

THE CANADIAN WOOL COUNCIL

The Upholstery Plan

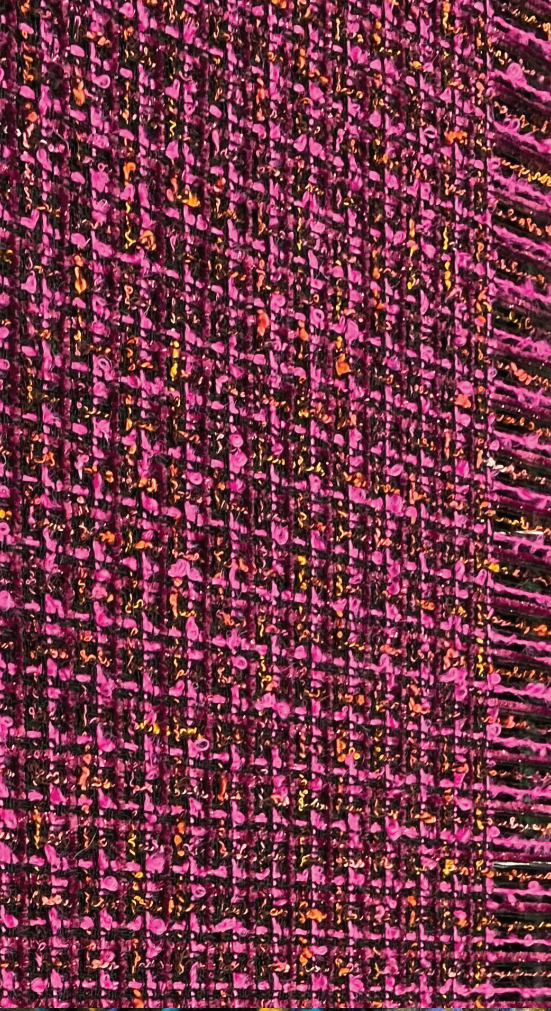


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COUNCIL



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INTRODUCTION

The Upholstery Plan was commissioned by The Canadian Wool Council (CWC) to create value-added opportunities for Canadian wool. The CWC model is to replace 1% of all synthetic fibres used in Canadian textile production with Canadian wool or to replace 1% of revenues from synthetic Canadian textile with wool textile revenue.



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In 2022, *The Carpet Plan* demonstrated the viability of producing 100% Canadian wool rugs destined for export. *The Upholstery Plan* follows the same approach using the same conditions:

- Fair trade pricing at the farmgate
- Dual manufacturing pathway to diversify risk and encourage Canadian infrastructure investment.
- Social giveback model to the Canadian wool industry bringing it closer to financial autonomy.

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ACKNOWLEDGMENTS

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THE CAMPAIGN FOR WOOL

Patron: The former Prince of Wales



INTERNATIONAL
WOOL TEXTILE
ORGANISATION



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PART 1 – SUMMARY



The Canadian Wool Council is committed to improving the Canadian wool industry for all stakeholders. Through ongoing initiatives, it offers solutions and leadership that blend efficiency, profitability, and environmental sensitivity that benefit all Canadians.

In 2021, CWC released *The Wool Plan 2021-2026* outlining its mission to help reinvigorate the Canadian wool industry by:

- Rebranding and revaluing Canadian wool
- Advocating for the domestic wool industry
- Promoting Canadian wool to the global community

The Wool Plan identified five obstacles impeding the Canadian supply chain and proposed a strategic framework to address these bottlenecks. Each initiative undertaken by CWC aligns with the goal of lessening the obstacles to bring wool to market.

Five obstacles:

- Education
- Outreach
- Brokerage
- Infrastructure
- Canadian-branded products

To date, CWC has undertaken or completed 34 initiatives contributing to unblocking the identified obstacles:

2021

- *The Wool Plan 2021-2026*
- Wool on Wool Fine Art Project
- Wool House – Insulation Project
- Creative Matters Workshops
- UK Trade Mission and Sheep Walk Across the Thames
- IWTO Membership + Appointment
- 100-Mile Blazer prototype project with SMYTHE and Holt Renfrew
- Various Pop-up Shops
- The Canadian Wool Rug Designer Capsule Collection with Sarah Richardson and Creative Matters Inc.
- Annual Shearing Day Event

2022

- *The Carpet Plan*
- Government of Canada Funding for Research and Branding
- The Royal Visit of our Patron to Canada and St. John's Government House Event
- Fabric of Canada Video Series; including
 - 100-Mile Blazer
 - Coast Salish Weavers
 - A Prairie Jubilee
 - NONIA The Knitters of Newfoundland and Labrador
- Creation of a Needle-Felted Bust of Her Majesty Queen Elizabeth II in celebration of The Platinum Jubilee
- TWIST Fibre Festival Panel Discussion
- Canadian Wool in Paris “Winter Garden Exhibit” – Paris Design Week
- IWTO 91st Annual Congress, Tongxiang-Puyuan, China including virtual presentation of The Carpet Plan
- Colin Campbell Carpets Collaboration and Vancouver Design Community Event
- IWTO Interiors Working Group - established the group and appointed the chairperson. 13 member nations represented.
- IWTO Round Tables Nuremberg, Germany including panel discussion
- Canadian Wool Domestic and International Affairs Committee established to develop national wool policy and standards
- Annual Shearing Day Event

2023

- *The Shearing Plan*, a vision and model for the future of the shearing profession in Canada
- *The Upholstery Plan*, a model for using Canadian wool in high-end upholstery
- IWTO 92nd Congress in Kyoto, Japan including keynote presentations on Canadian wool in carpets and the Fabric of Canada Film Series
- IWTO global survey on wool for the interiors market
- The Canadian Wool Standard Working Group established
- The Canadian Wool Valuation Working Group established
- Campaign for Wool Kiosk at the official Canadian celebrations of the Coronation of our Patron, HM King Charles III
- Annual Shearing Day Event

EXECUTIVE SUMMARY

The Canadian Wool Council promotes the use of quality 100% Canadian wool and encourages the transition to 100% pure Canadian wool in the residential and commercial interiors sectors and the transportation industry.

In parallel, CWC also recognizes the certain untapped potential in exploring blended wool products. Blending Canadian wool with a new family of eco-responsible textiles derived from recycled materials creates untapped opportunities in these sectors. This could result in new benefits for the wool value chain, from producer to manufacturer to consumer. A wool textile blend could offer the following benefits:

- Easier to justify standards and certifications.
- Lower the price point by substituting part of the wool yarn with recycled fibre.
- Addresses perception that wool is not durable or is too difficult to maintain.
- Improves sustainability of a product that previously only used unsustainable fibre.
- Moves wool into the production pipeline that currently may not otherwise move to market.

The Upholstery Plan proposes textiles for both the furniture and the transportation industry, with particular focus on the business jet sector. A 2012 study, *Evolution of green textiles in the aeronautic industry* compiled by researchers in Italy, Canada and Brazil, summarized that “large companies such as AirBus, Boeing, Bombardier and Embraer have set an environmental forecast for the next thirty years in which they propose new developments to reduce their environmental footprint.”¹ The business jet sector’s niche size, global reach, price tolerance, impressive market penetration, and well documented manufacturing specs make it an important area of exploration for Canadian wool.

PRODUCT SUMMARY

Upholstery textile is as varied and as versatile as the imagination. Upholstery falls into three categories: *felted*, *pile*, or *woven*. The felting process is the simplest. Wool is washed, carded, and then felted. It does not require spinning onto bobbins.

Pile upholstery is often used for high wear and tear applications like transportation: subway cars, buses, train or other industrial or institutional applications like theatre seating. Pile involves tufting short yarn fibres onto a woven backing. Velvet is an example of a pile textile. Felted and pile upholstery is usually applied to a woven backing, and therefore some consideration around weaving and alternative fibres will be necessary.

