Developing “Eco-wool” Compliant Supply Chains for Australian Wool

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Abstract: China is the largest customer and processor of Australian wool, taking nearly 80% of Australian wool exports. The continued viability of both industries depends on being able to grow and manufacture quality wool products in the most environmentally friendly manner possible. Indeed consumers in the major foreign markets are increasingly seeking to make purchasing decisions with regard to the environmental costs and sustainability. The International Wool Textile Organisation (IWTO) has adopted the EU ecolabel standard as its definition for ‘eco-wool’, both for wool production and as an ‘environmental best practice standard’ for wool processing. Based on our investigation and auditing, it is evident that many Chinese processing mills are more than capable of complying with the requirements for environmentally friendly processing. However, there are few Chinese mills that operate under EU ecolabel criteria, largely due to a lack of awareness of its benefits and detailed understanding of compliance requirements. This paper will report on a project, supported by funding from the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) under the Australian-China Agricultural Technical Cooperation program, to address some of these issues and develop ‘eco-wool’ supply chains for Australian wool processed in China.

Keywords: eco-wool; eu ecolabel; wool processing

1 Introduction
1.1 Eco-wool and its criteria

As consumers and producers become increasingly aware of the significance of environmental sustainability, supply chains around the world have begun to adopt eco-textile initiatives. Textile products that are produced using environmentally friendly processes are increasingly being demanded by consumers and retailers, and environmental credentials can be seen as adding value to the product. Recently the International Wool Textile Organisation (IWTO), the major global standards setting organisation for the wool trade, has adopted the EU ecolabel standard as its definition for ‘eco-wool’, i.e. defining ‘eco-wool’ as wool that meets the requirements of the EU ecolabel for textiles at all stages of production and processing [1]. This adoption by the IWTO reinforces the importance of protecting and maintaining the ‘clean, green, and natural’ environmental image of wool.

The EU ecolabel is a Type 1 ecolabel ensuring that products bearing this label can be assessed as having been produced using good environmental practices. Compliance requires supply chain control and documentation systems to ensure and validate the use of clean fibre, environmentally friendly processing, and quality end products that are guaranteed to be durable and fit for purpose [2]. Compared to other ecolabel requirements, the different strategy and approach of the EU ecolabel criteria ensure that:

- only biodegradable detergents and safe chemicals have been used in processing;
- criteria have been independently set and cover all stages of the supply chain;
- all waste discharges are below certain limits; and
- energy and water uses are monitored and reported (a new requirement in the 2009 Revision of EU ecolabel Criteria for Textiles).

Not all production (batches) from a mill needs to be ecolabel compliant. Equally, the ecolabel can only be applied to goods that are fully compliant, and the ecolabel can be applied to goods at any processing stage, raw wool, top, yarn, fabric or garment.

Whilst compliance with EU ecolabel requirements adds to the end product value, the documenting and compliance criteria are often wrongly perceived as too onerous and costly. This perception may have deterred some mills from applying for the EU ecolabel.

1.2 Is the wool industry prepared for the emerging eco-wool initiative?

The Australian wool production industry has widely embraced the EU ecolabel standard for textiles as a generic, low-residue pesticide standard for greasy wool, and has developed a system for voluntary chemical testing of total farm shipments into the wool store. In 2007, approximately 40% of Australian greasy wool met the low pesticide EU ecolabel requirements, however in the 2009 revision, the blowfly
control chemical dicyclanil was added to the list of restricted agents and this will decrease the compliance rate by a few percentage points [3]. The major wool brokers (e.g. Elders and Roberts), and many smaller agents offer greasy wools for sale that meet the EU ecolabel requirements and also conduct specialist sales of ‘eco-wool’.

China is the largest wool processing country in the world, and also the largest customer for Australian wool, currently taking around 80% of Australian wool exports [4]. The ability of the Chinese wool processing industry to process wool in an environmentally friendly manner and in compliance with emerging ecolabels, in particular the EU ecolabel, will be important for the long term development and sustainability of both Australian wool production and China’s wool processing industry.

