



**Carol Kerven, Dr Nurlan Malmakov, and Dr. Vladimir Spivakov with cashmere goat at Kazak Sheep Breeding Institute**

## **Trip Report for the project: Feasibility of market development and support services for livestock products in Kazakhstan and Kyrgyzstan**

by Kathleen Galvin and Carol Kerven

August 4: Galvin and Kerven travel out to the Kazakh Research Technological Institute of Sheep Breeding, Mynbaeva Village, and met with Dr. Nurlan Malmakov, one of the project collaborators and Head, Department of Biotechnology of Reproduction. Together, he, Kerven and Galvin met with Dr. Bolat Khan Makhatov, the Director. Dr. Makhatov specializes in sheep mineral nutrition and breeding. He has a staff of 140 people whose goal is to develop new breeds of sheep, goats, horses and camels. The Institute has two experimental farms. The 3,000 sheep provide premier stud animals for farmers. (During Soviet times the Institute worked with 60,000 sheep). The institute works closely with several stud farms throughout the country.

The institute also houses at least three labs, one that focuses on the chemical analysis of fodder, another that examines the standardization of wool and a third that works with the standardization of meat quality. The Institute also houses a library, and a small museum.

During the Soviet times the mandate of the Institute was clear, to improve livestock breeds. Marketing was in the hands of the government. Now, the mandate is still to maintain the selection of improved breeds but also to help in marketing services, to supply veterinary care and to maintain spare parts for various types of farm equipment. In the post-Soviet period all the country's marketing organizations were destroyed. Production has become privatized for the most part but so has processing. There are however, a few examples of joint ventures between government and private processing companies. But the degree of processing in the country is rudimentary. For example, one former state wool washing organization, Posh in Semi-Palatinsk, purchases wool, does not grade it, and sells only washed wool. Another factory located in Almaty Oblast (Quat) produces "tops" from fine wool, where the volume is small but the quality is high.

The director pointed out that there is little point in investing in big wool processing factories right now, as Kazakhstan no longer produces sufficient fine wool. During Soviet times there were 36 million sheep in the country, now there are about 10 million. Furthermore, newly-privatized farmers since 1990 have altered their breeding strategies in response to changing market demand. Three phases are apparent. In the Soviet period, fine and semi-fine wool breeds were dominant and wool was bought by the state. Post-independence, world market demand for fine wool dropped and Kazakh farmers turned to the indigenous meat breeds as meat was in high demand domestically. However, since about 1998, world demand for fine wool began to rise again which led to farmers regaining interest in raising fine wool breeds. To keep fine-wool sheep requires quite an investment on the part of the farmer and returns are lowered as most traders pay a flat fee/kg regardless of wool quality. Only the few large farmers can afford to keep fine-wool sheep though there is international demand for fine wool. Many farmers keep fat-rumped and coarse-wool sheep as they are the indigenous sheep and are hardy but there is little international demand for the wool products from these livestock.

Dr. Makhatov felt that farmers were no longer protected from the market and that processors can dictate their own terms and prices for livestock products. He felt that the farmers should organize themselves and dictate their own terms for wool prices but noted that people in Kazakhstan had no experience of doing this. He and other staff present also noted that farmers do not know how to provide wool of particular grades demanded by wool factories. Dr. Makhatov would like to start extension services whereby the extension agents would teach farmers about the wool grades in demand. Currently the Institute can only do this for those who can pay. There are few resources from the state to conduct extension services except on a pay basis.

Unlike the wool market, the Ministry of Agriculture subsidizes the selling of improved breeds from the research institute's stud farms through auctions. .

Of the approximately 10 million sheep in the country today, 8.5 million are owned by individual owners. The remaining 1.5 million sheep are big sheep owners that are essentially the remaining state farm cooperatives, each herding 500 sheep or more. In contrast, until 1991, 90% of the sheep were in the government sector. Scientists at the Institute are working with the large farmers on the remaining few cooperatives and it is felt that it is this mainly this group that could economically produce fine wool breeds of good quality. In sum, the Director was very interested in the project and was willing to cooperate in any way he could.

We then met with Professor Terentiev, director of the wool standardization lab. He told us about the history of breeding of sheep at the Institute. Merino sheep rams were first brought in about 30 years ago. The goal has been to produce the same quality wool as merino sheep but do it by crossbreeding them with local sheep. Indigenous breeds do not produce the merino quality wool and the wool they produce is of varying diameters. Finewool sheep have been used to produce the merino-quality wool, which are wool fibers of equal diameter. In the recent past farmers were getting about \$0.45-\$0.52 (70-80 KZT (Kazak Tenge)) per kilo of unwashed fine wool. This year in the spring farmers averaged about \$0.78 (120KZT) per kilo of unwashed wool. Washed merino wool was selling for about \$1.60 per kilo;. (During Soviet times the Soviet price of fine wool was \$7/kg). Currently Prof. Terentiev has received information that fine wool is selling on the world market for approximately \$4-\$5/kg. During the last decade, as the price of wool declined, farmers moved towards the production of fat-rumped sheep for meat. Today kilo of meat is worth about double that of a kilo of wool.

Kazakstan currently produces about 24-25 thousand tons of wool. Only 8-9 tons is fine wool. Most unwashed coarse wool is purchased by private traders; most is then being purchased by China, Turkey and sometimes, Russia. Export taxes are a major disincentive for foreign companies wishing to buy Kazak wool. Today Almateklem is one of the only factories that processes fine wool and most of it is exported.