Woven upholstery is the most technically complex. It involves spinning yarn onto bobbins that will be processed on a weaving loom. Woven upholstery generally falls into three pattern categories: *plain weave*, *twill weave* or *satín weave*. Some upholstery looms will have a Jacquard attachment enabling the production of more intricate or textured fabric like damask, brocade or matelassé.

Using a variety of techniques, colours, weaves, textures, and fibre blends offers considerable variability to the look, feel and performance of textile however the final product will be limited by the available processing capacity.

CRITICAL PATH SUMMARY

Production pathways for Canadian wool upholstery need to be carefully considered before bringing a project to fruition. Significant research and development are required to determine what aspects of production can happen in Canada and what aspects must be off shored to Europe or the US. Product developers may also want to consider that the infrastructure and training may not already be available.

¹ Moreira, N., Ait-Kadi, D., Santa-Eulalia, L., Evolution of green textiles in the aeronautic industry: an exploratory literature review, 2012

Identifying the end use of the upholstery and working within a client and designer team and a prototyping partner are essential and will reduce risk from unknowns.

TARGET CLIENT SUMMARY

The Upholstery Plan identified two target audiences: residential and commercial furniture upholstery and the business jet sector. Canada is the world's 10th largest furniture exporter globally with 95% - 97% of products exported to the US. Canada is recognized as a producer of high-quality furniture made from solid wood and natural materials. Wool's superior performance is complementary to the high-end furniture market. The business jet sector shows potential. Canada is a leader in business aviation. Although there are a relatively small number of manufacturers of business jet aircraft suppliers in Canada, they have a significant market share and uniformity in their product ranges.

OPPORTUNITIES SUMMARY

Mapping opportunities for Canadian wool upholstery is complex due to limited manufacturing capacity, strong foreign competition, transportation costs and the myriad applications for upholstery. Product developers should first aim to establish manufacturing capabilities within proximity, determine what output the manufacturing centre can provide and prototype a design using Canadian wool that could be shipped to industry sectors.

In the residential and commercial interiors scenario, the furniture manufacturer is the target client. The furniture manufacturer would commission Canadian wool upholstery for their furniture collections which would then be applied to soft furnishings and sold to export. There is a likelihood that a furniture manufacturer will also have the knowledge, design team, and research and development capacity to launch prototyping.

In the business jet sector, the opportunities are simpler, but manufacturing remains the key obstacle. Business aviation revolves around a small number of companies globally, a set number of aircraft entering the airspace annually, an average number of seating per aircraft and a preordained volume and quality of upholstery.



FINANCIAL SUMMARY

The financial model imagines a flock of 500 sheep producing wool for one year (one shearing). It assumes that shearing will cost \$5/head and each sheep will produce 7 LB of wool with 2% wool skirted off before packaging. It presumes the wool will be press-packed into 350 LB square wool totes at \$8 per tote. It assumes 68% yield in scouring with a payout to the wool producer of \$2.00/LB on clean wool. This returns a profit to the wool grower of \$2087.20 after all costs are considered. It is felt that \$2.00/LB clean is a low estimate on what the wool producer should be compensated given the environmental benefits of wool and the low ecological footprint of harvesting wool when compared with harvesting other natural or synthetic fibres. More work is required to improve wool contamination levels, skirting and packaging for efficiency. More work is also required to demonstrate the true environmental benefits of wool and a justification should be made to ease the burden of wool harvesting costs on the wool producer.

The true cost of producing an upholstery textile of 100% Canadian wool will not be fully known until a specific upholstery application is identified. The cost of spinning, weaving and finishing will vary depending on specs and industry standards. This model makes educated assumptions based on rough estimates for manufacturing in both Canada and Europe although manufacturers were categorical in their reluctance to give even rough estimates because the final applications will influence the final costs. With this in mind, the model imagines producing 185 metres of textile derived from the flock of 500 sheep with a cost of just under \$300/metre. While this may seem high compared with pricing in retail fabric chains, it is considered a mid-range price with most designer drapery and upholstery suppliers. The model assumes a distributor share of 15% on the per metre price with an additional 15% social giveback to the Canadian wool industry to bring it closer to financial autonomy.



PART 2 – CANADIAN TEXTILE INDUSTRY

CANADIAN TEXTILE INDUSTRY: 1980 TO 2000

Pre-1980s: The once-vibrant Canadian natural fibre industry began its decline in the mid-1950s with the arrival of the DuPont Company to Ontario. DuPont was the primary manufacturer of synthetic fabric for apparel, housewares, and industrial applications.

1980s: Surge in synthetic textile production in Canada gives way to an off-shore, low-wage processing trend. By the end of the decade, it had taken a 44% bite out of the Canadian textile manufacturing economy.²

1990s: First mention of Quick Response Manufacturing (QRM), an approach to production that emphasises the reduction of lead times to gain greater market share.

2000s: Effects of QRM on the fashion industry led to the phenomenon of fast fashion. QRM championed the use of synthetic fibres, making them the standard throughout numerous industries, not just fashion, leading to devastating long-term effects.

2010s: Global movements like Fibershed and Make the Label Count start to emerge warning of the dangers of petrochemical textiles on the environment, and imploring consumers to correct consumption habits. Interestingly, a 1990-1991 study of the textile industry from Industry, Science and Technology Canada and International Trade Canada states that wool and other natural fibres were not available domestically and needed to be imported saying

“Textiles are products derived from the processing of man-made or natural fibres to form yarns, fabrics and a wide range of end products. Most types of man-made fibres and filaments, derived from petrochemicals or modified wood pulp, are produced in Canada. Natural fibres – cotton, silk, flax and to a large extent wool – are not domestically available and must be imported.”

Around the same time, Canada saw a surge in sheep production, with sheep populations doubling between 1986 and 2002. This also coincides with Agriculture Canada developing the Arcott bloodline of sheep. Rideau Arcott, Canadian Arcott and Outaouais Arcott are the only sheep breeds truly original to Canada and were developed for meat, milk, and wool quality. Arguably, in these years Canada would have produced the most of volume of quality wool in recent history. These are also the years where there appears to be a chasm forming between the Canadian wool industry and the industrial manufacturing sector.

Livestock	Survey date	1986	1990	1991	2000	2001	2002
Sheep and lambs total	At January 1	489.5	590.5	628.3	793	947.8	993.6
	At July 1	694.9	874.4	917.8	1,105.3	1,247.7	1,252.1

Statistics Canada. Table 32-10-0129-01 Number of sheep and lambs on farms (x 1,000)

² Wilson, M. 1990-1991 Textiles Industry Science and Technology Canada

INDUSTRIAL TEXTILE MANUFACTURING

Although it's not the same as seating upholstery, Canada has an important legacy in industrial textile manufacturing. Industrial textiles are divided into two groups: *primary textiles group* and the *textiles product group*. The primary textile group includes filament, yarn, broad woven and broad knitted textiles. It also includes dyeing, printing, and finishing processes associated with primary textiles. The textiles products group includes commissions or contract dyeing, printing, and finishing. It also includes coated fabrics, finishes and other products adjacent to or required by the primary textile group.

Snapshot of Canadian industry size 1980s. Note the dominance of the **textile products sector** over the **primary textiles sector**:

1989	Total	Primary Textile	Textile Products	Carpets and Rugs
Establishments	1,105	216 (19%)	848 (77%)	41 (3.7%)
Employment	62,330	26,800 (43%)	29,918 (48%)	5,608 (9%)
\$ Shipments	\$6.9 Bn	\$3.1 Bn (45%)	\$2.76 Bn (40%)	\$1.04 Bn (15%)

Snapshot of Canadian provincial distribution 1980s. Note the predominance of manufacturing in Quebec and Ontario over other province.

1986	Quebec	Ontario	Other Provinces
Establishments	39%	39%	22%
Employment	49%	43%	8%
\$ Shipments	51%	43%	6%

Traditionally, most textile production in Canada happened in small, urban communities with sufficient access to water, resources and labour. Primary textile establishments were vertically integrated and able to offer product completion with large economies of scale. They were highly modernised, agile, and capital-intensive. There was a significant foreign investment in the primary textile sector with as much as 60% of all primary textile shipments being under the control of foreign interests. In the carpet and rug subsector, 30% of shipments in the late 1980s were foreign controlled.

