

Witnessing 100 years of the sub-Arctic region's climatic variability: sheep farming in southern Greenland

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Sheep farmers in southern Greenland are witnesses to a recent and historical changing climatic conditions. Since sheep farming is directly influenced by weather conditions, seasonally and yearly, the developmental history of sheep farming reflects a hundred years of local adaptation to the changeable climate of the sub-Arctic region. In southern Greenland, approximately 22,000 lambs and sheep are processed yearly and distributed within Greenland. In addition to seal meat and dried cod, lamb is regarded as traditional food in Greenland.

History

1) The reintroduction of animal husbandry

At the turn of the 20th century, the paternalistic colonial policy of Denmark reintroduced sheep farming to Greenland. Because of low prices of blubber oil and the persistence of subsistence fishing, Greenland industry was underdeveloped from a Danish point of view. The Danish authority intended to give a "sideline" to Greenlanders (Inuit descendant inhabitants in Greenland). The reintroduction meant the revival of animal husbandry after the demise of Norsemen communities in the 15th century, just before so-called the Little Ice Age. Greenland has been under the sway of a big historical climate cycle. The Danish attempt of reintroduction of sheep raising was successful partly because of a rising trend in temperature at that time, which became apparent during the 1930s. Local sheep farmers tell that their previous generations experienced this warming trend.

2) The early stage of sheep raising in southern Greenland

In 1917, the Danish authority established a sheep breeding station at the town of Qaqortoq, southern Greenland, in order to promote sheep raising among Greenlanders. Gradually seal-hunting Greenlanders picked up an interest in this new kind of livelihood (i.e., sheep raising). The total number of sheep kept (ewes) in southern Greenland surpassed 5,000 by 1930, continuously increasing to approximately 10,000 in 1936, and reached 22,000 in 1948. By the 1950s, one in five kept sheep in southern Greenland. Sheep raising clearly took hold in the society as an important economic activity.

3) The establishment of today's sheep farming

In 1924, one Greenlander started to make a living at Qassiarsuk exclusively by sheep farming. This is the origin of today's large-scale, professional sheep farming. Before long, full-time sheep farmers' community was also established at Igaliku. After the 1930s, full-time sheep farmers began to appear along the inner part of the fjords towards the south, near the town of Nanortalik. They were unique because, at that time, most people were small-scale, part-time sheep farmers. Statistics show that in 1948 among 264 sheep farming, as many as 212 of them (about 80%) kept only fewer than 100 sheep.

The form of sheep raising started to change after several harsh winters. Recurrent cold spells squeezed many sheep owners' households. At that time, sheep owners would let their animals loose in hills and mountains all year around, even during the winter months. In the inner fjords of southern Greenland, a cold wind and a warm foehn wind (a Chinook-like wind) alternate, which results in a wide fluctuation in temperature. Once covered by ice, pastures are not accessible to animals. In a harsh winter, many sheep starved to death. The number of sheep declined from 22,000 to 9,000 in 1948-49, from 23,000 to 17,000 in 1956-57, and from 47,000 to 22,000 in 1966-67. Particularly, after the 1966-67 winter, many sheep owners stopped keeping sheep. By regulation, sheep has been slaughtered and

processed at a slaughter house. A decline in meat production reflects historical harsh winters (Figure 1).

By the 1970s, it became clear that a small-scale sheep raising was not profitable and that sheep raising should be upgraded. The sheep breeding station was moved from Qaqortoq to Upernaviarsuk, northeast of the town in the same fjord, being upgraded to the agricultural research station. Further, in the 1970s, its administration was transferred from the Danish to Greenlanders. When Greenland gained autonomy from Denmark in 1979, the Greenland government enforced regulations which required sheep owners to stable their animals during winter and to provide sufficient fodder for their animals. Accordingly, small-scale sheep owners declined in number while large-scale, full-time sheep farmers survived because they were able to afford to build and renew sheep sheds and to grow grasses during summer. Today, no one keeps sheep as a sideline. Although Greenlanders lost a form of sheep raising as a sideline, about 50 full-time, large-scale (300 to 700 sheep per farm) sheep farms have been established. Sheep farming has now become a new tradition in southern Greenland, establishing a strong presence in Greenlandic culture.

The vertical linkage of support system in sheep farming

A review of the history of sheep farming in Greenland shows coordinated efforts to cope with climatic variability and anomalies. Sheep farmers created associations in different communities to help each other. The agricultural research station (at Upernaviarsuk) has a farming school to train youngsters to become the next generation's responsible farmers, and the state agricultural advisory office assumes the role of pipeline between government and farmers. In light of climate change, farmers' adaptive capacity has been built through this vertical linkage from the local to national level. In a sense, sheep farming developed by coping with abruptly changing weather conditions in winter.

