



## Appendix II: Sunscreen Labeling Consumer Studies

### Objective

The objectives of these sunscreen labeling consumer studies were:

1. to evaluate three methods of sunscreen SPF/UVA efficacy labeling among representative male and female consumers, and
2. to identify the best means to communicate a product's UVA efficacy / lack of efficacy to consumers while maintaining the importance of SPF protection.

### Sunscreen Labeling Schemes

Three different sunscreen efficacy labeling schemes were evaluated in these consumer studies. While all three labeling schemes included the product SPF as a key measure of UVB/erythral efficacy, the communication of product UVA efficacy varied. Specifically, the UVA component of the three labeling schemes tested were: "Pass/Fail System," "3-Tiered Scale: Verbal Descriptor" and "3-Tiered Scale: Graphonumerical". Details of each UVA efficacy labeling scheme are given in the table below:

Pass/Fail System	3 Tiered Scale - Verbal Descriptor <sup>1</sup>	3 Tiered Scale - Graphonumerical <sup>2</sup>
Blank Bottle (i.e. no UVA protection claimed)	Blank Bottle (i.e. no UVA protection claimed)	Bar graph with level 4 "UVA Protection"
"Broad Spectrum UVA and UVB Protection"	"UVA and UVB Protection"	Bar graph with level 8 "UVA Protection"
	"UVB Plus Extended UVA Protection"	Bar graph with level 12 "UVA Protection"

### Test Design

To achieve the above objectives, a methodology was developed to closely imitate a consumer's experience of selecting a sunscreen product from a typical store shelf. Specifically, a set of products with different SPFs (4, 8, 15, and 30) and different levels of UVA efficacy was depicted visually on an 8.5" x 11" sheet of paper (i.e. a store shelf representation), with each sheet of paper called the "product cell" for the respective sunscreen labeling scheme. These product cells for the three different sunscreen labeling schemes are given in Attachment A.

In this testing method, each respondent received one product cell and a questionnaire/instruction sheet (Attachment B) in the mail. The panelists were instructed to examine the cell as if they were at the store shelf with the intent to purchase a sunscreen product. Then, the panelist completed the questionnaire which gathered information regarding their sunscreen product choice, ease of selection, why the specific product was chosen, current SPF product purchase habits, and key demographic information. Completed questionnaires were then returned in a postage paid envelope that was provided.

Using this methodology, three separate studies were conducted:

- 1) A small based (n ≈ 300) pilot study among a local church group and Procter & Gamble employees, to optimize the study questionnaire and logistics.
- 2) A national study, US990979, conducted among a nationally representative sample of 1082 male and female consumers aged 18 to 65 in the spring of 1999 by an outside consumer research company.
- 3) A second similar study, US994964, conducted among a nationally representative sample of 1156 male and female consumers aged 18 to 65 in the fall of 1999 to confirm the results of the first national study.

### Study Results

Results of the first national study, US990979, are given in Tables 1a, 1b, and 1c, and the results of the second national study, US994964, are given in Tables 2a, 2b, and 2c.

<sup>1</sup>taken from 1995 submission by Schering-Plough to Docket 78-0038N (provided in Attachment C)

<sup>2</sup>taken from 1997 submission by Cosmair Corp. to Docket 78-0038N (provided in Attachment D)

**Table 1a: Study US990979 Results - Direct Questions**

	Pass/Fail System (a)	3 Tiered Scale Verbal Descriptors (b)	3 Tiered Scale Graphonumerical (c)
(Base Size)	(378) %	(353) %	(351) %
<u>Purchase selection</u>			
Product T (SPF 4/no/low UVA)	2	2	5
Product G (SPF 4/mid UVA)	--	4a	3a
Product O (SPF 4/max UVA)	8c	5	3
Product R (SPF 8/no/low UVA)	1	1	1
Product I (SPF 8/mid UVA)	--	5a	5a
Product K (SPF 8/max UVA)	11bc	4	5
Product E (SPF 15/no/low UVA)	3c	3c	--
Product D (SPF 15/mid UVA)	--	14ac	6a
Product P (SPF 15/max UVA)	28b	17	23b
Product J (SPF 30/no/low UVA)	4c	2	1
Product H (SPF 30/mid UVA)	--	11ac	3a
Product N (SPF 30/max UVA)	42b	33	45b
<u>Max UVA selected?</u>			
Yes	89bc	59	76b
No	11	41	24
<u>Level of SPF chosen</u>			
SPF 4	10	11	11
SPF 8	12	10	11
SPF 15	31	34	29
SPF 30	46	46	49
<u>Ease of Choice</u>			
Easy	74bc	62	66
Neither Easy Nor Difficult	20	29a	26
Difficult	4	9a	7
<u>Purchase SPF products</u>			
Yes	80c	76	74
No	20	24	26a

\* letters indicate results are significantly different at the 95% confidence level, -- indicates 0 or no responses, > indicates less than 1% responses

**Table 1b: Study US990979 Results - Reasons For Product Choice**

	Pass/Fail System (a)	3 Tiered Scale Verbal Descriptors (b)	3 Tiered Scale Graphonumerical (c)
(Base Size)	(378)	(353)	351)
	%	%	%
Would be effective at preventing sunburn/blocking sun's rays	>	>	--
Would be effective at preventing skin cancer	--	>	--
Would be effective at preventing photoaging	--	>	--
Would be effective at preventing sunburn but allow suntanning	--	>	--
Miscellaneous Efficacy	--	>	--
<b>Unduplicated Efficacy</b>	<b>&gt;</b>	<b>1c</b>	<b>--</b>
Like/want highest level of SPF (>15)	12	9	13
Don't like/want highest level of SPF	1	1	1
Like/want to have medium level of SPF (15)	1	1	3
Like/want to have low level of SPF (<15)	1	1	3b
Like/want low level of SPF so can achieve suntan	2	1	1
Contains/has sunscreen/SPF	6	5	5
SPF 4	1	1	1
SPF 8	3	2	3
SPF 15	14	12	15
SPF 30	11b	7	10
Miscellaneous SPF level	2	2	1
<b>Unduplicated SPF level</b>	<b>49b</b>	<b>39</b>	<b>51b</b>
Like/want highest level of UVA	1	1	30ab
Don't want/like highest level of UVA	--	--	1
Like/want to have medium level of UVA	--	--	1ab
Like/want to have low level of UVA	--	>	1a
Like/want low level of UVA so can achieve suntan	1	--	1b
Want/like UVA/UVB combination/protection	22c	20c	--
Want/like broad spectrum UVA/UVB protection	12bc	--	--
Don't want/like UVA/UVB combination/protection	>	--	--
Extended/longer UVA protection	--	8ac	--
UVA protection	1	4a	13ab
Miscellaneous UVA level	1	1	2
<b>Unduplicated UVA level</b>	<b>37</b>	<b>32</b>	<b>48ab</b>
Want/like maximum amount of protection from sun	13	15	19a
Want/like good amount of protection from sun	6	7c	3
Extended protection from sun/UV/UVB rays	>	13ac	2a
Protection from sun/UV/UVB rays	11c	16c	7
Need all protection I can get	1	2	1
Provides some protection while still tanning	5	5	5
Don't want a lot of protection	3	4	3
Misc. general protection	1	1c	--
<b>Unduplicated General Protection</b>	<b>38</b>	<b>56ac</b>	<b>37</b>
Would be good for sensitive skin	>	1	1
<b>Unduplicated Irritation</b>	<b>&gt;</b>	<b>1</b>	<b>1</b>
Easy to understand what product does	>	>	--
Easy to understand how product will perform	--	>	>
Don't know why - didn't understand	1	--	>
Don't know why - guessed at selection	--	1	--
Don't know why - no special reason	1	1	>
Miscellaneous Selection/Understanding	1	2	2
<b>Unduplicated Selection/Understanding</b>	<b>3</b>	<b>4</b>	<b>3</b>
<b>Miscellaneous:</b>			
Don't use sunscreen	2	2	2
Have fair skin	7	4	5
Information on label	7bc	1	>
Concern with/protect against cancer	1	1	2
I am outdoors a lot	1	2	2
Miscellaneous comments	12	14c	9

\* letters indicate results are significantly different at the 95% confidence level, -- indicates 0 or no responses, > indicates less than 1% responses

**Table 1c: Study US990979 Results - Usual Sunscreen Product SPF**

		Pass/Fail System (a)	3 Tiered Scale Verbal Descriptors (b)	3 Tiered Scale Graphonumerical (c)
For people who chose <u>SPF 15</u> products, they usually purchase these products . . .	Facial moisturizer SPF			
	SPF 4 or less	3	7	1
	SPF 5-14	4	11	15a
	SPF 15-29	19	27	26
	SPF 30-44	4	2	1
	SPF 45 or more	1	--	--
	Recreational/beach sunscreen			
	SPF 4 or less	4	4	5
	SPF 5-14	17	19	14
	SPF 15-29	88	78	83
SPF 30-44	20	28	26	
SPF 45 or more	7	9	11	
For people who chose <u>SPF 30</u> products, they usually purchase these products . . .	Facial moisturizer SPF			
	SPF 4 or less	5	4	2
	SPF 5-14	10	13	12
	SPF 15-29	16	13	17
	SPF 30-44	7	4	7
	SPF 45 or more	2	5c	1
	Recreational/beach sunscreen			
	SPF 4 or less	1	2	1
	SPF 5-14	2	5	5
	SPF 15-29	19	22	24
SPF 30-44	65b	53	62	
SPF 45 or more	26	35c	23	

\* letters indicate results are significantly different at the 95% confidence level, -- indicates 0 or no responses, > indicates less than 1% responses

**Table 2a: Study US994964 Results - Direct Questions**

	Pass/Fail System (a)	3 Tiered Scale Verbal Descriptors (b)	3 Tiered Scale Graphonumerical (c)
(Base Size)	(384) %	(375) %	(397) %
<u>Purchase selection</u>			
Product T (SPF 4/no/low UVA)	3	2	3
Product G (SPF 4/mid UVA)	---	2a	2a
Product O (SPF 4/max UVA)	7	5	6
Product R (SPF 8/no/low UVA)	2	1	1
Product I (SPF 8/mid UVA)	---	4ac	2a
Product K (SPF 8/max UVA)	7	4	6
Product E (SPF 15/no/low UVA)	5c	3	2
Product D (SPF 15/mid UVA)	---	11ac	6a
Product P (SPF 15/max UVA)	27b	16	25b
Product J (SPF 30/no/low UVA)	2	2	2
Product H (SPF 30/mid UVA)	---	16ac	33
Product N (SPF 30/max UVA)	49b	34	45b
<u>Max UVA selected?</u>			
Yes	88bc	58	81b
No	12	42ac	19a
<u>Level of SPF chosen</u>			
SPF 4	9	9	10
SPF 8	8	9	8
SPF 15	31	30	32
SPF 30	51	53	50
<u>Ease of Choice</u>			
Easy	77bc	63	64
Neither Easy Nor Difficult	16	30a	29a
Difficult	7	6	7
<u>Purchase SPF products</u>			
Yes	76	75	76
No	23	24	24

\* letters indicate results are significantly different at the 95% confidence level, -- indicates 0 or no responses, > indicates less than 1% responses

**Table 2b: Study US994964 Results - Reasons For Product Choice**

	Pass/Fail System (a)	3 Tiered Scale Verbal Descriptors (b)	3 Tiered Scale Graphonumerical (c)
(Base Size)	(384) %	(375) %	(397) %
Would be effective at preventing sunburn/blocking sun's rays	1	1	1
Would be effective at preventing skin cancer	--	--	--
Would be effective at preventing photoaging	--	--	--
Would be effective at preventing sunburn but allow suntanning	1	--	--
Miscellaneous Efficacy	1	1	1
<b>Undup. Efficacy</b>	<b>1</b>	<b>2</b>	<b>1</b>
Like/want highest level of SPF (>15)	15	13	20b
Don't like/want highest level of SPF	2	1	1
Like/want to have medium level of SPF (15)	2	2	2
Like/want to have low level of SPF (<15)	3	3	2
Like/want low level of SPF so can achieve suntan	1	>	2
Contains/has sunscreen/SPF	6	5	4
SPF 4	1	1	2
SPF 8	2	2	2
SPF 15	9	10	11
SPF 30	7	11a	9
Miscellaneous SPF level	2	2	3
<b>Undup. SPF level</b>	<b>48</b>	<b>46</b>	<b>54b</b>
Like/want highest level of UVA	1	1	33ab
Don't want/like highest level of UVA	--	--	--
Like/want to have medium level of UVA	--	--	2ab
Like/want to have low level of UVA	--	--	>
Like/want low level of UVA so can achieve suntan	--	--	1
Want/like UVA/UVB combination/protection	18c	19c	>
Want/like broad spectrum UVA/UVB protection	12bc	--	--
Don't want/like UVA/UVB combination/protection	>	--	--
Extended/longer UVA protection	--	8ac	--
UVA protection	1	4a	10ab
Miscellaneous UVA level	--	--	--
<b>Undup. UVA level</b>	<b>32</b>	<b>31</b>	<b>45ab</b>
Want/like maximum amount of protection from sun	14	15	25ab
Want/like good amount of protection from sun	7c	10c	2
Extended protection from sun/UV/UVB rays	--	11ac	--
Protection from sun/UV/UVB rays	13c	16c	7
Need all protection I can get	1	2	2
Provides some protection while still tanning	4	4	5
Don't want a lot of protection	4	2	2
Misc. general protection	--	2ac	>
<b>Undup. General Protection</b>	<b>40</b>	<b>57ac</b>	<b>41</b>
Would be good for sensitive skin	1	1	1
<b>Undup. Irritation</b>	<b>1</b>	<b>1</b>	<b>1</b>
Easy to understand what product does	1	--	--
Easy to understand how product will perform	--	--	--
Don't know why - didn't understand	1	2c	>
Don't know why - guessed at selection	1	--	1
Don't know why - no special reason	>	>	1
Miscellaneous Selection/Understanding	2c	1c	--
<b>Undup. Selection/Understanding</b>	<b>4</b>	<b>3</b>	<b>2</b>
Don't use sunscreen	2	1	2
Have fair skin	5	7c	3
Information on label	7bc	2	1
Concern with/protect against cancer	2c	2c	1
I am outdoors a lot	1	2	1
Miscellaneous comments	12	15c	10

\* letters indicate results are significantly different at the 95% confidence level, -- indicates 0 or no responses, > indicates less than 1% responses

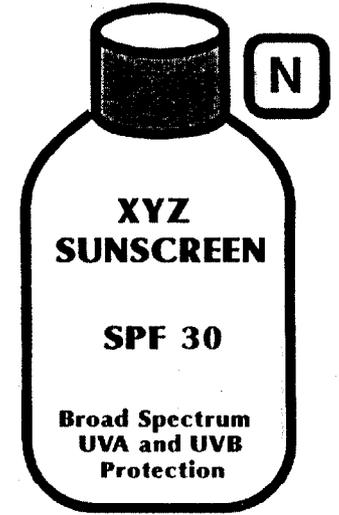
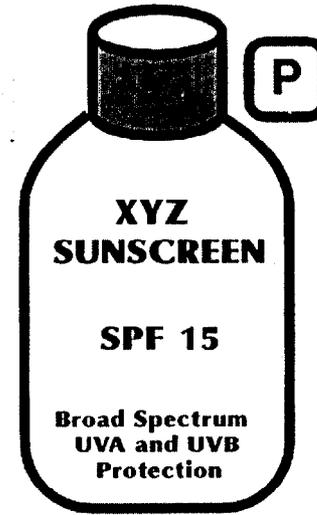
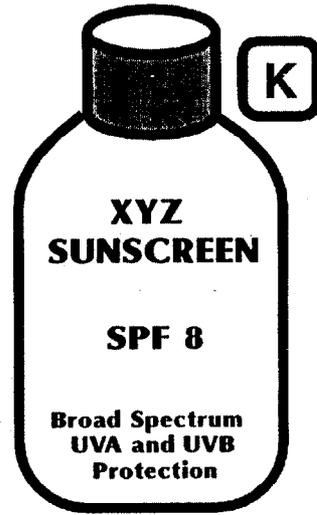
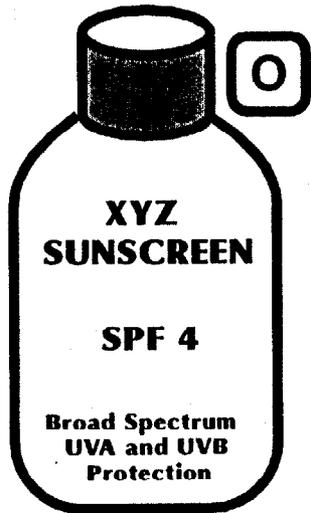
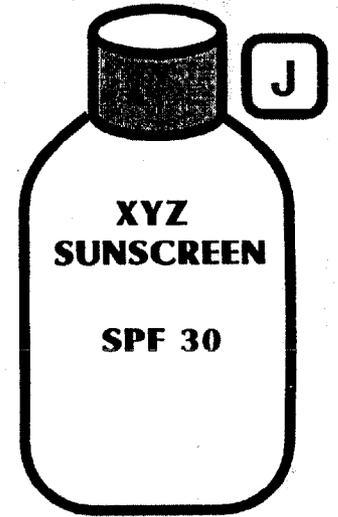
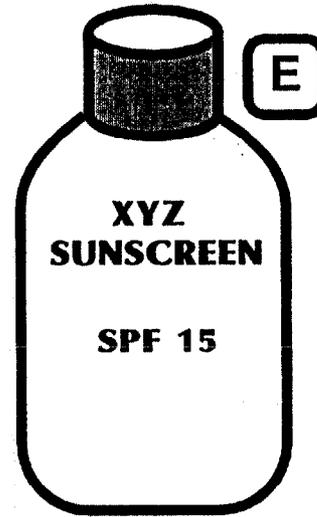
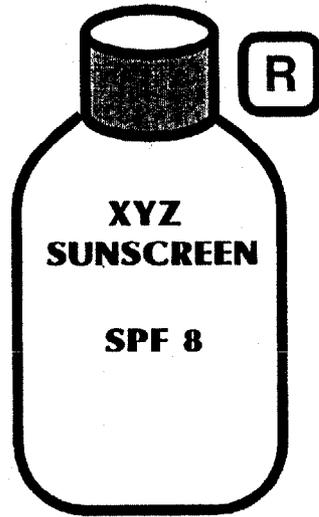
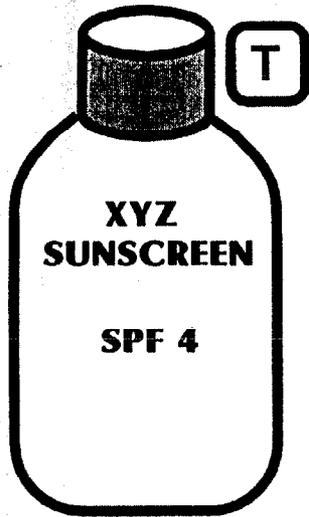
**Table 2c: Study US994964 Results - Usual Sunscreen Product SPF**

		Pass/Fail System (a)	3 Tiered Scale Verbal Descriptors (b)	3 Tiered Scale Graphonumerical (c)
For people who chose <u>SPF 15</u> products, they usually purchase these products . . .	Facial moisturizer SPF			
	SPF 4 or less	5	3	4
	SPF 5-14	6	9	9
	SPF 15-29	27	34	24
	SPF 30-44	1	1	4
	SPF 45 or more	1	--	1
	Recreational/beach sunscreen			
	SPF 4 or less	10	4	6
	SPF 5-14	26b	12	18
	SPF 15-29	80	78	78
For people who chose <u>SPF 30</u> products, they usually purchase these products . . .	Facial moisturizer SPF			
	SPF 4 or less	1	5	6a
	SPF 5-14	6	12	10
	SPF 15-29	16	23	16
	SPF 30-44	6	5	6
	SPF 45 or more	1	--	3
	Recreational/beach sunscreen			
	SPF 4 or less	--	2	1
	SPF 5-14	3	5	4
	SPF 15-29	29	24	23
SPF 30-44	56	61	64	
SPF 45 or more	33	26	32	

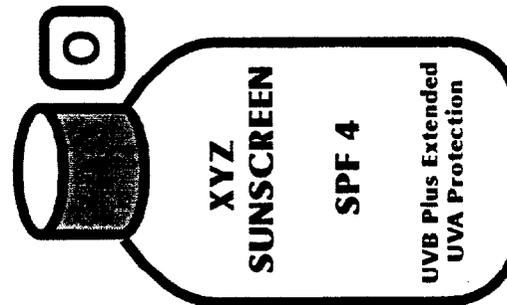
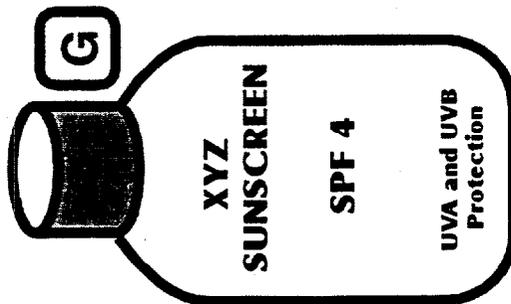
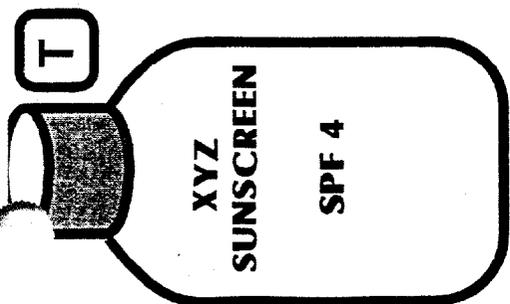
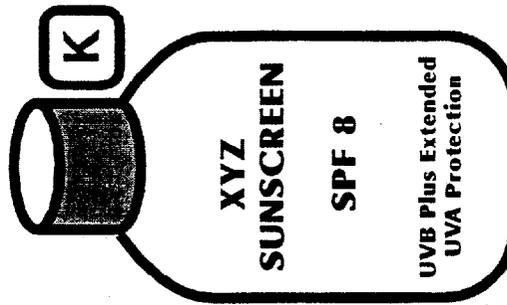
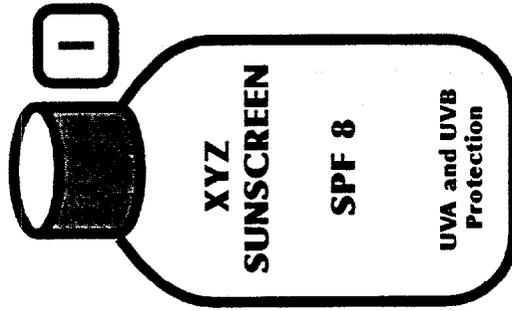
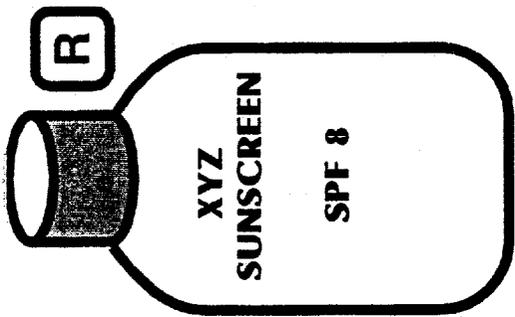
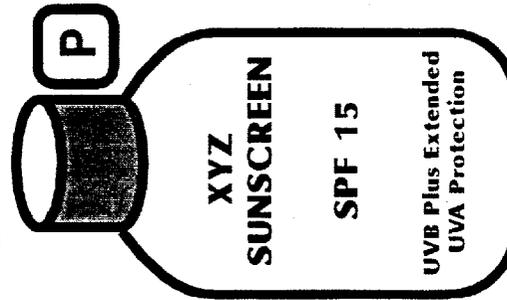
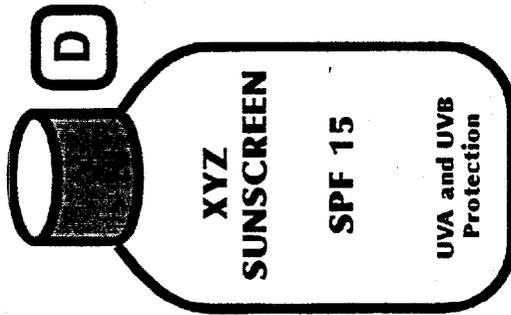
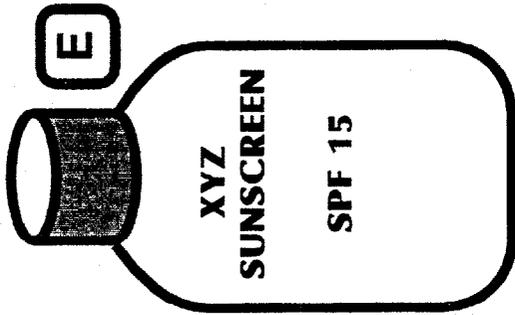
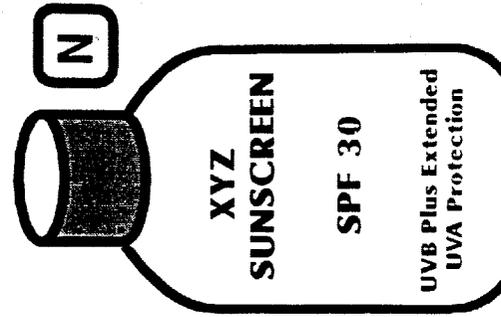
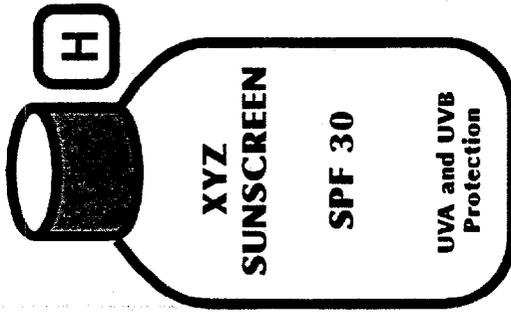
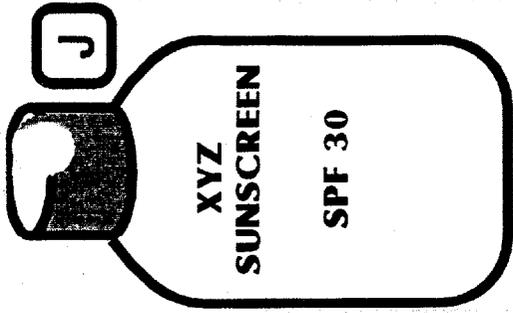
\* letters indicate results are significantly different at the 95% confidence level, -- indicates 0 or no responses, > indicates less than 1% responses

