

A photograph of a horse race in progress. A brown horse is galloping towards the viewer, with a jockey in a red and green uniform riding it. The horse is kicking up dirt. In the background, there are grandstands filled with spectators. A building with a sign that says "FIRST DERBY 1875" and "187th DERBY 2011" is visible. The sky is clear and blue.

BLIND LUCK OR DESIGNED LUCK?

HOW A KENTUCKY DERBY
WINNER WAS BRED

by CLARK SHEPHERD



ANIMAL KINGDOM
Eclipse Award Champion and winner
of the 2011 Kentucky Derby (G1)

CLARK SHEPHERD

Horse racing has been in my blood from the beginning—from racing my half-Thoroughbred/half-Shetland pony in the county fairs to my parents' training and racing mostly cheap claimers around Kentucky. I pretty much grew up on the backside of Churchill Downs and considered it my second home. I vividly recall all the scorching hot summers at Ellis Park and the midnight rides home on icy roads coming back from Latonia, now Turfway Park.

Growing up, I had no idea that a commercial market for Thoroughbreds even existed. All I knew was racing and that was my focus. After leaving my hometown of Louisville to study structural engineering at the University of Kentucky, I began to meet more and more people in the racing and breeding business. Here

I was, a college student without much money who loved horseracing and had a passion for pedigrees. The question then was, "How could I breed the best racehorse possible out of my claiming-level mares with only a small budget for stud fees?" I absolutely needed to get the most bang for my buck. My engineering mind kicked in and I decided it had to be done with the utilization of pedigrees. This is when my true passion for breeding racehorses through extensive pedigree analysis began.

Success is relative, especially for a 20-year-old who had just won nearly \$90,000 in purse money in two-months' time with three good allowance horses. It might as well have been \$900,000 in my mind. I had bred a few useful horses and I was hoping their success was in part due to my extensive mating analysis and not just blind luck.



I now know it is what I call “designed luck.” Fast forward a few years, my direct work has helped produce nine graded stakes winners (three of them Grade 1 winners, including a Kentucky Derby winner and champion) and countless stakes winners, graded stakes-placed runners and consistent allowance horses. All these horses have been produced by what I call OPTIMAL Matings.

I will never forget the day that Bert Welker walked into my office and said, “Kingmambo has been sidelined and we need to find a stallion for Dalia.” At the time, Bert and I worked for a now-defunct stallion farm. He was the general manager and I sold stallion seasons and also served as a pedigree analyst. After analyzing

the mare with the possible stallions we had in the barn, I determined that Leroidesanimaux produced an OPTIMAL Mating with the mare and would give us the greatest chance to produce a superior racehorse even though at the time, Medaglia d’Oro was the obvious commercial choice. My definitive stallion selection did not initially prove to be very popular with the principals involved. Physically, it made sense, and on paper, it made sense to breed Dalia to Leroidesanimaux but he was obviously not the best commercial choice. Eventually, the decision came down from the top that she would be bred to “Leroi.” Thus, Animal Kingdom came to be, and we all know the rest of the story.

WHAT IS AN OPTIMAL MATING?

An **OPTIMAL Mating** is a comprehensive snapshot of a seven-generation pedigree that incorporates seven time-tested breeding theories and gives breeders the greatest opportunity to breed a superior racehorse. No single theory is capable of achieving an exceptional runner with every breeding, but occasional success is expected. A broodmare gets one chance per year to prove her ability to produce. The time and investment of breeding are critical factors. Wouldn't it make sense to increase the odds by breeding to the most compatible stallion?

