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Date: [Date]
Chiengora
Warmth, Durability and Economics
In Handspun Yarn

by

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Submitted to Olds College as a partial requirement for the Master Spinner Certificate

May 5, 2016
Dedication

Chiengora
Warmth, Durability and Economics
In Handspun Yarn

Dedicated with gratitude to the museums and libraries visited in Washington, Finland, The Netherlands and those who collected the fibre from their dogs. Also wish to thank my ever patient husband who encouraged and supported me along the way.

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ABSTRACT

This in-depth study explores the warmth, durability and economics as well as background information about spinning dog hair into yarn.

Included in the study is historical as well as present-day information on spinning, and knitting with dog hair. Also the use of ‘chiengora’ is explored and defined.

The development of dogs and the various breeds’ development over time are studied. Specifically the fur and the colour of the dogs’ hair will be studied and compared with sheep wool.

Fibres of five dog breeds (Samoyed, Rough Collie, Husky, Pyrenees and Timberwolf/Husky) were collected, sorted, washed and carded. Then the dog hair was blended with varying percentages of merino fibre for spinning. The yarn was knit into a square sample for each blend and used to conduct a warmth test and a durability test.

It finishes with suggestions of other studies and projects that can be explored on spinning with dog hair. This study is the starting point of exploring the spinning of dog hair.
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Introduction

As a young child I had a pet dog named Snuffy, my best friend. He’d keep me company after school until my parents arrived home from work. I loved my dog and spent hours walking and playing in the yard with him. He had a lovely rich brown coloured fur coat that I can remember. I was devastated when he died, and I had only pictures and fond memories to remember him by.

Deciding on a topic for an in-depth study it occurred to me that it would have been nice if I’d had some of his hair to spin in some type of accessory as a reminder of him. Dog hair spinning came to mind by thinking how this might be an area not yet explored. Becoming aware of the excess pet hair seems to be a waste of good fibre. What can we do with it? This is an environmentally friendly and green fibre that isn’t being used. The majority of people will tell you that they throw it out because it is of no use to them. You cannot go to the local mill and buy ‘chiengora’ fibre.

Picking up the dog fibre and playing with it gave me the inspiration to make yarn out of it. It felt so soft and the colours are so beautiful. How can this not be useful? After all dog hair is thrown out, so why not experiment and recycle it? Dogs have been man’s best friend for centuries and have carried out various roles such as hunting, herding, guarding, protecting and most of all being a companion. Some dogs are being used a therapy dogs. So why can’t the animal’s fur be used to keep his master warm?
At first, the idea of spinning dog hair was met with opposition. Although some people found it creepy to have something made out of dog fibre, many others found it was a neat and interesting topic. Why this reaction? Other fibres such as wool, mohair, angora and camel are shorn off an animals back, so why is dog hair any different?

Thinking that the study of 'chiengora' hadn't been researched before I was skeptical about how much information one could find about the use of dog hair in yarn. Then, the question is, 'Has dog hair ever been used in the process of spinning yarn for clothing?' How economical is it and what warmth and durability does the fibre have?
What is “Chiengora”?

‘Chiengora’ is a fancy name for dog hair. It sounds much classier than dog hair.

Wikipedia defines chiengora as “a yarn or wool spun from dog hair. The word is a portmanteau of “chien” the French word for dog, and “angora”. It is up to 80% warmer than wool and is not elastic.” *(Cheingora, n.d.)*

Often chiengora is blended with wool during the carding process. This blend has some elasticity, which is preferable when knitting. It is also often blended with wool in order to create a yarn with less heat insulation.

It is also called chiengora because when the fibre is spun into yarn it has a halo effect mimicking that of angora and mohair.

![Fig. 1 Skeins of Chiengora (dog hair)](Photo: courtesy of Maria Lougheed)
Evolution of Dogs

Like sheep, dogs have evolved over the centuries (Clutton, 1991, p. 7). Dog remains have been found mainly on the northern part of the earth dating back to prehistoric times.

The first dog-like creatures lived 30 million years ago in the Oligocene period, replacing the creodonts. The earliest dog fossils were found in North America dating back to this era. Tomarctus developed during the Miocene period approximately 24 million years ago. Some 300,000 years ago the genus *Canis* evolved, slowly developing into *Canis lupus*, what we know as a wolf. It is believed that the various dog breeds that we know evolved from this animal over centuries through cross breeding. From the *Canis Lupis* evolved four distinct types of wolves known as the Indian Wolf, the Chinese Wolf, the North American Wolf, and the European Wolf. It is from these species that the modern evolution takes place. We start seeing the following classification of dogs: Guard dogs, Hounds, Greyhounds, Feral dogs, Oriental spaniels, Oriental toy dogs, Oriental Spitz dogs, Eskimo Spitz dog, European Spitz dog, European Toy dogs, Terriers and Herding dogs (Clutton, 1991, p. 8).

The first domesticated dogs appeared around 12,000 years ago (Clutton, 1991, p. 8). Dog was man’s best friend, providing protection, a hunting partner, transportation, herding, and companionship. Over time dogs would be bred to suit man. Dogs became smaller, tails were cut off, their faces were altered and their coats underwent changes to make them more desirable. Some of these alterations were good but some were not good for the animal. For example, by creating dogs with no tail these animals lost their
message sensor and being able to communicate their feelings and other important information to other animals.

Dogs have developed different types of coats but most have an undercoat, which is short and fluffy hair and an outer coat made of longer guard hairs. The dog’s coat is important in its development: dogs living in cold climates usually have a very dense coat, hunting dogs generally have short hair and sleek coats, and terriers frequently have wiry coats, for protection against the elements. The colour of a dog’s coat also varies. Some dog breeds have just one colour while others have multiple colours. Dogs with both an undercoat and an outer coat will shed their undercoat once or twice annually with the seasons, and this is called blowing their coat.
Green Component

When watching Bill Nye the Science Guy documentary on the amount of garbage going into the landfill, it makes one wonder, “How much of that garbage is dog hair being thrown away?” Dog owners know all too well the amount of fibre that their beloved shed around the house, from blowing their coat, daily brushing and grooming. Adding up the amount of fibre, electricity and time spent vacuuming it only to throw it out seems such a waste of a useful resource. There are no statistics on the amount going into the landfill daily, but judging by the amount of fibre collected from various dogs in a year, the volume must be enormous. We can recycle this fibre by spinning it into yarn to weave, knit, crochet or braid items. This can lessen the amount of waste going into the landfill and make use of this lovely free natural resource all around us.

