Wool in an ecologically aware world

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Introduction

Consumer surveys continue to show that the 'natural, clean, green, renewable' image of wool is an important component of its appeal. The wool industry must maintain an acute awareness of not only the needs of the average consumer, but the needs of the environmentally aware consumer, who, especially in the Northern Hemisphere, is leading public opinion. The wool industry must understand what consumers want and find ways of identifying it and delivering it. This means understanding ecological issues that affect the industry, from farm to consumer.

A major international AWI consumer survey conducted in 2007 showed more than 30% of consumers had a preference for natural and organic apparel. The word most associated with wool was 'natural'.

A UK consumer survey conducted in 2006 indicated that 27% of people would pay more for ethically produced clothing but 53% admitted they would choose ethical if they didn't have to pay more. It is clear, at least in Northern Hemisphere countries, that 'green and sustainable' is no longer just the province of a lunatic minority, but is now identified as a 'Megatrend', a movement that is here to stay.

In 2007, the major retailers have recognised the trend and have begun to invest in their own market differentiation programs. Marks and Spencer have announced their 'Plan A' environmental sustainability program ('There is no Plan B') with an investment of £200 M. Tesco, the largest British retailer, has announced a £500 M program. Wal-Mart, arguably the 20th largest global economy, has set its own sustainability targets. The Cultural Creatives or LOHAS (Lifestyles of Health and Sustainability) consumers in the USA represent 16 -25% of the population and represent a potential $208 billion U.S. marketplace for goods and services focused on health, the environment, social justice, personal development and sustainable living.

Timberland has announced a carbon labelling scheme for its footwear and is discussing a common carbon labelling scheme with other major brands.

A key component of meeting this new demand is that consumers need to be able to identify products manufactured using good environmental practices and the industry needs to understand and make use of environmental labelling, and clearly identify the purposes of the different types of eco-labels.

To provide goods that meet the needs of the environmentally aware consumer, the industry must look at implementation of the European Union's eco-label in wool demand chains, and look forward to the clean, ethical and sustainable production of Australian wool.

The wool industry must keep the customer in mind

Juan Casanovas, previous President of the International Wool Textile Organisation, in 2004 made the following points:

- The wool industry did not belong any more to a supply chain.
- The wool industry is part of a demand chain. This is precisely the main issue.
- The wool demand chain starts in the shop and not in the sheep.

'Green and sustainable' is now mainstream in Northern Hemisphere developed countries. Consumers trust non-government organisations (NGOs), such as Greenpeace and WWF, for environmental and health advice. In turn, the NGOs are directly targeting and influencing retailers. It is common in Europe to find NGOs campaigning against certain

practices at the retail level, and it is a very easy choice for consumers to shop elsewhere. The campaign has been very successful.

While there is a growing core of 'hard' greens that will always buy environmental products, surveys show that most consumers want to make ecological purchasing decisions, but only if cost, fashion, functionality and quality are not compromised.

In addition, in Europe in particular, environmental legislation is becoming comprehensive.

Wool needs to prove its environmental credentials. In the past few decades the wool industry has encouraged the perception that wool is natural, sustainable, and renewable. However, there are certain issues with this perception. Just because a product such as wool is natural, it is not necessarily environmentally friendly. The wool industry needs to consider what the terms 'natural', 'sustainable' and 'environmentally friendly' actually mean, and whether these claims can be supported.

Modern consumers are beginning to understand that there is an environmental impact associated with production of all products. To understand what 'sustainable' actually means for wool, we need to consider the environmental pressure points. There are many possible points where wool production and processing may impact on the environment, and we need to consider which are the most important of these or, at least, which are the ones that we can control and improve.

With respect to on-farm issues, the pressure points may include land management, water management, biodiversity, greenhouse gas emissions, pesticides and animal welfare.

For post-farm processing, the key impacts may arise in scouring (discharges of detergents, organic matter, potassium and pesticides), shrink resist treatment (chlorine and AOX) and dyeing (discharge of colour, after-chrome, prechrome dyes, insect resist agents, pH and temperature).

For all textiles, 'transport miles' must be taken into account, especially with the onset of globalisation of processing. Recycling and packaging are important concerns in some countries. In the use phase, a washable product will be perceived as better than a 'dry clean only' product.

