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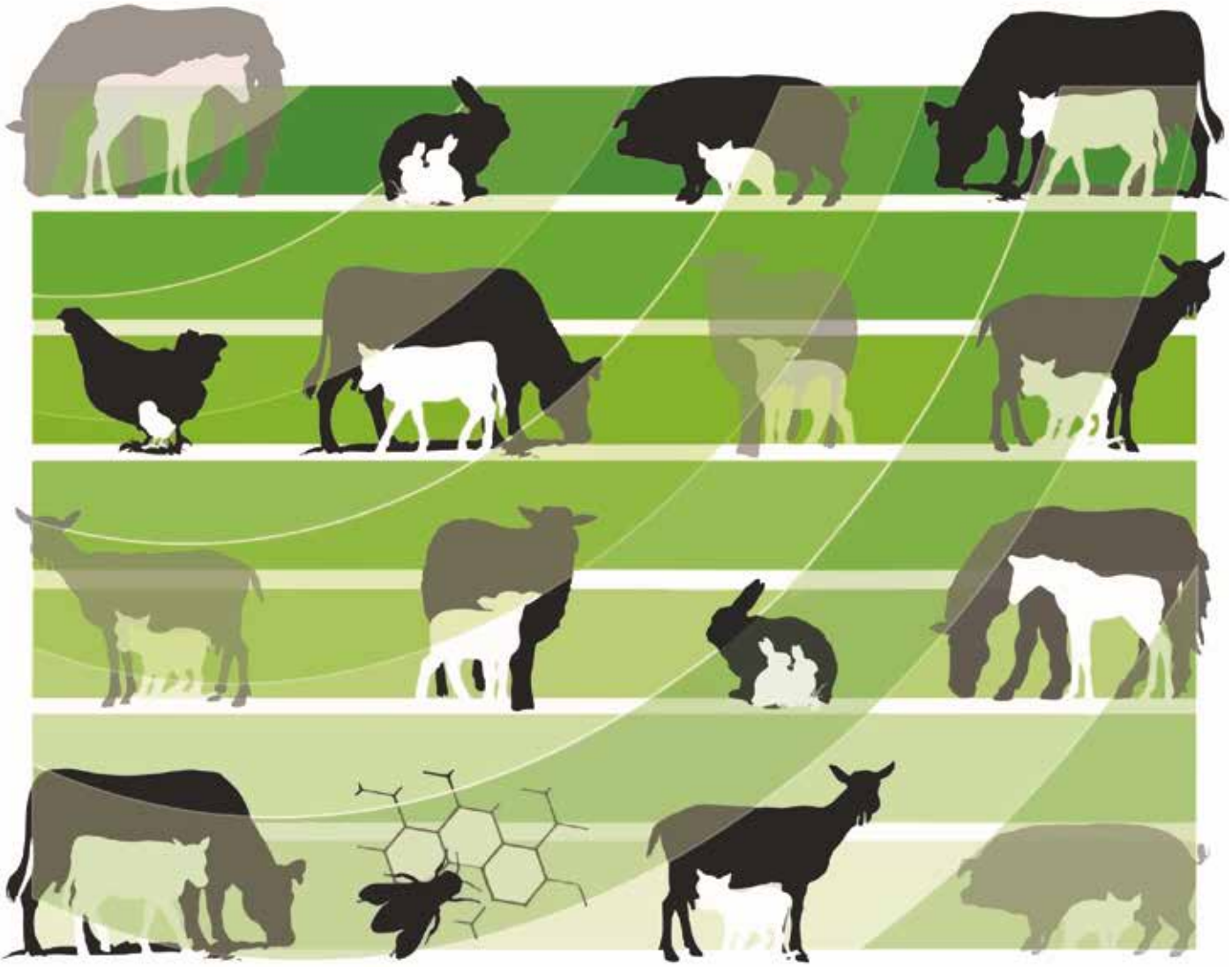
Farm animal genetic resources in Switzerland



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Foreword

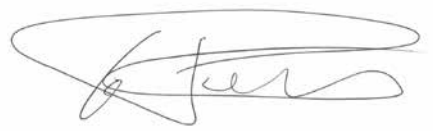
Joining forces to conserve Swiss breeds

Over the millennia, the gradual domestication of wild animals gave rise to a wide variety of farm animal breeds, with a vast genetic potential. However, the increasing intensification of agriculture and livestock production led to an almost exclusive focus on the production of individual high-yielding breeds. As a result, many native Swiss breeds have come under pressure.

In 1994, Switzerland ratified the Convention on Biological Diversity, thus undertaking to support the conservation and sustainable use of native breeds. A total of 38 – cattle, pig, sheep, goat, horse, chicken, rabbit and honeybee – breeds are now recognised as native Swiss breeds. Of these, at least 18 are at risk of extinction. Over the past 20 years, the Federal Office for Agriculture (FOAG) has therefore provided financial support for more than 60 projects concerned with the conservation of native breeds. In addition, breeders, breeding organisations, the ProSpecieRara foundation and research institutions are working together to promote the conservation and sustainable use of native Swiss breeds. The FOAG coordinates these activities at the national level and, at the international level, represents Switzerland in the Food and Agriculture Organization of the United Nations (FAO) and in European networks.

The present publication supersedes the 2007 booklet "Farm animal genetic resources in Switzerland". It includes updated information on Swiss agriculture, an overview of conservation activities and detailed descriptions of the 38 native Swiss breeds. For anyone interested in finding about more Switzerland's unique breed diversity, this will be a valuable and fascinating read!

Guy Parmelin
President of the Swiss Confederation 2021



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Switzerland and its agriculture

Switzerland's climate and topography are favourable for livestock farming and also explain how such a wide variety of farm animal breeds developed within a relatively small area. With grassland accounting for around 70% of the total, much of Switzerland's agricultural area is used for keeping ruminants (cattle, sheep, goats). Livestock farming is of major importance Switzerland.

Geography and climate

Geography

Lying in Central Europe, Switzerland is shaped by three characteristic landscapes – the Jura, the Central Plateau and the Alps. The 300-km limestone-and-marl mountain range known as the Folded and Table Jura makes up 10% of the area of Switzerland. The Jura valley floors are at 300–400 m, and the highest peaks at 1700 m asl. The undulating moraine landscape of the Central Plateau represents the core agricultural zone, making up 30% of the country's total area. From the valleys at 300–500 m, the adjoining prealpine region rises to 1300 m. The Alps, making up 60% of the total area and consisting of limestone and primitive rock, rise to 4600 m. Human settlement and use of the Alps is limited by the climate, the vegetation period and the terrain.

Climate

Switzerland's climate is primarily a result of its geographical position and its complex topography. The geographical location determines what kinds of weather are predominant, while the topography gives rise to regional differences and special climatic conditions within Switzerland.
Switzerland's climate is heavily influenced by the Alps, as well as by the Atlantic Ocean. Winters in the northern plateau are mild and damp, whereas higher altitudes experience arctic temperatures. The mean annual temperature ranges from <0°C to 12.4°C (MeteoSwiss, 2020a). At altitudes above 1200–1500 m asl, precipitation in the winter falls mainly as snow. The south side of the Alps is strongly affected by the Mediterranean, and – compared to the climate in the north – the main difference lies in the considerably milder winters. All along the Alpine ridge there are frequent thunderstorms in the summer.
In addition to their prominent role as a climate barrier between north and south, the Alps also generate several different climate regions. One of these is that of the inner Alpine valleys, which have a distinct climate of their own as they are shielded from precipitation from both the north and the south. The consequence of this are the relatively dry conditions prevailing throughout the year (average precipitation: 500–700 mm per year). In contrast, in the northern Alpine foothills, the Alps and southern Switzerland, annual precipitation volumes of around 2000 mm are the norm. In the northern plateau, the average amount is around 1000–1500 mm per year (MeteoSwiss 2020b).

Swiss climate charts:
https://www.meteoswiss.admin.ch/home/climate/swiss-climate-in-detail/climate-normals/norm-value-charts.html

Sources:
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Agriculture in figures

Functions of agriculture

Article 104 of the Federal Constitution states: "The Confederation shall ensure that the agricultural sector, by means of sustainable and market oriented production, makes a substantial contribution to:

- provision of secure food supplies for the population;
- conservation of natural resources and management of the cultural landscape;
- decentralised settlement of the country."

Under Article 104a, it is specified that, in order to guarantee food supplies, the Confederation is to create the conditions required for:

- safeguarding the basis for agricultural production, and agricultural land in particular;
- food production that is adapted to local conditions and uses resources efficiently;
- an agriculture and food sector that responds to market requirements;
- cross-border trade relations that contribute to the sustainable development of the agriculture and food sector;
- using food in a way that conserves natural resources.

In addition, the Confederation is required to encourage methods of production that are particularly near-natural and respectful of both the environment and animal welfare. The contributions made by agriculture thus go beyond food production. As these are in the public interest, they are subject to financial incentives or compensation provided by the state (BLW, 2018).

Utilised agricultural area

Switzerland's utilised agricultural area (UAA; total 1.04 m ha) is classified as follows (Figure 1; Agrarbericht, 2020a):

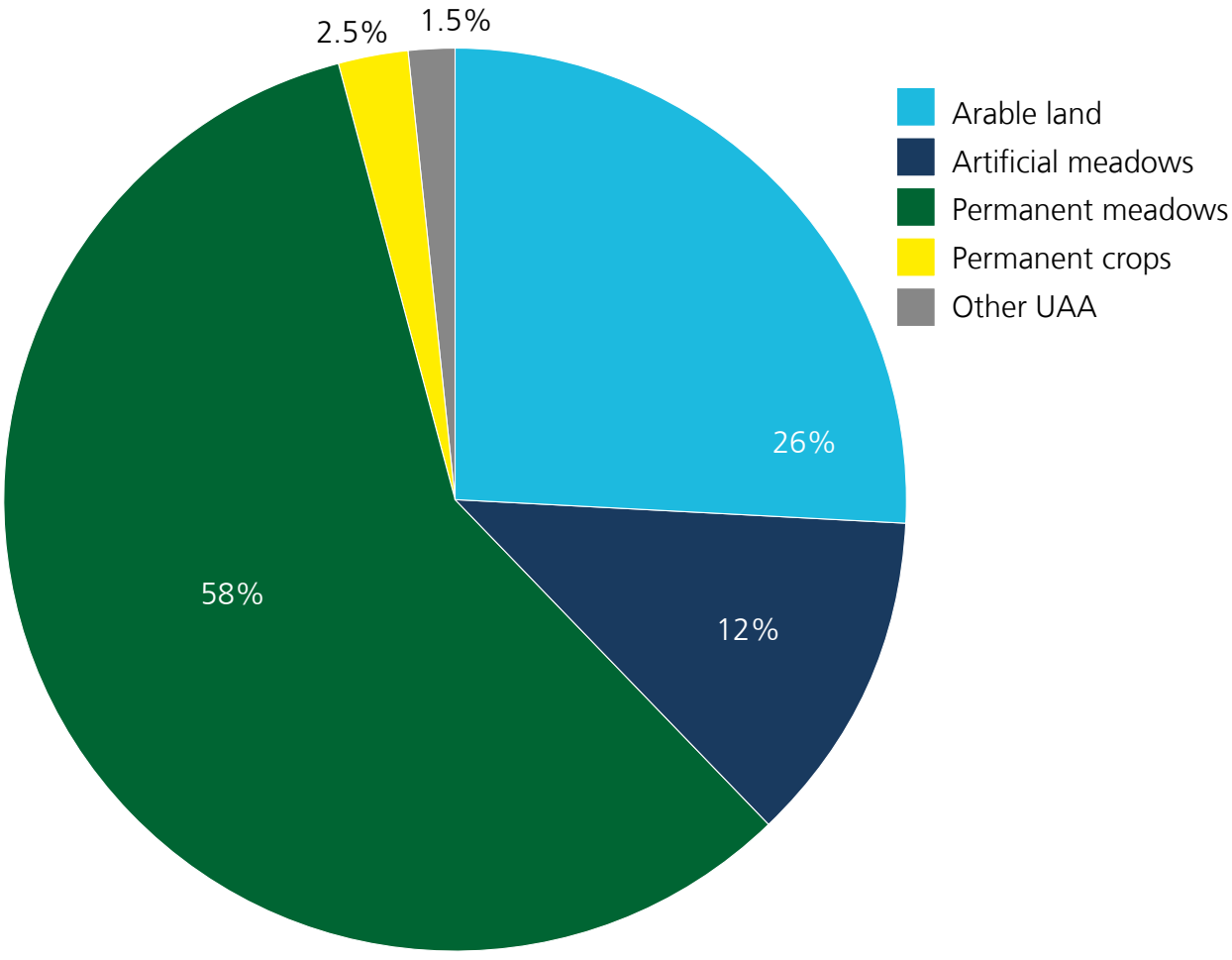


Figure 1: Switzerland's utilised agricultural area, by type of use

Because grassland accounts for a high proportion (around 70%) of the total UAA, ruminant farming is of great importance for Switzerland. More than 50% of all ruminants (cattle, sheep, goats) are kept in the hilly and mountainous regions of Switzerland (BFS, 2020a). Here, people have lived with and off livestock for centuries. As a result, many local breeds have arisen in these regions, some of which still survive today.

Development of livestock numbers

As a result of structural changes in Swiss agriculture, livestock numbers have also changed. Cattle and pig numbers have declined since 1985, while horse and chicken numbers have steadily risen. Sheep and goat numbers increased between 1985 and 2008, and have since declined.

Livestock type	1985	1998	2008	2019[1]
Cattle	1 848 431	1 640 871	1 604 287	1 524 820
of which cows	822 120	737 343	726 875	682 858
Equines	37 354	56 237	76 777	80 690
Pigs	1 966 973	1 486 955	1 540 129	1 359 684
Sheep	271 780	422 270	446 153	343 581
Goats	53 386	60 106	87 602	80 469
Chickens	6 237 006	6 565 971	8 474 239	11 828 869

[1] From 2015, reference day moved from early May to 1 January.

Table 1: Development of livestock numbers from 1985 to 2019 (BFS, 2020b)

Economic importance of animal production

In 2019, animal production was of major economic importance, accounting for at least 48% of total agricultural output (Agrarbericht, 2020b). Within animal production, the contribution of milk was most important (21%), followed by beef (12%) and pork (9%) (Figure 2). This data confirms the traditionally high economic importance of animal production for Swiss agriculture.

