy of the implied precision that the 0 to 100 *THERMOMETER* scale represents, just one out of five consumers in the on-line survey support using this label. The vast majority does not support using it.

### III. Most Preferred Label.

When presented at the end of the survey with all five labels to evaluate, *STARS* emerges as the one survey respondents prefer most. *STARS* gains 33% support vs. 29% for *THERMOMETER* with the vertical and horizontal versions of the number boxes each most popular with 15%-16% respectively.



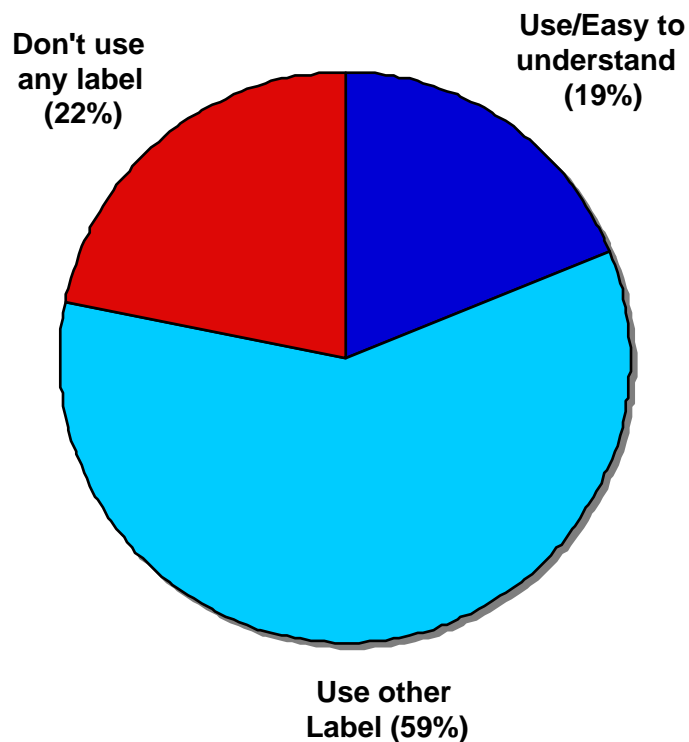
#### **IV. Impact of Learning *THERMOMETER* is Not Fully Accurate.**

While 29% pick *THERMOMETER* label as their most preferred, support for using this label drops to just 19% after survey respondents learn using this 0 to 100 scale is not an accurate way to rate tires (*see exact question wording below*). A majority of 59% prefer to use one of the other 4 labels tested while 22% say “don’t use any of the labels shown” in the survey test.

## Impact of Knowing *THERMOMETER* Label is Not Fully Accurate

*If you were to learn that using this 0 to 100 “Thermometer Like” rating scale is NOT an accurate way to rate tires since it implies a level of precision that DOES NOT EXIST for traction, tread wear and fuel efficiency what would you recommend to the Federal Government?*

- *Use this Tire Rating Label anyway because it is easy to understand.*
- *Use one of the other four labels shown. OR*
- *Don't use any of the labels shown.*



## V. Rating of Best Tire Label on Four Factors.

In replication of the NHTSA qualitative study questioning, on-line survey respondents were asked to compare the 5 tire label graphics on 4 factors. The *STARS* label comes in first on 3 of the 4 factors with *THERMOMETER* scoring best on one factor – provides most information for consumer to make purchase decision.

*STARS* beats out *THERMOMETER* by...

- 10 points on: easiest to understand;
- 16 points on: most consumer friendly;
- And, 1 point on: communicates most effectively.

### Rating of Best Tire Label: By Four Factors

	Most Information to Make Purchase Decision %	Easiest to Understand %	Most Consumer Friendly %	Communicates Most Effectively %
<b>Stars</b>	27	<b>36</b>	<b>39</b>	<b>31</b>
<b>Thermometer</b>	<b>35</b>	26	23	30
<b>5-Box Vertical</b>	14	15	15	16
<b>5-Box Horizontal</b>	13	14	14	15
<b>Thermometer Category</b>	11	9	9	9

## VI. First Viewing Impressions of Each Label.

Two of the tire label graphics — *STARS* and *5-BOX HORIZONTAL* — receive the highest response scores in the monadic test where independent samples of 200 respondents each viewed one of the 5 test labels and then rated that label on 5 questions.

As the following chart shows the percent who “completely agree” with each of the 5 statements about each label is...

- 11 points higher for *STARS* (52%) and *5-BOX HORIZONTAL* (52%) than for *THERMOMETER* (41%) on: Fully understanding a tire’s rating based on that label;
- 5 points higher for *5-BOX HORIZONTAL* (54%) than for *THERMOMETER* (49%) on: Visually appealing layout;
- 11 points higher for *STARS* (64%) than for *THERMOMETER* (53%) on: Easy to understand symbols;
- 16 points higher for *5-BOX HORIZONTAL* (63%) than for *THERMOMETER* (47%) on: Language and terminology that are easy to understand; and
- 5 points higher for *5-BOX HORIZONTAL* (61%) than for *THERMOMETER* (56%) on: Graphic layout that clearly communicates a tire’s rating.

In fact, on 4 of the 5 dimensions, both *STARS* and *5-BOX HORIZONTAL* labels are rated higher than *THERMOMETER*.

All three of these labels fairly consistently beat out the other two labels — *THERMOMETER CATEGORY* and *5-BOX VERTICAL*—on all five rating factors.

**Ratings of Tire Labels on Five Factors -- First Viewing Only\***  
*(% Who "Completely Agree" with Each Statement)*

	<u>Thermometer</u> (n=200) %	<u>Thermometer</u> <u>Category</u> (n=200) %	<u>Stars</u> (n=200) %	<u>5-Box</u> <u>Horizontal</u> (n=200) %	<u>5-Box Vertical</u> (n=200) %
<b>I fully understand what ratings a tire has based on this label.</b>	41	37	<b>52</b>	<b>52</b>	42
<b>The layout of this label is visually appealing.</b>	49	45	47	<b>54</b>	44
<b>The symbols used are easy to understand.</b>	53	52	<b>64</b>	63	45
<b>The language and terminology used are easy to understand.</b>	47	46	62	<b>63</b>	50
<b>The graphic layout of this label clearly communicates a tire's rating</b>	56	52	59	<b>61</b>	53

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\* *Each Tire Label was exposed and rated to random samples of n=200 each.*

## VII. Ratings of Tire Labels With Full Sample Exposure.

When all 1,000 survey respondents fully rate each of the 5 tire labels on the same five questions, 4 of the 5 tire labels score near or above the 50% “completely agree” level on each statement tested.

As the following chart shows, *5-BOX HORIZONTAL* label is slightly higher (one to three points) ahead of the others on 3 of the 5 measures, while *THERMOMETER* is one point ahead on two other factors.

**Ratings of Tire Labels on Five Factors --  
All Respondents Viewing All Labels  
(% Who “Completely Agree” with Each Statement)**

	Thermometer (n=1,000) %	Thermometer Category (n=1,000) %	Stars (n=1,000) %	5-Box Horizontal (n=1,000) %	5-Box Vertical (n=1,000) %
I fully understand what ratings a tire has based on this label.	52	33	50	<b>53</b>	51
The layout of this label is visually appealing.	<b>54</b>	45	46	53	47
The symbols used are easy to understand.	58	51	58	<b>61</b>	55
The language and terminology used are easy to understand.	58	49	57	<b>60</b>	56
The graphic layout of this label clearly communicates a tire’s rating	<b>58</b>	45	51	57	52