Environmental, labour, chemical use and safety standards in less developed countries cause concerns to many brands and retailers in developed countries. They see considerable risk to the value of their brands if they are associated with unacceptable production practices.

Greenwash

Ecologically aware consumers are acutely aware of Greenwash. The Concise Oxford English Dictionary describes Greenwash as:

> *Disinformation disseminated by an organisation so as to present an environmentally responsible public image. Origin from green on the pattern of whitewash.*

The Total Environment Centre (an Australian NGO) has the following definition:

> *... key communications or actions by an organisation that create a reputation of being more responsible or sustainable than they actually are. This can be applied to a product, service, company or sector.*

Environmental claims may be made through the use of eco-labels. The most common eco-labels are classified as Type I or Type II eco-labels, which are based on the ISO 14000 international standards. Claims based on Type I eco-labels (ISO 14024) are by far the most

credible. These labels are based on criteria independently set by a third party, and encompass the life cycle of the product.

Type II claims (ISO 14021) are based on self-declaration by manufacturers or retailers. This type of claim presents difficulties in terms of verifiability and credibility, and this is the province of Greenwash.

Some research has shown that consumers often do not distinguish between Type I and Type II claims, or between third-party verified and self-declared claims. They often assume that all environmental claims have some kind of official backing.

False or misleading environmental claims confuse and de-motivate consumers. The International Standard *AS/NZS ISO 14021:2000 Environmental labels and declarations – self-declared environmental claims (or Type II eco-labels)* is very particular about requirements that should be followed when making environmental claims:

- Vague and non-specific claims must be avoided. This includes terms such as; 'environmentally friendly', 'earth friendly', 'green', 'non-polluting', 'ozone friendly', which are too general in nature to be of any use to consumers.
- Claims that cannot be substantiated or verified should not be made. Any environmental claim such as '100% renewable energy' needs to be verified and substantiated. This information should be easily accessible.
- Implied certification such as the use of a graphic designed to look like a certification must be avoided.

Where does wool's claim that it is 'clean', 'green', 'sustainable' or 'renewable' fit in this environment?

Product differentiation and consumer recognition

How can the consumer recognise wool products processed according to good environmental performance criteria?

The simplest and most effective means for a consumer, architect or public purchasing body to recognise a product that claims to be environmentally friendly is through use of a visual signal – an eco-label. However, especially in Europe, eco-labels have proliferated to the stage where even environmentally conscious purchasers have trouble in understanding the specific claims each may represent.

For an eco-label to be recognised, it must gain market share. Therefore, it must use criteria that are achievable and do not add too much additional compliance cost so the article becomes too expensive.

In addition, some eco-labels are single purpose (for example, they may deal only with non-use of child labour), may deal with only part of the processing chain, may be based on unverifiable self-claims or may use independent third-party criteria.

For textiles, there are two main eco-label types:

- **human ecology eco-labels.** The main example is Oeko-Tex 100, a privately owned and administered label, which is principally concerned with the absence of toxic agents in the final garment. This label has been very successful since its introduction on the early 1990s, and is relatively low cost and easy to obtain. However, it is silent on the issue of discharges during processing and, therefore, cannot be used to support claims that the product is 'sustainable' or 'environmentally friendly'

- **supply-chain eco-labels.** These labels assess the overall environmental impact of the product and are based on a 'life cycle assessment' or 'cradle to grave' analysis. All aspects of manufacture, use and disposal of the product are considered, and criteria are established to control the major environmental impacts. An example is the official EU eco-label. This type of label aims to provide an easy-to-recognise sign that a product is environmentally superior to competing products throughout its production and processing. With suitable criteria they can support a general claim that a product is 'sustainable', although such terminology should be used with care as it is widely overused.

The human ecology type labels are unique to textiles and are generally not used for other product types. These labels seek to assure consumers that the garments they purchase are safe to wear, but they provide no assurance about the production methods that were used.

EU eco-label

The EU eco-label is a Type 1 eco-label as defined by ISO 14024. This means that the criteria are independently established, transparent, apply across the whole production sequence and are certified by third parties.

