BROWN SWISS

MORE THAN MILK

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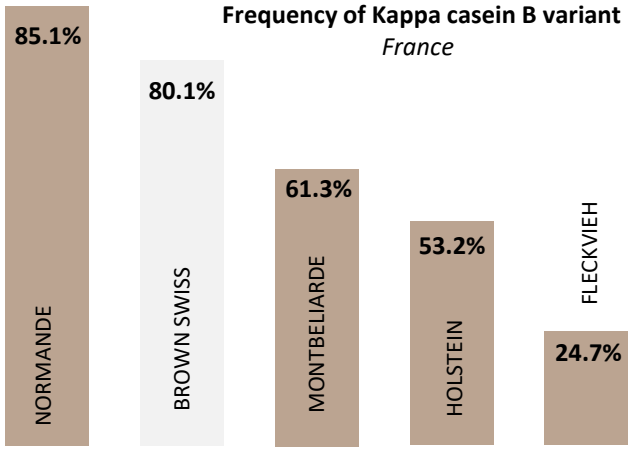


MILK QUALITY

Brown Swiss perfectly balances quantity with quality and offers the best combination of produced milk. The breed is very competitive on volumes with an added value thanks to its fat and protein content. In countries where the milk payment system takes into account protein and fat content, Brown Swiss milk offers a gain up to 5 cts more per liter.

	Brown Swiss	Holstein
Milk (kg)	7 380	9 226
Fat (g/kg)	42,1	40,0
Protein (g/kg)	36,1	33,8

France Conseil Elevage, 2019

Benefits for cheese making and human health

Brown Swiss milk is a noble raw material to produce quality products, especially cheeses. It contributes to the reputation of various cheeses in Europe thanks to its quality. Some even made it a brand as in Italy with the Dissolabruna® products.

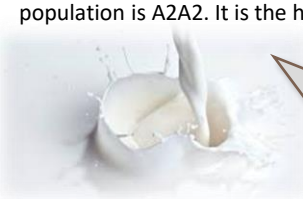
The high casein content and especially Kappa Casein BB makes Brown Swiss milk very suitable for cheese making. Indeed a Kappa Casein BB milk offer a higher cheese yield than a AA milk with an equivalent protein %. In France, the allelic frequency of Kappa Casein B variant obtained by genotyping is 80.1 % (63.8% BB and 32.6% AB). It is one of the highest percentage, all breeds.

Several researches in USA and Italy shows a gain in cheese yield up to 13% on Parmesan production. Results also show that curdling is faster, curd solidifies faster, is more consistent and more resistant leading to an easier processing and a higher quality product also appreciated from organoleptic point of view.

Brown Swiss milk, more digestible?

Beta casein represent 30% of milk protein and includes 2 types; A1 and A2. Some scientific studies highlighted the fact that A2 milk is more digestible while A1 milk is more difficult and might be a reason for milk intolerances. In many countries A2 milk is already available for consumption.

The proportion of A2 in Brown Swiss milk is very high. In Switzerland, the A2 frequency is 78.5% with 62% A2A2. In France, 70% of the population is A2A2. It is the highest proportion.



" The combination of high-quality milk delivery and strong vitality is what we like about our Brown Swiss cows." Family Denzel, Oberessendorf, Germany.

	Brown Swiss	Holstein
Casein (g/100g)	2,7	2,4
Calcium total (mg/100g)	120,8	113,2
Phosphore total (mg/100g)	97,3	88,0
Curd solidification time (min)	6,6	10
Curd firmness at 30min (mm)	31,3	24,2
Compressive strength (g)	32,6	23,9
Sectioning Resistance (g)	73,5	49,6

Summer et al, 2004

CALVING EASE

Brown Swiss calving ease is excellent and appreciates worldwide. Indeed, in addition to a back sloped towards the back, Brown Swiss have wide pelvis which favors calving. Into the European population, the percentage of easy calving is estimated around 97.5%. It is one of the highest percentages of all breeds.

This particularity helps breeders to raise their cows without worries. This is less amount of work for them and so more free time !

Easy calving results in better cow health status in early lactation and contributes to a longer life.

LONGEVITY

Longevity is one of the features of the Brown Swiss breed. It has always been one of the Brown Swiss selection goals. Most of the type traits, typical of the breed have been selected and consolidated to give Brown Swiss cows a long productive and reproductive life. Longevity contributes to a lower renewal rate and has a positive economic impact. Indeed, breeders can sell more heifers for the reproduction in other farms and that increases the added value on the meat aspect.

In all countries, the Brown Swiss breed has a high lifetime average production linked to a high average number of lactation. In Germany, the Brown Swiss cows remain in average one year longer in the herd than the other dairy breeds.

