

SVF Foundation partners with Tamarack Tunis, nation's oldest working Tunis flock, to perpetuate the breed

Combining cutting-edge genetic science with the best in sustainable farming practices, SVF Foundation and Tamarack Tunis have joined forces to revive an endangered breed of heritage livestock — the old style Tunis sheep. This collaboration is part of the growing movement to protect the world's food supply from the perceived threats of long-term commercial agriculture, namely, diminished animal biodiversity and the degradation of land and water.

Tamarack Tunis, a sustainable farm located in Corinth, VT, maintains the nation's oldest working flock of Tunis sheep in the "old-style" of smaller and finer boned animals. SVF Foundation, located in Newport, RI, is one of the nation's leading conservers of heritage breeds through cryogenic germplasm preservation. Together, the two are working to conserve the critically endangered traditional Tunis bloodlines, which have become increasingly rare as farmers focus on larger-framed, show-style Tunis sheep. With its ability to withstand drought conditions and to breed out of season, not to mention its succulent meat and fine wool, the Tunis sheep is an important and rare treasure trove of genetic strengths.

The partnership of SVF and Tamarack Tunis emphasizes several important goals: to preserve the planet's biodiversity through conservation of endangered breeds, to practice stewardship of the environment through sustainable farming and to offer consumers alternatives by way of supporting a niche market. By preserving Tunis sheep and raising them in an environmentally beneficial manner, SVF and Tamarack Tunis represent a partnership between science and agriculture that can restore the ancient traditions of food, farming and culture.

More about the Tunis sheep

Tunis sheep — known as "redheads," for the cinnamon-colored hair on their face and ears — are native to North Africa and are descendants of the ancient "fat-tailed sheep" of Biblical times. This hearty variety was first introduced into the United States in the late eighteenth century as a gift from the Bey of Tunis. Prized for its mild, tender meat and docile demeanor, the Tunis sheep is one of the oldest breeds of livestock in the country. Founding fathers John Adams and Thomas Jefferson acclaimed the Tunis Sheep for its favorable qualities.

The breed has a high resistance to disease and is both well-suited to the heat and humidity of the South, and are robust and thick-fleeced enough to handle cold northern winters. Early American breeders blended the Tunis into European-derived stock, developing a distinctly American variety. This breed was prominent until the Civil War, when high demand for meat led to the Tunis' near extinction.



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The breed's small size and slow growth rate also contributed to its near demise in the wake of modern, high-yield factory farming. Today, the Tunis remains on "watch" status by the American Livestock Breeds Conservancy.

The Tunis is a handsome, pleasant animal, of medium-sized and slender build. It has long, pendulous ears and is naturally hornless. Tunis wool is long, thick, and cream-colored, known for its signature red-brown coloring on the sheep's head and legs. Tunis ewes lamb easily and provide excellent mothering to their young; they produce a high quantity of milk and commonly lamb out of season — a boon for lamb production in the fall. Tunis sheep can pasture in marginal conditions; they make efficient use of what they eat, producing a large quantity of meat for their size.

Slow Food USA, a promoter of whole foods and sustainable farming, praises the Tunis' delectable flavor, including the Tunis among only four breeds of sheep in its "Ark of Taste." This recognition piqued a growing interest in the breed among chefs, restaurateurs and foodies.

Tamarack Tunis and sustainable farming

Located on 40-acres in Corinth, VT, Tamarack Tunis is home to the nation's oldest working flock of Tunis sheep, first established in 1920 with two lambs. Operated by Ben Machin and family, the flock's fourth generation of shepherds, the farm features a sustainable system of grass grazing with rotational pastures, making efficient use of the region's seasonally abundant verdure. Along with heritage breed grass-fed lamb, Tamarack focuses on the sustainable production of wool products, such as: yarn, wool comforters and sheepskins.

The Tunis breed evolved when animal agriculture relied entirely on grazing and before the meat industry turned to less sustainable inputs. Rotational grazing allows the grass to regenerate, builds topsoil, and supports a healthy ecosystem of plants, insects, and bacteria. In all of Tamarack's farming practices associated with haying and grazing, no chemical fertilizers are used; manure and compost are placed on the fields, and lime and wood ash are used as mineral supplements.

Grass farming offers a way to maintain open space and utilize agricultural lands to produce food, and creates niche markets for small family farms. For livestock, grass farming means almost daily access to fresh grass, sunshine, fresh air and room to exercise.

Red meats like lamb and beef from grass-fed animals, especially those entirely grass-fed, are increasingly regarded as health foods, and as key parts of a balanced diet. However, one of the challenges with grass farming and with focusing on the "old-style" Tunis, is that animals grow more slowly and attain a smaller size than grain-fed livestock. This translates into higher prices — at times — but also better tasting, healthier food. Tamarack Tunis' sale of meats and wool products makes the farm financially sustainable and allows for better genetics to be developed over time through selective breeding and retention of the highest quality lambs to further develop the flock.

SVF Foundation and genetic conservation

The mission of SVF Foundation is to preserve germplasm (embryos, semen and genetic material) of rare and endangered breeds of livestock. Though they've existed since the earliest days of animal domestication, "heritage livestock" are becoming

Tunis cont. on A4



The traditional Tunis bloodlines have become critically endangered, as farmers tend to focus on larger-framed, show-style Tunis sheep.