While the EU eco-label is a powerful standard, which is applicable to a wide range of product types and is applied across the whole of the EU, it remains a weak marketing tool. The textile criteria are being revised for 2007. One of the aims of the revision is to increase its market uptake and recognition. It is also seeking to align itself with well-known eco-labels in Europe such as the Nordic Swan, and Germany's Blue Angel that are based on similar whole-of-life cycle criteria. Other national eco-labels that also follow this philosophy such as Good Environmental Choice Australia have also picked up most of the EU eco-label criteria.

The EU Eco-label for Textiles criteria are reviewed on three-year cycle, with the 2002 criteria usable until 2007. The criteria are set by non-government organisations, the textile industry, retailers, the EU Environment Directorate and independent experts in a transparent, public domain process. Its aim is to identify and encourage the best one-third of processors. It is consistent with European environmental legislation and the EU Best Practice Reference Manual (BREF), and often leads the legislation by introducing best-practice elements. It is also consistent with Europe's Integrated Product Policy (IPP), still under development, which is designed to increase uptake of environmental products.

The IPP takes three approaches to increasing the uptake of 'green' products:

- reduced taxes for 'green' products
- promotion of 'green' production by integrating eco-design and environment into product standards
- use of eco-labels to give information on manufacturing processes, to allow consumers and public sector purchasing bodies to make conscious purchasing decisions.

In addition, the member states in the EU are being encouraged to spend around 30% of their public procurement expenditure on products identified by the EU eco-label. This will assist in adoption of the label by:

- educating producers that eco-label processing is achievable
- increasing availability
- reducing costs by economies of scale.

The EU eco-label for textiles aims to provide a simple, easy-to-understand summary of the overall environmental 'footprint' of textile products. It adopts a supply chain philosophy based on minimising inputs of toxic agents at all stages. It includes criteria in three main categories:

1. clean textile fibre (all fibres have criteria)
2. clean processing and clean chemicals
3. fitness for use.

1. EU eco-label clean textile fibre criteria

The 2002–2007 criteria for greasy wool are based on pesticide content of the raw fibre.

- Sum of organochlorins 0.5 mg/kg
- Sum of synthetic pyrethroids 0.5 mg/kg
- Sum of organophosphates 2 mg/kg
- Sum of insect growth regulators 2 mg/kg

The two insect growth regulators of concern are diflubenzuron and triflumuron. These are the chemicals most used on Australian sheep and they are only used for lice control. The specific fly treatments, cyromazine and dicyclanil, are currently exempt, as is the short-lived fly and lice treatment, Spinosad.

Around 40% of Australian wool complies; however, there is less than one chance in 1000 to put together a 20 – 50 tonne processing lot that meets the EU eco-label criteria by random purchasing of farm lots of wool from the auction system. The residue content of the contaminated wool lots is too high. If some method to identify low residue wool lots before sale can be developed, Australia is well placed to take advantage of EU eco-label requirements.

2. EU eco-label clean processing and clean chemicals criteria

The clean processing criteria specify a requirement for on-site treatment of scouring effluent; however, because clean fibre is specified, environmentally acceptable discharges can be achieved with relatively low capital cost equipment, such as the Sirolan CF process, in combination with municipal sewage treatment. The criteria specify discharge limits on the basis of grams per kilogram of fibre processed, rather than as concentration limits. This encourages efficient usage of water (*Dilution is not the solution to pollution*).

The processing criteria are based on the use of biodegradable and non-toxic processing agents. No use of 'non-biodegradable' detergents, especially alkylphenolethoxylates (APEOs, NPEOs) is allowed. No use is allowed of substances with any of the following risk phrases:

- R50 – 53 (toxic to aquatic organisms)
- R40 – 49 (carcinogenic)
- R60 – 68 (mutagenic).

In the 2002 revision of the criteria, the use of after-chrome dyestuffs was disallowed.

No use is permitted of dyes that degrade to carcinogenic or mutagenic amines, and this is consistent with EU Directive 2002/61. Both Oeko-tex and the EU eco-label have similar restrictions.

