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European Breeds with Possible Use in North America

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Shortly after I wrote my article on the Charollais breed in the September 1994 issue of *The Shepherd*, I became aware of two new facts. The first is that Canada had signed an agreement with France, according to which, embryos and semen from French sheep breeds can now be imported into Canada. Animals derived from these embryos and semen will still have to be under veterinary observation for some time, however, the need to quarantine them for more than five years, as before, is no longer a must. The second fact is that there are several breeds in Europe which can be particularly interesting to North American breeders in their continuous pursuit to improve the efficiency of sheep production. In searching the literature for material for a forthcoming book on prolific sheep, I discovered many breeds, some of which are already known to North American breeders, but the majority may not be. The impact of this change in regulations and the discovery of these new genetic resources was felt almost immediately. Several Canadian enterprises requested certification to import a variety of breeds including new Romanov bloodlines, East Friesian, and even Dorper sheep from South Africa.

In addition to the Charollais breed which I presented in great details in the September 1994 issue, there are many other European breeds which may be of interest to sheep breeders in the United States and Canada. In this article, I shall present these breeds rather briefly, and those interested in getting more details can contact me later.

Bleu du Maine and Rouge de l'Ouest

Northwestern France is the origin of two prolific breeds, the Bleu du Maine and Rouge de l'Ouest. These two open-air breeds share the same origin and physical and production characteristics. They differ only in colour, the Bleu du Maine has a blue coloured head while the Rouge de l'Ouest has red coloured head and limbs. Although these breeds were created recently, their exact origin cannot be precisely established. It is believed that sheep breeds imported from Britain in the 19th century contributed to these breeds. One such breed that can explain the Bleu du Maine colouring is the Wensleydale. The two breeds are polled; have a wide forehead bare of wool; and a slight aquiline profile. They have prominent eye-sockets; wide nose; the long, slim coloured ears are pricked up and placed high on the head. The body has average

neck; well-muscled shoulders; wide and deep chest; straight regular back; long and wide pelvis. The tail-joint is well-blended in the croup and well-developed legs descending on the hocks. The wool is white, homogeneously tight, covering the whole body except the head, hocks, and knees. The wool is average in length and fineness. Rams weigh 110 to 120 kg and ewes 80 to 90 kg.

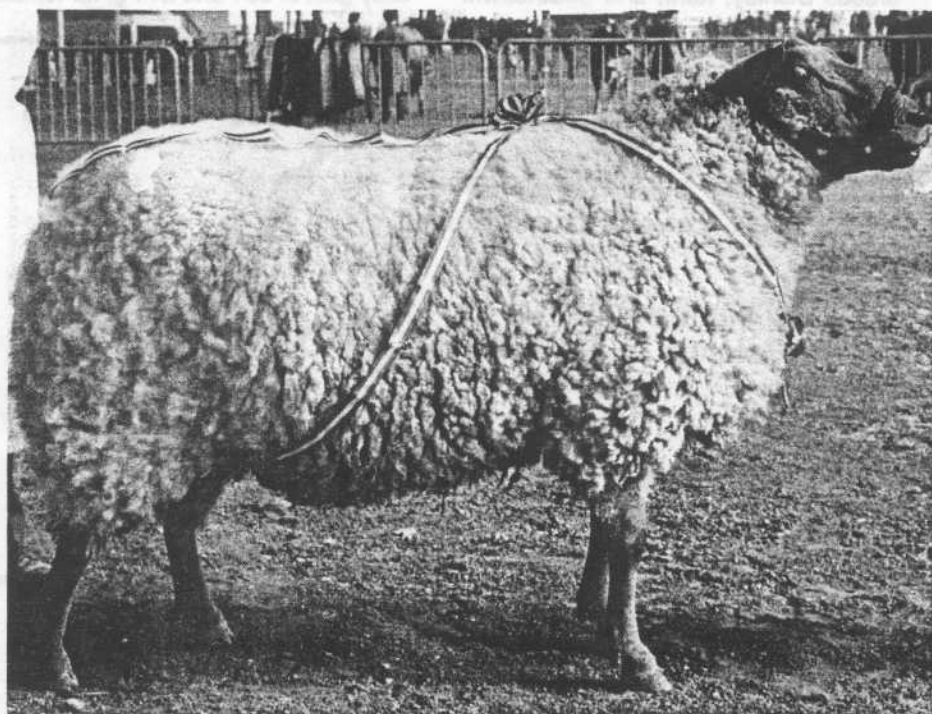
The Bleu du Maine and Rouge de l'Ouest sheep are well adapted to breed almost entirely in the open, on rich pastures. Only a few breeders shelter their ewes during the spring lambing season. The two breeds are early maturing, 56 and 67% lamb before 15 months and 71 and 84% lamb before 18 months of age, in the two breeds, respectively. Prolificacy is high, only 15.4% of the ewes lamb singles, while 63.8% lamb twins, 19.3% triplets, and 1.5% quadruplets. The average prolificacy is 1.5-1.6 for yearlings and 2.0 for adults three years old and older. Prolificacy in well managed Bleu du Maine flocks can reach 2.38. These breeds have a short lambing season which extends from January to April with the highest concentration occurring in March, and thus, may not be suitable for accelerated breeding systems.