**Attachment A: Product Cells For Three Sunscreen Labeling Schemes**

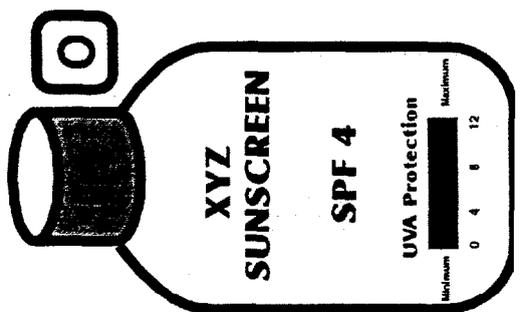
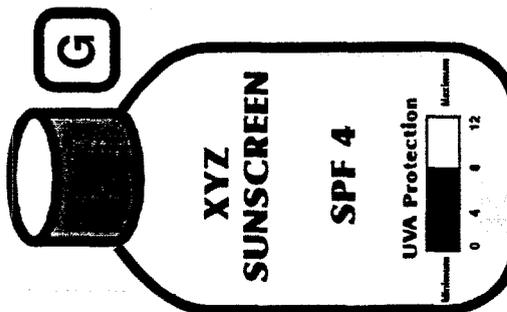
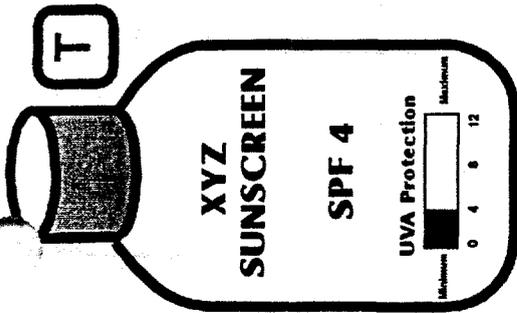
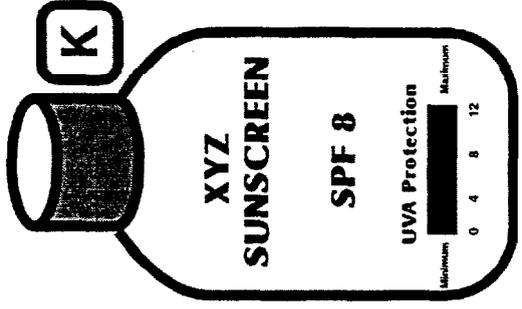
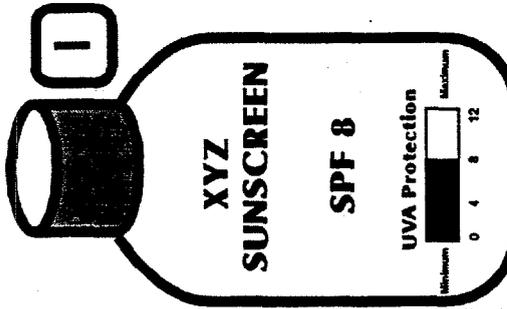
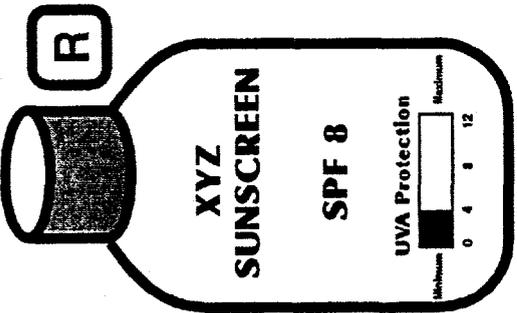
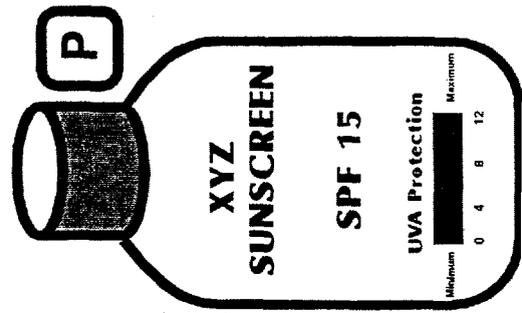
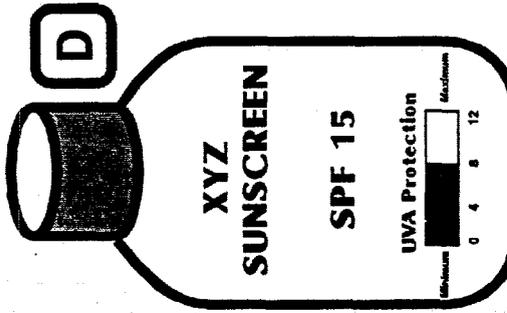
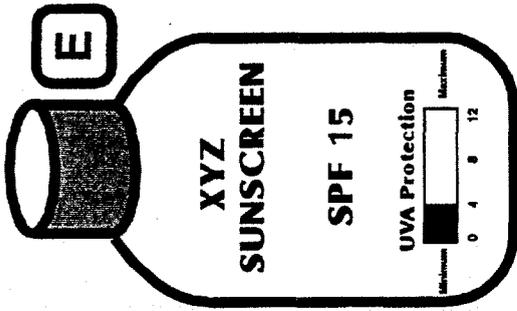
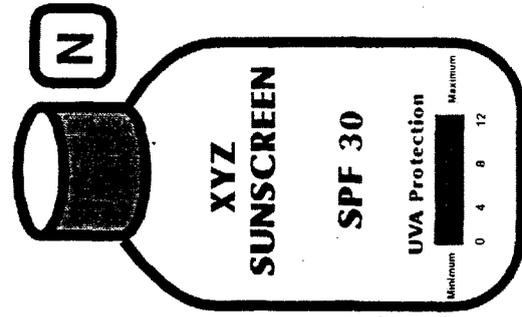
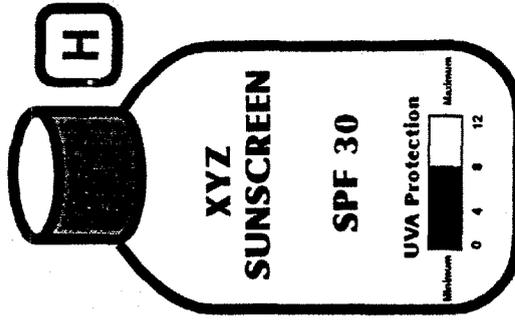
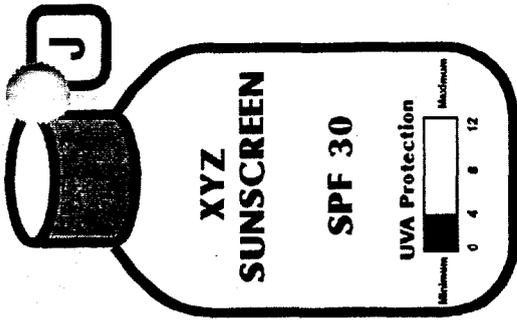
- Pass / Fail System
- 3-Tiered Scale: Verbal Descriptor
- 3-Tiered Scale: Graphonumerical



3-Tiered Scale: Verbal Descriptor



3-Tiered Scale: Graphonumerical



**Attachment B: Study Questionnaire / Instruction Sheet**

**CONSUMER MAIL PANEL**

P.O. Box 94602 Palatine, IL 60094-4602



(M013)-01,02.03  
(US990979)

Dear Panel Member:

PLEASE GIVE THIS QUESTIONNAIRE AND ENCLOSED MATERIAL TO THE FEMALE MEMBER OF YOUR HOUSEHOLD WHOSE AGE IS INDICATED ABOVE. (This may be you.) Thanks!

To the female household member helping with this study:

Enclosed is a list of product options and a questionnaire. This list is for sunscreen products.

Please read the description carefully, and then answer all of the questions on the questionnaire. Even if you never use these types of products, I still want you to answer my questions. Your opinion is still very important.

While you are looking at the product options, please imagine that you are going to a store to purchase a sunscreen product for your personal use. The list of product options represents the product choices you would see on a store shelf.

The questionnaire is short, and I'm sure you will find it very easy to answer. Once you have completed the questionnaire, please return it and the description in the enclosed postage-paid envelope.

Thank you for your help.

Cordially,

*Marie*

1. Which product would you purchase for your use? **(PLEASE WRITE IN THE LETTER FOUND NEXT TO THE LABEL)**

(320-322)

2. How easy was it to choose the product appropriate for your needs? ("**X**" ONE BOX)

- Easy .....  1
- Neither easy nor difficult.....  2
- Difficult .....  3

(323)

3. Why did you choose this product? **(PLEASE BE AS SPECIFIC AS POSSIBLE)**

(420-449)

---



---



---

4. Have you, yourself, ever purchased products containing an SPF (Sun Protection Factor) value? ("**X**" ONE BOX)

- Yes .....  1 → (CONTINUE WITH QU. 5)
- No.....  2 → (SKIP TO QU. 7)

(324)

5. What type of product(s) with SPF have you purchased and what level of SPF do they contain? **(PLEASE "X" ALL PRODUCTS THAT APPLY WITH THE SPF LEVEL THEY CONTAIN)**

	SPF 4 or less	SPF 5-14	SPF 15-29	SPF 30-44	SPF 45 or more	Did not purchase this product	
Facial moisturizer .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	( 325)
Recreational/beach sunscreen .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	( 326)
Lipstick .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	( 327)
Makeup/foundation .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	( 328)
Other ( <b>Specify</b> ) .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	( 329)

6. When was the last time you purchased the SPF products you indicated above for use by you, or any member of your household? ("**X**" ONE BOX FOR EACH PRODUCT)

	In past <u>7 days</u>	1-4 weeks <u>ago</u>	1-3 months <u>ago</u>	4-6 months <u>ago</u>	7-12 months <u>ago</u>	Over 12 months <u>ago</u>	Never <u>Purchase</u> <u>d</u>	
Facial moisturizer.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	(331)
Recreational/beach sunscreen .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	(332)
Lipstick.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	(333)
Makeup/foundation .....	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	(334)
Other ( <b>Specify</b> ) _____	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6	<input type="checkbox"/> 7	(335)

\_\_\_336

7. Thinking about all the SPF products you use, how would you describe when you, yourself, typically use them? ("**X**" ALL THAT APPLY)

- Daily, there is SPF in my moisturizer .....  1 (337)
- Daily, there is SPF in my foundation .....  2
- Daily, use in addition to my moisturizer.....  3
- Always when going outside.....  4
- Only when going outside for a long time .....  5
- Only in the summer .....  6
- Only when sunbathing.....  7
- Other occasion (**Specify**) \_\_\_\_\_  8 \_\_\_338
- Do not use any SPF products .....  9

8. Do you, or does anyone close to you (i.e. family member, friend, etc) have a history of skin cancer? ("**X**" ONE BOX)

- Yes .....  1 (339)
- No.....  2

9. May I have your age, please?

\_\_\_\_\_ years old (340-341)  
(Please Write In Number)

10. Are you male or female?

- Male.....  1 (342)
- Female .....  2

11. What is the last grade of school you, yourself, completed? ("**X**" ONE BOX)

- Grade school or less .....  1 (343)
- Some high school.....  2
- High school graduate .....  3
- Some college.....  4
- College graduate.....  5
- Post graduate.....  6

344-378 OPEN  
379-380 [03]

PLEASE LOOK OVER THE QUESTIONNAIRE TO MAKE SURE YOU HAVE NOT MISSED ANY QUESTIONS, THEN RETURN THE COMPLETED QUESTIONNAIRE AND THE LIST OF PRODUCT OPTIONS IN THE POSTAGE-PAID ENVELOPE PROVIDED.

**Attachment C: 1995 submission by Schering-Plough to Docket 78-0038N**

**UVA LABELING-CONSUMER RESEARCH**  
**EXECUTIVE SUMMARY**

**BACKGROUND**

Two consumer research studies were conducted with a primary objective of determining the optimal means of describing UVA protection levels to sunscreen users. Specifically, the research objective was to obtain consumer response to possible UVA labeling options: a numerical system (a UVA protection value), a two word description, a three-level category approach, and/or visual (symbol) systems.

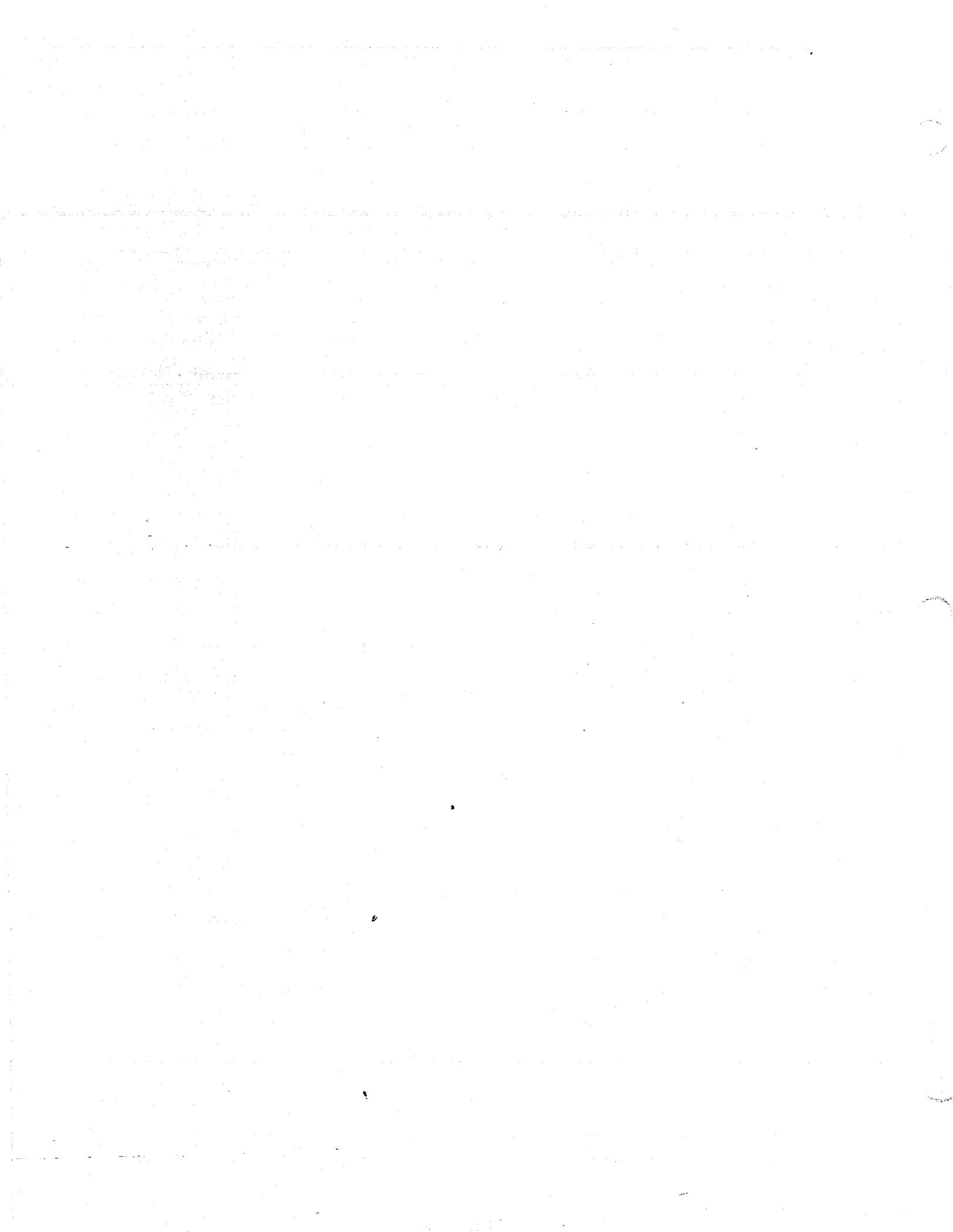
Three focus group discussions were held in July, 1994. Quantitative research was conducted in July, 1995 at 10 sites throughout the U.S. In-depth interviews assessed perceptions of and responses to three UVA labeling options presented as numeric, symbolic or descriptive package designs. The goal of the quantitative studies was to determine which of the three designs successfully communicated the protection provided by the sunscreen products shown.

**MAIN FINDINGS FROM BOTH STUDIES**

- A second protection number created unnecessary complications and confusion for consumers.
- A descriptive approach better conveyed to consumers the added benefit of UVA protection and did not detract from the SPF.
- Symbols, while simple, misdirected consumer focus and created significant misunderstanding of sunscreen protection.

**RECOMMENDATIONS**

- A. A descriptive approach not only better conveys to consumers the added benefit of UVA protection, but also leads consumers to make more appropriate choices for better overall protection.
- B. Symbols, while a distinct and simple way to display information, mislead the consumer into giving equal or greater importance to the UVA rating (number of stars) than to the SPF. This in turn leads to inappropriate choices in UV protection.
- C. A second protection number or factor should not be a feature of product labeling.



## UVA LABELING-CONSUMER RESEARCH SUMMARY REPORT

### BACKGROUND

Two consumer research studies were conducted with a primary objective of determining the optimal means of describing UVA protection levels to sunscreen users. Specifically, the research objective was to obtain consumer response to possible UVA labeling options: a numerical system (a UVA protection value), a two word description, a three-level category approach, and/or visual (symbol) systems.

Three focus group discussions, comprising approximately 30 consumers, were held in July, 1994. One group consisted of consumers who consider themselves to be "tanners" while two were comprised of consumers who identify themselves as "protection oriented". Materials used with the focus groups can be found in Attachment 1.

Quantitative research was conducted with 235 consumers in July, 1995 at 10 sites throughout the U.S. In-depth interviews assessed perceptions of and responses to three UVA labeling options presented as numeric, symbolic or descriptive package designs. The goal of the quantitative studies was to determine which of the three designs successfully communicated the protection provided by the sunscreen products shown. A detailed report on the quantitative research and its results follows as Attachment 2.

### MAIN FINDINGS FROM BOTH STUDIES

- A second protection number or factor should not be a feature of product labeling. A second number created unnecessary complications and confusion for consumers.
- A descriptive approach better conveys to consumers the added benefit of UVA protection and does not detract from the SPF.
- Symbols, while simple, misdirect consumer focus and create significant misunderstanding of sunscreen protection.

## **SPECIFIC FINDINGS FROM PRELIMINARY FOCUS GROUPS:**

- **Awareness of a difference in UVA and UVB rays is minimal.** Virtually all consumers believe that the protection offered by their SPF number covers all potential damage from the sun's rays.
- **Exposure to the various UVA labeling options yielded considerable consumer confusion and frustration.** This lack of comprehension is driven by the dual-protection (SPF and UVA) messages which, in the consumer's mind, are contradictory and/or misleading.
- **The use of a UVA protection value along with the SPF on the label was the source of perhaps the greatest degree of consumer confusion and frustration (Attachment 1A).** Many felt that the addition of a second numerical rating on the package created unwanted complications and, in fact, undermined or contradicted the SPF number. Descriptive copy was considered more informative and could serve as support to the UVA protection message.
- **Two preliminary designs which attempted to graphically convey the different levels of UVA protection were found to be confusing.** While a bar graph (Attachment 1B) appears to be marginally more effective/appealing than the sun or stars illustrations (Attachment 1C), neither provide any appreciable level of clear communication. In addition, there was evidence that the graphic approach may be misleading:
  - Some consumers associated the bar graph with tanning potential
  - Some consumers associated the star/suns approach with the level of sun intensity.
- **The three-level description approach, "minimum, moderate, or maximum", clearly differentiated the three forms of protection from one another and created the perception that the levels of protection are equally distanced from one another.** However, these designators (Attachment 1D) failed to address the fundamental issue of how or why three varying levels of protection are being offered. Thus, consumers continued to express a strong degree of frustration and confusion when discussing this labeling option.
- **When consumers were shown a range of SPFs with varying levels of UVA protection, (Attachment 1E) consumers became overwhelmingly confused.** These consumers continued to express concern that it is inconsistent with their existing knowledge base with respect to SPF protection.
- **The "Broad Spectrum or Extended UVA Protection" message (Attachment 1F) did begin to differentiate UVA protection levels to sunscreen users, primarily because these phrases offer no absolute for consumers and therefore generate less conflict with the SPF value and should be considered for UVA labeling.**

■ The word/descriptors approach (Broad Spectrum or Extended UVA Protection) was considered somewhat confusing initially. However, after careful consideration, a message of incremental protection became evident. While most were unable to clearly define the meaning of Broad Spectrum UVA and UVB Protection or UVB Protection Plus Extended UVA Protection, they readily recognized that the products would offer additional ingredients versus a product offering only UVB protection.

In conclusion, it is clear that a relationship or difference between UVA protection and SPF protection is currently not understood. This would suggest that introductory labeling efforts should concentrate on providing meaningful and understandable information which will help consumers better understand SPF protection and UVA protection. Accordingly, visual systems and UVA protection values/numbers should not be considered as ways of introducing or communicating this message to consumers. In addition, a significant educational effort will be needed to enhance correct consumer use and benefit.

#### RECOMMENDATIONS FROM FOCUS GROUP RESEARCH

- A. A second protection number or factor should not be a feature of product labeling.
- B. A descriptive approach would better convey to consumers the added benefit of UVA protection.
- C. Symbols mis-focus the consumer understanding of sunscreen protection.

## QUANTITATIVE RESEARCH

Based on the focus group information, quantitative research was conducted to determine the extent to which each of three alternative designs successfully communicated the protection provided by sunscreen products, to determine which of the design options delivered the intended message and to assist in identifying areas of confusion relative to the package designs. These designs are shown in Attachment 2.

A three cell monadic test was conducted in July, 1995 among 235 target consumers (females between ages 21 and 49), who had purchased a sunscreen or sunblock with an SPF of at least 12 within the past year. Female subjects were selected as 75% of category purchases are made by women. Details of the study, including demographics and purchasing behavior, can be found in the attachment.

Regardless of method of label communication, there is evidence of considerable confusion between SPF and UVA protection. Nearly one-half of consumers believe there is no difference between the two, suggesting that there will be a great need for public education if UVA labeling is instituted on packages.