Jon Walker, of SVF herding Tunis sheep.

Photos courtesy of SVF Foundation

Turkey is more than a nutritious food choice, holiday meal staple for MSU researchers

While sorting through turkeys in the freezer section of the local grocery store may be foremost on most consumers' minds in preparing for Thanksgiving, for members of a Michigan State University (MSU) research team, turkeys are front and center on their minds 365 days of the year. In fact, these MSU researchers spend a lot of time researching how turkeys grow and what their findings mean for both the cooks in the kitchen and the bird itself.

It's not unusual to witness shoppers

sorting through the freezer section a couple of weeks before Thanksgiving in search of a 16- to 20-pound-plus turkey. While the majority of these turkeys are hens, there has been a growing consumer demand for further processed turkey products supplied by the heavier tom turkey. Today, turkeys are individually heavier than they were 40 years ago, said Dr. Darrin Karcher, MSU Extension poultry specialist.

"In the 1960s, an 18-week-old turkey

weighed an average of 20 pounds. Today, a turkey of a similar age weighs an average of 40 pounds. While a 40-pound turkey sounds large, these toms are used for processed products and other uses. For example the giant drumsticks you get at the fair – those are from tom turkeys," he said. "In addition to weight differences, the amount of breast meat in turkeys has increased by 100 percent over the last century."

Though turkey producers have responded to consumer demand by raising larger turkeys, they haven't forgotten about keeping the best interests of the birds number one on their list of responsibilities. Karcher said producers remain committed to making sure they are the best stewards and caretakers possible for the animals.

"Regardless of the environment in which the birds are raised, we (turkey producers) must make certain to always have the best interests of the birds in mind," he said. "The majority of commercial and family-owned operations manage their flocks according to the code of ethics and animal production standards outlined by various industry organizations such as the National Turkey Federation."

As turkeys are raised to be bigger, it's important to stabilize the rate of growth to reduce the number of fatal injuries that can result when the bird gets too heavy to hold itself up. One answer may be to slow down the growth

process by reducing the birds' energy and protein intake. The hypothesis is that modifying the diet could ultimately increase the strength of the birds' skeletons.

"Slowing down how fast the bird grows, or gains weight, would likely allow the bones to reach an equilibrium, or in other words, bone loss would relate more closely to how fast new bone deposits are made," Karcher said.

Researchers tested 800 commercially grown turkeys in their study. Turkeys in the test group were fed a corn-soybean meal diet rich in vitamins and minerals. After consuming the test diet for the duration of the production period, researchers collected and tested the strength of each turkey's femur and found that feeding the altered diet did increase bone strength.

Findings from this work are important to the turkey industry because when turkeys have weak skeletons they are more susceptible to femur fractures. Karcher said producers lose money when they have to cull turkeys from their flock because they have broken bones; food processors do not purchase or market birds with broken bones. Frail bones pose an additional problem for the bird – it puts them at risk of fracturing a bone, which may sever an artery ultimately leading to death.

Researchers are next planning to look at how genetics and breeding lines might contribute to bone strength and density.



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Photo by Sally Colby

Cover photo by Elizabeth Tomlin

Rob Hudyncia places a protective arm around his "not for dinner" family pet, Winston.



Country Folks

New England Farm Weekly
U.S.P.S. 708-470

Country Folks New England Farm Weekly (ISSN 1536-0784) is published every week on Monday by Lee Publications, PO Box 121, 6113 St. Hwy. 5, Palatine Bridge, NY 13428.

Periodical postage paid at Palatine Bridge Post Office, Palatine Bridge, NY 13428 and at an additional mailing office. Subscription Price: \$45 per year, \$75 for 2 years.

POSTMASTER: Send address change to Country Folks New England Farm Weekly, P.O. Box 121, 6113 St. Hwy. 5, Palatine Bridge, NY 13428. 518-673-2448.

Country Folks is the official publication of the Northeast DHIA.

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increasingly rare as a result of modern commercial agriculture's focus on a few breeds engineered solely for high yield.

Consequently, many breeds of sheep, goats, pigs and cattle are facing imminent extinction. These breeds contain naturally selected, unimproved traits, such as resistance to parasites, good birthing and mothering instincts, adaptability to harsh environments, and uncommonly good-tasting meat.

The monoculture of today's global agribusiness leaves the industry vulnerable to disease and other dangers, threatening the world's food supply with possible collapse. SVF Foundation preserves heritage traits in the event of such a calamity, and could reawaken a breed with its full genetic diversity within one generation. Much like a seed

bank protects plant diversity and food security, SVF is one of the few institutions to collect and store animal germplasm in a frozen state for future use. SVF supports "on the hoof" conservation of heritage livestock by introducing breeders to ever-wider markets, as well as educating the public to the importance of diversity in our animal agriculture. SVF's current project with Fair Food Farmstand underscores this effort to connect breeders and consumers.

Located in Newport, RI, on historic Surprise Valley Farm (aka "Swiss Village"), SVF was founded by Dorrance Hamilton in 1999. The Foundation is sited on 45 scenic acres and operates in collaboration with Tufts' Cummings School of Veterinary Medicine.



Dr. David Matsas, DVM from Tufts holding a lamb. Dr. Matsas provides medical care for the sheep at SVF.