Establishments in the *textile products* sector were smaller and tended to specialise in niche aspects of production. They were less agile with lower capital investment, making it more difficult to contend with foreign competition.

Imports from low-wage countries, especially for smaller textile products like sheets, towels and other easy-to-ship items, gradually began to erode the domestic textile industry. Canada found an opportunity with exports to foreign markets. The establishment of the Canada-US Free Trade Agreement bolstered the carpet and rug sector, which in 1991 accounted for 61% of Canada's exports to the US.

CANADIAN TEXTILE INDUSTRY: 2001 TO 2021

Advancements in technology, research and development mean new opportunities for Canadian wool that were not available half a century ago. Wool is still commonly used in household items like bedding, furniture, and carpets. However, newer emerging industries in these areas that typically use synthetic materials, may benefit from using Canadian wool.

Household Goods and Apparel Manufacturing

“Canadian manufacturing of commodity textiles, such as for household items like bed linens, towels, and curtains, and textiles used in the manufacture of apparel, has largely moved to lower labour cost countries, however the business case to manufacture these items still exists in cases of niche demand (e.g., high quality, a particular performance characteristic, quick response to customer aesthetic preferences, rapid inventory replenishment, and if they are heavy or inefficient to transport as is the case in carpets and pillows). Canada’s textile companies manufacture for a wide variety of technical and niche applications and are integral to the supply chains of the many major industries in Canada.”³

³ <https://ised-isde.canada.ca/site/canadian-textiles-industry/en/industry-profile>



PART 3 – UPHOLSTERY PRODUCT

Wool has been turned into upholstery since the Middle Ages without the help of modern machinery or scientific intervention. However, modern manufacturing facilities have very limited and specific outcomes. Achieving the desired material for upholstery involves considerable research, development, and prototyping. Initial conversations with both Canadian and European textile manufacturers proved that determining pathways and estimating costs was not possible until well into prototyping.

Canada has reasonable production capacity for very narrow channels of synthetic textiles for commercial, industrial, and military applications. Woven fabric, webbing, netting, strapping, banding, and canvas made in a variety of synthetic and recycled materials are all easily available, highly customisable, and producible in an intra-provincial, closed-loop manufacturing setups. Many companies in this sector of the textile market are also vertically integrated.

The manufacturing capacity for the 100% wool upholstery market for high-end residential and commercial furniture is greatly limited. For high-efficiency manufacturing, Canada will most likely need to rely on European processing until further investment is directed toward carding and spinning upholstery yarn. Further prototyping of specific upholstery is necessary to determine pathways.

PROCESSING

Wool textiles used in upholstery typically fall into three processing categories: felted, woven or pile.

Felting is straightforward. Wool is washed, carded and then felted using a water and friction technique that creates a dense textile that can vary in thickness. Felted wool does not require spinning into yarn or thread. In felted upholstery, certain techniques require the felt to be secured to a woven backing. For this reason, weaving capabilities must also be considered when looking at felted upholstery.

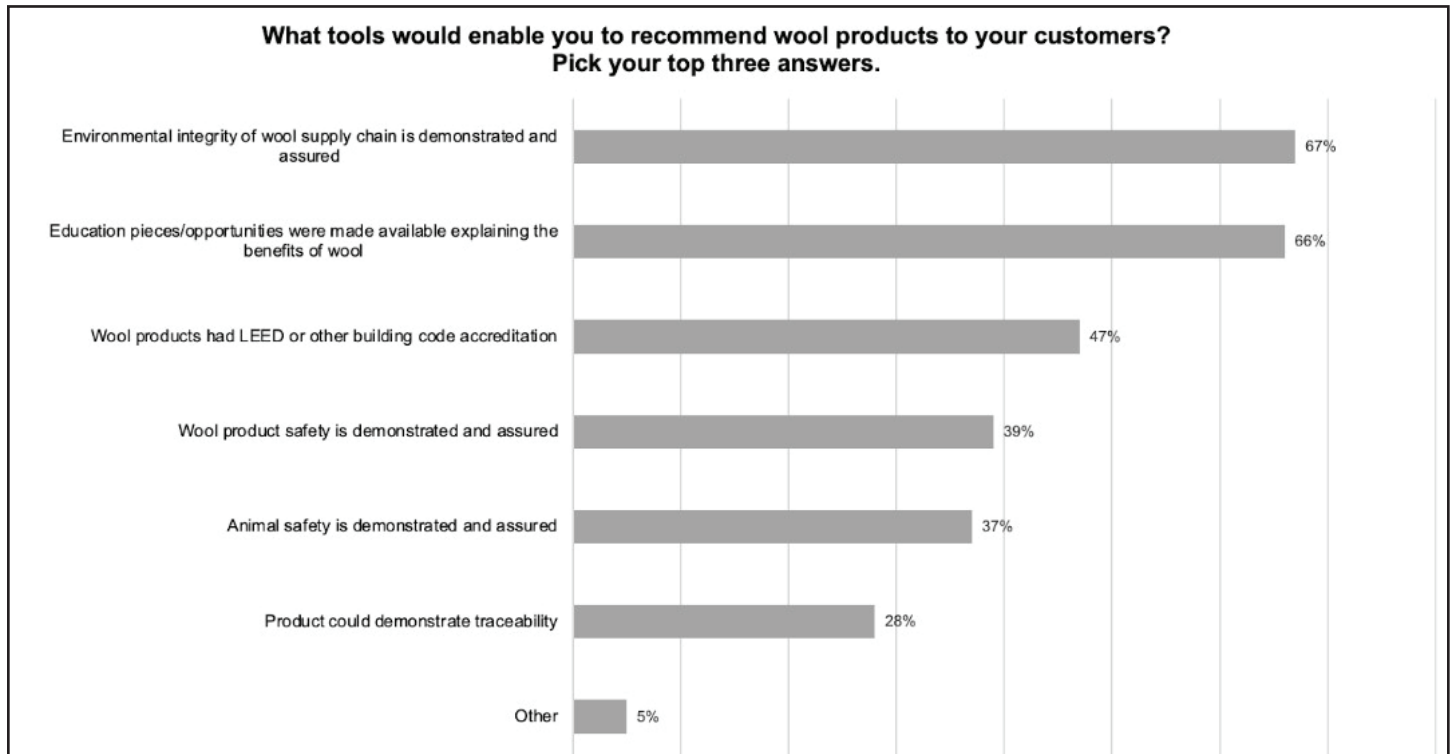
Weaving involves washing and carding wool before it is spun onto bobbins. The bobbins will then be loaded into a loom for weaving. Woven textiles fall primarily into three weave patterns: plain weave, twill weave and satin weave. All three are used in upholstery. A Jacquard device can be fitted to a loom to simplify the process of manufacturing textiles with more complex patterns such as brocade, damask and matelassé. A Jacquard attachment is recognizable by the vertical entry of thread from above the loom. A non-Jacquard loom feeds thread horizontally from the front of the machine.

Pile involves tufting fibre onto a woven backing. The process is similar to carpet manufacturing but with a shorter, tighter nap.⁴ In upholstery, it most often takes the form of velvet, although any fibre can be used for pile. A short nap pile is versatile and durable and is best used for high-traffic applications such as transport seating.

⁴ Nap is the term used to describe the depth of pile of a fibre. It is typically measured in millimeters.

PART 4 – MANUFACTURING

Research indicates that the environmental impact of the supply chain is a top concern for consumers of interior products. To ensure success, organisations producing and selling wool products have a responsibility to improve the understanding and transparency of their raw material choices and their supply chain.



Sebert, C; Underhill, J. (2023). *Wool Interiors Working Group Survey*. International Wool Textile Organisation.

A recent global survey by the IWTO Interiors Working Group offers interesting preliminary findings. 67% of respondents said that they would recommend wool products for interiors if the environmental integrity of the wool supply chain is demonstrated and assured. 66% of respondents said they would be better able to sell wool products if they were given adequate education pieces or opportunities to explain the benefits of wool. 37% of respondents listed animal safety as a priority concern.