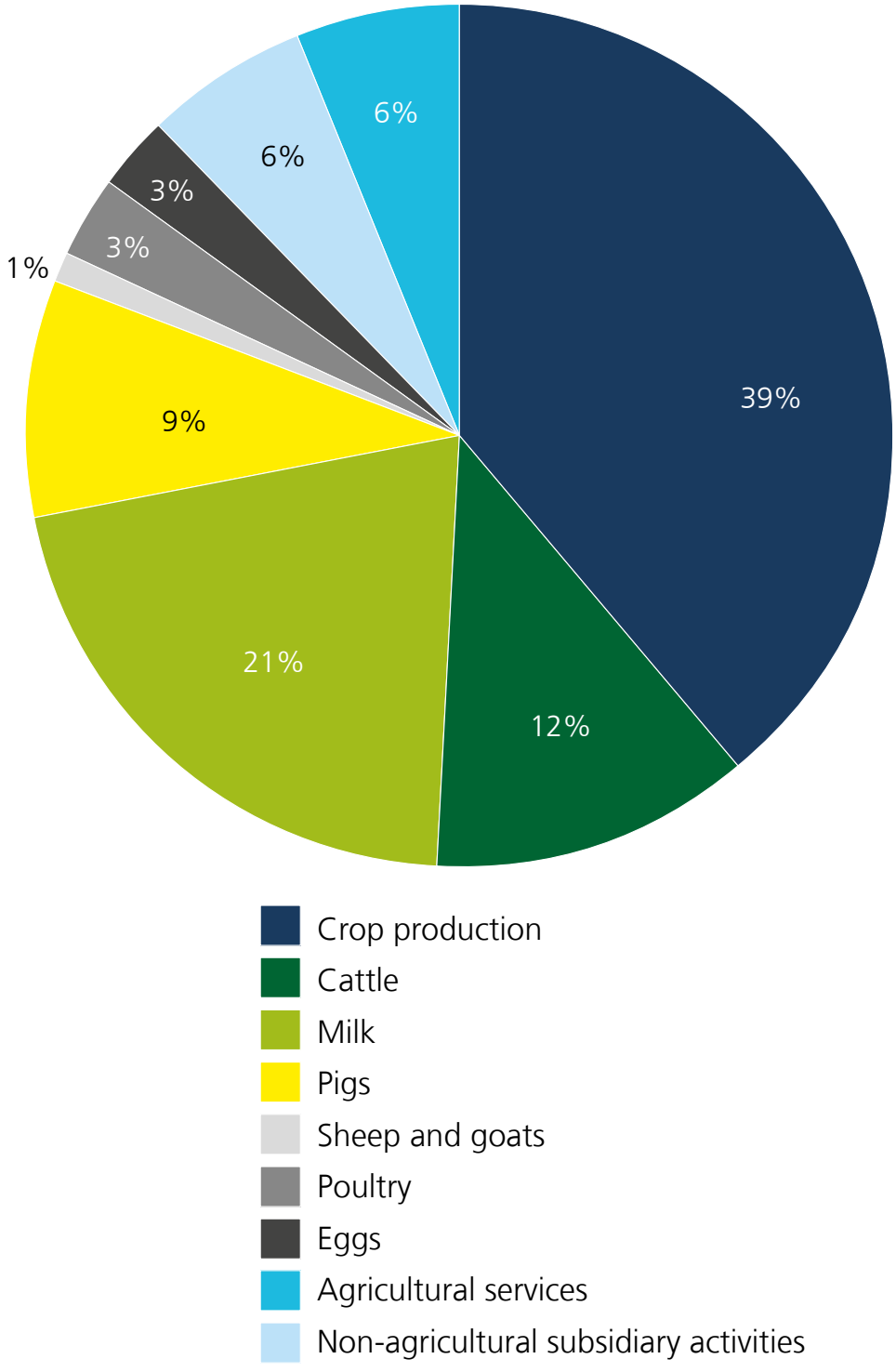


Figure 2: Output of agriculture at current basic prices, in per cent per sector in 2019

Animal products

Milk is an important sector of Swiss agriculture, accounting for around 21% of total agricultural output (Figure 2). In 2019, 3.4 m tonnes of milk was produced, two thirds of which was used to produce cheese, quark, cream and butter (Agrarbericht, 2020c). Specialty products from dairy goats and sheep are increasingly popular among consumers. Accordingly, dairy goat and sheep numbers have increased steadily in recent years.

Meat production rose by 16% between 2000 and 2017, with poultry meat production doubling over this period. In 2019, total meat production amounted to around 478 000 tonnes carcass weight, representing a decrease of 2.3% compared to the previous year. Of this total, pork accounts for around 46%, beef about 25%, and poultry almost 21%. Meat production made up over a quarter of the value of total agricultural output (Figure 2) (Agrarbericht, 2020d). In 2019, the Swiss population's annual meat consumption – 51.3 kg per capita – was slightly lower than in the previous year, with a domestic share of almost 81% (Proviande, 2020).

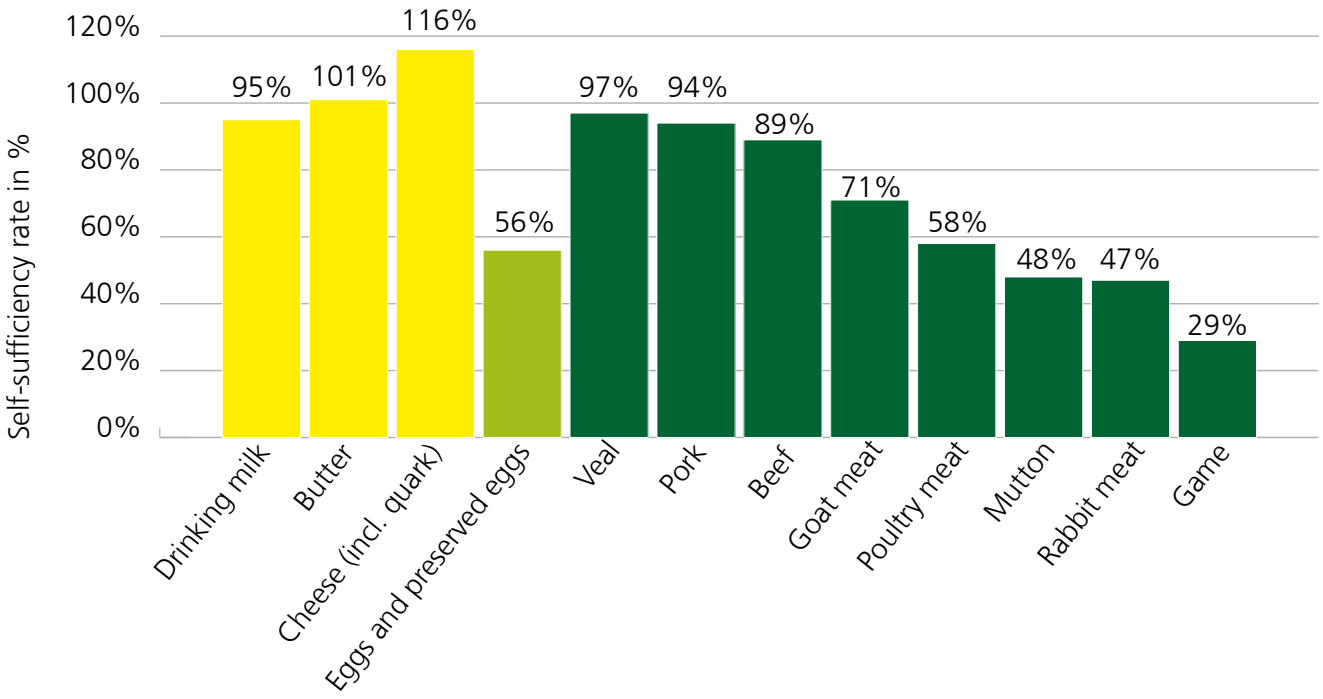
In 2019, 1000 m **eggs** were produced (Agrarbericht, 2020e) and, more generally, egg and chicken meat production is booming. However, this boom has no influence on Switzerland's farm animal genetic resources, as conventional chicken and egg production involves almost exclusively the use of commercial poultry lines bred by a small number of international companies.

Self-sufficiency rate

The self-sufficiency rate is defined as the ratio of domestic production to total domestic consumption, with the latter being calculated using the formula "production plus imports minus exports and changes in stocks". A distinction is made between gross and net self-sufficiency: the fact that some domestic production relies on imported animal feed is taken into account in determining the net self-sufficiency rate: domestic animal production is thus reduced by the proportion produced using imported feed (Agrarbericht, 2020f).

Over the past 20 years, domestic production covered around 60% of gross food consumption (in terms of usable energy); the figure for net food consumption was 7% lower. The gross self-sufficiency rate varies between 40% and 50% for foodstuffs of plant origin, and between 29% and 116% for the various foodstuffs of animal origin (Figure 3). In 2018, the overall averages for foodstuffs of animal origin were 100% (gross consumption) and 76% (net) (Agristat, 2020; Agrarbericht, 2020f).

Figure 3: Gross self-sufficiency rate for foodstuffs of animal origin in 2018, by usable energy, according to the food balance sheet



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Breed diversity in Switzerland

Diversity

The function and productivity of agricultural systems are substantially influenced by biodiversity (BLW, 2018), meaning "biological diversity" or the "diversity of life". Biodiversity is high where organisms of different types occur together; it is lower if they are all very similar. High biological diversity is seen as an indicator of a healthy environment.

Biodiversity can be divided into three hierarchical levels – ecosystem, species and genetic diversity (Figure 4).

Figure 4: The three levels of biodiversity in agriculture (BLW, 2018)

Ecosystem diversity involves the diversity of habitats and ecosystems. Within an ecosystem, plants, animals, microorganisms and humans assume different roles and functions. They influence pollination, pest and disease regulation, the water and nutrient cycle, erosion control, forest fires and the climate.
In relation to animals, biodiversity involves **species diversity** and **genetic diversity** (animal genetic resources), regardless of whether they are used as farm animals or not. This also covers, for example, fish and insects.
Genetic diversity – the variety of genes and alleles within a species – provides the basis for the adaptation of species and breeds to environmental conditions, or for modification by breeding. It is thus closely linked to breed diversity (BLW, 2018).
The subset of biodiversity which is important for food and agriculture is known as agrobiodiversity. This includes the genetic resources of farm animals. Large-scale monocultures and an exclusive focus on high performance breeds diminish biodiversity both in agriculture and in the ecosystems concerned, such as the rainforest. Humans thus have a major influence on all three levels of biodiversity (Figure 4), including agrobiodiversity.

Sources:
BLW, 2018. Animal Breeding Strategy 2030 (only available in French / German / Italian).

Animal genetic resources

Among the animal genetic resources important for food and agriculture are the various kinds of farm animals and the associated breeds. In 2018, these comprised: cattle (including buffaloes and bisons), pigs, sheep, goats, equines (horses, ponies, donkeys, mules and hinnies), New World camelids (llamas, alpacas), poultry, rabbits, game kept in enclosures, and honeybees (BLW, 2018).

Within a genus, the diversity of breeds is relevant. According to the definition used by the FAO (2020), a breed is "either a subspecific group of domestic livestock with definable and identifiable external characteristics that enable it to be separated by visual appraisal from other similarly defined groups within the same species, or a group for which geographical and/or cultural separation from phenotypically similar groups has led to acceptance of its separate identity".

On the basis of their origins and the date of establishment of the herdbook, breeds are classified as either Swiss or non-Swiss.

According to Article 23 of the Animal Breeding Ordinance (SR 916.310), a Swiss breed is a breed:

- which originated in Switzerland before 1949; or
- for which a herdbook has been maintained in Switzerland since at least 1949.

Swiss breeds are of conservation value in accordance with the 1992 Convention on Biological Diversity (CBD) (BLW, 2018).

With over 80 registered cattle, pig, sheep, goat and honeybee breeds, Switzerland has an impressive variety of farm animals (BLW, 2020a). In addition, more than 40 horse, 44 rabbit and over 90 chicken breeds are bred in Switzerland. Of these breeds, 38 are considered to be Swiss breeds according to the above-mentioned definition. These Swiss breeds are listed in Table 2, which includes information on the number of animals registered in the herdbook (2019) and the risk status. These breeds are well adapted to local conditions and closely associated with the country's history and traditions.

As a result of changes in the operating environment and structural changes, most cattle and horse breeds have only been introduced in the last 30 years. Other genera and breeds have likewise been "discovered" as new farm animals (llamas, deer, buffaloes, etc.). For many of these breeds, the size of the population remains insignificant today. Of the many horse, rabbit and chicken breeds bred in Switzerland, only one horse (Freiberger), two rabbit (Swiss Feh and Swiss Fox), and three chicken breeds (Appenzell Barthuhn, Appenzell Spitzhaube and Schweizerhuhn) are considered Swiss breeds. In the case of honeybees, only one of three breeds – the Dark Bee (*Apis mellifera mellifera*) – is considered a native breed (BLW, 2020a).