**Fat-rumped sheep – Topar village - an oasis within the desert**

In the Professor's view, private owners need to organize themselves in order to provide the quantity of wool needed to sell in large volumes. Due to non-sorting at source, it currently takes about 10 tons of wool to obtain 1 ton of uniform wool and the better the sorting, the higher the price.

While Dr. Terentiev was very informative, the equipment in his laboratory for wool standardization was in bad shape. As part of our overhead costs to the Institute, our project purchased a computer that his lab could use for assessing wool quality, in combination with other equipment previously provided by Macaulay Institute, UK.

Tuesday, August 6

We held a meeting with Dr. Serik Aryngaziev, head, department of Goat Selection and Breeding, Kazak Research Institute of Sheep Breeding, to discuss his role in the project. One of his tasks has been to obtain data on wool production at the regional level. Table 1 shows the results of some of his data gathering. The table shows that wool production for Almaty Oblast has remained steady in the last three years. It also demonstrates the very low average price for wool (per kg).

**Table 1.** Wool Production in Almaty Oblast

<b>Wool type</b>	<b>Expected</b>	<b>Produced</b>	<b>Produced</b>	<b>Sold</b>	<b>Mean Price/kg</b>
	<b>2002</b>	<b>2001</b>	<b>2000</b>	<b>2002</b>	
Fine	4678				
Semi-fine	781				
Semi-coarse	780				
Total	6239	6220	6188	6184	\$0.69 106KZT)

(Source: Agricultural Department of Almaty Oblast Local Administration Akimat)

Other national data that Dr. Aryngaziev collected on the export of wool for 2001 (Table 2) shows that on average wool was sold for \$1.14. However, the data may not be entirely accurate as for category two: 'animal wool, fine or coarse, not carded or combed', wool was sold to the NIS countries for \$1.70/kg, whereas the same wool was sold to China for \$0.39/kg. In the last category there are also extremes in prices obtained from NIS countries and China, though in the opposite direction. Nevertheless, the table does suggest the importance of the NIS countries and China in the current export of wool. In contrast to the national statistics, the following will provide marketing information in the households.

**Table 2.** 2001 Export of Wool in the Republic of Kazakstan

	<b>Not carded, not combed wool</b>		<b>Animal wool, fine or coarse, not carded, not combed</b>	
	<b>Tons</b>	<b>Price/kg</b>	<b>Tons</b>	<b>Price/kg</b>
Total NIS countries	7492	\$0.57	138	\$1.70
Russian Federation	7368		132	
Kyrgyzstan	90		6	
Tajikistan	20			
Byelorussia	14			
Other countries	704	\$0.40		\$0.39
China	684		495	
Estonia	20			

Dr. Aryngaziev also collected information on the sales of goat and camel hair in 2001-2. In 2002 there has been a big demand for goat angora fiber for export to Russia where it is re-exported to the USA. For example, one trader collected 20 tons of Angora fiber just from Almaty and Taldy Kurgan Oblasts which he sold to the POSH wool washing plant in Semi-Palatinsk which has recently been buying most of the angora fiber produced in Kazakstan.

Cashmere demand in Kazakstan was much lower in 2002 than 2001. Cashmere is being traded in Turkestan in southern Kazakstan in 2002 at a price of \$13 per kg for handsorted and combed down. One trader has collected 7 tons. At another basic cashmere sorting factory in Turkestan, a Mongolian manager

has been hired. This suggests that cashmere processing skills developed in Mongolia are now being imported into Kazakstan,

Camel hair, which is mainly produced in western Kazakstan, was also being collected in Turkestan, where 10 tons had been accumulated by May 2002. Producers are paid between \$0.30 to \$0.60 per kg depending on their distance from Turkestan. The wholesale price that collectors charge processors is \$1.20 per kg. Camel hair is processed in Almaty and also exported raw.

Wednesday, August 7

In the following days we traveled to villages and homesteads to assess household production strategies and marketing of wool, cashmere and camel hair. We first travel north into the desert areas to conduct fieldwork with two interpreters, Noorgul and Roshan, our driver, Jixsonbai, and Dr. Aryngaziev. The first night was spent near the village of Aidali, an area where semi-fine wool sheep and cashmere goats are raised and where there is some camel herding too. The EU-funded DARCA project has been collecting quarterly economic and livestock productivity data from a sample of six farmers in Aidaly. The data on wool, cashmere and camel hair sales by these households will be analyzed for this GL CRSP project.

Most camels are raised in the west of the country. Nevertheless we interviewed a herder who keeps 50 camels. He cuts the wool of his (father's) camels each year and sells it to a trader who comes from Almaty. In 2002 he collected 250 kg of camel hair from about 40 camels. The fine hair was sold to a Kazak trader for \$0.65/kg (100 KZT/kg) while the coarse hair was sold for \$0.39/kg (60KZT/kg). This price has not changed for the last few years. Some of the hair was given to relatives and some sold to locals. The fine hair is used to make blankets, sweaters and vests and it is appreciated that the hair of the one-year old camel produces the finest hair. The coarse hair is used locally for medicinal purposes (for example, used to prevent swelling as the hair is salty). Coarse hair comes from the mane, front of leg, top of humps and neck and everything else is fine camel hair. Camel meat is sold in the village in the winter. Sometimes milk is sold to traders who come from Almaty and some of the milk (shubat) of camels is sold locally. Camel milk is considered a health drink, especially for pneumonia.

Other information on camel production from Dr. Aryngaziev suggests that the departure of the Soviets had little impact on camel numbers in the country (about 100,000); they have, in fact, begun to increase. They are produced first for their meat, milk and then hair.