The ewes are good milkers, 90% of twin and 57% of triplet lambs are raised by their mothers. Total average yield of Rouge de l'Ouest ewes during an 87 day lactation was 102 litres, with 6.3% fat and 5.0% protein. Male and female lambs gain about 296 and 272 g between 10-30 days of age while twins gain 241 and 234 g, respectively. Between 30-70 days of age, male lambs gain about 300 g per day and females gain 270 g. Lambs can reach 37 kg weight by 90 days of age on pasture.

Roussin de la Hague

Another breed originated in Northern France from crossing Dishley and Southdown breeds and local sheep around the year 1920 is called Roussin de la Hague. More recently in 1960, Suffolk and Avranchin breeds were also involved to improve carcass qualities and prolificacy of that breed.

This open-air breed is well adapted to the wet and windy climate prevailing in its habitat. Ewes weigh 70-90 kg and rams between 90-110 kg. The animals



Bleu du Maine ram

are polled with short head covered with dark brown hair. The face is clear of wool with a straight profile showing slight depression at the eye level. The ears are medium in size, mobile and covered with fine short hair. The body is straight and large with open shoulders. Legs are covered with hair similar to that of the head. The body is covered with white wool medium in length (5-7 cm).

This breed is early maturing, 83% of the ewes lamb for the first time before 15 months and 93% before 18 months of age. Lambing is concentrated in winter between January and April. Prolificacy of yearlings and ewes lambing in February and March is about 1.8 and 2.1, respectively. The breed average prolificacy is 1.87 and reaches 1.96 in the best 10 flocks. Ewes are good milkers and can easily raise their large litters without difficulty. Single and twin lambs gain 318 and 284 g per day between 10-30 days, while females gain 340 and 266 g, respectively.