Like sheep, not all dog hair is suitable for clothing and garments. Some dog hair can be used to clean up oil spills, some can be used in insulation, and the nice soft fibre can be used for spinning yarn for socks, blankets and other items to keep us warm.

Rather than throw this valuable resource away we can use it for spinning into yarn. The dog hair can be used alone or blended with other fibres. Using it with another fibre may lower the cost of yarn. An example is blending dog hair with merino to get a similar soft halo effect as angora, but at a lesser cost. It is also economical because it is generally free and ready to be collected. It is a low cost alternative when used with other fibres.
Historical Information

Dog hair has been used for spinning yarn in historical times. It is not new. According to Sylvia Olsen (2010) there is evidence of dog hair spinning in prehistoric Scandinavian times.

It is difficult to find information on dog hair because, like other textiles, it has disappeared over time. Also a lot of information was passed on in an oral tradition or is written in languages that are not familiar and translations are not available.

An acquaintance told me that according to oral history from 15th century Norway, those who could not afford to buy wool were known to spin dog hair to knit warm socks, blankets and garments. She was unable to provide me with further information.

On the West Coast of North America the Coast Salish people used dog hair in the spinning of wool for their blankets (Olsen, 2010, p.53). They had a special type of dog called the “wooly dog”. These dogs were prized possessions and were kept away from other dogs so that they would maintain the pure dog breed. Several times a year the dogs would be shorn and the fibre mixed with mountain goat, nettles and other fibres to spin yarn for blankets. This tradition continued until the arrival of the Europeans. The use of dog hair in spinning came to an end when sheep were introduced.

In World War 1, the British Red Cross and Order of St. John situated central workrooms at Burlington House where women knit and sewed to supply soldiers at the front with
garments and bandages. As the war progressed, it became difficult to acquire wool, so under the auspices of the British Dog Wool Association they spun yarn from dog hair. They used the fur from Pekingese, Chow, Collie, Pomeranian, Borzoi, and Samoyed (Gosling, 2013).

In the Netherlands during World War II, mother told stories of the Germans taking all the sheep wool and leaving nothing for the farmers to use. People would run the sheep along the fence to get some bits of wool that caught in the fencing but that was not enough. So they resorted to using dog hair to supplement spinning yarn for knitting socks, hats, mitts and other items to keep themselves warm and clothed.

At the National Liberation Museum 1944 - 1945 in Groesbeek, The Netherlands, they have a sweater on display knit from dog hair.
During the war, Liesbeth van Ogtrop lived with her brother Hein-Jan and her parents in the Dutch village of Eemnes. The family had a dark grey keeshond named Sten. Whenever Sten was groomed, the brush was filled with handfuls of hair. During the bitter cold winter of 1944-1945, the Van Ogtrop family did not go hungry thanks to a supply of vegetables they had grown in their garden. But textiles, coal and many other products were scarce. Then Liesbeth's mother got the idea to put the dog hair she had accumulated to good use. An acquaintance spun some balls of wool and she knit her daughter this sweater.

Fig. 3 Dog Hair Sweater knit for Liesbeth van Ogtrop

http://www.tweedewereldoorlog.nl/100voorwerpen/en/voorwerp/dog-hair-sweater/
Liesbeth first found the new garment terribly itchy, but it was indeed warm. She was very fond of this sweater and, until it no longer fit her, wore it regularly: especially once the wool got soft from being repeatedly washed.
Dog Hair Spinning Today

Today there is a growing interest in spinning dog hair (Crolius, 1994, p.3). It is a way of cutting the cost of fibres and most of us like luxurious fibres that are less expensive.

There are people who spin dog hair from their pets as mementos. Dog associations will gather dog hair to spin and use it to make yarn. They use the yarn to create items to sell to raise funds to help other dogs. One such organization is the Samoyed Dog Association of America.

On the internet, a Google search of ‘dog hair spinning’ retrieves a listing of all kinds of information on spinning and using dog hair. There is information on how to wash it, prepare it for spinning, what tools to use to spin it with and how to finish the yarn. There is a lot of information online, but few have any references to find further information.

Opinions vary among internet blogs and sites on preparation and spinning of the fibre. Others will only spin one kind of fibre while others experiment with all sorts of dog fibre and show it off on their project page in Ravelry (www.ravelry.com), a knitting and crocheting site on the internet.

Some have set up small businesses offering to spin your dog hair into yarn for you. Other sites have hand-knit items made from dog hair for sale. There are the rich and famous that have had their dog hair spun into clothing items as a memento of their pets (Crolius, 1994, p. x).
On Ravelry there are several groups dedicated to the spinning of dog hair into fibre. These are some of the sites that were found on this media website.

For anyone who spins or wants to spin dog fur (and cat or other companion animal fur/hair), or is just curious.

Owned by a Samoyed? Spin their fur? Or just love them? This is the place to be.

Friends of collies and owners of rescued collies. Sheltie owners and dog hair knitters welcome.

A Group who love Pyrenees!

Have a Siberian Husky, Alaskan Malamute, or another Northern breed? Like to weave or spin or both? This is the group for you!

Fig. 4 Ravelry Sites for Spinning Dog Hair
www.ravelry.com
These sites help with networking with other people interested in spinning dog hair. Some members just look for people to spin the dog hair and others offer to spin dog hair for others. On the sites you can also see pictures and read information about the yarn that was spun and the projects that were made by members, who share their experiences of spinning the fibre. People share their experiences of using dog hair, such as collecting and processing it for spinning. There are also links to references such as You Tube where you can watch a series of videos on dog hair spinning. Like anything else on the internet, discretion needs to be used as not all sites can be trusted.

Jerry Lucas, a friend of Crolius, traveled to Estonia and visited a market where she found a woman selling dog-hair sweaters. Through an interpreter, she learned that local folklore believes that dog hair alleviates symptoms of arthritis and rheumatism. Ms. Lucas also visited a mill in Estonia devoted to spinning a combination of dog hair and wool (Crolius, 1994, p.3).
Characteristics of Dog Hair

The quality of the yarn produced from dog hair will vary widely depending on the type of hair used. Generally dogs are two coated animals, with a soft under coat and coarser outer coat. It is the undercoat that spinners are looking to spin yarn from because it is softer.

A growing number of people are discovering the beauty and warmth in various clothing items made from Chiengora. These items are soft and fluffy like angora, very warm, shed water well and have a beautiful colour and lustre.

Dog hair produces yarn with a ‘halo effect’ similar to mohair and angora. This halo effect can be seen in figure 5 showing two-ply hand spun dog yarn. It is also very warm but has no elasticity, which some find difficult to knit with.