Camel near the village of Aidali

Our data suggest that diversification of incomes seems to be the norm and this family is representative of this. This informant earns most of his household income from 1) training horses, especially for competition, 2) trading in horses and, 3) from the sale of agricultural products, mainly watermelon and vegetables. While he oversees the herding and care of his father's camels, nevertheless, it is his father who earns the majority of his income from the sale of camel hair, camel milk and camel meat. Finally, the younger brother of this

informant keeps sheep which is considered the most profitable occupation as a ewe can be sold for \$64.00 (10,000KZT), a lamb for \$32-\$39 (5,000-6,000 KZT), whereas a kilo of sheep meat can be sold for \$2.28/kg, three times the price of a kilo of sheep wool (about \$0.80/kg).

A large scale sheep and goat farmer was interviewed, who also collects and sells wool and fiber from this village. He noted that the semi-fine wool from Merino/Kazak crossbreds was bought from farmers at 40 Tenge/kg while the finer wool was bought at 90 tenge/kg. Angora goat fiber was bought at 100 tenge/kg

and local goat fiber at 70 tenge/kg. The idea of initiating a producers' selling association was discussed with him. His opinion was that such associations should be supported at the village level and could be profitable if a villager was trained to train producers in sorting and collectively market their products.

We interviewed the *Akim*, the village counselor of Aidali. He estimated there were about 6000 sheep and goats in the community with sheep being the dominant livestock. The *Akim* noted that the price for goat cashmere was higher in 2001 (\$1.30-\$2.60/kg (200-400 KZT)) than in 2002 (\$0.33-\$0.39/kg (50-60KZT)). Dr. Kerven pointed out the change was a result of the world's markets. First, there was a glut of cashmere in the market in 2001, Kazak traders over-bought cashmere, much of which was of unacceptable quality and which they could not subsequently sell to Chinese buyers. The *Akim* noted that the village produced about 10 tons of wool and cashmere in 2002 but was concerned that the price always fluctuated and that people were getting too low a price for their products. He remarked that if the village wool and fiber could be transported to Almaty the sale price would be higher. Table 3 shows prices for livestock and livestock products in the community of Aidalai.

**Table 3.** Prices of livestock products in Aidali village area

	2001	2002
Cashmere	200-400 T	50-60 T/kg
Merino mixed sheep wool		70 T/kg
Kazak sheep wool		30 T/kg
Camel hair - fine		100 T/kg
Camel hair - course		60 T/kg
1 ewe		10,000 T
1 lamb		5-6,000 T
sheep meat		350 T

Thursday, Friday, August 8-9, 2002

We traveled to Topar, a village known for its cashmere goat and karakul sheep production. Cashmere goats from Topar are being assessed and selectively bred as part of the EU DARCA project. According to villagers, Topar has about the same number of goats as sheep, and is a source of goats for other areas. Traders come every year in autumn and barter food in return for young female goats which traders transport for sale to surrounding regions. The goats are mostly Kazak breeds which produce cashmere, though some Angora were observed. Goats are milked, unlike sheep, and the goat milk is very fatty. Until 2000 there were no markets for cashmere in this area. However, cashmere was being purchased locally for \$1.30-\$3.26/kg (200-500KZT/kg) in 2001 but was not sold this year by some because the price had dropped drastically. A few camels are kept and their hair is sold. Table 4 shows some local prices for livestock products.

**Table 4.** Cashmere and wool prices in Topar village area

	2001	2002
Cashmere	500 T/kg	50 KZT/kg 200-500 T/kg*
Coarse wool (Kazak fat-rumped X karakul )		10-50 T/kg
Sheep pelts		200 T
Goat pelts		200 T

\* Sold to local trader who did not resell it due to low prices.

While in Topar we were able to visit a woman who showed us the process of making "she" or walls for the outside of yurts, quilts and wool rugs. While in another home we were able to witness milk processing of buttermilk into "kurt", a hard cheese. The processing of "airan", boiled cow milk, allowed to set in a cloth for several hours was also described.

Goats were formerly combed by women to harvest their down in spring. Women would spin the down into yarn for making clothes for the family. This tradition has fallen into disuse over the past fifty years. There are still women who know how to carry out this procedure and handmade combs are retained by some families.



Milk processing near Topar village

Sunday, Monday, Tuesday, August, 11, 12, 13, 2002

We (C. Kerven, K. Galvin, Noorgul and Roshan (interpreters), Jixonbai (driver), Cara Behnke Kerven and Ian and Stefan Ellis) traveled to the mountains outside the village of Shien. We met and camped with Drs. Nurlan Malmakov and Dr. Koishybek Karymsadov (Head, Laboratory of Wool Quality Analysis) from the Institute of Sheep Breeding and their crew. We discussed the work that Dr. Karymsadov would be doing on the project.

We interviewed herders about their marketing of livestock products. Table 5 shows the prices of some livestock products in the area surrounding Shien village. We were able to do an in-depth interview with one herder and his family (wife and two children and brother) who had been herding 150 cattle belonging to 57 families from the village of Shien. Table 6 shows the sources of income and expenditures for this one family. It is clear that many types of livestock and livestock products were important to the household economy. However, this herder did not start herding until 2001 when he became unemployed as a driver; if a car becomes available to him again he will stop herding and go back to driving. This and the table demonstrate the diversification of the household economy.