## KEY FINDINGS/QUANTITATIVE RESEARCH

- The Written Description ("UVA/UVB Protection" or "UVB Plus Extended UVA Protection") is an effective communicator of the protection concept and creates the greatest distinction from the concept of SPF protection.
- The Symbolic representation (stars) is the most preferred approach by consumers for its simplicity, but lacks in its ability to clearly convey UVA/UVB protection. The use of symbols caused UVA protection to be seen as equally or more important than the SPF of the product and led consumers to make incorrect conclusions as to overall product protection.
- The Numeric representation (UVA Protection Factor) exacerbated confusion with the SPF (due to its numbering approach) and should not be regarded as a viable alternative.

## SPECIFIC FINDINGS/QUANTITATIVE RESEARCH

Of the three options, the written descriptor offers the best opportunity for creating a greater understanding and learning of the UVA system, as well as the difference from SPF. The written option creates a stronger contrast to the already entrenched numeric scale used for SPF. It is much more likely to create a more distinct separation of these two importantly different messages, as evidenced by:

- More clearly conveys the UVA protection feature/benefit:

<u>Symbolic</u>	<u>Numeric</u>	<u>Description</u>
%	%	%
53	38	68

- Generates a clearer correct interpretation of the UVA message (between packages)

84	77	92
----	----	----

- More easily conveys the UVA differences between two products with same SPF

41	51	79
----	----	----

- Creates a greater distinction between protection options

### Best protection option (SPF 30 vs SPF 15)

SPF 30	43	50	69
SPF 15	54	50	31

- Fits best with concept statement (Top 3 Box, out of 10)

34	22	51
----	----	----

- Labeling that best fits description

31	13	57
----	----	----

While the symbolic alternative uses a method that is distinctly different from the SPF system (i.e., a star rating), it does not appear to be sufficient for consumers to understand the UVA message as well as the descriptive approach. Consumers believed that the more stars, the higher the product protection level and could not interpret/translate the stars into a clear and understandable UVA message when presented on the package with the SPF. More than half of the consumers who were asked to choose the best overall protection based on a combination of "SPF plus stars" choose the product with more stars but with lower overall protection (SPF 15).

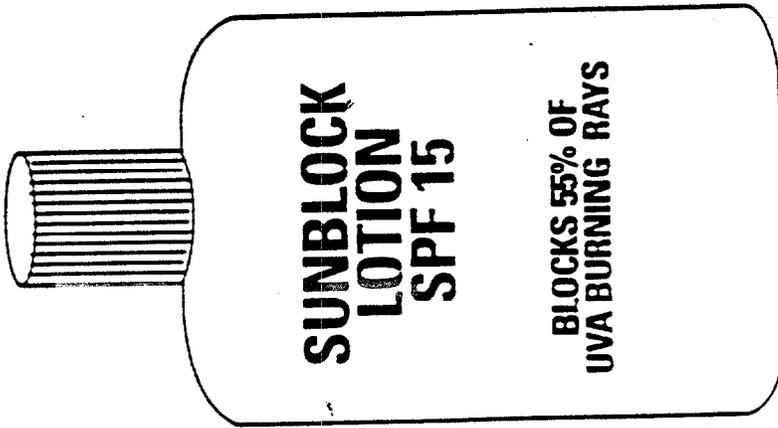
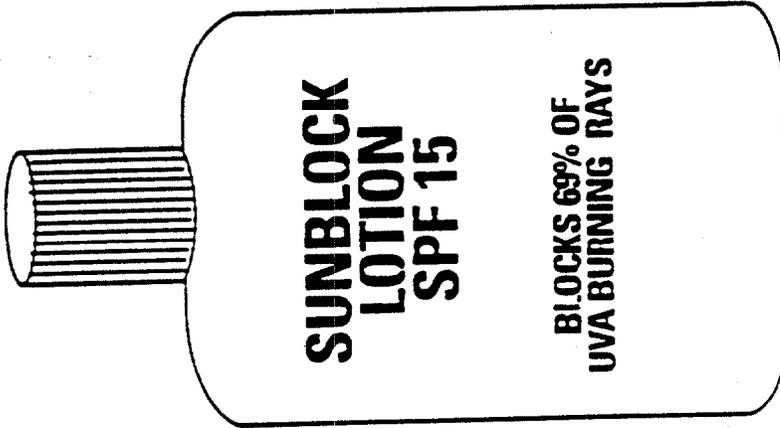
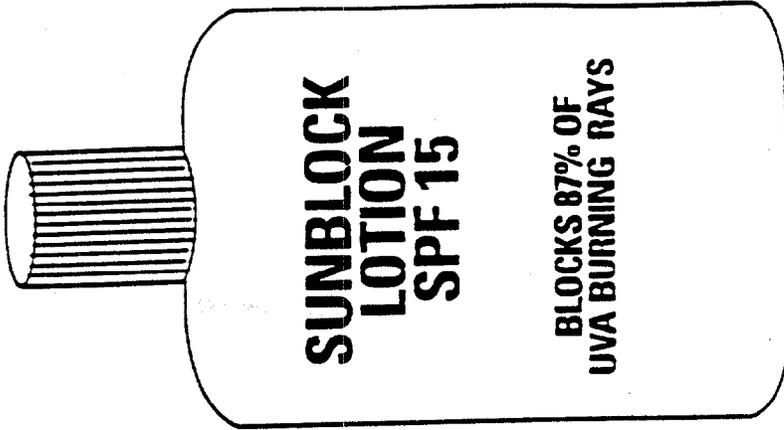
It should not be the objective of UVA labeling to focus consumer attention on that feature such that the UVA labeling receives equal or greater significance for product selection than does SPF.

### **RECOMMENDATIONS FROM QUANTITATIVE RESEARCH**

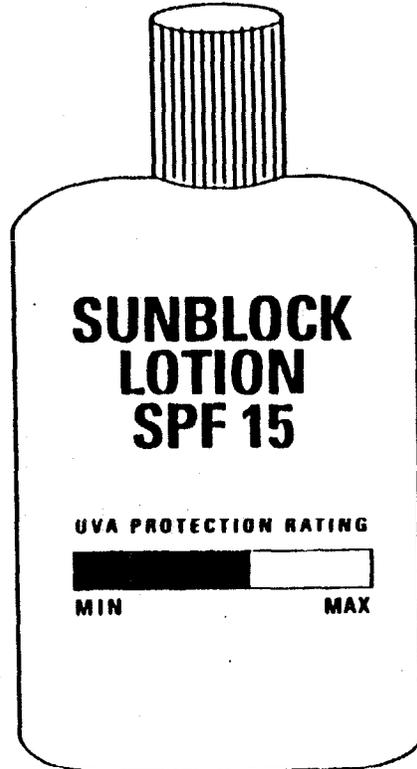
- A. The descriptive approach not only better conveys to consumers the added benefit of UVA protection, but also leads consumers to make more appropriate choices for better overall protection.
- B. Symbols, while a distinct and simple way to display information, mislead the consumer into giving equal or greater importance to the UVA rating (number of stars) than to the SPF. This in turn leads to inappropriate choices in UV protection.
- C. A second protection number or factor should not be a feature of product labeling.

**ATTACHMENT 1**

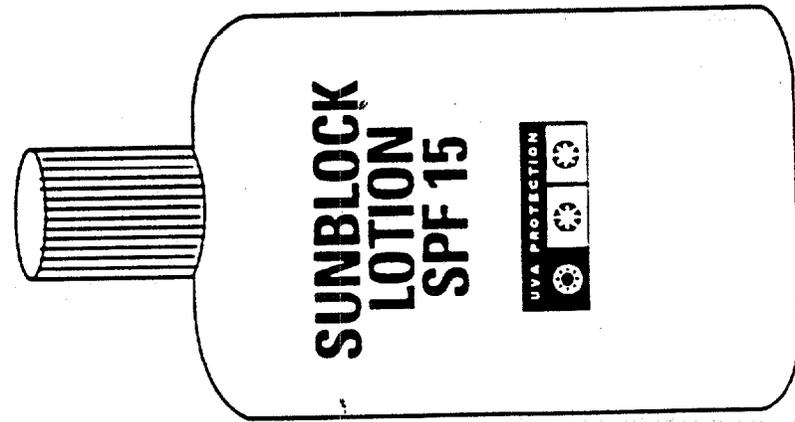
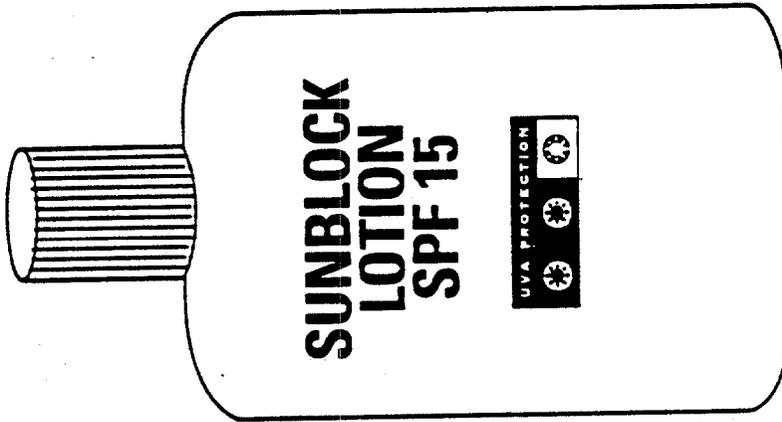
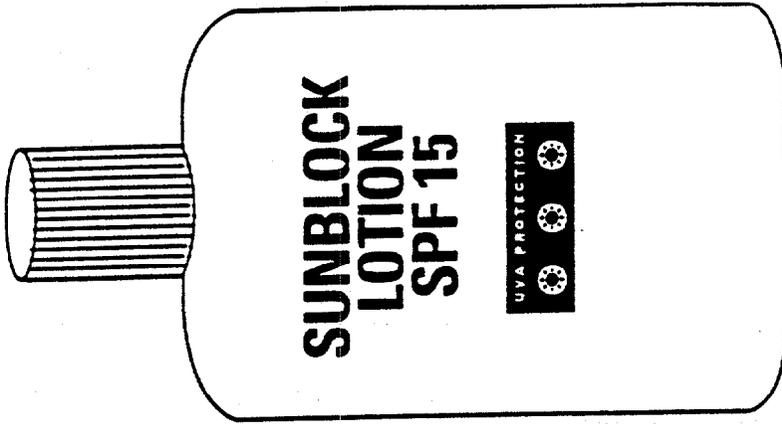
**FOCUS GROUP MATERIALS**



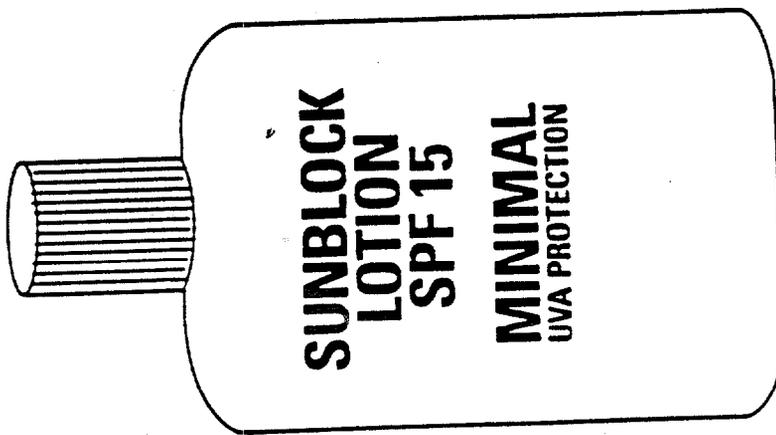
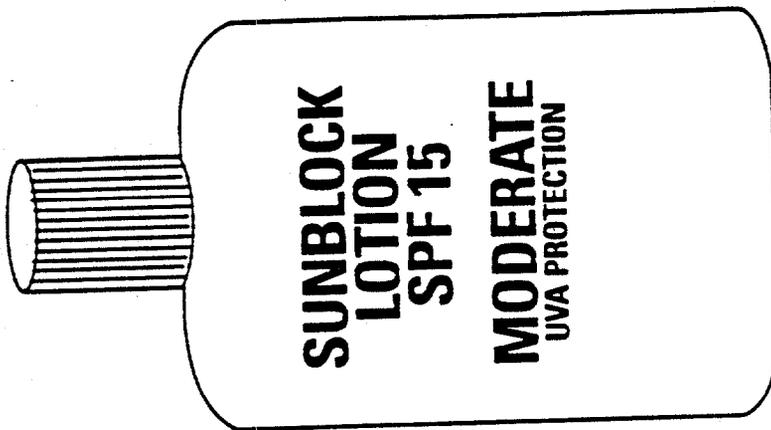
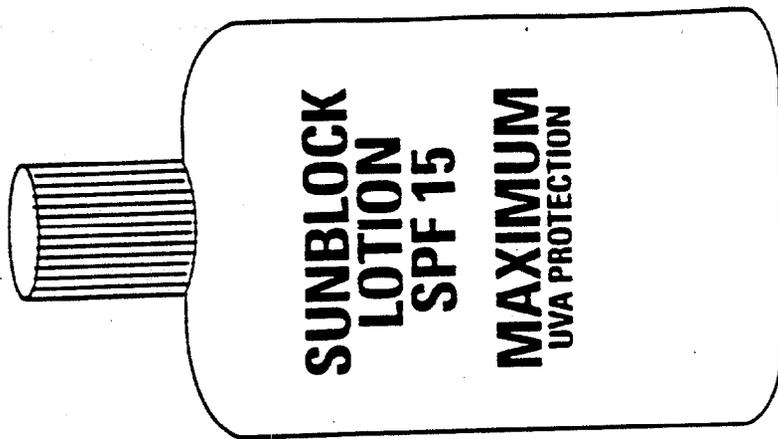
1A



1B



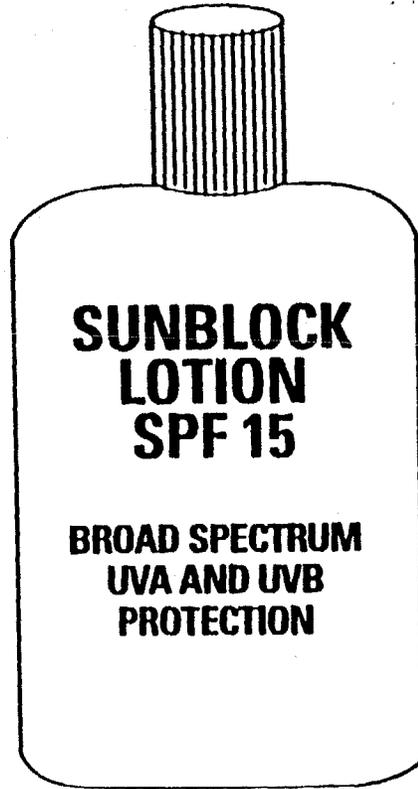
1C



1D



1E



**1F**

**ATTACHMENT 2**

**QUANTITATIVE RESEARCH REPORT**



# *Suncare UVA Labeling Quantitative Research*

*Prepared For:  
Schering Plough, Inc.*

*September, 1995*

# *Background & Objectives*



**The FDA is considering industry guidelines for the use of a "UVA Protection Factor" in suncare labeling. The methods of communicating the level of UVA protection range from verbal descriptors to numerical or symbol scales. Previous qualitative research has indicated two important points: first, the addition of a UVA scale causes confusion and second, the least confusing UVA system is one based on verbal descriptors.**

# *Sample Composition*



A three cell monadic test of a total of 235 interviews, approximately 75 per test cell, were conducted among target suncare consumers. More specifically the sample is defined as follows:

- All Caucasian females
- All are between the ages of 21 and 49
  - 1/2 21-34
  - 1/2 35-49
- All have purchased a sunscreen/sun block with an SPF level of at least 12 in the past 12 months.

# *Test Dates And Locations*

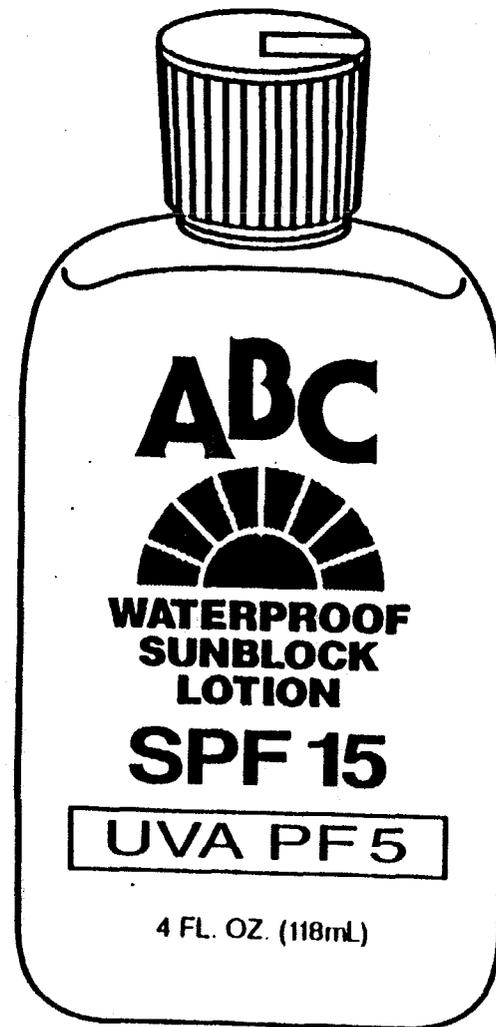
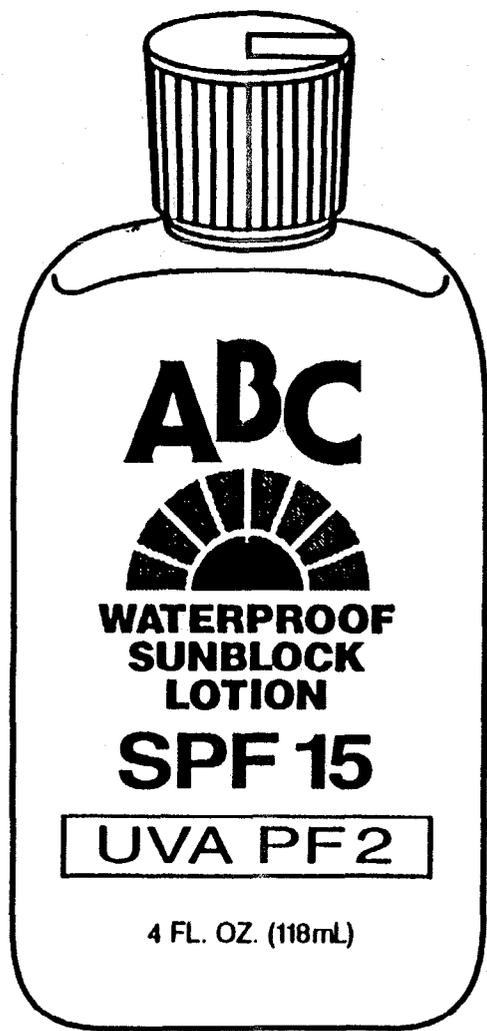


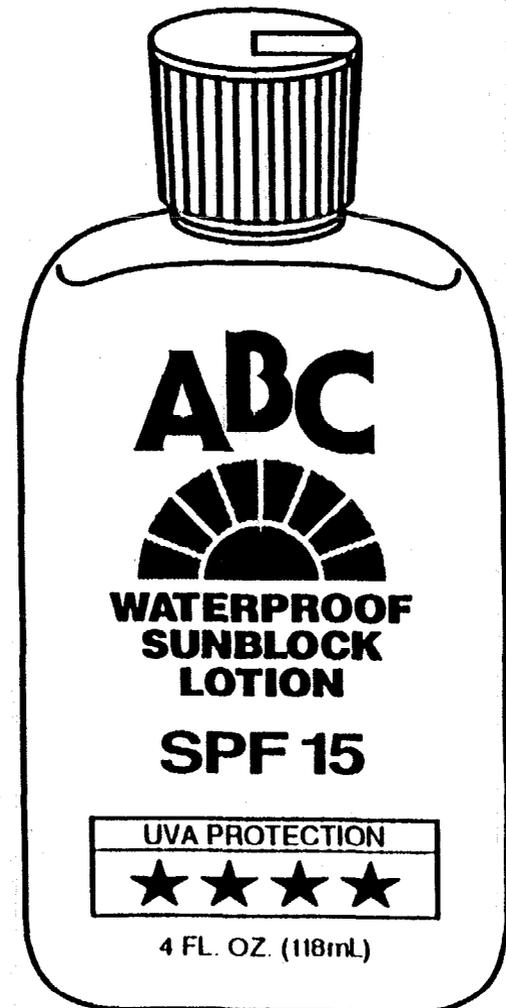
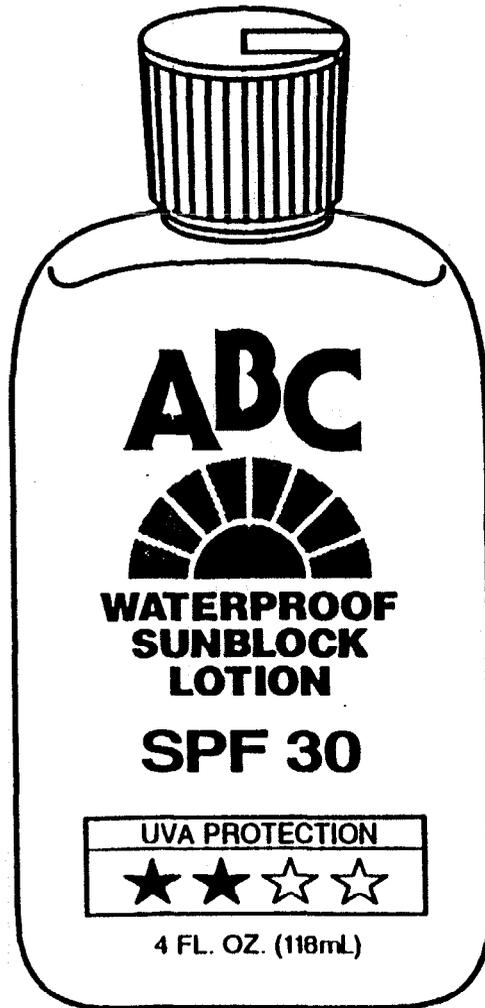
Interviewing was conducted during the month of July, 1995 in the following locations:

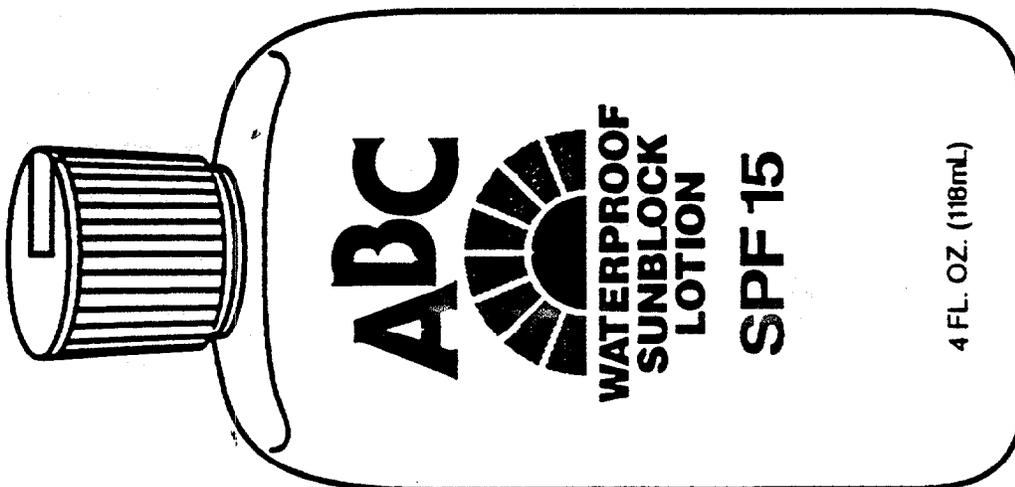
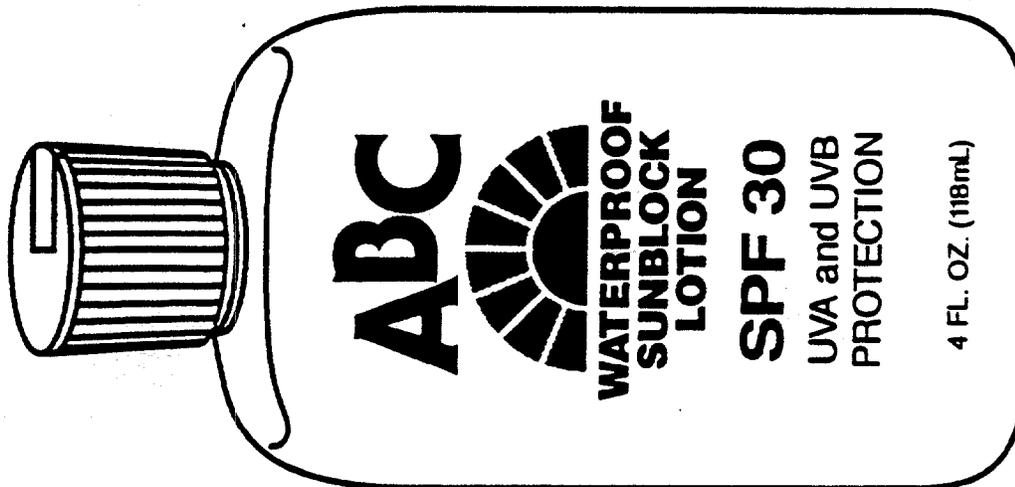
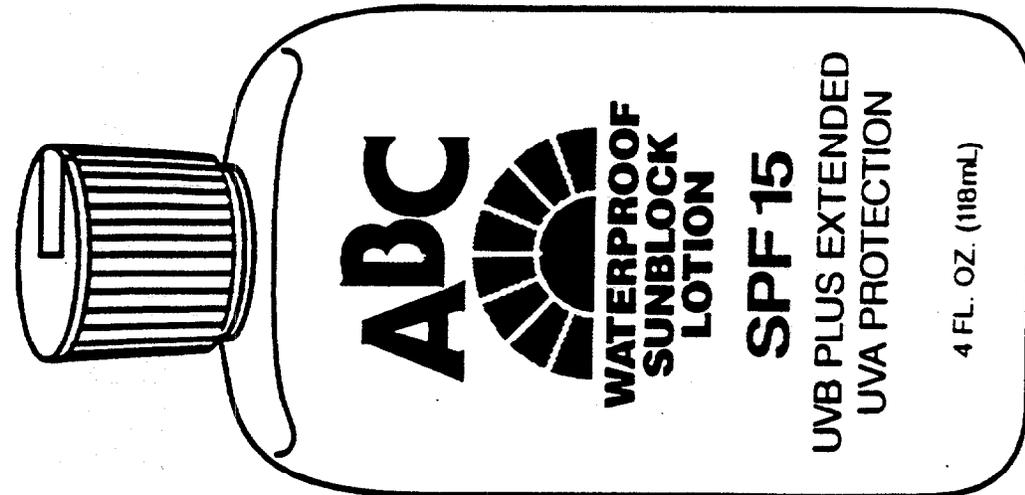
- Philadelphia, PA
- Boston, MA
- Minneapolis, MN
- Chicago, IL
- San Diego, CA
- Wayne, NJ
- Fort Lauderdale, FL
- Northern California
- Appleton, WI
- New Orleans, LA

# *Interviewing Sequence*

- 
- Potential participants were screened for target qualifications
  - Exposure to one of the three alternative design which describe UVA and asked to examine it in detail. Areas of questioning include:
    - Description of product based on package
    - Clarity/believability
    - Probe for specific messages (i.e., copy, symbol, etc.)
  - Next, participants were exposed to all three packaging options and a series of comparative ratings were implemented. At this point participants were also shown a written concept of the UVA product and will be asked to identify the package which most effectively conveys the proposition and that which is least effective.
  - The interview concluded with a series of product usage and demographic questions.