A cross-section of dog hair is circular. The scale patterning along the length of dog hair is a regular mosaic and smooth at the root of the fibre, as shown in Figures 6 through 11.
(Appleyard, 1978, p. 28). However, towards the tip of the fibre the pattern alternates from diamond petal shaped to wavy pattern.

Fig. 6 White dog fibre cross-section
Magnification 200x
Fig. 7 Fine dog fibre scale pattern (root region)
Magnification 400x

Fig. 8
Scale pattern along length of fine dog fibre
Magnified 400x
Fig. 9
Scale pattern along length of coarse dog fibre
Magnification 400x

Fig. 10
Scale pattern along root regions of coarse dog fibre
Magnification 400x

Fig. 11
Scale pattern along tip region of coarser dog fibre
Magnification 400x
The most striking feature of chiengora is its unique fur-like appearance. This furry look and softness is what makes chiengora so reminiscent of angora. Chiengora fluffs as it is worn, keeping it durable and looking like new longer. My observation is that it sheds less than angora. It is very warm and comfortable to wear in cold climates. Being able to shed water helps its insulation value in cold damp weather. Chiengora is heavier than wool but very warm. The fibres have no crimp resulting in no elasticity.

Dog hair has little cohesion. On some breeds there is a big difference between the outer and inner coats, such as colour and fibre length. Many breeds of dogs have spinnable fibre as long as their fibre is long enough.

In the book *Knitting With Dog Hair*, it is suggested that dog hair be at least 2 inches long for spinning (Crolius, 1994, p. 8). Crolius suggests spinning dog hair with protein fibres to make a lovely yarn. She states that the nicest yarn comes from the combed undercoat of double-coated breeds such as the Rough Collie, Samoyed, Great Pyrenees, Old English Sheep dog, to name a few (Crolius, 1994, p. 7). The natural colouring of the dog hair provides some gorgeous variations in the finished yarns.

The charts on the next pages summarize some important characteristics of dog hair and sheep wool. Dog fibre has a smoother scale pattern, which gives it softness. The diameter of dog hair also appears to vary from the base to the tip of fibre.
As you can see from the charts and diagrams, sheeps' wool has elasticity, crimp and is lighter than dog hair.
<table>
<thead>
<tr>
<th>ANIMAL</th>
<th>WHOLE MOUNT</th>
<th>CROSS-SECTION</th>
<th>SCALE PATTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Profile</td>
<td>Medulla</td>
<td>Distribution</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Fine</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOG</td>
<td>Regular diameter</td>
<td>Some none</td>
<td>Varies from none to dense</td>
</tr>
<tr>
<td></td>
<td>Scale margins</td>
<td>Some fragmental</td>
<td>Even or streaky</td>
</tr>
<tr>
<td></td>
<td>fairly prominent</td>
<td>Some ladder</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Coarse</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Regular diameter</td>
<td>Continuous</td>
<td>Varies from none to dense</td>
</tr>
<tr>
<td></td>
<td>Scale margins</td>
<td>Sometimes ladder</td>
<td>Even or streaky</td>
</tr>
<tr>
<td></td>
<td>prominent</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chart 1 Properties of Dog Hair (Appleyard, 1978)
<table>
<thead>
<tr>
<th>ANIMAL</th>
<th>WHOLE MOUNT</th>
<th>CROSS-SECTION</th>
<th>SCALE PATTERN</th>
</tr>
</thead>
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<td></td>
<td>Profile</td>
<td>Medulla</td>
<td>Pigment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Distribution</td>
<td>Distribution</td>
</tr>
<tr>
<td>Fine</td>
<td>Irregular diameter</td>
<td>None</td>
<td>Mostly none</td>
</tr>
<tr>
<td></td>
<td>Scale margins prominent</td>
<td>Some sparse to dense</td>
<td>Some sparse to dense</td>
</tr>
<tr>
<td>Medium</td>
<td>Irregular diameter</td>
<td>Some none</td>
<td>Mostly none</td>
</tr>
<tr>
<td></td>
<td>Scale margins prominent</td>
<td>Some fragmental</td>
<td>Some circular to oval</td>
</tr>
<tr>
<td>SHEEP</td>
<td>Coarse</td>
<td>Varies from none to interrupted</td>
<td>Mostly none</td>
</tr>
<tr>
<td></td>
<td>Irregular diameter</td>
<td>Continuous wide lattice</td>
<td>Some wide to concentric</td>
</tr>
<tr>
<td></td>
<td>Scale margins prominent</td>
<td>Some sparse to dense</td>
<td>Some ribbon type</td>
</tr>
<tr>
<td>Kems</td>
<td>Irregular diameter</td>
<td>Continuous</td>
<td>Mostly none</td>
</tr>
<tr>
<td></td>
<td>Scale margins prominent</td>
<td>Wide lattice</td>
<td>Some sparse to dense</td>
</tr>
</tbody>
</table>

Chart 2 Properties of Sheep Wool (Appleyard, 1978)
Collecting

Kroll (1978) states that in collecting dog hair it is preferable to use combings rather than clippings. Combings are usually softer and not as scratchy. She writes that clipped hair is good for spinning but it produces a coarser yarn that feels scratchier.

As previously mentioned on page 5, a dog’s coat is composed of two layers, the most desirable undercoat of fine, delicate soft fluffy wool, usually of one colour, and a top coat of longer coarser hairs, called guard hairs, which have natural oils that make the coat waterproof. The top coat carries the bridled or striped pattern of the fur.

By combing or collecting clumps of dog hair larger amounts of the soft fluffy undercoat can be gathered. Clipped hair is often shorter and contains larger amounts of the coarse guard hair.

The time it takes to collect dog hair depends on the type of dog and how often you brush out the hair. Some dog breeds shed more than others. Some dogs, like a Samoyed, blow their coats and large amounts of fibre can be collected at one time.
Sorting

Kroll (1978) suggests when sorting dog hair, lay a large sheet or shower curtain down before you start. Keep the nicer dog hair and spread it out on the sheet. The fibre can be sorted by colour into various piles or it can be mixed. By the time you finish carding the fibre the colours will be well blended into a homogeneous colour.

Sorting the fibre requires good lighting. Natural daylight on a bright sunny day is preferable. Sometimes what appears as white is not all white, and may require some extra sorting.

Dog hair varies in length and texture. Just like sheep some parts of the dog fur are more desirable than others. The most desirable hair comes from the back, shoulders and sides. Hair closer to the tail and that from his hind legs or “breeches” is longer and coarser. The tummy hair is shorter, softer and delicate. Kroll (1978) usually blends all the hair together removing the really short hair and the coarse hair.