**Table 5.** Prices of livestock products in Shien village area

	2001	2002
Sheep wool	100 T/kg	80 T/kg
Goat wool	400 T/kg	40 T/kg
One heifer		25,000 T
One sheep		8,000 T

**Table 6.** Sources of income and expenditures for one herder in the Shien mountain pastures

Income *	Expenses +
1. Sale of sheep and cows	1. Purchase of animals
1. Sale of beef	Herding
2. Herding	Transport (of animals and from market)

3. Sale of cow milk	School
4. Sale of wool	Clothes
	Food
	Medicine

\* Income is rank ordered by importance to overall income

+ Other than the first item, none of the others are in any rank order

Another example of an interesting economic arrangement was a cooperative group of three houses, one of which owns a large number of cattle and the other two families provide hired labor. The cattle owner has built three houses, one for each of the families. A truck from Shien village travels to this area each day to pick up approximately 500 l of milk for the *kalkhoz*, a cooperative dairy located in Shien.

August 25 2002.

C. Kerven visited the main livestock market in Almaty, held every Sunday. Prices were obtained for several products sold this year by farmers. These prices confirm those given by farmers interviewed in villages.

**Table 7:** Prices in Almaty markets.

Type of product	Price received by farmer 2002	Quantity per animal harvested
Angora goat hair	300-450 KZT/kg (\$2 - 3)	2 - 3 kg
Merino/Kazak sheep wool	100 KZT/kg (\$0.60)	6 - 7 kg
Kazak local goat (pregnant)	7,000 KZT (\$40)	
Saanen milk goat (female)	20,000 KZT (\$130)	

## Overall observations / Problems/Recommendations

### 1. Training needed in sorting wool and fiber

The importance of training producers and traders in sorting wool and cashmere cannot be over-emphasized. The Soviet state farms had skilled personnel who graded all fibers; in the case of fine wool, using up to 30 grades. But nowadays private farmers and most traders do not have these skills. Traders usually offer a single low price for all unsorted wool and fiber that inevitably contains both poor and good quality products. Producers are thus unable to reap any benefit of selling better quality wool and fiber. This is summed up by a producer/trader who emigrated from Mongolia to one of the villages we visited: this man formerly worked as a fiber grader in Mongolia on a state farm. His comment is that "The public does not know that after sorting, we [traders] make a lot more money". However, few Kazak traders have these skills, and the raw unsorted product is therefore exported cheaply to other countries. Sorting adds value at the source of production.

### 2. Women should be prime targets for training on wool and fiber development

Kazak and Kyrgyz women, in common with women in other parts of Central Asia, have traditionally processed livestock fiber products from sheep, goats and camels into homemade articles such as carpets and clothing. Sometimes these articles are sold by women and provide a much-needed source of cash income. In handling wools and fibers, women comb, clean, sort, card, spin, weave and knit, as well as make felt and knotted carpets. When male household heads are interviewed about production and sales of wool and other fibers, they frequently refer to their wives for accurate information, which rarely occurs

in the case of other household livestock management questions. Central Asian women are more knowledgeable about and interested in wool and animal fibers, and should therefore be a focus of development efforts to improve marketability of these commodities.

### **3. Market development needs to reflect regional variation of Kazakstan**

The different ecological regions of Kazakstan each have particular potentials to develop wool and fiber marketing. Strategies to improve marketing and producer prices must therefore be geared to these regional advantages. Parts of Almaty, Pavlodar and Dzhambul Oblasts are suited for fine wool Merino crossbred sheep. Western Kazakstan and parts of Almaty Oblast are suited for semi-fine wool breeds. Coarse wool from local crosses is produced in almost all regions but has a very low commercial value. The Oblasts of Atrai, Aktubinsk and Kyzyl Orda are the main areas for camel hair production. The desert portions of southern, western and central Oblasts contain local cashmere goats. Our project will define more closely the development objectives for improved marketing in each region.

### **4. Loss of genetic resources and need to re-invigorate wool breeds**

During the Soviet era, number of specialized wool breeds were developed and adapted to the different ecological regions of Kazakstan. Many of these new breeds were derived from seven British breeds brought to Kazakstan in 1965. According to scientists at the Kazak Sheep Breeding Institute, some of the breeds resulting from crossing UK breeds with Kazak breeds in the past are still very suitable for the present market conditions and private sheep farmers. The Hampshire crossbreed is considered especially appropriate, as it is a fast-growing meat-wool breed producing semi-fine wool for which there is a demand. From an original state flock of 60,000 Hampshire/Kazak crossbreeds there are now only 2,000 remaining. Kazak scientists are keen to develop this breed for sale to private farmers and would like to re-invigorate the breed with new genetic material. Hampshire sheep are raised in the USA and UK.

### **5. Government taking control of wool and fiber marketing**

As the last several years have seen a rise in the value of sheep wool and goat fiber, following the deep slump in the mid 1990s, this trade has become profitable again. The Kazak government is now showing a renewed interest in regulating and in particular taxing, this trade. This follows years of neglecting wool and fiber production in the post-independence period. Local informed opinion is that the state is seeking to share the profits in processing and selling wool and fiber. Examples given are the recent state intervention in a private wool processing company, which has been made into a joint stock company with a government share. The government is also enforcing more stringent taxation of the wool/fiber collection agencies. This has meant that many smaller companies do not register with the state, to avoid paying taxes.

### **6. Infrastructure development**

It is the case that as people are located further away from principle markets, the price of their products declines. The prices would be higher if transport to markets such as Almaty could be obtained.

### **7. World prices**

Producers and domestic traders need information on annual world prices for each commodity according to grade and types. Presently, farmers lack any knowledge of the final worth of their products on the world market and therefore are in a very weak bargaining position with traders. At the same time, domestic traders are also unaware of the price differentials set by processors according to grade specifications. Traders therefore buy indiscriminately without regard for quality, paying only the lowest price for unsorted products. By increasing their awareness of international specifications, traders would be encouraged to set price premiums for better quality product. This would increase farmers' incentives to improve quality and sort their products.

