ARS 72-78

July 1970

COTTON FIBER BLENDING, 1945-68:

An Annotated Bibliography

Southern Utilization Research and Development Division

Agricultural Research Service

U.S. DEPARTMENT OF AGRICULTURE

Trade names are used in this publication solely for the purpose of providing specific information. Mention of a trade name does not consititute a guarantee or warranty of the product by the U.S. Department of Agriculture or an endorsement by the Department over other products not mentioned.

COTTON FIBER BLENDING, 1945-68: An Annotated Bibliography

by

Jack E. Sands and Louis A. Fiori

ACKNOWLEDGMENT

The authors are indebted to Mrs. Dorothy B. Skau and Miss Dorothy D. Gillespie, Librarians of the Southern Utilization Research and Development Division, for their patience and untiring efforts in making many of the documents available for this survey.

SOURCES CONSULTED

American Cotton Handbook, Ed. 3, v. 1, pp. 132-205. 1965.

Bibliography of Agriculture, v. 6-32, inclusive. 1945-68.

Literature Survey of Fiber Blending for the Years 1944-1961. Dept. Textile Tech., School of Textiles, North Carolina State College, Raleigh, North Carolina, May 1962.

Literature Survey of Fiber Blending for the Years 1952-1963. Gupta, B. S., Bogdan, J. F., and Grover, E. B., The Technol. and Chem. of Textiles No. 4, 1964, Dept. Textile Tech., School of Textiles, North Carolina State College, Raleigh, N. C.

Textile Abstracts, v. 58 and 59. 1967 and 1968.

Textile Institute Journal Abstracts, v. 36-57, inclusive. 1945-66.

Textile Technology Digest, v. 2-25, inclusive. 1945-68.

The bibliography is listed chronologically by years and alphabetically by authors within years. An author and reference index is provided at the end.

INTRODUCTION

From the earliest days of the textile industry, mills have blended cotton because, being a natural fiber, it varies in staple, color, impurities, and strength, all of which are influenced by environmental conditions and ginning practices. Blending is also essential to produce a yarn having acceptable yarn properties and spinning efficiency at minimum cost.

Recent trends towards higher production rates and speeds, short-cut processing systems, automated cotton handling systems, and modified ginning practices are placing added emphasis on the importance of blending techniques in mills. Blending manmade fibers with cotton has also given impetus to improvements on machinery and techniques for blending the different types of fibers.

Further advances in fiber technology, machinery development, operations research techniques as applied to blending, and management practices may open up new vistas to the textile technologists, fashion designers, and marketing specialists. As a source of information for continuing advances in the field of fiber blending, this annotated bibliography brings together most of the key publications on this subject. No doubt some publications have been omitted. We hope that authors of such papers will treat these omissions sympathetically, realizing the difficulty of locating all papers.

This bibliography contains most of the published articles from 1945 to 1968, inclusive, on the development of blending technology in the textile industry. A brief explanatory abstract of each article is given.

1. ANONYMOUS.

DIFFERENT-GRADE COTTONS BLENDED IN OPENER ROOM. Textile World 95(12): 172, 175, 176. 1945.

Flexibilities and limitations of blending procedures are discussed.

2. DUNKERLEY, F.

YARN STRENGTH OF EGYPTIAN COTTON MIXINGS. Textile Inst. Jour. 36(3): T57-59. 1945.

The effect on yarn strength of a mixing of Egyptian cottons is noted.

3. WILLIAMS, S., and TOWERY, J. D.

A STUDY OF COTTON BLENDING. Textile Res. Jour. 16(2): 61-73. 1946.

Blending of grade and staple ranges is shown to be feasible and economically acceptable.

4. ANONYMOUS.

RECLAMATION OF REWORKABLE WASTE-BLENDING STAPLE LENGTHS. Textile Indus. 112(4): 105-106. 1948.

Disadvantages and technological problems in blending differences in staple lengths are discussed.

5. BOWEN, C. M.

SMYRE FEATURES COTTON-RAYON BLENDS. Textile World 98(4): 127, 200-201. 1948.

Cotton and rayon blends are made by mixing combed cotton slivers with rayon staple slivers at the sliver lap machine. Details of machine settings are included.

6. CARTER, S.

COTTON CLASSIFICATION PLUS INVENTORY EQUALS UNIFORM BLENDS. Textile World 98(2): 118, 119, 194, 195. 1948.

Variations in leaf, color, or staple in successive mixes can be overcome by calculating the mixture composition. This results in uniform successive mixes, constant production, and standard yarn quality.

7. ANONYMOUS.

BLENDING COTTONS AT DRAWING. Textile Indus. 113(7): 94-96. 1949.

Blending of two cottons having different staple lengths at drawing is recommended because each may be individually combed with settings suitable for its fiber length characteristics.

8. ASHTON, H.

RAYON STAPLE SPINNING AND FIBRE BLENDING POSSIBILITIES. Textile Recorder 67(795): 58-61. 1949.

The effect of staple length and filament denier on yarn strength and count range and modifications of existing machinery necessary for the successful handling of staple rayon are discussed. Fibre blending possibilities and blends of viscose staple with cellulose acetate staple, protein fibres, Rayolanda, nylon, cotton, wool, and ramie are described.

9. BUISMAN, J. A. K.

COTTON/STAPLE FIBRE BLEND KNITTING YARNS: SPINNING. Enka en Breda Rayon Rev. 3, pp. 106-112. 1949. Through Textile Inst. Jour. Abs. 41(1): A8. 1949.

Cotton/staple fibre mixed yarns in a cotton mill are discussed. The choice of rayon staple fibre of suitable length and thickness and the various possibilities of blending at the pre-spinning process are considered.

10. HELLIWELL, E. H.

EMULSION IMPORTANT ON COTTON-WOOL BLENDS. Textile World 99(9): 163. 1949.
A formula is given for an emulsion with which wool is treated, made into sliver, and combined with cotton sliver at the drawframe. Control of the percentage of each fiber in the blend is critical.

11. ORR, W.

BLENDING FIBERS AT DRAWING PROCESS. Textile Indus. 113(1): 91. 1949.
Blending fibers having dissimilar surface characteristics may be done at drawing with appropriate changes in machine variables. However, if there is a difference in the drafting uniformity of fibers, blending before picking and carding is satisfactory.

12. WOOD, R.

THE INFLUENCE OF MIXED FIBRES ON YARN AND FABRIC DESIGN. Textile Mfr. 75(891): 134-137. 1949.
Suggestions are given of benefits resulting from the intelligent blending of fibres on the cotton, worsted, woolen, and flax spinning systems.

13. KENRICK, J.S.

COTTON BLENDS ARE WORTH WATCHING. Hosiery and Underwear Rev. 33(11): 138, 139, 150. 1950
A chemical treatment is described for blends of cotton and nylon resulting in a yarn suitable for knitting with good dyeing properties.

14. LEINEWEBER, W. F., JR.

STREAMLINED FIBRE BLENDING. Textile Mercury 123(3204): 343, 345, 347. 1950.
An illustrated description of an automatic blending system is given.

15. SLATER, H. L.

BLENDING OR MIXING OF FIBRES. Textile Weekly 46(1184): 1384, 1386, 1388. 1950.
The mixing of textile fibres is discussed and the importance of careful and correct blending is emphasized. A return to the old hand-mixing methods is recommended.

16. ANONYMOUS.

EFFICIENT BLENDING OF NEW STOCK AT SHELBY COTTON MILLS. Textile Indus. 115(4): 113-115, 158. 1951.
New blending equipment is discussed and its special features are emphasized with reference to a commercial operation.

17. ANONYMOUS.

A CONTROLLED WASTE FEED SYSTEM. Saco-Lowell Bul. 23(1): 23. 1951.
A system is described for the orderly introduction of reworkable waste into the processing line. The system is adaptable to any modern distributing system and may be set up to control more than one opening line.

18. DENMARK, J. B.

HOW PEPPERELL BLENDS COTTON BY FIBER FINENESS. Textile World 101(12): 108-109. 1951.
Individual mixes in the mill are based on composite values of grade, staple, and Micronaire reading. Uniform product quality with less testing, improved spinning efficiency, better manufacturing performance, fewer neps, and better dyeing resulted.

19. LEINEWEBER, W. F., JR.

AN ANALYSIS OF FIBRE BLENDING. Textile Age 15(6): 50-53, (8): 62-71. 1951.
Bale blending by hand feeding of the hopper feeders, floor sandwich blending and feeder blending, lap blending, and finally automatic hopper weighing and proportional feeding to make a sandwich blend are described.

20. ANONYMOUS.

COTTON BLENDING: A NEW SYSTEM OF BLENDING BY WEIGHT. Platt's Bul. 8(1): 16-19. 1952.
An illustrated description is given of a new system based on weight feeding for blending cotton. The system is automated and operated from a central control cabinet.

21. HUNTER, W. A.

FIBRE BLENDING. Textile Inst. Jour. 43(9): P365-374. 1952.
Blending techniques are described and appraised. A new machine called a lattice opener is described. Subsequent processing equipment was modified to improve processing efficiency.

