

AUGUST, 1943

RESEARCH BULLETIN 374

UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE
AGRICULTURAL EXPERIMENT STATION

M. F. MILLER, *Director*

A Comparative Study of Some Drapery Fabrics Available in 1942 and 1943

PAULINE E. KEENEY

(Publication Authorized August 19, 1943)



COLUMBIA, MISSOURI

A Comparative Study of Some Drapery Fabrics Available in 1942 and 1943

PAULINE E. KEENEY

CONSUMER PROBLEMS IN THE CHOICE OF DRAPERY FABRICS

The problems which generally confront the consumer in the purchase of drapery materials are (1) the choice of a design and fabric suited to the size and furnishings of the room, (2) the fastness of the colors to light, laundering and dry cleaning, (3) and the durability of the fabric and its ability to undergo either laundering or dry cleaning processes satisfactorily.

This study has been designed, with these problems in mind, to test the more common cotton and rayon drapery fabrics which were on the market both before and after any adjustments which might have been necessitated by the war program. A comparison of the results of the tests performed on these two groups of fabrics will indicate any decrease in durability, the lack of colorfastness due to the shortage of vat dyes, as well as the changes in price.

Since the choice of the proper design and texture of fabric are problems which concern the personal opinions and the desires of the consumer, it will not be necessary to discuss these in this bulletin. Instead this study has been related only to those characteristics which influence the satisfaction the consumer should derive from such fabrics, namely, colorfastness and durability.

The consumer generally chooses drapery and upholstery to add distinctive touches of color or to blend into colors which are used elsewhere in the decorative scheme. In either case, color becomes a most important point to consider. In fabrics to be used as draperies, the fastness of the colors to sunlight is an important point since such fabrics are subjected to light at all times. Formerly this colorfastness was tested by placing a test sample of the fabric under a glass plate and placing it where it would be exposed to varying degrees of light. The test requires much time in order to accurately test the amount of fading which would take place, but this method of testing can be used by the consumer if one wishes to devote the necessary time to it. Recently this test has been improved considerably by the use of the F D A type, Fadeometer. This machine is scientifically constructed to test the fastness of colors by the use of a carbon arc light. The intensity of this light is greater than that of sunlight and the constancy of the light makes

it possible to test the degree of color changes in a number of hours rather than the weeks which would be necessary in the older method.

Fabrics of this type are generally bought with the idea of serving for an extended period of time. Since this is true, either laundering or dry cleaning will be necessary to maintain the appearance of the draperies. Therefore, the fastness of the colors to both laundering and dry cleaning would be of the utmost importance to the consumer. It is possible for the consumer to check this color fastness of fabrics to laundering by washing a small piece of the fabric before definitely deciding upon her purchase. Colorfastness to dry cleaning might be tested in the same way. However, consumers generally feel that this will require too much time.

In considering the durability of such fabrics, one should know its general strength. Experienced buyers of fabrics often acquire a fairly satisfactory sense of judging the strength and tentative durability of a fabric by closely examining the structure of the cloth to determine the type of weave used, the balance of the yarns used in the warp and filling, and the amount of yarn slippage which occurs when any strain is placed upon the fabric. However, the majority of persons are too inexperienced in judging fabrics by these methods to derive any assurance from such an examination.

The consumer would also be wise to consider the amount of shrinkage as a factor which would contribute to the durability of the fabric. A drapery fabric which has a great amount of shrinkage in either laundering or dry cleaning soon loses its value to the consumer unless a proper allowance has been made. It has been stated that during this war period the quality of the textiles produced will be below the standards of those prior to the war. The difficulty of obtaining dyes of good quality and the suggested possibility of lowering the thread count to increase yardage would be two factors which would greatly influence the quality of the fabric and the satisfaction of the consumer.¹

Ordinarily the consumer has no assurance of the quality of the fabric before its purchase. Price is of very little value in the determination of quality since there are so many factors other than the quality of a fabric which will influence the price. Informative labels would be of a decided advantage to the consumer. The fabrics tested bore no information other than markings along the selvage to indicate the type of dye used, the method of printing, and the maximum amount of shrinkage to be expected.