Breed	Genus	Herdbook since	No. of females registered in herdbook (2019)	No. of males registered in herdbook (2019)	Cryopreserved material (2020)**	FAO risk status 2019[1] (p. 13)
Braunvieh – Original Braunvieh (OB) and Brown Swiss (BS) breed types	Cattle	1897	OB: 11 012 BS: 128 793	OB: 226 BS: 256	OB: 334 bulls (14 680 doses)	OB: not at risk BS: not at risk
Eringer	Cattle	1920	5 630	488	197 bulls (8 660 doses)	at risk
Evolène	Cattle	1995	350	31	16 bulls (780 doses)	at risk
Simmental	Cattle	1890	19 824	306	658 bulls (28 410 doses)	not at risk
Rätisches Grauvieh	Cattle	1985	1 400	51	18 bulls (880 doses)	not at risk
Freiberger	Horse	1960	11 265	5 214	142 stallions (4 513 doses)	at risk
Brown Headed Meat sheep	Sheep	1919	6 144	570	0	not at risk
Bündner Oberländer sheep	Sheep	1984	621	84	0	at risk
Engadine sheep	Sheep	1992	2 441	176	0	at risk
Mirror sheep	Sheep	1986	1 800	185	0	at risk

Breed	Genus	Herdbook since	No. of females registered in herdbook (2019)	No. of males registered in herdbook (2019)	Cryopreserved material (2020)**	FAO risk status 2019[1] (p. 13)
East Friesian Milk sheep	Sheep	1943	1 309	42	0	at risk
Saaser Mutte	Sheep	2014	458*	83*	0	NA
Swiss Black-Brown Mountain sheep	Sheep	1919	7 068	967	0	not at risk
Valais Red sheep	Sheep	1985	1 000	150	0	at risk
Valais Blacknose sheep	Sheep	1919	10 967	1 526	0	not at risk
Swiss White Alpine sheep	Sheep	1919	17 203	2 279	0	not at risk
Appenzell goat	Goat	1900	1 139	104	11 billies (1 253 doses)	at risk
Grisons Striped goat	Goat	1935	2 693	214	11 billies (1 278 doses)	at risk
Capra Grigia	Goat	1997	849	70	3 billies (301 doses)	at risk
Sempione goat	Goat	2013	80	32	0	NA
Chamois Coloured goat	Goat	1900	8 706	474	0***	not at risk
Grünochte Geiss	Goat	2013	70	29	0	NA
Copperneck goat	Goat	2006	312	84	0	NA

Breed	Genus	Herdbook since	No. of females registered in herdbook (2019)	No. of males registered in herdbook (2019)	Cryopreserved material (2020)**	FAO risk status 2019[1] (p. 13)
Nera Verzasca	Goat	1940	706	82	11 billies (1 133 doses)	at risk
Peacock goat	Goat	1992	1 093	113	15 billies (1 431 doses)	at risk
Saanen goat	Goat	1890	5 829	283	0***	not at risk
Booted goat	Goat	1993	464	43	5 billies (685 doses)	at risk
Toggenburg goat	Goat	1890	3 236	186	0***	at risk
Valais Blackneck goat	Goat	1920	1 603	157	12 billies (1 047 doses)	at risk
Swiss Large White pig	Pig	1911	8 190	160	124 boars (11 184 doses)	not at risk
Swiss Large White sire line (PREMO)	Pig	1911/2002	189	316	117 boars (12 363 doses)	at risk
Swiss Landrace pig	Pig	1911	1 417	60	28 boars (2 018 doses)	at risk
Appenzell Barthuhn	Chicken	2005	334	205	0	NA
Appenzell Spitzhaube	Chicken	2005	243	153	0	NA
Schweizerhuhn	Chicken	2005	568	344	0	NA

Breed	Genus	Herdbook since	No. of females registered in herdbook (2019)	No. of males registered in herdbook (2019)	Cryopreserved material (2020)**	FAO risk status 2019[1] (p. 13)
Swiss Feh rabbit	Rabbit	No herdbook			0	NA
Swiss Fox rabbit	Rabbit	No herdbook			0	NA
Dark Bee	Honeybee	2009	Approx. 1 000		0	NA

Table 2: Overview of the 38 Swiss breeds, by genus, indicating the start of herdbook breeding, herdbook animal numbers, availability of cryopreserved material and FAO risk status

*Herdbook is being reorganised
**For all species, frozen sperm was cryopreserved
***Many doses exist, but they are not part of the National Gene Pool, as the breeds are not at risk

[1] For the assignment of breeds to risk categories, the FAO takes account of data on the overall population size, the number of breeding females and males, and population trends (decreasing, stable, increasing). According to the FAO (2013a, https://360.articulate.com/review/content/f940acc0-29db-4431-a37a-870c91e17b77/review) breeds in the critical, endangered and vulnerable categories are considered to be at risk. All breeds not assigned to one of these risk categories are considered to be not at risk. NA (not applicable): the risk status cannot be determined on the basis of the data available.

According to the FAO (2019), 18 Swiss breeds are currently at risk – two cattle breeds, the only Swiss horse breed, five sheep, eight goat and two pig breeds. Ten breeds are not at risk (three cattle, four sheep and two goat breeds, and one pig breed). Seven breeds for which no risk status is given are the sheep breed (Saaser Mutte) and three goat breeds (Copperneck, Grüenochte Geiss and Sempione) only recognised as Swiss breeds in 2020, together with the two Swiss rabbit breeds and the only Swiss honeybee breed. In addition, owing to a lack of population data, it is not possible to determine a risk status according to FAO criteria for the three Swiss chicken breeds.

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Conservation measures

Milestones in the history of animal genetic resources

Key milestones relating to the conservation of animal genetic resources in Switzerland are shown in Figure 5. Many breeds have only been conserved as a result of the dedication of breeders – from 1982 onwards also thanks to the activities of the ProSpecieRara (PSR) foundation, and from 1999 with the aid of measures taken by the Federal Office for Agriculture (FOAG). Happily, in recent years, awareness of the need for breed conservation has increased both within society and among breeders, breeding organisations and public authorities.

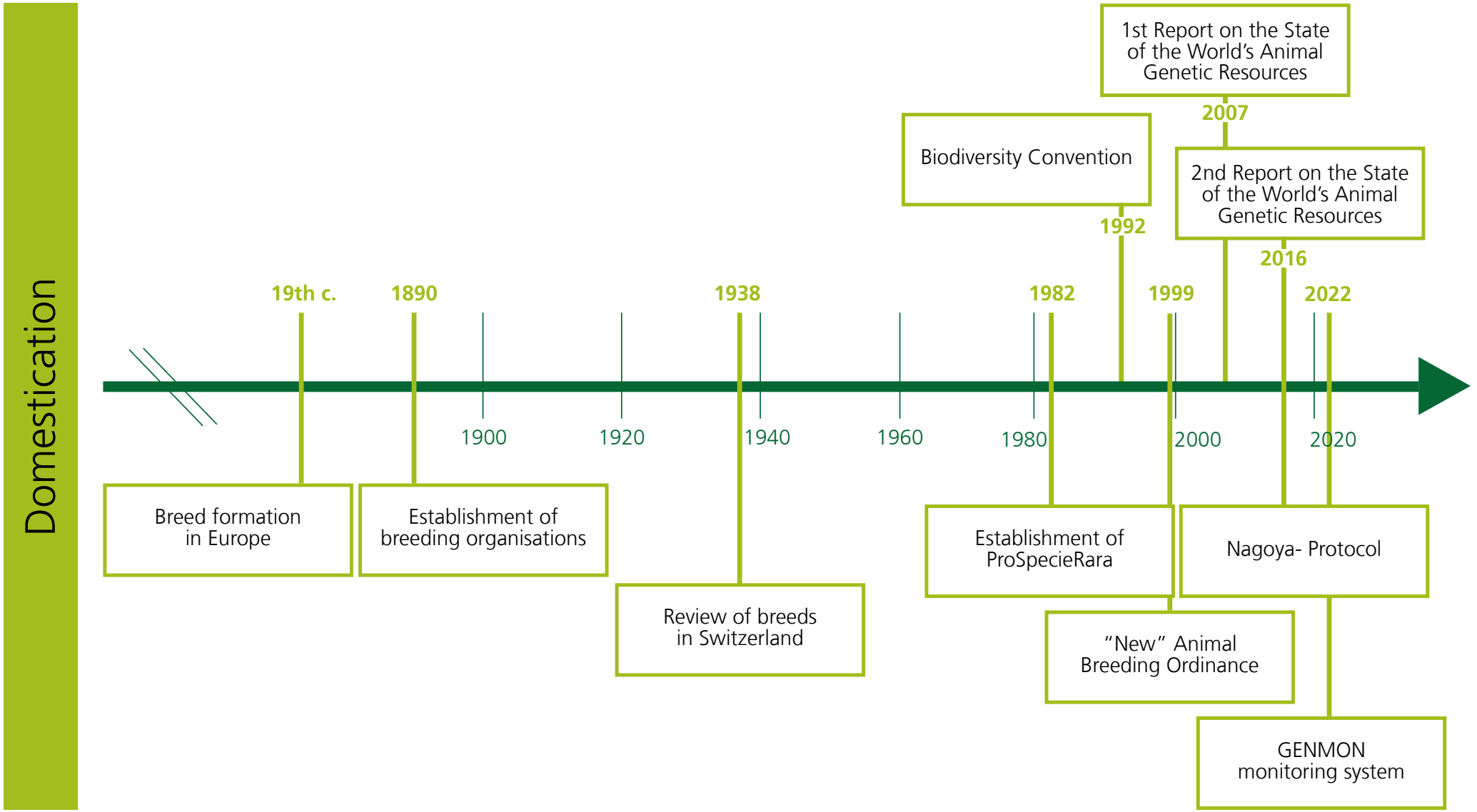


Figure 5: Milestones in breed conservation

Milestones

Domestication

Domestication is the process whereby wild animals are turned into domestic animals. Domestication of the main kinds of farm animals began around 10 000 years ago. The domestication of farm animals provides the basis for the human-guided development, over many years, of adapted, distinct farm animal breeds in the world's widely varying regions and cultures.

Breed formation in Europe

In the second half of the 18th century, pioneering British agriculturalists such as Robert Bakewell showed that the performance of regional breeds could be improved by the introduction of herdbooks in combination with performance evaluation and selective breeding. This laid the foundations for modern animal breeding. From the second half of the 19th century, these fundamental ideas reached continental Europe and were also increasingly put into practice in the countries of Central Europe..

Establishment of breeding organisations and first herdbooks in Switzerland

From the end of the 19th century, the first breeding organisations were established in Switzerland (initially for cattle and horses, then for sheep and goats). This in turn led to the establishment of herdbooks. For the Simmental cattle breed, two cantonal herdbooks existed prior to the establishment of the breeders' association (Fleckviehzuchtverband) in 1890. Dating back to 1878, these are believed to be Switzerland's oldest herdbooks.

Review of breeds in Switzerland

Towards the middle of the 20th century, the concept of breed development was well established. Breeding advances and efficiency were more widely pursued as a result of industrialisation and mechanisation. At that time, it was firmly believed that combining the best animals from different varieties within a breed was essential for forward-looking breeding efforts. Accordingly, in 1938, a review was undertaken and a limited number of breeds were defined as worthy of breeding. As a result of this review, many sheep and goat varieties from individual valleys came under increasing pressure. For example, prior to the review, 16 different sheep breeds and varieties were documented; after the review, only three landraces remained.

Establishment of ProSpecieRara

In the late 1970s, the Freiburger Fleckvieh cattle breed came under increasing pressure as a result of cross-breeding with Holstein stock and subsequently became extinct. Aware of this issue, WWF staff in 1982 established the ProSpecieRara (PSR) foundation, with the aim of taking action to conserve old plant varieties and farm animal breeds, and to save them from extinction. This foundation thus drew public attention to the importance of agrobiodiversity over ten years before the Biodiversity Convention was ratified by Switzerland.

Biodiversity Convention

The Earth Summit was held in Rio de Janeiro in 1992. The resulting Convention on Biological Diversity (CBD) was ratified by Switzerland in 1994. Switzerland thus committed itself to the conservation of biodiversity, including agrobiodiversity.

New Animal Breeding Ordinance

Following the ratification of the Biodiversity Convention, a working group was commissioned by the FOAG to develop a plan for the preservation of breed diversity in farm animals in Switzerland, which was published in 1998 (BLW, 2018). All existing breeds were inventoried, described and assigned to a risk category. Swiss breeds were defined, and their cultural value and economic importance assessed. Any need for action was also evaluated. In 1999, as part of the "AP 2002" agricultural policy programme, a framework for the promotion of animal genetic resources for food and agriculture was created in the Agriculture Act (SR 910.1), and the new Animal Breeding Ordinance provided a basis for the provision of federal financial support for projects to conserve Swiss breeds. In 1999, the Animal Genetic Resources unit was established within the FOAG.

1st Report on the State of the World's Animal Genetic Resources / Interlaken Conference

Responsibility for coordinating international efforts to conserve animal genetic resources lies with the Food and Agriculture Organization of the United Nations (FAO). In 2007, the FAO, in collaboration with the FOAG, held the first International Technical Conference on Animal Genetic Resources at Interlaken. This event was attended by delegates from 109 countries. In addition to the adoption of the Global Plan of Action and the Interlaken Declaration, this conference also saw the launch of the FAO's First Report on the State of the World's Animal Genetic Resources for Food and Agriculture.

2nd Report on the State of the World's Animal Genetic Resources

In 2016, the FAO presented its Second Report on the State of the World's Animal Genetic Resources for Food and Agriculture (http://www.fao.org/publications/sowangr/en/). In this second assessment, the information included in the first report was revised and updated. One important aim was to highlight relevant developments that had occurred in the meantime. The second assessment also drew on information provided by 129 countries and 15 international organisations, with inputs from numerous experts.

Nagoya-Protocol

In 2016, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization came into force in Switzerland. The aim of the Nagoya Protocol is to support the implementation of the third objective of the CBD, thus contributing to the global conservation of biodiversity and sustainable use of the components thereof. In particular, the biopiracy denounced by developing countries is to be controlled (FOEN, 2020). The Nagoya-Kuala Lumpur Supplementary Protocol on Liability and Redress, which came into force in 2018, regulates the questions of liability and redress for damage to biodiversity resulting from genetically modified organisms (GMOs) (Federal Council, 2011).

AP22+: GENMON

As part of Switzerland's agricultural policy from 2022, a tool for the monitoring of animal genetic resources is to be established by a private organisation on behalf of the FOAG. This tool will permit regular monitoring of Swiss breeds. Parameters to be taken into account in the assessment of conservation status will be not only genetic factors (breeding individual numbers and trends, mean inbreeding, proportion of non-purebred offspring) but also the geographical distribution of breeding animals, the availability of cryopreserved material, and socioeconomic and cultural values.

Sources:

Simianer und Willam, Tierzucht, 2. Auflage, Verlag Eugen Ulmer, 2017

ProSpecieRara

Commemorative publications of various breeding organisations

FAO

Collaboration with various actors

Coordination for animal genetic resources in Switzerland is ensured by the FOAG. As well as reviewing and supporting conservation projects, the FOAG, together with the Swiss Association for Animal Sciences (SVT), organises workshops on the conservation of animal genetic resources. In collaboration with breeding organisations and the PSR foundation, the National Gene Pool (ex situ conservation using cryopreserved material) for cattle, pigs, horses and goats is being continuously expanded (BLW, 2020b). Also planned is the development of gene banks for sheep, rabbit and chicken breeds.

To ensure that the risk status of Swiss breeds of conservation value can be regularly determined and reviewed, a tool for monitoring the genetic diversity of the various breeds is being established by the FOAG as part of Switzerland's agricultural policy from 2022 (AP22+) (Federal Council, 2020). This will allow the FOAG and breeding organisations to make information available on the risk status and populations of Swiss breeds. As well as genetic aspects, consideration will be given to socioeconomic factors and the geographical distribution of breeds (Duruz et al. 2017).

Also important is the raising of public awareness – here, PSR makes a valuable contribution. Since it was established in 1982, this foundation has been tireless in its efforts to conserve Swiss farm animal breeds.
At the international level, the FOAG is actively involved in the work of the European Regional Focal Point for Animal Genetic Resources – an association of over 45 European countries – and in a wide variety of FAO committees and working groups, as well as in several multi-stakeholder initiatives (BLW, 2020b). For example, the FOAG is collaborating with the FAO and other partners on the Global Agenda for Sustainable Livestock (GASL), to promote the sustainable development of the livestock sector over the long term.

