New Fabrics/Blends – Opportunities for the Cotton Fibre.

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Two years ago we rolled into a new century, a new millennium. That magical roll from the year 1999 to 2000 gave many of us the reason to sit and reflect on the past, and then to dream of the "what ifs" that the future may hold. There is no doubt that our past has developed us into the achievements of today. Just as our situation and decisions of today will develop our tomorrow.

Reflection and prediction are a key part of a business plan. We assess our past, calculate our current position, and then have a short-term look into the future, followed by a longer-term view. Current and short-term are relatively easy to predict, the trick is in the long-term view. This is the magic ball zone! Let's ask some simple questions about cotton.

- Where do you think the cotton industry will be in 20 to 30 years time?
- Will it still have a fibre market share as in the year 2002?
- Will the overall volume produced still be the same as in the year 2002 but the market share declined?
- What fibre will be consumed at the highest rate by the global community?
- Will fashion still be a large contributor to consumption?
- What variations will have occurred in our perception of what is fashionable to wear?

Certainly in the last 100 years, and even the last 60 years, cottons position in world consumption has changed. At the turn on the 20th century, cotton had a significant market share. By the turn of the 21st century we were a larger global community who consumed more textile volume, but cotton was just one of many fibres available. The 20th century heralded new understanding in chemistry, which led to a vast array of polymers, dyestuffs, chemicals and finishes. New fibres were born, new colour expectations created. Technologies leapt ahead in all areas of manufacturing and processing, and of course the advent of space travel, computers and communications evolved to the point that we have sent a man to the moon and beyond, and now carry phones on our person. The global consumption of cotton increased, but the market share of cotton decreased. The change reflects cotton's strengths, and hence also the weaknesses.

The consumer of the year 2002 is very different to that of 1902 and I suspect of the year 2050. We are surrounded by marketing machines that say buy this product because it does x,y,or z. Our peers, and the need to be accepted influence us much more now, possibly due to our disposable incomes. We also have a higher expectation on performance. We are enticed by marketing to make purchases that are linked to performance; therefore we have an expectation built around performance. Having said this, many consumers do not actually understand the link between fibre and performance, they just believe what the marketers say.

From my view, cottons main strength exists in its ability to absorb and release moisture. It has good strength for apparel and domestic applications. It has assets in handle and flexibility. But a big advantage in its favour, is as a sustainable resource that is readily available and is relatively cheap. As a farmer you may not like to hear a reference to cheapness, but I think this maybe an important issue in the future. The down side to cotton is that, compared to synthetics, it's a variable, inconsistent fibre with a long and often complicated process chain.

Up until today you may have wondered why the CRDC is funding research on fineness, maturity testing and the source of nep generation via the CSIRO and USQ. This funding is from your money, and could be seen as being related to the textile industry, not the cotton industry. Why not have the textile manufacturers provide the funding? Why bother with fineness and maturity when micronaire has been the selling tool for the last century? The simple answer is, that micronaire alone is not a definitive enough tool if you want to present a quality and reliable fibre into the global market, particularly the future market of 20 years ahead. Technology is now so advanced, and the market is so price competitive that fibres need to be precisely defined so that maximum benefit and quick processing is achievable along the chain. Manufacturers need as much

information that they can get in order to process successfully. Micronaire, with its dual identity of fineness and maturity is very general, and will need at some point to be replaced with the individual components. The last thing the textile industry, or cotton's image, needs is lumps and bumps in its yarn and fabric, or barre in the coloration. One of cotton's big opportunities will be in combination with synthetics, especially specialised synthetics. Synthetics as previously mentioned are regular, predictable and definitive...they process relatively easily. Cotton has to become an equal partner.

Cotton's contribution in blends is sometimes associated with cheapness but is usually associated with moisture absorption and handle. Some of our protein-fibre-friends like to present the line that a blend with cotton provides the market a cheaper alternative to their "superior" pure fibre. But in truth cotton usually brings with it some other qualities that enhance any blend fibre and hence make the blend more attractive than the original parent. The same can be said for blending with synthetics, even specialized synthetics!

