**Application**

The use of a common sheep recording system to facilitate common breeding work

**Introduction**

In Iceland there is only one breed of sheep, the Icelandic sheep. Of the North European short-tailed breeds, it has the greatest population size (Dýrmundsson and Niznikowski, 2010). A common sheep registration system has existed in Iceland since 1940. For the first decades only the most progressive breeders participated. The proportion of the sheep population registered slowly went up and was 46% by 2000. From year 2003, participation in sheep recording and other good farming practises became conditions for a part of the subsidies on lamb meat production in Iceland. By 2004, registration reached 81% of the sheep population, and since 2017 this number has been over 95%. The aim of this study was to investigate how these changes have affected the productivity and efficiency of Icelandic sheep production.

**Materials and Methods**

Data on the number of winterfed sheep and the total production of sheep meat in Iceland per year (1961-2023) were gathered from public records (statice.is). Data on production costs were obtained from yearly reports (1991-2019) of farm economics, i.e., the detailed economic data of a representative sample (5-10%) of Icelandic sheep farms through these years (Sveinbjörnsson & Kristófersson, 2021).

**Results**

In the years 1961-1980, the number of winterfed sheep in Iceland was between 736 and 896 thousand; the highest number occurred in 1978. During this period a considerable proportion of the meat was exported with subsidies. A quota system aiming on production only for the domestic market was introduced in 1983, and the sheep population decreased rapidly. In 1995, the quota system was abandoned, but export was not subsidised, so the number of winterfed sheep kept stable between 450 and 500 thousand in the years 1995-2002. The average yearly increase in sheep meat produced per winterfed sheep in Iceland was 0.06 kg in the period 1983-2002, but 0.24 kg in the period 2003-2023. The total sheep meat production was similar (8600 tons) from 385 thousand winterfed sheep in 2022 as from 474 thousand in 2002. The positive shift in productivity after 2003 is mainly related to the much greater participation in sheep registration and common breeding work, encouraged by the changes in the payment scheme. From 2003, a part of the subsidies was paid per kg of lamb meat produced only if farmers participated in sheep recording and other good farming practises. Analysis of yearly reports (1991-2019) of sheep farm economics show that the variable costs at farm level, adjusted for inflation, have remained stable throughout that period. The increase in productivity has counteracted new costs.

Other benefits are also apparent from the major participation in sheep registration and common breeding work. In the late 20th century, too high a proportion of fat in lamb carcasses became a major drawback on lamb meat consumption in Iceland. The use of ultrasonic scanning for progeny testing since the 1990’s, the adoption of EUROP classification system in 1997, use of inseminations and the overall great participation in the common breeding work since 2003 have resulted in great improvements. The average carcass is now 2 kg heavier, with a lower fat grade and considerably higher conformation grade than in the year 2000. This has greatly helped maintain the domestic market for lamb meat. Recently, the common breeding work has become the basis for a national plan of eradication of scrapie by using genotypes protective against the disease. The ARR genotype was found for the first time in Iceland in January 2022, and now most Icelandic sheep farmers are active in this national plan.

**Conclusions**

By linking part of the subsidies on sheep production in Iceland to participation in a common sheep registration system, a very positive shift in productivity and carcass quality has been achieved.

**References**

Dýrmundsson, Ó.R. & Niznikowski, R. (2010). Animal 4 (8), 1275–1282. https://doi.org/10.1017/S175173110999156X

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