THE TESTS USED

The laboratory tests generally used to indicate the quality and durability of fabrics are weight, thread count, tensile strength and colorfastness. These tests were applied according to methods

¹Report to Department of Agriculture Extension Service, July 22, 1942. Robert Skliar, Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce.

given by Committee D-13 of the American Society for Testing Materials.²

Weight

The weight in ounces per square yard was determined by weighing samples of the fabric which were cut to be exactly two inches square. The samples were weighed in grams on a Becker Analytical balance, and this weight was then converted to ounces per square yard.

Width

The widths were given at the store when purchased and were checked in the laboratory by measuring with a steel tape.

Thread Count

The number of threads in one inch of cloth were counted according to the same method for both warp and filling. In determining this thread count, the actual number of threads per inch were counted at five or more places in the fabric and the average was calculated.

Tensile Strength

The tensile strength was obtained from an average of five samples each for both warp and filling. The raveled strip method was used. This method requires samples to be cut at least $1\frac{1}{4}$ inches in width and six inches in length. The width is then raveled until it measures exactly one inch. These strips were tested under standard conditions with the use of a Scott testing machine geared to travel at a rate of twelve inches a minute with jaws set three inches apart.

Colorfastness

The colorfastness to light was checked by placing samples of the fabrics in an F. D. A. type Fadeometer and exposing them at a temperature of 105° F. and a relative humidity less than 50% for a period of 10, 20, 40, 60, or 80 hours depending upon the fastness. The longest period of exposure the fabrics will withstand without an "appreciable" change in color determines the class of fading, according to the following classification:

Class 1 No appreciable change after 10 hours.

Class 2 No appreciable change after 20 hours.

Class 3 No appreciable change after 40 hours.

Class 4 No appreciable change after 60 hours.

Class 5 No appreciable change after 80 hours.

Fabrics which show no appreciable change in color after 80 hours of exposure in the Fadeometer are considered to be of superlative fastness to light and may be used where extreme fastness to light is required.³

²A. S. T. M. *Standards on Textile Materials*, American Society for Testing Materials, Committee D-13, Philadelphia, Pa., October, 1941, pp. 36, 38, 44.

³Commercial Standard C. S. 59-41, *Woven Textile Fabrics—Testing and Reporting* (Third Edition), February 28, 1941, U. S. Bureau of Standards, Washington, D. C.

Bleeding

The amount of bleeding was tested by attaching a small piece of cotton fabric to the samples to be laundered. Since the fabrics are generally lined with cotton fabrics, it was considered unnecessary to use a composite cloth which contains yarns of all major textile fibers. After laundering and dry cleaning, this cotton sample was examined for evidence of the colors used in printing the drapery fabric.

Colorfastness to Laundering

After laundering, the sample of the fabric was carefully compared with the original piece to determine the possibility of any change in appearance due to loss of color.

Shrinkage

Shrinkage was tested on these samples by marking off a twelve-inch square. These squares were measured with a steel tape in both warp and filling directions after laundering and the amount of shrinkage per yard for both warp and filling was calculated.

Durability in Laundering and Dry Cleaning

The laundering was done by hand washing these fabrics very carefully using a running suds of a mild household flaked soap with a temperature not exceeding 100° F. The fabrics were rinsed three times. The dry cleaning was done by a reputable dry cleaner in the same manner in which draperies of such fabrics would be handled if sent out to be dry cleaned. The procedure used here was to process for approximately thirty minutes in a cleaning solvent according to ordinary dry cleaning procedures. The soap used with the cleaning fluid was a corn oil product.

RESULTS OF THE STUDY

The fabrics selected were purchased in two groups, (1) those which were on the market prior to the adjustments necessitated by the war program, and (2) those which have appeared on the market since restrictions in the manufacture of these materials have been put into effect. Group I* fabrics were purchased from three prominent stores in this locality in June, 1942, and consisted of 40 fabrics of varying textures, colors, designs and prices. Of these 36 were of cotton and the remaining four were of rayon.

Group II* fabrics were purchased in February, 1943, in the same manner as those purchased the preceding year. Only those fabrics which the stores indicated as new ones were purchased. In purchasing this second group it was found that the number of new fabrics was very small. One store was stocking only fabrics of the same patterns and types which they had sold the preceding year. The supply in other stores was quite limited. Due to this limitation the total number of fabrics in this group was twenty-four. Of these, twenty-three were of cotton and one was of rayon warp and cotton filling.