22. LUND, G. V.

THE BLENDING OF VISCOSE RAYON AND OTHER FIBRES WITH PARTICULAR REFERENCE TO THE COTTON SYSTEM OF PROCESSING. Textile Inst. Jour. 43(8): P375-390. 1952.
Practical techniques of blending and the factors that control intimacy of blending are discussed.

23. NUDING, H.

FIBRE BLENDS: THE INFLUENCE OF THE PROPERTIES OF FIBRES. Textile Inst. Jour. 43(8): P352-364. 1952.
Principles of raw stock blending and doubling of different singles yarns are described. Wool and rayon staple, cotton and viscose staple, viscose and acetate staples, and viscose and nylon or Perlon staples were blended. It is necessary for the fibres being blended to have the same load-extension characteristics.

24. REGNERY, W.

BLENDING OF COTTON BY FINENESS DETERMINATION AND OTHER APPLICATIONS OF RESEARCH IN MILL OPERATION. Textile Res. Jour. 22(1): 49-52. 1952.
By using the fineness of each bale and by proper blending, each mix will have the same average fineness from day to day. Consequently, variations in nep count and in uniformity of the finished product can be reduced and spinning efficiency can be increased, resulting in maximum production rate.

25. WAGGETT, G.

THE RELATIONSHIP BETWEEN BLEND COMPOSITION AND SOME PROCESSING PROPERTIES OF RAYON STAPLE ON COTTON SPINNING MACHINERY. Textile Inst. Jour. 43(8): P391-400. 1952.
The relationship between the pertinent processing characteristics and yarn properties were found to be approximately linear.

26. BURGESS, R., JR.

PROCESS FOR MAKING YARN FOR USE IN THE MANUFACTURE OF TEXTILE FABRICS. (B. P. 671,373) Textile Inst. Jour. Abs. 44(3): A196. 1953.

Colour-blended yarns are produced from cotton or rayon staple fibre on the cotton spinning system. Dyeing is done at the roving stage. Rovings are doubled at spinning to complete the intermingling.

27. HUNTER, W. A.

A NEW APPROACH TO OPENING AND BLENDING COTTON. Cotton Res. Clinic Proc. [4]: 77-80. 1953.

A new, integrated opening and blending system is described.

28. McCOMB, J.

PRACTICAL IDEAS ON BLENDING. Mod. Textiles 34(3): 54, 81. 1953.

Blending should be done early in the processing stages and blend components should be as small as possible. Guides are given on how and where to blend.

29. McCOMB, J.

QUALITY YARNS FROM THE BLENDS. Mod. Textiles 34(4): 36, 87, 88. 1953.

Guides are given for selecting optimum mechanical and chemical processing factors in processing blends.

30. QUIG, J. B.

CONSIDER THESE POINTS IN BLENDING WITH NYLON, ORLON, AND DACRON. Textile World 103(9): 129, 266. 1953.

Important factors when blending nylon, orlon, or dacron fibers with wool, cotton, or rayons are indicated. Minimum percentages of nylon, orlon, or dacron in blends are suggested to give woven fabrics having certain attributes.

31. SHOOK, R. C.

BLENDS - ON THE UPTREND. Mod. Textiles 34(3): 45, 76. 1953.

A market-oriented discussion of the public's buying motives and how these can be satisfied by blending.

32. WEGENER, W.

SOME POINTS TO WATCH IN THE MANUFACTURING OF MIXED YARNS. Textil-Praxis 8(4): 283-292. [In German.] 1953. Through Textile Inst. Jour. Abs. 44(8): A530. 1953.

Possible mechanical processing and finishing problems resulting from the manufacture and use of yarns of blends of fibres are discussed. Causes are considered.

33. ANONYMOUS.

HOW TO SECURE PERFECT BLENDS. Saco-Lowell Bul. 26(3): 29-31. 1954.

A mill blending test is described, using two dyed and one undyed lot of the same cotton. Colored photographs show blending intimacy at four blending stages.

34. BARRENTINE, J. D., and LADEBAUCHE, J. A.

DOES POINT BUYING SOLVE BLENDING PROBLEM? NO! Textile Indus. 118(1): 128, 129. 1954.

Variations in cotton will not necessarily follow identical patterns each year. A study of weather conditions during the growing season and an early ginning testing program can assist in 'point' buying. Every bale should be tested for Micronaire reading and the mix composed of the same 'average' from day to day.

35. COX, D. R.

SOME STATISTICAL ASPECTS OF MIXING AND BLENDING. Textile Inst. Jour. 45(2): T113-122. 1954.

Irregularities in slivers and yarns arising from the uneven mixing of fibres of different types is discussed theoretically, using as a basis mixing and doubling in drawing.

36. DEXTER, L.

METHODS OF SELECTING, BLENDING, AND CLEANING COTTON AS PRACTICED IN EUROPEAN MILLS. Textile Res. Jour. 24(6): 587-589. 1954.

Cottons are selected and bought on guaranteed fiber specifications. These are checked at the port of entry. Blending and cleaning are accomplished by four hoppers, one opening line, and two pickers.

37. GOLDBERG, J. B.

PROBLEMS IN FIBER BLENDS. Textile Res. Jour. 24(4): 374-378. 1954.

Problems discussed include fly contamination, uneven blending, nonfugitive tints, fiber breakage, lubrication and surface effects, static, and effects of deniers, lengths, and stress-strain properties.

38. HARRIS, M.

SOME PROBLEMS OF BLENDING. Textile Res. Jour. 24(4): 379-382. 1954

A review of present difficulties in engineering fabrics. A better understanding of the potentialities of blending is related to radically new fabrics of greatly improved functionality.

39. JONES, J. R.

TIPS ON BLENDING COTTON AND NYLON. Textile World 104(9): 64-65, 246. 1954.

Low percentages (15 to 30) of nylon can be blended satisfactorily with cotton at several processing points.

40. LANGDON, H. H.

DEVELOPMENTS IN COTTON BLENDING AND FEEDING. Textile Res. Jour. 24(6): 550-555. 1954.

A detailed description of the Rando-Feeder is given. Rando-Feeders, used in the blending lines for cotton processing, could result in product improvement. The Rando-Feeder controls fiber web uniformity.

41. LUND, G. V.

BLENDING FIBERS. Textile World 104(4): 87, 88, 311, 312. 1954.

The quality of breaker-drawing blends is discussed. The effect of the number of doublings as related to fiber fineness and yarn size is noted.

42. LUND, G. V.

FIBER BLENDING. Textile Res. Jour. 24(8): 759-764. 1954.

The inherent 'greatest intimacy' of blending possible, the effect of processing differences on this 'intimacy', the factors involved in long-term variation of blend composition, and means of controlling the quality of blend yarns are discussed.

43. SATTLER, E.

EFFECTS OF VARYING FIBRE ELONGATION OF THE SPINNING PROPERTIES AND YARN STRENGTH PROPERTIES. Melliand TextilBer 35(10): 1084-1086. [In German. English Abs.] 1954.

The effect of fibre elongation of the components of a blend is noted. Ideally, the stress-strain curves should be similar and elastic recovery noted. Stress-strain curves of different fibre types and the yarn strength as a function of the blending ratio are compared.

44. SCHWARZ, E.R.

BASIC RESEARCH IS NEEDED FOR NEW BLENDING METHODS. America's Textile Rptr. 68(13): 15, 16. 1954.

The number and placement of the mix components along the length of the textile strand are more important than the relative composition of a blend.

45. WAKEHAM, H., VIRGIN, W.P., and SPICER, N.

COTTON QUALITY AND FIBER PROPERTIES. PART I: EFFECT OF MECHANICAL BLENDING ON COTTON FIBER PROPERTIES. Textile Res. Jour. 24(9): 802-809. 1954.

Methods were developed for preparing homogeneous samples of cotton fibers for laboratory test purposes.

46. ANONYMOUS.

DRAWING FRAME BLENDING. Saco-Lowell Bul. 27(2): 13-16. 1955.

The results of blending white and dope-dyed viscose fibers by use of two drawing frame passages are shown in colored photographs of drawing, sliver, roving, and yarn. The blending was considered unsatisfactory.

47. CHARNLEY, F.

MACHINERY PROBLEMS IN BLENDING COTTON AND MAN-MADE FIBRES. Textile Inst. Jour. 46(8): P534-548. 1955.

A comparison is made of blending at opening, drawing, and ribbon lapper. Blending at the ribbon lapper appears to offer an economical and accurate method for making intimate blends.

48. GOLDENBERG, R.

THE LATEST ON FIBER BLENDING - FABRICS OF THE FUTURE. Textile Forum 12(1): 13-15, 24. 1955.

The principal aesthetic and functional characteristics of fabrics produced from selected blends of natural and manmade fibers are discussed. Limited levels of some of the manmade fibers in the blends are indicated.

49. HAMPSON, A. G., and ONIONS, W. J.

STATISTICAL TESTS OF COLOUR BLENDING IN YARNS AND ROVINGS. Textile Inst. Jour. 46(6): T377-390. 1955.