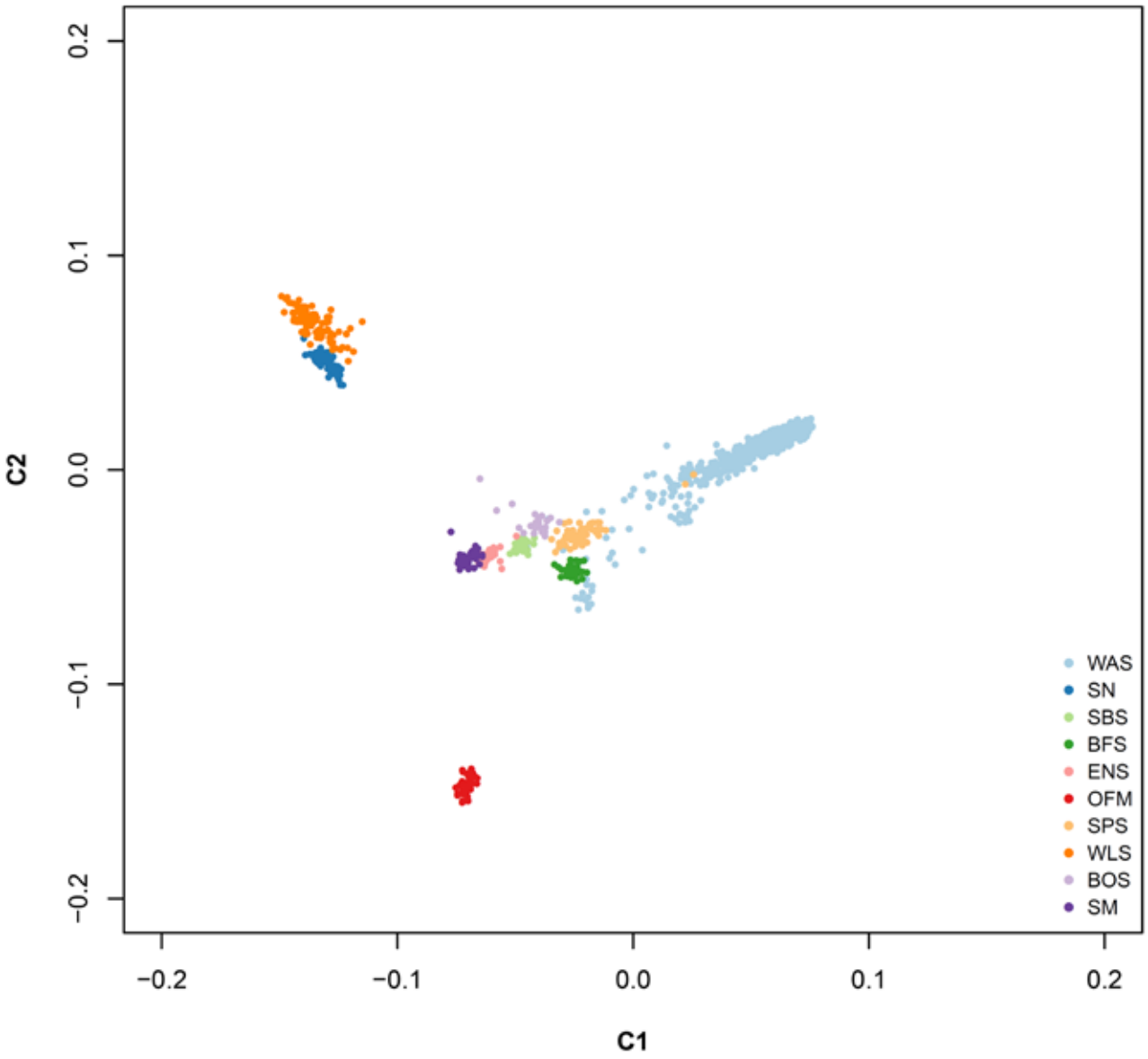
Conservation projects

To ensure that it will continue to be possible to address new challenges such as climate change, emerging diseases, evolving societal expectations or changes in the requirements for specific products, the FOAG supports projects to conserve and promote at-risk Swiss farm animal breeds (BLW, 2020b). Applications for financial support can be submitted to the FOAG once a year by approved breeding organisations and other recognised organisations.

Over the past 21 years (1999–2020), support has been provided for a total of 65 conservation projects. A third of these were concerned with the conservation of Swiss goat breeds – the Booted goat, Capra Grigia, Nera Verzasca, and the Peacock, Grisons Striped, Valais Blackneck and Appenzell goat. Eight projects were concerned with the conservation of the Mirror, Engadine and Valais Red sheep breeds – with their parasite resistance and meat quality, and with the development and operation of a ram centre. Another ten projects involved the Evolène and Rätisches Grauvieh cattle breeds and the Original Braunvieh breed type. In the case of the Freiberger horse, conservation measures included determination of the basic bloodlines, monitoring of genetic diversity and optimisation of the breeding programme. Seven projects were concerned with the management and conservation of the Dark Bee. Four projects involved the collection of cryopreserved material for pigs and promotion of the Swiss Landrace pig and the Swiss Large White sire line. Two projects were concerned with the conservation of Swiss chicken breeds. Conservation of Swiss rabbit breeds was the goal of one project. More generally, herdbook programmes for various at-risk farm animal breeds were promoted, and the National Gene Pool (cryopreserved material) was continuously expanded.

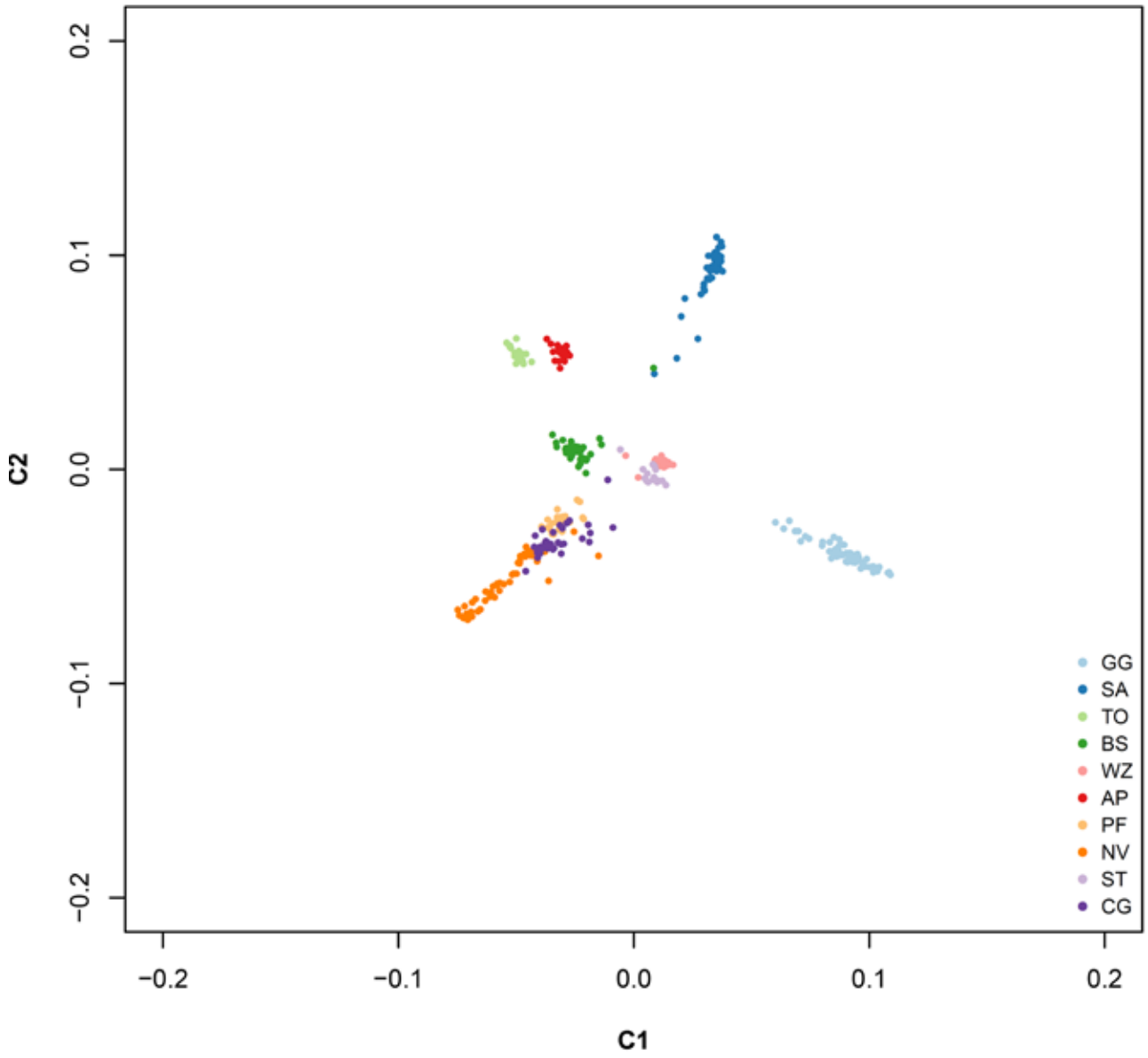
Research projects

In addition, the FOAG supports research projects on animal genetic resources – 15 projects in all between 1999 and 2020. Two research projects established the foundations for the GENMON monitoring system. Three projects involved studies of genetic diversity and of image-based methods for description of the morphology and gait of the Freiberger horse breed. In 2010, genome-wide marker data, involving around 50 000 single-nucleotide polymorphisms (SNPs), became available for the most important farm animal species. The FOAG subsequently supported a total of nine research projects involving studies of within- and between-breed genetic diversity, using SNP genotypes. The results from one of these projects are shown in Figures 6 and 7. The aim of this project was to determine population structure, genomic inbreeding and relatedness on the basis of all the genotypes available for Swiss breeds. Figure 6 shows the genetic similarity between the ten local sheep breeds, and Figure 7 that between the ten local goat breeds, for the first two dimensions from the multidimensional scaling (MDS) plot. In these two Figures, each dot represents an animal and the colour of the dot indicates its breed. If two clusters of different colours lie close together, then these breeds are genetically similar (e.g. WLS and SN in Fig. 6), whereas two clusters of different colours which are further apart indicate two breeds which are genetically less similar (e.g. SA and GG in Fig. 7).



Abbreviations of sheep breeds: WAS, Swiss White Alpine sheep; SN, Valais Blacknose sheep; SBS, Swiss Black-Brown Mountain sheep; BFS, Brown Headed Meat sheep; ENS, Engadine sheep; OFM, East Friesian Milk sheep; SPS, Mirror sheep; WLS, Valais Red sheep; BOS, Bündner Oberländer sheep; SM, Saaser Mutte.

Figure 6: MDS plot of dimension 1 versus dimension 2 of the population structure of ten Swiss sheep breeds, based on SNP data. If two clusters of different colours lie close together, then these breeds are genetically similar, whereas two clusters of different colours which are further apart indicate two breeds which are genetically less similar.



Abbreviations of goat breeds: GG, Chamois Coloured goat; SA, Saanen goat; TO, Toggenburg goat; BS, Grisons Striped goat; WZ, Valais goat (comprising the two breeds Copperneck goat and Valais Blackneck goat); AP, Appenzell goat; PF, Peacock goat; NV, Nera Verzasca; ST: Booted goat; CG, Capra Grigia.

Figure 7: MDS plot of dimension 1 versus dimension 2 of the population structure of ten Swiss goat breeds, based on SNP data. If two clusters of different colours lie close together, then these breeds are genetically similar, whereas two clusters of different colours which are further apart indicate two breeds which are genetically less similar.

Sources:

FOEN, 2020. Nagoya Protocol (accessed on 16.12.2020): https://www.bafu.admin.ch/bafu/en/home/topics/biotechnology/info-specialists/nagoya-protocol.html

BLW, 2018. Animal Breeding Strategy 2030 (only available in French / German / Italian).

BLW, 2020b. Domestic animals and breeding (accessed on 16.12.2020): https://www.blw.admin.ch/blw/en/home/nachhaltige-produktion/tierische-produktion/tierzucht-und-tiergenetische-ressourcen.html

Federal Council, 2011. Conserving biodiversity: Switzerland signs two international agreements (accessed on 16.12.2020): https://www.admin.ch/gov/en/start/documentation/media-releases.msg-id-39115.html

Duruz S, Flury C, Matasci G, Joerin F, Widmer I, Joost S, 2017. A WebGIS platform for the monitoring of Farm Animal Genetic Resources (GENMON). PlosONE, 12 (4), 1–24.
(accessed on 25.03.2021):
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0176362

Federal Council, 2020. Dispatch on the development of agricultural policy from 2022 (AP22+) (only available in French/German/Italian). Section 5.1.6.5 (accessed on 16.12.2020): https://www.blw.admin.ch/blw/de/home/politik/agrarpolitik/ap22plus.html

Braunvieh – Original Braunvieh and Brown Swiss breed types

Cow and young bull of the Original Braunvieh breed type at pasture (Braunvieh Schweiz)

Origin and development

The Swiss Braunvieh was developed mainly in central Switzerland (canton of Schwyz) and was therefore still known a century ago as "Schwyzer Rasse" (Schwyz breed). The Braunvieh was shaped by harsh environmental conditions and Alpine farming. Thanks to natural selection and the breeding efforts of mountain and lowland farmers, the Braunvieh became a preferred cattle breed. With its dual-purpose (dairy and beef) aptitude, it allowed any type of production requirements to be fulfilled. In the late 1960s, to meet the demand for higher milk performance and larger-framed cattle, many Braunvieh breeders used American Brown Swiss genetics in their mating programmes. However, certain breeders remained committed to rearing Original Braunvieh. They improved milk performance through rigorous selection within the Original Braunvieh population, while strictly preserving the beef aptitude.

Description

Original Braunvieh breed type

- Characteristics: Coat colour brown to slate grey; horn tips and hooves black
- Withers height (cow): 135–145 cm
- Weight (cow): 550–800 kg

Brown Swiss breed type

- Characteristics: All shades of brown, with black hooves
- Withers height (cow): 140–152 cm
- Live weight (cow): 650–700 kg

Braunvieh of the Brown Swiss breed type at pasture (Han Hopman)

Performance traits of animals registered in the herdbook (2019)

Original Braunvieh breed type (7469 standard lactation records)

- 6307 kg milk
- 3.95% fat
- 3.35% protein

Brown Swiss breed type (102 943 standard lactation records)

- 7402 kg milk
- 4.04% fat
- 3.44% protein

Breeding objectives

The Original Braunvieh is bred as a dual-purpose animal, for milk and meat production. In addition to good and reliable milk performance, great importance is attached to muscle development and meat performance.

In farms with a good fodder supply, adult cows of the Brown Swiss breed type should give a milk yield of 8500 kg per standard lactation. As well as a high milk yield, a high protein content (3.5% protein and kappa-casein BB) and good fitness traits (service period below 120 days) are aimed for.

