Which Meat Goat Breed is Best?

No Single Breed is Best for all Situations

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Which meat goat breed is best? Sounds like an innocent question, doesn't it? Turns out that no single breed is best for all situations, and this fact is going to be very important for the American meat goat industry. Understanding breeds and how they work can help put the meat goat industry on a sound genetic basis.

WHAT IS A BREED?

Breeds are genetic packages. Breeds, to be truly useful, need to be consistent enough genetically to reproduce the same type generation after generation. This is the key concept to understanding breeds and why they are useful. Ideally each breed is a unique package of consistent genetic traits, and the combination of traits fits a specific niche either in the environment or in a production system. No single breed is always best — each breed is essential, for each can serve better than others in certain production systems or environments. So rather than one breed being considered best, it is more useful to consider each breed as distinct and unique from the others. Each has a role to play — but only if they persist as consistent genetic packages! And that means they have to persist as pure breeds.

WHY ARE BREEDS USEFUL?

Pure breeds, and their predictability, are especially valuable for commercial and crossbred systems, for they provide predictability to the resulting crosses. Crossbreds, in nearly every class of livestock, are the final basis for commercial production. That is because they are vigorous, grow well, and are usually hardy. Then why not just crossbreed everything? The reason to preserve purebred breeds, instead of opting for all crossbreds, is that the crossbreds tend to have very uneven offspring. As an example, think of the popular Hereford x Angus cross in cattle. The result is very consistent offspring — black baldies. But mate those crossbreds together for the next generation, and the result is black calves, red calves, white faced reds, white faced blacks, some horned, some polled. The initial predictable uniformity of the first crosses is totally lost when these are used for reproduction. If uniformity is desired, then pure breeds need to be in the picture somewhere, for uniformity in animal breeding has no other source. The uniformity goes way deeper than color, to affect growth rates, environmental resistance, and a host of other factors.

Crossbreds are indeed desirable and useful, but are themselves pretty unpredictable as to type of offspring. As a result, nearly every livestock industry needs pure breeds as a base. The uniqueness of each breed needs to be safeguarded, which will assure usefulness in different situations. Breed differences need to be fostered by wise breeding programs. Breeding programs aimed at producing seedstock for other breeders should always be based on breed purity, for with purity comes the predictability that the commercial breeder, the show folks, and the crossbreeder depend on for success. The basis of a successful industry is having high quality purebred goats from a number of different breeds. Having multiple breeds to fit into production systems has been very important in most animal production. The single noteworthy exception is the dairy cattle industry, in which the Holstein swamps the competition. But even in the dairy cattle industry the other breeds tenaciously retain a share of the action, generally because they are adapted to a specific environment or produce a specialty product. In other systems, such as beef production, lamb and wool production, and even horse (and especially mule!) production, the strength of having different breeds (and lots of them) is widely accepted as healthy for the industry. The variety of different breeds allows the producers to select the ones that are best suited to specific situations.

There are two main reasons for benefits of multiple breeds in the production of a single product. One reason is that breeds are adapted to specific environmental or production niches. Certain breeds excel in certain environments, and other breeds in other environments. Texas Longhorns and Scottish Highland cattle each tolerate poor nutrition in adverse climates, although obviously one is a more logical choice for the South, and the other for the far North. Breeds also tend to be specialists in different portions of the production system. Some breeds are better for maternal characters, others for the terminal sire characteristics needed in the final slaughter product. With multiple breeds available it is possible to tailor production systems by using different breeds at each step.

The second main benefit from different breeds is the boost from hybrid vigor that they bring to crossbreeding systems. Breeds have to be genetically distinct in order for hybrid vigor to result from the crossbreds. This is an important fact, and is often overlooked Hybrid vigor increases the gains from using different breeds at different points in the system. Familiar examples from beef production systems

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Continued on page 6

Continued from page 5

include the overall desirability of half Brahman or half Longhorn cows to be put to terminal beef type sires. In general the biggest boost from hybrid vigor results from crossing breeds that are the least related, and this is a powerful argument in favor of the retention of distantly related breeds.