Tests were devised to measure the efficiency of colour mixing in a roving or yarn. The statistical bases for these tests are presented.

50. JENNINGS, E. J., and LEWIS, H. G.

A METHOD OF CALCULATING THEORETICAL FINENESS FOR COTTON BLENDS. Textile Res. Jour. 25(3): 267-269. 1955.

The harmonic mean is proposed to obtain the average fineness of a blend for any combination of any number of individual components in the blend.

51. RUDOLPH, L.

INVESTIGATIONS INTO THE FIBRE ARRANGEMENT IN THE YARN CROSS-SECTION OF SOME FIBRE BLENDS. Textil- u. Faserstofftech 5(5): 293-300. 1955. [In German.] Through Textile Inst. Jour. Abs. 46(10): A615. 1955.

Earlier views on fibre migration in yarns composed of a blend are discussed. Wool-viscose and Wolcrylon-viscose blends, under normal spinning conditions, showed no preferential fibre distribution in the cross-section of worsted-type yarn.

52. SMITH, K. C.

FACTORS INFLUENCING FIBRE BLENDS. Textile Weekly 55(1448): 1923-1924. 1955.

The importance of fibre length and fibre diameter is discussed.

53. ALDRICH, A. P., JR.

THE BLENDING OF TEXTILE FIBRES. Canad. Textile Jour. 73(2): 43-46. 1956.

The value of premixing the various stocks is shown. Separate opening, cleaning, and picking systems are described for both cotton and manmade fibre blends.

54. CHARNLEY, F.

PROCESSING FIBRE BLENDS. Man-Made Textiles 33(389): 56-57; (390): 47, 48; (391): 46-48. 1956.

Fibre blending techniques on the cotton system are outlined and machines specially developed for blending fibres before lap forming are briefly reviewed. Some practical aspects of the carding, drawing, and spinning of fibre blends are considered.

55. PREYSCH, F.

THE RIETER-AUTOMIXER. Textile Rec. 73(877): 54-56. 1956.

The Automixer and its operations are described in detail. This automatic machine incorporates principles of doubling and drafting so that the material fed from the mixing bale openers or blenders is extended over a considerably enlarged area in both time and space.

56. STRITZ, W.

EFFECT OF THE INTENSITY OF FIBRE MIXING ON THE YARN QUALITY. Textil-Praxis 11(6): 534-535. 1956 [In German.] Through Textile Inst. Jour. Abs. 47(12): A595. 1956.

Improved yarn regularity, slightly higher tensile strength, and reduced scattering of the fibre distribution are obtained by more intensive mixing. Differences in results obtained from mixing in the hopper feeder as compared with results from mixing at drawing are postulated.

57. WESTBROOK, W. C.

A LOOK AT CROWN'S FIBER-BLENDING SYSTEM. Textile World 106(5): 122, 123, 190, 192. 1956.

Automatic continuous-process opening and blending of various fibers results in improved yarn quality and increased production. The various machines in this system are described.

58. ANONYMOUS.

IMPROVED STOCK BLENDER. Mod. Textiles 38(5): 58. 1957.

A blending system is described in which the stock is given multiple mixing operations and then spread evenly over the whole of the mixing room floor. A well-mixed blend results.

59. ANONYMOUS.

COTTON AND SYNTHETIC FIBRES -- HOW TO MIX THEM. Textile Inst. Jour. Abs. 48(8): A424. 1957.

The main difficulties encountered in mixing cotton with synthetic fibres are discussed.

60. CHARNLEY, F.

PRODUCTION AND USES OF BLENDED YARNS. Textile Weekly 57(2): 1852, 1854, 1955. 1957.

Four systems specifically developed for fibre blending are described: Platt's, Fibermeter, Proctor and Schwartz, and Automixer. The relation of number of doublings to fibre fineness, composition of the mix, and yarn size is discussed.

61. DeBARR, A. E. and WALKER, P. G.

A MEASURE OF FIBRE DISTRIBUTION IN BLENDED YARNS AND ITS APPLICATION TO THE DETERMINATION OF THE DEGREE OF MIXING ACHIEVED IN DIFFERENT PROCESSES. Textile Inst. Jour. 48(10): T405-414. 1957.

Means of measuring fibre distribution in blended yarns and the relation of blend uniformity to the number of doublings are discussed.

62. DESCHEEMAEKER, A.

PRODUCTION OF DACRON/COTTON BLEND FABRICS. Textile Rec. 75(892): 58-59. 1957.

Review of production techniques from fibre to finished cloth for a blend of 65% dacron and 35% cotton, including recommendations on yarn count, blending, sizing, dyeing, and finishing.

63. GOODWIN, J. A.

COTTON AND ORLON BLENDS IN YARNS. Lowell Tech. Inst. Bul. Ser. 61., No. 2, pp. 3-15. 1957.

The blending of cotton and orlon as a sandwich blend before picking and processing into yarns of the same count using a variety of twists is reported. The effects of blend composition and twist on some of the physical characteristics of the yarn were determined.

64. OKUAKI, S., ONOOKA, R., and KISHINO, M.

STUDY OF THE ORIENTATION OF BLENDED YARN. I. THE ARRANGEMENT OF FIBRES IN BLENDED YARNS. II. THE IRREGULARITY OF BLENDED YARNS. Textile Res. Inst. Bul. (Japan) No. 41, pp. 25-38. 1957. [In Japanese. English Summary.] Through Textile Inst. Jour. Abs. 49(4): A232. 1958.

Migration of coarse fibres to peripheral region of blend yarns is described for synthetic fibres differing in denier. Geometrical and structural variations are shown as causes of irregularity of blended yarns and are studied statistically.

65. BARNES, J. C.

BLEND TO SAVE MONEY, AS WELL AS FOR QUALITY AND IMPROVED PERFORMANCE. Textile Indus. 122(12): 113,114. 1958.

The purposes, limitations, and methods of blending are discussed.

66. COPLAN, M. J., LERMOND, C. A., and KENNEY, R.A.

AN INDEX OF BLEND IRREGULARITY AND ITS PRACTICAL USE: A SUMMARY AND DISCUSSION. Textile Inst. Jour. 49(7): P379-393. 1958.

Fibre mixing and distribution within and along slivers and yarns are described. The effects of drafting and doubling and the indices of blend irregularity of some typical blends and method of calculating are described.

67. DAVIS, J. O., and STRODL, C. A.

HOW TO MAKE COTTON/DYNEL HIGH-BULK YARNS. Textile Indus. 122(10): 157-159. 1958.
Spinning, knitting, dyeing, and finishing techniques are described.

68. DeBARR, A. E., and WALKER, P. G.

FIBRE DISTRIBUTION IN BLENDED YARNS: A SUMMARY AND DISCUSSION. Textile Inst. Jour. 49(8): P353-367. 1958.
An assessment is made of the progress that has been made since 1952 in the development of methods for obtaining measures of the distribution of fibres in a blended yarn. Theoretical treatments of the problem are discussed.

69. DELANY, J. L.

THE EXPLORATION OF COTTON PRE-BLENDING. Textile Bul. 84(10): 51, 52. 1958.
In preblending, means are shown for obtaining a mixing ratio at opening of 2,400 to 1. Preblending can produce substantial savings.

70. FORD, J.E., MURPHY, T., and RICHARDSON, W.A.

VARIATIONS OF COMPOSITION IN FIBRE BLENDS. Textile Inst. Jour. 49(8): P368-378. 1958.
Coloured fibres were used to evaluate the degree of mixing in blend yarns. The differences in composition that can be expected between nominally identical blend yarns under normally satisfactory spinning conditions are shown.

71. HAMILTON, J. B.

THE RADIAL DISTRIBUTION OF FIBRES IN BLENDED YARNS. PART I. CHARACTERIZATION BY A MIGRATION INDEX. Textile Inst. Jour. 49(9): T411-423. 1958.
The preferential radial distribution of a particular fibre component in a blended yarn is measured and represented by a single numerical parameter, termed the 'migration index'. The method of calculating this index is shown.

72. HAMILTON, J. B., and COOPER, D. N. E.

THE RADIAL DISTRIBUTION OF FIBRES IN BLENDED YARNS. PART II. FACTORS AFFECTING THE PREFERENTIAL MIGRATION OF COMPONENTS IN BLENDS. Textile Inst. Jour. 49(12): T687-T705. 1958.
Application of 'migration index' to a range of blends established the relative importance of fibre staple length and fineness.

73. HOFFMAN, R. M., and PETERSON, R. W.

ENGINEERING OF FABRICS FROM BLENDS WITH SYNTHETIC FIBRES. Textile Inst. Jour. 49(8): P418-434. 1958.
A discussion is given of the objectives, principles, and methods of blending some of the new synthetic fibres and the resultant effect on such fabric properties as cover, handle, resilience, and comfort in wear.

74. LAIRD, H. C.

ACCURATE BLENDS - REMEDY FOR THE VARIABILITY IN COTTON. Textile Indus. 122(7): 68-71. 1958.
A rigorous procedure is described for preparing sub-blends, which subsequently contribute to a 1,500 to 1 blend ratio.

