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Cover Story

## Still in Our Fiber: S.C. Wool Facility Shows Textile Industry's Persistence

By Eva Moore Mar 22, 2017



Scoured wool runs through a carding machine at the Chargeurs Wool USA plant in Jamestown.

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Trevor Goodwin of Andrews, South Carolina, is using an overhead hook on a motorized track to pick up bulging cloth packages and maneuver them into position. He cuts and tears open the packages, which are full of raw wool — fleeces shorn from sheep in the Western U.S. In its raw state, the wool is speckled with twigs and dirt and drenched with lanolin, the natural oily wax that sheep produce to protect and waterproof their wool.

In fact, the entire massive warehouse smells of lanolin — an earthy, comforting, animal smell, like putting your face in the fur of your favorite dog.

Goodwin's job is one of the first steps in processing raw wool — greasy wool, as they call it here — into the gleaming white combed wool, called “wool top,” that is the Chargeurs Wool USA factory's main product. Wool top is used by spinning mills to spin worsted yarn, which can then be knitted or woven into various fabrics.

This huge factory in Jamestown — a tiny town in Berkeley County, an hour from Charleston and two hours from Columbia — processes up to 50 percent of the roughly 26 million pounds of wool shorn from U.S. sheep in any given year. And it's the only wool top-making facility in the country.

It's a throwback in some ways: a reminder of when textile manufacturing was king in South Carolina and mills dotted the state, before the industry moved overseas. This isn't a shiny, modern, highly technical plant off an interstate like Boeing's in North Charleston or BMW's in Greer. Woolly lint clings to every machine and beam. The machines are decades old. The factory is off the beaten path.

The plant is part of the future, too, in that Chargeurs is successful because it's the second step in a U.S. supply chain. Whether it's high performance wool socks for golfing, or dress uniforms for the U.S. Navy, many of the customers who are buying this wool are using it because it's from American sheep, processed and spun in America.

With President Donald Trump talking about bringing back American manufacturing, some companies are looking for ways to curb or end their foreign manufacturing operations.

But some of them have never gone away.

"More and more, customers are interested in everything to be made in America," says Diego Paullier, Chargeurs Wool USA's managing director and president. "American wool — they can give that a value, an additional value."



Diego Paullier, managing director and president of Chargeurs Wool USA, shows some of the raw greasy wool that his company buys from farmers.

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## The Product

Chargeurs Wool USA is a subsidiary of a French company, Chargeurs, which has factories in several countries and also makes other fabrics like self-adhesive protective films and clothing linings. Public records show Chargeurs did \$545 million in worldwide sales in 2015; it's unclear how much of that was in wool.

Paullier began working for Chargeurs in Uruguay more than 30 years ago, and moved to South Carolina 13 years ago.

Wool is an old-school fiber — but it's used these days in technical clothing, like outdoor and military gear. It absorbs liquid without feeling damp or losing its insulatory value, which means it wicks sweat and keeps people warm in tough conditions. It's also antimicrobial, so it doesn't have to be washed as often.



Partially processed wool is moved around the factory on huge bobbins.

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And what's in particularly high demand when it comes to performance fibers is very fine wool. The diameter of a wool fiber is measured in microns — the finer the diameter, the finer the yarn spun from that wool can be, and the lighter the eventual garment. Chargeurs handles coarser wool, too — as coarse as carpet fiber.

A few years ago, Chargeurs also began doing superwashing — a chemical treatment process that makes wool less likely to shrink or felt (when wool fibers get matted together), so garments made from it can be machine washed. About 30 percent of the wool top that comes off Chargeur's production line goes through the superwash process. The process — introduced at Chargeurs with the help of a venture company and the American Sheep Industry Association — is important enough that one military leader wrote in an Army newsletter that the Chargeurs superwash line had "revitalized wool manufacturing in this country."

The company sells the combed top to spinning companies, most of them based in the Southeast, where the wool top is spun into yarn, sometimes in combination with other fibers. That yarn then makes its way into everything from socks to sweaters to high-end

long underwear.

In particular, it makes its way into military clothing. One wool industry expert wrote in an industry journal that the military will be buying 60 different items made from wool in 2017, from Army berets to Navy pea coats — 50,000 this year alone — to Air Force dress uniforms. The wool that goes into many of those items will most likely be scoured and combed at Chargeurs.

