CHAPTER - 13

SUMMARY AND CONCLUSIONS

13.1 Summary of Consumer and Market Survey:

This thesis has presented a broad study of the preferences, purchase practices and problems of the consumers belonging to city, district, taluk and village to identify the factors which are conducive to consumer satisfaction and also has presented the performance properties of PN blended fabrics, a subject which hitherto has received relatively little attention in the annals of textile research. Particular emphasis has been placed on aspects of the aesthetic and mechanical properties of PN blends which are of practical application and interest in the textile industry, consumer and the other intermediaries. Consciously or unconsciously most consumers are able to exercise a kind of subjective-cum-objective judgement on the textiles they buy and there is a remarkable similarity in most of the opinions and preferences of individuals. However, there seems to be some dissatisfaction prevailing among consumers of various regions.

13.2 Conclusions of Consumer and Market Surveys:

1. Synthetics and blends not only dominate the textile trade, but the consumer preference for blends might even supersede synthetics.
2. Textile buying process is influenced by culture, social class, group influence, personality traits, financial status and time press.

3. Clothing purchases are always need-based among LIG and yet HIG households are not extravagant.

4. Clothing expenditure is positively related to overall family expenditure, occupation, employment status, educational level, past purchase experience, role of the decision makers' influence on consumer purchases, purchase practices problems and post-purchase satisfaction.

5. Consumers in general are of non-complaining nature, unaware of PN blends and are demanding in their requirements in terms of product quality and additional label information.

6. Consumer satisfaction is based on place and time of purchase, decision maker's preferences, small family and past purchase satisfaction.

7. The urban, district, taluk and villages studied have varying demands, problems and purchasing practices, though their requirements and preferences are more or less same.
8. Salesmen do not possess basic knowledge of textiles.

9. A few manufacturers mislead the consumers with faulty claims.

10. Labels on PN blended fabrics are certainly not informative. Attempts should be made to give more reliable and relevant information to help consumers in selection, use and care.

11. In the absence of suitable informative label, the consumers' decision in clothing purchases are based on external factors rather than on quality.

13.3 Recommendations:

13.3.1 Need for Consumer Education:

First of all, consumers must be made aware of their rights such as: (1) right against exploitation, (2) right to protection against fraudulent, deceitful and grossly misleading information, (3) right to be informed of quality and performance standards and maintenance requirements, (4) right to be heard of if there are grievances or suggestions, (5) right to get grievances redressed, (6) right to choose best from variety offered, and (7) right to physical environment that will protect and enhance quality of life.
He should be made to realize that they represent a vital social force which can have far-reaching effects on the economy of the country. He should be made to organize himself and eschew the widely held belief that his grievances can only be relieved by the Government. For this, he should be well organized and concentrate efforts in such areas where self-help can bring immediate results, like setting up his own co-operatives in large numbers to make an impact on normal trade channels. He should insist on buying only products guaranteed in terms of quality and standard, by some authority like ISI, those offered by Fair Price Shops, Co-operatives etc. He should analyse the reasons for high cost if any, and should determine his practices on reasonable basis.

Secondly, they should accept consumerism, which is a collective endeavour, as a means to assert and enjoy it. It should succeed in making business more honest, efficient, responsible; pressurise the Government to adopt necessary measures to protect their interests by guaranteeing their legitimate rights through quality control. Thus, there is a need for 'standardising' consumers' thoughts towards quality goods and their rights.

13.3.2 Media for Consumer Education:

The services of Consumer Guidance Societies, Consumer Council of India and CERC should be fully utilized.
Consumers should be made aware of their existence and purpose they serve as most of the educated population seems to be unaware of these agencies. All complaints and grievances should be booked in these agencies to help find solutions.

Consumer organisations alone cannot fight high pressure salesmanship and exploitative advertising with its massive resources. But how many of the educated elite know and even if they know complain at ISI, if any ISI certified product fails to meet the requirements? So consumers must be made to realize that they themselves are responsible for such a phenomenon and that it is their money which keeps it going. They should become more discerning and demanding. When they refuse to be exploited and only when they realize that, in their buyer-seller relationship, it is they who have the upper hand can the consumer movement make an impact.

Consumer associations should be free from political affiliation and material association. At least the educated consumers should feel the responsibility of bringing all kinds of exploitations to the notice of press and concerned authorities and should give leadership to lay consumer. The consumer councils can also engage themselves in comparative testing of the consumer products and publish
or even recommend the best and can seen official support and guidance from Government sponsored consumer councils.