After sorting the different kinds of dog hair into separate piles, Kroll places the fibre into sealed containers (coffee cans or large glass jars) and labels them with type, colour and date. As more fibre is collected, it is placed into the containers until there is enough for spinning.
For this study, enough fibre was collected to spin up into the needed samples. The fibres were somewhat mixed but the intent was not a homogenous yarn.

![Fig. 12 Dog Hair](image)

**Washing**

The dog hair was washed with dish detergent prior to spinning, to remove dander, impurities and chemical residue in the fibre. This avoids many allergies that may be caused by the dander or other matter in the dog hair (Crolius, 1994, p.3).

The dog hair was washed in a large laundry sink. A screen was placed over the drain to prevent clogging the pipes. This made it easier to strain the wet fibre when draining the sink. It also helped to squeeze out excess water and roll it back out.

The sink was filled with lukewarm water just enough so the fibre could soak freely. The dog hair was pushed in till it was fully submerged and soaked in the water. Dog hair can mat and felt but this way it is prevented. It soaked for about twenty minutes, and the water drained from the sink, being careful to make sure the screen stayed in place. This process was repeated several times till the fibre was clean. Then it was rinsed in fresh water several times to make sure that the soap residue was out of it.
Finally the water was drained and the fibre squeezed, removing as much of the water as possible. The dried but still damp fibre was placed on a towel and rolled up firmly to squeeze out more moisture and placed on a rack to finish drying.

**Drying**

The dog hair was spread out evenly across a sweater drying rack and fluffed a bit. It was left to dry for two days to ensure that it was thoroughly dry. During the drying process the fibre was turned over to see how it was drying and to fluff up the fibres. This helped to speed up the drying time. If storing the fibre it is important to make sure that it is dry to avoid mildew.

Dog hair can become static when starting to prepare it for spinning, so it was misted with a water and oil mixture to alleviate the static. A few drops of mineral oil were added to one litre of water in a spray bottle with a misting attachment.
The fibre was carefully weighed out and placed in Ziplock bags labeled with the contents, weight and type of dog hair and merino fibre. Each bag contained a total of 30 grams of fibre. The type of dog hair, weight and percentage varied for each bag as shown in the chart below.

<table>
<thead>
<tr>
<th>Tag ID</th>
<th>% Merino wool</th>
<th>% Samoyed</th>
<th>% Rough Collie</th>
<th>% Great Pyrenees</th>
<th>% Timber Wolf Husky</th>
<th>Husky</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>100</td>
<td>30g</td>
<td>30g</td>
<td>30g</td>
<td>30g</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>90</td>
<td>27g</td>
<td>27g</td>
<td>27g</td>
<td>27g</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>80</td>
<td>24g</td>
<td>24g</td>
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</tr>
<tr>
<td>4</td>
<td>30</td>
<td>70</td>
<td>21g</td>
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<tr>
<td>5</td>
<td>40</td>
<td>60</td>
<td>18g</td>
<td>18g</td>
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</tr>
<tr>
<td>6</td>
<td>50</td>
<td>50</td>
<td>15g</td>
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<tr>
<td>7</td>
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<td>10</td>
<td>3g</td>
<td>3g</td>
<td>3g</td>
<td>3g</td>
</tr>
</tbody>
</table>

Chart 3 Amount of Merino and Hair in each bag

The chart was used to measure the amounts of fibres for each bag. For example Bag 1A would have no merino fibre but just 30g of Samoyed fibre. Bag 2A would have 3g of merino and 27g of Samoyed fur. This process was followed to complete all the bags and check them off as they were filled.
Before spinning, the fibre in the bag was weighed out again into 6 equal portions to ensure as even as possible blending of fibres and to avoid overloading the hand carders. The breakdown for the bags was as follows for each breed:

Bag 1- 30g dog hair: 6 portions of 5 grams were spun after carding. No rolags were made because the fibre would not stick together.

Bag 2- 27g dog hair 3g of merino: broken into 6 portions 4.5g dog hair and 0.5g dog hair creating 6 rolags.

Bag 3- 24g dog hair 6g of merino: broken into 6 portions 4g dog hair and 1g dog hair creating 6 rolags

Bag 4- 21g dog hair 3g of merino: broken into 6 portions 3.5g dog hair and 1.5g dog hair creating 6 rolags.

Bag 5- 18g dog hair 12g of merino: broken into 6 portions 3g dog hair and 2g dog hair creating 6 rolags.
Bag 6- 15g dog hair 15g of merino: broken into 6 portions 2.5g dog hair and 2.5g dog hair creating 6 rolags.

Bag 7- 12g dog hair 18g of merino: broken into 6 portions 2g dog hair and 3g dog hair creating 6 rolags.

Bag 8- 9g dog hair 21g of merino: broken into 6 portions 1.5g dog hair and 3.5g dog hair creating 6 rolags.

Bag 9- 6g dog hair 24 g of merino: broken into 6 portions 1g dog hair and 4g dog hair creating 6 rolags.

Bag 10- 3g dog hair 27g of merino: broken into 6 portions 0.5g dog hair and 4.5g dog hair creating 6 rolags.

Fig. 15 Courtesy Maria Lougheed
Carding & blending merino with Rough Border Collie
The fibre was loaded onto the cards (Ashford 72 point) by sandwiching them to get the blending of the fibres started while carding. When well blended the fibres were rolled into rolags ready for spinning.

Each bag of fibre was hand carded into six rolags. The Ashford traditional wheel was chosen to spin the singles using the short forward draw method of spinning. When spinning the 100% dog hair I had to decrease tension on the brake, and more twist needed to be put into the fibre to spin it to hold together. As soon as the merino was added it became easier to spin and the brake could be tightened. The merino assisted to hold the dog fibres together. Three rolags were spun into singles Z on one bobbin and the other three rolags were spun into singles Z on the second bobbin.
When the six rolags were spun they were plied into a two-ply yarn S and skeined.
Skeins were washed and soaked in warm soapy water for 20 minutes and thoroughly
rinsed in warm water to get the soap residue out. Each skein was snapped five times
before being laid down on a towel to dry overnight.
Samoyed Dog

The Samoyed dog hair was purchased from the Belfast Mills in Prince Edward Island. I purchased eight ounces of raw fibre and eight ounces of de-haired fibre, guard hairs removed. The fibre was shorn from the dog at the groomers and was washed with dog hair shampoo before preparing it for spinning.