RAW MATERIAL AND SUPPLY CHAIN

100% wool upholstery starts at the farm. Inarguably, Canada is home to some of the world's highest farming standards. Canadian farms are situated on healthy soil, with fresh air and clean water. Sheep producers are well-trained and supported by the government, innovation, and technology. Our livestock is raised in low-stress environments, using good genetics, feed, nutrition, veterinary care, and handling practices. Nevertheless, Canada must not become complacent. The entire supply chain needs to encourage even better farm practices. These improvements must be explained and promoted to buyers and consumers if demand for Canadian wool is to improve.

Farming and soil health are opportunities to distinguish Canadian wool.

How we care for the land and water around our farms plays a key role in overall consumer satisfaction. A [study by Kantar's \(Dx\) Analytics Global Trends Report on Sustainability⁵](#) looked at Argentina's performance

⁵ Kantar Analytics DX Sustainability trends, Argentina: A new paradigm – from sustainability to regeneration



targets in sustainable land management and mapped the level of consumer interest in regenerative farming.

“Agriculture plays a predominant role in [Argentina’s] national economy. The expansion of intensive farming practices during the last decades has opened a heated debate about its effects on the environment and the health of the population.”

Companies like Nestlé have committed to sourcing 20% of its key ingredients through regenerative agriculture by 2025 and 50% by 2030, representing more than 14m tons of ingredients that support regenerative practices.

Beginning in 2017, the clothing brand Patagonia established the Regenerative Organic Certified™ program: an integral agriculture certification that incorporates green agricultural practices to increase soil organic material over time and take into consideration animal welfare including pasture practices.

Kantar’s SSI study shows how an increasing number of consumers want proactive initiatives from brands that help restore and regenerate the environment:

“An informed consumer expects and demands more from sustainability initiatives.

- 63% take an active role in reforestation and returning lands to their natural state, with wild animals.
- 57% stop using unsustainable farming methods that impact biodiversity and the environment.

Brands need to integrate regeneration into their business models. They must demonstrate leadership and resilience in a world where climate change is the second largest threat to global well-being, behind infectious diseases.”

Similar initiatives are burgeoning in Canada. In 2016, Regeneration Canada held its first symposium in Montreal. Considering the incredible level of interest and engagement around the Symposium, Gabrielle Bastien founded Regeneration Canada⁶ to pioneer the regenerative movement in Canada in May 2017.

According to their interactive website, Regeneration Canada is “dedicated to promoting soil regeneration in order to mitigate climate change, restore biodiversity, improve water cycles, and support a healthy food system.”

⁶ Compiled from Regeneration Canada: <https://regenerationcanada.org/en/about-us/>

Producers distinguish themselves with standardised wool preparation, shearing, and packaging to bolster demand and improve prices.	
<p>Step 1. Prior to shearing Producers hoping to improve wool revenues must consider modifying certain farm management practices. Specifically, exposure to wetness, including water, rain, dampness, and humidity and exposure to contamination, including natural, acquired, and applied contaminants.</p>	<p>Step 2. Shearing day On shearing day, animals must be kept dry and off food, water, and bedding. Shearing begins with white fleece proceeding through coloured fleeces. Despite the growing demand for coloured fleece, it is important not to mix them in with white fleece as these impact spinning and dyeing outcomes. Hair fibre animals are kept separate from wool sheep.</p>
<p>Step 3. Sorting and Skirting and Sorting Sorting is the process of separating the usable and non-useable parts of the fleece. Belly wool, leg and head wool are separated from the main fleece.</p> <p>Skirting is the process of cleaning and removing the inferior parts of the fleece prior to packaging, processing, and sale.</p>	<p>Step 4. Packaging Square totes (“fidges”) that are mechanically press-packed offer the best protection against moisture and insects. Burlap (“sausage”) bags do not offer suitable protection and the burlap fibre contributes to wool contamination. Burlap bags are inefficient in transportation and incompatible with processing further down the supply chain.</p> <p>Canadian shearers and producers have experienced challenges in acquiring square totes in the past, and press-packing equipment is expensive and not readily available. However, these are areas in critical need of improvement.</p>

Wool pieces to remove in sorting and skirting			
Belly Wool	Cotted Wool	Leg Wool	Stained Wool
Britch Wool	Discoloured Wool	Manure, dung	Paint/ Crayon Colour
Brittle Wool	Head Wool	Second Cuts	Vegetable Matter



SCOURING

Wool destined for any textile application is first scoured. Scouring is the process of washing the wool in preparation for spinning and weaving. Canadian wool prototyping projects have shown that the more processing that happens in Canada the better the outcome in terms of cost and quality of washing. Canada has a reasonable scouring capacity. Canada's scouring professionals have a deep knowledge of Canadian wool. Using Canadian companies for shipping and delivery is cheaper and more environmentally suitable. Every effort should be made to scour in Canada.

CAVEAT: Followers of CWC feasibility plans will notice this is a pivot from messaging in previous publications. Since publishing *The Wool Plan* and *The Carpet Plan*, Canada had the opportunity to test the results of scouring our wool overseas. It was noted that shipping delays coupled with hurdles to export greasy wool from agricultural space proved to be costly obstacles in terms of time, resource and cost. It is also concluded that while Canadian wool washed well under the care of offshore scourers, an equal or better result could be obtained using Canadian scouring due to their deeper understanding of the national clip and their willingness to service Canadians.⁷

Resources must be made available to help scourers grow, develop, and modernize as needed. Research and feasibility studies are required to determine where other "right sized" scouring centres may also be established to reduce transportation needs. A scouring centre does not need to rival international centres who transform industrial volumes. There are several equipment options to suit the needs of the Canadian

⁷ Interview and research with Leah Murray, Jacob Murray and Ian Murray, Topsy Farms of Amherst, Ontario. Sincere thanks to Topsy Farms for spearheading the pilot project. Topsy Farms continues to be a valued partner of the Canadian Wool Council and a pioneer in Canadian wool innovation.

Industry, including a wool opener which, as the name implied, literally opens and separates greasy wool to remove large contamination before wool enters the scouring phase. Wool opener machines are economical and can better triage wool so that even “unusable wool” will find an appropriate application.⁸

CARDING AND SPINNING

After scouring, wool must be carded. Carding is the process of combing out wool fibres so they are untangled and aligned parallel. This prepares the fibre for spinning, which is the process of taking carded wool and turning it into yarn of a predetermined weight.

Carding and spinning facilities in Canada have historically been situated in Ontario, Quebec, eastern Canada, and Alberta. Despite the industry’s decline, there are still facilities operating in these provinces. The typical weight of upholstery yarn tends to fall somewhere between fine yarn for garment and heavier yarn for handknitting, carpets and bedding. Depending on the desired yarn weight of upholstery, Canada may not have the proper spinning capacity, and offshore prototyping may be required.

Europe and Great Britain offer spinning, carding and weaving of various weights of upholstery yarn including blends in both vertical integration companies and collaborating enterprises within proximity. Examples in Scotland and England, Germany, Belgium and Italy dominate. Further afield, Turkey is a key player in upholstery manufacturer however transport makes Middle East untenable for Canada’s target volume.

WEAVING

High-powered looms for weaving textiles are calibrated for extremely specific uses. A loom that can accommodate natural wool can often only process a certain micron⁹ of wool, a certain staple¹⁰ length or a certain wool weight. Collaborating with a designer in conjunction with a automated machine weaver ensures the right steps are being taken to avoid costly errors.

Interestingly, a new product is emerging in the recycled textile space. Repreve¹¹ is an American company creating synthetic fibres made from recycled plastic bottles. Several Canadian companies are now blending Repreve fibres into weaving and knitting textiles to improve sustainability. While 100% natural wool is ideal, we must consider that sometimes upholstery, especially upholstery subject to high traffic, might benefit from a synthetic blend. There is a sense of reassurance that if a synthetic filament is used, it is one that is derived from recycled material and not from new petrochemical material.