References

Braunvieh Schweiz (www.braunvieh.ch)
Mutterkuh Schweiz (www.mutterkuh.ch)

Eringer

Eringer cow in the canton of Valais (Adobe Stock)

Origin and development

Ancestors of the Eringer (Hérens) breed were present in Valais as long ago as 3000 BC. In 1885, breeding for uniform colour was introduced, leading to the development of the separate (pied) Evolène breed. Eringer cattle can be found from Lower Valais to the lower part of Upper Valais. They play an important role not only economically, but also culturally: in many farms, they are bred to compete in the traditional cow fights ("combats de reine"). The Eringer is thus bred for combat, as well as for meat and milk.

Description

The animals are medium-sized, with a broad, muscular body. The bone structure is fine but solid. The head is short and broad, with pronounced horns. The limbs are short, with well-defined joints and hard hooves. The coat colour is uniform, ranging from black to reddish brown. The mucous membranes, hooves and horn tips are lead-coloured or black.

Two Eringer cows at a traditional Valais cow fight (www.raceherens.ch)

Breeding objectives

- Hardiness, health, longevity, liveliness
- Mobile, sure-footed and well adapted to mountainous terrain
- Good milk performance
- Good size and adequate muscle to ensure good carcass value; good meat performance (daily gain 1100 g)
- Calving ease

References

Schweizerischer Eringerviehzuchtverband (www.raceherens.ch)

Evolène

A watchful Evolène cow at pasture in the mountains (Philippe Ammann / ProSpecieRara)

Origin and development

The Evolène breed, named after a village in the Val d'Hérens, was first mentioned in an 1859 Valais Cantonal Council report. At that time, it was not distinguished from the Eringer breed. But in 1885, with the introduction of breeding for uniform colour, the two breeds began to diverge. The breeders who favoured the pied animals chose not to breed them for combat: the Evolène was bred as a smaller, dual-purpose animal, for milk and meat production. Only a small stock of this lighter, pied dairy breed survived in the side valleys of the Rhône. In 1995, breeders from the Upper Valais united to establish the Evolène breeding association and the Evolène herdbook.

Description

The Evolène is frugal, robust and active. This dual-purpose breed should give a good milk yield relative to its body size. The cows have a withers height of 115–125 cm and weigh 400–600 kg. The base colour is red, chestnut or black, with white patches on the belly, tail and back. The white "star" on the forehead is a distinctive feature of this breed.

Two Evolène cows at pasture (Philippe Ammann / ProSpecieRara)

Breeding objectives

- Hardiness, health, longevity
- Mobile, sure-footed and well adapted to mountainous terrain
- Good milk performance and milking speed
- Intermediate meat performance and good carcass yield
- Calving ease

References

Evolèner Zuchtverein (www.evolener-zuchtverein.ch)
swissherdbook (www.swissherdbook.ch)
Original Evolèner Viehzuchtgenossenschaft (www.original-evolener-rind.ch)
ProSpecieRara (www.prospecierara.ch)

Simmental

Simmental cows at pasture in the mountains (Corina Burri / swissherdbook)

Origin and development

The Simmental breed developed from a number of local types of cattle in the Bernese Oberland. Originally a triple-purpose cow, it was adapted to family farming, serving as an excellent draught animal and providing high quality milk and meat. When herdbook breeding began in the early 1900s, the population became more homogeneous. The Simmental is now a dual-purpose breed, ideally suited for meat production. Exports of this breed have influenced beef cattle rearing across Europe and around the worldwide.

Description

The coat colour is usually dun, occasionally red, with white markings (white head, belly and legs). The cows are medium-sized, with a strong build, well developed muscles and a calm temperament.

Performance traits of animals registered in the herdbook (2019: 14 797 standard lactation records)

- 5960 kg milk
- 3.97% fat
- 3.35% protein

Breeding objectives

Milk yield under favourable conditions from the 3rd lactation of 7500 kg, with 4% fat and 3.5% protein. Good fitness traits (fertility, udder health). Adult cows should be 140–148 cm in height and weigh 650–800 kg.

Simmental cow in the Vaudois Alps (Corina Burri / swissherdbook)

References

swissherdbook (www.swissherdbook.ch)
Mutterkuh Schweiz (www.mutterkuh.ch)

Rätisches Grauvieh

Rätisches Grauvieh: cow and calf at pasture in the mountains (Christian Schranz)

Origin and development

Contributing to the development of this ancient breed were the turbary cattle of the lakeside dwellers, the grey cattle of the Rhaetians and the cattle of the Celts, Alemanni and Walser. In the isolated valleys of the canton of Graubünden, local types of cattle developed, including the smaller, lighter Rätisches Grauvieh known as the Albula type and the somewhat larger, heavier Oberländer type. These were triple-purpose animals (reared for draught, milk and meat), and demand for the Grauvieh both in Switzerland and abroad remained high up to the end of the 19th century. By 1920, however, the Rätisches Grauvieh had disappeared as a result of a marked preference for the Braunvieh, bred for milk performance. Fortunately, the Rätisches Grauvieh survived across the border in Tyrol. In 1985, using Tyrolean stocks, dedicated breeders managed to re-establish the small Rätisches Grauvieh (similar to the Albula type) in Switzerland's cultural landscape. A breed well adapted to extensive grazing and extreme conditions was thus secured for Alpine farming. Thanks to the small, light Rätisches Grauvieh, historical stables and difficult terrain can continue to be used.

Description

The Rätisches Grauvieh is a horned breed, with a coat of various shades of grey (from iron through silvery grey and dark grey to yellowish grey) and sometimes with a fox-red forelock. It is a small, light, robust and long-lived dual-purpose breed, notable for its frugality. A harmoniously balanced body is aimed for, with good body depth and muscularity. The limbs should be strong and healthy with well-defined joints, hard hooves with sufficient heel depth, correct front leg conformation and rapid gait.

Rätisches Grauvieh, with characteristic fox-red forelock (Thomas Schmidlin)

Breeding objectives

- Milk and meat performance
- Hardy, sure-footed and well adapted to mountainous terrain
- Longevity
- Good fertility and intermediate precocity
- Calving ease

References

Braunvieh Schweiz (www.braunvieh.ch)
Mutterkuh Schweiz (www.mutterkuh.ch)
ProSpecieRara (www.prospecierara.ch)
Rätisches Grauvieh Schweiz (www.raetischesgrauvieh.ch)

Freiberger

The Freiberger stallion Navarino is Stallion of the Year 2019 (Martin Rindlisbacher)

Origin and development

Switzerland's only local horse breed is found in the Swiss Jura region and particularly in the Franches-Montagnes plateau. The ancestor of today's Freiberger is the Jura horse, a hardy, frugal, sure-footed and docile mountain horse. Freiberger breeding began with the definition of breeding objectives in 1904. During the 20th century, they were cross-bred first with draught and later with thoroughbred stallions. Since 1998, the Freiberger herdbook has been closed and cross-breeding no longer occurs. Since 2006, breeding values have been estimated and published annually for exterior traits (appearance), drive- and rideability, and white markings.

Description

Freiberger are light draught horses with a fox-coloured, brown or black coat. They often have a white blaze and pasterns (white markings). They are versatile animals, notable for their reliability and their companionable, calm and even-tempered nature. The Freiberger has a withers height of 150–160 cm, weighs 550–650 kg and has a sure-footed and spirited gait.

Stud foal Amelie (Hamlet des ronds Prés) at the Foal Show (Karin Rohrer)

Breeding objectives

- Fertility, hardiness and precocity
- Frugality
- Expressive, good performance, docile
- Sure-footedness

References

Schweizerischer Freibergerverband (www.fm-ch.ch)
Interessengemeinschaft zur Erhaltung des Original Freiberger Pferdes (www.originalfreiberger.ch)
ProSpecieRara (www.prospecierara.ch)
Swiss National Stud Farm (https://www.agroscope.admin.ch/agroscope/en/home/about-us/snsf.html)

Brown Headed Meat sheep

The Brown Headed Meat sheep is a large-framed, well-fleshed sheep (Rudolf Lehmann / Schweizerischer Schafzuchtverband)

Origin and development

The Brown Headed Meat sheep is one of the heaviest breeds in Switzerland. It was developed by crossing English Oxfords and German Blackheaded Mutton with the native Grabs breed, established in the 19th century. Since 2010, breeding values have been estimated annually for fertility and weight gain traits.

Description

Large-framed sheep with good maternal traits, good milk and meat performance, hardy, with strong limbs. Medium-length head with broad mouth; medium-length ears carried horizontally; hornless; pure white fleece (wool); hairy parts brown to blackish brown. Seasonal, generally once-yearly lambing (January–February); age at first lambing around 14 months.

Young rams of the Brown Headed Meat sheep breed (Esther Zimmermann / Schweizerischer Schafzuchtverband)

Breeding objectives

- Hardy, healthy, no genetic defects, highly adaptable
- Longevity and rearing ability
- Average production period: 5 years
- Good roughage intake and conversion
- Quality lamb up to 42 kg mature live weight, good meat performance (well fleshed to very well fleshed)
- Well adapted to mountainous terrain

References

Schweizerischer Schafzuchtverband (www.sszv.ch)

Bündner Oberländer sheep

Bündner Oberländer rams at pasture (Ernst Oertle / Verein zur Erhaltung des Bündner Oberländer Schafes)

Origin and development

The Bündner Oberländer derives from the Tavetscher (Val Nalps), Medelser (Val Medels), Somvitger (Val Somvitg) and Vriner (Lumnezia) sheep. The Tavetscher, believed to be a descendant of the neolithic turbary sheep, became extinct in 1954 as a result of inbreeding. From 1984, to conserve the genetic heritage of the three remaining types, herdbook breeding was established on the basis of 40 pristine animals from the Medels. Together with the "Association for the Conservation of the Bündner Oberländer sheep", the breeders involved are trying to give today's Bündner Oberländer sheep a future. It is to be hoped that these efforts will be supported by additional breeders.

Description

The colour may be white, brown, grey, black or chamois. This fine-limbed breed is lightly fleshed and has a mixed fleece. It has a fine-featured face and a wool-free head. The rams mostly have imposing spiral horns, while the ewes may be horned or hornless. Females weigh between 40 and 60 kg, while males can weigh up to 85 kg

Two Bündner Oberländer ewes with their young (Ernst Oertle / Verein zur Erhaltung des Bündner Oberländer Schafes)

Breeding objectives

- Hardiness, longevity, adapted to mountainous terrain, healthy, no genetic defects
- Light and fine build, with a noble head
- Good fertility and rearing traits
- Medium to coarse wool
- Lean, tender and fine-fibred meat

References

Verein zur Erhaltung des Bündner Oberländer Schafes (www.bo-schaf.ch)
ProSpecieRara (www.prospecierara.ch)

Engadine sheep

Ram with characteristic convex nose and lop ears (Christian Gazzarin)

Origin and development

The Engadine sheep developed in the once isolated Engadine valley from the Steinschaf of the Eastern Alps. Large-framed sheep of various colours, influenced by the Bergamasca sheep, were brought by Tyrolean itinerant shepherds to the mountain pastures of the Lower Engadine, where they interbred with local varieties. Over the centuries, the harsh conditions of mountain life selected robust and mobile sheep which were highly docile and are now notable for their friendly nature. The Engadine sheep and its ancestors were bred for several purposes – i.e. wool, meat and milk were all equally important. At the beginning of the 20th century, as a result of increased demand for brown wool, breeders favoured the reddish-brown animals also known locally as Father Sheep (Romansch: *besch da pader*).

Description

Distinctive features of this breed are its lop ears and convex nose. It has a spirited gait and hard hooves, resistant to foot rot. It is mostly brown in colour (various shades), but it may also be black. Its vigour and robustness make it relatively easy to keep. The estrous cycle is non-seasonal, with short intervals. Combined with a high twin lambing rate, this leads to excellent fertility traits, and this breed can therefore also be used for high performance commercial sheep farming. Lambs are subject to extensive fattening, with no risk of excess fat development at a higher age. The tasty, fine-fibred meat was praised in historical documents and is becoming increasingly popular. Another particular feature of this breed is its goat-like foraging behaviour, making it suitable for efficient scrub clearance.

Engadine sheep often bear twins (Christian Gazzarin)

Breeding objectives

- Maintenance of hardiness, longevity
- Maintenance of high fertility
- Good rearing traits and milk production

References

Schweizerischer Engadinerschaf Zuchtverein (www.engadinerschaf.ch)
ProSpecieRara (www.prospecierara.ch)

Mirror sheep

Freshly shorn ewe of the Mirror sheep breed at pasture in the mountains; note the characteristic wool-free belly (Mariann Nauer / Spiegelschaf-Zuchtverein)

Origin and development

The Mirror sheep derives from old Graubünden breeds such as the Prättigau, and its development was probably influenced by the Seiden and the Luzein sheep. As the borders were still open for seasonal movements of sheep in the 17th and 18th century, Austrian breeds such as the Montafon and the Spectacle sheep probably also contributed to the development of the Mirror sheep. From 1985 onwards, thanks to the efforts of dedicated breeders, a respectable population of Mirror sheep was built up from the last surviving stocks. This breed is now kept throughout Switzerland.

Description

The Mirror sheep takes its name from its smooth, bright forehead. Its belly and legs are also wool-free. Both the males and females are hornless. The lambs have striking, attractive dark patches all over their body and head. Another characteristic feature of the Mirror sheep are the dark markings around its mouth and eyes, resembling spectacles. The tips of its ears are also of a dark colour, which fades with age. Ewes lamb once or twice a year, often bearing twins.

Lambs of the Mirror sheep breed, with the characteristic striking dark patches all over their body which they lose as adults (Heinz Feldmann / Spiegelschaf-Zuchtverein)

Breeding objectives

- Hardiness, adaptability, health, no genetic defects
- Good rearing traits and milk production
- Good roughage-based fattening capacity
- Longevity
- Medium wool quality

References

Spiegelschaf-Zuchtverein (www.spiegelschaf.ch)
Züchterverband für seltene Nutztierrassen (www.zvsnr.ch)
ProSpecieRara (www.prospecierara.ch)

East Friesian Milk sheep

Two ewes of the East Friesian Milk sheep breed, at pasture (Urs Mischler / Schweizerische Milchschafzucht Genossenschaft)

Origin and development

This breed originated in East Friesland, where around 1850 the two indigenous types of marsh sheep (Groninger and Friesian) were cross-bred to produce a single type. Since 1943, a herdbook has been maintained for this breed in Switzerland. Up until the 1990s, this was Switzerland's only purely dairy breed. Since 2016, breeding values have been estimated annually for milk performance traits.