The chlorine-Hercoset process for shrink-resist treatment of wool slivers is still permitted in the 2002–2007 criteria as there is no viable alternative; however, chlorine pre-treatments are not permitted for garment treatment as there are chlorine-free alternatives available. The benefits provided to wool garments through use of shrink-resist treatments (low pill, no shrinkage) are judged to outweigh any potential environmental disbenefits that are perceived to result from the use of chlorine.

3. EU eco-label fitness for use criteria

The EU eco-label specifies minimum performance requirements on final products. There are limits on shrinkage and colour fastness. There are two main reasons for inclusion of performance criteria:

- to provide a consumer guarantee that the product will be durable
- overall environmental impact is reduced by ensuring that durable products are prepared.

There are some trade and political implications associated with development of eco-label criteria that apply along global supply chains that increasingly operate in a several countries.

EU eco-label advertising notes that:

> *The (EU) textile and clothing industry is facing new challenges following the globalisation of the world economy and the competition of fast-growing Asian market. In order to stay in business, companies have to look for differentiating factors by designing high-value textiles and clothing. The European Textile Eco-label is a differentiation factor for the European companies.*

There are some concerns, especially from India and China, that the EU eco-label, because it covers the supply chain, could be used to discriminate against products being manufactured in Asia using lesser environmental standards.

The notes prepared for the 2007 revision of the EU eco-label include the following challenges for the European textile industry:

- labour cost disadvantages
- trade barriers in certain important export markets
- a growing shortage of qualified human resources
- strict environmental and safety legislation imposed by European political will, but not adequately rewarded by European consumer choice.

In fact, as the eastern European countries improve their environmental performance as they must do in order to join the EU, they will be able to provide Europe with large quantities of textile goods that will meet the EU eco-label criteria. This could be seen as a potential threat to Asian manufacturers.

Why choose EU eco-label criteria as a residue target for eco-wool?

There are three main reasons why Australian wool producers, brokers and buyers should identify wool that complies with the EU eco-label requirements:

- It is important that wool and other natural fibres retain a high profile in the eco-marketing game. Already, there are strong claims from synthetic fibres, such as

polyester and polypropylene, that they are the preferred environmentally friendly fibres.

- Consumers in the EU will be able to recognise products made from eco-wool.
- EU eco-label wool will meet IPPC reporting needs of EU top makers. In fact, the eco-label criteria for greasy wool were based on IPPC environmental requirements. The benefits of starting from a clean fibre base also appear further down the supply chain. High residue greasy wools produce higher residues in tops and yarns, and dyers in Europe will increasingly need to identify the residue status of the wool they process.

Consumer recognition: Australian supply chain example

An Australian company, i-Merino, based in Western Australia, was the first company to achieve production of wool garments that meet the EU eco-label criteria. The company manufactures active outdoor/extreme sports wear in next-to-skin pure wool fabrics that provide warmth and moisture and odour control. It aimed to produce high performance garments that were shrink-resist, anti-pill and colourfast, and could also meet the strict environmental targets of major US and EU outdoor wear companies.

The initial batch of goods was processed in Australia using companies linked by electronic document exchange so customers could track a range of information on the products, from environment management declarations from the wool producer, through to delivery times. EU eco-label certification was achieved in late 2003.

Several challenges needed to be overcome:

- The wool supply chain is longer than for other fibres and the process must start by identifying specific batches of raw wool. Synthetic fibres are readily available at top/staple stage.
- While EU eco-label compliant wool is plentiful, only a few brokers have developed quality assurance (QA) systems to identify and deliver commercial quantities. It is important that any system that allows growers to make a vendor declaration on the residue status of their wool is backed up by objective testing.
- Middle levels of supply chain had little understanding of QA and eco-label requirements, and processors were reluctant to make even minor changes to established procedures or recipes unless they could see future benefits.

Despite the problems, several EU eco-label and Australian eco-label supply chains are now operating, with much of the processing based in Asia.

Australian wool: clean ethical and sustainable

There are some customers for Australian wool, especially in the US active outdoor wear brands, who are seeking assurances that good environmental and ethical practices were followed on-farm in wool production, as well as post-farm. They want to know not only that the wool is low in pesticides and has been processed with low impact, using EU eco-label criteria, they also want to know that the land was cared for, and that good animal welfare practices were used.