The textile industry can be broadly defined into four segments; namely, Apparel, Domestic, Industrial and Technical with technical overlapping strongly with industrial and selectively with apparel. There are five general construction techniques, namely Knit, Woven, Warp knits, Non-woven, laminates/composites. Cotton has a presence in the older style technologies and markets but there appears to be a disturbing trend that excludes the cotton fibre from anything that is new.

Non-woven and technical textiles are both relatively new segments. Cotton's presence is almost non-existent in these. Until recently the non-woven segment has been synthetic fibre based and often linked to disposable application. Resin bonding and refined manufacturing techniques suggest that non-woven could be positioned to match the woven products in the near future. Some changes have been seen in the non-woven segment and as this market moves toward apparel applications there may be a place for the comfort and drape that come from cotton. Nonwovens are an application and market opportunity for cotton. Cotton has recently made progress in the non-woven sector but the consumption of fibre in this area is fairly low.

If we consider apparel for one moment, cotton has a long history in this market. Apparel is linked to fashion and fashion is such a demanding partner for any industry. Fashion in itself dictates change. Change requires variety and the easiest way to achieve variation is with a new product. In the eyes of many consumers and designers, cotton is not new.... it's old hat! To link a fashion story to the cotton fibre requires hard work because each and every consumer has his or her own understanding about the fibre. To tell a cotton good-news story, you first have to break down the old perceptions...and by then you have probably lost your customer, and spent a small fortune! Educating consumers is about continually reminding them why they should ask for cotton or cotton content garments. It is an important opportunity for the industry. The work of Cotton Australia and the education center at Darling Harbour is to be commended...but is it enough? I think we would benefit by advertising on TV, similar to the way Bonds did some time ago. They went to the heart of the nation and put a good feel story about cotton and "Chesty Bond" to air. Public education is an important protective opportunity just as education at school level is an investment in the future consumers decision-making process.

Apparel applications have been around since "Adam was a boy"....well Adam and Eve to be exact. Cotton's place in this market segment is long standing. As new fibres are introduced, cotton is one fibre to which performance is compared. Unfortunately cotton is now deemed to be "old hat" or low in performance. Everyone has heard about polyester, polypropylene, nylon, acrylic, Lycra, tencel, Kevlar and microfibres, so I'll not talk about the impact these fibres have had on cottons' market share. Have you heard of Cool Max®, Xstatic, PCM's or Thermocules, Lycra®Power, Tyvek®, Supplex® or Nanospheres? These are products that are currently on the market, or in the technical material of the printed media.

Let's take a moment to look at a few of these products.

- CoolMax® was one of the first performance fabrics launched by DuPont in 1986. It's a hollow polyester fibre with specialised finish that promote moisture management away from the body. "CoolMax® makes sweat a non-issue." The new version CoolMax Alta® offers "fabrics a cottony soft handle, superior moisture management, a semi-matte luster and low-pill properties."

- PCM's, an acronym for Phase Change Materials, are incorporated into OUTLAST® fibres, fabrics and foams to become temperature regulators for the body. OUTLAST® fibres contain micro-capsules filled with PCM's, right inside the synthetic fibre strands. As your body builds up heat, the internal part of the micro-capsule, the PCM, absorbs the heat and changes from its solid state to liquid state. The heat is stored. When you begin to cool down, the OUTLAST® PCMs begin to change back from a liquid to a solid. In this phase change, the energy the PCM's took in while you were active is returned to you, thereby OUTLAST® helps your body maintain a thermal equilibrium.

- NanoSpheres are micro-particles that create a special three-dimensional surface structure that limits the available contact surface for particulars. The nett result is a fabric surface that has dirt repellent, anti adhesive and self-cleaning properties.