Description

The East Friesian Milk sheep is known for three traits in particular – rapid growth, precocity and fertility. It is, however, a strongly seasonal breed. It has an elongated, wool-free face, with a noble expression, and is hornless, with a slightly convex nose. The large-framed sheep has strong, slender legs. It has a uniform covering of medium-fine wool. The wool-free udder is firmly attached, with a broad central band terminating on the belly. As this breed should be suitable not only for suckling of lambs but also for manual and mechanical milking, the teats should be strong and protrude downwards on each side. East Friesian Milk sheep are most commonly white, but they may also occasionally be black or spotted.

Ostfriesische Milchschafe beim täglichen Weidegang im Juni. Milchschafbetrieb: Haefele, Gossau SG (Margrit Gähler)

Breeding objectives

- High fertility, twin lambing annually
- Milk yield 450–600 kg per year
- Good wool performance
- Good carcass quality even with higher final carcass weight

References

Schweizerische Milchschafzucht Genossenschaft (www.smg-milchschafe.ch)

Saaser Mutte

The ears seem particularly long in young sheep of the Saaser Mutte breed (Philippe Ammann / ProSpecieRara)

Origin and development

The Upper Valais is on the northern margins of the distribution range of Bergamasca sheep. While the Bergamasca sheep was displaced by other breeds across much of the Valais region, in the area in and around the Saas and Simplon valley it developed into a distinct local type – today's Saaser Mutte ("Mutte", from the French "mouton", is the Valaisan term for "sheep"). Sheep farming with this breed is long established in the Saas valley, where it predominates. The fact that this is a locally adapted ecotype is confirmed by contemporary breeders, who report that very few animals from other areas have been used for breeding. In contrast to Bergamasca sheep, which are exclusively fully white, around half of the Saaser Mutte are brown or white-and-brown spotted. Since 2015, the Saaser Mutte has been found throughout Switzerland, and it has been officially considered a Swiss breed since 2020.

Description

The Saaser Mutte is a Valaisan breed, derived from a distinct type of Bergamasca sheep. They are large, hornless meat sheep with a markedly convex nose and striking lop-ears. The ewes lamb non-seasonally, often bearing twins. The Saaser Mutte – a calm and very friendly animal – is among Switzerland's largest sheep.

Four fully grown ewes of the Saaser Mutte breed (Philippe Ammann / ProSpecieRara)

Breeding objectives

- Hardiness, adaptability, health, no genetic defects
- Good rearing traits
- Good roughage-based fattening capacity
- Longevity
- Medium wool quality

References

ProSpecieRara (www.prospecierara.ch/Saaser-Mutten)

Swiss Black-Brown Mountain sheep

The Black-Brown Mountain sheep is a highly fertile breed (Rudolf Lehmann / Schweizerischer Schafzuchtverband)

Origin and development

An ancient breed deriving from a number of local types, the Swiss Black Brown Mountain sheep was first documented in the 14th century. Originally it was bred for its dark, fine, high-quality wool. Efforts to standardise the breed began in the early 20th century. Rigorous selection led to the development of a precocious and highly fertile breed. The breeding advances were obtained without cross-breeding. Since 2010, breeding values have been estimated annually for fertility and weight gain traits.

Description

A spirited, medium-sized, highly fertile mountain sheep, black or brown in colour. Robust constitution, hardy under harsh feeding and environmental conditions, adapted to mountainous terrain, sedentary. Good maternal traits, milk and meat performance. Face of medium length, with a broad mouth; a straight nose is preferred, particularly in ewes; ears of medium length, carried horizontally; hornless; head and legs wool-free; non-seasonal, it is Switzerland's most fertile breed.

Flock of Black-Brown Mountain sheep grazing in an orchard (Esther Zimmermann / Schweizerischer Schafzuchtverband)

Breeding objectives

- Maintenance and improvement of hardiness and suitability for mountainous terrain
- Longevity, with an average production period of 6 years
- Good maternal traits, high milk yield, precocious, able to breed at 10 months
- Fast-growing lambs with good fattening capacity/weight gain, quality lamb at maturity (with milk teeth), medium-fleshed
- Flawless fleece, fineness 2–3, 3 cm in 180 days
- Promotion of efficient resource use

References

Schweizerischer Schafzuchtverband (www.sszv.ch)

Valais Red sheep

Black-coloured Valais Red sheep are also known as "Lötschenschlag" (Oona Baumann/ Zuchtverein Walliser Landschaf)

Origin and development

The Valais Red sheep is particularly suitable for extensive farming. Geographically, its origins lie in the Upper and Central Valais. Traditionally, it was valued primarily for its warm wool. In the 1980s, the Valais Red nearly became extinct, but this breed was rediscovered in 1985. In 1989, the population numbered 120 in the Upper Valais. The Valais Red breeding association was established in 1994. Since 1998, the Valais Red has been officially recognised as a Swiss sheep breed. Interest in this breed has increased sharply, and in 2019 the population exceeded 1 100 across all regions of Switzerland.

Description

The Valais Red is medium- to large-framed, lightly fleshed and of medium weight: ewes weigh 50–75 kg, rams 60–90 kg. It is a frugal sheep, particularly suitable for extensive farming, which also makes this breed attractive for landscape management. Its distinctive features are the spiral horns in males and females, the convex nose and the reddish brown or black wool. The sheep often have a white spot on the back of the head, and the tip of the tail may also be white. The coarse, long, fast-growing wool was once widely used in the production of clothes.

Flock of Valais Red sheep in the Alps (Christian Gazzarin)

Breeding objectives

The primary aim is to conserve the original and distinctive characteristics of this breed. The costs of keeping the Valais Red should be low. It is particularly suitable for the farming of marginal-yield areas and for landscape management.

- Hardiness, suitability for mountainous terrain, longevity
- Maintenance of high disease resistance
- Good fertility and maternal traits (rearing ability)
- Medium roughage-based fattening capacity
- Rapid wool growth

References

Zuchtverein Walliser Landschaf (www.walliser-landschaf.ch)
ProSpecieRara (www.prospecierara.ch)

Valais Blacknose sheep

Valais Blacknose sheep on the Nufenen Pass in the Valais Alps (Adobe Stock)

Origin and development

The Valais Blacknose breed was first documented in the 15th century. Its distinctive characteristics, acquired over the centuries, include adaptation to a harsh mountain climate, good feed conversion, fertility, frugality and sedentariness. Since 2010, breeding values have been estimated annually for fertility and weight gain traits.

Description

Large-framed, even-tempered mountain sheep, with good maternal traits, good milk and meat performance, hardy, with strong limbs. Distinctive features of the Valais Blacknose are its horns and its face and leg colouring. Short face with a wide mouth, broad forehead and convex nose; medium length ears; horned. Distinctive head shape in males. Entire body, including face and legs, covered in wool; fleece uniformly white; black from the nose to halfway up the face. The Valais Blacknose is sensitive to high temperatures and adjusts its feeding accordingly. With natural pasturing, feeding takes place, in the morning, from dawn to sunrise and, in the evening, after sunset and into the night.

Valais Blacknose sheep at pasture (Esther Zimmermann / Schweizerischer Schafzuchtverband)

Breeding objectives

- Maintenance and improvement of hardiness; no genetic defects
- Well adapted to alpine conditions
- Longevity, with an average production period of 5 years
- Optimal grassland-based feed conversion
- Adapted to mountainous terrain, sedentary
- Medium-fleshed
- Correct colours in females and males
- Wool fineness 4–5, kemp-free, length over 10 cm in 180 days

References

Schweizerischer Schafzuchtverband (www.sszv.ch)

Swiss White Alpine sheep

The White Alpine sheep is a sedentary breed, well adapted to mountainous terrain, with a pronounced herd instinct (Rudolf Lehmann / Schweizerischer Schafzuchtverband)

Origin and development

The Swiss White Alpine sheep derives from a number of Swiss White Mountain sheep breeds. Through cross-breeding with the Merino Land sheep and Ile-de-France sheep, the meat and wool performance of the original local types was sustainably improved. Since 2010, breeding values have been estimated annually for fertility and weight gain traits. The Swiss White Alpine sheep is the breed with the largest number of individuals registered in a herdbook in Switzerland.

Description

Large-framed, fertile sheep with good maternal traits, milk and meat performance; hardy; sound limb conformation. Medium-length woolly face with broad mouth; medium-length ears carried horizontally; hornless. Pure white fleece. Non-seasonal lambing, ideally two to three times over 2 years. First lambing at the age of 15–18 months.

White Alpine sheep at pasture in the mountains (Christian Aeschlimann / Schweizerischer Schafzuchtverband)

Breeding objectives

- Hardiness, health, no genetic defects, adaptability
- Longevity, good rearing ability
- Average production period: 5 years
- Capacity for high intake and efficient use of roughage
- Quality lamb (milk teeth) up to 42 kg mature live weight, good meat performance (well fleshed to very well fleshed)
- Well adapted to mountainous terrain
- Maintenance of non-seasonality

Referenzen

Schweizerischer Schafzuchtverband (www.sszv.ch)

Appenzell goat

Typical specimen of the Appenzell goat breed (Bernhard Hollenstein)

Origin and development

As the name indicates, the Appenzell goat originates from the two cantons of Appenzell Innerrhoden and Ausserrhoden. Here, it remains an integral part of regional culture; for example, it leads the traditional Alpine processions. The milk performance of the Appenzell goat – coming from a dairy farming region of Switzerland – is respectable. It is traditionally bred with a wattle (fleshy appendage attached to the throat).

Description

- White, medium- to long-haired coat
- Pigmented spots may be present on the udder
- Productive dairy breed
- Horned or hornless

Appenzell kids practising their climbing skills (Melanie Weber / tiefblicke.ch)

Performance traits of animals registered in the herdbook (over 30 months; 2018: 355 full lactation records)

- 746 kg milk
- 2.79% fat
- 2.63% protein
- 4.39% lactose
- 284-day lactation period

References

Schweizerischer Ziegenzuchtverband (www.szzv.ch)

Grisons Striped goat

Grisons striped goat resting (Silvia Zahnd / Schweizerischer Ziegenzuchtverband)

Origin and development

The Grisons Striped goat owes its name to its geographical origin (canton of Graubünden/Grisons) and to the distinctive white markings on its head. Although still classified as an at-risk breed, it is increasingly being bred as a commercial dairy goat. A hardy, robust breed, it copes well with a harsh climate. The Grisons Striped goat is a mountain breed, sure-footed on any terrain.

Description

- Short hair
- Black with white stripes on the head, white limbs and tail
- Dark belly
- Versatile breed, adapted to mountainous terrain
- Horned or hornless

A group of Grisons striped goats enjoying the wide variety of Alpine herbs available near Isola above Lake Sils (Philippe Ammann / ProSpecieRara)

Performance traits of animals registered in the herdbook (over 30 months; 2018: 507 full lactation records)

- 612 kg milk
- 3.42% fat
- 2.96% protein
- 4.49% lactose
- 258-day lactation period

References

Schweizerischer Ziegenzuchtverband (www.szzv.ch)

Capra Grigia

Billy of the Capra Grigia breed at pasture in the mountains (Annina Staub / Capra Grigia Schweiz)

Origin and development

The Capra Grigia is a grey mountain goat, originating from the valleys of the cantons of Ticino and Graubünden, where it has been documented for more than 100 years. According to historical documents from 1897, three types of grey goat, differing in coloration and size, were recorded in Ticino. As a result of a general decline in goat numbers, the non-recognition of the Ticino types in the 1938 review of Swiss goat breeds, and the spread of caprine arthritis encephalitis (a viral disease), these grey goats almost became extinct. From 1997, the last 30 surviving grey goats were brought together and recorded as Capra Grigia in a herdbook. In 2006, this was officially recognised as a Swiss breed. Though total numbers are steadily rising, the Capra Grigia remains among the goat breeds most at risk in Switzerland. As the population grows, selective breeding is being pursued with the aid of linear description and classification, as well as other performance tests, while also ensuring that adequate genetic breadth can be maintained.

Description

The Capra Grigia occurs in all shades, from silver to dark grey. Common to all are a mottled coat, black legs and strong, outward-growing horns. Thanks to their hard hooves, sure-footedness and preference for scrubby terrain, these attractive goats – robust, hardy and frugal – are perfectly adapted to life in the Southern Alps.

Kids of the Capra Grigia breed resting in a barn (Martina Federer / Capra Grigia Schweiz)

Breeding objectives

- Robust multi-purpose goat (meat, milk and vegetation management)
- Well-suited to mountainous terrain, healthy, no genetic defects
- Good fertility with good rearing traits and milk production sufficient for twins
- Longevity and long productive life

References

Capra Grigia Schweiz (www.capragrigia.ch)
ProSpecieRara (www.prospecierara.ch)

Sempione goat

Breeding male Capra Sempione goat, with characteristic imposing horns (Adrian Bär)

Origin and development

The Sempione goat – known in the Valais dialect as "Simplerziege"(Simplon goat) – belongs to the group of Valais goats. It was originally found throughout the Simplon area, both on the Swiss side and on the Italian side, in the northernmost parts of the Piemonte region. This breed was also overlooked in the 1938 review of Swiss goat breeds. In the course of the Copperneck goat rescue project, a small number of Sempione goats were identified in the Valais and other regions of Switzerland and in Southern Germany. From 2013, all known individuals in Switzerland and in Germany were recorded with equal status in the herdbook of Valais goats. Since 2020, the herdbook has been maintained by the newly established breeding association for Sempione, Copperneck and Grüenochte goats.

Description

As is typical of Valais goats, the Sempione has a slender build, long hair and imposing horns (especially the billies). With its long, snow-white coat, it has a striking, attractive appearance.

Fortunately, a small number of Sempione goats survived amid Blackneck herds (Robert Schmid)

Breeding objectives

- Rescuing a critically endangered coat colour variant
- Coat hair not too long (at least 20 cm ground clearance)
- Good fattening capacity
- Large, robust animals

References

ProSpecieRara (www.prospecierara.ch)
Züchterverein der Capra Sempione, Kupferhalsziege und Grüenochte Geiss (www.zckg.ch)

Chamois Coloured goat

Chamois Coloured goat resting in the shade (Silvia Zahnd / Schweizerischer Ziegenzuchtverband)

Origin and development

The Chamois Coloured goat originally developed from two regional types – the hornless Oberhasli-Brienz and the horned Grisons. Today, it is the breed with the largest number of animals registered in a herdbook in Switzerland. This is due not least to the substantial milk yield and the above-average milk fat and protein concentrations. Chamois Coloured goats are also regarded as highly adaptable animals. Thus, they can now be found in valleys as well as in the original mountain regions.