Material Selected

Of the forty pieces of fabrics purchased in June, 1942, thirty-five were of cotton, one was of linen and four were constructed with a rayon warp and a cotton filling. Of the twenty-four fabrics in the second group, twenty-three were of cotton and one was constructed with a rayon warp and a cotton filling. This prevalence of cotton fabrics over linen and rayon was to be expected since the production and importing of linen has been almost completely curtailed and the greater part of the rayon output is needed in the war program.

The weaves used in the construction of these fabrics were: (1) plain, (2) twill, (3) Jacquard, (4) dobby, and (5) satin. In the first group nineteen fabrics were constructed using the plain weave, six, using the Jacquard, while the dobby weave was used for three and the satin weave for only one. In the second group of fabrics, eight were constructed with the plain weave; eleven, with the twill weave; two, with the Jacquard weave; three, with the dobby weave, and none were constructed with the satin weave. This tends to indicate that the more expensive weaving processes are not being used as extensively as the less expensive and less complicated methods, such as the plain weave and the twill weave.

The type of design in these fabrics varied little. Multicolored floral patterns were most popular since forty-five, or approximately 70%, of the total number were of this type. Of these, twenty-nine were in the first group and sixteen in the second group. In the first group three of the fabrics tested had their design produced by

*Hereafter, fabrics purchased in June, 1942, will be referred to as Group I, while those purchased in February, 1943, will be referred to as Group II.

the use of a filling yarn of one color and a warp yarn of another while this method was used for only one fabric in the second group. Stripes were used in four fabrics of the first group and in five fabrics of the second group. The remaining fabrics, four in Group I and two in Group II, were of solid colors. (See Table 1).

TABLE 1. FIBER CONTENT AND DESIGN OF FABRIC

Fiber Content	No.	Multi-colored Floral print	2 Colors	Stripes	Solid Color
Group I.					
Rayon and Cotton	4	3	1		
Cotton	35	25	2	4	4
Linen	1	1			
Group II.					
Rayon and Cotton	1	1			
Cotton	23	15	2	5	2
TOTAL	64	45	5	9	6

The widths of these fabrics varied from 35 inches to 53 inches with forty-four or approximately 70%, of the total number being 48 inches in width. Thirty of these were in the first group and the remaining fourteen in the second group.

The weight per square yard varied considerably, ranging from a lightweight cretonne of plain weave weighing 3.2 ounces per square yard to a heavy novelty fabric of rayon and cotton weighing 10.3 ounces per square yard. In both groups the majority of fabrics were of approximately moderate weight ranging from 5.0 to 7.7 ounces per square yard. (See Table 2).

TABLE 2. OUNCES PER SQUARE YARD

Oz/ sq. yd.	Group I	Group II
3-4	0	1
4-5	2	0
5-6	14	9
6-7	11	6
7-8	8	7
8-9	3	1
9-10	1	0
over 10	1	0
Total	40	24

Prices ranged from \$.45 to \$1.98 a yard. There was a slight relationship between the fiber content and the cost, as well as between the width of the material and the cost.

The use of linen and rayon fibers showed tendencies to increase the cost of the fabrics. The one linen fabric was the most expensive being priced at \$1.98 for the linear yard. The width of this fabric

was 48". The fabrics containing rayon ranged in price from \$.98 to \$1.98 with an average of \$1.47. The average cost of the thirty-five all cotton fabrics was \$.99 with a price range of \$.45 to \$1.59. The cotton fabrics in Group II were of considerably lower cost. The price range of these 23 fabrics was from \$.54 to \$1.49 with an average of \$.83. The lower cost of the fabrics in the second group is largely due to the fact that the store which had handled the better grade of fabrics in the group purchased in 1942 decided to purchase no new fabrics in 1943, so that the fabrics in the second group were all purchased in the stores which handle lower priced commodities. (See Table 3).

TABLE 3. FIBER CONTENT IN RELATION TO PRICE

Fiber Content	Widths					Prices		
	32	35	36	46	48	50	Average	Range
Group I								
Rayon and Cotton					3	1	\$1.47	\$.98-1.89
Cotton		2	5	1	26	1	.99	.45-1.59
Linen					1		1.98	
Group II								
Rayon and Cotton					1		1.89	
Cotton	1	3	3	1	14	1	.83	.54-1.49

In comparing the relationship between the price and the width of the fabric, those fabrics of the narrower widths are usually less expensive than those of the wider widths, as would be expected. (See Table 4).