Fig. 17 Samoyed Dog

http://www.dogsindepth.com/working_dog_breeds/samoyed.html

Samoyeds blow their coats a couple of times a year. They shed a lot of fibre as can be seen in Figure 18. The underside of the belly is the softest fur. Although you see white fur, it is amazing that there are different kinds of white to off-white and biscuit in the mix.
According to Crolius and Montgomery (1994)

The Queen of spinnables is the Samoyed fur. Siberian tribes have been spinning Samoyed hair into outerwear for centuries; it’s thick, soft, and about as warm as yarn can get. It also dyes well, though we prefer its pure white, white-and-biscuit, biscuit or cream fuzz left as pure as the heart of this hardworking beast (Crolius, 1994, p. 76).

Yarn singles were spun Z from the raw fibre using the short forward draw. I adjusted the brake tension, allowing more twist in the yarn, to get a feel for the fibre. The yarn spun up well but there was a bit of matter in the fibre. The two singles were plied S making a lovely soft yarn with a halo effect, characteristic of dog hair. It is a lovely fibre to spin. A tip when spinning dog hair is to wear an apron so the fibre doesn’t get all over your clothes. The rest of the fibre spun up well.
Rough Collie

This fibre was obtained from a friend who would brush the dog and collected it for about a year. A pound of fur was collected for this study. It was washed with dish soap before spinning and blending.

Crolius and Montgomery (1994), state that Collie fur is great fibre for spinning.

The Rough Collie has a dense, stiff outer coat and a lovely thick undercoat that is soft, fluffy fibre you want to spin. Smooth Collie coat is short and may be best combined with longer fibres. Both Bearded and Border Collies also offer thick, soft undercoats: the former is eminently spinable and the latter blendable (Crolius, 1994, p. 67).

Fig. 19 Rough Border collie
Siberian Husky

A friend's sister owns these two dogs. They are slightly different but the fur was collected by brushing the dogs and taking advantage of the blowing of their coats, at which time there was a lot of fibre collected.

Crolius and Montgomery (1994) state that

Siberians have a dense, downy undercoat that blows like a dandelion, everywhere. While you should be able to gather an impressive harvest during shedding season in the spring, the fibre is a bit short and would certainly be easier to spin if combined with something a bit longer (Crolius, 1994, p. 77).

Wikipedia reports that the coat of the Siberian Husky is thicker than most other dog breeds. It is comprised of two layers: a soft dense undercoat and a longer topcoat with
long straight guard hairs. The coat protects it from the severe Arctic winters and reflects heat in summer. The dog is able to withstand temperatures as low as -50 to -60°C. Their coats need to be brushed weekly.

The fur of the Siberian Husky comes in different colours and patterns, generally it has white paws, facial marking, and tail tip. The most common colour coats are black and white, a rare one will be copper-red and white, grey and white, pure white, and the scarcest is the “agouti” coat, which is a banded colouring. Many also have a striking mask, spectacle, and other facial markings.

Spinning the pure fibre worked well. One needs to start slowly to get the feel of the fibre and what it needs to spin it into yarn. Just as with the other fibres more twist had to be inserted so the fibres would stay together. These were spun Z and plied S for a two-ply yarn, with some very interesting colours.
Great Pyrenees

Fig. 21 Great Pyrenees

Nearly wiped out during World War 1, this small French herding dog is quick-witted and nimble, with a thick, fairly long coat. Experienced spinners will want to try to spin it solo, others may wish to blend it with a more elastic fibre (Crolius, 1994, p. 76).

At first, spinning this yarn solo was challenging, but with patience it spun up beautifully. Just as the other breeds, the dog hair did not stick together very well so again, spinning slowly and decreasing the tension on the brake worked well. When the fibre was mixed with merino it clung together better and became easier to spin.
This is Sasha. She is a very regal dog with a beautiful fur coat. She was blowing her coat while I was visiting so I collected her fur to spin into yarn.

One hundred and fifty grams of fibre was collected from Sasha. The brushed fibre was ideal because the majority of the guard hair was already removed. Also when preparing and spinning the fibre, the brushed hair created a smoother yarn. Brushed fibres do not have blunt butt ends but rather a tapered butt end.

The time to collect the fur depends on the size and breed of the dog, fibre length and time of year. Fibre can be collected from dog groomers but one needs to be careful. One pet groomer dropped all the garbage in as well, and this compromised the fibre, making it useless for the hand spinner. It had to be thrown out. Another groomer was scouted out...
who was more meticulous, and understood the need to keep the fur as clean as possible for spinners.

These dog breeds were chosen for their length of fur, colour and their accessibility. The fibre was not the two inches recommended in Crolius but that was not a problem when spinning it. Other breeds were collected as well: Labradoodle, Poodle, Golden Doodle and Kangal. The Labradoodle hair was too short to card, so it was eliminated and there were insufficient amounts of fibre from the other breeds to use for the purpose of this study.

It is also important to note that none of the dogs that were groomed for their fur were hurt. It was better for the health of the animals to be groomed regularly.
Pictures of Items made using Chiengora
(Photographs 23a – 23j are courtesy of Heather Pfeifer, Sled Dog Fibre Arts, Calgary, AB)

Fig. 23a Dog Hair Hats

Fig. 23b Dog Hair Bag

Fig. 23c Dog yarn

Fig. 23d Golden Retriever and Merino Mitts

Fig. 23e
Puppy Love mittens knit with handspun Keeshond fibre

“This yarn is spun from the very-soft undercoat of my Keeshonden puppies, northern dual-coated breed which has fur instead of hair. I just spun the tufts of
fur from their brushings with little to no prep. These are so soft and warm!! They have a beautiful halo, almost like angora,” as quoted by the knitter, Heather Pfeifer.

Fig. 23g Dog Hair Mittens

Fig. 23h Dog Hair Mittens

Fig. 23i Mittens from a Golden Retriever

Fig. 23j Dog Hair Hat
Care of Finished Items

Handwash items in lukewarm water with a mild soap or detergent. Let it soak for about 10 minutes. If this is the first time that you are washing it, you may need to wash it several times to make sure that it is clean. Rinse the item in lukewarm water to extract soap residue. It may help to put some vinegar in your rinsing water. When done lift the item from the water and squeeze out the excess water carefully. Then lay the item in a towel and roll it up to squeeze out any remaining water. Roll back out and lay the item to dry. Make sure that you lay it on another towel or drying rack and lay it in the shape that you want it to dry.
Durability Test

This is a simple scientific experiment to test the durability of the blends of dog hair/merino blend and 100% dog hair, to determine the strongest yarn. A sample of each of the 50 samples of yarn was wound around a card and secured.