Hybrid vigor is easily overlooked as the source of very high quality crossbred youngsters after the initial importation of a new breed resource. A good example comes from South America. Brahman bulls were crossed to the local Spanish cows, and the calves were excellent. This was totally attributed to the imported (expensive) Brahman bulls. The next step was to mate the crossbreds back to the Brahmans, and eventually end up with nearly pure Brahmans. At each step, though, the calf crop was less numerous and less high quality. What had been overlooked is that the initial hybrid vigor accounted for the high quality calves, and was equally due to the Spanish cow as the Brahman bull. Sadly, the lesson was learned too late and the Spanish bulls had already been sent to the packer. A valuable genetic resource would have been totally lost except that a few stubborn old timers had kept the original Spanish cattle, which are now acknowledged as important to South Amer--can cattle breeding systems. Hopefully American goat producers can avoid a similar mistake, and wisely use each meat goat breeds for its own unique contributions to goat meat production.

BREED RESOURCES FOR GOAT MEAT PRODUCTION

A goat of any breed or crossbreed can be consumed as~meat, and historically that has been the case in the USA - just any old goat would do. Within the array of goat breeds in the USA, each fits a specific niche. The past has seen great strides in selection and improvement of milk and fiber goats. Only recently have a few breeds been specialized for goat meat production. In the USA, breed choices that are specifically for meat production include the Boer, Kiko, Spanish, and Tennessee goats. Other goats can also fit into the system, such as the dairy breed, the Angora and Cashmere, and the Pygmy. And speaking of matching the goat to the environment - in parts of Western Africa the choice for a meat goat is Pygmy or nothing!

The Boer goat is relatively new to this country, and is a well defined breed. It is an amazing animal, having been long selected for excellence in meat producing traits. The Boer goat is assured a long term spot in the production systems for goat meat in this country. Due to its recent importation it is still somewhat more rare than some of the other breed choices. Part of the initial allure of the Boer was the high prices brought about by

Continued on page 7

Continued from page 6

rarity. Rarity is temporary and prices will moderate as numbers increase. The Boer goat is valuable as an extreme meat producing animal, and it can bring rapid increases in production to minimally productive scrub goats.

Kiko goats have also recently been imported. Their development specifically targeted commercially important factors, and as a result they are well selected and adapted to be good performers in forage-based meat production systems. Their selection history has focused only on traits important for meat production, and this targeted selection has assured good performance in these traits. The Kiko is a relatively recently developed breed from a composite base, from which will emerge consistency and environmental adaptation, shaped by the specific selection criteria imposed by the breeders. The philosophy and practices that shaped the Kiko are very useful, and breeders of any breed should look closely and see which components can be adopted into selection practices for other breeds.

Spanish goats are less well defined than either the Boer or the Kiko. Part of the reason for this is that they are a local USA development, and useful local breeds frequently get overlooked as people rush to avail themselves of newly imported breeds. Even the origin of the Spanish goat is in question. Part of the reason for the confusion over this breed is that the name Spanish is used for everything from recently crossbred goats to old, highly selected, southwest and southeast strains of indigenous goats. These indigenous goats are variously credited with being from Spain or Britain. Spanish livestock conservationists have looked at photos of USA Spanish goats, and have the opinion that these goats are very similar to goats in Spain before they were crossed out of existence with other European strains. The Spanish goat of the USA also looks like other Mediterrenean goat breeds, and is likely to indeed be of Spanish origin.