## Kyrgyzstan (Field Report from Carol Kerven)

A visit was made to the Livestock Research Institute, Goat Breeding Department, Frunze village (Chui Oblast) from Aug 16-20. Meetings and field trips were undertaken with the two research partners, Prof. Almeev and Dr. Abdugani.

The work program for the two partners was discussed and agreed, as follows:

*Prof. Almeev* will interview seven traders and three national processors of wool and goat down, using a checklist of questions developed from the proposal (He will carry out these interviews in Naryn town (Naryn Oblast), Bishkek, Akshiski Rayon (Jalal Abad Oblast) and Tokmok town (Chui Oblast). These are main centres for collection of wool and goat down within the country.

He will obtain national statistics on the export of wools and goat down from 1990 to 2002 and a list of all officially-registered traders and traders in wools and fibres operating with the country. He noted that many traders are not officially registered, so as to avoid paying tax, but the largest traders and processors are likely to be registered.

By Dec. 2002 Dr. Almeev's report will be completed and then translated into English by a Kyrgyz translator, Gulbara Tagaeva, who has previously worked on the topic of goat down and assisted the team during this visit.



**Dr. Abdugani and Prof. Almeev with Saanen milk goat buck, in Kyrgyzstan**

*Dr. Abdugani* will carry out the survey of 40 livestock-owning households, using the questionnaire developed for this project (see Appendix 2). The questionnaire was translated into Kyrgyz by Ms. Tagaeva and tested on several farmers in two villages during the visit. The questionnaire was revised three times and Dr. Abdugani was trained in using the questionnaire.

It was agreed that the survey should cover two areas, one in which fine wool/Merino sheep were raised and another area in which cashmere goats were raised. Forty farmers would be surveyed in Chui Oblast, Keminisky Rayon, where Merino and Kyrgyz fine wool sheep were kept and there was a demand from the Kasiet wool processing factory in Tokmok town. The village of Shabdan in this rayon will also be included as downy goats had been introduced there in 1995 and it was likely that farmers in Shabdan village were selling goat down.

A further 40 farmers would be surveyed in Badken rayon of Badken Oblast, in the extreme southwest of the country at a distance of 1000 km from Bishkek. This oblast contains about 200,000 goats, 40% of all goats in the country, and farmers have been selling goat down for several years to traders from Uzbekistan and China. Two villages will be selected: Samarkandik, 60 km from the oblast centre and Aksi village, nearby.

Households will be selected on a stratified sample, according to the level of smallstock ownership within each sampled village. Three ownership categories will be sampled: less than 30 head; 30-70 head and plus 70 head. (NB: coordination on this stratification is needed with the survey by Univ. Wisconsin CRSP on fibres).

The farmer survey will be completed by Dec 2002, and the questionnaires submitted by Abdugani to the national PI, Dr. Malmakov. The raw data will then be processed at CSU. The data from the Kyrgyz farm survey will be compared to that from the survey in Kazakstan of 40 livestock-owning households, under the DARCA Macaulay Institute project.

Dr. Abdugani will also obtain maps showing the location of different sheep (for meat and wool) and goat breeds by ecological zone within Kyrgyzstan in the Soviet period.

### *Findings from Kyrgyzstan*

Given the short period of time spent in Kyrgyzstan, little information could be obtained. Prof. Almeev has prepared a report, which is being translated into English by Dr. Malmakov. Following is a summary:

#### **Cashmere production**

The estimated national production of goat down is between 40-45 tons. Most of last year's production was sold, mainly to traders from China and Uzbekistan. There is some unsold, for example, 4 tons in Badken and 2 tons in Aksikishi rayon. The price of goat down in 2002 was considerably lower than in 2001, as elsewhere in Central Asia. The average price in 2002 was \$ 7-8 kg for combed down, compared to \$11-12 in 2001, according to Prof. Almeev. Domestic collectors are holding onto their stocks from 2002 in the hope that prices will rise in future years.

#### **Development of cashmere goat breeding**

The World Bank funded Cooperatives for sheep breeding (KAO) purchased and marketed goat down in addition to sheep wool last year (2001), for the first time. A new cooperative for farmers raising downy goats (cashmere) was also created under this project, in Talas Oblast in 2001. The goat farm is based at Chong Jirgatau village in Talasiskiy rayon. Prof. Almeev visited this farm recently. The farmer bought 150 downy goats from Aksikishi rayon of Jalal Abad, with financial assistance from GTZ (German aid). The farm aims to raise downy goats for distribution to other farmers. According to Akylbek Rakaev, Manager of the Kyrgyz Sheep Breeders' Association (Washington, GL CRSP meetings Oct 2002), this farm has purchased 40 Orenburg breed goats for multiplication and future sale to other farmers as stud animals. The Orenburg breed produces a type of cashmere much in demand in Russia.

#### **Wool production**

A visit was made to a village called Onbirjilghan in Chuisky Rayon, about 100 km east of Bishkek. Discussions were held with the village administrator, livestock specialist and a large-scale sheep farmer. The village has 400 families. Very few farmers keep fine-wooled sheep, mostly having Kyrgyz fat-rumped (Kurduchne) breeds crossed with Kazak sheep such as Edil Baisky and Digeres breeds. Farmers find it profitable to raise meat breeds as meat from local sheep is in high demand. Several years ago some Merino sheep were distributed to the village through the World Bank project, but the project took these back as farmers did not find them profitable. The Merino lambs required more care compared to local breeds and at that time there was a low price for fine wool. In 2002 villagers sold white wool from Kyrgyz fine wool sheep crossed with meat breeds, at a price of 30 som/kg (\$0.67/kg). The dark coarse, so-called "black", wool from local breeds sells at 4 som/kg (less than \$0.10 cents) but many farmers do not sell this as there is no demand. Farmers use this type of wool for the home, to stuff mattresses and make rugs. No one in this village sells goat fibre though many goats are kept. The reason is that no one knows how to comb goats so traders do not come to buy combed down.