Description

- Short, smooth brown hair
- Black markings on head and legs
- Dark belly and fine dark stripe along the back
- Escutcheon light brown to black
- Commercial dairy breed
- Horned and hornless animals

Chamois Coloured goats at pasture (Schweizerischer Ziegenzuchtverband)

Performance traits of animals registered in the herdbook (over 30 months; 2018: 2 395 full lactation records)

- 786 kg milk
- 3.39% fat
- 3.09% protein
- 4.59% lactose
- 277-day lactation period

References

Schweizerischer Ziegenzuchtverband (www.szzv.ch)

Grüenochte Geiss

Billy of the Grüenochte Geiss breed, with light-coloured breast (Adrian Bär)

Origin and development

In the Valais dialect, "Grüenochte Geiss" or "Grüenochti" refers to a type of Valais goat with grey, black and white-coloured forequarters. It is known from historical records to have occurred in the Valais region, representing part of the genetic diversity of Valais goats. Despite a long tradition, it was likewise not recognised as a breed in 1938. In the course of the Copperneck goat rescue project, both (snow-white) Sempione and Grüenochti goats were identified. The usually strikingly variegated forequarters gives these animals a distinctive appearance, underlining their robustness. Although their numbers are gradually increasing, the Grüenochte Geiss is still among the rarest goat breeds in Switzerland.

Description

This is the grey variant of the four Valais goat colour types. Grüenochti kids are often lighter-coloured than the adult animals. It can also often be observed that the grey part in adults becomes lighter towards the front. The slender build and imposing horns resemble those of the other breeds in the Valais goat group. The coat length – as for Copperneck and Sempione goats – is shorter than in Blackneck goats.

A group of goats of the Grüenochte Geiss breed enjoying the last days of autumn at pasture above Adelboden (Sabina Bircher / Züchterverein der Capra Sempione, Kupferhalsziege und Grüenochte Geiss)

Breeding objectives

- Rescuing a critically endangered coat colour variant
- Coat hair not too long (at least 20 cm ground clearance)
- Good fattening capacity
- Large, robust animals

References

ProSpecieRara (www.prospecierara.ch)
Züchterverein der Capra Sempione, Kupferhalsziege und Grüenochte Geiss (www.zckg.ch)

Copperneck goat

Breeding male Copperneck goat, with characteristic imposing horns (Philippe Ammann / ProSpecieRara)

Origin and development

The Copperneck goat originated in the Valais region, together with the other three Valais goat breeds – Blackneck, Grüenochte Geiss and Sempione. This breed was increasingly neglected following the 1938 review of goat breeds. However, animals of this type – with copper-coloured forequarters and white hindquarters – repeatedly cropped up in stocks of Blackneck goats. In 2006, interest in this breed revived, and 28 Copperneck goats were identified in the Bernese Oberland and Valais regions. These served as the basis for an ambitious rescue project, with strict controls on inbreeding.

Description

The Copperneck goat – like all the other Valais goat breeds – has a slender build, long hair and strong horns. As the rescue project is focusing on the old type, the breed standard specifies a somewhat shorter and thus more manageable coat. This is beneficial for extensive (alpine) farming or in grazing projects, where the animals are less likely to become entangled in scrub. Also in accordance with historical images and in an effort to maintain old traits, the breeders envisage an ideal animal where – in contrast to Blackneck goats – the dividing line between the different colours is somewhat nearer the front of the body.

Kids displaying different variants of the Copperneck colour gene (Philippe Ammann / ProSpecieRara)

Breeding objectives

- Rescuing a critically endangered coat colour variant, with the colour changing towards the neck
- Coat hair not too long (at least 20 cm ground clearance)
- Good fattening capacity
- Large, robust animals

References

ProSpecieRara (www.prospecierara.ch)
Züchterverein der Capra Sempione, Kupferhalsziege und Grüenochte Geiss (www.zckg.ch)

Nera Verzasca

A large, powerful male Nera Verzasca goat, perfectly exemplifying its breed (Silvia Zahnd / Schweizerischer Ziegenzuchtverband)

Origin and development

The Nera Verzasca goat originated in the Verzasca valley, in the canton of Ticino. This black goat breed is considered to be at risk, with the total number of animals being the smallest recorded for any of the Swiss Goat Breeding Association's herdbook breeds. It is highly spirited, and its ability to adapt to high and low temperatures makes it a robust breed. Many Nera Verzasca are kept mostly outdoors, where they help to control scrub and tree growth, ensuring that the landscape remains open.

Description

- Short, fine hair
- Shiny black coat, with no markings of different colours
- Robust breed with strong character
- Horned animals

A herd of Nera Verzasca goats in their native Ticino (Ruedi Pulver)

Performance traits of animals registered in the herdbook (over 30 months; 2018: 151 full lactation records)

- 398 kg milk
- 3.47% fat
- 3.12% protein
- 4.79% lactose
- 179-day lactation period

References

Schweizerischer Ziegenzuchtverband (www.szzv.ch)

Peacock goat

A herd of Peacock goats setting off for pastures new (Melanie Weber / tiefblicke.ch)

Origin and development

The Peacock goat ("Pfauenziege"), from the canton of Graubünden, was originally named "Pfavenziege" – after the black markings ("Pfaven") extending along the ridge of the nose and across the cheek which are typical of this breed. After almost becoming extinct, it is now an at-risk breed. Breeders appreciate its robust and frugal nature, which also makes it suitable for extensive farming. Even inaccessible areas which cannot be managed mechanically pose no obstacles for the Peacock goat.

Description

- Short to medium-length hair
- White and black
- Adaptable, robust breed
- Horned and hornless animals

The Peacock goat – a typical mountain breed (Silvia Zahnd / Schweizerischer Ziegenzuchtverband)

Performance traits of animals registered in the herdbook (over 30 months; 2018: 199 full lactation records)

- 520 kg milk
- 3.67% fat
- 3.11% protein
- 4.61% lactose
- 259-day lactation period

References

Schweizerischer Ziegenzuchtverband (www.szzv.ch)

Saanen goat

The Saanen is a dairy goat breed with a striking appearance (Franziska Schwab / Schweizerischer Ziegenzuchtverband)

Origin and development

The white Saanen goat originated in the Saanenland and Obersimmental regions (canton of Bern). In Switzerland, this breed has the second largest number of animals registered in the herdbook. The Saanen goat is a highly productive dairy goat. Together with its good functional traits, this makes it a valuable commercial breed. These characteristics are also appreciated by breeders outside Switzerland, where it is found in a pure-bred form and also used for cross-breeding.

Description

- Short, smooth white hair
- Small pigmented spots may be present
- Dairy breed
- Horned and hornless animals

Thanks to their conspicuous white colour, Saanen goats are readily visible in the mountains (Robert Hess)

Performance traits of animals registered in the herdbook (over 30 months; 2018: 1 519 full lactation records)

- 890 kg milk
- 3.17% fat
- 2.93% protein
- 4.46% lactose
- 284-day lactation period

References

Schweizerischer Ziegenzuchtverband (www.szzv.ch)

Booted goat

Young male Booted goat of the brown-booted type (Patrick Bräunninger / StiefelGeissen-Züchterverein Schweiz)

Origin and development

The Booted goat is a mountain goat originating in the highlands of St Gallen (Walensee – Flums – Weisstannental – Taminatal region). Here, scant forage and extreme climatic conditions gave rise to a goat well adapted to harsh mountain life. Its milk yield was less important than its vigour and suitability for rugged terrain. In the summer months, these animals are often seen high up in the alpine pastures, sometimes alongside the ibex! After the 1938 review of goat breeds, few breeders continued to favour the Booted goat. The last surviving specimens (27 nannies and 7 billies) were salvaged in 1983.

Description

The Booted goat shows the greatest variability in colour of any Swiss goat breed. Two types are distinguished – the black- and the brown-booted. In both types, the coat colour ranges from light or dark brown to silver grey. Matching their boots, they have dark face markings around the eyes, ridge of the nose and ears. All Booted goats are horned. Typical features of this breed are the long hairs on its back ("Mänteli") and hindquarters ("Hösli"). The wattle ("Glöggli") and beard are desirable, but not always present.

Herd of watchful Booted goats (Karin Schaub / StiefelGeissen-Züchterverein Schweiz)

Breeding objectives

- Good rearing traits
- Good fattening capacity
- Milk production sufficient for twins

References

Züchterverband für seltene Nutztierrassen (www.zvsnr.ch)
StiefelGeissen-Züchterverein Schweiz (www.stiefelgeiss.ch)
ProSpecieRara (www.prospecierara.ch)

Toggenburg goat

Toggenburg goat, with characteristic long hair (Franziska Schwab / Schweizerischer Ziegenzuchtverband)

Origin and development

Originally bred in the Toggenburg region (canton of St Gallen), this goat breed is now found throughout Switzerland and abroad. Its typical white markings on the face, legs and tail are known as "Swiss markings". Characteristic features of this breed are the longer hairs ("Mäntelchen") on its back and thighs. Breeders also appreciate this dairy goat for its strong limbs.

Description

- Short to long hair
- Light brown to mousy grey, with white markings on the face, legs and tail
- Light outer coat on the back and thighs
- Productive dairy breed
- Horned and hornless animals

A herd of Toggenburg goats at pasture in the mountains (Silvia Zahnd / Schweizerischer Ziegenzuchtverband)

Performance traits of animals registered in the herdbook (over 30 months; 2018: 768 full lactation records)

- 777 kg milk
- 3.30% fat
- 2.85% protein
- 4.59% lactose
- 283-day lactation period

References

Schweizerischer Ziegenzuchtverband (www.szzv.ch)

Valais Blackneck goat

Typical specimen of the Valais Blackneck goat breed (Edwin Eggel)

Origin and development

The Valais Blackneck goat is native to the mountains and valleys of the Valais region. By grazing steep slopes, it makes a valuable contribution to landscape management. Distinctive features of this breed are its long hair and clearly divided black-and-white colouring, together with the horns found in all males and females. Its hair provides protection against the elements, but requires appropriate care. The Valais Blackneck is not usually milked and is therefore subject to an evaluation of growth performance (estimation of daily gain in kids based on weight at birth and at 40 days).

Description

- Long hair
- Head and forequarters jet-black, hindquarters snow-white
- Fore hooves black, hind hooves white
- Sure-footed mountain breed
- Horned animals

During the summer pasturing season, Blackneck goats and their kids cover long distances (Silvia Zahnd / Schweizerischer Ziegenzuchtverband)

Performance traits of animals registered in the herdbook (over 30 months; 2018: 309 litters)

- 1.37 kids per litter
- 212 g daily weight gain
- 3.46 kg birthweight
- 11.81 kg weight at 40 days

References

Schweizerischer Ziegenzuchtverband (www.szzv.ch)

Swiss Large White pig

Young sow of the Swiss Large White breed (SUISAG)

Origin and development

The Swiss Large White pig has been the subject of breeding programmes since the early 1900s. It derives from old native breeds and was gradually improved by cross-breeding with the British Yorkshire. Since 2002, the Swiss Large White has been bred as a typical dam line with excellent reproductive traits, and it is now the predominant Swiss breed. It is particularly suitable for the production of fertile and long-lived cross-bred sows, but it is also used as a pure-bred breeding sow for the production of porkers.

Description

White pig with erect ears, good maternal traits and an average of 16 teats.

Breeding objectives

Optimum litter size and minimal suckling losses. Small number of non productive sow days. Good lifetime performance with regular litters and low within-litter birthweight variation. Optimum weight gain with good feed conversion and medium-fleshed animals. Selection for E. coli resistance.

Swiss Large White suckling her piglets (SUISAG)

Performance traits of animals registered in the herdbook (2019)

Reproductive performance
- 13.1 live-born piglets per litter
- 2.4 litters per sow per year

Ultrasound on-farm testing (males)
- 99.3 kg weight at end of test
- 155 days of age at end of test
- 640 g lifetime average daily gain

Ultrasound on-farm testing (females)
- 97.5 kg weight at end of test
- 158 days of age at end of test
- 621 g lifetime average daily gain

Station testing (females and castrated males)
- 971 g average daily gain during fattening
- 2.53 kg/kg feed conversion
- 57% lean meat content
- 2.2% intramuscular fat content
- 100 cm carcass length

References

Suisseporcs (www.suisseporcs.ch)
SUISAG (www.suisag.ch)

Swiss Large White sire line (PREMO)

Boar of the Swiss Large White sire line (SUISAG)

Origin and development

The Swiss Large White pig has been the subject of breeding programmes since the early 1900s and was improved by various imported breeds. In 2002, the Swiss Large White breed was divided into two breeding populations – the Swiss Large White dam line and the Swiss Large White sire line. Since 2009, Swiss Large White sire line boars have been available under the trade name PREMO and sire most of the fattening pigs in Switzerland. The Swiss Large White sire line is therefore bred with a focus on weight gain, feed conversion and meat quality. In contrast to the Duroc and Pietrain breeds, the Swiss Large White sire line is the only sire line independently bred in Switzerland.

Description

White pig with erect ears.

Breeding objectives

Higher weight gain and improved feed conversion, with optimum lean meat content. Excellent meat and fat quality by international standards. Selection for E. coli resistance.