75. LITTLE, J. N., MATHEWS, W. T., JR., and MAYNE, S. C., JR.

FINENESS IS NO. 1 FACTOR IN BLENDING LOW-GRADE COTTON. Textile World 108(12): 54-55. 1958.

Importance of blending low-grade cottons by fineness and by bale densities as well as the effects to expect in blending white waste and card strips are described.

76. NORMAN, N. N.

HOW TO IMPROVE BLENDING BY MICRONAIRE NUMBERS. Textile World 108(9): 62, 63. 1958.

Variation in Micronaire reading of a cotton mix from the precalculated figure is discussed. Means of correcting this value are shown.

77. SILLS, H.

BETTER BLENDS FROM POORER QUALITY COTTON. Textile Bul. 84(5): 134-136. 1958.

Desirable modifications of feeders and blenders when processing low-quality cottons are suggested.

78. TERYUSHNOV, A. V.

PROCESSING OF BLENDS FROM VISCOSE STAPLE FIBRE AND COTTON. Tekstil. Promysh. 18(11): 15-18. 1958. [In Russian.] Through Textile Inst. Jour. Abs. 50(7): A381. 1959.

Appropriate changes on the card are suggested when processing viscose staple. High-count yarns result from viscose/cotton blends.

79. ANONYMOUS.

THE SECRETS OF TERYLENE/COTTON BLENDING. Skinner's Silk & Rayon Record 33(1): 46-48. 1959.

The advantages of terylene/cotton blends are discussed. Procedures are suggested for processing these blends.

80. ANONYMOUS.

HOW BEAUMONT PROCESSES 420 NYLON-AND-COTTON BLENDS. Textile World 109(4): 59-61. 1959.

Details of carding, spinning, slashing, and weaving 420 nylon/cotton blends at Spartan Mills are given.

81. ANONYMOUS.

THEY BLEND AT BREAKER DRAWING. Textile Indus. 123(9): 107, 108. 1959.

Mechanical modifications are recommended at picking and carding for processing Dacron/cotton blends.

82. BOROCZY, E.

THE MECHANIZATION OF BLENDING IN CARDED YARN SPINNING MILLS. Magyar Textiltech. 11(3): 95-98. 1959. Through Textile Inst. Jour. Abs. 51(5): A238. 1960.

Equipment is described for simulating hand stacking, for mixing large batches. Equipment consists of two or three adjoining stacking chambers through which horizontal stacking and vertical removal is accomplished. The process is repeated as many times as is necessary with the blend being conveyed to a storage room.

83. CONE, S. M., JR.

FIBER SELECTION AND FIBER BLENDING. Textile Indus. 123(10): 131-133. 1959.
End use of fabric dictates fiber to be used and performance specification should be known. Fibers must be chemically compatible. Cotton/synthetic blends need more mixing than available in normal cotton opening and cleaning lines.

84. COPLAN, M. J.

FIBER TRANSLATION IN BLENDS. Mod. Textiles 40(7): 39-42. 1959.
All of the desirable properties of each component of a blend may or may not be manifest in the blend. Three possible causes for improper results are discussed and examples are given.

85. FIORI, L. A., LOUIS, G. L., and SANDS, J. E.

BLENDING COTTONS DIFFERING WIDELY IN MATURITY. PART I. EFFECT ON PROPERTIES OF SINGLE YARNS. Textile Res. Jour. 29(9): 706-716. 1959.
Possibilities are shown for blending extremely fine and coarse American cottons to produce single yarns of acceptable quality, particularly where the spinning limits of a cotton are not approached too closely.

86. GLAESSNER, O.

COTTON OPENING: THE TRÜTZSCHLER BLOWROOM PLANT. Textile Weekly 59(2): NO. 1657, 1437-39. 1959.
Operational details of the Trützschler blending bale opener are described.

87. GRANT, P. C.

PRE-BLENDING COTTON. Whitin Rev. 26(1): 46-48. 1959.
Large quantity blending will contribute to an evening out of the unpredictable variations in fiber quality and variations in ginning and bale density.

88. GUGGENHEIM, G.

WHAT'S ALL THIS ABOUT PREBLENDING? Textile Bul. 85(3): 39-44. 1959.
The reasons for preblending cotton are examined and the advantages in the cotton mill are cited.

89. HEMBREE, J. F.

QUALITY CONTROL APPROACH TO COTTON BLENDING. Textile Indus. 123(5): 87-89. 1959.
The advantages of blending cotton to a specific formula using fiber property measurements are described.

90. HEMBREE, J. F.

LARGE SCALE COMMERCIAL BLENDING. Textile Res. Jour. 29(9): 717-721. 1959.
Data are presented to show that large-scale blending eliminates environmental differences in cotton fibers through a high degree of randomization. Other advantages are cited.

91. HOWE, D. E.

MASSIVE BLENDING A MEANS OF LEVELING OUT COTTON'S VARIABLES. Textile Bul. 85(7): 33-34, 72. 1959.
Reductions in variation of fiber fineness of the mix, neps, clearer waste, ends down, and yarn strength are among the advantages cited for massive cotton blending.

92. HOWE, D. E., and MATTISON, J. F.

MASSIVE COTTON BLENDING FOR MILL PRODUCTION. Textile Res. Jour. 29(9): 722-726. 1959.
The reasons for massive preblending and the results of such a program are described.

93. LEINEWEBER, W. F., JR.

FIBER METER BLENDING SYSTEM. America's Textile Rptr. 73(46): 26-29, 39. 1959.
The fiber meter automatic blending system and construction details are described.

94. LÜNENSCHLOSS, J., and FREY, M.

BLENDING OF POLYESTER FIBRES WITH COTTON. PART I. Melliand TextileBer. 40(6): 599-602. 1959. [In German.] Through Textile Inst. Jour. Abs. 50(11): A598. 1959.
The advantages of a cotton/polyester fibre blend are enumerated, with special references to a blend prepared from 40 mm. combed Egyptian cotton and 1.4 denier high-tenacity Diolen polyester fibre. Strength, elasticity, crimp, fibre abrasion, cross-section and longitudinal view, shrinking behavior, and fibre length of the two components are compared.

95. LÜNENSCHLOSS, J. and FREY, M.

BLENDING OF POLYESTER FIBRES WITH COTTON. Melliand TextilBer. 40(8): 842-845; (9): 967-971. 1959. [In German.] Through Textile Inst. Jour. Abs. 51(3): A113. 1960.
The spinning of polyester fibre/cotton blends in varying ratios is discussed. The results of evenness tests, the drafting behaviour, and the efficiency of blending ratio are discussed. Investigations were carried out on strength, elongation, and elasticity behaviour, and also on the abrasion resistance, flexural strength, knot strength, and shrinkage properties of the yarns.

96. MANOCK, G. W.

SPINNING, WEAVING AND FINISHING 'TERYLENE' COTTON YARNS AND FABRICS. Textile Mfr. 85(1010): 66-67. 1959.
Recommendations are given for spinning synthetic fibres on the cotton system. Weaving requirements, fabric construction, and dyeing, printing, and finishing techniques are noted.

97. NAUMOV, V. A., and MENSHIKOVA, M. D.

PRODUCTION OF FABRICS FROM KAPRON FIBRE/COTTON BLENDS. Tekstil. Promysh. 19(9): 35-38. 1959. [In Russian.] Through Textile Inst. Jour. Abs. 51(4): A190. 1960.
The wearability of fabrics produced from mixtures of Kapron and cotton is related to the amount of Kapron and to the characteristics of the fabric. The effects of fibre denier and yarn size are discussed.

98. POMFRET, N. H.

HOW TO BLEND AT DRAWING ON THE COTTON SYSTEM. Textile World 109(5): 56,57. 1959.
The advantages for processing small sample orders are cited. Tables containing combinations of doublings for varying compositions of the blends are provided.

99. SIMON, E.

BLENDED YARNS FROM COTTON AND VISCOSE RAYON. Reyon, Zellwolle und Andere Chemiefasern 9(9): 588-592. 1959. [In German.] Through Textile Inst. Jour. Abs. 51(3): A113. 1960.
Fibre properties, stage of blending, blend ratio, type of blend, and twist in the yarns are discussed. Improvements in yarn and fabric properties attributed to the addition of viscose rayon are noted. Cost advantage, without loss of product quality, due to addition of viscose rayon is shown. The use of a high wet strength viscose rayon is recommended.

100. UENO, S.

STUDY ON THE STRUCTURE OF BLENDED YARNS. VIII. THE RELATION BETWEEN THE TWIST AND THE STRENGTH OF BLENDED YARNS FROM COTTON AND RAYON STAPLE FIBRES. Soc. Textile and Cellulose Indus. Japan Jour. 15(11): 878-886. 1959. [In Japanese. English Summary.] Through Textile Inst. Jour. Abs. 51(9): A474. 1960.

The effect of blending on spinning efficiency is shown, with spinning twist being an interacting variable.