TABLE 4. WIDTH OF FABRICS IN RELATION TO PRICE

Widths (Inches)	No.	Fiber Content	Prices	
			Average	Range
Group I				
35	2	Cotton	\$.54	
36	5	Cotton	.63	.45- .89
46	1	Cotton	1.00	
48	3	Rayon and Cotton	1.44	.98-1.89
	26	Cotton	1.06	.75-1.59
	1	Linen	1.98	
50	1	Rayon and Cotton	1.39	
	1	Cotton	1.00	
Group II.				
32	1	Cotton	.59	
35	3	Cotton	.61	.54- .69
36	4	Cotton	.56	.29- .69
46	1	Cotton	.69	
48	13	Cotton	1.01	
		Rayon and Cotton	1.89	.69-1.49
50	1	Cotton	.59	

Weight in Relation to Construction and Durability

No correlation between the weight of the fabric and the thread count was expected since the sizes and types of yarns used were quite varied. The warp yarns varied from 31 to 133 per inch in the fabrics of the first group and from 21 to 90 in the second group of fabrics while the filling yarns ranged from 22 to 76 in the first group and from 23 to 44 in the second group. (See Table 5).

TABLE 5. THE RELATION BETWEEN WEIGHT AND THREAD COUNT

Oz./ sq.yd.	No.	Group I.		Group II		
		Warp	Filling	No.	Warp	Filling
3-4				1	50	44
4-5	2	48- 94	45-62			
5-6	14	31- 96	22-58	9	39-89	30-44
6-7	11	45- 74	25-57	6	45-90	23-44
7-8	8	35-106	23-76	7	35-89	30-44
8-9	2	69-133	27-75	1	21	21
9-10	2	33- 87	24-27	1	21	21
10 or over	1	95	28			
TOTAL	40	31-133	22-76	24	21-90	21-44

The fabrics in the second group had a slightly lower thread count than the fabrics in the first group. The average for the fabrics in the first group was 66 in the warp and 41 in the filling as compared with 62 in the warp and 35 in the filling of the second group. Although this slight reduction in thread count is evident, it is not enough to indicate that any drastic decrease has occurred in the number of yarns used in the construction of such fabrics.

In comparing the weight of the material with their tensile strengths, it was found that there was no correlation since several of the fabrics weighing 6 to 8 ounces per square yard were stronger than those of heavier weights. (See Table 6). This fluctuation is

TABLE 6. THE RELATION BETWEEN WEIGHT AND TENSILE STRENGTH

Oz./ sq.yd.	No.	GROUP I		No.	GROUP II	
		Warp Range	Filling		Warp Range	Filling
3-4				1	48.8	29.8
4-5	2	45 - 68.4	36 -66.2			
5-6	14	25.2- 76.4	22 -76	9	36.4-83	33.4-71
6-7	11	40.8-123.4	25.2-89.2	6	40.2-49	59 -76
7-8	8	58.4-103	41.8-67.2	7	59.4-100.2	52 -86.8
8-9	2	70.8-149.2	78 -79	1	93	42.4
9-10	2	71.6-74.6	31.4-52.5			
Over 10	1	83.4	55			
TOTAL	40	25.2-149.2	22-89.2	24	36.4-100.2	29.8-86.8

undoubtedly due to the variations in the strength and structure of the yarns used rather than to the weight of the fabric and, since it occurs in both groups of fabrics, it is an indication that the weight of the fabric may not have any influence on its durability.

From the fabrics tested in this study, the decrease in strength which was to be expected to accompany the lowering of the thread count is not apparent to any great extent. The fabrics in the first group ranged from 25.2 to 149.2 in the warp and from 22 to 89.2 in the filling as compared with a range of from 36.4 to 100.2 in the warp and from 29.8 to 86.8 in the filling of the fabrics in the second group.