#### **Milking goats**

Milking goats (Saananisky breed descended from Saanan European goats) are kept by some villagers. (see photo). The does give between 3-6 litres milk a day and sell for \$30 each. There is some demand for

these goats among villagers as they require less special feeding than milk cows. Dr.Abdugani is trying to conduct on-farm research on improving this breed and assessing profitability for farmers but the research institute has no budget for this work and no international project is providing assistance.

## Appendix 1.

Appendix 1. shows data on chemical composition of milk of different types of goats (Table 1) and on different kinds of animals (Table 2). Data were gathered by Dr. Serik Arygazier.

**Table 1.** Chemical analysis of the milk of different breeds of goat. (Source: A.V. Rogozia, Breeding Goats, Tashkent, 1936.)

<b>Chemical analyses (%)</b>					
<b>Breeds of goats</b>	<b>Water</b>	<b>Dry part</b>	<b>Protein</b>	<b>Sugar</b>	<b>Fat</b>
Local dagistan	85.83	14.17	4.09	4.51	4.55
Local terek	81.40	15.0	6.03	3.43	4.60
Angora	85.63	14.27	4.39	4.51	4.53
Local Caucas	81.88	15.12	6.03	3.43	4.75
Cashmere	81.70	15.20	4.77	5.10	4.60

**Table 2.** Chemical analysis of the milk of different kinds of animals. (Source: Peter Filipovich, Good Breeding in Kazakhstan, Alma-Ata, 1934.)

<b>Chemical analyses (%)</b>						
<b>Animal type</b>	<b>Water</b>	<b>Dry part</b>	<b>Protein</b>	<b>Sugar</b>	<b>Fat</b>	<b>Ash</b>
Human		12.49	2.01	6.37	3.74	0.30
Cow		12.73	3.30	4.94	3.68	0.72
Goat		13.12	3.76	4.44	4.07	0.85
Sheep		16.43	5.45	4.17	6.18	0.93
Horse		9.74	1.80	6.50	1.06	0.32
Water buffalo		17.07	4.59	4.21	7.16	0.81
Reindeer		32.30	10.90	2.80	17.10	1.50

Water = 100 – (dry part + fat + protein + sugar + ash)

Dry part = fat + protein + sugar + ash

Ash = dry part – (protein + sugar + fat)

## Appendix 2. Questionnaires

Kazakstan DARCA questionnaire (Part of the EU-funded “Desertification and Regeneration” project coordinated by Macaulay Institute, UK)

This questionnaire is used in a quarterly survey of 40 households in four villages, each representing a different ecological zone and livestock production system in southern Kazakstan. Six rounds have been completed since mid 2001. Some of the data from this survey will be used within the GL CRSP project to analyze household sales patterns of wool, goat cashmere and camel hair.

		<b>Kazakstan questionnaire Round 1</b>		Ist round interview	DATE	
	<b>Village name</b>					
	<b>Household head</b>					
	<b>Code number</b>	Village	household	Interview		
	<b>Question number</b>					
<b>1</b>	<b>What is the number of sheep and goats managed by household, including with other owners?</b>					
		Private, this household	No. belong father or brothers	No. belonging to coop	No. belonging to other persons (hired in)	
	No. sheep					
	No.goats					
<b>2</b>	<b>Where are the livestock at the time of this interview? (could be several places)</b>					
	Here - this location	At well -name	Other place- name	Other place -name		
<b>3</b>	<b>Capital equipment and land used</b>					
	<b>Since Dec 2000, has the household owned AND used any equipment?</b>				<b>Number of each owned.</b>	

	tractor	combine harvester	hay baler	planter/sower	barn	
	Motor pump	yurt for moving	wagon	own well	water tanker	
	truck type	other vehicle type	hay cutter	winter house	other equipment 2	
<b>4</b>	<b>Crop and hay land used</b>					
	<b>Last year (2000) did the household use any land for crops or haycutting? YES</b>				<b>NO</b>	
	If YES, ask the following:	Number of hectares used				
	Hayland	Rainfed crop	Irrigated	Pasture		
<b>5</b>	<b>Last year, did the household pay any rent or tax on this land?</b>			Tenge paid per ha.		
	Hayland	Rainfed	Irrigated	Pasture		
	<b>Variable inputs</b>					
<b>6</b>	<b>Last year (2000) did the household grow their own fodder crops?</b>				<b>YES</b>	<b>NO</b>
	If YES, ask:					
	Amount fodder crops harvested 2000		Write in units: bales, rolls, cartloads, tonnes or kilograms of each unit			
	barley	wheat	maize	clover	alfalfa	jitneak
	Other fodder 1	other fodder 2				
<b>7</b>	<b>Last year (2000) did the household harvest any natural (wild) hay?</b>				<b>YES</b>	<b>NO</b>
	Amount wild hay or reeds harvested in 2000:		Write in units: bales, rolls, cartloads or kg. of each unit			
	Hay 1: main plants	Hay 2: main plants	Hay 3: main plants			

