

Old Sorrel and Beyond: Tables and Measurements

As we continue our ride through America's past, we conclude our examination of King Ranch, the lynchpin of Quarter Horse History

As a complement to the article "Old Sorrel and Beyond," here are tables created by Deb Bennett, PhD, that feature the measurements behind conformation analyses of the horses discussed in her article, along with data illustrating the interesting trends and contrasts within the equine family groups developed at the King Ranch.

INDEX

TABLE 1: SONS OF OLD SORREL

TABLE 2: TABLE OF PROPORTIONS – PETER MCCUE, OLD SORREL, MACANUDO, MR. SAN PEPPY

TABLE 3: TABLE OF PROPORTIONS – Old Sorrel, Water Lilly, Hired Hand, Hired Hand's Cardinal

TABLE 4: PROPORTIONS – Old Sorrel, Solis, Babe Grande, Ranchero, Rey del Rancho, Wimpy, Bill Cody

TABLE 5: TABLE OF PROPORTIONS – OS, LITTLE RICHARD, PEPPY, TOMATE LAURELES, CHARRO

TABLE 6: TABLE OF ANGLES -- OLD SORREL, LUCKY STRIKE, SILVER KING, ROAN SILVER, PHANTOM KING

TABLE 1: SONS OF OLD SORREL

NAME	YEAR	DAM	DAMSIRE	PROGENY	NOTES
Babe Grande*	1928	Mare by Hickory Bill	Hickory Bill	18 sons, about 55 daughters	Babe Grand has very drafty conformation; "mare by Hickory Bill" bred by Anson probably had Suffolk ancestry. See EQUUS no. 496, "Hard Times Bring Big Changes"
Bob	?	Clegg Mare	Unknown	No progeny of record	Apparently sold or gelded
Boiler Maker	1942	Cambiada	Chicaro	No sons of record; 4 mares, of which one is out of an Arabian mare	Cambiada's dam is Ada Jones by Little Joe; tail female to Paisana. Bred to a limited extent by KR
Caesar	?	Unknown	Unknown	No sons of record; 1 daughter	One of Caesar Kleberg's personal mounts
Cardinal*	1923?	Piocha	Unknown	2 sons plus about 60 mares	Used at stud at KR 1928-1935. No sons kept but over 50 daughters used in QH breeding program (although only 8 were ever registered)
Charro	1933	Toalla	Martin's Best (TB)	One son, six daughters	Toalla is out of Mother of Solis by Martin's Best and she in turn is out of a Lazarus Mare also by Martin's Best
Comanche	1938	Mare by East's Yellow Jacket	East's Yellow Jacket	Four sons, 16 daughters	East's Yellow Jacket is by Yellow Jacket, sireline to Lock's Rondo. Tail female unknown
Guadalupe Red	?	Unknown	Unknown	One mare of	Apparently sold or

				record	gelded
Hired Hand*	1943	Water Lilly	Yellow Jacket	60 sons, about 170 daughters were registered with AQHA	Water Lilly is out of a Waggoner mare; she probably traces back to Traveler; has rabicano ticking. See EQUUS no. 493, "Change on the Horizon"
Kingsorrel	?	Unknown	Unknown	One daughter of record	Apparently sold or gelded
Little Man*	1941	Water Lilly	Yellow Jacket	5 sons, about 20 daughters	Retained by King Ranch and bred, but subfertile. Little Man a full brother to Hired Hand; see notes under Hired Hand
Little Richard*	1922	Mare from Lucky Mose herd	Unknown TB	10 sons, about 70 daughters	"Lucky Mose" is not the name of a sire, but of a band of mares thought to descend from one or more unspecified TB sires including Martin's Best. KR used him at stud from 1929-1937, then sold him to Harl L. Thomas, Raymondville TX
Little Sorrel	?	King Ranch mare from Doc Lawrence, Lazarus, or Lucky Mose bands	Unknown TB	4 or 5 daughters	Apparently sold or gelded
Lucky Strike	1935	Panchita Kleberg	Pancho Villa	27 sons, about 40 daughters	Pancho Villa is by Little Joe and out of Jeanette by Billy by Big Jim by Sykes Rondo. Panchita Kleberg is out of a mostly-TB race mare with falsified papers.