The EU eco-label cannot assist in this area as it applies to all fibres, not just wool, and the synthetic fibres do not have equivalent requirements. The EU eco-label should not add these elements specifically for wool.

If on-farm requirements are developed for wool, we need to ensure they are measurable, achievable and within the control of the farmer. We also need to consider who will audit the scheme and what costs these additional requirements will incur. Any criteria must be

compatible with systems being developed by cropping/meat industries. We need to consider how to handle these add-on requirements while still retaining the good current basis and acceptance provided by the EU eco-label.

In response to this demand, the Australian wool industry has developed a stewardship project to run from 2005 to 2007, to begin the development of a voluntary system to identify wool produced with additional care for animals and for the land, that is, clean, ethical, sustainable wool.

Four key modules will form the environmental stewardship program. These will focus on:

- sustainable use of natural resources (soil, water and vegetation)
- animal welfare
- chemical usage on farm to produce low-residue wool
- best-practice processing.

Most importantly, a QA program incorporating online auditing and reporting is being developed so customers have evidence that best-practice criteria have been followed. The aim is to pull together all of the smaller initiatives that are springing up around Australia and incorporate them into one program as a national scheme.

In the marketplace, 'clean, ethical, sustainable' wool will fit between 'organic' wool and eco-label wool.

Organic wool

The term 'organic' is strictly defined in Australia, at least for goods for export. The accrediting bodies are very strict in their interpretation and require that control of external and internal parasites on sheep is achieved only through the use of natural materials. As a result, organic wool is very difficult to produce in Australian and there is relatively little of it (currently around 0.1% of total production). However, around the world, organic standards vary. In the UK, synthetic pyrethroids are allowed to be used on sheep as a veterinary medicine, and in some other wool growing countries, pesticides can be used with veterinary approval.

With respect to processing standards for organic textiles, the situation is even more confused. The very strictest of organic standards require use of only natural materials, while others allow extensive use of synthetic processing additives (dyes, processing aids, detergents). None include the type of rigorous, systematic and comprehensive effluent treatment requirements that are required in the EU eco-label.

Unfortunately, it is impossible to produce modern high performance textiles that meet the performance standards expected by consumers using strictly natural materials. Organic garments in wool will pill and shrink in use as shrink-resist treatments are not available using natural materials.

In the past 12 months, the Global Organic Textile (Processing) Standard (GOTS) has gained extensive acceptance by many 'brands' and supply chains. The GOTS was developed for processing of organic cotton and it has the approval of many of the leading international organic accreditation bodies including the UK Soil Association as well as US and Japanese groups.

The GOTS allows extensive use of synthetic processing additives and synthetic dyes and this allows some brands to proclaim new ranges of vibrant fashion shades for their 'organic' textile ranges.

This represents a weakening in the position of some of the organic accreditation bodies that previously required use of natural dyes. The attitude of consumers, if they knew of this trend to allow more extensive use of synthetic processing agents, is not yet known. It is also unclear whether the more traditional organic accreditation agencies, such as those in Australia, will adopt the GOTS.

This diversity in the global organic standards (both on-farm and post farm) needs to be addressed urgently or the 'organic brand' risks devaluing or losing its market differentiation.

The GOTS is essentially silent on wool processing. As an example, there are no limits on scour discharges, although the GOTS does include an input pesticide residue limit on shorn wool of 0.5 mg/kg. The use of chlorine for shrink-resistance is not permitted. The GOTS includes some discharge limits taken from the EU eco-label and this harmonization is to be applauded. A natural progression would be to continue to bring the two standards together, especially if the GOTS is to apply to wool.

Eco-wool

At present there is no clear definition of 'eco-wool', although the term has been trademarked by some manufacturers. The recommendation is to reserve the term for wool that complies with a Type I eco-label as defined by ISO 14024. A Type 1 eco-label is an award-type label. The criteria are set by third parties and not by the manufacturer or retailer themselves. The criteria are based on life-cycle impacts, and are independently set, tested and monitored.

In theory, Type 1 eco-labels are fairly demanding, but this depends on how strict the criteria are, and on the body that controls the criteria. Examples of Type 1 eco-labels are the EU Eco-label and national labelling schemes.