The services of CERC can be utilized in offering consumer educational programmes and arrange educative exhibitions and demonstrations in areas of consumer use such as consumer rights, consumer responsibilities, desirable consumer purchase practices, methods of getting their grievances redressed. The advertising media like Radio, and TV should prove excellent for communicating such information. Holding short courses on these subjects periodically at Mahila Mandals, Womens' Institutions, through the Women's Welfare Department of the State Government would have immense impact on consumers. The curriculum of Gram Sevikas and Mukhya Sevikas at the Block level and Health Visitors of the Health Centres should encompass consumer education on the lines of textile selection, use and care. Similarly, adult education programmes may be an useful medium. The curriculum of the home scientists at the undergraduate and post-graduate levels should be suitably modified so that they become knowledgeable consumers and are better equipped to deliver the goods in their career.
Successful product development requires identification of factors contributing to consumer satisfaction. Manufacturer's association with consumer organisations would be useful not only to promote his product sale but to know about consumers' actual requirements and problems. This would facilitate redressal of grievances, reduction in production cost, yet safeguarding quality, elimination of too many varieties where desirable in consultation with the consumer's organisations. They should also strictly stop such short-cuts such as changing names of the same material, use of fancy trade names and provide labels which are self-explanatory, adequate and free from non-cognisable nomenclature.

Their association with consumer agencies can help define standards of acceptance and tolerance. There should be an active management participation on matters of quality. It should realize that since 'quality', that is the consumer requirement of 'fitness for a purpose' must be designed and manufactured into a product, each department has an important contribution to make. Therefore, the managerial staff should coordinate the different departments efficiently to produce 'quality products'. 'Profiteering' alone should not be the main motto of their business. Creating goodwill and projecting good image through proper
understanding of consumer requirements and problems and suitable engineering of fabrics based on these observations itself would certainly result in increased sales and additional profits.

Opening more number of mills show-rooms and retail shops would result in two-fold advantage of additional profit for the manufacturers and cost reduction for the consumer.

13.3.4 Role of Government:

The importance of quality control must be emphasised among the employees who are involved in it; attempts must be made to improve their efficiency. Training programmes should be conducted for updating their techniques and to introduce newer and more meaningful methods such as Product Performance Index as has been done in the present work. Periodical assessment of quality requirements of consumer should be undertaken. Personnel meant for quality control should be specially trained in 'Quality Science and Technology' as in other countries, reflecting emerging knowledge so that their services are purposeful. These quality control units can work in collaboration with voluntary consumer associations which are also working on quality testing.
In addition to scrupulous checking of stamping of ex-factory price, stamping of maximum retail price chargeable will be an useful attempt. The excess over the ex-factory price amounting to about 30-40% can be expected to cover profits, transport etc. This is the only way of controlling rising cost. In this context, Government should take greater responsibility and set up an example, by not exampleing its own member mills from the demands made on the private mills.

As practiced in other countries, specifications can be laid down with the help of suitable organisations like ISI, for fabrics of different end-uses and insist through legislation that their finished merchandise should meet these requirement. As an alternative it can be insisted that the merchandise should be channelled through Government sponsored quality control units which also stamp the maximum retail price chargeable. It can thus serve double purpose.

Government with the help of NTC can attempt to influence market trend such that consumers go to it. Their quality being fairly good, it should not be difficult to influence the consumer trend. The Government departments should work in coordination with consumer associations, so that some of the problems which the consumer associations
are not able to solve themselves could be effectively sorted out.

Government should also insist on mills to publish the cost audit reports to verify how far the ex-factory prices are based on cost production. The ICMF can collect the cost data of the mills and publish them for the benefit of the society and Government. The agency which supervises the consumer information should also exert pressure on mills to furnish correct, informative and performance labels and strictly curb the use of misleading terms in labels as well as advertising media. It should also encourage mills to resort to certification and standardisation. For after all the consumer is the central figure around whom all planning and policies are formulated and national economy built.

13.3.5 Role of ISI:

Agencies like ISI should encourage product certification in collaboration with some popular mills, at least to start with, along with some kind of incentive. It should formulate many more specifications for various end-uses, for the existing ones are mainly useful for technologists and producers and not much towards quality control. 'Care' specifications can be diversified based on the nature of the fibre or blend and construction
parameters which will be much more relevant to the consumer.
ISI in collaboration with other Government departments
should enforce product certification based on quality,
count, sort, finishes applied etc. This will be the best
way of maintaining quality. Establishing proper standards
would result in extending the per capita value of goods.

