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### **Diamond Fiber; a Case Study of Today's Mohair Farmer**

It is a lovely, mid-autumn Friday in Millerstown, Pennsylvania, in northeastern USA. Glen Cauffman turned his mobile off. He is calm as usual although he knows he has a busy day ahead of him. Indeed, for Cauffman, Mid-Atlantic Master Farmer 2013, today is a special day. Standing on his 190 acres farm, Cauffman, Dr. Judith Shoemaker (veterinarian), Christina Carl (herd manager) and Carl Geisinger (shearer) are preparing for "shearing day". For many in the textile and apparel industry, this is thought to be the first step of the supply chain. But for Cauffman the whole process begins much earlier. In order to produce his sustainable, high quality luxurious diamond fiber, the process starts with sun, water, earth and superior angora goats. Cauffman knows this well since he was born into a farming family. In addition to his distinction as Mid-Atlantic Master Farmer 2013, he was affiliated with The Pennsylvania State University for more than 25 years as Director of Farm Operations. For Cauffman, sustainability and Made in the USA are key components in the quality of his fiber. According to him, it is becoming more and more obvious that people are seeking these types of products. Slow fashion is here and it is here to stay. Sustainability and maintaining the highest quality involve starting with the land on which the goats live and graze, their diet, symbiosis with other animals on the farm, and their daily care.

Cauffman's business model focuses not solely on profit, but on building a sustainable and socially responsible business in every regard. As a steward of the land, Cauffman actively works to reduce his carbon footprint. Immediately prior to turning off his phone, he declined to sell a large volume of his diamond fiber to a foreign manufacturer. Mohair is in high demand globally. Indeed he stated, "How can you be proud of this Made in the USA (concept) if you have (the fiber) traveling around the world?" Cauffman is known for very high quality fine mohair that comes from his two hundred angora goats. The challenge Cauffman is now facing is how to explain all of this to the next generation of supply chain members (farmers, designers, manufacturers, marketing personnel, etc.). How does one transfer the knowledge, maintain the traditions, develop pride in the Made in the USA brand? How do you engage and educate people regarding luxury fibers? On this mid-autumn day, Cauffman takes the lead and teaches a group of textile and fashion students the entire process necessary to produce mohair, the diamond fiber.

“Know your fashion; know where it comes from”, Cauffman, 2013

The supply chain from day one.

For many (Yan and She, 2008; Fletcher and Grose, 2012) as for Cauffman the entire fiber/ textile/ apparel supply chain needs to be sustainable with each member of the chain sharing this responsibility (Joyet *al.*, 2012; Towers, Perry and Chen, 2012; Swenson Dunlap, 2013). Thus, for Cauffman it begins with the land. Pennsylvania’s climate and topography create a perfect environment for angora goats. Angora goats originate from Ankara, Turkey but today South Africa and Texas produce most of the world’s supply of mohair. However, Cauffman believes the conditions in Pennsylvania are equally favorable for raising angora goats (and perhaps even better with the five years of recent drought in Texas). In addition to the natural characteristics of the land, he has introduced innovative pasture management practices (Vogel, American Agriculturist, April 18, 2013), to deliver high quality fiber.

Cauffman’s angora goat herd live on his 190 acres and “enjoy” the peaceful environment. They are free to roam inside large pastures. The herd is moved to new pasture land every two weeks, allowing the plants time to regenerate. The land on which they live is organically rich. Cauffman introduced next-level pasture management to boost his herd’s nutrition and natural resistance to parasites (Vogel, 2013). According to Shoemaker, unlike humans, angora goats tend to know what is good for them and favor a high protein diverse diet. Cauffman seeded the fields with: Kura Clover, Birdsfoot Trefoil, Sainfoin, Cup Plant, Sunn Hemp and Serecia Lespedeza, to supplement the native plants, native grass and Black Walnuts trees as part of the diversity of living feed. Providing the angora goats the opportunity to live without stress and eat living food are the basis for quality fleece and yarn added Cauffman. As the animals live in a natural environment, obstacles are present including predators and parasites. For example, in one pasture Cauffman constructed a bridge across a creek, as goats do not like to get their feet wet. Truly, goats are very fragile and standing in water can lead to hoof rot. Therefore they avoid water and humidity, favoring dry earth. Although goats are not bothered by the heat, cold or wind, they prefer to stay out of the rain. To this end, Cauffman built a portable shelter which can be easily relocated from one pasture to another. To counter parasites, Cauffman’s farm includes chickens and peacocks. Peacocks and chickens eat the equivalent of their own weight in parasites in no time. This prevents treating the animals with chemicals to eliminate or avoid parasites. Goats without parasites provide fine, strong hair (Shoemaker). It is also important to state that due to the natural, organic balance Cauffman has achieved on his farm, no fertilizer of any kind is used. Living in these non-tillable pastures 24/7, the goats eat and deposit back to nature; one more step in the natural ecosystem.

As for predators, although not a member per se of the predator-friendly fibers (Predator Friendly®, 1991), Cauffman is a true believer that wild life should co-exist. However, to protect his herd from coyotes and other predators, which cause stress to the goats, Cauffman opted for guardian dogs. His herd is watched over by Great Pyrenees and Maremma Sheepdogs. The dogs live 24/7 with their herd.

This balanced, natural diet and low-stress environment lead to strong, fine mohair. The hair grows approximately one inch per month. Since most carding and spinning equipment can't handle fiber longer than six inches, angora goats need to be sheared twice a year (sheep, by comparison, are sheared once each year). Twice a year the goats are gathered together in a small area close to the shearing shed. One by one they are brought in to be sheared. None of them is tied up during the shearing process. The shearer holds the goat with one hand, while shearing it with the other. Everything moves smoothly. Once the goat is "naked" it is set free from the other side of the shed where it will rejoin the herd. No blood, no force, no harm; shearing is done in a very humane manner.

As part of the shearing process, the fleece of each angora goat is carefully placed into a specific paper bag, identified with the goat's individual number. For each goat sheared, a hair sample is taken for analysis (diameter, microns, strength, curl, elasticity, etc.). This analysis is used to identify the best breeding opportunities, to select for the most luxurious fiber. The fleece is left in open bags for a period of time to dry, then "skirted" by hand to remove dirt and animal excrement. Once this is completed, the fleece will be sent to the next partner in the supply chain, the spinning mill, located in the area. Cauffman chooses to work with local partners who respect their workers, give back to their communities, while limiting the carbon footprint. The spinner may be creating yarn in the natural mohair color range (pure white to various greys and beiges) or may be dyeing the fiber. Mohair takes dye exceptionally well (Gabriel, 2012). At present in the USA, natural colors are very popular, in rich earth tones and in the range created by natural dyes (Swenson Dunlap, 2013). Natural dyes may be inconsistent, but incredibly beautiful (Natarajan, 2013).

Following the supply chain further, Cauffman prefers to know who uses his fiber and for what purpose. His sense of social responsibility and sustainability to produce luxury fibers, extends beyond his part of the supply chain. Since he is a true believer of Fair Trade (Fair Trade USA, partner of Fair Trade International, <http://www.fairtrade.net/>) and Made in the USA (Miller, 2013) he invests time following the process to be certain it dovetails with his sustainable "Diamond Fiber". Definitely, Cauffman is very selective when it comes to his partners in the supply chain. He mentions that certain famous American designers / brands want to know the story of the land, the soil, the animals, in addition to the fibers even if their part is to design and produce fashion apparel. "Know your fashion, know where it comes from".