The key question with the Spanish goat is whether or not it has the genetic consistency to be useful as a breed. Spanish goats have long been the staple genetic resource for meat production, and have largely been ignored for breed improvement since they were numerous and readily available. Fortunately some breeders have dedicated decades to the selection and improvement of certain strains of these goats, and these selected goats are an extremely important resource. They are important for their adaptation to local USA conditions, and for their ability to produce well in low input systems. Spanish goats have the advantage of being widely available, although within the general group of "Spanish goats" there are those that are crossbred in addition to those that are purely Spanish - and the difference is critically important. The purely Spanish goat, improved from within by selection, is a real gem for American meat goat production.

As is typical of adapted, locally developed breeds, the Spanish goat is under at least some threat since it is useful for crossbreeding. Spanish nannies, especially from the selected

Continued on page 8

Goat Cook-Off Field Day Agenda

Sampson Co. Livestock Arena

Clinton • Hwy 421 • 2 mi. S. Clinton

May 24, 1997

9:00 Goat Networking

10:30 Parasites Control by Jackie Nix & Jean-Marie Luginbuhl

a. Stomach Worms life cycle
b. Drug Resistance to Internal Parasites
c. How to do Fecal Egg Counts
d. Pasture management for parasite control
e. General Deworming program
f. Questions & Answers about parasites

12:00 Cabrito Cook-off & Lunch Break

1:00 Marketing by Bruce Shankle & Bill Drinkwater

a. Growing a quality product for a quality price
b. Getting ready for the market when the market is ready for you
c. Making sure you get your money when you sell your animals.
d. Any question, answers, or concerns members may have about marketing our great product.

3:00 Complete those sales contracts!!!

Continued from page 7

strains, are perfect for crossing with the other breeds of meat goat. They are readily available, and since they are distantly related to these other breeds the resulting kids get a great boost from hybrid vigor. Many breeders are mining this resource by using Spanish nannies to produce crossbred kids. Breeders must understand, though, that this useful resource needs to be replenished by assuring that suffficient pure breeding is being done to assure continuation of the selected, productive end of the Spanish goat. This breed resource is critically important to American meat goat production, and must be guarded as the treasure it is. One day waking up to no purely Spanish goats would be a very dismal day for the goat industry - and similar things have happened in other countries and with other species.

The Tennessee Goat is another breed resource for meat production. These goats have myotonia congenita. Tennesse Goats stiffen when startled, and this has contributed names such as Fainting or Wooden Leg to thesegoats. The Tennessee Goats have long been used for meat production, although some recent efforts have favored extreme stiffness and small size. This has been to the detriment of meat producing characters, and fortunately many breeders of Tennessee Goats have assured that theirs retain excellence in fertility, fecundity, size, and conformation; which are all traits that are important to meat production. Tennessee goats do have important potential in crossbreeding systems for meat production. They function well in many environments, and appear to cross well with other breeds. They also work well as purebreds for the development of very meaty carcasses.

Other goat breed resources, such as Cashmere, Angora, and the dairy breeds also can fit into meat producing systems. Each of these has disadvantages which make them a less logical choice than the above four, at least in many production systems. Angora goats usually are strongly seasonal in reproduction, as well as generally being less fertile than goats raised strictly for meat. Still, they are highly adapted to rigorous dry conditions, and can impart survival traits to crossbreds. Their availability makes them a very logical choice in certain regions. The dairy breeds can provide increased milk production and some increase in fertility to crossbred herds. When the level of dairy breeding gets very high, though, some problems with mothering ability, and with too much milk, can result. Cashmere goats are

Continued on page 9

Summary of Recent Research

By FRANK PINKERTON, PhD
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Research workers at TAMU-SA recently published results of a project designed to compare carcass characteristics of Boer x Spanish, Spanish, Spanish x Angora, and Angora goats. All goats were intact males of similar ages which had been on feed for 112 days post-weaning. See tabulation below:

Table 1
Carcass Yield & Quality Measurements for Meat & Fiber Type Goats.