101. VANCHIKOV, A. N.

YARN PRODUCTION FROM A MIXTURE OF COTTON AND VISCOSE RAYON STAPLE FIBRE. Tekstil. Promysh. 19(9): 23-28. 1959. [In Russian.] Through Textile Inst. Jour. Abs. 51(4): A179. 1960.

Results of mixing various amounts of cotton and rayon staple fibre and processing of the blends on sliver lap machines or mixer-feeders are described and the physico-mechanical properties of the yarn evaluated. The yarn processed on mixer-feeders proved to be of higher quality. Test results on yarns with different counts produced from cotton/viscose staple fibre and properties of the finished fabrics are presented.

102. WHITE, J. F.

SUBSTANTIAL POTENTIAL FOR COTTON MILL TO SAVE RESTS IN RAW STOCKS. America's Textile Rptr. 73(21): 19, 23, 65. 1959.

Three approaches affecting operational economies are given.

103. BIRENBAUM, E. I.

THE PRE-DETERMINATION OF THE STRENGTH OF YARN MADE FROM A TWO COMPONENT BLEND. Technol. Textile Indus. (U.S.S.R.), No. 4(17), pp. 34-41. [English Translation.] 1960.

Formulas are given to predetermine the breaking strength of the blended yarn for any component ratio using small samples.

104. BORNET, G. M.

CALCULATION OF THE IDEAL UNEVENNESS OF BLENDED STRANDS. Textile Inst. Jour. 51(7): P326-336. 1960.

A formula is proposed for calculating ideal unevenness of a blended strand according to Martindale's random strand concept. This results in the calculations of Ideal Unevenness and of the Index of Unevenness in mill practice.

105. CHARNLEY, F., and BRADBURY, E.

FIBRE BLENDS: THEIR PRODUCTION AND PREPARATION. Textile Weekly 60(1659): 15-16, 19. 1960.

The effects of blend preparation and production on streakiness and colour changes and on warp breaks, knot slippage, and fibre loss during weaving are discussed.

106. FIORI, L. A., LOUIS, G. L., and SANDS, J. E.

BLENDING COTTONS DIFFERING WIDELY IN MATURITY. PART II. EFFECT ON THE PHYSICAL PROPERTIES OF A SHEETING FABRIC (TYPE 128). Textile Res. Jour. 30(12): 926-933. 1960.

Commercially acceptable bleached fabrics were produced from a blend of extra-fine and extra-coarse cotton fibers.

107. KARLOWICZ, T., and ZÜREK, W.

VARIATION LIMITS IN THE QUANTITATIVE COMPOSITION OF FIBRE BLENDS IN YARN CROSS-SECTIONS. Przegl. Wlok. 14(9): 459-462. 1960. [In Polish.] Through Textile Inst. Jour. Abs. 52(5): A278. 1961.

The number of fibres in individual cross-sections of the yarn, belonging to different blend components, can be regarded as independent random variables subjected to binomial distribution. Means of calculating the number of fibres and the variability in the number of fibres in the cross-section of a yarn are given.

108. LABUZOVA, Z. I., and IVANOVA, L. G.

PRODUCTION OF FABRICS FROM COTTON/VISCOSE FIBRE BLENDS. Tekstil. Promysh. 20(7): 29-32. 1960. [In Russian.] Through Textile Inst. Jour. Abs. 52(7): A364. 1961.

The effect of increasing amounts of viscose rayon on the strength of fabrics is shown. Winding, warping, sizing, and weaving of the blended yarn and their effect on the physico-chemical properties are discussed.

109. MEYERS, D.

WEIGHT VS. VOLUME FEEDING OF COTTON. Textile Indus. 124(11): 83. 1960.

One source of yarn variation is bypassed with an automatic blending system - using weighing pans attached to blending feeders - that weighs and sandwiches its own mixes.

110. NUTTER, W.

FIBRE BLENDING ON THE COTTON SYSTEM. Fibres and Plastics 21(4): 115-118. 1960.

The relative efficiency and economy of a number of different methods of blending, for both natural and synthetic fibres are described.

111. RAES, G., and FRANSEN, T.

SOME RESULTS FROM EXPERIMENTS CARRIED OUT ON COTTON-COTTON BLENDS. Ann. Sci. Textiles Belges, No. 4, pp. 7-48. 1960. [In French] Through Textile Inst. Jour. Abs. 52(10): A536. 1961.

Technological feasibility of blending is discussed. Blends of cottons with the same Micronaire reading are of greater advantages than those with the same maturity.

112. SMIRNOV, K. P.

THE USE OF STAPLE FIBRES IN BLENDS WITH COTTON. Tekstil. Promysh. 20(8): 24-26. [In Russian.] 1960. Through Textile Inst. Jour. Abs. 52(11): A597. 1961.

The effect of staple length of viscose rayon on the strength of blend yarns is reported. Other physical and mechanical properties are tabulated for various percentages of cotton/staple fibre mixtures.

113. WALKER, P. G.

A MEASURE OF THE VARIATION IN BLEND PROPORTIONS ALONG BLENDED YARNS AND ITS RELATION TO THE NUMBER OF DOUBLINGS USED IN PROCESSING. Textile Res. Jour. 30(11): 843-848. 1960.

Measurements of short-term variations in blend proportions along the length of a yarn are compared with the variations predicted theoretically. For few doublings the observed variation is found to be greater than the theoretical variation. The results are used to express, as an equivalent number of doublings, the action of the card on this variation in a blend proportion.

114. BASU, N. C.

BLENDING. Indian Textile Jour. 71(846): 312, 313, 315. 1961.

An evaluation is made of blend efficiency of conventional pre-spinning equipment. It is shown that the

irregularity of yarns increases with increases in yarn count and with increases in Micronaire reading of the cotton.

115. BERKLEY, E. E., and MAYNE, S. C., JR.

BETTER WAY TO FIGURE BLENDS. Textile World 110(8): 49-51. 1961.
Tables of reciprocals of Micronaire readings are provided to facilitate use of the 'harmonic' mean formula for calculating the average Micronaire reading of a mix.

116. CALDWELL, S. A. G.

MODERN FIBRE BLENDING PRACTICE. Man-Made Textiles 38(6): 51-53 1961.
Methods of obtaining the best results for blending different types of fibres are presented, particularly natural, with manmade as opposed to manmade with manmade of different chemical composition.

117. COOPER, D. N. E.

THE STATISTICAL INTERPRETATION OF FIBER COUNTS IN YARN CROSS-SECTIONS. Textile Res. Jour. 31(10): 845-858. 1961.
A comparison is made of the arrangement of fibers obtained in binary blended yarns with that expected in a random system. Part I presents an elementary theory of blend irregularity and the factors affecting irregularity in a model binary yarn. Part II covers the application of the theory to real yarns. Part III considers the problem of fiber arrangement within yarn cross-section.

118. DELANY, J. L.

FIBER NEEDS IN MANUFACTURING. Cotton Gin and Oil Mill Press 62(11): 28-30. 1961.
Preblending evens out grades, degrees of fineness, maturity, and fiber strength, resulting in more uniform blending-in of bales having excessive amounts of short fibers and masking the effect of overheating and overginning.

119. FIORI, L. A., SLOAN, W. G., and MARSH, P.B.

CAN YOU BLEND WHITE AND LIGHT-SPOTTED COTTONS WITHOUT IMPAIRING YARN AND FABRIC PROPERTIES? Textile Bul. 37(10): 45,46, 48-52. 1961.
Four types of light-spotted cottons are identified and the causes of the discolorations are explained. Means of optimum mill utilization are demonstrated.

120. LOUIS, G. L., FIORI, L. A., LEWIS, H. G., and MAYNE, S. C., JR.

SHORT CUT TO BETTER BLENDING FOR COTTON. Textile World 111(8): 70-71. 1961.
Three nomographs are given for determining resultant fineness of blends. The first is based on 2 fiber-fineness components in terms of percent by weight; the second is based on 2 or more fiber-fineness components in terms of percent by weight; and the third is used with either of the first two in dealing with actual weights or bales.

121. LOUIS, G. L., FIORI, L. A., and SANDS, J. E.

BLENDING COTTONS DIFFERING IN FIBER BUNDLE BREAK ELONGATION. PART I. EFFECT ON THE PROPERTIES OF COMBED SINGLE YARNS. Textile Res. Jour. 31(1): 43-51. 1961.
Two long staple cottons, differing in fiber bundle break elongation but having other pertinent fiber properties substantially equal, were blended in different percentages to permit a study of the effects of break-elongation on yarn properties and spinning efficiency. Yarn strength and elongation were affected by fiber elongation and yarn toughness index correlated closely with yarn impact data.

122. LOUIS, G. L., FIORI, L. A., and SANDS, J. E.

BLENDING COTTONS DIFFERING IN FIBER BUNDLE BREAK ELONGATION. PART II. EFFECT ON PROPERTIES OF A COMBED BROADCLOTH. Textile Res. Jour. 31(5): 478-483. 1961.