Materials Needed:

- sanding paper (medium 100)
- yarn samples mounted on cards
- paper and pencil to record the data

Medium sand paper (100) was pulled over the yarn samples manually. The number of strokes was counted before it wore through and the thread broke. This number was recorded. Upon completion of the test the collected data was entered onto a spreadsheet and converted into a bar graph.
The strongest dog yarn is the Pyrenees, which probably has a high micron count. When the blend exceeds 50% of merino the durability drops off. The Rough Collie is the second strongest dog hair, but when blended with merino it is more durable. Samoyed dog is the next strongest but not until it has a blend of 70% merino does it become more durable. The Husky has a low durability, but spikes with 10% of merino added and drops off as more merino is added. The Timberwolf/Husky is stronger when blended with merino. The results may be due to the variation in the dog breed, health and diet of the animals. Just as sheep fibre differs from sheep to sheep breed, so do the fibres of dogs vary within breeds and among breeds.
Warmth Experiment

The purpose of this scientific experiment is to investigate if dog hair or dog hair/merino blend provide the best insulation warmth.

Materials used for the experiment are as follows:

- five sets of dog hair blends (50 skeins)
- fifty knitted sacs
- fifty small potatoes similar in size as possible (new potatoes)
- bimetal thermometer (must be able to stab into potato)

Fifty petite potatoes of similar size were selected for the experiment. Each potato was heated to 185°F and wrapped in a small dog hair knitted bag and placed on a towel laid on a cookie sheet at 23°C room temperature. At fifteen minute intervals the potatoes were probed with a bimetal thermometer to measure the core temperature of the potato. This was done in the same order and manner for each reading to ensure accurate data collection. The temperature of the potato was always taken from the centre, where the temperature remained the highest. Also the outside temperature was recorded to maintain consistency. In the event that the test is repeated, any variation in outside temperature and conditions will alter the outcome.

A total of five readings were taken, and recorded on a spreadsheet that was put into a bar graph. This experiment was repeated for each set of dog hair samples.
Chart 5: Thermal Test Results for Samoyed dog yarn – April 5, 2016

Chart 6: Thermal Test Results for Rough Collie dog yarn – April 5, 2016
Chart 7: Thermal Test Results for Pyrenees dog yarn – April 5, 2016

Chart 8: Thermal Test Results for Siberian Husky dog yarn – April 5, 2016
Chart 9: Thermal Test Results for Timberwolf/husky cross dog yarn – April 5, 2016

The largest drop in temperature was in the first fifteen minutes. In each case, a hundred percent dog hair is warmer than the blends, which is supported in the data above. The graphs show from left to right that the greater percentage of dog hair, the greater the heat retention. Similarly, the lower the percentage of dog hair, the lower the heat retention is.

The spinner needs to know what they are spinning the yarn for to decide what blend of dog hair they should use. If they want to make a vest, they may not want pure dog hair. A blend of dog hair and merino would be a better choice, as it does not retain as much heat.
Conclusion

“With strength, length, percent strain, and modulus, as a basis, dog fibres would perform as well as traditionally-used animal fibres, and possibly better in certain circumstances” (Greer, et al., 2007, p. 46). As stated at the beginning of this study, the main objective was to learn about the use of dog hair in the past and today, as well as about its warmth, durability and economics, by using it solo or blended with merino.

Dog hair known as chiengora has been spun for clothing and other items for many years. Chiengora is a cheaper alternative to mohair, cashmere and angora. It is also a green component because it can lower the cost of fibre, and by spinning it into yarn, less will end up in the landfill.

There are businesses that will spin chiengora for you from your favorite pet. Also there are groups on the internet who share their experiences, share their spun yarn and finished projects with others around the world. Chiengora is gaining in popularity but it will take time before it becomes mainstream.

Chiengora can be used as pure yarn but one needs to study the breed chosen before making large projects. Each dog breed has unique qualities, like sheep, and you need to be selective when choosing which fibre to spin.

Although traditionally sheep wool is warm and strong, it needs to be noted that dog hair is warmer and stronger than sheep wool. The study can be extended by considering other
dog breeds for their yarn and colour qualities. Also a study can be conducted by blending dog hair with other fibres and using different methods of preparing the fibres for spinning.
Final Project

These baby booties were knit as the final project from 100% Samoyed dog hair, to show off the lovely halo effect of the yarn. One would think that they were knit with angora by looking at them. Also babies like to have warm feet and these will definitely keep them warm and cozy. They will not have a lot of wear and tear making them a good choice for an infant.

Figure 24: Knitted by Sarah Ross, April 2016 with Maria’s handspun chiengora

The pattern for these booties was taken from Ravelry and is called ‘Baby Oh Baby’. The yarn was spun by Maria Lougheed and the booties were knit by Sarah Ross.
References


**Websites:**

Animals Fibre Sheet

Carding and Spinning Dog Hair Part 1
[https://www.youtube.com/watch?v=6ZowsUs0JHw](https://www.youtube.com/watch?v=6ZowsUs0JHw) retrieved August 2015.


Chiengora chic!: Dog yarn takes on new twist when made into sweater. (November 22, 1990). *The Ottawa Citizen*.

Coast Salish Spinning and Weaving

Dog Fur: A hard yarn to spin


Making Dog Hair Sweaters, Kendal Crolius
[https://www.youtube.com/watch?v=6jHTfshTzpM](https://www.youtube.com/watch?v=6jHTfshTzpM) retrieved April 1, 2016

National Liberation Museum, Groesbeek 1944-1945,Dog Hair Sweater,

Purses made from Groomed Dog Hair

The Samoyed Association of Canada
Samoyed Siberian Sled Dog [http://allaboutdogsonline.blogspot.ca/2012/12/samoyed-siberian-sled-dog.html](http://allaboutdogsonline.blogspot.ca/2012/12/samoyed-siberian-sled-dog.html) retrieved April 1, 2016. All About Dogs


Spinning Dog Hair [https://www.youtube.com/results?search_query=spinning%20dog%20hair&sm=3](https://www.youtube.com/results?search_query=spinning%20dog%20hair&sm=3) retrieved September 2015


Spinning Dog Hair Part 2 [https://www.youtube.com/watch?v=PRNtiER7kE](https://www.youtube.com/watch?v=PRNtiER7kE) retrieved September 2015

Spinning Dog Hair Part 3 Skeining [https://www.youtube.com/watch?v=EYeBEEj6owc](https://www.youtube.com/watch?v=EYeBEEj6owc) retrieved September 2015

Spinning on the Royale Hare Spindle, Part 2 – Dog Hair [https://www.youtube.com/watch?v=PiSXBEQcJc5](https://www.youtube.com/watch?v=PiSXBEQcJc5) retrieved September 2015