FELTING

Felting is a different but equally popular approach for upholstery. Wool fibres have small barbs on them, which help the natural locking or felting process. The manufacturing of pressed wool felt is

⁸ Interview and research with Gagan Mittal of Responsibility Curated Décor.

⁹ Micron represents the diameter of a single strand of fibre. Canada’s average micron range is 27µ to 29µ. It is largely assumed that the finer the micron the softer the wool, however CWC Canadian Wool Rug prototype proved that Canadian wool was softer than other nation’s wool in the same micron range. CWC presumes that the superior quality of our animal care, the low stress environments on our farms and good feed and vet nutrition contribute to a nicer quality of wool. Findings presented by Carol Sebert of Creative Matters Inc., Matthew Rowe of CWC and Jane Underhill of Wool Advocates.

¹⁰ Staple refers to the length of the fibre. Spinning and weaving centres will accommodate specific lengths between two inches and five inches but certain machinery will cause breakage of yarn spun from certain lengths of wool.

¹¹ repreve.com

already mandated by SAE standards¹² and is already available as an upholstery application from foreign manufacturers. For more information on SAE standards, visit: <https://www.iso.org/standards.html> and <https://www.sae.org/standards>

The American Company, Sutherland Felt, uses 100% wool from Australia and Uruguay in manufacturing felt for industrial semi-applications. There is no post-processing applied. Sutherland Felt says,

“[Wool is] off the back of the sheep, washed, then needle punched and pressed to thickness. It has no dye applied and the carbon footprint to harvest 1 lb of wool is less than that for cotton, as it is manually sheared versus mechanically processed cotton. Also, wool is naturally flame retardant and does not require the treatments that flammable materials such as cotton, rayon, and acrylic require.”¹³

In upholstery, manufacturers should consider micron measurement and sheep breeds as this may affect the comfort and wear of a wool based textile. There may also be additional scouring or dyeing requirements.

DISTRIBUTORS, RETAILERS, AND SELLERS

Distributors and retailers are key components of the supply chain. CWC believes it is critical that distributors and retailers work to bolster the Canadian wool story. Otherwise, the superior quality of Canadian wool is not differentiated in the marketplace.

Typically, a distributor takes a 30% share of the retail cost of the product. With environmental impact and climate change goals in mind, the cost/profit breakdown along the supply chain needs to be re-evaluated for incentivization in earlier stage processing. If we are asking the other stakeholders on the supply chain to modify practices and standards, the distributor and retailers must also be asked to adapt.

Distributors, retailers, and client-facing sellers must be equipped with the knowledge, tools and educational pieces that enable them to tell the full story of wool. This includes Life Cycle Analysis and carbon footprint studies. All sellers of wool products will benefit by adopt a social or storytelling strategy in selling wool products. When sellers are telling the true story of wool, the entire supply chain wins.

SHIPPING AND TRANSPORTATION

Transportation continues to play a deciding role in the viability of Canadian wool. It is important to ship only quality, usable fleece. Packing contaminated/dirty fleece costs time, and money and contributes to the carbon footprint of a wool product which in turn lowers its Life Cycle Analysis score.

Wool must be packed as tightly and squarely as possible so that all usable space in a transport carrier is utilised. Ocean and rail transport have a lower carbon footprint and offer a better price point but take more time for delivery. Air transport and land transport are often simpler and quicker, but the price point and carbon footprint can be detrimental.

Preplanning deliverables and production timelines are critical to the viability of the product. This can lead to reduced costs and lower carbon output. Product developers looking to incorporate wool into their products should prepare for lengthy delays and complex prototyping exercises.

¹² “Standards determine the wool content, density, and other physical and mechanical properties of the felt. Pressed wool felt is identified by the SAE standards F-1 through F-26.”

¹³ Compiled from Sutherland Felt Company: <https://www.thefeltcompany.com/felt-materials/>

PART 5 – OPPORTUNITIES

CWC aims to suggest products in which Canadian wool could viably substitute 1% of the synthetic fibre currently used in the interiors industry or redirect 1% of revenues previously spent on synthetic fibre products to Canadian wool products.

The products identified must meet four criteria:

- Must be suitable for Canadian wool.
- Must be manufacturable in both Canada and abroad.
- Must be exportable to countries with low or no tariffs that have favourable currency conversion.
- Must carry a competitive price point for the intended consumer.

SWOT ANALYSIS

Evaluating the Strengths, Weaknesses, Opportunities, and Threats of a national shearing initiative.



STRENGTHS

- Canada has wool suitable for upholstery that has a range of 28 to 30 microns.
- Canada can guarantee an appropriate volume of wool regularly.
- There is a desire among wool producers to improve their clip to specification.
- Global trends toward sustainability mean more people are choosing natural fibres.
- Consumer trends toward natural fibres that are safe for families and pets.
- Some upholstery manufacturing infrastructure is already in place.
- Federal and provincial investment and support for innovation, research, and development.
- Regional economic development support.
- Support for skills training.
- Brand recognition for “Made in Canada” products is strong.
- Canada is among the top 10 furniture-producing countries globally.
- Alignment on quality craftsmanship in Canadian furniture and Canadian wool.
- Wool products have a long lifespan.



WEAKNESSES

- Lack of cohesion and a siloed supply chain.
- Lack of distributor, retailer, and consumer knowledge of wool products.
- The perception that wool upholstery is costly, difficult to care for, and does not perform well over time.
- The perception that raising sheep or harvesting wool is cruel to the animals or damaging to the environment.
- Lack of studies on wool in the interiors market.
- No safety or ISO ratings.
- Lack of Life Cycle Analysis studies.
- Lack of understanding of wool’s performance at end-of-product-life.
- Lack of skilled labour in wool manufacturing.
- Lack of infrastructure.
- It is difficult to compete on pricing with synthetic fibres.
- Shipping and transportation are costly and inefficient.
- Upholstery manufacturing in Canada is on the decline.



OPPORTUNITIES

- Ample opportunities for both woven and felted upholstery.
- Changing lifestyles of consumers favour natural fibres.
- Reinvigorating a long-untapped niche market.
- Reducing plastic in consumer goods and the transportation industries.
- Providing an outlet for a Canadian commodity in a Canadian-made product.
- Wool is a highly adaptable material for upholstery end use.
- It will justify an investment in infrastructure that has the potential to service other wool products.
- It will create closed-loop production centres in Canada that could service the larger North American market.



THREATS

- Synthetic fibre upholstery has been the standard and remains wool's strongest competitor, however, rebranding Canadian wool will help bolster wool's image in this sector.
- Off-shore manufacturing costs are cheaper, although Canadian manufacturing costs are justifiable considering transportation costs and delays are significant.
- Transportation is inefficient with no viable solutions.
- Labour shortage is an issue but there are resources available for training and Canada has adopted favourable regulations to employ foreign skilled workers that are helping to alleviate backlog with some of the natural fibre processors.
- Equipment shortages and delays are a threat, however, post-Covid recovery indicates that shortages and delays are improving.
- Political unrest and health crises can interrupt the export flow.
- Wool products are generally more costly and thus are not recession-proof, though there are ways to improve retail pricing through more efficient and thoughtful manufacturing.

RESIDENTIAL & COMMERCIAL INTERIORS PROFILE

The Canadian furniture industry is the second largest consumer products sector after food and beverage processing in terms of employment and has a significant domestic presence with regional representation in every province. Canada has expertise in solid wood furniture and office furniture among others.