Two long staple cottons, differing in fiber bundle break elongation, but having other pertinent fiber properties essentially equal, were blended in different percentages, spun into warp and filling yarns, woven into a standard combed broadcloth, and then finished commercially. This report discusses physical properties of these fabrics.

123. NEWMAN, J. A.

HOW DOES A NEW FIBER REACH THE TWO HUNDRED MILLION YARDS POINT? America's Textile Rptr. 75(28): 33, 103. 1961.

Yarn characteristics of blends of dacron with Egyptian and domestic cotton are described, and suggestions for their processing are given.

124. NUTTER, W.

FIBRE BLENDING ON THE COTTON SYSTEM. Textile Weekly 61(1): No. 1725, 772, 775, 776, 779. 1961.

The basic problems of blending cotton and manmade fibre on the cotton system and modern developments resolving them are discussed. The economics and efficiency of blowroom, card, ribbon lap, and drawframe blending are analyzed.

125. POPE, C. J., and WEINER, L. I.

TROUBLESHOOTING THE COTTON/NYLON BLENDS. Textile Indus. 125(3): 86-90. 1961.

Differences in fiber elongation require extreme care in choice of process at which blending is done and of amount of blending to impose on the stock. Various choices are discussed.

126. POZHIDAEV, N. N.

AN EXPERIMENT IN THE PRODUCTION OF BLENDED YARN FROM RAW COTTON MIXED AT THE COTTON MILL. Izv. Tekhnol. Tekstil. Promysh. No. 6(19), 81-85. 1961. [In Russian.] Through Textile Inst. Jour. Abs. 52(11): A593. 1961.

Two methods of blending are used: first, cleaning and opening of a prepared mixture of raw cotton in the proportion of 65% first grade to 35% second grade; and, second, separate cleaning and opening of first- and second-grade cotton. The properties of yarns spun from the products of the two processes are compared.

127. SANDS, J. E., FIORI, L. A., AND LOUIS, G. L.

WHAT HAPPENS TO PRODUCT QUALITY WHEN COTTON BLENDS VARY IN THEIR FLAT BUNDLE STRENGTH. Textile Bul. 87(9): 45-50. 1961.

Yarn and fabric strengths, particularly warp strip breaking strength, are directly related to the flat bundle strength of the cotton fiber blends from which they were made.

128. WATERS, W. T., and PHILLIPS, J.

THE EFFECT OF BLENDING COTTONS OF DISSIMILAR FIBER PROPERTIES UPON SPINNING PERFORMANCE AND YARN QUALITY. Textile Res. Jour. 31(7): 608-618. 1961.

The blending of cottons with dissimilar fiber properties was investigated to determine its effect upon processing performance, spinning performance, and yarn quality in medium and fine count yarns. The effect of grade and 'cavitomic' damage, fiber fineness, staple length, and fiber strength was evaluated.

129. WATERS, W. T., and PHILLIPS, J.

COMPARISON OF WEIGHT FEEDING AND CONVENTIONAL VOLUME FEEDING IN THE OPENING ROOM. Textile Bul. 87(10): 57, 60-63. 1961.

Weight feeding and preblending offer only small improvements in spinning performance and yarn single strand strength over conventional volume feeding.

130. WHARTON, M. K., and FORZIATI, F. H.

IDENTIFICATION OF FIBER BLENDS BY INFRARED SPECTROSCOPY. Amer. Dyestuff Rptr. 50(14): 515-518. 1961.

A method for the qualitative analysis of fiber blends is described in which the blend is separated into its components in a density gradient column and the components are removed from the column and identified by infrared absorption spectroscopy. The fibers are readily identified as to chemical or generic class from their spectra but additional tests may be required for identification of the fibers within a class.

131. ANONYMOUS.

HOW'S YOUR BLENDING? Textile Indus. 126(1): 69-71. 1962.

Blending is improved by increasing the number of bales from which stock is fed to each blending feeder and by increasing the number of blending feeders, but not by increasing the overall size of the mix.

132. ANONYMOUS.

TOP TRENDS TODAY - IN MANUFACTURING. Textile World 112(1): 48-52. 1962.

The use of preblending is being discontinued. Reasons: cost higher than anticipated and fiber damage from extra machining. Emphasis shifting to more and better opening, blending, and cleaning equipment in the production line.

133. ANONYMOUS.

HOW'S YOUR PICKING? Textile Indus. 126(4): 101-103. 1962.

Objectives of blending are discussed and a recommendation is made to concentrate effort in the opening room.

134. ANONYMOUS.

COTTON OPENER MAKES 'PERFECT BLENDS' POSSIBLE. Textile Indus. 126(6): 157-158. 1962.

Automatic cotton bale breaker opens stock to the extent that the stock emerging from it weighs only about 4 oz./cu. ft. When coupled with the Hunter Fiber Meter blending system, a 'perfect' blend of cotton is possible -- according to the builder.

135. ANONYMOUS.

OPENING EFFICIENCY OF THE HUNTER MULTI-TUFT BALE BLENDER DEMONSTRATED. Canad. Textile Jour. 79(13): 55-56. 1962.

Benefits resulting from use of this blender are discussed.

136. ANONYMOUS.

PROCESSING BLENDS OF DACRON POLYESTER STAPLE AND COTTON. Du Pont Tech. Bul. D-151, 19 pp. See Citation in Ref. No. 194. 1962.

The latest processing techniques for Dacron polyester staple, Type 54, and key points in processing the newer Dacron Type 35 and Type 64 are discussed.

137. ASHMORE, W. G.

PREBLENDING: IS IT WORTH THE COST? Textile World 112(5): 62-69. 1962.
Preblending has proved to be a 'boon and a blessing' to one organization and 'disappointing' to another. The 'pros' claim improvement in stability of operation, in reducing cost of stock, in quality level, and in storage operations. The 'cons' cite the high cost of the operation and the possiblility of overmachining the cotton.

138. CALDWELL, S. A. G.

MODERN FIBRE BLENDING PRACTICE. Man-Made Textiles 39(10): 58-60. 1962.
The various machines available for blending at different stages and their particular merits are discussed.

139. ENRICK, N. L.

KEEP TIGHT REIN ON BLENDING. Textile Indus. 126(10): 163, 164, 166. 1962.
Rules are provided for maintaining control of opening room blending procedures.

140. FIORI, L. A., and LOUIS, G. L.

COTTON BLENDING FOR QUALITY. Textile Indus. 126(4): 110-121, 162. 1962.
Principles of blending techniques, theoretical reasons and experimental proofs why cottons of contrasting fiber properties can be blended successfully, speculative concepts of types of cotton blends which might be used successfully, and suggestions for improving present blending practices all are described.

141. HARRIS, W. C., KENNAMER, H. G., JR. MARTIN, W. H., and PEELER, G. B.

SOME ASPECTS OF PREBLENDING COTTON. Textile Bul. 88(2): 49-52. 1962.
Reasons are cited for preblending cottons. Advantages and disadvantages are given.

142. HEARLE, J. W. S.

BLENDING FIBRES: WHAT TO USE AND WHY. Textile Mfr. 88(1045): 3-8. 1962.
Tables show principal physical characteristics of the more commonly used natural and manmade fibres. Values on mechanical properties, miscellaneous properties, and major characteristics are given.

143. HUNTER, J.

JAMES HUNTER'S NEW UNIT PROCESSES A 'PERFECT BLEND'. America's Textile Rptr. 76(20): 29, 30, 71. 1962.
Multi-Tuft bale blender is adaptable to both step-bale blending and lot blending. In step-bale blending, one-fourth, one-half, three-fourths, and full bales are processed simultaneously. In lot blending, either 4,6,8, 10, or 12 bales are processed as one unit.

144. JENKINS, H.

MORE COTTON PRODUCERS LOOKING AT BLENDED CLOTHS. Daily News Rec. No. 184, Whole No. 21429, p. 32. 1962.
Reasons for mills going to cotton and modified rayon blends are discussed.

145. ANONYMOUS.

EUROPEAN MACHINES AT HANOVER ARE STRONG ON MAJOR ADVANCES. America's Textile Rptr. 77(39): 59, 60, 62. 1963.
Details of the operation of SACM's 'Flocomat' cyclical blender are given.

146. ALDRICH, A. P., JR.

NEEDED: BETTER BLENDS. Textile Indus. 127(10): 60-63, 84. 1963.
Details on feeders designed to help get better blending and equipment performance data from two mills are given.

147. COMPTON, J.

TREND TO BLENDS. Textile Bul. 89(10): 34-43. 1963.
The purposes, methods, and mechanics of blending both natural and manmade fibers as well as the economic considerations of blending are discussed.

148. DOCKRAY, G. H.

REPORT FROM HANOVER. Textile Indus. 127(12): 59-73. 1963.
Reports on first showing of 'Diesel' opener cleaner and blender for cotton and new Multi-Bale Plucker.