					Sold to W.A. Northington, Egypt, TX
Macanudo*	1934	Canales Bell	Roan Clegg	31 sons, about 70 daughters	Roan Clegg is by Hickory Bill. Canales Bell is out of Pelicana by Texas Chief 1905 by Traveler
Melon	ca. 1935	Chicasha Johnson's Chestnut Mare	Unknown	None of record	Retained by King Ranch but gelded. Lauro Cavazos Sr.'s favorite mount.
Old Man	1935	China	Cardinal	41 sons, about 80 daughters	China is out of a mostly-TB racing mare by Brillante. Cardinal is by Old Sorrel. Sold to V.O. Hildreth, Aldo, TX
Pancho	?	Unknown	Unknown	1 son, no daughters of record	Apparently sold or gelded
Red Rattler	1944	Ed Durham's Chestnut Mare	Babe Grande	6 sons, about 110 daughters	Ed Durham's Ch. mare is out of a mare from the Norias Ranch remuda which he managed. Red Rattler was later sold to D.J. Harrison of Houston, for whom he sired 116 foals, many champions in racing.
Richard	?	King Ranch mare from Doc Lawrence or Lucky Mose bands	Unknown	No sons of record; about 5 daughters	Apparently sold or gelded
Roanie	1929	Unknown	Unknown	No sons of record; one daughter	Apparently sold or gelded
Sancho	1938	Mare by Little Joe	Little Joe	3 sons, about 15 daughters	Retained by King Ranch, but not incorporated into Quarter Horse breeding program
Silver King	1937	Clegg Mare no.	Sam Watkins	77 sons, at least	Sam Watkins is by

		3		200 daughters. The most heavily bred of Old Sorrel's sons; heavily advertised and widely popular.	Hickory Bill. "Clegg Mare no. 3" is out of a mare by Little Joe. Because he was bay rather than chestnut in color, Silver King was sold to Double Diamond Ranch in Reno, NV where he sired 277 foals, many champions in racing and arena events
Smoky	1934	La Ruben	Thompson's Grullo Stud	15 sons, about 60 daughters. Tom T. East's most important and influential stallion (East bred buckskins and grullas).	Thompson's Grullo Stud traces in sireline to Lock's Rondo. La Ruben is out of a mare by Little Joe. Owned by Tom T. East of Kingsville, TX he produced 78 registered foals, many champions, and many good broodmares
Solis*	1923	Mother of Solis	Martin's Best (TB)	8 sons, about 70 daughters. The most influential of Old Sorrel's sons in the KR QH breeding program.	Mother of Solis is out of a mare from the Lazarus herd who is also by Martin's Best. Sire of 75 foals, many of which became KR broodmares in the QH breeding program.
Sorrel	?	Unknown	Unknown	No progeny of record	Apparently sold or gelded
Tejano	1942	Delicatesa de Texas	Chicaro	4 sons, about 15 daughters	Delicatesa de Texas is out of Water Lilly (see notes under Hired Hand). Chicaro is half-TB, sired by imported Chicle.
Tino*	1932	Brisa	Martin's Best (TB)	2 sons, about 50 daughters	Brisa is out of a KR mare from the Doc Rose, Lazarus, or Lucky Mose bands, all part-TB. Tino joined the stud lineup late

					because he was one of Bob Kleberg Jr.'s favorite riding horses; he was retained by King Ranch but later gelded.
Tom East Horse	?	Mare by Cotton-Eyed Joe	Cotton-Eyed Joe	1 son, 4 daughters. This was a chestnut-colored horse	Mare by Cotton-Eyed Joe is out of a mare by Yellow Wolf. Cotton-Eyed Joe is by Little Joe
Tomate Laureles*	1927	Mare from the Doc Lawrence herd	Tom Thumb	2 sons, about 60 daughters, of which 51 were retained for the KR QH breeding program.	Tom Thumb is by Little Joe. Doc Lawrence herd mares are mostly-TB. Unexcelled as a broodmare sire.
Whirl Wind	?	Unknown	Unknown	No sons of record; 1 daughter	Apparently sold or gelded.