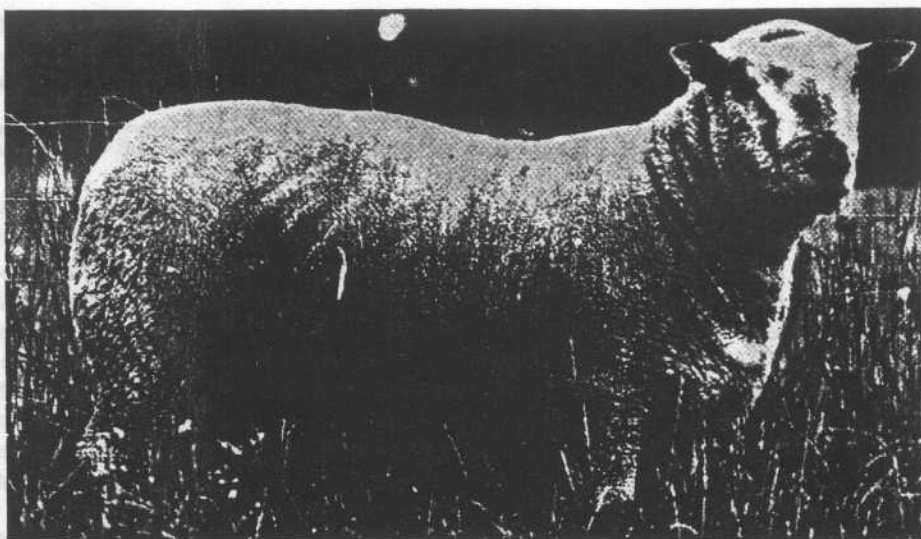
Vendéen

The Vendéen is a dual purpose, open air breed popular for its prolificacy, milking ability, and the quality of its market lambs. It originated in France in the middle of the 19th century, from crossing the English Southdown with local sheep in the Bas-Poitou region. Vendéen sheep's long legs keep their bodies high from the ground. Body weight averages 60-70 kg for ewes and 85-110 kg for rams. The animals are white with grey face. Wool covers all the body and extends to the legs. The fleece is dense, with medium fineness and staples averaging 7 cm in length. Rams produce 3.5-4 kg of wool and ewes 2.5-3 kg.

This breed adapts well to different open air or semi-open air management, in which animals are kept outside year round except for the lambing period or on pasture most of the summer months, respectively. It can be maintained extensively on poor pastures, or intensively on fertile land and indoors. Vendéen lambs can be finished to 38-40 kg market weight reached at 3-5 months of age strictly on forages.

In France, these sheep are maintained on traditional one lambing per year management. Only 8% of the ewes are managed under an accelerated lambing system and have to be treated with hormones to induce out-of-season ovulation.

Sexual maturity is rather early, with 60% of the ewes lambing for the first time before 15 months, and 82% before 18 months of age. Vendéen ewes can lamb at each month of the year except June, July, and August, with 70% of the



Vendéen

lambing concentrated between December and February.

Prolificacy is about 1.6 for yearlings and about 1.8 for ewes. Prolificacy in the best flocks average 2.0-2.2 in adult ewes. Animals have a good longevity, ewes maintain good production up to 10 years of age. As a result of the good milking ability of the ewes, they can raise their large litters successfully. Growth of twin born raised lambs averages 220-230 g per day. Growth of males and females between 30 and 70 days, averages 277 and 247 g for single born and 253 and 227 g for twin born lambs, respectively.

Avranchin

This open-air breed has resulted from crossing the local French sheep population with the imported British breeds Dishley, Kent, and Southdown.

The first crossing goes back to 1820, and by 1900 the characteristics of the Avranchin breed had become fixed. The breed association was formed in 1928. The current population consists of about 15,000 sheep.

Rams weigh 100-110 kg and females, 80-90 kg. Sexual maturity occurs rather late; only 40% of the ewes lamb before 15 months and 54% before 24 months. The animals have a short lambing season that extends from December to March. Prolificacy in primiparas ranges from 1.45 in ewes lambing at 12-15 months to 1.69 for those lambing at 18-30 months. Prolificacy of adults increases with age, from 1.51 at 1-2 years, reaching a peak of 2.0 at 5-8 years. Single and twin males between 10 and 30 days old reach an average daily gain of 261 and 214 g; for females,

