

# A Numbers Game

**UK alumnus Gary Knapp combined analytical thinking and dreaming to breed 2008 Kentucky Derby winner Big Brown.**

*By Tom Leach*

**B**reed to the best and hope for the best. That's long been the axiom for anyone involved in the pursuit of producing champion Thoroughbred race horses.

Even a numbers-oriented guy like Gary Knapp knows one cannot quantify or control the "hope" component. He does, however, believe science can be brought to bear on the other side of that equine equation.

That was his approach in selecting the combination of stallion and mare that produced the 2008 Kentucky Derby winner, Big Brown. Knapp says he learned how to hone his analytical skills as a graduate student at the University of Kentucky, where he secured a doctorate in marketing and applied statistics in 1977.

Knapp came to Lexington for practical reasons. He and his first wife wanted to go to graduate school but funds were in short supply. UK not only accepted them but also offered scholarship money to both. It was 1973, which also was the year of Secretariat's breathtaking sweep of the Triple Crown races. Knapp, who grew up on a farm near Fergus Falls, Minn., and had ridden horses from age three, instantly fell in love with the stately Bluegrass horse country. He began to dream of someday returning to Kentucky to buy his own horse farm.

"Secretariat just captured the imagination of the whole country and I was caught up in it, too," the 64-year-old Knapp said during a stroll through one of the Monticule Farm barns. "Then I saw all these farms and the beautiful countryside — and being from a farm myself — all of that came together for me. It was a pretty easy sell."

After graduating from UK, the next dozen years or so found Knapp pursuing several career paths. This included a professorship in marketing at the University of Houston, owning his own consulting business, Knapp Securities Inc., and a partnership in Park Acquisitions Inc. which bought Park Communications Inc., a media and communications company with television, radio broadcasting and publishing interests.

In 1989, Knapp purchased a then 200-acre tract in rural Fayette County that he named Monticule Farm. (Today the farm encompasses about 600 acres.) It was about eight years later that he divested himself of some business ventures and put his entire focus on the horses. He knew these animals, both from his days as a world-class polo player and the family farm in Minnesota. But Knapp was uncomfortable with the lack of scientific data on which the breeding business operated.

"I understand the world best through numbers. I'm a pretty empirical person. I like to see some evidence of success that's more than one point," Knapp said.

A company named Equix Biomechanics helped to fill that void in Knapp's approach to the horse business. When he saw how the company planned equine matings and projected athletic potential for young horses by measuring physical characteristics (bone length, cardiovascular capacity, length of stride, etc.), Knapp felt he had found the quantitative data he needed.



Owner of Monticule Farm, Gary Knapp pauses near the entrance to the 600-acre breeding operation.

“The first time I read about the approach used at Equix, I thought ‘Here’s something to work with,’” he said.

Knapp was so captivated by Equix’s methods that he later bought the company.

“If you can measure something, you can make it into a science. That’s where the Equix notion comes from,” Knapp explained. “Fundamentally, the series of measurements that Equix takes of a mare and a stallion creates what’s called a biometric model.”

Knapp said that what the model does is take those unique, physical characteristics of the mare and run it against the biometric models of stallions. This produces a print out of a list of the stallions that a mare is compatible to and it tells the extent to which this mare fits those stallions. It projects the probability of that mating producing a highly efficient horse in terms of biometrics.

“I take those several stallions that any individual mare fits with and I start doing the pedigree work. I want to pick the pedigree that I think is most attractive,” he said. “Fundamentally, it is saying let’s breed ‘like to like.’”

Knapp said there are some people in the breeding business who believe that they can just look at a mare and tell you which stallion to breed to. “I find that hard to believe. I know I can’t do it,” he said. “That’s why I use Equix.”

This approach seems to work for Knapp.

Big Brown represents the first Grade I stakes winner produced by Monticule Farm, but the farm also made a mark two years earlier when it sold a Danzig-sired colt for \$9.2 million.

Achievements like those mean the quizical looks Knapp used to get when he explained his approach have greatly decreased.

“A few years ago when people asked me about the breeding that’s taking place here, I would get, ‘Who talked you into that?’ But beginning around the time we sold that horse for \$9 million, we started to hear less of that,” Knapp noted.

There were, though, still questions about Big Brown’s ability to succeed at the Derby’s

mile-and-a-quarter distance. That’s because his sire, Boundary, excelled in shorter races. Knapp, however, was buoyed by the Equix report on Big Brown. The measurements on the colt at less than

18 months old projected excellence at up to the Derby’s 10-furlong distance. Knowing this, Knapp tried to buy Big Brown back at a two-year-old sale but was unsuccessful.

It’s hard to imagine Knapp being much prouder of Big Brown’s accomplishments than if he owned him. And although the Equix numbers suggested Big Brown had Derby-winning potential, Knapp knew that factors over which there was little human control also would have to conspire to help the horse be all he could be.