The website made-in-canada.ca shares its findings on the Canadian Furniture Industry:

- Canada's furniture market ranks eleventh globally with a revenue of 36 billion CAD in 2020.
- Revenue from furniture sales was expected to be 18.03 billion CAD in 2022.
- Living room furniture represents the largest portion of the furniture market in Canada and was worth 5.18 billion CAD in 2021.
- 97% of the over 7,000 furniture manufacturing companies in Canada are Canadian owned.
- There were 3,088 furniture stores in Canada as of December 2021.
- There are 3,606 non-employer or indeterminate and 6,019 employer furniture establishments in Canada.
- 82% of furniture purchases were made in stores in 2021.
- Millennials buy the most furniture in Canada and market trends show a preference for long-lasting, high-quality products.
- Leon's Furniture is the largest furniture retailer in Canada with 306 stores across the country.
- Globally, Canada has one of the biggest furniture industries in the world.
- The industry has been growing steadily year-on-year, despite sales dropping by 6% from January 2020 to January 2021 due to the pandemic.

Top manufactures include:

- Dorel Industries: Ready-to-assemble and assembled furniture for youth, based in Quebec.
- Palliser Furniture: Assembled furniture for bedrooms and home offices, based in Manitoba.
- Shermag: Ready-to-assemble and assembled furniture for bedroom, home office, and dining room furniture, contemporary, high-end fabric and leather upholstery, based in Quebec.
- South Shore Industries: Ready-to-assemble and assembled furniture for bedrooms, based in Quebec.
- Canadel Furniture: Solid wood dining furniture including upholstery dining seating, based in Quebec.

Top retailers include:

- Leon's Furniture, 306 stores nationwide.
- Candace & Basil, one store, based in Ontario.
- Casalife Furniture, three stores, based in Ontario.
- EQ3, 14 stores in Manitoba, Alberta, British Columbia, Quebec, and Ontario.
- Mobilia, 10 stores in Quebec and Ontario.
- Stoney Creek Furniture, two stores, based in Ontario.

FURNITURE INDUSTRY PROFILE - DOMESTIC AND EXPORT

Despite sales of furniture slowing down during the pandemic, revenue from furniture and home furnishing stores in Canada has been growing steadily. In 2022, the furniture market is expected to have a revenue of 18.03 billion CAD, and the market is predicted to grow annually by 5.48% between 2022 and 2026.¹⁴

The monthly export value of furniture and fixtures from Canada has fluctuated. According to Statista, in April 2020 Canada exported 290 million CAD worth of furniture. This was the lowest figure recorded in recent years. However, post-pandemic export numbers have recovered and in 2021, the monthly export value was around 500 million CAD or higher.¹⁵

¹⁴ Compiled from Statista : <https://www.statista.com/outlook/cmo/furniture/canada>

¹⁵ Compiled from Made In Canada <https://madeinca.ca/furniture-industry-canada-statistics/>

Moreover, 95% of Canadian-made furniture is exported to the United States.¹⁶

UPHOLSTERY INDUSTRY PROFILE - DOMESTIC AND EXPORT

Unlike the burgeoning furniture manufacturing sector, the Canadian upholstery market has been in decline for the past 15 years, despite a short uptick during the pandemic. Nevertheless, there are important opportunities for Canadian wool in this sector.

According to upholstery industry insider, Michael J. Knell of HomeGoodsOnline.ca, upholstery manufacturing has been, “losing ground for the past 15 years, but suffered most heavily when the price for Canadian produced oil skyrocketed in the years immediately following the financial crisis of 2008, thereby strengthening the value of the Canadian dollar.”

Statistics Canada and Industry, Science and Technology Canada indicate that at the end of 2012, there were 254 businesses identified as upholstery manufacturers. By June 2020, this had fallen to 153 with less than half declaring they employed more than one person.¹⁷

Canadian upholstery shipments to Canadian retailers were valued at 289.9 million CAD in 2019 – 7.8% down from 2018 and a 40% drop from 2017. Total upholstery shipments by Canadian manufacturers fell for the second consecutive year in 2019 to 560.4 million CAD (– 3.7%) down from 582.2 million CAD (– 29%) in 2018 and 786.4 million CAD in 2017.¹⁸

95% of all Canadian upholstery production goes to the US.¹⁹ Shipments to other trading partners, such as the European Union, the United Kingdom and the Middle East, are minuscule in comparison. As the US falls out of favour with Canadian retailers, there are a handful of other countries moving in to compete with China. The most noteworthy of these are Vietnam, Italy, Poland, Malaysia and Mexico.

On May 5, 2021, Canada added new fees to all upholstery being imported into Canada originating from China and Vietnam. A 150% to 265% duty is added to all upholstery originating in these countries as a response to a group of lobbyists from Canada’s largest furniture manufacturers.

There are 18 upholstery distributors across Canada with the majority being based in Ontario and Quebec. These companies manufacture, wholesale and distribute upholstery for a variety of sectors and should be considered when evaluating the potential to create Canadian wool products for the residential, commercial or transportation industry sectors.²⁰

- A F D Distributors Inc., Manufacturers based in Ontario.
- Belt-Tech Products Inc., Distributors based in Quebec.
- Bilbrough & Co Ltd., Distributors and Wholesalers based in Ontario.
- Brighthouse Upholstering & Mfg Limited, Manufacturers based in British Columbia.
- Canadeco Home Fashions Inc., Distributors, Manufacturers and Wholesalers based in Ontario.
- Design Lines Fine Fabrics Ltd., Distributors based in Ontario.
- ECO Fabrics Inc., Manufacturers based in New Brunswick.

¹⁶ Compiled from Made In Canada <https://madeinca.ca/furniture-industry-canada-statistics/>

¹⁷ Compiled from Home Goods Online: <https://www.homegoodsonline.ca/article.php?Canadian-upholstery-makers-down-but-not-out-7655>

¹⁸ Compiled from Home Goods Online: <https://www.homegoodsonline.ca/article.php?Canadian-upholstery-makers-down-but-not-out-7655>

¹⁹ Compiled from Review Moose: <https://reviewmoose.ca/blog/furniture-industry-statistics/>

²⁰ Compiled from Fraser Directories: <https://www.frasersdirectory.com/category/upholstery-fabrics/>

- Egan-Laing Inc., Distributors based in Québec.
- Equus Fabrics Inc., Distributors and Wholesalers based in Ontario.
- George N. Jackson Limited., Distributors, Manufacturers and Wholesalers based in Manitoba.
- Knoll North America Corporation, Manufacturers based in Ontario.
- N.D.F. Fabrics Ltd., Distributors and Wholesalers based in Ontario.
- Primo International Inc., Manufacturers based in Québec.
- Rosedale Draperies Inc./Tissus Rosedale Inc., Wholesalers based in Québec.
- Sièges PM – Div. de 9062-8694 Québec inc, Distributors and Manufacturers based in Québec.
- Trican Corporation, Distributors and Wholesalers based in Ontario.
- Versatile Upholstery Inc., Manufacturers based in British Columbia.
- Woeller Group, Wholesalers based in Ontario.

MAKING A PLACE FOR CANADIAN WOOL UPHOLSTERY

We propose three ways to establish a presence for Canadian wool upholstery in the Canadian marketplace:

- Differentiating wool from synthetic upholstery especially around harvesting practices.
- Conveying the message that Canada has sufficient raw materials to meet demand.
- Education pieces for the distributor, retailer, seller, and customer

Differentiating between synthetic and wool upholstery

Current upholstery manufacturing relies primarily upon synthetic material. However, there is still room to create a niche subsector with wool upholstery. Canada produces more than a sufficient amount of high-quality wool within its borders to meet demand.

Wool is manually harvested using electric shears, which has almost no negative impact on the environment, particularly when compared to the more industrialized processes used to harvest other natural fibres such as cotton, linen, and milkweed, or the extremely harmful processes required to harvest petrochemical material for synthetic fibres.

The cost of shearing puts a financial strain at the farm gate. However, instead of expecting the shearers and producers to bear this cost, it is possible to redistribute the burden of expense across the supply chain and onto the consumer. This is because consumers are willing to pay a premium for products that are harvested responsibly, and passing on this cost to them can help make wool processing sustainable for the farmers.

If consumers are better informed about the advantages of wool and the low impact of harvesting, they may be more willing to accept the prices associated with wool products. If consumers are made aware of the true cost of production of other fibres they will be in an informed position to make a smart buying decision. By highlighting the benefits of wool upholstery, the entire supply chain, as well as consumers, can recognize and consider the actual cost of synthetic textiles as opposed to wool.