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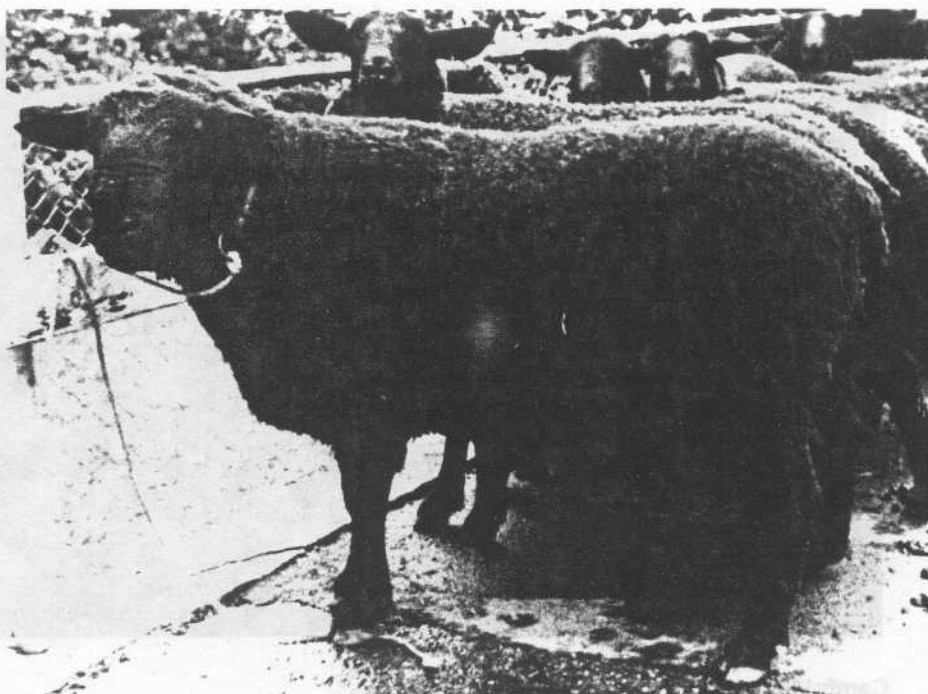
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Swiss Black Brown Mountain sheep

the corresponding figures are 227 and 198 g, respectively. Males and females gained 280 and 251 g/day between 30 and 70 days of age.

Bergschaf

From Austria, a breed called Bergschaf, also known as Alpine Mountain-sheep, is derived from the Bergamo type of Alpine Mountainsheep, which are characterized by early maturity, prolificacy, and high milking ability. Bergschaf comprise half the sheep in Austria and 7% in Bavaria. The Bavarian Bergschaf are often referred to as German Mountainsheep. They can survive and thrive on mountain pastures, where cattle cannot. Bergschaf have been registered as a breed since 1939. They are usually white, although some are brown, the latter having been viewed as an independent breed and registered separately since 1977.

Mature rams weigh 80-110 kg and mature ewes, 65-75 kg. Males and females are hornless and rough-boned, and are distinguished by their small head and big loop ears. The wool is composed of mixed fibres (carpet style), with a staple length of 15-25 cm, a clean fibre yield of 60-70%, and an average diameter of 22-36 μ m.

The breed is well recognized for its early maturity, extended breeding capacity, and high milking ability. Ewe lambs can be bred at 8-10 months as they attain 45-55 kg liveweight. Age at first lambing depends on season of birth, with the youngest ewes lambing for the first time in winter (478 days) and the oldest in spring (573 days). Bergschaf ewes can mate and lamb through-

out the year. About 38% lamb in winter, 21% in spring, 23% in summer, and 18% in autumn. Between 40 and 55% of registered ewes in Austria and Bavaria lamb twice a year, with an average interval of 245 days and 237 days between parturitions. Ewes can maintain an average of 1.4-1.5 parturitions per year. The prolificacy rate ranges between 1.6 and 2.2 lambs born, depending on feeding management and frequency of lambing. About 35-40% of the litters are single, 50-55% twins, and 10% triplets and quadruplets. Preweaning mortality of lambs varies according to litter size, ranging from 4.5% for single and twin-born lambs to 15.5% for triplets and 29.2% for quadruplets. Mortality is higher under accelerated lambing and may reach 28%.

Birth weight of lambs averages 3.5 kg, and they gain 259 g between birth and 42 days. Ewes and their lambs are managed in one of two ways: they are either left to graze on mountain pastures in large flocks until the lambs are 5-6 months old (34-40 kg liveweight) at

which time they are slaughtered; or, they are kept in small flocks in paddocks until weaning at 10 weeks of age (about 25 kg) and then fattened to market weights.