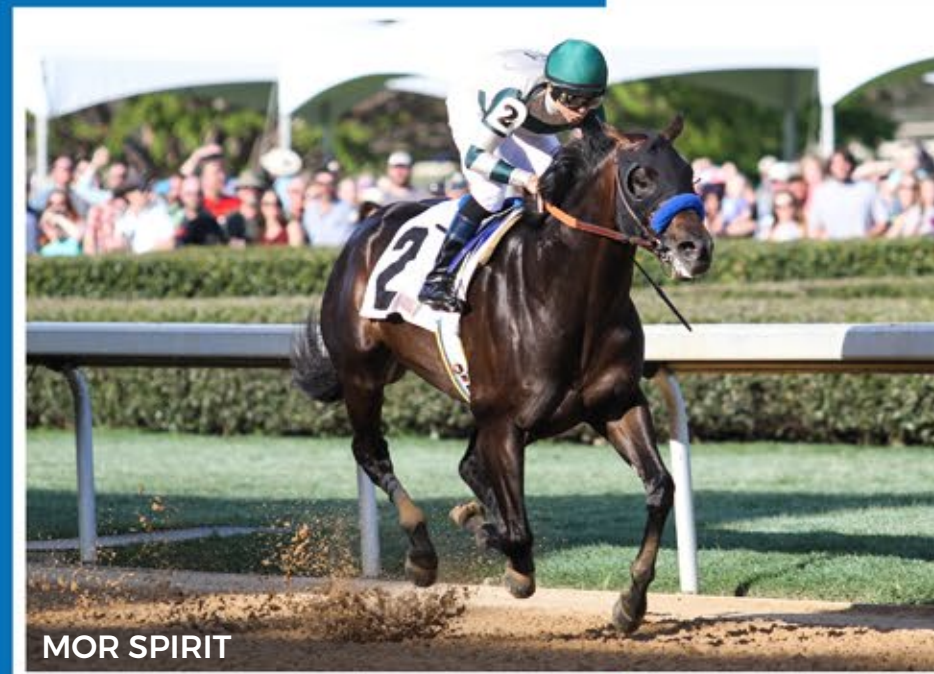
Some of the pedigree aspects considered during an **OPTIMAL Mating** analysis include outcrossing, inbreeding, linebreeding, gender balancing, gender-balanced linebreeding and reinforcing female families. Here are some key points to consider with **OPTIMAL Matings**:

- It is extremely important **not to ignore the physical comparisons of the stallion and the mare.**
- **Inherited qualities will appear in the resulting foal with the same physical strengths or weaknesses as the duplicated ancestor in the pedigree.**
- **Strive for a balanced pedigree that embraces the contributions from top female families and you will improve the odds of success in breeding a superior racehorse.**
- **Inbreeding should be no closer than 3x4 or 4x3.**
- **Gender balancing and gender balanced linebreeding are an extremely important part of breeding superior racehorses (see the examples of gender balanced line breeding to the right).**
- **Some female families consistently produce the best runners. Some female families consistently produce the best sires. The proper combinations of both types of female families are needed to produce runners of exceptional ability.**
- **Genetic strength comes from combining the correct female families by choosing sires containing compatible female families in their pedigree.**

ANIMAL KINGDOM AND MOR SPIRIT— TWO EXAMPLES OF GENDER-BALANCED LINEBREEDING



Animal Kingdom Chestnut Horse Foaled March 20, 2008 in Kentucky 12 Starts G1 winner	Leroidesanimaux (BRZ), 00 ch	Candy Stripes, 82 ch	Blushing Groom (FR), 74 ch	Red God, 54 ch	*Nasrullah, 40 b		
			Runaway Bride (GB), 62 b	*Wild Risk (FR), 40 b	*Spring Run, 48 b		
		Dissemble (GB), 89 ch	Bubble Company (FR), 77 ch	Lyphard, 69 b	*Northern Dancer, 61 b	*Aimee (GB), 57 b	*Prommer (GB), 62 ch
			Prodice (FR), 69 ch	*Lorenzaccio, 65 ch	*Euridice, 62 ch	*Klairon, 52 b	*Phoenissa (GB), 51 b
			*Ahonoora (GB), 75 ch	*Helen Nichols, 66 ch	*High Line (GB), 66 ch	*Marjal (IRE), 57 ch	*Quaker Girl (GB), 61 gr
	Dalia (GER), 01 b	*Acatenango (GER), 82 ch	*Kerall (GB), 84 ch	*Sookera, 75 dk b/f	*Lulu, 68 gr	*Birkhahn (GER), 45 dk b/f	
			*Surumu (GER), 74 ch	*Literat (GER), 65 b	*Lit, 40 b	*Reliance II (FR), 62 b	*Suncourt (GB), 52 br
		*Aggravate (GB), 66 b	*Aggressor II, 55 b	*Raven Locks, 45 blk	*Phaetona (GB), 45 ch	*Gentlemen's Relish (GB), 26	
		*Dynamis (IRE), 91 b	Dancing Brave, 83 b	Lyphard, 69 b	Navajo Princess, 74 b	*Northern Dancer, 61 b	*Goofed, 60 ch
			*Diasprina (GER), 86 b	*Aspros (GER), 77 b	*Dorie (GB), 74 b	*Drone, 66 gr	*Oimec, 66 ch