Raising awareness about the benefits and ease of use of wool upholstery could lead to more interest and investment in developing better processing infrastructure for it. If Canada is committed to expanding its manufacturing industry and fulfilling its climate-related commitments, promoting the use of Canadian wool upholstery can serve as a valuable starting point for achieving these goals.

Education is Key to Building and Selling Wool Products

To rebrand Canadian wool and bring it to a commercial scale, significant investment is required. According to the Wool Plan 2021-2026²¹ there are several misconceptions about Canadian wool that need to be addressed.

²¹ Compiled from the Wool Plan 2021-2026: <https://campaignforwool.ca/>

During the late 1980s, the manufacturing sector began to diverge from agricultural and natural fibre industries, resulting in wool virtually disappearing from the upholstery industry. This led to the perception that there was an insufficient amount of wool available domestically, and manufacturers had to rely on wool imports. However, at the same time, Canada was developing the Rideau breed of sheep, which produces high-quality fibre suitable for upholstery and interiors.²² Canada was also experiencing a significant surge in sheep populations at that time. Despite the industry's advocacy for the manufacturing sector, there was no one to champion the cause of wool. This further widened the gap and increased the misunderstanding and myths surrounding Canadian wool. Although there was a general belief that Canadian wool produced superior products, there was no coordinated effort to promote our national fibre and keep it at the forefront of consumers' minds.

Wool nations around the world were drawn to the allure of cheap and easily manufactured synthetic materials, without fully considering the long-term environmental implications of such a shift. Australia is credited with leading the change in bringing wool back into favour in the garment industry. As early as 1963, the International Wool Secretariat, which would later become Australian Wool Innovation, launched their now famous Pure Wool logo, "Woolmark". The two main objectives of the logo were to "position wool at the top of the textile market and to ensure that products bearing the Woolmark label were made from pure new wool and manufactured to the highest standards."²³ The logo went on to be named 'Best Logo of all Time' by Creative Review Magazine in 2011 for its ability to quickly communicate quality to the consumer.²⁴

Although the success of Woolmark may be considered rare, it demonstrates the potential for impactful branding strategies in the textile industry. Canadian manufacturing has an obligation to produce goods that do not further compromise or damage the environment, and Canadian wool has the obligation of educating the supply chain on why we need to re-adopt wool. There needs to be a credible, high-integrity movement formed to address these needs.

EXPORTING CANADIAN UPHOLSTERY

Upholstery surrounds us to such an extent that it can often go unnoticed. It is a unique product that does not exist on its own. Therefore, determining pathways for export is complicated. Most upholstery designs are proprietary designs owned and manufactured by the distributor. There are exceptions to the rule, such as small design studios like Atelier Mary Shaw in Paris whose bespoke upholstery line, Sequana, was acquired by Maison Pierre Frey in 2022.²⁵ But Mary Shaw began from the perspective of a designer, creating her own custom line of upholstery. After almost 30 years of development, it was licensed out to Maison Pierre Frey.

This begs the question surrounding how Canadian wool upholstery could be positioned for export. Our wool could be marketed to foreign distributors for interior decorating, however, the design, price point and performance would need to be clearly established and competitive. This could pose challenges given that Canada has some catch-up to do in terms of infrastructure. Research and development will be costly if manufacturing is happening overseas.

Our proposal suggests that targeting the Canadian wool upholstery industry towards the business jet sector could potentially be a viable strategy. This would be especially advantageous due to the relatively small number of companies that dominate the global market, with only seven holding controlling market

²² Compiled from Canadian Sheep Breeders Association: <https://sheepbreeders.ca/lincoln-rideau-arcott>

²³ Compiled from Wikipedia: <https://en.wikipedia.org/wiki/Woolmark>

²⁴ The Woolmark Logo by Francesco Saroglia (Opinion piece researched by Tony Brooks for Creative Design Magazine): <https://www.creativereview.co.uk/woolmark-francesco-saroglia/>

²⁵ <https://www.irishtimes.com/culture/tv-radio-web/an-irish-fabric-brand-goes-worldwide-1.4797825>

share. As one of the leading companies in this sector, Bombardier Aerospace of Canada could play a significant role in supporting research and development efforts and aiding in the overall penetration of the industry. With around 750 new jets added to the global aircraft inventory each year, in addition to the ageing jets requiring refurbishment or replacement, there is potential for a significant increase in production. Business jets are characterised by specific wingspans, flight ranges, and seat configurations, with the most popular models featuring an average of 18 seats. This translates to approximately 13,500 new business jets requiring seating upholstery annually.

This report gives some attention to supplying upholstery to the Canadian furniture market which already ranks between 9th and 11th in the world for export. But given lack of prototyping in place, it makes more sense to turn our attention to the business aircraft sector.

Looking first at furniture. Commodity code: 9403 - "Other Furniture and Parts Thereof" captures the upholstery subsection of furniture exports not including cotton upholstery. Because there is no wool upholstery export currently happening in Canada it is not possible to have the historical performance of Canadian-manufactured wool upholstery.

For the purposes of this report, a study of furniture exports and "Other Furniture and Parts Thereof" offered some insight. An interview with Statista²⁶ returned very little data on Canadian upholstery and no data whatsoever on wool upholstery. The statistical representative indicated that it is often the case when a manufacturing sector is comprised of small-scale enterprises who only report revenues in their annual reports as opposed to larger manufacturers

²⁶ Interview with Jared Goodman of Statista Q: <https://q.statista.com/>



STATISTICAL SUMMARY

Economic Indicators	2011	2012	2013	2014	2015	% change 2014-15	CAGR 2011-15
Gross Domestic Product	4,098.0	4,111.0	4,359.0	4,489.0	4,624.0	3.0%	3.1%
Shipments	10,062.0	10,040.3	10,593.3	11,049.6	11,620.5	5.2%	3.7%
Total Imports	5,383.0	5,843.5	5,996.6	6,518.3	7,216.8	10.7%	7.6%
Total Exports	3,620.4	3,758.9	3,843.1	4,356.6	5,348.0	22.8%	10.2%
Re-Exports	284.6	310.3	314.9	370.9	532.8	43.7%	17.0%
Apparent Domestic Market	11,825.5	12,125.0	12,746.7	13,211.3	13,489.3	2.1%	3.3%
Domestic Market Share	54.5%	51.8%	53.0%	50.7%	46.5%	-4.2%	-2.0%
Trade Balance	-1,762.6	-2,084.6	-2,153.4	-2,161.6	-1,868.8	13.5%	-1.5%
Import Penetration	45.5%	48.2%	47.0%	49.3%	53.5%	4.2%	2.0%
Export Orientation	36.0%	37.4%	36.3%	39.4%	46.0%	6.6%	2.5%
Manufacturing Intensity Ratio	40.7%	40.9%	41.1%	40.6%	39.8%	-0.8%	-0.2%
Capital Expenditures	107.3	101.4	102.6	78.0	89.0	14.1%	-4.6%
R&D	38.0	30.0	22.0	23.0	22.0	-4.3%	-12.8%
Employment	66.0	65.0	65.0	63.3	63.9	0.9%	-0.8%
Labour Productivity	62.1	63.2	67.1	70.9	72.3	2.0%	3.9%
Establishments*	4,144	3,934	4,095	3,907	3,832	N/A	N/A

<https://ised-isde.canada.ca/site/consumer-products/en/industry-profiles/furniture#fn1>

Definitions:

Apparent Domestic Market (ADM) = Shipments + Imports – Exports

Manufacturing Intensity Ratio = Gross Domestic Product (GDP) / Shipment

Import Penetration = Imports / ADM

Export Orientation = Exports / Shipments

Domestic Market Share = (Shipments – Exports) / ADM

Labour Productivity = GDP / Employment (thousands of CDN \$)

*Establishment data does not include “indeterminate” establishments

who share export data for government statistics.

