

LLAMA WEAR = GREEN CLOTHING

In today's marketplace, more and more consumers are placing an increased emphasis on purchasing products and services having the lowest possible environmental impact. The words "green" and "sustainable" are used with increasing frequency to characterize products and services that have low environmental impact and resource consumption. When clothing products are evaluated on this basis, their level of environmental impact is surprisingly high. Research indicates clothing can be responsible for as much as 25% of single person emissions (varies with the individual and the climate they live in) when considering all aspects of a garment's lifespan from fiber production, manufacture, distribution, and cleaning, to ultimate disposal. Concerned, conscientious consumers are recognizing that the current "disposable clothing" economy is very consumptive and not sustainable. They are opting for higher quality garments that reduce resource consumption to the greatest degree possible through every phase of clothing production and wear.

The green/sustainable qualities of clothing are evaluated on standards of:

- **Production** ([more detail](#))

Llama fiber is an all-natural, biodegradable fiber produced by llamas raised in their native environment, the Andes Mountains of South America. The fiber is hand-shorn annually by native growers, processed chemical free, and spun and woven into yarns and fabrics that are sewn into garments by local mills. This continues a centuries-old industry that allows the natives to enjoy a greater level of stability by selling into today's world economy.

- **Maintenance and Longevity** ([more detail](#))

Llama fiber is very strong and easy to clean. It is washable and air dries quickly. The fiber generates little static electricity and is naturally clean minimizing the frequency of washing. It is naturally stain resistant and naturally antimicrobial. The fabric is very durable and resilient and doesn't mat or pill.

- **Comfort and Appearance** ([more detail](#))

Llama fiber has a fine diameter and low scale which give fabrics a naturally soft hand and luxurious feel and they move silently. The llamas produce fiber in an array of natural colors that are rich looking, all-natural, and won't fade. Basic neutral colors incorporated with traditional designs give garments a long fashion life and they coordinate well.

- **Performance** ([more detail](#))

Llama fiber is hollow and provides superior insulation over synthetics and wool. Insulating capacity, coupled with its natural moisture regulation, produces a much wider comfort range (+/-50 degrees) than other fabrics. The fabric sheds moisture, is warm when wet, and dries quickly. It is wind-resistant, quiet-wearing, and is flame retardant and self-extinguishing.

Altiplano Insulation is producing a line of outerwear from llama fiber that is remarkable in its green/sustainable qualities and low environmental impact. When evaluated on the standards for green /sustainable qualities it receives an impressively high score.

PRODUCTION

Llama fiber is an **all-natural, renewable** product. It is **shorn annually** from the llama, a native of the altiplano (high plain, 10,000'-14,000') region of the Andes Mountains of South America. The llama is a domestic camelid species, raised for centuries by the native Quechua peoples for food, fiber, and transportation. At present llama **fiber is underutilized** and contributes primarily to a **subsistent native economy**. Llamas and alpacas are the only domestic species well-adapted to, and compatible with, the **harsh yet fragile altiplano** environment.

Green/Sustainable Advantage of Llama Fiber

- Llama fiber is sustainable because it is produced as a **by-product of a natural environment** and is harvested with minimal damage to that environment and the llamas that produce it. There is no petroleum consumed as a fiber substrate or energy input in its production.
- The fiber is hand-shorn annually by native growers, processed chemical free, and spun and woven into yarns and fabrics that are sewn into garments by local mills. Only finished product that is exported requires significant transportation.
- A natural product, llama fiber is **biodegradable**, eliminating the ultimate disposal problem common to any synthetic fabric whether derived from recycled sources or directly from petroleum.
- Because llama fiber does not require chemicals in processing or production, the industrial impact on the environment is minimal and assures sustainability.
- Llama fiber is **organically produced**. The animals are indigenous to the altiplano and browse native plants with great efficiency. Because they are a natural part of the ecology of the region, llamas have a **healing effect** on the land which is in need of restoration after centuries of exploitation by colonial species.
- The Quechua culture (the Incas are probably the most notable ethnicity) was highly developed prior to the Spanish conquest of the Andean region. The llama played a prominent role in the region's pre-conquest culture and economy. Colonization displaced these people, their culture, and their economy and they remain **marginalized** today. Establishment of a market for llama fiber and the textile/clothing production associated with it offers an opportunity for these people to **reinststate a part of their native culture in a manner that is compatible with their environment and allows their participation in a viable, sustainable economy**.

MAINTENANCE & LONGEVITY

The **maintenance requirements** of llama fiber garments are **quite low**. The fabric **generates little static electricity**. Thus, it is **naturally clean** and doesn't require frequent washing. It is **naturally stain resistant and naturally antimicrobial** so it doesn't hold odors. The fabric is very durable and resilient, it **doesn't mat or pill**, and is **washable**.

Green/Sustainable Advantage of Llama Fiber

- Being washable, the need for **dry cleaning is eliminated** as well as the harmful chemicals that process employs.