It's not a big industry — wool makes up maybe 2 percent of the fiber market worldwide, says Paullier— but Paullier says the U.S. industry is doing OK. Federal data shows U.S. wool production has been stable over the past five years, though it dropped in the decade before that.

“People like the story, American wool is good, and they feel as long as you have a good product, fair price and good service, they are very happy to work with us,” he says. “It's a lot easier instead of trying to bring tops from China. We are close to them, we have very good service, we can ship wool every day, next day, same day. We are four, six, eight hours by truck.

“Wool products are going to be of course a higher price than any other,” he adds. “It takes one year to have a fleece on a sheep, to get 7 or 8 pounds of wool.”

## The Industry

Textiles used to reign in South Carolina.

In the late 1800s, after the Civil War, textile manufacturers — mostly cotton — began opening factories in the South, including in the Palmetto State, seeking cheap labor.

The labor was indeed cheap, and it was young. In the 1900 U.S. Census, per the South Carolina Encyclopedia, 30 percent of South Carolina mill hands were between the ages of 10 and 16. That changed over the decades with the expansion of child-labor laws, but the industry in the South remained strong.



Sara Shaw of Alvin (left) and Ora Wallace of St. Stephen (right) work in the superwashing area, chemically treating wool to make it machine washable.

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U.S. textiles began to wane in the 1970s as companies moved their manufacturing overseas, where labor was cheaper.

Today, countless South Carolina towns feature an empty brick cotton mill. In Columbia, former mills like Olympia, Granby and Whaley now house college students, and a former cotton duck mill now houses the State Museum.

But U.S. textiles aren't dead. The industry is just different.

For one thing, it's become specialized, dealing in fancier fibers and products — think body armor, “smart” fabrics and, actually, wool.

The federal Berry Amendment helps, too: It requires the Department of Defense to buy mostly American-sourced and -produced items. It's intended to protect the military's supply chain in case of war — but it's also good for U.S. industries like textiles.

Also, like many other manufacturing sectors these days, textile manufacturing doesn't need all that much labor.

Walking around the Chargeurs plant, there are many times where you can't see a single worker except for the occasional passing forklift driver.

Gone are the days when a large textile mill might employ hundreds — in 1955, when it opened, Chargeurs employed 170 workers.

Only about 60 employees work at Chargeurs now, spread out over three eight-hour shifts. The plant runs 24 hours a day, Monday through Friday.

The average textile job in South Carolina pays about \$35,000 a year, according to a study from the South Carolina Manufacturing Alliance.

Paullier says most of the people working at Chargeurs have a high school education. They learn the specialized work they do at Chargeurs, and they stay.

"There is not any other place where you can get experience, so they have to learn from scratch. We have people that have been working here for many years. They are skilled people. Manufacturing jobs pay more than other jobs, so we have a very stable workforce. ... People stay here for many, many years."

Most of the people working there live within 20 miles of the plant, he says.

And why are these jobs here rather than in, say, China?

In 2013, *The New York Times* visited a cotton mill in Gaffney and explained the South's textile resurgence: "Transportation costs are a fraction of what they are overseas. Turnaround time is quicker. Most striking, labor costs — the reason all these companies fled in the first place — aren't that much higher than overseas because the factories that survived the outsourcing wave have largely turned to automation and are employing far fewer workers."

Today, the U.S textile industry employs about 579,000 people nationwide, per the National Council of Textile Organizations. That includes 67,800 jobs in wool growing and associated industry, compared with 116,300 in cotton farming and 25,600 in synthetic fibers. It also includes 116,400 jobs in textile mills.

Chargeurs Wool USA never moved away; it's been here all along, though with ups and downs.

That's partly because it serves a niche market, and partly because it's adapted.

Take exports, for example: The Berkeley County plant is an hour from the Port of Charleston. That used to be key, says Paullier, because the company used to export a lot of combed wool top to Europe. Lately, most of the wool top it sells stays in the U.S., because it can't compete on the international market with low labor-cost countries.

But according to Mark Ferguson, department chair for the management science department at the University of South Carolina, the cheaper cost of automation these days means American manufacturing is starting to be competitive again.

And manufacturing is coming back to the U.S.