Mor Spirit Dark Bay or Brown Ridgling Foaled April 01, 2013 in Pennsylvania 13 Starts G1 winner	Eskendereya, 07 ch	Giant's Causeway, 97 ch	Storm Cat, 83 dk b/f	Storm Bird, 78 b	*Northern Dancer, 61 b		
			Terlingua, 76 ch	Secretariat, 70 ch	*South Ocean, 67 b		
		Adebaran Light, 96 b	Mariah's Storm, 91 b	Rahy, 85 ch	Glorious Song, 76 b	*Crimson Saint, 69 ch	Blushing Groom (FR), 74 ch
			Immeas, 79 b	Immortal, 67 b	Roberto, 69 b	*Bold Reasoning, 68 dk b/f	*Reason to Earn, 63 b
			Seattle Slew, 74 dk b/f	My Charmer, 69 b	Fair Charmer, 59 ch	*Poker, 63 b	*Raise a Native, 61 ch
	Im a Dixie Girl, 02 dk b/f	Dixie Union, 97 dk b/f	Altair, 91 b	Stellar Odyssey, 84 b	*Queen Sucree, 66 b	*Sweet Tooth, 65 b	
			Dixieland Band, 80 b	Northern Dancer, 61 b	*Narcotic, 54 br	*Natalma, 57 b	*Northern Dancer, 61 b
		She's Tops, 89 dk b/f	She's a Talent, 83 dk b/f	Mr. Prospector, 70 b	Change Water, 69 ch	*Portage, 52 b	*Paintbrush, 77 dk b/f
			Allen's Prospect, 82 b	Mr. Prospector, 70 b	Gold Digger, 62 b	*Northern Fashion, 80 b	*Fashionable Trick, 73 dk b/f
		Im Out First, 93 dk b/f	Sequins, 87 b	Brilliant Touch, 76 dk b/f	Indian Nurse, 55 br		

AN OPTIMAL MATING IS NOT:

- A **“black box” tool**. An *OPTIMAL Mating* is extremely powerful, but it should be used as just another tool in breeding or selecting race prospects. Physical compatibility evaluations of each horse bred is very important. Typically, I list all stallions within a desired stud fee range that create *OPTIMAL Matings* with a given mare and then reduce that list based on physical compatibility. I then reduced the remaining list even further by deciding which stallion makes the most sense for commercial appeal. *OPTIMAL Matings* should be used with any other selection or evaluation method that someone uses and has had success with or feels comfortable with. When several indicators start pointing to the same result, then special consideration should be made for the mating or the sales prospect.
- A **nick rating**. Nicks are widely used, and some breeders believe them to be the “Holy Grail” of selection practices. Nicks are produced by comparing a sire line to a broodmare sire line with no regard for female families. Not even the mare’s direct female family. *OPTIMAL Matings* consider every individual and their female family within seven generations. Nicks are basically a report of history and should not be used to project the ability of future horses. Two of the best racehorses that I have designed the matings for are *Animal Kingdom* and *Mor Spirit*. Both had “C” nick ratings when they were bred and still have “C” nick ratings today. Most would agree that they have turned out better than the average ratings would have suggested.

OPTIMAL MATINGS CAN BE USED FOR:

There are no shortcuts to breeding or selecting a superior horse.

Choosing one method over another is a subjective decision. I have had a great deal of success by applying a “big picture” analysis of racing potential with **OPTIMAL Matings**. In contrast, I have sold a lot of horses that brought a lot of money that I knew would never become a good runner because they were not “wired” genetically to be. Again, **OPTIMAL Matings** offer a seven-generation view versus the three-generation pedigree shown in a sales catalog. How much can you truly know by looking at three generations?

I am currently working with program developers on a web-based computer program to analyze pedigrees for **OPTIMAL Matings** and hope to have it available soon. Meanwhile, if you are interested to see how combining **OPTIMAL Matings** with your current breeding and/or racing program, please do not hesitate to contact me. Maybe I can help you breed or buy a Kentucky Derby winner, too.

- **Selecting the most compatible stallions** for an individual mare.
- **Selecting or buying the perfect mare(s)** for an individual stallion (ie. Stallion share owner).
- **Selecting or buying the most compatible mares** for a group of stallions (ie. Stallion farms).
- **Buying mares with an *OPTIMAL Mating in utero*.**
- **Identifying stallion prospects** with compatibility to a broad base of mares. The stallions that fit these profiles consistently produce superior runners.
- **Identify broodmares with compatibility** to a broad base of stallions. These profiles typically show that a mare has a greater capacity to produce good runners.
- **Shortlisting yearlings** (or weanlings) for racehorse owners.
- **Shortlisting yearlings to pinhook** to two-year-old sales.
- **Shortlisting sales two-year-olds** for racehorse owners.
- **Handicapping**. Most racehorses bred with an *OPTIMAL Mating* will break their maiden in their first two starts.

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Additional GRADED STAKES WINNERS
produced by utilizing **OPTIMAL Matings:**

DRILL (G1)

LADY FOG HORN (G2)

CALL PAT (G2)

DARK COVE (G2)

THUNDER MOCCASIN (G2)

EDGE OF REALITY (G3)

SO BRILLIANT (G3)