-The fabric's natural cleanliness **requires infrequent laundering using cold water**. The garments are quickly dried simply by laying flat. This significantly reduces the water and energy consumption that are part of the washing and drying processes for other fibers, especially cotton. This quality is particularly important as approximately 1/3 of energy consumption/emissions attributed to clothing occurs in washing and drying.

-**The fiber performs at an optimal level for the life of the garment**. The fabric's performance is a result of the natural properties of the fiber and is **not dependent on chemical treatments or coatings**. The coatings and treatments common to enhanced fibers (synthetic or natural) can wear off and compromise a garment's function or weaken the fiber and shorten its life.

-The fabric is quite **resilient and maintains its good looks** for the lifetime of the garment. Because the **fabric will not mat or pill**, its appearance remains unchanged with wear, time, and cleaning. This eliminates premature retirement of a serviceable garment solely because of surface appearance.

-Altiplano garments **endure fashion trends**. We employ traditional designs and **natural colors** that are neutral and won't fade and will span fashion trends, limiting garment dating.

COMFORT & APPEARANCE

Comfort and appearance are paramount in producing green clothing. No matter how environmentally friendly or high performance a garment is, if it's not comfortable and good looking, it won't be worn. The result is that resources invested in producing that clothing are wasted. Our llama outerwear is noted for its comfort and good looks. Dehaired llama fiber has a **fine diameter** and **low scale** which give it a naturally **soft hand** and a luxurious feel. The llama produces fiber in an array of **rich colors** that impart a natural luster unmatched in synthetic textiles. Our **designs are traditional**, functional, and time-tested for comfort. We use the **natural colors** (we do use an overdye on our true black fabric) of the llama's fleece to produce basic, neutral colored fabric. These neutral colors endure fashion trends and coordinate well with colorful accessories.

Green/Sustainable Advantage of Llama Fiber

-Llama fiber has a **natural softness and low scratch**. These qualities eliminate the need for the "super washing" process associated with Merino sheep's wool. This process of treating with chemical agents is required to reduce the itch and shrink common to wool fabrics because of their more prominent scale.

- Llama clothing is **naturally hypoallergenic**. It is a dry fiber and contains no lanolin so it doesn't have to be subjected to the heavy scouring that sheep's wool requires. Lanolin itself and the required scouring agents can both contribute to wool allergies.

-Because llama fiber provides **superior insulation and moisture regulation**, the weight and encumbrance of extra layering garments and the clamminess associated with synthetics is eliminated. Not adding, shedding, or carrying layering garments as air temperature fluctuates also saves time and space.

- The llama's natural fiber color maintains its rich luster for the life of the garment and **eliminates the dyeing process** and the dyeing agents it employs
- A comfortable garment is worn preferentially resulting in protracted use until the piece is worn out thus **reducing the number of garments purchased** over time. The comfort and resilience of these pieces assures they won't be discarded prematurely for the sake of change or diminished appearance.

PERFORMANCE

Customers consistently mention the performance characteristics they've experienced while wearing our products. There are a number of qualities that contribute to llama fiber's **superior performance**.

Llama fiber is **hollow** and provides **superior insulation** on a warmth/weight comparison with other fibers, especially synthetics. A jacket of llama fabric will provide a comfort range of 50+ degrees while a comparable layer of synthetic will provide a 15-20 degree range. Llama fiber's remarkable ability to **self-regulate body moisture (often referred to as breathing and wicking)** allows this wide insulation range without overheating or perspiring. The hydrophobic qualities of petroleum-derived synthetics trap perspiration next to the skin. This fact, coupled with synthetics' low insulating capacity, produce a much narrower comfort range in which the wearer is both comfortably warm and perspiration free

Llama garments can be comfortably worn in snowy, damp, or blustery conditions. The fabric is not waterproof, but **sheds moisture** well, is **warm when wet**, and **dries quickly**. Because of its ability to regulate body moisture, it keeps the wearer drier than many waterproof fabrics that cause internal saturation from perspiration. Though the fabric is not wind proof, it does provide a **high degree of wind resistance**. Being an animal fiber, llama fiber is **flame retardant and self-extinguishing**. The fiber may singe, but won't melt, ignite, or support a flame.

Green/Sustainable Advantage of Llama Fiber

- Reduction of clothing layers, versatility of garments in diverse climates and conditions, and traveling lighter** are positive by-products of these performance qualities.
- The hollow fiber insulates with undiminished capacity** throughout the lifetime of a garment because it is unaffected by compression, wear, or age
- The clothing has a **high degree of safety** when wearing near open flame. A garment won't be irreparably harmed by incidental contact with flame or ember.

Llama fiber is a product for our time and Altiplano Insulation is excited to act as an intermediary, bringing this superior product from Andean producers to conscientious consumers looking for ways to tread lightly and live with a greater sense of awareness. We believe they will find our products to be an unparalleled combination of highest quality, versatile performance, luxurious comfort, resilient low-maintenance, and low impact production. We look forward to more people experiencing these qualities as they wear our garments.