“There was a lot of anticipation and a lot of anxiety about what was going to happen and a little bit of disbelief on our part that a horse that we bred was getting that far. But we were very excited and very pleased about the situation,” Knapp said of the weeks leading up to the Run for the Roses.

On the first Saturday in May, Knapp was high atop Churchill Downs, anxiously watching to see how the foal born at Monticule Farm in 2005 would do in the fa-

vorite’s role for the most famous horse race in the world.

“It was just so exciting to see the position he was in as he was starting to turn for home,” Knapp said. “For me, the most anxiety in the race was when they went by the stands for the first time. I did not expect to see that many horses going for the lead. It looked like maybe three-quarters of the field was going for the lead and he was four, five, six wide. I was thinking, ‘This doesn’t look good at all,’ but when he got down the backstretch, I realized we were looking much better.”

Knapp said that in a race like the Kentucky Derby, you’re just a spectator and you hope that your horse can demonstrate what he’s demonstrated before with a good end result.

What does breeding a Derby winner do for Monticule Farm?

“It raised our profile a little bit — well, more than a little bit,” he said. “We’ve gotten a lot of attention for this and we’re grateful for it.”

Knapp said he believes that more people are going to take a closer look at his breeding facility and perhaps Monticule’s new foals will become much more valuable. “I expect we’ll have more people looking at our horses and being competitive when it comes to bidding on our horses, especially for the close relatives of Big Brown,” he said.

But just because the sire-dam match that produced Big Brown put Monticule Farm

**“The training in business principles and practices was fantastic but teaching me how to think — how to make decisions in my life and career — was the most important thing I took away from UK.”**



**Big Brown, bred at Monticule Farm, wins the 134th running of the Kentucky Derby with jockey Kent Desormeaux.**



**Gary Knapp visits with one of several yearlings born in 2008 at Monticule Farm.**

in elite company (fewer than 30 owners have produced horses that won both the Derby and the Preakness), Knapp is not following a course of *déjà vu*. He said expecting the same result from the same mating represents unscientific thinking.

“Big Brown is a huge outlier, a deviation from the statistical norm. We’re not going to get that result again even if we repeated everything,” he explained. “You have to be realistic about what you can control and what you can’t. There’s so much data in the Thoroughbred industry that has tremendous skews to it. Very seldom, in this industry, are you going to see any data with a normal distribution. It’s going to be skewed one way or the other.”

Knapp said that he believes many breeders are likely to be drawn to averages found in the data, but that this approach is not the best. “They need to start taking the mode or the median/mode. That gives you a much more representative number of the distribution than the arithmetic average does,” he said. “When you’ve got a really skewed distribution, which is most of the data in the industry, and you’re using the arithmetic average, you’re not getting a representative number of that data at all.”

Knapp said it was the training he received in his days at UK that helped fashion the way he has operated businesses ranging from mortgage-backed securities to communications to horses.

“The training that the College of Business and Economics provides, particularly the program that I experienced in research

methodology, really taught me well how to think about things. I learned how to ask good questions and then how to answer those questions,” he said. “I also was taught how to bring empirical data to bear on that answer.

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Knapp said he thinks the NFL and professional golf are way ahead of the Thoroughbred industry in terms of using biometrical analysis on athletes. Yes, a player that is too small or too slow by empirical

standards will outperform expectations, but going with the percentages projects more success over the long term.

Knapp believes merging biometric studies with an analysis of the pedigree of potential matings and how certain breeding patterns have worked in the past can be summed up in a simple fashion. “It’s the epitome of breed to the best and hope for the best,” he said. But he emphasized that the “best” is a subjective component in that he tries to match the mare that best fits a particular stallion from both a biometric and pedigree standpoint.

His somewhat unconventional techniques extend beyond Monticule’s breed-

ing program. Knapp walks or rides horse back over his property almost daily. His hands-on approach at the farm comes from an appreciation for good stewardship of the land, a trait he learned from his father on the family acreage in Minnesota.

“It’s a wonderful way to see your farm and keep track of things. I’m sure people working on the farm may think I’m a real fanatic,” he said, citing what he tells his employees about water quality as an example. “If the water is not clean enough for you to drink it, why would you expect the horses to drink it?”

Knapp has had thousands of trees planted on the farm based on a professional landscape design created by Morgan Wheelock of Boston and Palm Beach. That includes spruce, pine, maple, oak, ginkgo, redbud, beech, birch, yellow wood, dogwood, Chinese elm, and sycamore. “I like to grow things and I like a lot of landscaping. That initial plan that we developed for Monticule in 1997 includes a lot of drifts of trees and we’re still working on that plan,” he said. “The variety of trees planted here are interesting to me.”

Interesting — that’s a good word to describe Gary Knapp, who represents a merging of right-brain analytical thinking and left-brain dreaming to form the makeup of a successful Kentucky horseman.

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**Dominique Tijou, manager of Monticule Farm, and Gary Knapp discuss the daily operation of the facility. Tijou, from France, previously has worked with Standardbreds in France and Italy.**