<b>8</b>	<b>Did the household purchase fodder since autumn 2000? (NOT for chickens)</b>				<b>YES</b>	<b>NO</b>
	If YES, how many units or kilograms purchased?			Units: bales, rolls, cartloads or kilograms of each unit		
	barley	wheat bran (otrobi)	clover	maize	jitneak	alfalfa
	other fodder 1	other fodder 2				
	Cost per kilogram OR per unit		Write in units e.g. rolls, bales, cartloads, tonnes or kg. each unit			
	barley	wheat	clover	maize	jitneak	alfalfa
	other fodder type 1	other fodder type 2				
<b>9</b>	<b>Other supplementary feed purchased in 2000</b>				<b>YES</b>	<b>NO</b>
	Kg. Combicorn bought	Combicorn cost kg.	Kg. salt bought	Salt cost kg.		
	Kg. Other 1 bought	Other 1 cost kg.	Kg. other 2 bought	Other 2 cost kg.		
	<b>Family labour</b>	Include only family unpaid labour				
<b>10</b>	<b>Since Dec. 2000, what is the number of family members worked with family's livestock?</b>					
	Number of males	Ages of men/boys				
		Include girls/women feeding or milking animals, or processing milk				
	Number of females	Ages of girls/women				
	<b>Hired labour</b>					
<b>11</b>	Since Dec. 2000, has the household employed people to manage livestock, part-time, full-time or by season? <b>YES</b>					<b>NO</b>
	If YES, ask the following					

	How many people hired?	Number days OR	Number months	By job (type)		
	Person 1					
	Person 2					
	Person 3					
	Person 4					
	Person 5					
	How much was each person paid?	By day OR	By month OR	By job	food provided	By head of livestock
	Person 1					
	Person 2					
	Person 3					
	Person 4					
	Person 5					
	<b>Transport and machinery costs</b>					
12	<b>Since Dec 2000, has the h/hold rented transport for watering, selling livestock, moving goods to pasture?</b>					<b>YES    NO</b>
	If YES, ask the following					
	Purpose of trip	rental cost per trip	TOTAL COSTS			
	selling livestock					
	selling wool					
	moving goods to pasture					
	other purpose 1					
	other purpose 2					
13	<b>Since Dec 2000, what were the costs for household's own vehicles or other machinery used for livestock?</b>					
	Purpose of trip	Fuel	Oil	spare parts	Estimated total cost	
	selling livestock					
	selling wool					
	moving goods to					

	pasture					
	other purpose 2					
	<b>Animal health costs</b>					
14	<b>Since Dec. 2000, has the household purchased any medicine for animals?</b>				<b>YES</b>	<b>NO</b>
	If YES, ask the following					
		Type 1	Type 1	Type 3		
	Type of medicine					
	Cost of each type					
	<b>Since Dec. 2000, has the household paid for any veterinary service?</b>				<b>YES</b>	<b>NO</b>
		Type 1	Type 2	Type 3		
15	Cost of vaccine or test					
	<b>INCOME FROM LIVESTOCK</b>					
16	<b>Since Dec. 2000, has the household sold any animals for meat to sell?</b>				<b>YES</b>	<b>NO</b>
	If YES, ask the following:					
	What was age, sex and price of each animal sold?			If more than four of one type sold, continue on back of sheet		
	No. male COWS	Price each age sold	No. female COWS	Price each age sold	No. HORSES male + female	Price each age
	Age					
	Age					
	Age					
	Age					
	No. male SHEEP	Price each age sold	No. female SHEEP	Price each age sold	No. CAMELS	Price each

					male+female	age
	Age					
	Age					
	Age					
	Age					
	No. male GOATS	Price each age sold	No. female GOATS	Price each age sold		
	Age					
	Age					
	Age					
	Age					
17	<b>Since Dec. 2000, has the household slaughtered any animals?</b>				<b>YES</b>	<b>NO</b>
	No. male COWS	No. female COWS	No. HORSES male+female			
	Age					
	Age					
	Age					
	Age					
	No. male SHEEP	No. female SHEEP	No. CAMELS male+female			
	Age					
	Age					
	Age					
	Age					
	No. male GOATS	No. female GOATS				
	Age					
	Age					
	Age					
	Age					

18	<b>Where were these animals/or meat sold?</b>					
	This location	Other place - name	Other place- name			
19	<b>If animals/meat sold in another place, how were animals/meat transported?</b>					
	Own vehicle	rented vehicle	bus			
20	<b>Since Dec. 2000, has the household sold any sheep wool or fibre (goat, camel)?</b>			<b>YES</b>	<b>NO</b>	
	if YES, ask the following:					
	Total kg. sheep wool sold	Type of wool	Price for kg.	Who/where sold to?	If exchanged, what got?	
	Total kg. goat fibre sold	Type of fibre 1	Price for kg.	Who/where sold to?		
	Total kg. camel fibre sold	Type of fibre 2	Price for kg.	Who/where sold to?		
21	<b>Since Dec. 2000, has the household sold any hides or skins?</b>			<b>YES</b>	<b>NO</b>	
	If YES, ask the following:					
	No. of hides/skins 1 sold	Type 1 hides/skins	Price for piece	Who/where sold to?	If exchanged, what got?	
	No. of hides/skins 2 sold	Type 2 hides/skins	Price for peice	Who/where sold to?		
22	<b>ASK WIFE: Since Dec. 2000, has the household sold any milk/dairy products?</b>			<b>YES</b>	<b>NO</b>	