"Description"

# Summary Of Findings

- **The Written Description** is an effective communicator of the protection concept and creates the greatest distinction from the concept of SPF protection communication.
  
- **The Symbolic** representation is the most preferred approach by consumers for its simplicity, but is lacking in its ability to clearly convey UVA/UVB protection.
  
- **The Numeric** representation appears to exacerbate confusion with SPF (due to its numbering approach) and should not be regarded as a viable labeling alternative.

Of the three options, the written descriptor offers the best opportunity for creating a greater understanding and learning of the UVA system (and its difference from SPF). The written option creates a stronger contrast to the already entrenched numeric/scaler system used for SPF protection. It is much more likely to create a more distinct separation of these two importantly different messages, as evidenced below:

- More clearly conveys the UVA protection feature/benefit:

	<u>Symbolic</u> %	<u>Numeric</u> %	<u>Description</u> %
UVA protection	53	38	68

- Generates a clearer correct interpretation of the UVA message (between packages)

Correct interpretation	84	77	92
------------------------	----	----	----

- More easily conveys the UVA differences between products with the same SPF factor:

Product on right offers more UVA protection	41	51	79
---	----	----	----

- Creates greater distinction between the three protection options:

Best overall protection

Middle	43	50	69
Right	54	50	31

- "Fits" best with concept statement

Top 2 Box	23	11	36
-----------	----	----	----



*Reactions Towards Alternative  
Treatments Of UVA Message*

- **Symbol** -
- **Numeric** -
- **Description** -

# *Analytical Note*



Throughout this report, statistical significance is noted on each table in the following manner:

- Every column is denoted by a letter
- All columns have been statistically tested against one another at the 90% level of confidence
- Percentages lower than 10% have not been tested for statistical significance.

## *Meaning Of "UVA Protection"*



Q Please tell me in your own words, what UVA protection means?

## Meaning Of "UVA" Protection

Base:	<u>Symbolic</u> (79) % <u>A</u>	<u>Numeric</u> (78) % <u>B</u>	<u>Description</u> (78) % <u>C</u>
<u>GAVE A MEANING</u>	<u>96</u>	<u>88</u>	<u>91</u>
Ultraviolet/ultraviolet rays/ protection from	78	72	73
Blocks harmful rays of sun/ rays that burn skin, cause cancer, wrinkles	16	18	15
Protects against sun's rays/ blocks sun's rays	9	4	6
Not sure what "A" in "UVA" means/how different from "B" in UVB	8	5	9
Protects against UV rays	1	5	1
<u>DON'T KNOW</u>	<u>4</u>	<u>10</u>	<u>9</u>

# *SPF And UVA Protection Differences Summary*



Q Is there any difference between SPF and UVA protection?

## SPF And UVA Protection Differences Summary

Base:	<u>Symbolic</u> (79) % <u>A</u>	<u>Numeric</u> (78) % <u>B</u>	<u>Description</u> (78) % <u>C</u>
<u>Yes, there is a difference between SPF and UVA protection</u>	<u>41</u>	<u>53</u>	<u>47</u>
Perceived Some Differences	27	36	27
Don't Know	14	17	19
<u>No, there is no difference between SPF and UVA protection</u>	<u>59</u>	<u>47</u>	<u>53</u>

## *Communication of UVA Message*



- Q You'll notice a UVA protection message at the bottom of the packages. On these packages, the UVA message is conveyed through words and numbers/star symbols. Please tell what you think are the UVA protection differences among the 3 packages. You can refer to them by left, middle and right package?

## Communication Of UVA Message

Base:	<u>Symbolic</u> (79) % <u>A</u>	<u>Numeric</u> (78) % <u>B</u>	<u>Description</u> (78) % <u>C</u>
<u>PERCEIVED SOME DIFFERENCES</u>	<u>100</u>	<u>92</u>	<u>97</u>
<u>Correct Interpretation</u>	<u>84</u>	<u>77</u>	<u>92B</u>
Right product has the most/ extended/full UVA protection	68	58	62
Left product is weakest/has less UVA protection	62C	53C	15
Middle product has moderate UVA protection	52B	36	55B
The more darkened stars or higher number, the more protection	15	19	-
Left product has no UVA protection	-	-	49
Left doesn't say (if) it has UVA protection	-	-	29
<u>Incorrect Interpretation</u>			
The SPF 15 on the right may be as good as the SPF 30/ it has more protection	5	-	1

## Communication Of UVA Message - cont'd

Base:	<u>Symbolic</u> (79) % <u>A</u>	<u>Numeric</u> (78) % <u>B</u>	<u>Description</u> (78) % <u>C</u>
The middle and right are the same/both have UVA (and UVB) protection	4	1	9
Right product would last longest in the sun/left the least	3	-	6
<u>Miscellaneous</u>	<u>10</u>	<u>15</u>	<u>10</u>
Confusing that the highest UVA protection is not the highest SPF number, and vice versa	8	4	-
The amount of protection/ different levels of protection	3	5	1
The numbers, 2, 3, and 5	-	6	-
Don't understand meaning of "extended"	-	-	5
The middle product has equal amounts of UVA and UVB protection	-	-	3
<u>PERCEIVED NO DIFFERENCES</u>	<u>-</u>	<u>8</u>	<u>3</u>

# *Differences Between SPF And UVA Protection*



Q Looking at the packages, please tell me what the difference is between SPF and UVA protection?

## Differences Between SPF And UVA Protection

Base:	<u>Symbolic</u> (79) % <u>A</u>	<u>Numeric</u> (78) % <u>B</u>	<u>Description</u> (78) % <u>C</u>
<u>YES, THERE IS A DIFFERENCE BETWEEN SPF AND UVA PROTECTION</u>	<u>41</u>	<u>53</u>	<u>47</u>
<u>PERCEIVED SOME DIFFERENCES</u>	<u>27</u>	<u>36</u>	<u>27</u>
<u>UVA</u>	<u>25</u>	<u>31</u> C	<u>15</u>
UVA refers to ultraviolet rays	14	26AC	10
UVA rays are the harmful rays/ cause cancer	9	1	4
UVA is part of the light spectrum/just certain rays	3	4	3
UVA more important/offers better protection than SPF	3	3	1
<u>SPF</u>	<u>22</u>	<u>26</u>	<u>22</u>
SPF is for sun protection/the sun protection factor	5	12	-
SPF represents a time element/how long you can be exposed to sun	5	1	5
SPF covers the entire light spectrum/all types of sun rays	4	4	3
SPF keeps you from tanning/burning	4	4	3

## Differences Between SPF And UVA Protection - cont'd

Base:	<u>Symbolic</u> (79) %	<u>Numeric</u> (78) %	<u>Description</u> (78) %
	<u>A</u>	<u>B</u>	<u>C</u>
SPF is for sun rays	3	3	3
SPF represents protection from rays other than UV rays	1	1	4
SPF indicates the amount of protection	-	1	4
<u>DON'T KNOW</u>	<u>14</u>	<u>17</u>	<u>19</u>
<u>NO, THERE IS NO DIFFERENCE BETWEEN SPF AND UVA PROTECTION</u>	<u>59</u>	<u>47</u>	<u>53</u>

# *Differences Between Two SPF 15 Packages*



Q Now I'd like you to look at the two SPF 15 packages. Please tell me what the specific differences are between these two products?

## Differences Between Two SPF 15 Packages

Base:	<u>Symbolic</u> (79) % <u>A</u>	<u>Numeric</u> (78) % <u>B</u>	<u>Description</u> (78) % <u>C</u>
<u>PERCEIVED SOME DIFFERENCES</u>	<u>96</u>	<u>96</u>	<u>95</u>
<u>UV Protection</u>	<u>65</u>	<u>86A</u>	<u>79A</u>
<u>Right Product Offers More UV Protection</u>	<u>41</u>	<u>51</u>	<u>79AB</u>
Right has (more) UVA protection, extended UVA protection/other has less	33C	23C	8
Right has (more) UV (or ultraviolet) protection/other has less or none	8	-	5
One is UVA PF 2 (or 3), the other is UVA PF 5	-	28	-
Right has both UVA and UVB protection/other does not	-	-	31
Right has UVB and extended UVA protection/other does not	-	-	14
Right has UVA plus extended UVB protection	-	-	9
Right has (more) UVB protection, extended UVB protection/other has less	-	-	8
Right has UVB plus extended protection	-	-	6

Differences Between Two SPF 15 Packages - cont'd

Base:	<u>Symbolic</u> (79) %	<u>Numeric</u> (78) %	<u>Description</u> (78) %
	<u>A</u>	<u>B</u>	<u>C</u>
<u>Other UV Protection</u>	24	35	-
Different levels of UVA protection/the UVA stars, PF numbers are different	24	33	-
<u>Miscellaneous</u>	34B	13	26B
The stars/different number of stars darkened	19	-	-
Right has more, extended protection/ is stronger, more effective	9	4	12B
Different levels of protection/ the PF number is different	3	6	5
Confused about terminology meaning of UVA/UVB/extended protection	3	3	5
<u>PERCEIVED NO DIFFERENCES</u>	3	1	5

# *Differences Between Two UVA Protection Messages*



Q Now, I'd like you to look at the middle and right packages, the SPF 30 and SPF 15 products. Aside from the SPF level, what are the specific differences between these two products?

## Differences Between Two UVA Protection Messages

Base:	<u>Symbolic</u> (79)	<u>Numeric</u> (78)	<u>Description</u> (78)
	<u>%</u> <u>A</u>	<u>%</u> <u>B</u>	<u>%</u> <u>C</u>
<u>PERCEIVED SOME DIFFERENCES</u>	<u>97</u>	<u>97</u>	<u>91</u>
<u>UV Protection</u>	<u>63C</u>	<u>85AC</u>	<u>47</u>
Right has (more) UVA protection, extended UVA protection/other has less	37BC	23	23
Different levels of UVA protection/ the UVA stars, PF numbers are different	23	37AC	-
One is UVA PF 2 (or 3), the other is UVA PF 5	-	21	-
Right has UVB plus extended protection	-	-	9
Right has (more) UVB protection, extended UVB protection/other has less	-	-	6
Right has UVB and extended UVA protection/other does not	-	-	6
<u>Miscellaneous</u>	<u>35B</u>	<u>14</u>	<u>49AB</u>
The stars/different number of stars darkened	24	-	-

cont'd

## Differences Between Two UVA Protection Messages - cont'd

Base:	<u>Symbolic</u> (79) <u>%</u> <u>A</u>	<u>Numeric</u> (78) <u>%</u> <u>B</u>	<u>Description</u> (78) <u>%</u> <u>C</u>
Middle or SPF 30 has more protection/ blocks more UVA rays	4	4	5
Different levels of protection/ the PF number is different	3	6	3
Right has more, extended protection/UVA is stronger, more effective	3	3	36AB
Right offers more long-lasting protection	1	-	9
<u>PERCEIVED NO DIFFERENCES</u>	<u>1</u>	<u>3</u>	<u>8</u>

## *Best Overall Protection*



Q Which of these three products provided the best overall protection from the sun's rays and its effect on your skin?

## Best Overall Protection

Base:	<u>Symbolic</u>	<u>Numeric</u>	<u>Description</u>
	(79)	(78)	(78)
	<u>%</u>	<u>%</u>	<u>%</u>
	<u>A</u>	<u>B</u>	<u>C</u>
Left SPF 15	1	-	-
Middle SPF 30	43	50	69AB
Right SPF 15	54C	50C	31
All the same	1	-	-

# *Reason For Choice Of Best Overall Protection*



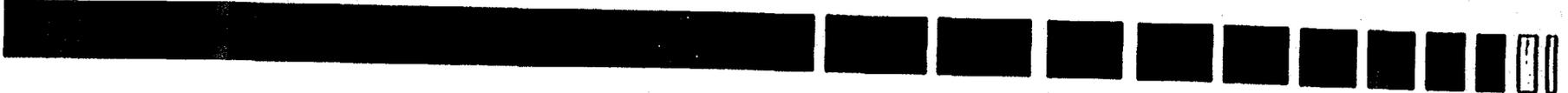
Q Why did you chose the product on the right?

(SPF 15)

## Reasons For Choice Of Best Overall Protection - Right

Base:	<u>Symbolic</u> (79) % <u>A</u>	<u>Numeric</u> (78) % <u>B</u>	<u>Description</u> (78) % <u>C</u>
<u>CHOSE RIGHT</u>	<u>54C</u>	<u>50C</u>	<u>31</u>
<u>UV Protection</u>	<u>37C</u>	<u>41C</u>	<u>13</u>
Has more UVA protection/higher UVA grade or PF number/more UVA stars/extended UV protection more significant/ meaningful/important than SPF number	27C 5	33C 8	5 -
Has more UV or ultraviolet protection	5	6	-
Has UVB and extended UVA protection	-	-	6
<u>Protection (General)</u>	<u>20B</u>	<u>8</u>	<u>15</u>
Has more, extended protection/ better protection	10	5	15B
Protects from harmful rays/ from burning, cancer, wrinkles	10	3	-
<u>SPF NUMBER</u>	<u>6</u>	<u>12</u>	<u>9</u>
Has sufficient amount of protection/ SPF higher than 15 not necessary	5	12	9
<u>Miscellaneous</u>	<u>9</u>	<u>3</u>	<u>4</u>
Has more stars/higher PF number	9	1	-

*Reason For Choice Of  
Best Overall Protection*



Q Why did you choose the product in the middle?

(SPF 30)

## Reasons For Choice Of Best Overall Protection - Middle

Base:	<u>Symbolic</u> (79) %	<u>Numeric</u> (78) %	<u>Description</u> (78) %
	<u>A</u>	<u>B</u>	<u>C</u>
<u>CHOSE MIDDLE</u>	<u>43</u>	<u>50</u>	<u>69AB</u>
<u>SPF NUMBER</u>	<u>41</u>	<u>40</u>	<u>67AB</u>
It's SPF 30/higher SPF number/the higher SPF number is more protective	38	38	65AB
<u>UV Protection</u>	<u>5</u>	<u>8</u>	<u>13A</u>
Has sufficient/moderate amount of UVA protection (in addition to high SPF)	5	5	-
Has more UV or ultraviolet protection	-	3	3
Has both UVA and UVB protection	-	-	9
<u>Protection (General) (i.e., Has more, extended protection/better protection/ more sunblock, etc...)</u>	<u>3</u>	<u>8</u>	<u>4</u>
<u>Miscellaneous</u>	<u>5</u>	<u>6</u>	<u>5</u>
⊕ Lasts longer/doesn't have to be reapplied often/can stay in sun longer	3	3	3
Don't understand meaning of UVA/UVB protection, difference between	3	3	3

# *Concept Statement*



The skin's reaction to sun exposure varies according to the individual. Each skin type is able to accept a specific amount of UV exposure before burning. The most common UV rays we are exposed to are UVA and UVB wavelengths.

UVA rays cause some tanning and contribute to burning, as well as to premature aging and wrinkling of the skin. The UVA may also cause certain skin reactions, especially in people taking certain medications. UVA radiation is relatively constant throughout the year.

UVB rays are the most common cause of sunburns, as well as the main cause of aging and wrinkling of the skin and skin cancer. UVB radiation tends to be greater in the summer and near the equator.

## *Fit Of Design And Concept*



Q Using a “10” to “1” scale, please tell me how well each design board fits the description I have just read to you. A “10” is the highest rating you can give and means that the design board fits the description extremely well and “1” is the lowest rating you can give and means that the design board does not fit the description at all?

Fit of Design And Concept  
(Top Box Summary\*)

	Base:	<u>Total</u> (235) %
Symbolic		14
Numeric		(5)
Description		[23]

\* Based On A 10 Point Rating Scale

= Significantly higher than remaining numbers.

= Significantly lower than remaining numbers.

Fit Of Design And Concept  
(Top 2 Box Summary\*)

	Base:	<u>Total</u> (235)
		%
Symbolic		23
Numeric		(11)
Description		[36]

\*Based On A 10 Point Rating Scale

= Significantly higher than remaining numbers.

= Significantly lower than remaining numbers.

Fit Of Design And Concept  
(Top 3 Box Summary\*)

	Base:	<u>Total</u> (235) %
Symbolic		34
Numeric		(22)
Description		[51]

\*Based On A 10 Point Rating Scale

= Significantly higher than remaining numbers.

= Significantly lower than remaining numbers.

# *Ranking Of Labeling That Best Fits Description*



Q Now I'd like you to rank order each board as to how well it fits the description. The packages you feel fit the description best should get a "1", the packages that fit the description 2nd best should get a "2" and the ones that fit the description the least get a "3".

# Ranking of Labeling That Best Fits Description

## Ranked First

	Base:	<u>Total</u> (235)
		$\%$
Symbolic .		31
Numeric		13
Description		57

= Significantly higher than remaining numbers.

= Significantly lower than remaining numbers.



# *Usage And Classification*

# Classification

	<u>Total</u> (235)
	%
<u>Age</u>	
21-24	17
25-29	14
30-34	18
35-39	17
40-44	16
45-49	10
50-55	8
<u>Marital Status</u>	
Single	28
Married	64
Separated/Divorced	7
Widowed	1
<u># Of People In Household</u>	
-1-	8
-2-	31
-3-	22
-4-	23
-5- or more	16
<u>Education</u>	
Grade school or less	*
Some high school or less	2
Completed high school	26
Some college	34
Completed college	26
Post graduate work	12

## Classification - Cont'd

	<u>Total</u>
<u>Base:</u>	<u>(235)</u>
	<u>%</u>
<u>Employment</u>	
Full-time	60
Part-time	13
Not employed	28
<u>Occupation</u>	
Professional	14
Technical	2
Sales	11
White collar/clerical	15
Skilled blue collar/crafts people	*
Unskilled blue collar/operatives	1
Service/uniformed workers	17
Managerial/executive	8
Creative	1
Miscellaneous	1
<u>Income</u>	
Under \$15,000	6
\$15,000-\$19,999	6
\$20,000-\$24,999	9
\$25,000-\$34,999	14
\$35,000-\$49,999	18
\$50,000 or more	38
Refused	9

## Usage Profile - cont'd

Base:

Total  
Sample  
(235)  
%

### SPF Level Used Most Often

12-14	5
15-29	51
30-44	33
45 or higher	11

**Attachment D: 1997 submission by Cosmair Corp. to Docket 78-0038N**

**A COMPARISON OF 2 LABELING SYSTEMS FOR THE EXPRESSION  
OF UVA PROTECTION**

**Cosmair Inc. - Research & Development**

**285 Terminal Avenue, Clark, NJ, 07066**

**From  
AC Consulting Group, Inc.  
(301) 986-4440**

## Summary

A study involving 275 panelists (78 in NJ and 196 in NY) was conducted to determine the responses of the panelists to two different systems of expressing the degree of protection against UVA radiation damage provided by a sunscreen product. The descriptive (D) system consisted of verbal descriptions (light, intermediate, extended) of the degree of that protection; the grapho-numerical system (GN) consisted of a bar graph depicting both the total range of protection available for sunscreen systems and the actual level of protection provided by the particular product. The responses of the panelists were evaluated in two ways: **a)** they were shown 4 sunscreen bottles (each with a different combination of SPF and UVA protection) labeled according to one labeling system and asked to rank them in terms of SPF, UVA and overall protection: next, they were shown 4 other bottles labeled with the other labeling system (the sequence of labeling system to be shown first was assigned at random) and asked to rank them in terms of SPF, UVA and overall protection; **b)** they were asked to rate, on a 10 cm. visual analog scale, how well each of the two systems described the extent of UVA protection afforded by the sunscreen product and to make an explicit choice as to which product was best in conveying that information. Data on age, educational level and sunscreen purchase habits were collected from the panelists at the time of the survey to ascertain if they had any influence on the responses.

The results of the study indicated that the panelists were able to understand equally well both the descriptive and grapho-numerical labeling systems (average scores for both parameters were about 18 on a scale of 0 to 20) and that neither the sequence of label presentation nor the age or educational level of the panelists or the extent of their sunscreen usage level had any influence on this response. When asked to rate the two labeling systems regarding their perceived ability to convey information regarding UVA protection, the panelists gave a significantly higher ( $P < 0.01$ ) score to the grapho-numerical system (average score 7.7 cm) than to the descriptive system (average score 4.2 cm.); the pattern of the rating was not influenced by the sequence of label presentation, location, age, education or purchase habits of the panelists. Finally, when the panelists were requested to make an explicit choice as to what system they thought conveyed best the extent of the protection against UVA afforded by the product, they overwhelmingly ( $P < 0.01$ ) chose the grapho-numerical system over the descriptive one: 237 panelists chose GN, 30 chose D and 8 had no preference.

The results of this study indicate that even when there was apparently no advantage of one system over the other in terms of the panelists understanding of the UVA protection afforded by the product, the panelists perceive that they derive more information from the grapho-numerical system and would rather have that system available to them.