Washing Dog Hair for Spinning [https://www.youtube.com/watch?v=nXoLDatucRI](https://www.youtube.com/watch?v=nXoLDatucRI) retrieved September 2015

Weaving of the Hair of the Salish Woolly Dog [http://www.coastalartbeat.ca/?tag=wool-dog](http://www.coastalartbeat.ca/?tag=wool-dog) retrieved August 2015

SAMPLES

Set A
Sample 1A
Sample 2A
Sample 3A
Sample 4A
Sample 5A
Sample 6A
Sample 7A
Sample 8A
Sample 9A
Sample 10A

Set B
Sample 1B
Sample 2B
Sample 3B
Sample 4B
Sample 5B
Sample 6B
Sample 7B
Sample 8B
Sample 9B
Sample 10B

Set C
Sample 1C
Sample 2C
Sample 3C
Sample 4C
Sample 5C
Sample 6C
Sample 7C
Sample 8C
Sample 9C
Sample 10C

Set D
Sample 1D
Sample 2D
Sample 3D
Sample 4D
Sample 5D
Sample 6D
Sample 7D
Sample 8D
Sample 9D
Sample 10D

Set E
Sample 1E
Sample 2E
Sample 3E
Sample 4E
Sample 5E
Sample 6E
Sample 7E
Sample 8E
Sample 9E
Sample 10E
Name: Maria Lougheed
Fiber Content: 100% Samoyed dog hair
Fiber Preparation: spun from the clean fibre
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 6  wpi: 18  angle of twist: 27°
Weight: 3.3 g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, shawls
Name: Maria Lougheed

Fiber Content: 90% Samoyed dog hair & 10% merino

Fiber Preparation: blended hand, carded into rolag

Spinning Method: short forward draw

Spinning Direction: zzS

Tpi: 4

wpi: 20

angle of twist: 27°

Weight: 3.4 g

meterage: 10 m

Suitable End uses: hats, scarves, mittens, shawl
Name: Maria Lougheed

Set A-3

Fiber Content: 80% Samoyed dog hair & 20% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 6  
wp1: 20  
angle of twist: 27°
Weight: 3.9 g  
meterage: 10 m
Suitable End uses: hats, cowls, mittens, sweater
Name: Maria Lougheed
Set A-4
Fiber Content: 70% Samoyed dog hair & 30% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zS
Tpi: 4-5  wpi: 18  angle of twist: 27°
Weight: 3.6 g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed  
Set A-5

Fiber Content: 60% Samoyed dog hair & 40% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5  
wpi: 20  
angle of twist: 21°
Weight: 3.5 g  
meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed

Set A-6

Fiber Content: 50% Samoyed dog hair & 50% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 6.5  wpi: 19  angle of twist: 21°
Weight: 4.2g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
<table>
<thead>
<tr>
<th><strong>Name:</strong> Maria Lougheed</th>
<th><strong>Set A-7</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fiber Content:</strong> 40% Samoyed dog hair &amp; 60% merino</td>
<td></td>
</tr>
<tr>
<td><strong>Fiber Preparation:</strong> blended hand, carded into rolag</td>
<td></td>
</tr>
<tr>
<td><strong>Spinning Method:</strong> short forward draw</td>
<td></td>
</tr>
<tr>
<td><strong>Spinning Direction:</strong> zzS</td>
<td></td>
</tr>
<tr>
<td><strong>Tpi:</strong> 5.5</td>
<td><strong>wpi:</strong> 18</td>
</tr>
<tr>
<td><strong>Weight:</strong> 4.5 g</td>
<td><strong>meterage:</strong> 10 m</td>
</tr>
<tr>
<td><strong>Suitable End uses:</strong> hats, scarves, mittens, sweater</td>
<td></td>
</tr>
</tbody>
</table>
Name: Maria Lougheed
Set A-8
Fiber Content: 30% Samoyed dog hair & 70% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5-6  wpi: 18  angle of twist: 21°
Weight: 4.4g  meterage: 10m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed  
Set A-9
Fiber Content: 20% Samoyed dog hair & 80% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 4-6  
wpi: 17  
age of twist: 21°
Weight: 4.5g  
meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Set A-10
Fiber Content: 10% Samoyed dog hair & 90% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5   wp: 17   angle of twist: 27°
Weight: 4.9 g   meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Fiber Content: 100% Rough Collie dog hair
Fiber Preparation: spun from the clean fibre
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 6  wpi: 18  angle of twist: 21°
Weight: 4.4g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Set B-2
Fiber Content: 90% Rough Collie dog hair & 10% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5 wpi: 17 angle of twist: 27°
Weight: 4.2g meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater

90% Rough Collie (2g)
10% Merino (3g)
Name: Maria Lougheed          Set B-3
Fiber Content: 80% Rough Collie dog hair & 20% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5          wpi: 16          angle of twist: 27°
Weight: 4g          meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed

Set B-4

Fiber Content: 70% Rough Collie dog hair & 30% merino

Fiber Preparation: blended hand, carded into rolag

Spinning Method: short forward draw

Spinning Direction: zzS

Tpi: 5  wpi: 16  angle of twist: 27°

Weight: 4.7g  meterage: 10 m

Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed

Set B-5

Fiber Content: 60% Rough Collie dog hair & 40% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5  wpi: 15  angle of twist: 21°
Weight: 5.2 g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed  
Set B-6  
Fiber Content: 50% Rough Collie dog hair & 50% merino  
Fiber Preparation: blended hand, carded into rolag  
Spinning Method: short forward draw  
Spinning Direction: zzS  
Tpi: 5  
wpi: 15  
weight: 5 g  
meterage: 10 m  
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Fiber Content: 30% Rough Collie dog hair & 70% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zSS
Tpi: 4.5           wpi: 15       angle of twist: 21°
Weight: 5.3 g       meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed

Fiber Content: 40% Rough Collie dog hair & 60% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5.5       wpi: 15       angle of twist: 21°
Weight: 4.9 g    meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed  
Fiber Content: 20% Rough Collie dog hair & 80% merino  
Fiber Preparation: blended hand, carded into rolag  
Spinning Method: short forward draw  
Spinning Direction: zzS  
Tpi: 5  
wpi: 16  
angle of twist: 21°  
Weight: 4.5 g  
meterage: 10 m  
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Fiber Content: 10% Rough Collie dog hair & 90% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5          wpi: 16   angle of twist: 27°
Weight: 5.3 g   meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Fiber Content: 100% Pyrenees dog hair
Fiber Preparation: spun from the clean fibre
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 3  wpi: 18  angle of twist: 21°
Weight: 6.9 g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Set C-2
Fiber Content: 90% Pyrenees dog hair & 10% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 4      wpi: 17      angle of twist: 21°
Weight: 5.3 g      meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed

Set C-2

Fiber Content: 90% Pyrenees dog hair & 10% merino

Fiber Preparation: blended hand, carded into rolag

Spinning Method: short forward draw

Spinning Direction: zzs

Tpi: 4

wpi: 17

angle of twist: 21°

Weight: 5.3 g

meterage: 10 m

Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Set C-3

Fiber Content: 80% Pyrenees dog hair & 20% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 4.5  wpi: 15  angle of twist: 27°
Weight: 5.5 g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed

Fiber Content: 70% Pyrenees dog hair & 30% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 4.5  wpi: 16  angle of twist: 27°
Weight: 6.8 g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Set C-5
Fiber Content: 60% Pyrenees dog hair & 40% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 4.5  wpi: 15  angle of twist: 27°
Weight: 5.5 g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Set C-6
Fiber Content: 50% Pyrenees dog hair & 50% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5.5  wpi: 16  angle of twist: 27°
Weight: 5 g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Set C-7
Fiber Content: 40% Pyrenees dog hair & 60% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5
wpi: 16
angle of twist: 27°
Weight: 5.3 g
meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Set C-8
Fiber Content: 30% Pyrenees dog hair & 70% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5.5    wpi: 16    angle of twist: 27°
Weight: 5.8 g    meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Set C-9
Fiber Content: 20% Pyrenees dog hair & 80% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5  wpi: 15  angle of twist: 27°
Weight: 5.9 g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Fiber Content: 10% Pyrenees dog hair & 90% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 6  wpi: 17  angle of twist: 21°
Weight: 5.2 g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Fiber Content: 100% Siberian Husky dog hair
Fiber Preparation: spun from the clean fibre
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5 wpi: 15 angle of twist: 21°
Weight: 5 g meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Fiber Content: 90% Siberian Husky dog hair & 10% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 4.5      wpi: 16      angle of twist: 21°
Weight: 5 g    meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed  Set D-3
Fiber Content: 80% Siberian Husky dog hair & 20% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 4.5-5.5  wpi: 15  angle of twist: 21°
Weight: 6 g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed  
Set D-4  
Fiber Content: 70% Siberian Husky dog hair & 30% merino  
Fiber Preparation: blended hand, carded into rolag  
Spinning Method: short forward draw  
Spinning Direction: zzS  
Tpi: 5  
wpi: 16  
angle of twist: 21°  
Weight: 4.1 g  
meterage: 10 m  
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Fiber Content: 60% Siberian Husky dog hair & 40% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5.5   wpi: 17    angle of twist: 21°
Weight: 4.8 g    meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Set D-6
Fiber Content: 50% Siberian Husky dog hair & 50% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5  wpi: 17  angle of twist: 21°
Weight: 4.7 g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed  
Set D-7  
Fiber Content: 40% Siberian Husky dog hair & 60% merino  
Fiber Preparation: blended hand, carded into rolag  
Spinning Method: short forward draw  
Spinning Direction: zzS  
Tpi: 4.5  
wpi: 17  
Angle of twist: 21°  
Weight: g  
meterage: 10 m  
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed  
Set D-8  
Fiber Content: 30% Siberian Husky dog hair & 70% merino  
Fiber Preparation: blended hand, carded into rolag  
Spinning Method: short forward draw  
Spinning Direction: zzS  
Tpi: 5  
wpi: 17  
angle of twist: 21°  
Weight: 5.9g  
meterage: 10 m  
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed  
Set D-9  
Fiber Content: 20% Siberian Husky dog hair & 80% merino  
Fiber Preparation: blended hand, carded into rolag  
Spinning Method: short forward draw  
Spinning Direction: zzS  
Tpi: 5.5  
wpi: 15  
angle of twist: 21°  
Weight: 5.5g  
Meterage: 10 m  
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Set D-10
Fiber Content: 10% Siberian Husky dog hair & 90% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5   wpi: 17   angle of twist: 21°
Weight: 5.3 g   meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed

Fiber Content: 100% Timberwolf/Husky dog hair
Fiber Preparation: spun from the clean fibre
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 4.5
wpi: 17
angle of twist: 21°
Weight: 5.6 g
meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Set E-2
Fiber Content: 90% Timberwolf/Husky dog hair & 10% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5  wpi: 17  angle of twist: 21°
Weight: 6 g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Fiber Content: 80% Timberwolf/Husky dog hair & 20% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 4.5  wpi: 16  angle of twist: 21°
Weight: 5.4 g  meterage: 10m
Bradford Count: 
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Fiber Content: 70% Timberwolf/Husky dog hair & 30% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 4.5  wpi: 16  angle of twist: 21°
Weight: 5.4 g  meterage: 10 m
Bradford Count:
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed

Fiber Content: 60% Timberwolf/Husky dog hair & 40% merino

Fiber Preparation: blended hand, carded into rolag

Spinning Method: short forward draw

Spinning Direction: zzS

Tpi: 5

wpi: 15

angle of twist: 21°

Weight: 5.7 g

meterage: 10 m

Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed  
Fiber Content: 50% Timberwolf/Husky dog hair & 50% merino  
Fiber Preparation: blended hand, carded into rolag  
Spinning Method: short forward draw  
Spinning Direction: zzS  
Tpi: 4.5  
wpi: 16  
Weight: g  
angle of twist: 21°  
meterage: m  
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed

Set E-7

Fiber Content: 40% Timberwolf/Husky dog hair & 60% merino

Fiber Preparation: blended hand, carded into rolag

Spinning Method: short forward draw

Spinning Direction: zzS

Tpi: 5  wpi: 16  angle of twist: 21°

Weight: 5 g  meterage: 10 m

Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed          Set E-8
Fiber Content: 30% Timberwolf/Husky dog hair & 70% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5                  wpi: 15   angle of twist: 21°
Weight: 6 g               meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Set E-9
Fiber Content: 20% Timberwolf/Husky dog hair & 80% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 5     wpi:14     angle of twist: 21°
Weight: 5.6 g     meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater
Name: Maria Lougheed
Set E-10
Fiber Content: 10% Timberwolf/Husky dog hair & 90% merino
Fiber Preparation: blended hand, carded into rolag
Spinning Method: short forward draw
Spinning Direction: zzS
Tpi: 4.5  wpi: 14  angle of twist: 21°
Weight: 5.5 g  meterage: 10 m
Suitable End uses: hats, scarves, mittens, sweater