- Lycra®Powers logo is "wear it to win". "A five-year study at the Penn State Centre for Sports Medicine concluded that athletes can improve their performance by 10 to 20% by wearing a garment, certified by Dupont". "Lycra®Power uniquely combines high stretch and high compression, reducing muscle fatigue and improving accuracy and efficiency of movement to boost performance".

New fibres can be seen launching into the market at an exciting rate. I've only given a very small example above. They start in specialised applications such as Olympic level athletes, via military or NASA applications, or specialized protective clothing, but it really doesn't take long for the fibres to filter down into every day life. I truly believe that cotton must develop a profile with these fibres to keep up with the progression of advancement. All these fibres are synthetic. Even if the claim is that they move body moisture away from the body, I'd question how significant the action is compared to cotton. I'd also question how long the garment can be worn. No doubt cotton would be heavier, but would a blend containing a small amount of cotton add any benefit to comfort? It's unlikely that DuPont (and I'm not restricting this comment to DuPont specifically) would tell us that they have a need for our fibre, but conversations with the users may highlight to us the need for "true cotton comfort" as opposed to a promised likeness to cotton comfort. Or research away from the DuPont influence could demonstrate that cotton brings to the blend some extra benefits. There is no doubt that there are many technical fibres, with very specialized properties, properties that cotton would have no beneficial impact on.....but by the same token, there are many applications where cotton could make a contribution. If the actual users tell us that there is a need, then we can start the process of research and marketing into partnership blends. I see a blend opportunity here for cotton, but we will need to work hard to get the opportunity in our hand.

With the age of computers upon us, there has also arisen speculation surrounding portable electronics. It may sound far fetched to consider electronic key pads in our clothing but who would have thought 30 years ago that we would be carrying phones in our top pockets? Electronics have become so much a part of our every day life, that it makes sense that we will want portability, and why not in our clothing or home furnishing.

An example of this thought process has grown from a partnership between WRONZ (Wool Research of New Zealand) and Pertatech Ltd who have developed "Softswitch" technology. This technology allows electronics to be incorporated into textiles. Maybe the future will contain our phones built into our clothes, or protection systems in our track-suits, and the one thing that every household must have....a TV remote built into the arm or a chair! Does cotton have a place with this technology? Again I don't know, but I suspect not at the moment. What we need to identify is will cotton be excluded by this technology? Will the need for a remote in an armchair mean that cotton can no longer be the fabric cover of choice, or comfort filling in the chair? Will society change so much that it will become a necessary precaution to have a panic button built into our tracksuit when going for the evening jog? If the forecast for the future is in this direction, then we need to ensure that cotton is able to fit in with the technology. Does cotton's ability to hold moisture mean that it is excluded from this technology on the basis of interference? It's important to understand our position now, before exclusion occurs.

On the domestic front there are some good-news stories where cotton is standing its ground. Examples of these good news stories are towels, sheets, and mops. To-date cotton remains the fibre of preference.

The industrial markets are slowly being replaced with alternatives, and this is all about performance and ease of processing. Consider your own farms. What were your ropes and tarps made from 20 years ago? What are they made from these days? Polyester or polypropylene. Why? Because the synthetic products are cheaper and last longer, and in many cases are much, much stronger. Industrial textile markets are dominated by polyester, polypropylene, polyethylene, glass fibres, aramid fibres, Tyvek® etc. These are specialised markets with specialized needs. I don't think that cotton is a player in this business.

So in summary, as we prepare a business plan for cotton we can look back into the past we see that cotton's position has changed from a dominant fibre to one of many fibres. New technologies, and global companies with huge research and marketing resources, are influencing the textile arena and in some ways cotton is becoming a fibre of the past. We need to welcome the new technologies and new fibres whilst pushing to ensure that cotton is a partner wherever possible. We need to be pro-active and not wait for an invitation.

To ensure that cotton has a sustainable future we need to educate the consumer that "cotton-like" is not necessarily good enough when the real thing is available. And we need to acknowledge when and if our industry practices need modification and change.

These are opportunities for the cotton fibre industry. But of course the biggest issue of all is in turning the opportunities into reality.

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