149. EMMANUEL, M. V.

DETERMINATION OF BLENDING UNIFORMITY IN SMALL PORTIONS OF THE BLEND. Technol. Textile Indus. (U.S.S.R.), No. 1, pp. 53-60. 1963.
The distribution uniformity of tufts of the blend components are calculated mathematically. The objective assessment and comparison of the uniformity of different blends prepared by different methods are made possbile.

150. JOHANNSEN, H.

BLEND COMPOSITION: AN IMPORTANT FACTOR IN QUALITY CONTROL. Textil-Praxis [English Ed.], No. 3, pp. 117, 118. 1963.
Control charts to aid in blending cottons from different sources are explained. It is claimed that such charts offer valuable data for the cotton buyer.

151. JONES, C. W., JR.

WHY THE BOOM IN BLENDS. Textile World 113(12): 78. 1963.
Reasons are given for mills changing from all-cotton to blends of cotton with manmade fibers.

152. JONES, R. M.

PANEL: AUTOMATED SPINNING SYSTEMS. Cotton Gin and Oil Mill Press 64(9): 24-26. 1963.
Excellent blending of cottons is achieved in Japanese mills because of operators' attention to details in the opening room.

153. KLINKE, R.

THE 'FLOCOMAT': FOR PART-AUTOMATIZATION OF THE COTTON SPINNING PROCESS. Melliand TextilBer. [English Ed.] (1): 5, 6, 8, 10. 1963.
The development of the high-capacity RWN-Carding Machine led to methods for improving opening, cleaning, and blending methods; thus, the development of SACM's 'Flocomat' transfer mixer.

154. KYSER, J. B.

WHY TEXTILE MILLS ARE REPLACING COTTON WITH SYNTHETICS. 24th Amer. Cotton Cong. Proc., pp. 37-41. 1963.
Reasons for mills switching to synthetic cotton blends are given.

155. LIGON, C.

SURGE TO BLENDS ACCENTS MACHINERY ROLE. Daily News Rec. No. 19, Whole No. 21518, pp. 24, 27, 1963.

Equipment and air-conditioning requirements for processing cotton blends are discussed. Many favor blending, doubling at drawframe. Expect upswing in carded mixes.

156. LOUIS, G. L., FIORI, L. A., and MAYNE, S. C., JR.

FIGURING FIBER FINENESS FAST. Textile World 113(3): 70-71. 1963.

A nomograph facilitates the calculation of resultant Micronaire reading of cotton blends. Three practical examples illustrate the application.

157. MARI, A.

TREND TO COTTON BLENDS SEEN TRANSFORMING MILLS. Daily News Rec. No. 19, Whole No. 21518, pp. 26, 27. 1963.

Variations in methods of blending synthetics and cotton are discussed.

158. PAINTER, B. A.

REASONS FOR AND METHODS OF CONTROLLING STOCK WEIGHT FROM OPENING THROUGH CLOTH ROOM. Textile Bul. 89(11): 60-67. 1963.

A checkerboard method of laying down bales for blending is described. This method considers grade, staple, Micronaire reading, and territory.

159. RUDNICK, E. E.

THE NITTOBO/O-M AUTOMATED SPINNING SYSTEM. Cotton Gin and Oil Mill Press 64(9): 26, 28, 30. 1963.

The type of opening room equipment used in this system is described.

160. SZALOKI, Z.

AUTOMATION IN COTTON SPINNING. Cotton Gin and Oil Mill Press 64(9): 30, 31. 1963.

Means of reducing the amount of opening and cleaning equipment and the possibility of simultaneously blending up to 24 bales are shown.

161. ANONYMOUS.

PROCESSING FIBER-HM/COTTON BLENDS ON THE COTTON SYSTEM. Amer. Enka Corp. Bul. ZY-2, 16 pp. 1964.

The processing of Fiber-HM Zantrel/cotton blends through the greige yarn mill by raw stock blending at opening and blending at drawing process methods is discussed.

162. ANONYMOUS.

BLENDING SEQUENCE FOR COTTON AND MAN-MADE FIBRES. Textile Rec. 81(972): 71, 82. 1964.

Accurate mixing by use of weighing hoppers and the sandwich blending technique is claimed.

163. DAKIN, G.

SPINNING: TODAY AND TOMORROW. Textile Weekly 64(1) No. 1882: 595, 596, 599, 600, 602-604. 1964.

Techniques for efficient blending are described for 'within-round' blending - small bale pieces, taken

from a large number of bales; for 'between-round' blending - a small blending delay time; and for low variability between mixings - a large mixing. The conditions that will meet all three requirements are a large mixing and very small pieces fed to the opening line.

164. FRANZE, T., FRANZE, L., and SCHOLTZ, F.

THE INTRODUCTION OF POLYESTER FIBRES INTO THE COTTON INDUSTRY. Deut. Textiltech. 14(12): 625-627. 1964. [In German] Through Textile Inst. Jour. Abs. 56(3): 88. 1965.
Brief practical data on the spinning and weaving of polyester/cotton blends on the cotton system are given.

165. IWASHIMA, H.

STUDIES ON MEASURING METHODS OF BLEND PROPORTION. (III) MEASUREMENT OF BLEND IRREGULARITY BY CAPACITY TYPE EVENNESS TESTER. Textile Res. Inst. Japan Bul. No. 68, pp. 37-51. 1964.
Moisture dependent characteristics of capacity type evenness tester were investigated. The continuous measuring apparatus of blend proportions for blended yarns with two components was manufactured on a trial basis and its availability is discussed.

166. KIRSCHNER, E.

ADVANCES IN THE AUTOMATIC BLENDING OF LOOSE FIBRE IN A COTTON SPINNING MILL. Z. ges. Textil-Industrie 66(11): 893-900. 1964. [In German.] Through Textile Inst. Jour. Abs. 55(24): 824. 1964.
The increased accuracy in blend proportions possible when a Trützschler weighing hopper is introduced is demonstrated. The action of this weighing hopper and detailed results of blend analyses are given.

167. OLIVER, P.

MAN-MADE FIBRES USED IN BLENDS. Textile Weekly 64 (2) No. 1910: 688, 708. 1964.
Means of obtaining aesthetic effects in fabrics are suggested, including blending of component colors.

168. POWELL, D. L.

A MILL EVALUATION OF THE DIGITAL FIBROGRAPH. Textile Bul. 90(4): 30-32, 34. 1964.
Successful blending of cotton is based on Digital Fibrograph and Micronaire reading values.

169. RAM, V. B., DAS GUPTA, A. C., and SACKDEV, R. N.

TAKE THE GUESSWORK OUT OF BLENDING. Textile Indus. 128(2): 75-77. 1964.
Demonstrates the application of linear programming to determine the cotton blend that maintains yarn count and strength standards at the lowest possible cost.

170. SANDS, J. E., CHEATHAM, R. J., FIORI, L. A., SLOAN, W. G., and MARSH, P. B.

SPOTTED COTTONS: THEIR EFFECTS ON PRODUCT PROPERTIES AND SPINNING PERFORMANCE. Textile Bul. 90(1): 31, 32, 34-38. 1964.
The possibility of processing spotted cottons into acceptable fabrics by use of appropriate mechanical blending and finishing operations is shown.

171. SANDS, J. E., FIORI, L. A., SLOAN, W. G., and MARSH, P. B.

BLENDING CAT-EYE COTTON. Textile Bul. 90(4): 35, 36, 38-40, 42. 1964.
Appropriate blend compositions are given for successfully processing a spotted cotton into bleached and/or dyed fabrics.

172. SZALOKI, Z.

BLENDING COTTON AND SYNTHETIC FIBERS. Whitin Rev. 30(1): 14-21. 1964.
Processing requirements for blending cotton with synthetic fibers are discussed.

173. ANONYMOUS.

FIBER CONTROLS CORPORATION IMPRESSES MILL MEN BY NEW BLENDING SYSTEM. America's Textile Rptr. 79(19): 8, 9. 1965.
Fiber Controls Corporation equipment described, including several blending lines and card feeders.

174. ANONYMOUS.

LOOSE FIBRE BLENDING UNIT. Textile Recorder 83(989): 63. 1965.
The Multi-Point Mixer described is designed to increase blending power of cotton system opening installations.

175. ANONYMOUS.

THE SPRINGSTEEN STORY: HOW SPRINGS COTTON MILLS SWITCHED FROM COTTON TO POLYESTER BLENDS. Textile World 115(11): 42-50. 1965.
A step-by-step look at how Springs handles polyester/cotton blends at the Springsteen plant.

176. ANONYMOUS.

BLENDING FIBRES. Fibre and Fabric 118:8-10. 1965.
Methods of mixing different fibres, properties of the various natural and manmade fibres, and commercial motives for blending are described.

177. ANONYMOUS.

CONTINUOUS SPINNING IN SIGHT. Control (GB) 9(7): 388. 1965. Through Textile Inst. Jour. Abs. 57(17/18): 768. 1966.
Automatic control of the blending of cotton at Brierfield Mills has been achieved. The necessary control and safety circuits are described.