China has made great progress with its environmental standards and in their enforcement in recent years, particularly since the algal bloom outbreak in Lake Tai in 2007 that resulted in the temporary shutdown of the local wool processing industry. However, most Chinese mills are generally unfamiliar with the EU ecolabel requirements and application procedures, and hence very few mills currently have accreditation for EU ecolabel processing or products bearing the ecolabel. This leaves a gap in the ‘eco-wool’ supply chain, as end products cannot carry the EU eco-wool label unless compliance requirements have been met at all stages of the production process.

2 Developing ‘eco-wool’ compliant supply chains for Australian wool

2.1 CSIRO Involvement with Chinese wool processors

To address these issues a project was established through CSIRO with funding support from DAFF to facilitate the development of major ‘eco-wool’ supply chains and to disseminate knowledge to assist Chinese wool processing mills to meet the requirements for ‘eco-wool’ processing. Eight Chinese wool processing mills participated in the project, covering wool scouring through to finished fabric and garments. Chinese agencies including the Chinese Wool Textile Association (CWTA), Jiangsu Entry-Exit Inspection and Quarantine Bureau (EEIQB), Shanghai EEIQB and Nanjing Wool Market have also been involved in the project to various extents.

An initial seminar was held in Nanjing in 2009 to introduce the project and to explain the importance of the eco-wool and EU ecolabel to a broader range of wool processors. Project partner mills were then visited to assess their processing facilities and treatment plants for discharge and to discuss in more detail the processing and reporting requirements for obtaining EU ecolabel accreditation.

Based on our visits, it is clear that these Chinese mills are fully aware of the increasing importance of verifiable environmental credentials in global markets. The mills have good infrastructure in place for regular or continuous monitoring and treatment of discharge wastes, generally good processing equipment, and quality control and testing systems, as well as strong technical expertise. Many are currently upgrading their equipment and facilities. These mills are more than capable of complying with requirements of the EU ecolabel standard but have been hindered by a lack of awareness and understanding of the EU ecolabel criteria, partly due to language barriers. The important issues of compliance for eco-wool included:

2.1.1 Sourcing compliant raw wool: Sourcing EU ecolabel compliant raw wool is the starting point of any ‘eco-wool’ supply chain. At the time of our visits, greasy wools used by the mills were generally purchased by wool buyers through the Australian wool selling/auction system with little consideration given to meeting the EU ecolabel criteria i.e. purchasing raw wool with low pesticide residues. While around 1/3 of Australian wools sold at auction meet the EU ecolabel requirements, the majority of the wools offered exceed the residue limits, and it is almost impossible for a processing consignment of wool (usually made up of more than 20 farm lots of wool) to meet the EU ecolabel limits if wool lots are selected without prior knowledge of their residue status. An important part of this project was to connect the wool buyers for the Chinese mills with the suppliers of low residue wool in Australia. Hopefully, this will allow the establishment of good channels for the future supply of eco-wool material.

It is important to realise that it is extremely difficult and expensive to begin to check the residue status of a consignment of wool once it has been assembled. Even if the non-compliant batches of wool can be identified, they cannot easily be removed from the consignment without changing the fibre processing characteristics of the remaining wools.

Wool residue testing is relatively expensive, especially when wool is sold in relatively small parcels. Australia has developed systems where a single test result can be applied to all of the separate sales lots of wool prepared from a large shipment of wool from a single farm, and this has reduced the testing costs significantly. In addition, the 2009 ecolabel criteria include a new requirement that a supplier of wool (a wool grower) needs only to provide compliant chemical tests on two shipments of wool annually.

2.1.2 Documentation and appropriate selection of chemicals for processing: The EU ecolabel criteria require that only biodegradable detergents and softening agents are used, and that only safe chemicals are used through the supply chain. Therefore some chemicals and auxiliaries are disallowed. However, these
chemicals can be readily substituted for alternatives that are more environmentally friendly or less toxic. One of the major chemicals not permitted to be used in EU ecolabel supply chains are alkylphenol ethoxylate detergents. All of the mills that are part of the project had already voluntarily stopped use of these detergents in their processing in response to signals coming from their customers. The major European and international suppliers of textile processing chemicals now supply ranges of chemicals, dyes and auxiliaries that are pre-certified to meet the EU ecolabel requirements.