Periodically, voluntary and Government organi-
sations should arrange for open and purposeful discussions
among the textile engineers, producers, dealers, retailers,
ISI, textile designers, chemists, garment designers as well
as consumer representatives to discuss their problems and
to jointly evolve selections to the satisfaction of the
ultimate consumer. This will create a good atmosphere among
these contributors.

Consumers need to be protected from spending more
that what they can afford. It is of no value in establishing
superb performance specifications, if the goods are priced
out of the reach of the ordinary consumer.

13.4 Suggestions for Future Work:
1. It is desirable that a study is conducted among
select consumers after imparting suitable 'Consumer Educa-
tion' through different media to find out the effectiveness
of training imparted to them.
2. A study encompassing existing acts, rules and regulations and the role of judiciary in terms of consumer protection can be conducted and recommendations should be made based on consumer requirements.

3. An exercise on the role of excise duty on the consumers and producers is necessary to give the Government and actual picture of today's position.

4. A detailed study of the existing marketing, distributing and costing systems and recommendations for improvements should be desirable.

13.5 Summary of the Performance Characteristics of Polynosic Blends:

1. Simple staining technique for easy identification of polynosic fibre is available. Most of the commercial fabrics do not have the labelled blend composition. Therefore, there is a need for correct indication of blend composition so that the consumer can judge quality against cost.

2. The overall durability of PN blends decreases with their increasing PN content. Therefore their 'wear life' can be increased with increase in PE or C content in the blend. The relative economics worked out in terms of cost
and strength of PN/PE rank them below that of PN/C blends and the fact that the consumer still prefers PN/PE blends implies that the high cost of these blends can be an additional reason for their dissatisfaction.

3. Most of the fabrics meet the comfort requirements of their end-uses. However, PN/C blends are more comfortable for Indian conditions than PN/PE. However, PN/PE are also comfortable on account of their low scratchiness and clinginess and better dimensional stability.

4. Higher cellulosic content in PN blends results in low shape retention quality. Therefore when used over very long durations tend to sag and sometimes show a negative trend after repeated launderings. Thus, high cellulose content of PN blends can be considered to have low 'useful life'.

5. Most of the colours are wash fast in PN/PE blends. Colours which tend to have low crock fastness and perspiration fastness have been identified. Some of the colours which tend to be non-fast to washing, rubbing and perspiration on PN/C blends have also been identified so that choice of these colours can be minimized.

PE rich PN/PE blends 'pill' while PN/C blends exhibit low wrinkle resistance. The overall appearance of PN/PE blends are far better than those of PN/C blends.
6. PN blends have better recovery from mild crumpling though it depends on their degree of flat-set and PE content. The bending recovery of PN/C blends is based on their resin content, moisture content, thickness and fabric weight.

From the shear tests all PN fabrics have been found to have desirable sewability. Though bending, shearing and assessment of drape are all inter-related, bending and shearing techniques are more sensitive and accurate and can provide more exhaustive information about the fabric in terms of wrinkle recovery, stiffness, handle, liveliness, drape as well as sewability unlike the other conventional methods.

7. By assessing the shear angle, the suitability of the test fabrics for different end-uses can be assessed. Thus, the fabrics sold as 'shirtings' are considered suitable for children's and ladies wear. However, a need for fixing minimum bending rigidity required for PN and PN blends to consider them sewable, has been felt and a range has been suggested.

PN/C suitings are unsuitable for use as suitings while PN/PE blends are good in this respect.

8. Wet-cleaning of PN and PN/C blends require gentle handling owing to their loss of strength when wet,
high elongation especially when wet. Scrubbing should be avoided while rubbing should be gentle for PN fibres. PN/PE blends are more stable than PN/C blends and so can be line-dried while it is advisable to dry the PN and PN blended fabric flat on a clean surface. The shape retention properties of PN and PN/C blends being low, it is better they are merely pressed and stored in a folded condition than being left to hang. The pressing should be done properly at a temperature suitable for rayon fibres. Small creases and folds formed can be shed off by hanging for a short-while whether they are PN/PE or PN/C blends.

PN/PE shirtings though are not readily soiled, once they are soiled it is difficult to remove soil from them. Therefore frequent laundering before the soil 'sets' on the fabric is desirable. Suitings do not soil readily and also shed off soil readily like PN/C shirtings and so their frequency of laundering need not necessarily be so closely spanned. PN/PE blends require little or no ironing while PN and PN/C blends require regular and thorough pressing. No pattern alterations are advised on PN/PE suitings as they tend to leave stitch marks.