## INTRODUCTION

Much of the skin damage caused by exposure to sunlight is induced by UVB wavelengths (290 to 320 nm) and all sunscreens provide protection against this risk. More recently, however, it has been determined that UVA wavelengths (320 to 400 nm) also produce significant changes in the skin, particularly when the exposure is chronic. In response to this finding, cosmetic manufacturers have developed sunscreens containing protection factors against UVA and are now interested in finding ways to best convey to the consumer the degree of UVA protection provided by their products. To this effect, the CTFA has submitted to the FDA results of a study evaluating the level of consumer understanding of several UVA protection labeling options. The study compared descriptive and numerical-based labels and concluded that the expression of UVA protection in numerical terms was confusing to the consumers; it recommended instead the use of verbal broad descriptors to indicate the level of UVA protection provided by the sunscreens. The study, however, did not address how the various labeling options were perceived by occasional vs. regular users or how some other social factors (geographical location, age and education level) may have influenced the responses. The question also arises as to whether a numerical system enhanced with an appropriate graphical depiction (i.e., a grapho-numerical system) may not better convey to the consumer the degree of UVA protection offered by the product.

### Objective:

A study was conducted to examine the response of panelists to two labeling systems (descriptive and grapho-numerical) for the expression of UVA protection both in terms of their understanding of the systems and of their preference for either one of them.

## MATERIALS AND METHODS

### Overall description of the test:

Two labeling systems were evaluated (figure 1): one (descriptive, **D**) used words to describe the extent of the product's protection against UVA damage; the other (grapho-numerical, **GN**) used a combination of graphs and numbers to convey the degree of that protection. The labels were attached to standard product containers (200 ml plastic bottles) which were filled with water to more realistically simulate the product.

The study was conducted at 2 locations (the Redken Product Evaluation Center in Clark, NJ and Cosmair's Beauty Response Center in New York, NY) during September of 1996. Ninety five panelists participated in the NJ study and 199 in the one in NY. Prior to the initiation of the study, the panelists were randomly assigned (by order of appearance) to one of two groups differing in the order in which they were exposed to the labeling systems: group one (**DGN**) was to evaluate the descriptive

labels first and then the grapho-numerical ones; group two (**GND**) was to evaluate the grapho-numerical labels first and then the descriptive ones. The actual survey process consisted of the following steps:

1. The panelists were asked to provide name, age, education and purchase habits information (Appendix, Questionnaire 1)
2. The panelists were given a short questionnaire to measure their understanding of the SPF and UVA protection concepts (Appendix, Questionnaire 2).
3. The panelists were then shown the first set of sunscreen containers (D or GN depending on the randomization assignment) and asked questions to evaluate their understanding of that labeling system. This was done by asking them to rank by SPF, UVA and Overall protection a set of 4 sunscreen containers differing in their degree of protection in those parameters (Appendix, Questionnaire 3).
4. The panelists were then shown the second set of sunscreen containers (D or GN depending on the randomization assignment) and asked the same questions as above regarding the new set of containers (Appendix, Questionnaire 4).
5. The panelists were shown 1 container for each of the labeling systems (containers 43a and 54a in the figure) and asked to rate each labeling system and indicate which one they would prefer (Appendix, Questionnaire 5).

#### **Data Analysis:**

Scores were given for each answer to the questionnaire and overall scores were calculated for each labeling system evaluation. Within each location, the data for the scores was analyzed as a two way design with the type of label and the sequence of label presentation as the criteria of classification. The explicit preference data in questionnaire 5 was analyzed using contingency tables and Chi Square. An overall analysis including both locations was also conducted using the locations, the label types and the sequence of label presentation (or other parameters such as age, education or usage level) as the criteria of classification.

## RESULTS

### Test Population Characteristics:

- 294 panelists (95 in NJ and 199 in NY) participated in the study. Of these, 19 were excluded (17 in NJ and 2 in NY) because the panelist(s) never used sunscreens (1 in NJ) or provided no answers at all (3 in NJ), or because of errors in the conduction of the survey (13 in NJ, 2 in NY). The data reported here is thus based on a total of 275 panelists (78 in NJ and 197 in NY).
- Nearly 75% of the panelists were in between 21 and 50 years of age (figure 2). The panelists in NJ were older ( $P < 0.05$ ) than those in NY: over 50 % of the NJ panelists were older than 51 years, over 80 % of those in NY were younger than 50 years.
- Over 75% of the panelists in NY and nearly 50% of those in NJ had college degrees (figure 3).
- Nearly sixty percent of the panelists in both NJ and NY had purchased 2 or fewer containers of sunscreen products in the last year (figure 4).
- The proportion of panelists in the DGN and GND sequences was essentially the same in all age, education and product usage levels

### Panelists previous knowledge about SPF and UVA protection:

**SPF:** There were no differences in the knowledge about SPF between the panelists assigned to the DGN and GND sequences (figure 5). The panelists from NJ knew more about SPF ( $P < 0.05$ ) than those from NY (figure 5) and this was true across ages, educational level groups and sunscreen usage levels (figure 6). The overall knowledge about SPF, however, was low (under 2 in a scale of 0 to 5): the panelists associated the term with protection against the sun's rays but very few understood which types of rays were involved or the significance of the number in terms of the degree of protection. Older panelists knew less ( $P < 0.05$ ) about SPF than those that were younger and college educated panelists did better ( $P < 0.05$ ) than those with only high school degrees (figure 6). Surprisingly, the level of usage of sunscreen products did not significantly influence the extent of the knowledge of the panelists about SPF (figure 6).

**UVA:** There were no differences in the knowledge about UVA protection between the panelists in the DGN and DGN groups (figure 7). Most panelists knew very little about UVA protection (the average score was under 1.2 in a scale from 0 to 5): they associated the term with the sun's ultra violet rays but did not know which type of UV

rays were involved or the types of damage that they caused. There were no differences between locations ( $P>0.05$ ) in the level of knowledge about UVA (figure 7) but college educated panelists scored significantly ( $P<0.05$ ) better than those with only high school education (figure 8). As in the case with SPF, older panelists scored lower ( $P<0.05$ ) than those that were younger and the level of usage of sunscreen products was not related ( $P>0.05$ ) to how much the panelists knew about UVA protection (figure 8).

#### **Panelists ranking scores for sunscreen labeling systems:**

**SPF:** There were no differences in the scores for the proper SPF ranking of sunscreen containers arising from the type of label system (D vs GN) used or from the sequence in which the labeling systems were presented to the panelists (figure 9); when the effects of the age or educational level of the panelists were taken into account, however, the scores for the GN were higher ( $P<0.05$ ) than those for the D system (figures 10 and 11). NJ panelists, which initially knew more about SPF, were less successful than those from NY ( $P<0.05$ ) in correctly ranking the containers according to their SPF level (figure 9). Older panelists, particularly in NJ, scored lower ( $P<0.05$ ) than those that were younger (figure 10). High school graduates scored lower ( $P<0.05$ ) than college graduates in NJ but not in NY (figure 11). The number of sunscreen containers bought in the last year had a strong ( $P<0.05$ ) influence on the scores (figure 12) but the pattern of these influence was not discernible from the data.

**UVA:** There were no overall effects of label type or sequence of label presentation on UVA scores (figure 13). A trend was detected in NY, however, for the second labeling system evaluated to have higher scores than the first one in both sequences of label presentation. As in the case of SPF, older panelists (over 50 years old) had lower scores ( $P<0.05$ ) than those that were younger, particularly in NJ (figure 14). High school graduates in NJ had lower UVA scores ( $P<0.05$ ) than their college graduate counterparts (figure 15) but this was not the case in NY; this resulted in a trend ( $P<0.10$ ) for lower average UVA scores for NJ than for NY. The number of sunscreen products bought in the past year had no effect ( $P>0.10$ ) on the scores (figure 16).

#### **Panelists rating of labeling systems:**

When asked to rate how well each labeling system conveyed information about the UVA protection level of the sunscreen containers shown to them, the panelists gave higher scores ( $P<0.01$ ) to the grapho-numerical system (GN) than to its descriptive (D) counterpart (figure 17); this response was consistently true at both sequences of label presentation and at all ages, locations, education levels and product usage levels (figures 18, 19 and 20). Neither the sequence of label presentation nor the location of the study had a significant effect on the ratings (figure 17). Finally, rating scores were consistently similar at all ages (figure 18), educational levels (figure 19) and usage levels (figure 20).

**Panelists choice of labeling system:**

When asked to choose which labeling system best conveyed information about the extent of the sunscreen's protection against UVA rays, the panelists chose ( $P < 0.05$ ) the grapho-numerical system over the descriptive one in a ratio of 7.4 to 1 (figure 21).

**CONCLUSIONS**

The results of the study indicate that:

- Panelists were equally able to understand the information about UVA protection conveyed by both labeling systems.
- Panelists gave higher scores ( $P < 0.01$ ) to the grapho-numerical system labels than to those from the descriptive system when asked to rate both systems in terms of the information they provide about UVA protection; furthermore, when asked to make an explicit choice, an overwhelming majority of the panelists (7.4 to 1) preferred ( $P < 0.01$ ) the grapho-numerical system over the descriptive one.
- Social factors (age, geographical location, educational level) did not appear to influence the pattern of the response of the subjects with respect to the labeling comprehension.

**Appendix**

**Questionnaire 1****Socioeconomic Characteristics**

Name: ----- Date: \_\_\_\_ Time: \_\_\_\_\_

1. Age:  Under 20  21 - 30  31 - 40  41 - 50  51 - 60  61 - 70
  
2. Education (check highest level) :  Elementary  High School  College
  
3. How many bottles of sunscreen products did you purchase last year?  
 0  1  2  3  4  More than 4 (write number) .....
  
4. SPF level purchased most often:  Under 12  12 - 14  15 - 29  
 30 - 44  More than 44

### Questionnaire 2

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

1. Could you please describe what the word SPF means to you in connection with exposure to sunlight?

.....  
.....  
.....  
.....

2. Could you please describe what the word UVA protection means to you in connection with exposure to sunlight?

.....  
.....  
.....  
.....

Questionnaire 3

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

regarding the bottles of sunscreen product that you have received...

- 3. Please rank the products (by code) from most to least protective with regards to **SPF**.

Highest: ..... High: ..... Medium: ..... Low: .....

- 4. Please rank the products (by code) from most to least protective with regards to **UVA radiation**.

Highest: ..... High: ..... Medium: ..... Low: .....

- 5. Please rank the products (by code) from most to least **overall protection** to the skin.

Highest: ..... High: ..... Medium: ..... Low: .....

- 6. Please describe your reasons for the choice of the product with the most overall protection:

.....  
.....

- 7. Please describe your reasons for the choice of the product with the least overall protection:

.....  
.....

### Questionnaire 4

Name: \_\_\_\_\_ Date: \_\_\_\_ Time: \_\_\_\_\_

Regarding the bottles of sunscreen product that you have received:

1. Please rank the products (by code) from most to least protective with regards to **SPF**.

Highest: ..... High: ..... Medium: ..... Low: .....

2. Please rank the products (by code) from most to least protective with regards to **UVA radiation**.

Highest: ..... High: ..... Medium: ..... Low: .....

3. Please rank the products (by code) from most to least **overall protection** to the skin.

Highest: ..... High: ..... Medium: ..... Low: .....

4. Please describe your reasons for the choice of the product with the most overall protection:

.....  
.....

5. Please describe your reasons for the choice of the product with the least overall protection:

.....  
.....

**Questionnaire 5**

1. Referring to the sunscreen bottles coded coded 43A and 54A, please place a mark on each of the following scales indicating how well the bottle label conveys to you the concept of UVA protection.

**Code 43A:****Code 54A:**

2. Which of these sunscreen containers, in your opinion, best conveys the idea of the extent of protection that the product offers against UVA radiation?

Enter code: .....

**Thank you for taking part in this study**



Figure 1.- Labeling Systems

**SUNSAFE**  
**WATERPROOF**  
**SUNBLOCK**  
**LOTION**  
**SPF 15**  
**INTERMEDIATE**  
**UVA PROTECTION**

8 fl oz (248 ml)

54A

**SUNSAFE**  
**WATERPROOF**  
**SUNBLOCK**  
**LOTION**  
**SPF 30**  
**EXTENDED**  
**UVA PROTECTION**

8 fl oz (248 ml)

54B

**SUNSAFE**  
**WATERPROOF**  
**SUNBLOCK**  
**LOTION**  
**SPF 8**  
**LIGHT**  
**UVA PROTECTION**

8 fl oz (248 ml)

54C

**SUNSAFE**  
**WATERPROOF**  
**SUNBLOCK**  
**LOTION**  
**SPF 15**  
**EXTENDED**  
**UVA PROTECTION**

8 fl oz (248 ml)

54D

D

**SUNSAFE**  
**WATERPROOF**  
**SUNBLOCK**  
**LOTION**  
**SPF 15**  
**UVA PROTECTION**

Minimum  Maximum

0 4 8 12

8 fl oz (248 ml)

43A

**SUNSAFE**  
**WATERPROOF**  
**SUNBLOCK**  
**LOTION**  
**SPF 30**  
**UVA PROTECTION**

Minimum  Maximum

0 4 8 12

8 fl oz (248 ml)

43B

G  
N

**SUNSAFE**  
**WATERPROOF**  
**SUNBLOCK**  
**LOTION**  
**SPF 8**  
**UVA PROTECTION**

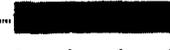
Minimum  Maximum

0 4 8 12

8 fl oz (248 ml)

43C

**SUNSAFE**  
**WATERPROOF**  
**SUNBLOCK**  
**LOTION**  
**SPF 15**  
**UVA PROTECTION**

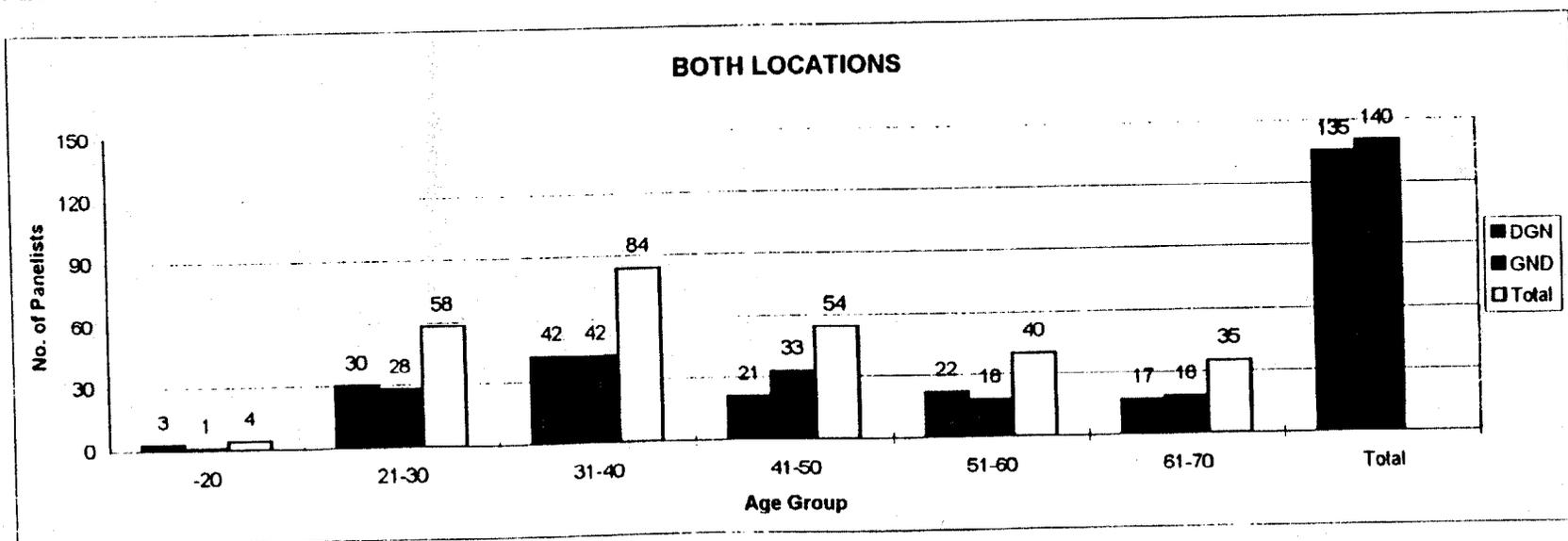
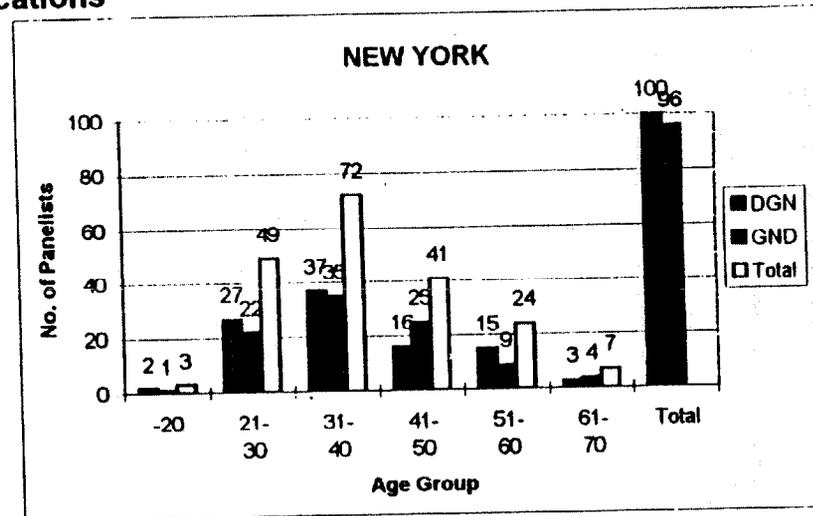
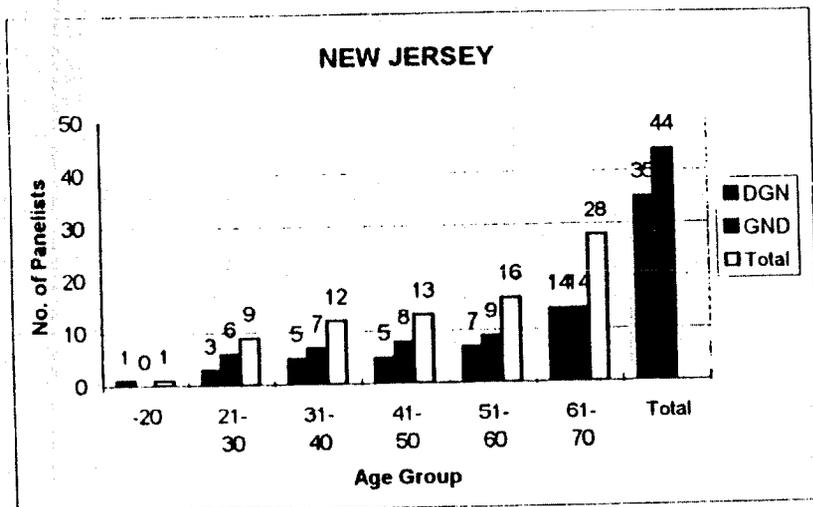
Minimum  Maximum

0 4 8 12

8 fl oz (248 ml)

43D

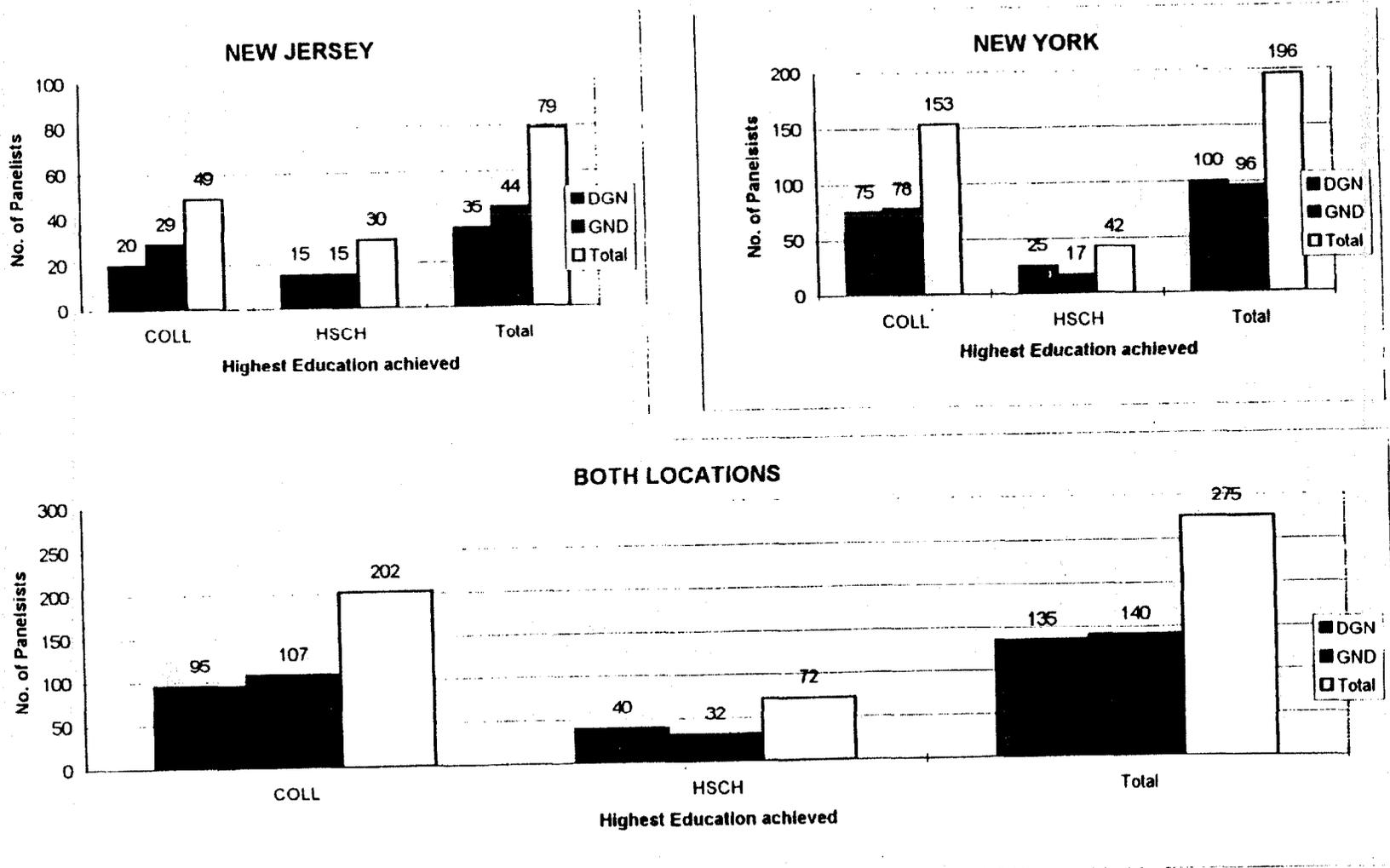
Figure 2.- Distribution of Panelists by sequence of label presentation and age group at the two testing locations