Price in Relation to Construction and Strength

The price of the fabric can be no definite indication of the durability of the fabric, since the price is affected by numerous other factors such as the weave, the type of design used, and the fiber content of these fabrics. The lack of relationship between the price and the durability of fabric was evident in the study since the more expensive fabrics possessed no greater indications of durability than those of the lower price groups. (See Table 7).

TABLE 7. PRICE IN RELATION TO CONSTRUCTION AND STRENGTH

Price	No.	Thread Count				Tensile Strength*			
		Average		Range		Average		Range	
		Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling
Group I									
Below .50	2	75.5	49.5	57-94	37-62	62.0	42.2	55.6- 68.4	36.8-47.6
.50- .60	2	52.6	48.5	56-57	40-57	43.6	37.9	40.8- 46.4	86.6-89.2
.60- .70	2	53.5	45.5	53-54	45-46	58.5	48.3	57.8- 59.2	47.2-49.4
.70- .80	5	57	37.2	39-76	27-47	53.5	62.7	25.2- 71.0	41.2-76.0
.80- .90	5	56.6	36.2	38-65	29-45	79.2	36.0	36.0-123.4	25.2-44.4
.90-1.00	3	83.3	45	77-95	28-54	65.1	46.7	54.4- 83.4	37.2-55.0
1.00-1.25	11	63.7	43	31-133	30-75	65.5	61.9	36.4-149.2	41.8-76.0
1.25-1.50	7	83	40.1	68-106	23-76	82.5	56.3	70.8- 93.0	31.4-79.0
Over 1.50	3	52.3	28.3	33-88	22-36	71.2	50.9	49.2- 89.8	47.2-53.2
Group II									
Below .50	1	50	44	50	44	48.8	29.8	48.8	29.8
.50- .60	6	50	32	21-77	21-38	69	57.3	39.0-100.2	42.4-71.0
.60- .70	5	65	34	45-89	29-44	57.7	60.1	40.2- 83.0	33.4-67.0
.70- .80									
.80- .90	2	77	42	75-79	40-44	83	59	79-87	52-66
.90-1.00	1	64	39	64	39	41.2	52.4	41.2	52.4
1.00-1.25	7	50	36	40-71	35-44	51.8	60.3	36.4-63.0	35.2- 71.8
1.25-1.50	1	89	42	89	42	93.2	53.2	93.2	53.2
Over 1.50	1	90	23	90	23	49	76	49	76

*The tensile strength represents the number of pounds required to tear a one inch strip of the fabric tested.

In choosing the durable drapery fabric, consumers will have to depend upon their judgment of the quality of the yarns used in construction, the natural strength of the fibers used to make the yarn, and the firmness of the weave rather than upon the cost of the fabric.

Weave in Relation to Construction and Strength

The general assumption in regard to the durability of weaves is that the twill weave usually possesses the greatest strength. This was found to be true in this study since the range in tensile strength was found to be slightly higher than in the fabrics of other weaves. However, it was not so far superior to the fabrics of plain and Jacquard weaves that one could use this as a definite assurance of superior quality and durability. (See Table 8). Here again the consumer must consider the other factors which are involved. The fiber content, yarn construction and firmness of the weave are far more important factors in judging durability than the weave which has been used.

TABLE 8. WEAVE IN RELATION TO CONSTRUCTION AND DURABILITY

	No.	Thread Count				Tensile Strength*			
		Average		Range		Average		Range	
		Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling
Group I									
Plain	19	58	38	36- 96	22-58	51.2	50.5	25.2- 89.8	31.4-76.0
Twill	11	76	47	31-133	27-76	78.3	59.5	36.4-149.2	36.8-78.0
Jacquard	6	73	31	57- 95	27-37	82.3	50.2	55.6-123.4	25.2-79.0
Dobby	3	53	42	46- 57	30-57	47.7	83.9	40.8- 55.8	76.0-89.2
Satin	1	70	25	70	25	75.8	48.2	75.8	48.2
Group II									
Plain	8	54	36	39- 90	23-44	45.9	51.9	36.4- 55.6	29.8-76.0
Twill	11	69	37	35- 89	30-44	71.5	61.9	50.4-100.2	33.4-86.8
Jacquard	2	45	29	45	29	41.9	66.8	40.2- 43.6	66.6-47.0
Dobby	3	49	33	21- 75	21-40	75	55.1	45-93	42.4-71.0
Satin	0								

*The tensile strength represents the number of pounds required to break a one inch strip of the fabric being tested.