Swiss Black Brown Mountainsheep

The Swiss Black Brown Mountainsheep (also called Jura sheep, after the Jura Mountains in Northwestern Switzerland) originated from several coloured, local sheep strains that were bred mainly in locally confined areas and responded to special demands. In the late 1930s and early 1940s, the local strains were combined to produce more uniform breeds, and in 1941 the breed got its present name. Today, it can be found throughout almost the whole country, with a concentration in western Switzerland. Two colour strains occur, black and brown. Approximately 10,000 animals are registered in the official flock book, with the total population estimated to be about 40,000. As is generally the case in Switzerland, the sheep are bred in small flocks, the average flock consisting of approximately 10 ewes.

Rams of this breed have a mature size of 75-82 cm at withers; females measure 66-74 cm. Body weight is 80-120 kg for males and 65-90 kg for females. In accordance with the main breeding purpose, that is, the production of lamb meat, the Black Brown Mountainsheep have a good conformation and a good carcass value.

The wool is black or brown; a few grey or white fibres may be found in the fleece of older animals. Yearly wool yield (greasy) is 3.5-4 kg for males and 3-3.5 kg for females, with a fibre diameter of approximately 25-30 μ m. Because sheep are normally shorn twice in Switzerland, because of two distinct feeding and managing periods, staple length is short: 4-4.5 cm in 6 months. The head and legs do not carry wool.

A very important characteristic of this sheep is its excellent, nonseasonal reproductive performance. With a lambing interval of 297 days, 2.1 lambs are born on average per ewe per year. The average number of lambs born alive per litter is 1.75, with 62% of the parturitions consisting of multiple births. Lambs are born mainly from autumn through spring, with peaks in October and March. No births occur during the summer because breeders avoid lambing during the Alpine pasture period.

Reproductive performance is combined with good growth capacity. The average birth weight is 4.5 kg for single births and 3.9 kg for multiple births. Single-born male lambs weigh 15.1 kg

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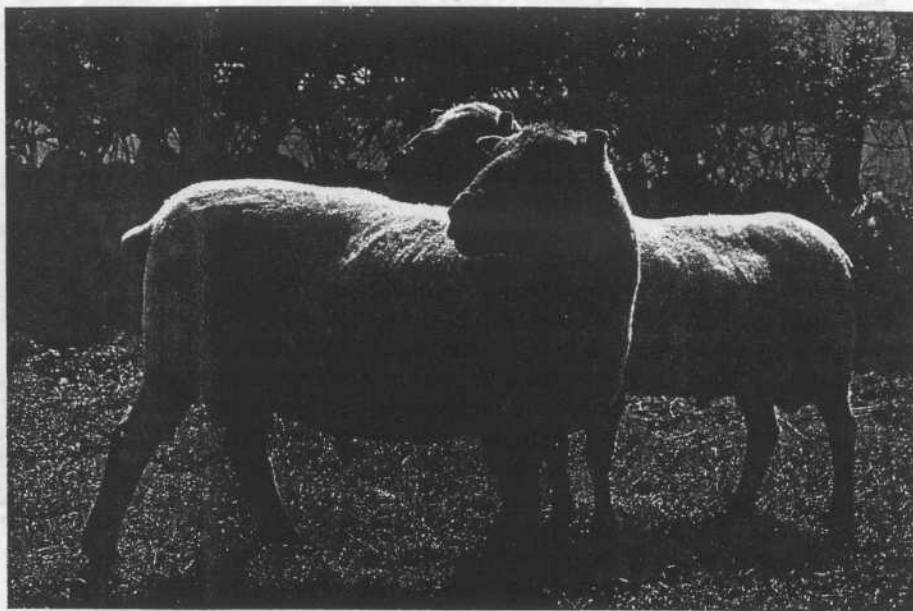
and females 14.4 kg at 30 days; multiple-born lambs at 30 days weigh an average of 12.6 kg. The average daily gain from birth to 30 days was measured at 367 g/day from August 1992 to July 1993.