DGN = Descriptive followed by Grapho-Numerical

GND = Grapho-Numerical followed by Descriptive

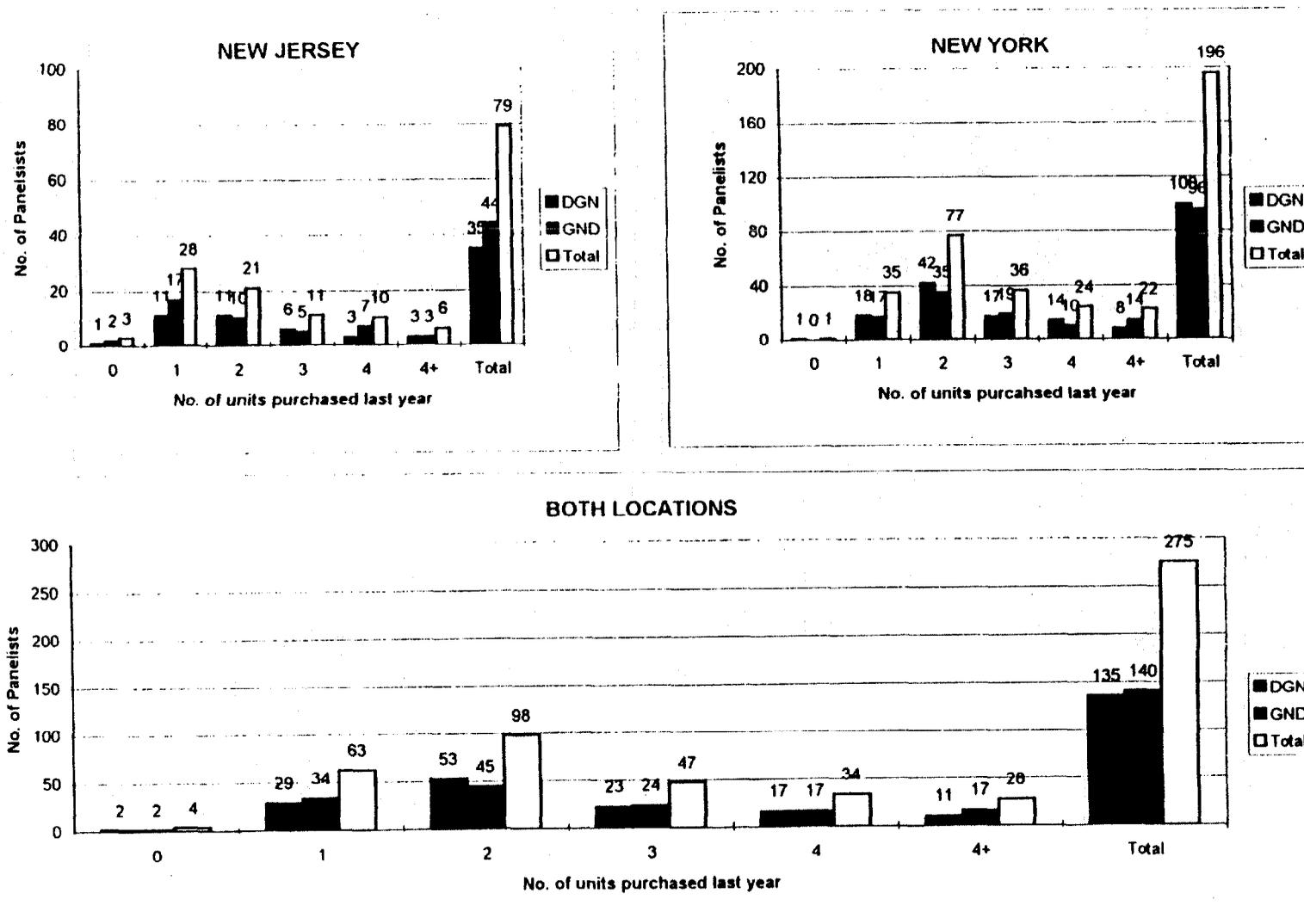
Figure 3.- Distribution of Panelists by sequence of label presentation and education group at the two testing locations



DGN = Descriptive followed by Grapho-Numerical

GND = Grapho-Numerical followed by Descriptive

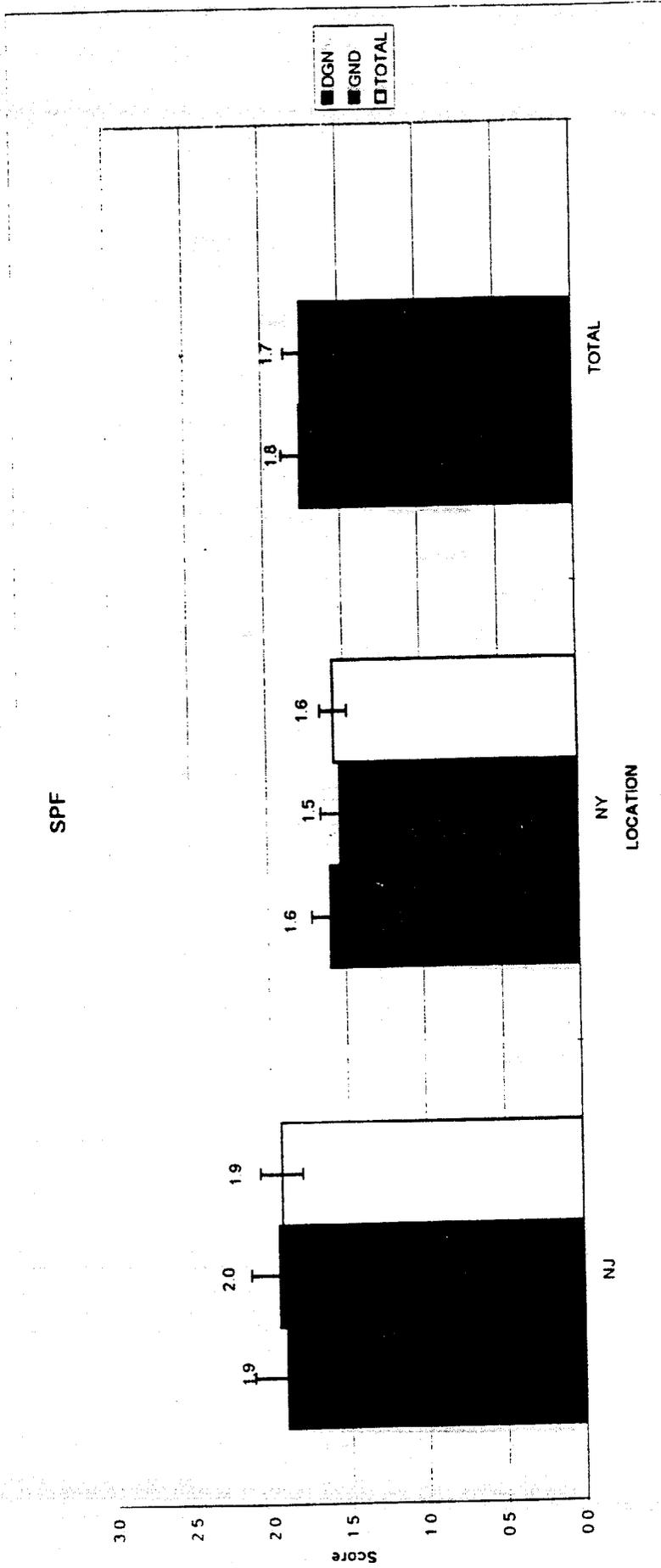
Figure 4.- Distribution of Panelists by sequence of label presentation and usage level group (number of bottles of product purchased in the past year) at the two testing locations



DGN = Descriptive followed by Grapho-Numerical

GND = Grapho-Numerical followed by Descriptive

Figure 5.- SPF previous knowledge scores (scale 0 - 5) of panelists by sequence of label presentation at the two testing locations



GND = Grapho-Numerical followed by Descriptive

DGN = Descriptive followed by Grapho-Numerical

Figure 6.- SPF previous knowledge scores of panelists (scale 0 - 5) by age, educational level and product usage level

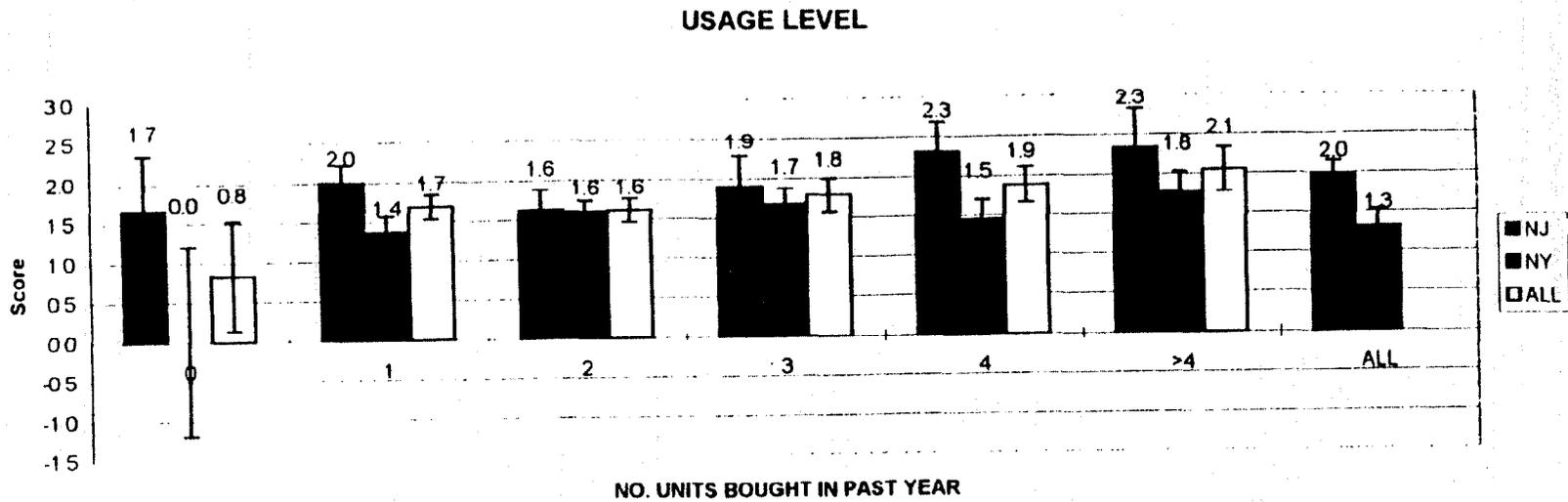
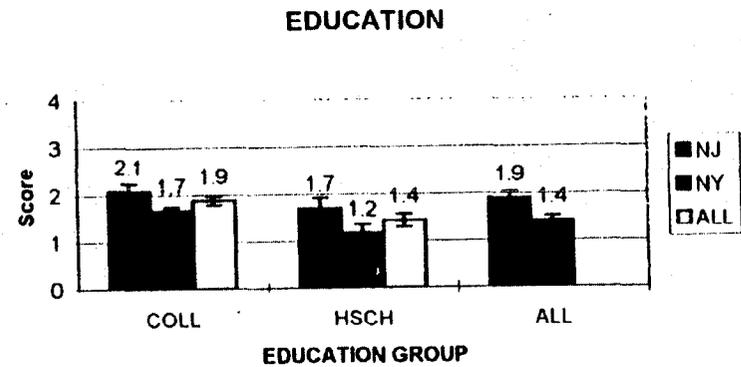
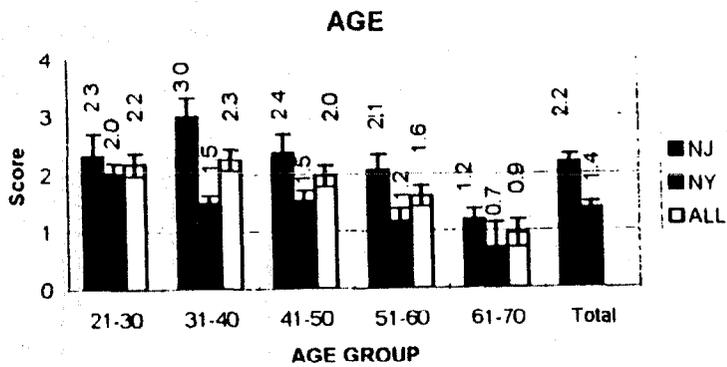
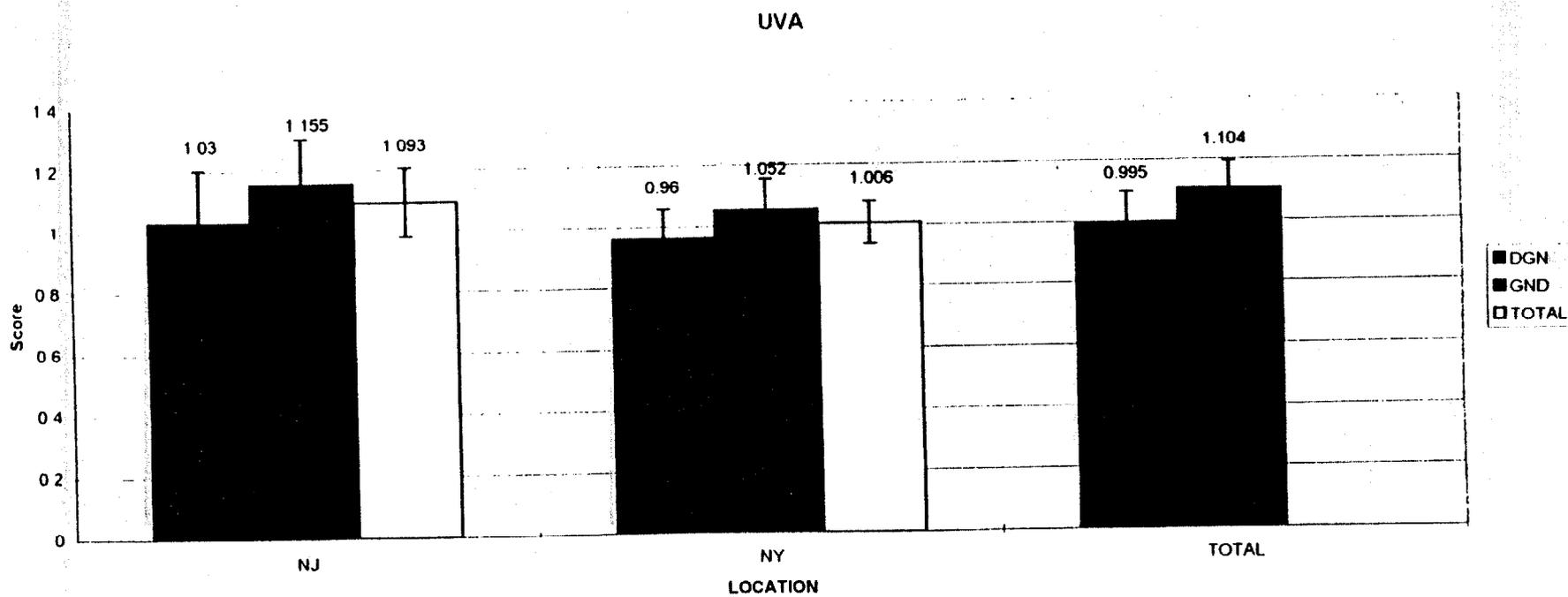


Figure 7.- UVA previous knowledge scores (scale 0 - 5) of panelists by sequence of label presentation at the two testing locations



DGN = Descriptive followed by Grapho-Numerical

GND = Grapho-Numerical followed by Descriptive

Figure 8.- UVA previous knowledge scores of panelists (scale 0 - 5) by age, educational level and product usage level

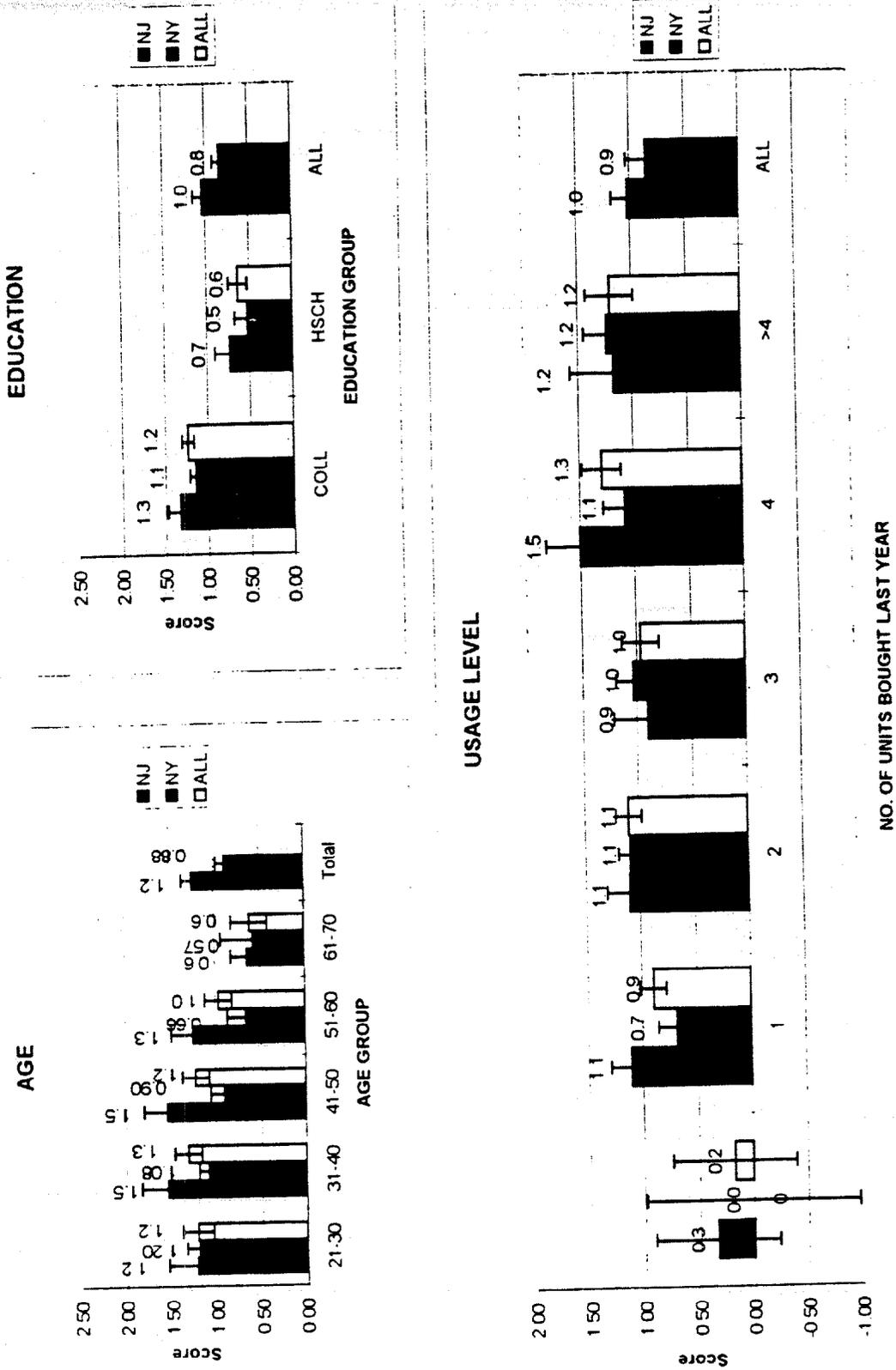
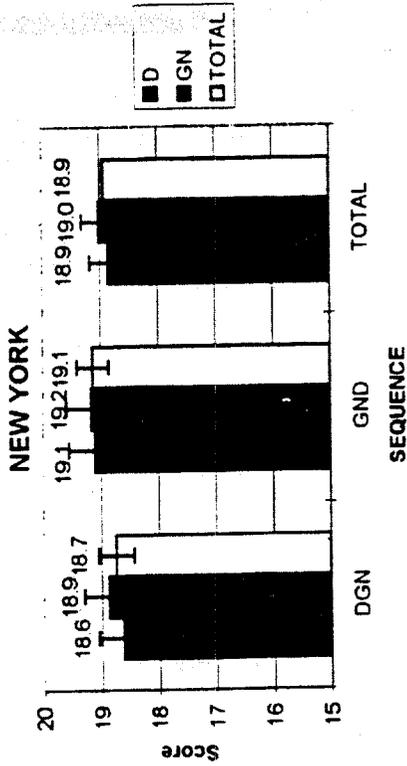
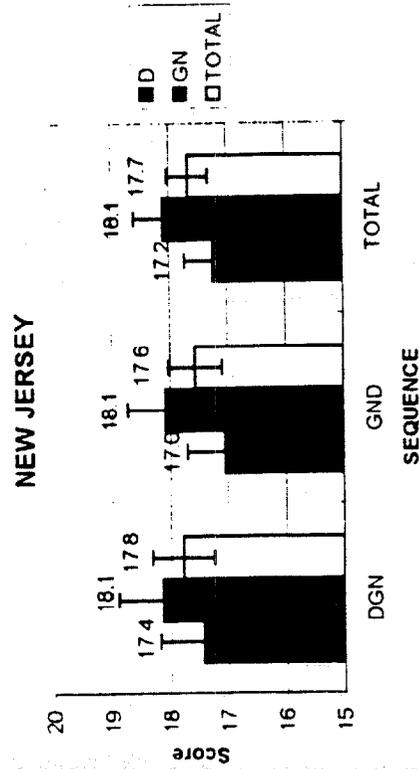


Figure 9.- Panelists SPF ranking scores (scale 0 - 20) of sunscreen containers labeled with the descriptive (D) or grapho-numerical (GN) systems: by sequence and location.



**BOTH LOCATIONS**

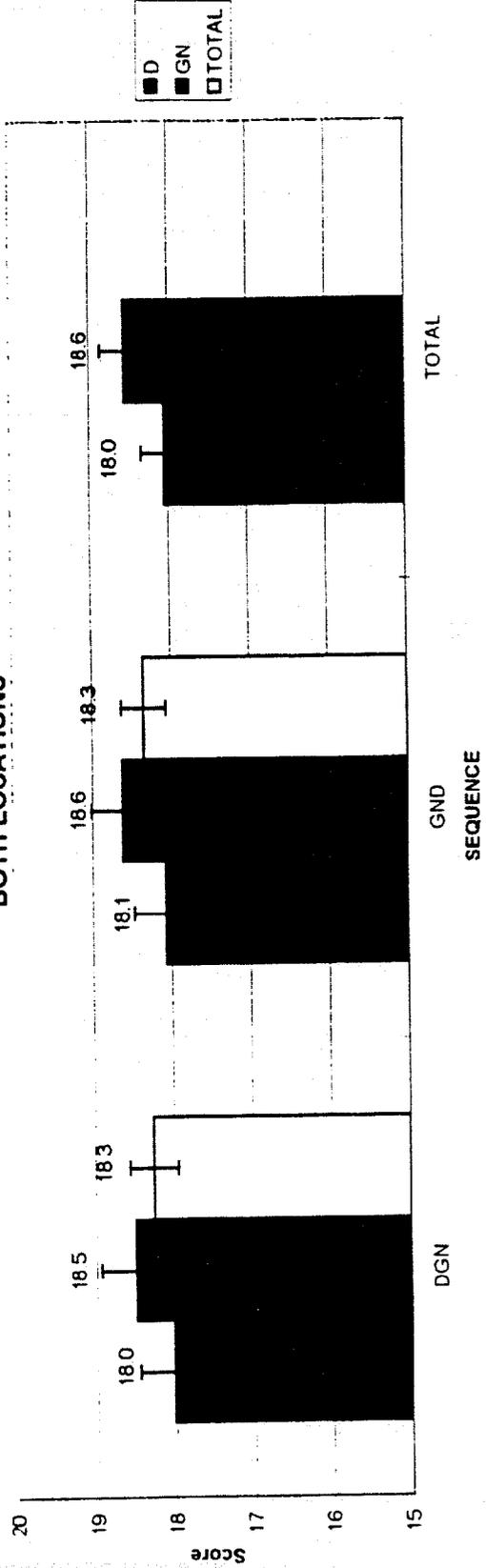


Figure 10.- Panelists SPF ranking scores (scale 0 - 20) of sunscreen containers labeled with the descriptive (D) or grapho-numerical (GN) systems: by age and location.