Shrinkage in Laundering and Dry Cleaning

Although the majority of these fabrics were considered to be washable, it was found in this study that dry cleaning is undoubtedly the most satisfactory method of cleaning and having some assurance of retaining the original. (See Table 9).

TABLE 9. SHRINKAGE IN LAUNDERING AND DRY CLEANING

Shrinkage	Laundering				Dry Cleaning			
	Group I		Group II		Group I		Group II	
	Warp	Filling	Warp	Filling	Warp	Filling	Warp	Filling
	No.	No.	No.	No.	No.	No.	No.	No.
Less than 1%	18	18	8	15	20	25	3	10
1%-1.99%	3	7	2	3	10	12	8	10
2%-2.99%	6	13	3	3	10	12	12	3
3%-3.99%	3		2					
4%-4.99%	6	1	1	2				
5%-6%	4	1	6					

Ordinarily a shrinkage of 1% is considered possible without causing serious damages to the original size of the article. The size of the drapery varies according to the size and type of window where it is to be used. If the size is assumed to be two and one-half yards in length and 48 inches in width, 1 per cent shrinkage would permit a decrease of approximately one inch in the length and slightly less than one-half inch in the width. This amount would not be enough to seriously affect the length or width of the drapery but a shrinkage of over 2 per cent would probably cause a noticeable decrease in the size of the drapery and the effect which is to be achieved unless such shrinkage possibilities had been expected and an allowance made when the draperies were constructed.

According to the above table there is a shrinkage in laundering of less than 1 per cent in the warp and filling of 18 fabrics or 45 per cent of the total number of Group I as compared with 8 or 33 per cent in the warp and 15 or approximately 62 per cent in the filling of the fabrics in Group II. This indicates that a greater amount of shrinkage has taken place in the warp yarns of Group II, due no doubt to the reduction in the number of the yarns used in the construction. Of the four fabrics in Group I with a shrinkage of over 6%, two were unusually high. One of these was a cotton damask which shrank 12% in the warp and 4.17% in the filling. The other was a fabric of Jacquard weave with a rayon warp and a cotton filling. The amount of shrinkage in this was 16% in the warp and 6% in the filling. None of the fabrics in Group II reached such an unusually high degree of shrinkage. Three fabrics had an 8% shrinkage in the warp. One of these three fabrics failed to show any shrinkage while the other two had a shrinkage of 4% and 2% respectively.

The amount of shrinkage in dry cleaning was considerably less than in laundering. However there was considerable shrinkage over the 1% limit, particularly in Group II. Here again the increase in shrinkage of the fabrics in Group II over those in Group I was quite apparent.

There is no manner in which the consumer can be assured of absolutely no shrinkage in the fabric which is purchased unless some indication of the amount of shrinkage has been made by the manufacturer. Six of the total number of fabrics were labeled as to the processing and the amount of the shrinkage to be expected. Two were labeled as "Shrunketized" and the shrinkage stated as not to exceed 2%. Both of these were found to shrink less than 1% in the actual testing. Two others were labeled as "Pre-shrunk" and the shrinkage here was also stated as not to exceed 2%. These fabrics had a shrinkage of approximately 1% in the actual testing. Two fabrics were labeled as not to exceed 1% in shrinkage and were correctly labeled according to the laboratory tests. One of

these was labeled "Sanforized" and it is well understood that this term used on a fabric is a guarantee that there will be no more than 1% shrinkage.

These few labels which do appear are indications that the manufacturer is attempting to solve one of the problems which the consumer must face. However such labeling should be done much more extensively in order to provide greater assurance of satisfactory buying.

Table 10 indicates the effects of the different color tests upon the various fabrics which were tested. For simplification of the comparisons of these changes the following four classifications were set up:

- 1) Class 1—No loss of color can be noticed.
- 2) Class 2—Slight loss of color is apparent.
- 3) Class 3—Noticeable change.
- 4) Class 4—Objectionable change.

According to these classifications there would not be enough color change in either Class 1 or Class 2 to cause any dissatisfaction on the part of the consumer, while those fabrics in Classes 3 and 4 would be highly undesirable to the consumer. (See Table 10).