The Cambridge Breed

The Cambridge breed comes from the UK and was developed at the Cambridge University Farm in 1964, with the objective of creating a new maternal breed. Sires of this breed mated to ewes from non-prolific breeds produce cross-bred ewes for mating with rams from terminal meat breeds such as the Suffolk and the Texel. The foundation population was selected by screening several British meat breeds for ewes of high prolificacy. The criterion of selection was that each ewe should have given birth to a minimum total of nine lambs in the three lambings preceding selection. As a result of this screening, 54 ewes from nine breeds and crosses were obtained over two years, these were 34 Clun Forest, 6 Llanwenog, 3 each of; Lleyn, Suffolk x (Border Leicester-Welsh Mountain), and Suffolk x (Border Leicester-North Country Cheviot), 2 Rendor, 1 each of; Kerry Hill, Ryeland, and Blueface Leicester. The contribution of the constituent breeds was 63% from Clun Forest, 11% from Llanwenog, 5.5% from Lleyn, 5.5% from Suffolk, 3.5% from Rendor, and the remaining 11.5% from the other six breeds. The ewes were mated in their first season to seven Finnsheep rams, subsequently home-bred F1 rams and rams from backcrosses to the original foundation ewes, were used as sires, until the establishment of the composite breed, with an approximate genetic contribution of 20-25% from the Finnsheep.

The Cambridge sheep bear a closer resemblance to the Clun Forest breed. They are a medium-sized lowland breed, polled in both sexes, with a brown face and legs, mottled body with a white fleece, and a long thin tail. Birth and 50-day weights of single-born lambs average 4.4 and 20.5 kg, whereas for quadruplets these averages are 2.5 and 17.0 kg, respectively. Mature body weight is 95 kg for rams and 70 kg for ewes, animals bred at 1 year of age average about 40 kg. Under a high level of feeding outdoors on pasture, daily gain, from 35 days to slaughter at 35 to 38 kg weight, was 325 g.

Observing ovulation rate in a number of ewes gave a strong indication that a gene, similar to the Booroola gene, or probably more than one gene with large effect on ovulation, may be present in the Cambridge sheep. In studies com-



Cambridge rams

paring Cambridge with other prolific breeds, the Cambridge ewes surpassed all the other breeds in average ovulation rates with some ewes ovulating up to 14 ova. Average number of lambs born is about 1.8 at one year, 2.7 at two years, and 3.0 at three years. Crosses with Cambridge averaged 1.4-1.7, 2.0-2.1, and 2.2-2.4 at these three ages, respectively. The Cambridge breed and its crosses intensively managed, have lambed successfully at eight-month intervals for several cycles.

Cambridge ewes are reputed to have excellent mothering ability and the lambs are vigorous for their size and quick to seek and find the mother's teats following birth. However, the strong maternal instinct has a down aspect when it comes to fostering since the ewes can be strongly averse to alien lambs. Observation of artificially reared lambs also suggests that for their size Cambridge lambs tend to be aggressive in competition for teats. A problem

noticed in several Cambridge flocks is that some ewes (about 15% in one study) fail to reproduce as a result of abnormal reproductive development. These females never exhibit heat and remain barren. Studying these ewes indicated apparent retarded development of the genitalia and mammary system, probably caused by abnormal chromosome disturbances.

Milk yield per day of Cambridge ewes was estimated at 4.1, 3.7, and 2.2 kg at 20, 30, and 70 days of lactation, respectively. There is a big variation in colostrum output in Cambridge sheep ranging from 50 ml to 2.2 litres at birth. Mature ewes can have insufficient colostrum production for the first 12 h, although adequate amounts are subsequently produced. The Cambridge ewe has an average fleece weight of 2.5 kg. Staple length averages 10 cm and a fineness count is 56. As a result of their softness, wool from Cambridge sheep used for spinning and weaving produce high quality garments.

Each one of these breeds definitely has characteristics which make them interesting to North American sheep breeders. Currently it is possible to acquire them rather easily, but probably not cheaply. Anyone thinking seriously of importing one or more of these breeds should calculate at least 600 dollars per embryo, add to that the cost of transportation, implantation, and the possibility on no more than 50% success rate. Many breeders will find that these sheep will cost a small fortune, but in the long run, the benefit to the industry will surely exceed the cost involved.



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