Piglets of the Swiss Large White sire line (SUISAG)

Performance traits of animals registered in the herdbook (2019)

Reproductive performance
- 10.3 live-born piglets per litter
- 2.4 litters per sow per year

Ultrasound on-farm testing (males)
- 91.6 kg weight at end of test
- 143 days of age at end of test
- 653 g lifetime average daily gain

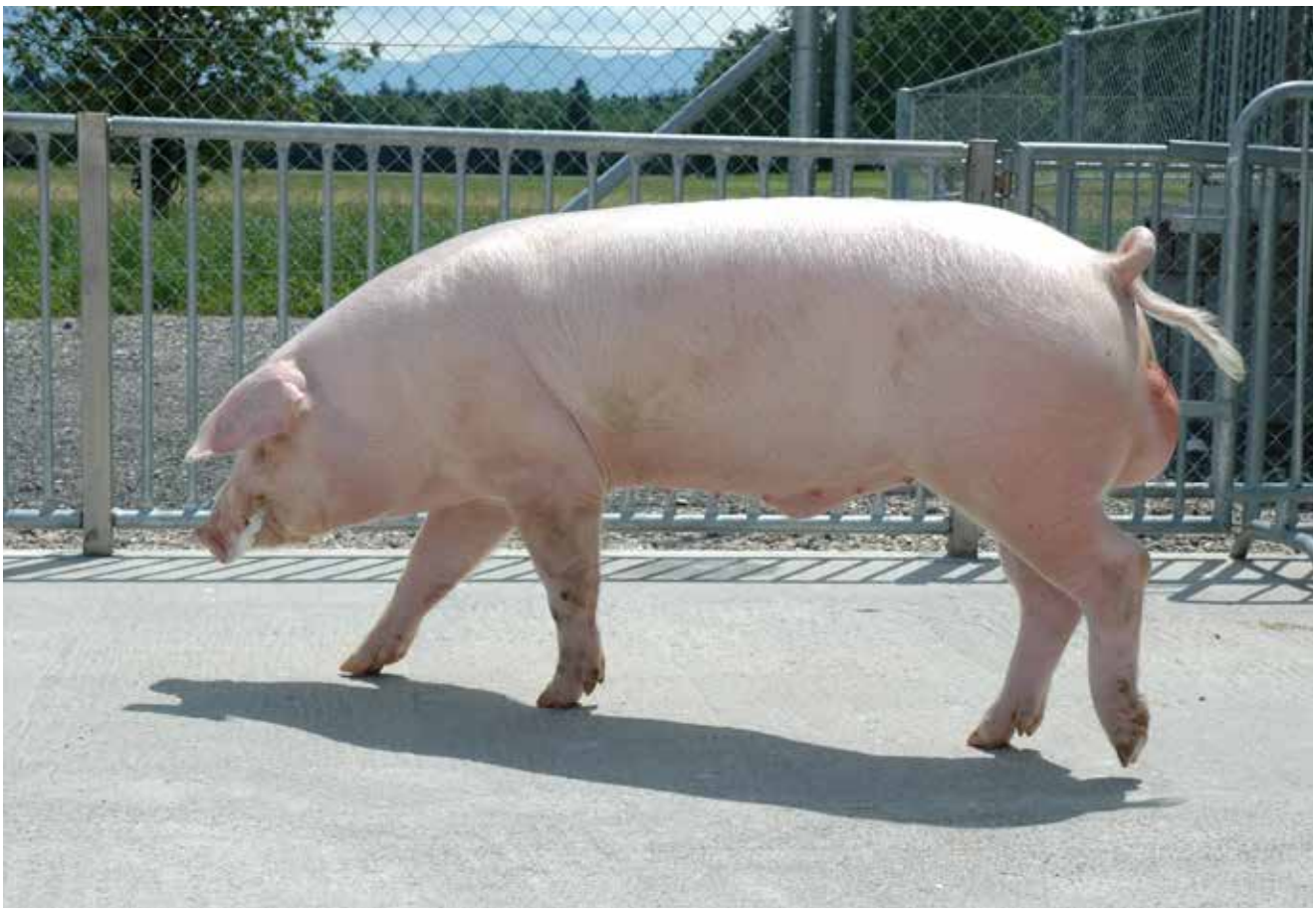
Ultrasound on-farm testing (females)
- 95.6 kg weight at end of test
- 150 days of age at end of test
- 645 g lifetime average daily gain

Station testing (females and castrated males)
- 1055 g average daily gain during fattening
- 2.37 kg/kg feed conversion
- 59.7% lean meat content
- 2.5% intramuscular fat content
- 98.1 cm carcass length

References

Suisseporcs (www.suisseporcs.ch)
SUISAG (www.suisag.ch)

Swiss Landrace pig



Boar of the Swiss Landrace breed (SUISAG)

Origin and development

The Swiss Landrace pig has been the subject of breeding programmes since the early 1900s. It derives from old native breeds and was significantly improved by breeds imported from various countries. The Swiss Landrace pig is bred as a dam line and is particularly suitable for the production of fertile and long-lived cross-bred sows.

Description

White pig with lop ears and an average of 16 teats.

Breeding objectives

Optimum litter size and minimal suckling losses. Small number of non productive sow days. Good lifetime performance with regular litters and low within-litter birthweight variation. Optimum weight gain with good feed conversion and medium-fleshed animals. Selection for *E. coli* F18 resistance.

Group of pregnant sows of the Swiss Landrace breed (SUISAG)

Performance traits of animals registered in the herdbook (2019)

Reproductive performance
- 12.9 live-born piglets per litter
- 2.4 litters per sow per year

Ultrasound on-farm testing (males)
- 99.1 kg weight at end of test
- 145 days of age at end of test
- 681 g lifetime average daily gain

Ultrasound on-farm testing (females)
- 98.2 kg weight at end of test
- 159 days of age at end of test
- 618 g lifetime average daily gain

Station testing (females and castrated males)
- 977 g average daily gain during fattening
- 2.59 kg/kg feed conversion
- 56.0% lean meat content
- 1.8% intramuscular fat content
- 100.5 cm carcass length

References

Suisseporcs (www.suisseporcs.ch)
SUISAG (www.suisag.ch)

Appenzell Barthuhn

Appenzell Barthuhn proudly displaying its beard (Philippe Ammann / ProSpecieRara)

Origin and development

The Appenzell Barthuhn ("bearded hen") originated in the Eastern Swiss Alps in the middle of the 19th century. The model for breeding was the (then already extinct) Italian Polverara hen. In order to breed such a cold-hardy and productive type of hen, Italian chickens were crossed with bearded and rose-combed breeds. The result was the Appenzell Barthuhn. In the post-war years, this breed shared the fate of many native breeds: as agriculture was modernised, they were neglected because their performance could not compete with that of hybrid hens. In 1985, as the partridge-coloured type of Appenzell Barthuhn had become very rare, the last remaining breeders initiated a conservation breeding programme.

Description

The Appenzell Barthuhn is a light, spirited hen with a proud carriage. Both cocks and hens have a luxuriant feathered beard, evident even in day-old chicks. The Barthuhn lays around 150 white-shelled eggs in the first year and may be productive for several years. The original colour variety was black; from this, the partridge-coloured and later the blue Barthuhn developed. In all varieties, the leg colour is blue to dark grey. As befits an Alpine dweller, the alert hens are cold-hardy and robust, and can readily be let outdoors throughout the year.

A group of Appenzell Barthuhn chickens, with their characteristic beards and frost-resistant rose combs, at pasture in the autumn (Philippe Ammann / ProSpecieRara)

Breeding objectives

- Health and hardiness
- Longevity
- Laying performance
- Attractive markings

References

Züchterverein für ursprüngliches Nutzgeflügel (www.zun-schweiz.ch)
Kleintiere Schweiz (www.kleintiere-schweiz.ch)
ProSpecieRara (www.prospecierara.ch)

Appenzell Spitzhaube

Black Appenzell Spitzhaube hen (Philippe Ammann / ProSpecieRara)

Origin and development

Spitzhaube ("pointed bonnet") hens are believed to have been bred from French and Dutch varieties in monasteries in the Swiss Alps as early as the 15th century. In 1935, Appenzell Spitzhaube hens were exhibited at the national poultry show, but the breed was subsequently increasingly neglected. In 1983, as these hens had become rare and were kept almost exclusively in the Appenzell region, a conservation programme was established in collaboration with breeders. Stocks of this lively breed increased again, and the Appenzell Spitzhaube is now found throughout Switzerland. However, a particular stronghold is still Eastern Switzerland, where the hens have always been affectionately known as "Tschüpperli".

Description

The Appenzell Spitzhaube is small to medium-sized and delicately built. Both males and females have a narrow, forward-pointing, feathered crest, reminiscent of the bonnet which forms part of the traditional Appenzell feast day costume. In the hens, the horned comb is not pronounced and is frequently covered by the crest. In the young, the cocks are recognisable by the more pronounced horns and wattles, which become visible at 8–9 weeks. Unfortunately, not all of the original ten colour varieties have survived: still found today are the "gold", "gold-spangled", "white", "black", "silver-spangled", "blue" and "chamois-spangled". Spitzhaube hens lay at least 150 white-shelled eggs per year.

Appenzell Spitzhaube chickens are found in a number of colour varieties. Pictured here (appropriately in the Schwarzbubenland!) is a group of the very rare black variety (Philippe Ammann / ProSpecieRara)

Breeding objectives

- Robustness and cold-weather hardiness
- Vigour
- Longevity
- Laying performance
- Clean markings and attractive crest

References

Züchterverein für ursprüngliches Nutzgeflügel (www.zun-schweiz.ch)
Kleintiere Schweiz (www.kleintiere-schweiz.ch)
ProSpecieRara (www.prospecierara.ch)

Schweizerhuhn

Schweizerhuhn hen, with its characteristic compact rose comb and snow-white plumage (Philippe Ammann / ProSpecieRara)

Origin and development

In the early 1900s, the Schweizerhuhn was bred as a typical dual-purpose chicken (egg and meat production), and it became very important in a country where self-sufficiency was the norm. Accordingly, this frugal native breed had its heyday before and during the Second World War. However, as agriculture became increasingly industrialised, it fell out of favour, with the advent of hybrid (single-use) chickens which either produced twice as many eggs or were ready for slaughter much sooner. By the end of the 20th century, the breed had almost disappeared: barely 50 animals could be found when, in 1991, dedicated breeders undertook to rescue this valuable native breed. The Schweizerhuhn is now bred more frequently once again, and total numbers are steadily rising.

Description

With its national colours – white plumage and a bright red comb – the Schweizerhuhn has the appearance of a proud native breed. With their compact, frost-resistant rose comb and small wattle, these animals thrive in the Swiss climate. Their appearance matches their calm and friendly nature. They are neither skilful nor keen fliers. The Schweizerhuhn is a long lived and robust animal, capable of withstanding frosty nights.

Breeding group of robust Schweizerhuhn chickens in the national colours (red and white) on the Alp de Lagh in the Misox valley (Philippe Ammann / ProSpecieRara)

Breeding objectives

- Hardiness and health
- Longevity
- Dual-purpose: meat, eggs
- Rapid growth

References

Züchterverein für ursprüngliches Nutzgeflügel (www.zun-schweiz.ch)
Kleintiere Schweiz (www.kleintiere-schweiz.ch)
ProSpecieRara (www.prospecierara.ch)

Swiss Feh rabbit

Young Swiss Feh rabbit exploring its outdoor enclosure (Philippe Ammann / ProSpecieRara)

Origin and development

In the early 1900s, efforts were made in various countries to develop new rabbit breeds with fur resembling that of the grey Siberian squirrel, thus making such fur more readily available. In the process, numerous grey rabbit breeds were created. From the outset, unlike elsewhere, breeders in Switzerland concentrated on perfecting the so-called pearling (salt-and-pepper coat) and on producing animals which were not too heavy. Thus, the first breeding efforts (recorded in 1918), which involved wild-coloured and blue rabbits, gave rise to a unique Swiss Feh breed. The term "Feh" refers to the grey winter coat of Siberian squirrels. The Swiss Feh Rabbit Breeders Club has a long history, dating back to its foundation in 1921.

Description

In the breeding of the Swiss Feh, great attention is paid to the pearling: in the blue-grey coat, evenly distributed small tufts of light-brown guard hairs should create a fine, readily detectable structure. The belly, chest and underjaw are light grey to white. The head is close-set, with a broad forehead and erect, hairy ears. The Swiss Feh is true-breeding for its bluish colour. A dwarf breed (various colours) was produced by outbreeding.

If Swiss Feh does are accustomed to each other, they get on well and may sometimes even raise their young in a shared nest (Philippe Ammann / ProSpecieRara)

Breeding objectives

- Small breed with good carriage and well-formed body
- Typical coat structure and colour, with even pearling
- Health and hardiness

References

Schweizer Feh-Züchterklub (www.schweizer-feh.ch)
Kleintiere Schweiz (www.kleintiere-schweiz.ch)
ProSpecieRara (www.prospecierara.ch)

Swiss Fox rabbit

Havana-coloured Swiss Fox rabbit, displayed at a club show (Reto Stucki / Schweizer Fuchskaninchen-Züchter-Club)

Origin and development

This breed originated in Cham in the early 1900s, when a breeder attempted to produce the best possible imitation of the fur of the Alaskan blue Arctic fox. He sought to achieve this goal by combining a long-haired (angora) with a short-haired (Havana) breed. Although the new breed did not quite meet the original breeding objective, the animals found admirers and were initially known as the Swiss Longhair. The breed was subsequently renamed the Swiss Fox rabbit. Since 1949, Swiss breeders have had their own club, with two regional groups.

Description

In the Swiss Fox rabbit, the central point for selection purposes is the coat structure. Lying over a thick undercoat are guard and awn hairs 5–6 cm long. The fact that the rabbit's appearance does not perfectly match that of the Arctic fox is due to the structure of the awn hairs, which are long but less firm. The Swiss Fox rabbit's long coat, hidden neck and only slightly upright carriage give it a compact appearance. The hair on its head and ears is short, contrasting with the rest of its body. A number of colour variants exist. The first Swiss Fox rabbits were mauve (blue), matching the colour of the Arctic fox. The later variants were chinchilla, havana, black and white with red eyes, and white with blue eyes. There is now also a dwarf variety, known as the Dwarf Fox.

Swiss Fox doe with her offspring (Philippe Ammann / ProSpecieRara)

Breeding objectives

- Small breed with good carriage and well-formed body
- Typical coat structure and vibrant coat colour
- Health and hardiness
- Good-natured and calm animals

References

Schweizerischer Fuchskaninchen - Züchter - Club (www.fuchskaninchen.ch)
Kleintiere Schweiz (www.kleintiere-schweiz.ch)
ProSpecieRara (www.prospecierara.ch)

Dark Bee

Dark Bee gathering nectar (Daniel Wöcke / mellifera.ch, Verein Schweizerischer Mellifera Bienenfreunde)

Origin and development

The Dark Bee (*Apis mellifera mellifera*) is a very old breed of honeybee. During the last ice age, which ended around 12 000 years ago, the Dark Bee retreated to the warmer Mediterranean region. It subsequently recolonised – and for millennia was the only honeybee in – Northern and Central Europe. Only in the mid-19th century was its dominance threatened by imports of southern breeds, such as the Carniolan honeybee or crosses such as the Buckfast bee; today, it is less commonly found in a purebred form. As bee mating involves nuptial flights, controlled breeding is difficult if drones (male bees) of other breeds are also present in the area. The canton of Glarus found a political solution to this problem, by permitting only the Dark Bee to be kept. Alternatively, there may be isolated areas in which only one breed of bees is kept.

Description

Characteristic of this breed is its dark, round abdomen with long overhairs and no yellow segments. In a cold mountain climate, the dark colour is advantageous, enabling the bees to warm up more rapidly in the sun. Indeed, the Dark Bee is noted for being extremely cold- and winter-hardy. Like all bees, the Dark Bee produces not only honey but also beeswax, propolis (resinous "bee glue") and pollen – a popular dietary supplement.

Young Dark Bee queen with her colony and brood (Linus Kempter / mellifera.ch, Verein Schweizerischer Mellifera Bienenfreunde)

Breeding objectives

- Health
- Gentleness
- Yield

References

mellifera.ch, Verein Schweizerischer Mellifera Bienenfreunde (www.mellifera.ch)
apisuisse (www.bienen.ch)
ProSpecieRara (www.prospecierara.ch)