	If YES, ask the following:					
	CREAM No. litre sold	Price/kg	BUTTER No. kg. sold	Price/kg	YOGHURT No. litre sold	Price/litre
	KURD No. litres sold	Price/kg.	MILK No. litres sold	Price/litre	OTHER No. litres sold	Price/kg.
23	<b>LIVESTOCK RECEIPTS</b>					
	<b>Since Dec 2000, has the household bought, inherited or been given any livestock?</b>				<b>YES</b>	<b>NO</b>
	If YES, ask the following:	Record prices ONLY for animals bought, not inherited or given				
	No. male COWS	Price for each age	No. female COWS	Price for each age	No. HORSES	Price for age
	Age					
	Age					
	Age					
	Age					
	No. male SHEEP	Price for each age	No. female SHEEP	Price each age	No. CAMELS	Price for age
	Age					
	Age					
	Age					
	Age					
	No. male GOATS	Price for each age	No. female GOATS	Price each age		

**Kyrgyzstan Questionnaire**

This questionnaire was designed specifically for the GL CRSP project in Kyrgyzstan, modified from the questionnaire developed for the EU DARCA project in Kazakstan (Macaulay Institute UK).

16-Aug-02 **QUESTIONNAIRE ON KYRGYZ CRSP  
WOOL/CASHMERE**

<b>Rayon name</b>		
<b>Village name</b>		
<b>Household head name</b>		
<b>Code number</b>	<b>Village Code</b>	<b>household code</b>

**Question number**

**1 What is the number of sheep and goats managed by household, including with other owners?**

	Private, this household	No. belong father, brothers and other relatives	No. belonging to coop	No. belonging to other persons (hired in)	<b>TOTAL number</b>
No. of sheep					
No. of goats					

**2 What are the breeds of privately-owned sheep and goats?**

Sire sheep ram breed	No. of White, merino	No. Kyrgyz fine wool	No. Local 1 (name)	No. Local 2 (name)

  

Sire goat buck breed	No. of Angora	No. of local type	No. of milk goats

**3 In the last 12 months has the household owned AND used any equipment?**

**Number of each owned.**

tractor	motorcycle	hay baler	planter/sower	barn

Motor pump	yurt/tent for moving	wagon	own well	water tanker
truck type	other vehicle type	hay cutter	winter house	other equipment 2

**4 In the last 12 months how many family members in this household worked with family's livestock? Only unpaid family**

Number of males	Ages of men/boys
Number of females	Ages of girls/women

Include girls/women feeding or milking animals, or processing milk

**5 In the last 12 months has the household hired people to manage livestock, part-time, full-time, by season?**

**YES NO**

If YES, ask number of people

Type of job	Shearing	Herding	Cutting hay	Other type of job
Part time/seasonal				
Full time				

**6 In the last 12 months has the h/hold hired transport for selling wool,goat fibre or animals?**

**YES NO**

If YES, ask the following

<b>Purpose of trip</b>	rental cost per trip	Number of trips	<b>TOTAL COSTS</b>
selling livestock			
sell wool and goat fibre			

**7 In the last 12 months what were the costs for household`s own vehicles or other machinery used for livestock?**

<b>Purpose of trip</b>	Fuel (Som)	Oil (som)	spare parts (som)	<b>TOTAL COSTS</b>
selling livestock				
sell wool and goat fibre				

**8 In the last 12 months, has the household received any credit?**

**YES NO**

If Yes, ask:

Type of credit (name)	Amount credit (Som)	Purpose of credit
-----------------------	---------------------	-------------------


**9 In the last 12 months, how many sheep and goats has the household sold?**

What was the price of each animal sold?

If more than four of one type sold, continue on back of sheet

No. of SHEEP sold	Price each type sold	TOTAL INCOME SHEEP SOLD	

No. of GOATS sold	Price each type sold	TOTAL INCOME GOATS SOLD	

**10 Where were these animals or meat sold?**

Where animals sold      where meat sold

to traders came here		
other place -name		
hours from here		
other place 2 -name		
hours from here		

**11 This year in 2002, has the household sold any sheep wool or goat fibre ?**

**YES**

**NO**

if YES, ask the following:

kg. Merino wool sold	kg. fine wool	kg. black wool	TOTAL SOM received

kg. Angora fibre sold	kg. Local down sold	<b>TOTAL SOM rec'ed</b>

**12 This year in 2002 where was this wool and goat fibre sold?**

	Wool sold	Goat fibre sold
To trader came here		
Other place -name		
No of hours from here		
other place 2 -name		
No of hours from here		

**13 Last year, in 2001, did the household sell any sheep wool or goat fibre?**

**YES**

**NO**

if YES, ask the following:

kg. Merino wool sold	kg. fine wool	kg. black wool	<b>TOTAL SOM received</b>

kg. Angora fibre sold	kg. Local down sold	<b>TOTAL SOM rec'ed</b>

**14 This spring, 2002, did the household shear or comb their goats?**

Mark one or both

Shear:
Comb:

**15 In the last 12 months has the household sold any skins?**

**YES**

**NO**

If YES, ask the following:

No. of skins 1 sold	Type 1 hides/skins	Price for piece	Who/where sold to?	If exchanged, what got?
No. of skins 2 sold	Type 2 hides/skins	Price for piece	Who/where sold to?	

**16 In the last 12 months has the household bought any rams or goat bucks, or inherited or been given any sheep or goats?**

If YES, ask the following:

Record prices ONLY for animals bought, not inherited or given

male SHEEP bought	Price for each	female SHEEP	Price each	TOTAL SOM SHEEP
Breed		Breed		
Breed		Breed		
Breed		Breed		
Breed		Breed		

male GOATS bought	Price for each	female GOATS	Price each	TOTAL SOM GOATS
Breed		Breed		
Breed		Breed		
Breed		Breed		
Breed		Breed		