2.1.3 Energy and water consumption and discharge management: The EU ecolabel criteria also requires the reporting of energy and water consumption for wet processing (scouring, dyeing and finishing), although no targets have been set [2]. Whilst this may be new to Chinese mills, and appropriate recording procedures will need to be implemented, it is not a difficult task. Preliminary results from the Chinese dyeing and finishing plants were shown to be within the range of European plants processing other fibres [5].

Regarding the waste water discharge, chemical oxygen demand (COD) concentrations are required to be monitored and controlled, and wool scouring plants, in particular, need to ‘describe, in detail, their treatment of scouring effluent and continuously monitor the COD-levels’ [2]. China already has comprehensive discharge regulations with even more restrictive COD limits in place, and all of the partner mills in this project easily met the discharge requirements of the EU ecolabel criteria.

2.1.4 Testing and verification of claims: Compliance with the EU ecolabel requirements is achieved through a mix of:

• statements from the mill management that certain requirements have been met and certain chemicals have/have not been used;
• statements (and proof) from chemical suppliers that the chemicals meet the ecolabel requirements; and
• test reports from an accredited testing authority that COD discharge requirements have been met.

Testing to international standards is required but as stringent environmental testing is increasingly implemented in China, this standard of testing is becoming more accessible.

2.2 Complexity and implications in the implementation of current EU ecolabel criteria and application

In 2009, the EU competent body updated the ecolabel criteria, and also introduced a simplified application pack, in an attempt to streamline procedures and reduce compliance costs. Unfortunately, this simplified version has omitted some details and instructions that were helpful for new mills seeking to comply and apply. It is also recognised that Chinese wool processors face further difficulties due to language and this may deter potential applicants. As part of the project, we have developed the necessary documentation required for wool processing and have translated this into Chinese to assist mills in understanding the requirements. However, all documentation for EU accreditation needs to be in the language of the European accrediting body (eg English, French, Italian) selected. It is expected that mills will develop automated systems for documenting the compliance of specific eco-wool batches in the language required for the accrediting body. We have provided this documentation to CWTA and Nanjing Wool Market for distribution to the wider industry.

2.3 Guidance and assistance provided

This project endeavours to provide necessary guidance and assistance to partner mills, facilitating the implementation of the eco-wool standards in their production and enabling the development of eco-wool supply chains. Considerable efforts have been made which have mainly included:

• providing coaching/training to each participant mill on the detailed eco-wool criteria and implementation procedures;
• simplifying the requirements for mills, making it easier to understand and follow through;
• designing forms, checklists, and documentation templates for mills to use;
• compiling wool specific kits and manuals for compliance;
• translating key documents into Chinese;
• providing specific recommendations and technical support for implementation of new procedures;
• facilitating the connecting and communication with industry partners and Chinese agencies and exchange of information; and
• assisting in preparation of the application documentation and communication with the EU accrediting body.

2.4 Project outcomes

As a result, all participating mills now have a good understanding of the requirements for eco-wool processing and have started to implement the criteria in some of their productions. At the time of completing this paper, five mills were in the process of preparing their application documents for EU ecolabel certification. The project has promoted the eco-wool concept and its EU ecolabel certification, and helped improve the environmental credentials of Australian wool processed in China.
3 The future need: local intermediary organisations in China

Developing eco-wool supply chains is a task that requires continued efforts and long term commitment. The objectives of this project are to create the conditions to allow Chinese wool processors to comply with EU ecolabel standards and apply for ecolabel certification. However, this project is only the first step in building an eco-wool supply chain between Australia and China. In order to sustain and further develop this supply chain, the Chinese mills will most likely need further long-term support, and many mills have already asked whether such support will be available. Therefore, in the future it will be important to set up a permanent intermediary organization or contact point with the EU in China, to provide Chinese mills with ongoing assistance with technical issues, compliance details, implementation procedures and language difficulties. The competent authority of EU ecolabel has recently recognised the need for such organisations to be established in Asian countries [6].

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