Top export destinations of “Other furniture and parts thereof” from Canada in 2021:

- USA with a share of 97% (2.66 billion US)
- Qatar - 12.3 million US
- United Kingdom - 6.98 million US

- Colombia - 5.9 million US
- Netherlands - 4.15 million US
- Australia - 2.9 million US
- Bermuda - 2.3 million US
- Peru - 2.05 million US
- Mexico - 1.99 million US
- Saudi Arabia - 1.97 million US

To effectively promote wool upholstery exports, a suitable approach would be to partner with Canadian furniture manufacturers who already export their products.

STANDARDS: KEY FOR OPENING THE PATH TO MARKET

Standards assist with many functions and within various departments of an organization to help them work together to reach new and international markets. Adhering to international regulations can significantly reduce the time and administrative efforts involved in exporting products.

One way to easily distribute Canadian wool upholstery products internationally is by complying with international product and process standards. Obtaining a standards certification for a wool product can eliminate the barriers involved in introducing it to a foreign market or industry.

Product Standards are specifications and criteria for the characteristics of products. Process Standards are criteria for the way the products are made. Social and environmental standards in agriculture are similar to Process Standards that also set the criteria for sustainable and responsible production practices.²⁷

TRANSPORTATION INDUSTRY OPPORTUNITIES AND OUTLOOK

The transportation industry presents an array of opportunities for Canadian wool upholstery. Luxury cars and yachts, commercial trains, buses, and aircraft, military, medical, search and rescue, leisure and shipping vehicles all require upholstery.

This report responds to opportunities in the business jet sector due to its manageable size and scope. However, any organization looking to break into the wool upholstery market could set their sights on a variety of subsectors of the transportation industry.

The business aircraft market was selected for several reasons:

- Between 700 and 800 business jets enter the world aircraft inventory annually. A 1% Canadian wool upholstery stake of the business jet market upholstery market would translate to 7-8 aircraft with seating covered in Canadian wool per year. Upholstery demand is aligned with Canadian wool industry output.
- The industry is small with under 10 influential manufacturers dominating the sector.
- Specs for aircraft upholstery are highly standardized, with little variability in size and configuration compared with other upholstery markets. Specs are well documented making further prototyping and feasibility straightforward.
- End users in the business jet sector are typically private or corporate users with greater discretionary spending, as opposed to government or military where there are greater spending constraints.
- Canada is a leader in the aircraft supply industry with Bombardier occupying about 28% market share of business jets and Pratt and Whitney an important supplier of jet engines.
- Export opportunities exist with foreign business aircraft manufacturers.

²⁷ Compiled from SAI Global Standards Legislation: https://infostore.saiglobal.com/en-us/key_standards/#import_and_export

Business aircraft refurbishment market

Aircraft refurbishment is a popular alternative to new aircraft acquisition. The global refurbishment market was valued at US\$456.7 million in 2021 and is projected to increase to US\$932.5 million by 2031 with the Asia-Pacific region being the primary growth region.

Cost to Refurbish Jet Seats

The actual cost to refurbish a business jet seat varies based size and type of aircraft, size and type of seat, amount of customization, cost of materials, sewing patterns, and reshaping.

Corporate Aircraft Seat Pricing Guide 2023

	Replace Covering	Replace Foam	Complete redesign
9G/16G Seat*	\$5,000-\$15,000	\$3,500-8,500	\$10,000-\$60,000**
Divan	\$12,000-\$26,000	\$3,000-\$6,000	Varies

* Aircraft manufactured after October 2009 are required to have 16G seats, as mandated by the FAA.

**Seat redesign includes upholstery, foam, and designer's fees.

Aircraft Seat Models

Business jet aircraft will have either a 9G or 16G seat. The G refers to the amount of G-force (gravity) that the seats can withstand. It may also have a divan. Options for refurbishing aircraft seats will vary depending on the kind of seat.

The 9G Seat Frame

There is greater flexibility with design changes to a 9G seat than with a 16G seat. With a 9G seat, different upholstery and foam densities are possible. You can choose different upholstery materials and foam densities than what was originally on the seat. Additionally, the seat can be stripped down to the frame and rebuilt with a different design. A few stipulations, such as maintaining aisle clearance, may apply.

The 16G Seat Frame

16G seats can usually only be rebuilt in the style in which they were originally certified. Slight changes to upholstery to give older seats a more streamlined, updated appearance might be possible.

Aircraft with 16G seats

Gulfstream	Bombardier	Cesna	Dessault	Hawker	Embraer	Lear
G100, G150	Challenger CL-300 Continental	Mustang Model 510	2000/2000EX	4000	135BJ	40, 45, 70, 75, 85
G200, G280, G450, G550, G650	Global Express	Citation Excel/XLS, Model 560	7X		145BJ	
Gulfstream V	Global 5000	Citation C Model 750				
GVI		Citation Columbus Model 850				

PART 6 – FINANCIAL CONSIDERATIONS

ASSUMPTIONS

Headcount	Average lbs/ head	Contamination % skirted off before baling	Wool Bag \$/ unit	Wool lbs/ Tote	Shearing \$/ head	Wool \$/ lb	Estimated Yield of Clean Wool after scouring
500	7 lbs	2%	\$8.00	350 lbs	\$5.00	\$2.00	68%

WOOL HAVESTING

Gross Fleece Weight	Net Fleece Weight (lbs)	Clean Weight (lbs)	Shearing Cost Total	Wool Bag Cost Total	Total Producer Harvest Cost	Total Producer Revenue	Profit on Wool
3,500	3,430	2,332	\$2,500	\$76.80	\$2,756.80	\$4,664.00	\$2,087.20

WOOL INTO EARLY STAGE PROCESSING

WOOL INTO NEXT STAGE PROCESSING

SCOURING				CARDING, SPINNING, DYEING			
Scouring/lb	Yield	Clean Weight (lbs)	Scouring \$	Carding & Spinning/ lb	Yield	Spun Weight (lbs)	Spinning \$
\$1.25	68%	2,332	\$2,915.00	\$16.00	15%	1713.6	\$31,715.20

WOOL INTO WOVEN TEXTILE

WEAVING AND FINISHING

Meters of yarn to be woven	Yield	Available Meters after Yield	Weaving \$/ meter	Weaving Total
205.6	10%	185.04	\$43.00	\$7,956.72

SUMMARY	
Wool Cost	\$4,664.00
Scouring	\$2,915.00
Spinning	\$31,715.20
Weaving	\$7,956.72
Total Manufacturing	\$47,250.92
Total Meters	185
Mfg Total Cost / Meter	\$255.41

MARKETING AND DISTRIBUTION						
COST TO MARKET						
Cost/ meter	Marketing	Admin	Distribution 15%	Social Giveback 15%	Total Cost / Meter	Total Revenue
\$255.41	\$2.00	\$38.91	\$38.91	\$38.91	\$337.23	\$63,387.55

PART 7 - ANNEX

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- Lance Mitchell, Mitchell Interflex
- Leah Little, Briggs and Little Woolen Mill
- Martin Curtis, (Former) Curtis Wool Direct
- Peter-Guy L’Amie, Lawton Yarn
- Serge Lemieux, Filature Lemieux

To the IWTO community who have opened the world to Canadian Wool and given us confidence in our own valuable commodity:

- Dalena White, Secretary General
- Executive Committee Members
- Member Nations
- The Wool Interiors Working Group

Canadian Agencies and Associations Relating to Textile Industry Opportunities

Furniture

- The Canadian Home Furnishings Alliance (CHFA)
- The Canadian Textile Industries Association (CTIA)
- The Institute of Textile Science
- The Quebec Furniture Manufacturers Association (QFMA)

Standards or the consumer product industry

- Canada Consumer Product Safety Act (CCPSA)
- Canadian General Standards Board
- CSA Group
- International Organization for Standardization
- Standards Council of Canada
- Standards Council of Canada



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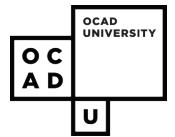
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