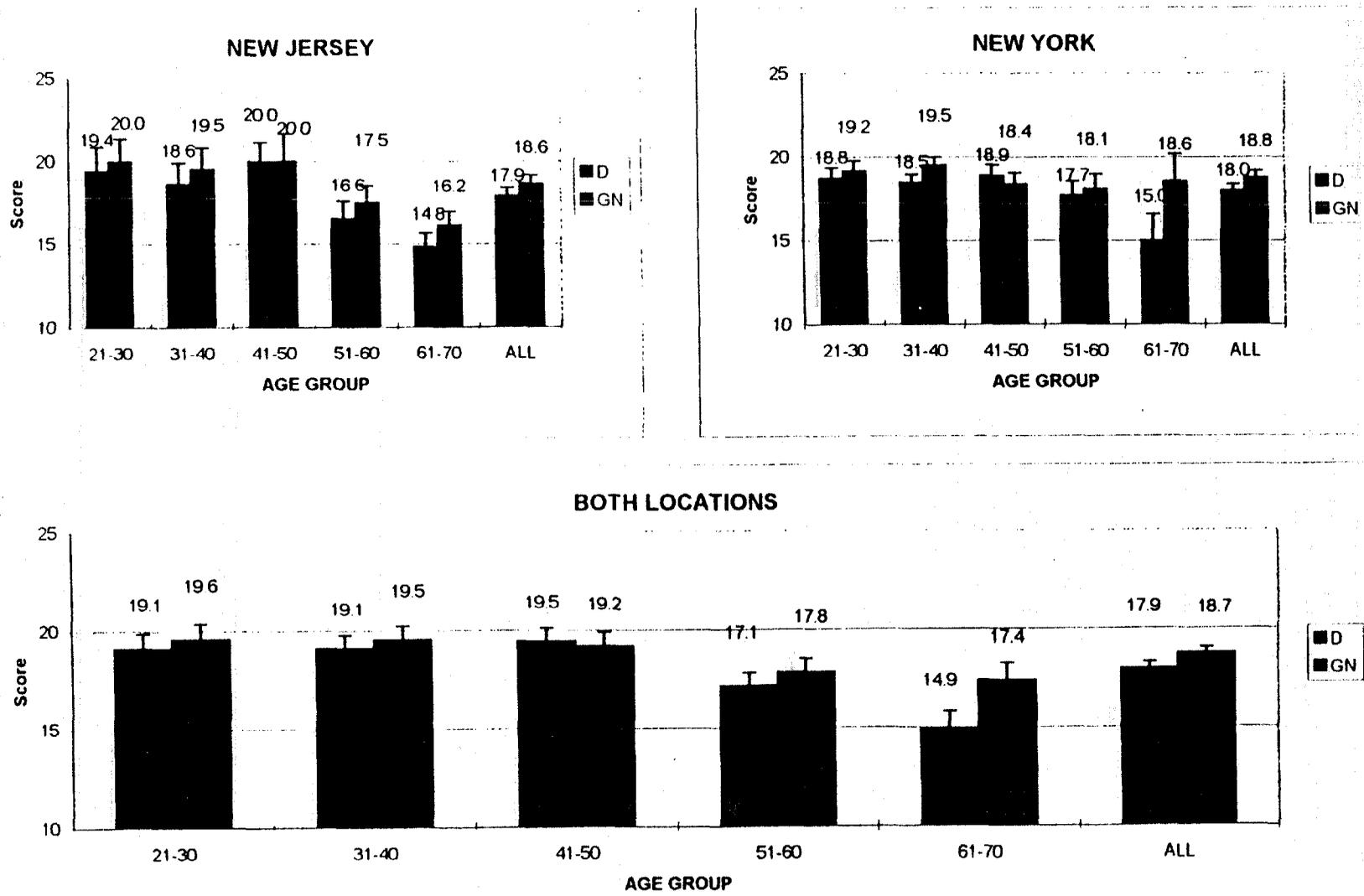


Figure 11.- Panelists SPF ranking scores (scale 0 - 20) of sunscreen containers labeled with the descriptive (D) or grapho-numerical (GN) systems: by educational level and location.

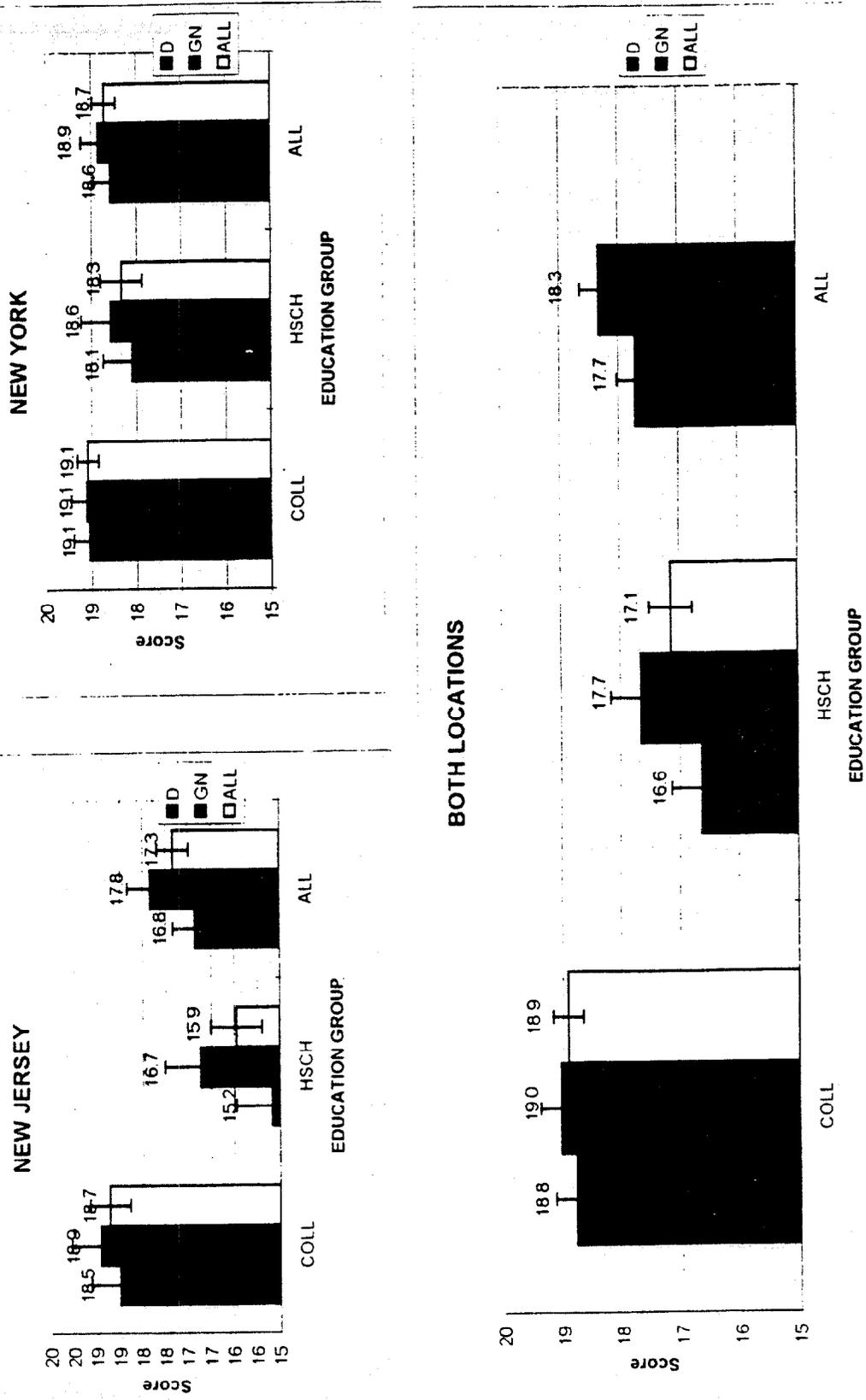


Figure 12.- Panelists SPF ranking scores (scale 0 - 20) of sunscreen containers labeled with the descriptive (D) or grapho-numerical (GN) systems: by usage level and location.

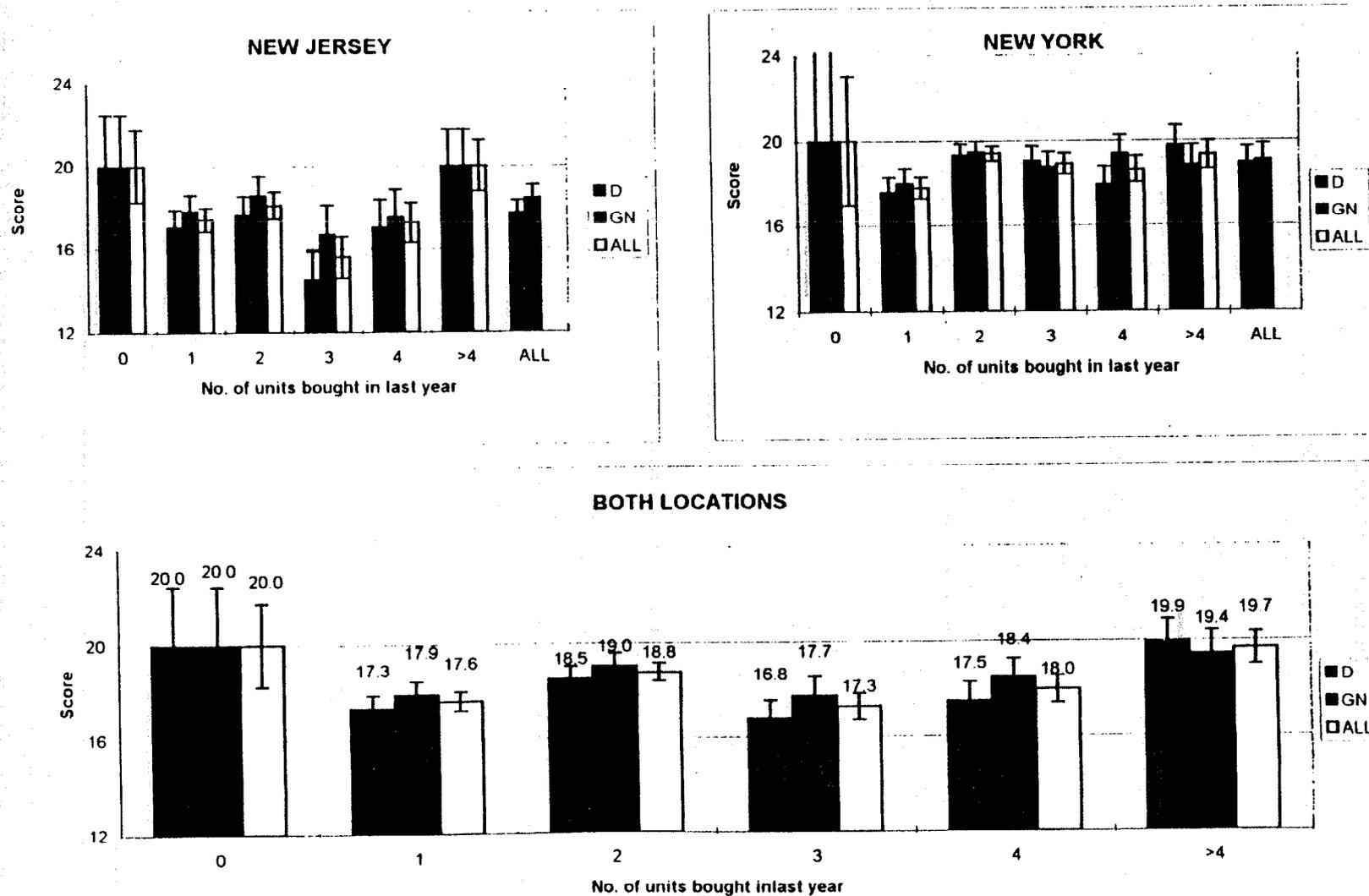


Figure 13.- Panelists UVA ranking scores (scale 0 - 20) of sunscreen containers labeled with the descriptive (D) or grapho-numerical (GN) systems: by sequence and location.

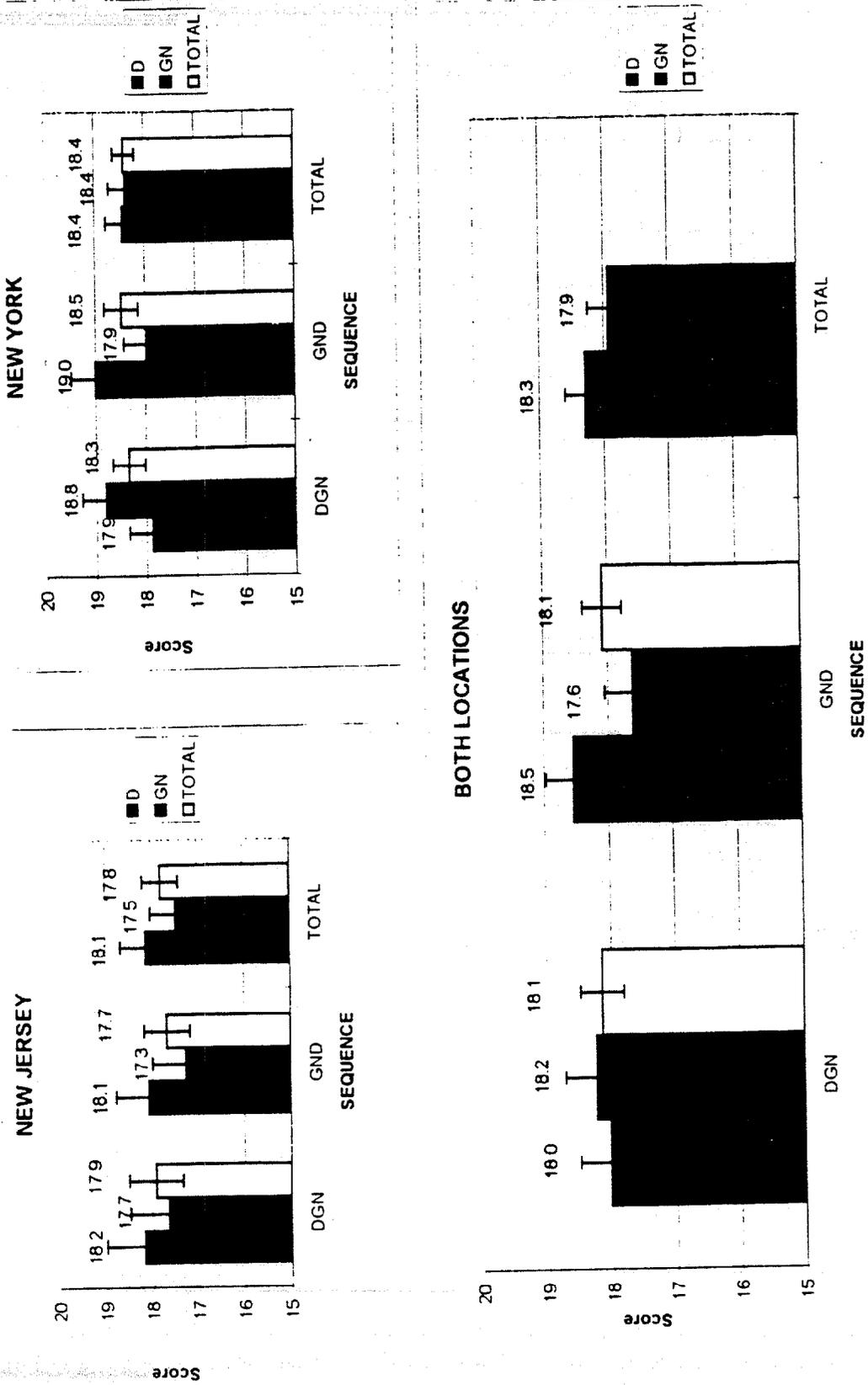


Figure 14.- Panelists UVA ranking scores (scale 0 - 20) of sunscreen containers labeled with the descriptive (D) or grapho-numerical (GN) systems: by age and location.

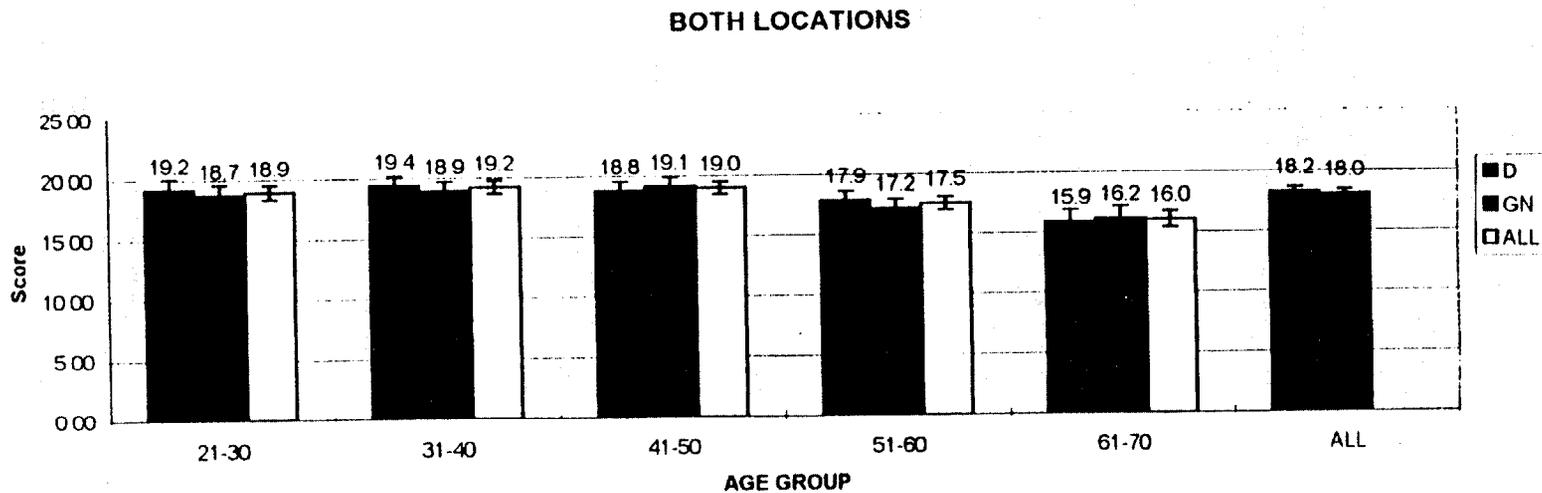
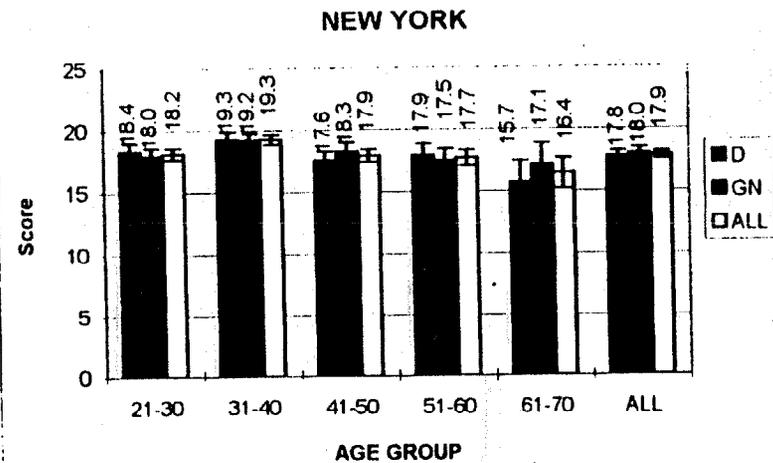
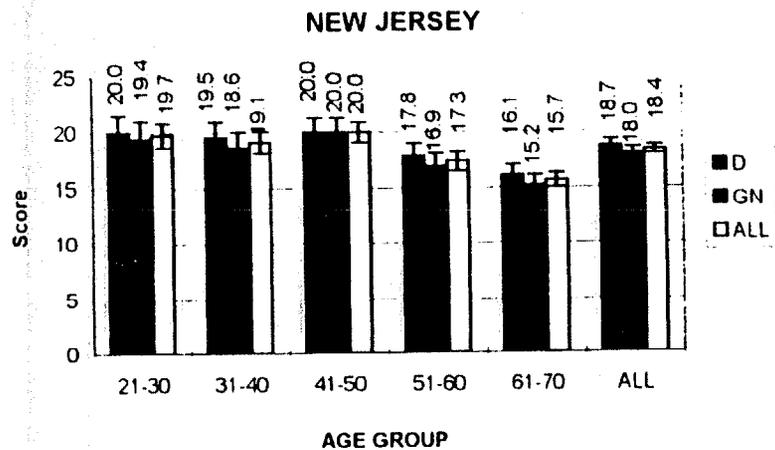


Figure 15.- Panelists UVA ranking scores (scale 0 - 20) of sunscreen containers labeled with the descriptive (D) or grapho-numerical (GN) systems: by education and location.

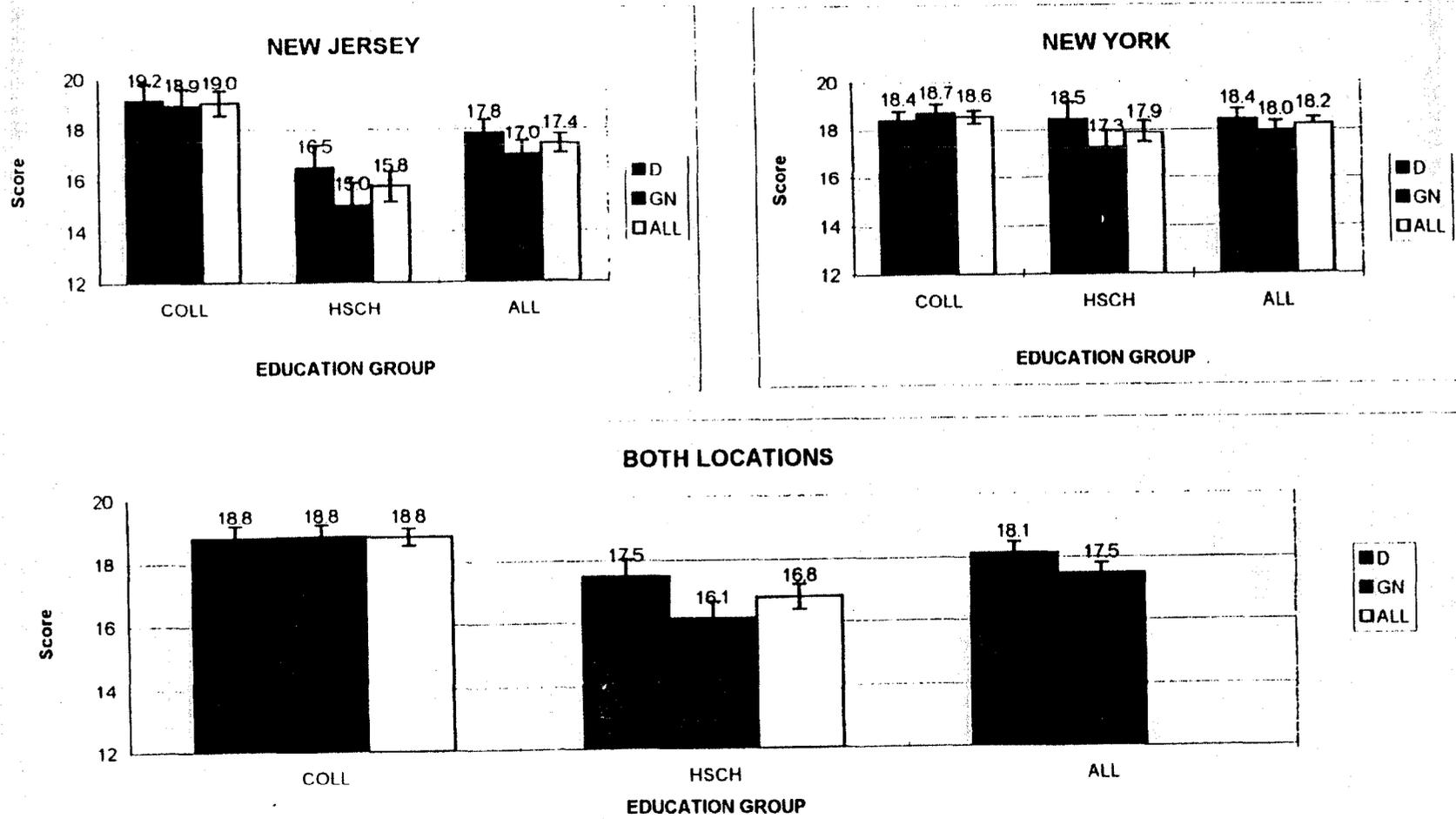


Figure 16.- Panelists UVA ranking scores (scale 0 - 20) of sunscreen containers labeled with the descriptive (D) or grapho-numerical (GN) systems: by usage level and location.