TABLE 10. COLOR FASTNESS

	Crocking		Bleeding	Laundering	Dry Cleaning	Fadeometer Hours of Exposure			
	Dry	Wet				20hrs.	40hrs.	60hrs.	80hrs.
GROUP I									
CLASS									
1. No loss of color	31	17	30	32	23	33	27	19	19
2. Slight loss of color	9	16	8	7	16	7	10	13	12
3. Noticeable loss		6	1		1		3	7	7
4. Objectionable loss		1	1	1				1	2
TOTAL	40	40	40	40	40	40	40	40	40
GROUP II									
CLASS									
1. No Loss of Color	21	18	19	18	16	17	12	7	5
2. Slight loss of Color	3	6	4	4	8	7	10	14	12
3. Noticeable loss				1			2	3	4
4. Objectionable loss			1	1					3
TOTAL	24	24	24	24	24	24	24	24	24

By the term "crocking" is meant the rubbing off of the excess dye when the fabric is in either a wet or dry state. In fabrics which are used exclusively for draperies this test is quite unnecessary, however the crocking test was included in this study since all of these fabrics could be used in slip covers or for other upholstery, and under such usage it is very important that there is no excess dye which will rub off.

Of the fabrics in Group I, 31, or approximately 77% failed to show any evidence of crocking when dry and 17, or 42% failed to show evidence of crocking while wet. Nine showed a slight loss of color when dry and 16 showed a slight loss of color when wet. Only one fabric in this group showed an objectionable amount of crocking and this was while in a wet condition.

The fabrics in Group II reacted similarly with twenty-one or approximately 86% showing no loss of color in the dry state and eighteen or 75% showing no loss of color when wet. Only three showed even a slight loss of color when dry and only six when wet.

The term "bleeding" is used to indicate the amount of excess color which is lost in laundering and can be taken up by another fabric such as the cotton fabrics one would use to line a pair of draperies.

The majority of the fabrics were quite satisfactory as far as the loss of color in laundering and dry cleaning was concerned. Only one fabric in Group I and two fabrics in Group II would prove to be unsatisfactory due to a loss of color in laundering. Thirty-two in Group I and eighteen in Group II failed to show any loss of color. The fading in the remaining fabrics was so little that it did not affect the appearance of the fabric.

The fadeometer test is used to determine the colorfastness when subjected to light. These fabrics were examined after 20, 40, 60, and 80 hours of exposure in the fadeometer. Nineteen out of 40 fabrics in Group I showed no loss of color after the total exposure of 80 hours. Twelve showed a slight loss of color, seven a noticeable loss and two an objectionable loss after the total exposure. Several of these revealed signs of fading after as few as 20 hours of exposure in the fadeometer.

In Group II, only 5 fabrics out of 24 showed no loss of color whatsoever, twelve showed a slight change after 80 hours of exposure, four a noticeable change and three an objectionable change after the total exposure.

There was a noticeable decrease in the number of fabrics showing no loss of color in the second group as compared with those in the first group. More objectionable losses of color were apparent in Group II than among those in Group I. Thus it is clear that there is a noticeable decrease in the quality of the dyes used in the fabrics of this type which have been put out since the war program has necessitated a change in the quality of the dyestuffs available for civilian uses.

Labeling in Regard to Colorfastness

The colorfastness of twenty-three of the sixty-four fabrics tested was indicated along the selvage edge by such markings as: "Vat Prints," "Sunfast and Washable," "Best Obtainable Vat Dyes," "Sunfast and Tub-proof" and "Color Tested."

Twelve of these twenty-three fabrics were labeled as "Vat Prints."

This implies that the best of dyes have been used and that the colors used are relatively sunfast and permanent to laundering. In actual testing only one of these fabrics was found to have undergone no color change whatsoever. Three showed slight change after laundering and dry cleaning. Five showed a slight loss of color after 60 hours in the fadeometer; one, after 40 hours; and two showed a slight change after only 20 hours in the fadeometer. This slight change became an objectionable change after 80 hours of exposure in the fadeometer.

Of the five fabrics marked "Puritan Print—Sunfast and Washable" only two showed no change whatsoever, while one showed a slight change after 20 hours exposure in the fadeometer as well as in dry cleaning. Another fabric showed a slight change in dry cleaning and the remaining fabric showed a slight loss of color after 60 hours exposure in the fadeometer.