TABLE OF PROPORTIONS – PETER MCCUE, OLD SORREL, MACANUDO, MR. SAN PEPPY

RATIO	PMC	OS	MAC	MRSP	MEANING
Withers Ht.:BL	91.56	95.47	94.39	96.31	Overall proportions; 100% is square, less than 100% is rectangular
Croup Ht: BL	90.99	97.07	96.54	97.45	Overall proportions; 100% is square, less than 100% is rectangular
Croup Ht: Withers Ht	99.37	101.68	102.77	101.19	Is the horse rump-high? 100% is level; greater than 100% is rump-high
Head: BL	33.75	36.55	36.27	37.15	How big is the head relative to the rest of the body? QH's typically have larger, heavier heads than TB's
Neck: BL	57.56	58.87	57.76	53.98	How long is the neck relative to the rest of the body? QH's typically have shorter necks than TB's
Freespan of Back: BL	45.06	44.73	42.06	45.34	The "freespan" is the part of the back the rider sits on. How long is it relative to the rest of the body?
Chest Depth: BL	37.54	36.70	39.84	41.85	
Pelvis:BL	28.62	26.89	34.68	28.90	The pelvis is the source of the horse's power. How long is it compared to the rest of the body? A long body can make the pelvis look short, but a ratio higher than 30% always indicates a big, powerful hindquarter

Femur:BL	22.00	24.26	22.68	19.75	The femur structures the thigh. A short femur makes for quick acceleration. Femur is typically longer in TB's than in QH's.
Gaskin:BL	19.28	18.90	20.49	22.86	Gaskin tends to be longer where femur is shorter.
Femur:Gaskin	114.17	128.35	110.70	86.39	100% means femur and gaskin are equal; lower than 100% means gaskin is longer than femur
Hind Cannon:BL	24.04	28.17	28.31	25.31	How long is the hind cannon segment compared to the rest of the body? Higher number tends to indicate hocks higher above the ground
Hind Pastern and Hoof:BL	11.24	12.86	13.30	11.47	How long is the hind pastern relative to the rest of the body? QH's tend to have short pasterns
Shoulder:BL	35.93	37.20	37.14	36.43	How long is the shoulder relative to the rest of the body? QH's tend to have very long shoulders
Arm:BL	22.77	20.84	20.91	22.09	The arm tends to be the "forgotten segment" in the forelimb, yet a long arm conveys scopey movement. QH's tend to have shorter arms, but this bloodline is an exception
Arm:Shoulder	63.37	56.02	56.29	60.63	Scopey movement – meaning forward and lateral "reach" -- is very important for cutting horses

Rein:BL	48.21	49.25	47.38	49.52	“Rein” (purple line on analysis drawings) is a measure of the total area over which the shoulder can move and thus a good way of estimating freedom of shoulder movement. Longer rein also equals withers farther prolonged to the rear. These QH’s all have very long rein.
Forearm: BL	23.25	24.66	25.02	24.40	A long forearm means knees set lower to the ground
Fore Cannon: BL	16.83	16.57	16.59	16.83	How long is the cannon bone segment compared to the rest of the body? Shorter cannon bones are always desirable because usually they are stouter
Fore Cannon: Forearm	72.35	70.04	66.31	68.76	This ratio shows the height of the horse’s knees. Larger number means higher knees, longer cannon bones, shorter forearm
Fore Pastern and Hoof:BL	12.38	13.72	12.71	10.93	How long are the horse’s pasterns relative to its body? QH’s typically have short pasterns
Total Hind Limb Length: Croup Height	84.15	86.74	87.81	82.42	This ratio reflects the “angulation” of the hind limb, a reflection of how closed the stifle and hock joints are when the animal stands at rest; and it quantifies the total length of the hind limb relative to the height of the croup. Lower number indicates straighter

					hind limb.
Total Forelimb Length: Withers Height	121.40	117.31	118.61	118.34	This ratio quantifies the total length of the forelimb compared to the withers height, an important measure of "reach" in racing stride and of "scope" for cutting, dressage, reining, jumpers, etc.