End uses for environmentally differentiated wools

Several differentiated demand chains for Australian wool have developed as producers and consumers begin to identify specific market niches.

Because, in principle, organic wool cannot be processed with modern synthetic chemicals, it will have difficulty meeting consumer performance needs and its main role will be in high fashion goods where durability, fastness and cleaning are less important.Organic wool production remains difficult in Australia. Certification is performed on a whole farm basis and the focus is on overall management of the soil.

Clean, ethical, sustainable wool is easier to produce than organic wool. Land stewardship must be demonstrated, but pesticide use is permitted in ways that generate low residues. Because top shrink-resist treatment and high performance dyes are permitted, this wool is likely to be sought after by the active outdoor wear brands, the current users of organic cotton. Some users have described this wool as 'Beyond Organic' on the basis of the high degree of proof of environmental compliance through the supply chain.

EU eco-label wool production can be closer to generic production. Already 40% of Australian greasy wool meets the criteria, so it is easy to produce. Compliance is demonstrated on a lot-by-lot basis and producers can voluntarily opt-in and opt-out of the scheme depending on their knowledge of the chemicals they have used on specific mobs of sheep. This wool will meet the reporting needs of EU processors and other Northern

Hemisphere consumers. Products manufactured through eco-processing chains can meet the highest performance needs but can demonstrate low environmental impact through the total processing sequence.

Summary

Australia is developing systems that can potentially deliver large quantities of environmental low-impact, differentiated, identifiable wool to global demand chains.

The product will currently cost a little more, mainly because special supply chains from farm to consumer are needed. An on-farm extension to include animal welfare and land stewardship is in preparation.

A key requirement is that products manufactured from low-residue wools using good environmental practices must be recognised by consumers and valued in the marketplace.

In Europe and other Northern Hemisphere countries, 'sustainability' is a key marketing factor. In Australia too, there is growing recognition that we are exhausting the planet's resources. Global warming and water are the first of the impacts to impinge on our consciousness.

The message that wool is a natural, renewable, sustainable fibre is extremely important and will become more important as this recognition grows. However, we cannot afford to hide behind these terms without providing evidence to support our claims.

In 2004 Juan Casanovas reminded the wool industry that the consumer is king. No product, whether environmentally friendly wool, or wool itself, will survive unless it returns a profit margin to the retailer.

Branding and product differentiation are important to sell the concept of green and environmentally friendly products to the brand name, the manufacturer and the retail buyer. But the true test is the consumer.

In a highly competitive and ecologically aware world, can wool afford not to take full market advantage of its natural image?

Additional reading

Greenwash discussion paper
www.tec.org.au/dev/greencapital/index.
php?option=com_docman&task=doc_download&gid=12

Environmental claims
http://www.ecodesign-company.com/documents/BestPracticeISO14021.pdf

EU eco-label: specification
http://ec.europa.eu/environment/ecolabel/product/pg_clothing_textiles_en.htm

'Pressure on Wool for Ecolabel Credentials'. *Aust. Farm Journal*, August 2005, pp 59.

'Eco-label Opens European Wool Markets' *Farming Ahead*, No 153, October 04, pp 65.

Questions

1. Why is it easier to manufacture eco-label garments from acrylic than wool?
    a. Acrylic is more environmentally friendly than wool.
    b. Eco-label-certified acrylic fibre is available as fibre with a short delivery time.
    c. There are no pesticides used in acrylic fibre production.
    d. After chrome dyeing is not used on acrylic yarns.
2. Under the ISO standard 14021 which of the following terms cannot be used:
    a. Environmentally friendly.
    b. Dolphin safe.
    c. Reduced water pollution.
    d. Green.
    e. Hazardous substances restricted.
3. What are two ways to identify greasy wool that meets EU eco-label criteria?
    a. Pesticide residue analysis certificate.
    b. Visual inspection.
    c. Substantiated vendor declaration from a broker.
    d. The wool is sourced from Tasmania.
4. Order the following wool classification from easiest (1) to most difficult (4) to produce:
    a. Organic
    b. Generic
    c. EU eco-label
    d. Clean sustainable
5. What are the three main criteria categories in the EU eco-label?
    a. Processes and chemicals
    b. Fitness for use
    c. Farm management
    d. Textile fibre