All four of the fabrics which were labeled "Best Obtainable Vat Dyes" were in Group II. All of these showed evidences of loss of color which would indicate that the "best obtainable" vat dyes used were highly unsatisfactory. These four fabrics were all affected by exposure in the fadeometer. One fabric showed a slight loss of color after twenty hours which was not increased as the exposure was continued through 80 hours. However, this same fabric showed an objectionable change after laundering. Another fabric showed a slight change after 20 hours of exposure which became noticeable after 80 hours. Another fabric showed only a slight change after 60 hours while the last fabric in this group showed a slight change after 20 hours which became quite noticeable after 60 hours and quite objectionable after 80 hours.

The one fabric labeled "Sunfast and Tub-proof" was found to be exactly as labeled since no loss of color could be detected in any of the tests.

The fabric marked "Color Tested" showed only a slight loss of color after 40 hours of exposure in the fadeometer. This slight change did not increase as the exposure was prolonged.

From the facts presented here, it may be said that the present labeling of such fabrics in regard to their colorfastness is not dependable and that none of the various trade terms should be understood to guarantee complete colorfastness. It would be of decided benefit to the consumer if the manufacturers could define more definitely the use of the terms which they use in regard to colorfastness and indicate by some method the maximum amount of color change which the consumer can expect in each case. Until some method of standardizing colorfastness has been worked out, the consumers must use their judgment of the existing labels to aid in making satisfactory purchases.

While the amount of accurate information is limited, the consumer, who must purchase drapery materials will find fewer materials from which to make selections. The consumer cannot be assured that the fabrics will not shrink but the few labels pertaining to shrinkage were found to be dependable. Allowance should be made for considerable shrinkage when draperies or slip-covers are made. Fabrics labeled "Sanforized" should not shrink more than one per cent.

There has been a decrease in the quality of the dyes used but there are fabrics which showed no loss of color.

SUMMARY

1. There was a decided decrease in the number of drapery fabrics which were available in local stores in 1943 as compared with the number available in 1942.
2. The fiber content of the fabric was found to influence the cost of the fabric since the few fabrics containing linen and rayon were considerably more expensive than the majority of the fabrics made of cotton alone.
3. The widths of these fabrics varied from 35 to 53 inches with approximately 70% of the total number of fabrics tested being 48 inches in width.
4. The weight per square yard of the fabric varied from 3.2 ounces per square yard to 10.3 ounces per square yard. In both the fabrics purchased in 1942 and those purchased in 1943 the majority of fabrics were of approximately moderate weight ranging from 5.0-7.7 ounces per square yard.
5. Very little relationship exists between the weight of the fabric and construction and durability due to the wide variation in the strength and structure of the yarns.
6. Price can be no indication of durability since other factors such as the type and quality of the yarn, the weave used, the colors and design, as well as the cost of manufacturing all influence the price.
7. There was a marked difference in the ranges in thread count of the fabrics purchased in 1942 and 1943. The range in thread count of the fabrics purchased in 1943 was considerably lower than the range in thread count of the fabrics purchased in 1942.
8. The decrease in strength which was to be expected to accompany the lowering of the thread count is not apparent to any great extent.
9. Greater shrinkage in both laundering and dry cleaning was apparent in the fabrics purchased in 1943, due, possibly to the decrease in the thread count.

10. The few labels pertaining to shrinkage which appeared on the fabrics were found to be quite dependable.
11. There was less fastness of color in the fabrics purchased in 1943 than in those purchased in 1942. This was expected to occur as a result of the limiting of the good dyes available for civilian uses.
12. Nineteen of the fabrics purchased in 1942 showed no loss of color after the total exposure of 80 hours in the Fadeometer as compared with five fabrics of those purchased in 1943 which showed no loss of color after the same exposure.
13. The majority of the terms implying fastness and quality of the dyes used were found to mean little when the actual tests were performed on these fabrics since only one of the twenty-three fabrics so labeled showed no loss of color in any of the tests.
14. There is a noticeable decrease in the quality of the dyes used in the fabrics which have been put out since the war program has necessitated a change in the quality of the dyestuffs available for civilian uses.