Now that farmers confine their animals during the winter season, farmers' current concern is weather in the summer instead. Recently, Greenlandic sheep farmers are observing drier summers that substantially affect the production of grasses – fodder making for winter stabling. The government offers subsidies on well favourable terms when farmers expand their fields, so that they can cultivate arable areas in order to increase their hay production. In the event of a bad harvest, farmers buy fodder from foreign countries, such as Norway, to supplement the shortage, through the federation of sheep farmers' associations. Although it may create a dependency of farmers on government, this vertical linkage is still helpful for sheep farmers to cope with abnormal summer weather conditions.

Information exchange across scales

In the years 2008, 2009, and 2015 when I did my fieldwork, dry summer conditions were the primary concern of sheep farmers. Although farmers can supplement the shortage of grasses by importing fodder from foreign countries, unfavourable weather conditions caused financial burden on farmers. Some farmers used sprinklers for their fields drawing water from the nearest river. A few farmers built a small hydroelectric generator at river in order to cut the expenditure for fuel. These mitigation measures were also assisted by government subsidies through the agricultural advisory office.

Sheep farms spread along the coastlines of the inner fjords. Local weather conditions vary from place to place. Farmers communicate local information at occasions such as sheep farmers' association's meetings and casual visits to town. In addition to the horizontal information exchange, farmers' information is moved to upper scales such as the federation of sheep farmers' associations and government. The media (the Greenland national broadcasting corporation) also takes a role in information transmission to communities in the form of radio and TV news. Farmers expect that the government can take swift action to mitigate damage caused by unusual weather conditions, based on smooth communication at all scales.

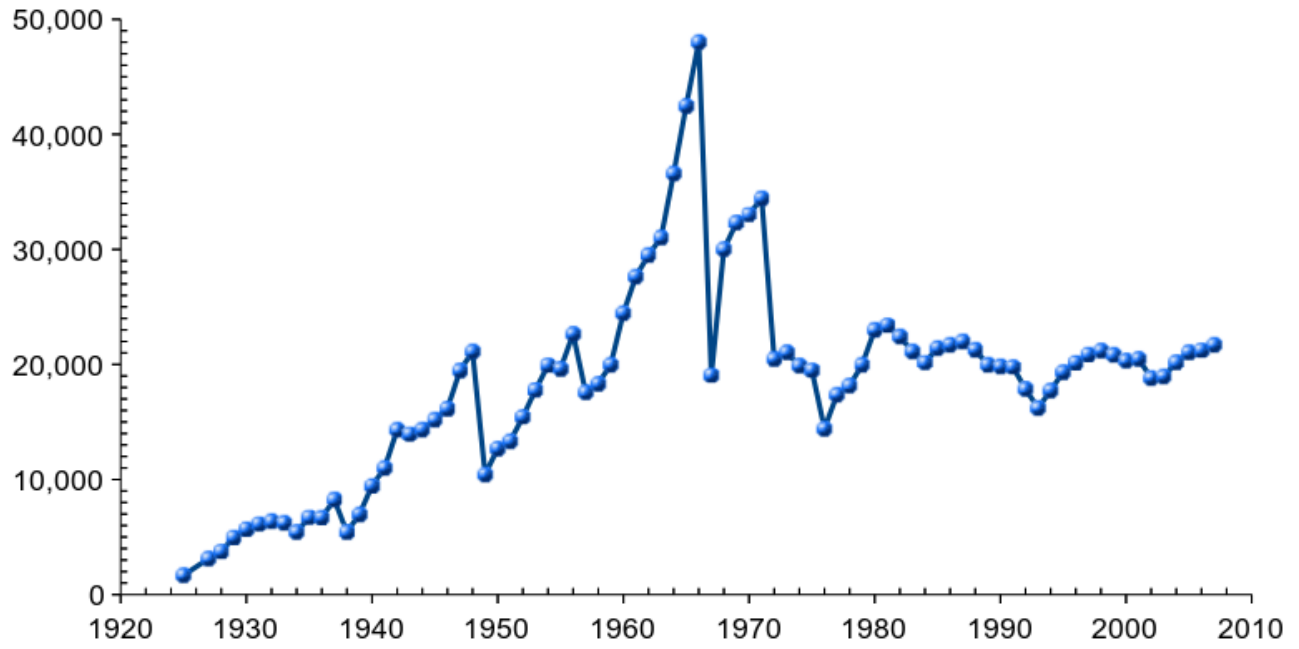


Figure 1. The number of sheep slaughtered and processed between 1925 and 2009