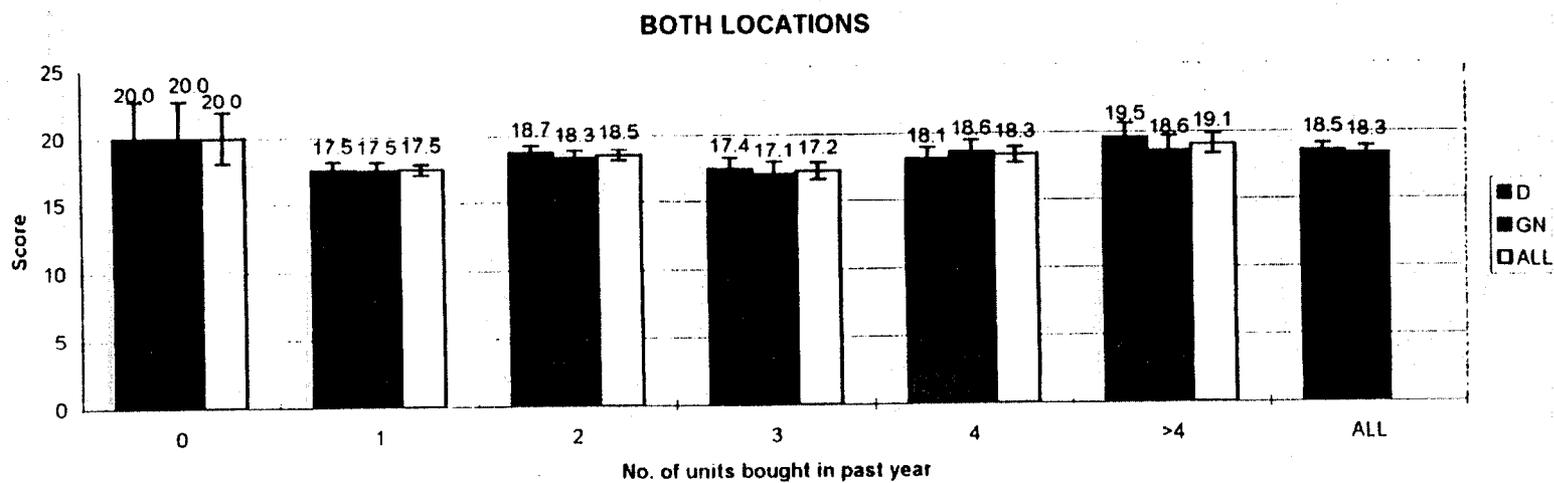
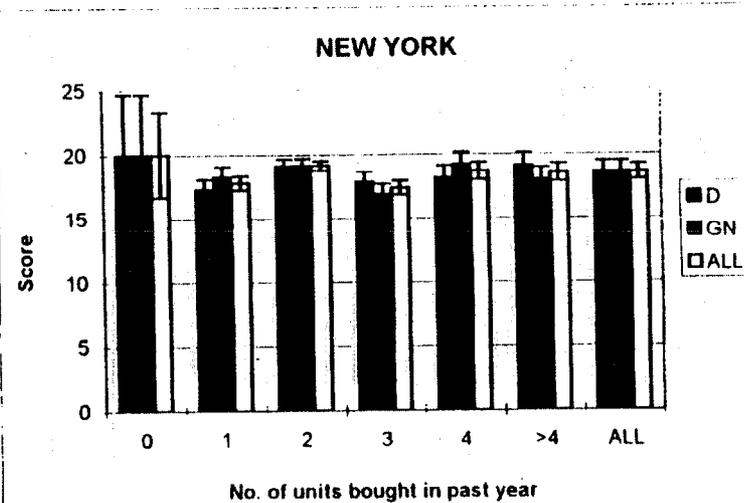
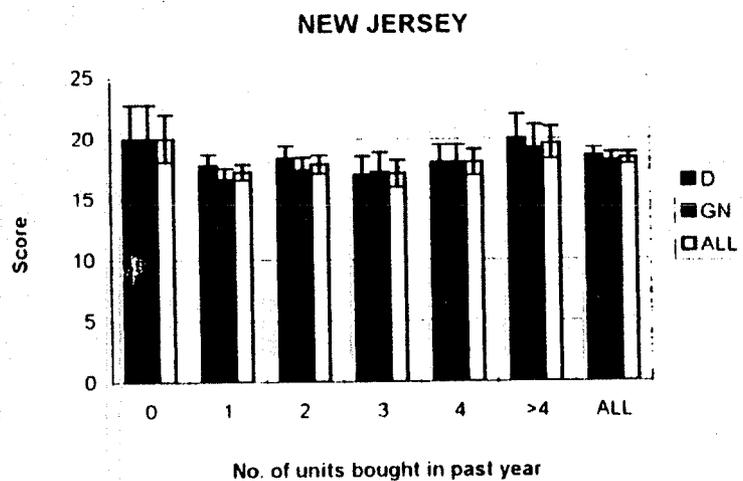
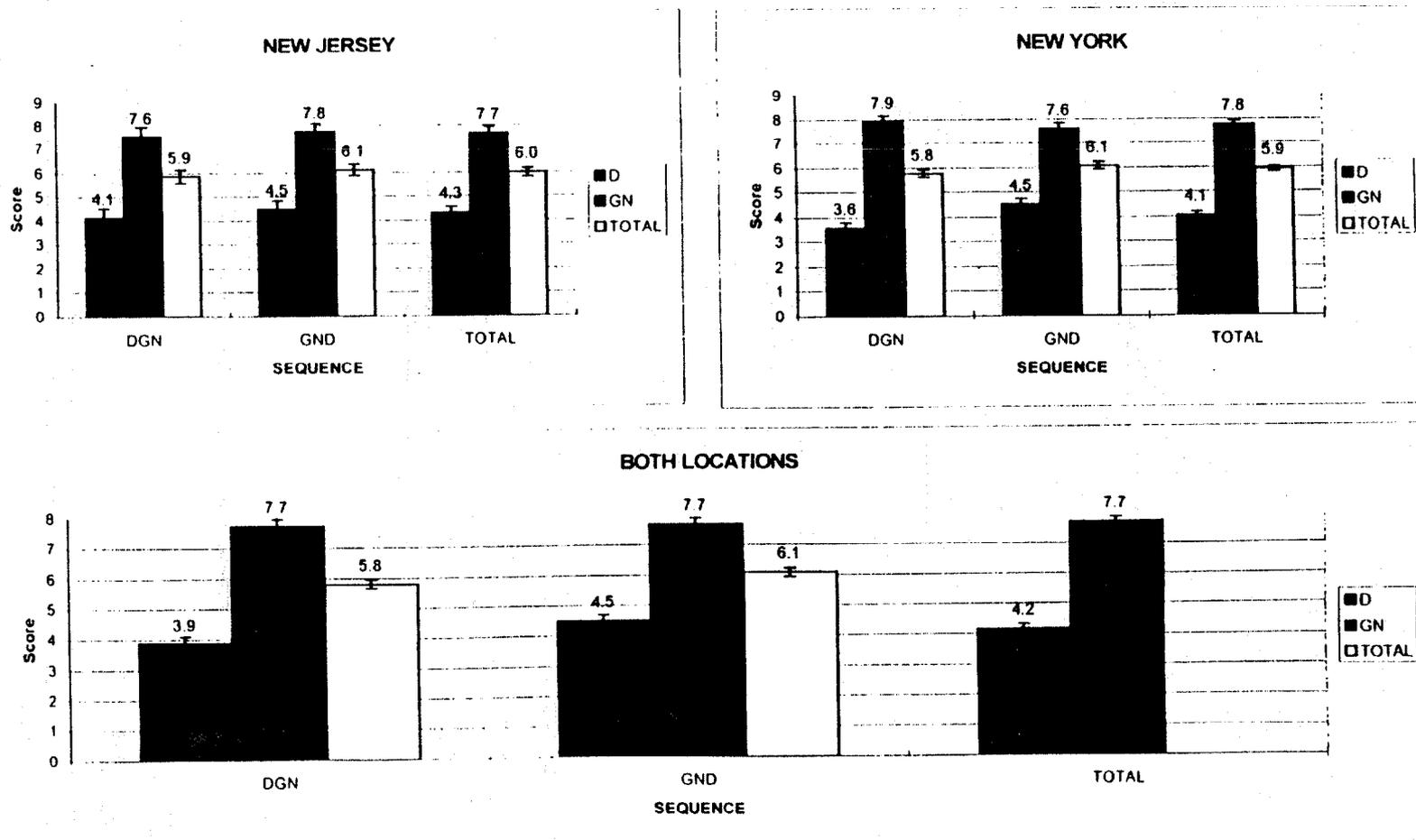


Figure 17.- Panelists scores for Descriptive (D) and Grapho-Numerical (GN) labels at 2 sequences of presentation indicating how much information (scale 0 - 10) each labeling systems conveys about the UVA protection level of the product.



DGN = Descriptive followed by Grapho-Numerical

GND = Grapho-Numerical followed by Descriptive

Figure 18.- Panelists scores for Descriptive (D) and Grapho-Numerical (GN) labels indicating how much information (scale 0 - 10) each labeling system conveys about the UVA protection of the product: age and location.

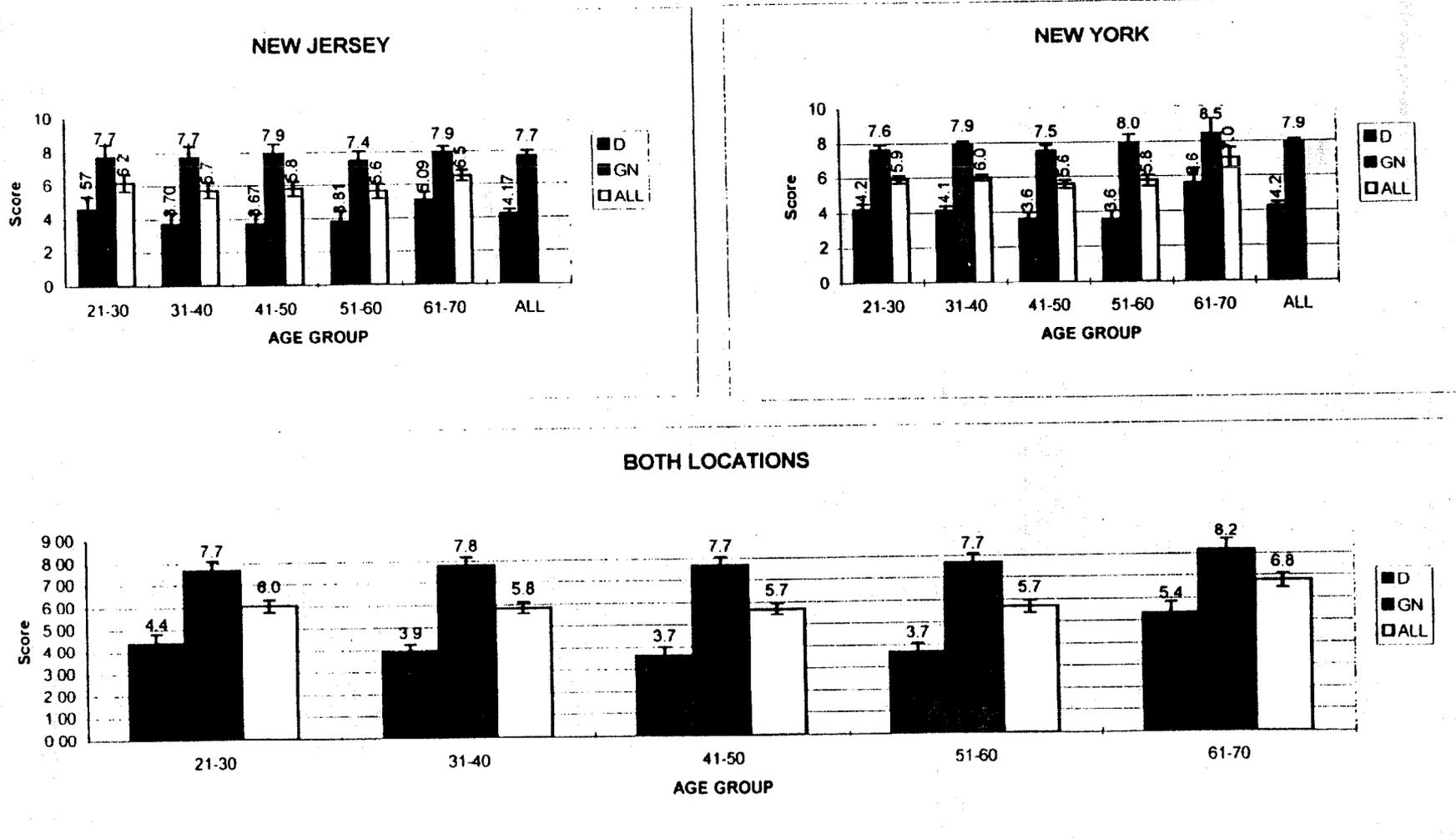


Figure 19.- Panelists scores for Descriptive (D) and Grapho-Numerical (GN) labels indicating how much information (scale 0 - 10) each labeling system conveys about the UVA protection of the product: education and location.

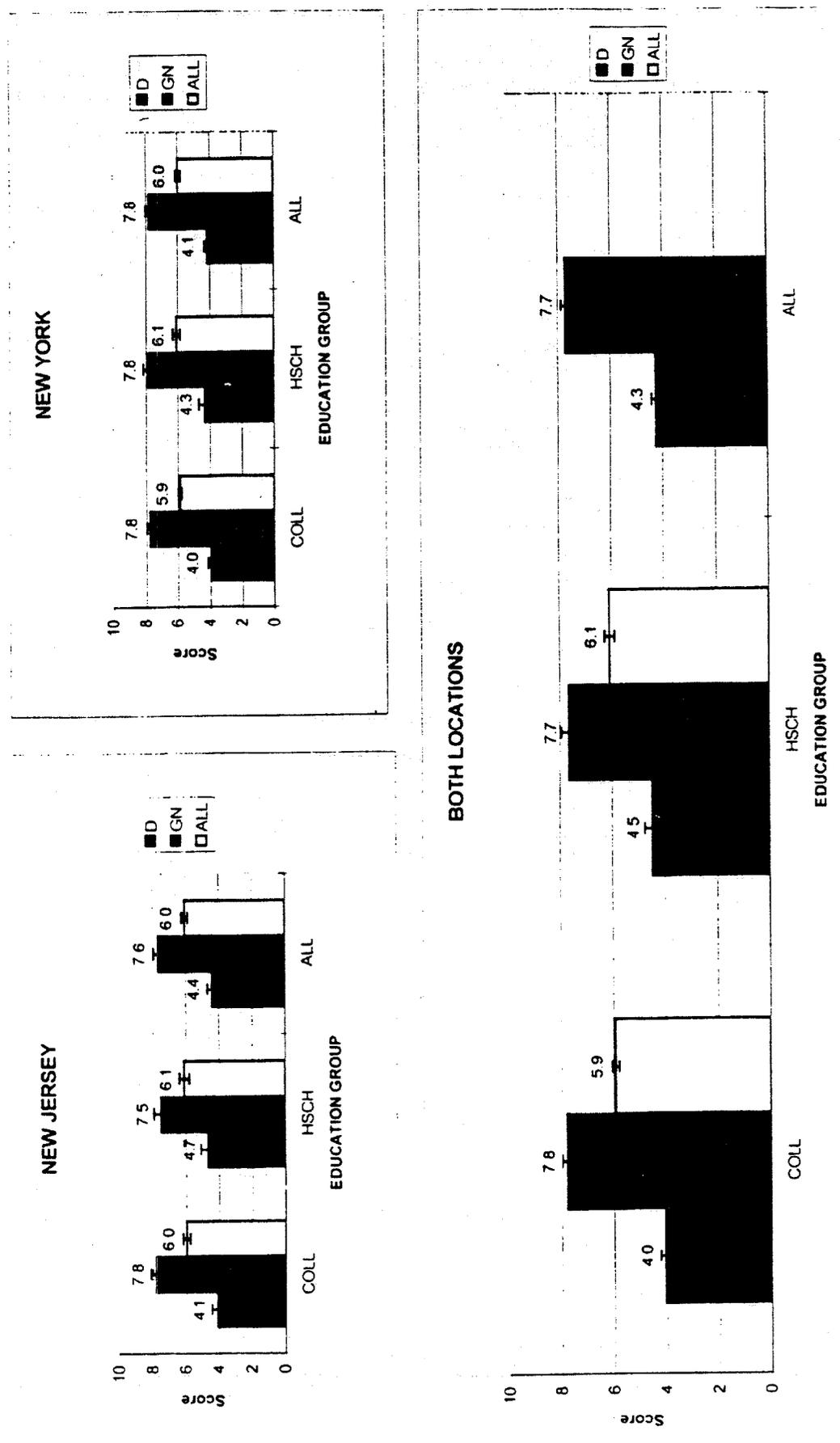


Figure 20.- Panelists scores for Descriptive (D) and Grapho-Numerical (GN) labels indicating how much information (scale 0 - 10) each labeling system conveys about the UVA protection of the product: usage level and location.

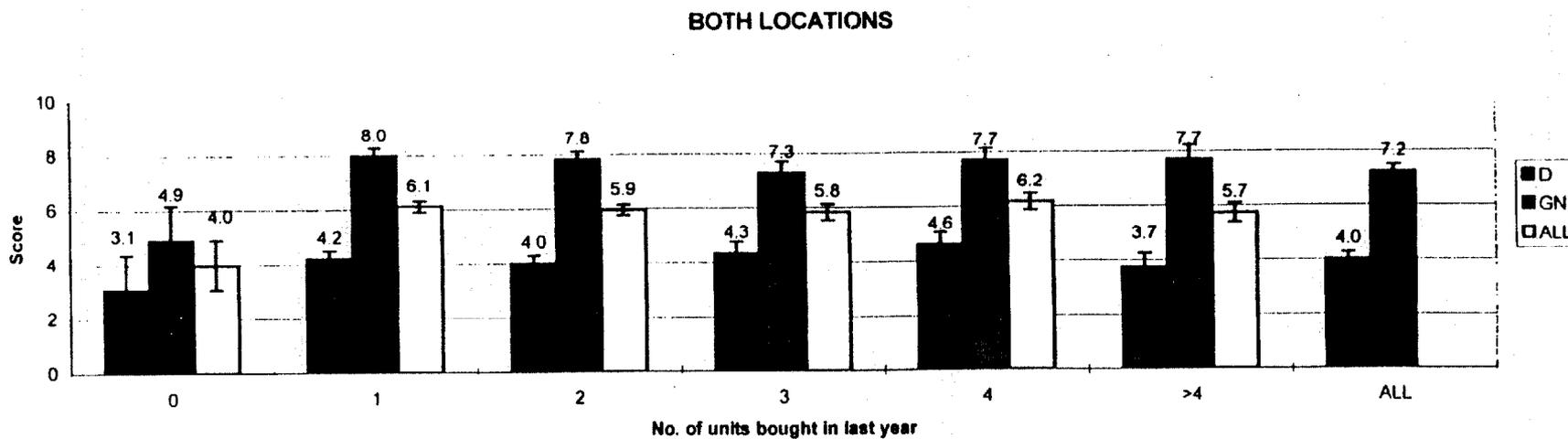
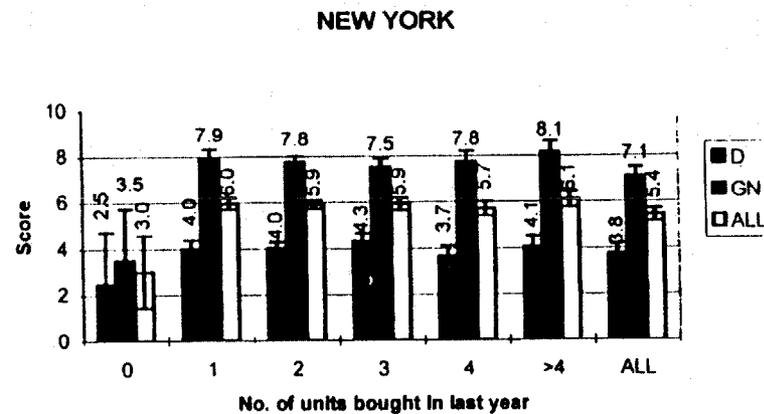
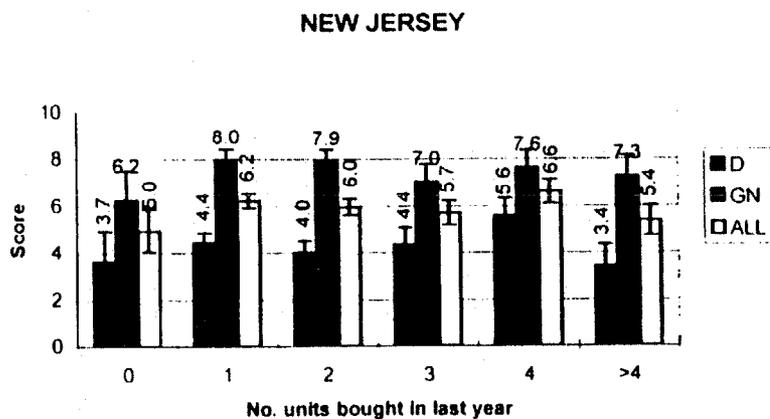
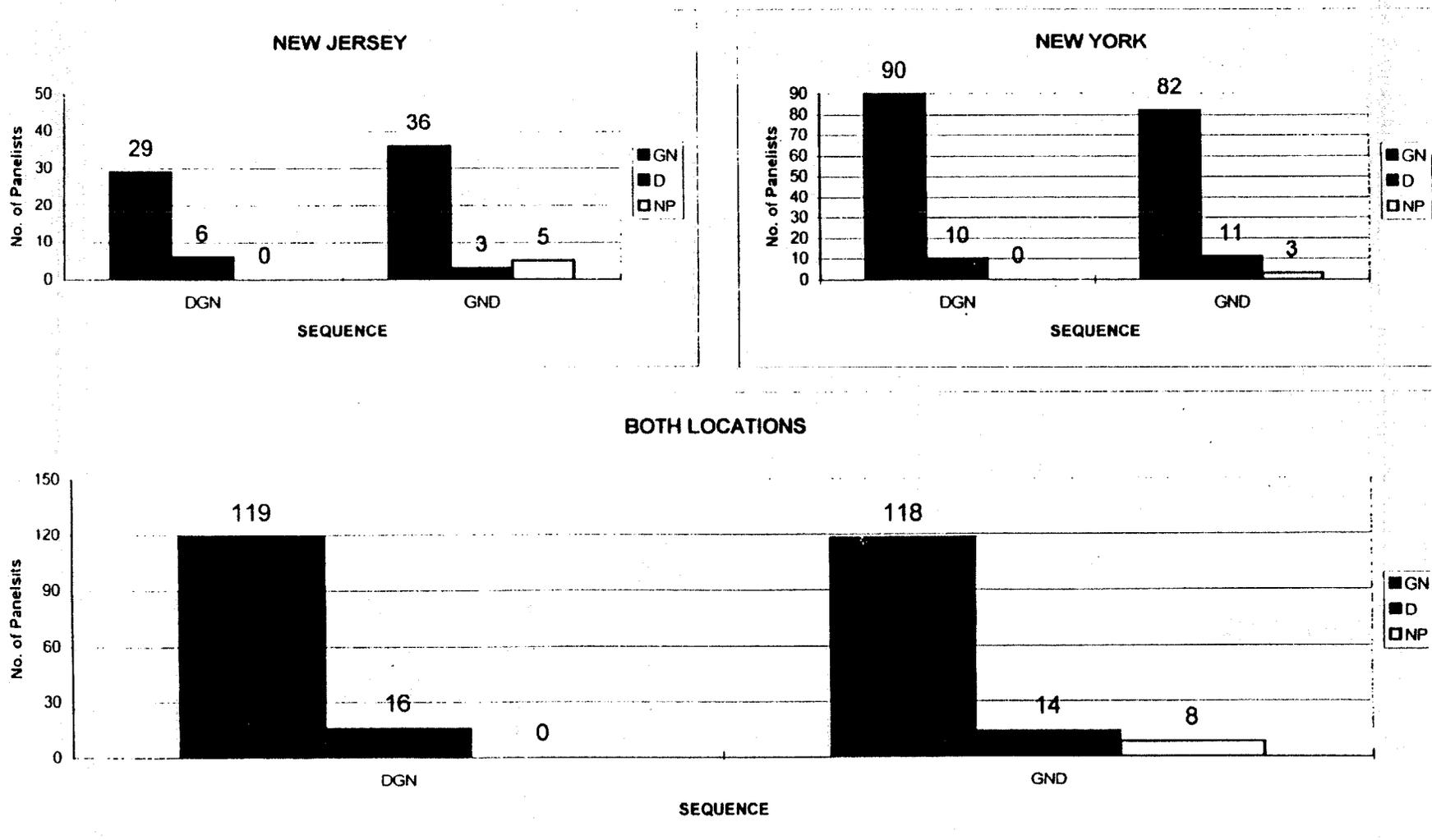


Figure 21 .- Panelists explicit preference for a descriptive (D) or grapho-numerical (GN) labeling system



DGN = Descriptive followed by Grapho-Numerical

GND = Grapho-Numerical followed by Descriptive