	Age of leaving herd *(milk recorded cows)*	Lifetime prod. 2018 (kg)	Lifetime prod. 2018 (months)
Holstein	5.3	28 306	36.7
Simmental	5.6	24 836	38.6
Brown Swiss	6.4	29 779	47.0

Every years, there is a high proportion of Brown Swiss cows reaching the high lifetime production level of 100 000 kgs. 0, 18 % of the population reach this level in Bavaria – Germany, it is the highest level among all breeds!

	nb of cows	90 to 100 000 kg	%	> 100 000 kg	%
Fleckvieh	734 302	499	0,07	51	0,01
Brown Swiss	111 930	277	0,25	198	0,18
Holstein	82 401	152	0,18	133	0,16
Red Holstein	21 437	39	0,18	31	0,14

LKV - Bavaria

EASY HANDLING

Brown Swiss is an easy handling cow and its temperament positively influences the herd management. In large herds, its docility, hardiness and good general health are assets in the animal handling, to facilitate breeder's work on a daily basis.

Low SCC and mastitis resistance

Udder soft texture, low volume and good teats placement have an indirect influence on the udder health which makes Brown Swiss one of the best breed for low somatic cells count, with a higher resistance to mastitis. Thanks to this resistance, the use of antibiotics decreases and so is the vet bill !

A study from UK also shows that immune cells of Brown Swiss cows produce more oxygen and nitrogen radicals that kill bacteria than Holstein cows.

Feet & legs

The Alps mountain origins conferred Brown Swiss solid feet and legs and an excellent walking capacity. The black horn of hoofs is considered as being hard and resistant.

Several scientific studies shows that Brown Swiss have a lower prevalence of digital dermatitis than Holstein and more generally lower risk of foot lesions *(Holzhauer et al. 2006; J.Becker et al. 2014)*.

Data collected in Austria also show the fewer lameness problem of Brown Swiss:

ADAPTABILITY

Breeders objectives are often very different for one place to another. This is one of the great strengths of Brown Swiss : its adaptability, in all places, all circumstances.

Heat tolerance

Brown Swiss robustness allows it to adapt to any climate: cold winters to warm climates. Several scientific studies have demonstrated this ability. By evacuating the heat more easily and maintaining physical condition, Brown Swiss is robust and can better tolerate the adverse conditions of heat stress than Holstein as seen in the table bellow *(AX et al, 2001; El Tarabany and al, 2016)*.

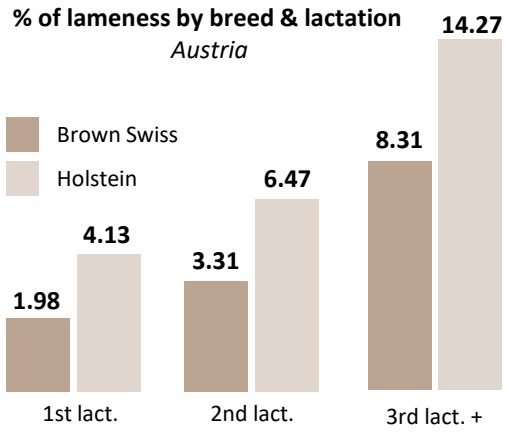
	Low	Moderate	High	Diff.
Holstein (kg/day)	36.6	31.1	27.9	- 8.7
Brown Swiss (kg/day)	26.4	26.8	25.7	- 0.7
F1 BS x HO (kg/day)	31.8	30.6	30.1	- 1.7

Production of milk under different temperatures (low, moderate, high)

This ability to withstand different temperatures but also different feeding systems explains the breed development around the world. Indeed, thanks to its metabolism, Brown Swiss can adjust and optimize the synthesis and the mobilization of fat reserves according to the feed supply available.

Being able to adapt to any circumstances will be a key asset for the future and its environmental issues. Brown Swiss : the cow for tomorrow !

"In our region, summers can get really hot, challenging men and animals. Our Brown Swiss cows are extremely heat tolerant, so we never have to worry about them. That gives us peace of mind and our customers great milk." Family Moraga, Andujar-Jaen/Spain



Brown Swiss key figures

168 240	125 981	69 309	43 251	16 402	15 000	8 035	4 611	3 920

Number of herdbook cows 2019

MILK PRICE
+50€/1000L
Due to high components

LONGEVITY
+1.1 year
when leaving the herd
compared to other dairy breeds

KAPPA CASEIN
80.1%
of B variant allelic frequency
including 63,8% BB

FEET & LEGS
55%
less lameness problems
during the working life

BETA CASEIN
70%
of A2A2 animals

CALVING EASE
97.5%
of easy calving

CHEESE YIELD
+13%
of final product per liter of milk

HEAT TOLERANCE
Less than 1 kg
of production decline during the heat periods