Carcass Measurement	Boer x Spanish	Spanish	Spanish x Angora	Angora
Live wt., lb.	84.07[c]	73.83[f]	80.33[ef]	61.67[g]
Warm carcass wt., lb.	47.84[c]	41.89[f]	44.30[af]	32.00[g]
Longissimus muscle area, in^2	1.94[c]	1.78[c]	1.78[c]	1.44[f]
Fat tickness, 12th rib, in	.05[a]	.03[f]	.05[c]	.05[c]
Adjusted fat thickness, in	.06[ef]	.04[f]	.09[c]	.09[e]
Carcaas conformation score[2]	11.42[c]	8.33[f]	10.67[ef]	9.0[ef]
Carcass length, in	42.10[a]	41.08[c]	40.37[f]	34.00[g]
Leg circumference, in	21.60[c]	20.69[ef]	20.96[e]	18.79[f]
Lean maturity score[b]	1.42	1.45	1.88	1.37
Marbling[c]	3.35[fg]	3.06[g]	4.12[ef]	4.13[c]
Flank streaking[c]	3.63[fg]	3.40[g]	4.31[c]	4.15[ef]
Buckiness score[d]	4.33[e]	4.08[ef]	4.83[e]	3.17[f]

[a] Means based on a 15-point descriptive scale (1.0 = very angular, narrow and thin; 15.0 = extremely thick and bulging).

[b] Means based on USDA skeletal and lean maturity scores for lamb [1.00 = A^{00} (0 to 14 mo of age; break joint present); 2.00 = B^{00} (over 14 mo of age; break joint not present)].

[c] Means based on USDA marbling and flank streaking scores (1.00 = Practically devoid^{00}; 3.00 = Slight^{00}; 5.00 = Modest^{00}).

[d] Means based on a 5-point scale (1.0 = no buckiness; 5.0 = extreme buckiness).

[efg] Means in the same row tih different superscripts are different ($P < .05$).

Continued from page 8

recently selected from a heterogeneous base, and many goats produce enough cashmere to be worth considering for this use alone. Many Cashmere goat breeders, in addition, stress meat production characters, and as a result many ofthese are truly useful in meat production systems.

WHERE DO BREEDS FIT IN MEAT PRODUCTION?

The expansion of the meat goat industry has brought a long overdue boost to the goats used to produce meat. With the expansion of breeders there has been an increased demand for seed stock. This has focused attention on selection for traits that are important in meat production systems. All ofthis is good. The recent introduction of the Boer goat and Kiko goats has posed a peculiar sort of opportunity. The Boer and Kiko goats are premier examples of improved meat goats. Their excellence earns them a well deserved place in meat producing systems. The Boer and the Kiko could quickly and irrevocably cross the Spanish and Tennessee goats out of existence. Does the industry lose by doing this?

All of the other meat producing industries in the United States use a variety of breed resources, using each for a specific purpose. One portion of most industries stresses the pure

Continued on page 9

Which Breed

Continued from page 9

breeds, as a resource for other breeders who crossbreed for commercial production. Many of these production systems are tailored to specific regions by using well adapted breeds that can use the landscape efficiently. This is probably where the Spanish and the Tennessee goats best fit. Other breeds are used to produce sires for crossing with the adapted breeds, and the Boer and perhaps the Kiko fit in this niche fairly well. Obviously, some systems and some situations are going to benefit from fitting the breeds into slightly different configurations, and certainly the meat characteristics of the most improved Spanish-goats fit them into the sire category. The same is true of some Tennessee Goats. And some environments can use the Boer or Kiko as a mother breed rather than a sire breed. The key issue is not that each fits in only one niche, but that each fits certain niches better than others.

So—which is the best breed? The answer is probably they all are—and that they are all equally important to the American meat goat industry. Each breed needs to be treasured for its uniqueness, and for its contribution to the overall system. Each needs to be fostered as a purebred resource, and each needs to be developed for its own unique strengths instead of crammed into a single mold. If the industry can succeed in fostering each breed as a unique genetic resource, then it will be on a sound genetic basis for many years to come.