"It was happening before Trump," Ferguson says. "I think it's happening more than most people probably realize. The reason that's going under-noticed is the manufacturing that's coming back is not requiring the number of jobs or providing the number of jobs that we historically associate with it.

"That's happening around the world. It's not just a U.S. phenomenon. Any type of activity that is repetitive, it's open to being automated."

Still, don't expect a wholesale return of the South Carolina textile industry, Ferguson says.

“We’re probably not going to see the manufacturing of white T-shirts come back — something that the styles don’t change and you can afford the long lead times; but for items where lead times are important and where fashion changes quickly, or the higher priced items, or where there might be logistics savings more significant than the labor.”

## The Process

In the wool prep area, Goodwin feeds wool into the mouth of a large machine.

“He has to follow a recipe — you know, it’s like making a cake,” says Paullier. “You have different components — the sugar, the flour. Here it’s a little bit like that. We blend wools from different states. All wools have a little bit of a difference. One’s longer, one’s whiter.”



Trevor Goodwin opens packages of raw fleeces in the wool prep area.

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Paullier grabs two ends of a lock of wool and pulls sharply, producing a snapping sound.

“You can have wool that it’s weak because the sheep went through tough conditions, it can break. This is strong.”

Next, the raw wool is tumbled and tossed together in a machine.

This is also the first step in removing the massive amounts of dirt and vegetable matter — called VM in the industry — that sheep accumulate through the business of being sheep. There’s dirt everywhere, being shaken out of the fleeces and removed from the machine on conveyor belts.

The wool is then fed automatically into what's essentially an enormous washer. The scouring machine is at least 100 feet long and high as a house. Ominous plumes of steam shoot up all over.

The scouring machine is so huge that it only runs for eight hours at a time before being shut down for four hours to allow the rest of the production line to catch up.

"We have overcapacity of scouring production," Paullier says. "In between we do a lot of maintenance, cleaning."

Chargeurs saves the lanolin it removes from the fleeces during the washing process. It's valuable, making its way into cosmetics and more — and it also makes it easier to clean the wastewater if it's not full of grease.

The chief reason the Chargeurs plant sits on 550 acres of land in a mostly rural area is that it has its own wastewater facility for cleaning the masses of dirty water it creates — and wastewater treatment requires lots of space.

The scouring is a large-scale process, but a gentle one, given that wool that gets overheated or agitated too much will felt up and lose its stretch.

After scouring, the wool is dried, then fed through overhead pipes to a series of machines — called carding machines, pin drafters and combs — that brush and straighten the wool. The carding and combing remove still more vegetable matter, neps (little blobs of wool, also called entanglements) and noils (pieces of short fiber).

The combing also makes all the fibers lay parallel to each other. That's what makes it wool top rather than just carded wool: It's smooth, ready to be spun into plied yarn.

In a lab next to the production area, Norma Morris, a Jamestown resident, analyzes samples of the combed wool for quality control.

She'll take a sample of wool, stretch it out in front of a light, and carefully pick out any vegetable matter, neps and other things.

"I pull them out, put them on tape," she explains. "We have a spec sheet we have to go by for different types of product."



Norma Morris checks combed wool for vegetable matter and imperfections.

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Meanwhile, the cleaned, dried, carded and combed wool is coiled up into what's called a bump. It weighs about 100 pounds, and looks like an enormous ball of fat string.

Fleeces that may have started out weighing eight pounds each, once they've been washed and stripped of dirt and VM, end up weighing more like four pounds each. So each bump is made up of about 25 fleeces.

The bumps are baled up into groups of 12 and shipped to the customer. Chargeurs occasionally imports or exports something, but most of what it sells is to nearby textile mills.

## The Customer

One of the places Chargeurs ships its wool top is just a few hours up the road.

Kentwool was founded in 1843 in Philadelphia — and it's now based in Greenville, where it employs fewer than 100 people. The company owner's, Mark Kent, is the fifth generation of Kents to own the company.

Kentwool takes wool top, combines it with nylon, and spins it into fine yarn. The yarn is then sent to other U.S. companies that knit it into socks. While it has several divisions, Kentwool specializes in performance golf socks — the kind you can buy at high-end pro shops.

Keith Horn, president of Kentwool, says the company succeeds because it's not competing directly against overseas production — it's a different kind of product.