Anionic detergents which have a combination of high active agent content, high phosphate content and low pH are likely to tender PN blends. There is a decrease in
the stiffness of PN and PN blended textiles when laundered with detergents of grade II unlike grade I. The wrinkle recovery and liveliness of these fabrics decrease on laundering with detergents of grade I. However, the loss is not so high with detergent grade II. It is also likely that detergent of grade I tends to reduce the fabric formability to a lower extent compared to detergent of grade II in case of PN/PE shirting fabrics in general, while most of the suitings acquire better formability with $DG_1$ compared to $DG_2$ on repeated launderings.

Care labelling should be coined on the above care suggestions in addition to informing the consumers about the Product Performance Index, price, colour guarantee, finishes given, blend composition, quality in terms of substandard, seconds, fends, etc. types of fibres blended.

9. There is no doubt that PN are good supplements for PE and C. PN/PE blends outweigh their PN/C counterparts in several properties and their only disadvantage of being less comfortable which can be mitigated by use of cellulosic undergarments. Among the various PN/PE blend compositions shirtings containing $>5\%$ PN are more serviceable both quality and cost-wise, though 65:35 PN/C blend is also fairly good. Dilute blends have very marginal utility.
10. As expected most of the qualities deteriorate with multiple launderings, though it is not so rapid in case of PN/PE blends.

13.6 Recommendations:

1. Attempts should be made to stabilize shape retention properties of PN blends through suitable finishing techniques.

2. Colours should be rendered more fast through proper after-treatments.

3. Attempts to minimize pilling will increase the useful life of PN/PE blended textiles by selecting low-pill PE fibres.

4. Fabrics should be suitably engineered so that their tailorability and formability are within the desirable range.

5. The dimensional stability should be improved by proper finishing processes.

6. The Product Performance Index (PPI) which represents the overall measure of fabric performance, should be adopted as a technique for comparing the performance of fabrics after wet processing both in the laboratory and on
the mill floor. As seen from the consumer survey, consumers will not mind paying a little more for 'quality-guaranteed' items.

7. Indication of grade of detergents on the containers is desirable.

8. The staining technique which has been used in the study for identifying different fibres in the blends can be profitably used in the mill and in the laboratory. Also it is recommended that this technique be used by testing agencies and by consumers.

9. The rapid method used for assessing the blend composition of PN blends can be adopted in the mill as well as by the testing agencies for determining the fibre content in blends.

10. The instrument used for determining the shape retention characteristics can also be used as a practical instrument in the mills.

13.7 Suggestions for Future Work:

1. Although commercial samples of PN blends produced by different mills and samples of rare PN blend compositions donated by a local mill have been used in the present work, more work remains to be done with known finishes to
study the effect of finishes on the aesthetic and mechanical properties of these fabrics.

2. Since textiles are used under a wide variety of conditions of temperature and humidity, it is important to characterize their shape retention, wrinkle recovery and other mechanical properties and making up properties in terms of these variables. These changes will affect the fabric properties since they involve alterations of both fibre properties and fibre to fabric interactions. To measure these effects on various mechanical properties, it is proposed that the instruments used for determining the properties be outfitted with a variable temperature and humidity chamber.

3. Instruments for measuring the shape retention behaviour, bending and shearing can be made automatic. This could be done by constructing devices which automatically bend, shear or stretch the fabrics and measure recovery or residual curvature or extension by optical or electronic systems. Such instruments should have the capability of varying such factors as tension, time of bend and recovery temperature and humidity.

4. A detailed study of the handle of the fabrics by means of Kawabata's technique is necessary. Correlation of experiments between these measurable quantities and hand
would be useful in providing further insight into how the aesthetic properties can be evaluated in a quantitative manner.

5. Comparative performance study of the different types of PN fibres should be carried out by producing fabrics of identical construction. This will enable one to know whether the claims made are realised in practice. This information will doubtless be of use to the fibre producers, Textile Mills and to the Consumers.

6. Effect of anionic, cationic and nonionic detergents on PN blends would be a worthwhile study.

7. A detailed study of the marketing and distributing system in textile trade in different regions with reference to costing and excise duty at different levels would be useful.

8. The effect of soil release finish on the performance properties of PN blends will be give added information to the consumer.

In conclusion, the work presented in this thesis has achieved its broad aims: to explain the consumer satisfaction, to study the several properties of PN blended materials and to relate some of their properties to their making up properties. In each area of investigation,
sophisticated methods have been used and instruments for determining their several mechanical properties have been developed and complementary experimental work has been carried out on a wide range of PN fabrics with varying blend composition.