178. BABBS, D., and LEEMING, R.

PRODUCTION AND PROPERTIES OF VINCEL AND VINCEL/COTTON BLEND YARNS. Textile Recorder 83(989): 44-47. 1965.
The properties of Vincel (high modulus rayon) are compared with those of cotton, and processing requirements for the production of 100 percent Vincel and Vincel/cotton blend yarns are outlined.

179. BEZDUDNYI, F. F.

PLANNING THE MOST ECONOMIC BLEND IN COTTON SPINNING. Technol. Textile Indus. (U.S.S.R.), No. 5, pp. 3-7. 1965.
A linear programming method for cotton blends is described.

180. DAKIN, G.

FIBRE BLENDING ON COTTON MACHINERY. Textile Inst. Indus. 3(9): 233-236. 1965.
Hopper, stack, and doubling methods of blending are compared with reference to control of blend proportions and intimacy of blending.

181. HIGGS, E. R.

AUTOMATION: BALE THROUGH DRAWING: THE SACO-LOWELL WAY. Textile Bul. 91(3): 29, 40-42, 44, 88. 1965.
The Saco-Lowell bale to sliver process, consisting of bale pluckers, multiple card-draw box units, and chutes or single beater pickers, is described and advantages are cited.

182. KOTTER, J. I., and RUSCA, R. A.

THE SRRL BALE-OPENER-BLENDER. Textile Bul. 91(9): 78-80. 1965.
Operation of the pilot scale prototype indicated that a full size machine would be technically feasible.

183. NEWELL, W. A.

AUTOMATION: BALE THROUGH DRAWING: THE WHITIN WAY. Textile Bul. 91(3): 28, 33-38. 1965.
A description of Whitin's sliver system and its operations are discussed.

184. PITTENDREIGH, W. M.

FIBER-TO-FIBER BLENDS REQUIRE CARDING PROCESS. America's Textile Rptr. 79(15): 13, 14, 38-40. 1965.
Components of a good synthetic blending line are described.

185. RUDNICK, E. E.

AUTOMATION: BALE THROUGH DRAWING THE O-M WAY. Textile Bul. 91(3): 29, 38, 40. 1965.
A description of the O-M system and auxilliary equipment is discussed.

186. SCHOOP, D.

AUTOMATION: BALE THROUGH DRAWING THE RIETER WAY. Textile Bul. 91(3): 28, 30, 32, 33. 1965.
The Rieter system, including details of its components, is described.

187. BODELL, P.F.

COTTON QUALITY REQUIREMENTS FOR FUTURE TEXTILE MACHINERY. America's Textile Rptr. 80(26): 11, 12, 33. 1966.
The need for uniform cotton bales for efficient blending by automatic bale pluckers is noted.

188. CLINCH, H. H.

NEW METHOD OF FIBER FEEDING. Canad. Textile Seminar 10 (Supplemental Papers): 24 pp. 1966.
Present-day mill techniques of producing cotton/manmade blend fabrics are reported; a comparison of the economics of building and operating modern, quality-oriented blend mills is made; and a description of the SOM-Crosrol Blender Drawframe Machine is given.

189. FORBRIGER, E.

TECHNICAL IMPROVEMENT IN THE AUTOMATIC BLENDING OF LOOSE FIBRE AND THE EFFECT ON THE LONG-WAVELENGTH CHANGES IN BLEND RATIO IN YARN. Chemiefasern 16(5): 376-382. 1966. [In German.] Through Textile Inst. Jour. Abs. 57(13): 590. 1966.
Four arrangements of blending and opening machinery were compared for blending performance with a lap combining method. Characteristics of the blended stock, of yarns, and of resultant fabrics are discussed.

190. KIRSCHNER, E.

DEVELOPMENTS IN FIBRE BLENDING, PART I. Man-Made Textiles 43(502): 38-40. 1966.

A comparison is made of the relative merits of blending at opening, picking, drawing, and roving. The need for blending combed stock at drawing is noted; otherwise blending before carding is advised. Use of the weighing hopper is discussed.

191. KIRSCHNER, E.

DEVELOPMENTS IN FIBRE BLENDING. PART 2. Man-Made Textiles 43(505): 41, 42; PART 3. *Ibid.* 43(506): 36-38. 1966.

Means of achieving uniform blend proportions from batch to batch are discussed.

192. KRAUSE, H. W.

BALE-MIXING BASED ON DIGITAL FIBROGRAPH ANALYSIS. Melliand TextilBer. 47(4): 370-375. 1966. [In German.] Through Textile Inst. Jour. Abs. 57(10): 413. 1966.

Benefits derived from mixing, using Fibrograph values, are noted.

193. SHAHANE, D., SINGH, V., and WEINER, L. I.

COMPARATIVE STUDY OF PICKER AND DRAW FRAME BLENDS OF COTTON AND NYLON. U. S. Army Natick Labs., Natick, Mass., Nov. 1966, 61 pp. Textile Ser. Rpt. No. 143. Project No. 1C024401A329. Tech. Rpt. 67-22-CM. AD 645-153. Available from Clearinghouse, Springfield, Va. 22151, $3.00. 1966.

Advantages of blending at picking as compared with blending at drawing are cited.

194. ANONYMOUS.

PROCESSING BLENDS OF DACRON POLYESTER STAPLE AND COTTON. Du Pont Tech. Bul. D-208 (replaces D-151), 16 pp., E. I. du Pont de Nemours & Co., December 1967.

The latest techniques are described for processing various fiber types of Dacron polyester staple on the cotton system, using the same equipment and equipment speeds and settings. Exceptions, when they occur, are noted for each fiber type.

195. BEAUDROT, C. L.

A MILL EVALUATION OF THE SRRL BALE-OPENER-BLENDER. Textile Bul. 93(3): 26-28. 1967.

Good processing performance and superior quality of product, as compared with production from conventional opening line, are noted.

196. KOTTER, J. I., and SALAUN, H. L., JR.

THE DESIGN OF THE SRRL BALE-OPENER-BLENDER. Textile Bul. 93(3): 24, 25. 1967.

The formation of the continuous bale and the general concept and mechanical design of the machine are discussed.

197. ANONYMOUS.

PROCESSING FIBER-700/POLYESTER BLENDS ON THE COTTON SYSTEM. Amer. Enka Corp. Bul. RSS-5, 13pp. 1968.

Procedures for processing Fiber-700/polyester blends on the cotton systems are given. A comparison of blended and 100 percent synthetic yarn properties, featuring yarns containing Fiber-700 (high modulus rayon), polyester, acrylic, and nylon fibers is presented.

198. ANONYMOUS.

OPENING AND BLENDING: THREE OPENING-ROOM LAYOUTS. Textile Bul. 94(1): 14-16. 1968.
The wide range of today's opening room equipment layouts is described.

199. ANONYMOUS.

OPENING AND BLENDING: DESIGNS CHOSEN BY SOUTHERN MILLS. Textile Bul. 94(1): 16-17. 1968.
Equipment and layouts selected by 12 important southern mills for opening and blending in 1968 are described.

200. BOWEN, D. A.

HOW TO BLEND FIBERS AND IMPROVE BREAK FACTORS WITHOUT IN-PLANT TESTS. Textile World 118(3): 44-45. 1968.
Use of stress-strain curves in selecting manmade fibers to blend with cotton is described. Properly applied, the method leads to improved yarn strength and processability.

201. BRIGGS, H. A.

THE OPENING AND BLENDING PROBLEM: YESTERDAY AND TODAY. Textile Bul. 94(1): 13-19. 1968.
Comparisons are made of earlier day problems in the mills' opening and cleaning operations with those resulting from the conversion to blends of synthetic fibers with cotton.

202. CLARK, K. L.

KEY TO SUCCESSFUL BLENDING: THE WEIGHING FIBER FEEDER. Textile Bul. 94(1): 18, 19. 1968.
Means of mixing different fibers accurately and continuously, regardless of fiber type or proportion in the blend, are discussed.

203. FLOYD, G. G., and SALAUN, H. L., JR.

OPENER-BLENDER SPEEDS PRODUCTION OF QUALITY YARN AT GREENWOOD MILLS. Textile World 118(12): 61-63. 1968.
Results of two-year test, showing improvements in processing performance, are noted for this type of blender.

204. GLENN, J. M.

A NEW OPENING-BLENDING SYSTEM. Textile Bul. 94(3): 39-41. 1968.
Discussion of what blending requires and early blending methods. The Continental/Moss-Gordin opening-blending equipment is described.

205. LOUIS, G. L., and FIORI, L. A.

FAST WAY TO FIGURE MICRONAIRE READING IN COTTON MIXES. Textile World 118(11): 84-85. 1968.
The determination of Micronaire readings - bale number combinations resulting in a specific Micronaire reading average for the resultant mix of cotton bales can be obtained from a nomograph.

AUTHOR INDEX

Author and Abstract No.

Author and Abstract No.

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
SOUTHERN UTILIZATION RESEARCH & DEVELOPMENT DIVISION
P. O. BOX 19687
NEW ORLEANS, LOUISIANA 70119

OFFICIAL BUSINESS

POSTAGE & FEES PAID
United States Department of Agriculture