TABLE OF ANGLES -- PETER MCCUE, OLD SORREL, MACANUDO, MR. SAN PEPPY

ANGLE	PMC	OS	MAC	MRSP	MEANING
Shoulder	50.6	56.8	62.0	52.7	How "laid back" is the shoulder? Lower number means more "laid back"
Arm-Shoulder	83.7	91.3	95.2	94.3	How widely open is the angle at the point of shoulder between shoulder and arm? More widely open indicates more scope and reach
Pelvis	14.1	12.0	10.2	19.2	How sloping is the pelvis? Athletic horses have slopes between 10 and 28 degrees
Stifle	179.0	153.4	146.1	152.8	How widely open is the angle at the stifle between femur and gaskin? Racehorses usually have straighter hind angles (larger numbers).
Hock	159.3	161.4	153.3	160.9	How widely open is the angle at the hock between gaskin and hind cannon segments? Racehorses usually have straighter hind angles (larger numbers).
Fore Pastern	70.6	68.6	66.0	54.2	How steep is the fore pastern? Quarter Horses usually have shorter pasterns that can be quite steep (up to 75 degrees) without being pathological. Higher number = steeper pastern angle
OBB	-2.6	-8.8	-6.2	-3.4	Quarter Horses typically have "downhill" (negative) overall body balance. OBB in Old Sorrel and Macanudo is strongly downhill. Peter McCue is unusual among sprint-racers in having a nearly level balance. Mr. San Peppy has OBB adapted for reining, cutting, and any type of general-purpose riding.

TABLE OF PROPORTIONS – Old Sorrel, Water Lilly, Hired Hand, Hired Hand’s Cardinal

RATIO	OS	WLILLY	HHAND	HHCARD	MEANING
Withers Ht.:BL	95.47	90.71	98.74	95.48	Hired Hand stands proportionally highest on his legs, Water Lilly is most rectangular, “standing over the most ground”
Croup Ht: BL	97.07	95.27	100.26	96.91	By this measure, Old Sorrel stands over the most ground, Hired Hand the least
Croup Ht: Withers Ht	101.68	105.02	101.54	101.50	Hired Hand and Hired Hand’s Cardinal are nearly level; Old Sorrel and Water Lilly are higher behind
Head: BL	36.55	33.79	-----	35.31	How big is the head relative to the rest of the body? Cannot measure head when it faces the camera
Neck: BL	58.87	49.79	57.03	49.92	Old Sorrel has proportionally the longest neck, Water Lilly and Hired Hand’s Cardinal are noticeably shorter
Freespan of Back: BL	44.73	44.14	38.46	39.35	Shortest, strongest backs belong to Hired Hand and Hired Hand’s Cardinal.
Chest Depth: BL	36.70	41.37	43.33	41.30	
Pelvis:BL	26.89	30.36	33.88	34.70	Real improvement effected here by Water Lilly’s genetic contribution
Femur:BL	24.26	19.75	24.57	22.85	Water Lilly has sprint-racer conformation with a relatively short femur; Hired Hand and Hired Hand’s Cardinal take after Old Sorrel in having longer thigh
Gaskin:BL	18.90	24.02	20.92	22.75	Where the femur is short, the gaskin is usually long.
Femur:Gaskin	128.35	81.32	117.41	100.47	Gaskin noticeably longer than femur in Water Lilly, the opposite in Hired Hand and

					Old Sorrel who, like many Thoroughbreds, have long thighs. The two bones are nearly equal in Hired Hand's Cardinal.
Hind Cannon:BL	28.17	24.48	25.32	24.16	All these horses have relatively short hind cannon bones
Hind Pastern and Hoof:BL	12.86	12.49	12.82	12.18	Short, moderately upright pasterns are a normal feature of QH conformation.
Shoulder:BL	37.20	34.44	37.38	37.32	Water Lilly presents the shortest shoulder, the male horses all longer and about the same
Arm:BL	20.84	23.63	25.34	22.93	The "forgotten bone" of the forelimb is long in Water Lilly and even longer in Hired Hand, a real help if the horse is to be used for cutting.
Arm:Shoulder	56.02	68.62	67.78	61.44	Water Lilly's fairly short shoulder makes her arm percentage seem large. Hired Hand has both a long shoulder and a long arm and must have had tremendous scope in movement. Hired Hand's Cardinal is also good in this respect.
Rein:BL	49.25	46.04	52.37	49.91	"Rein" is a measure of the total area over which the shoulder can move; Water Lilly's relatively short shoulder lowers her number here. Longer rein also equals withers farther prolonged to the rear. Her rein is shorter than the male horses' also.
Forearm: BL	24.66	25.16	23.62	23.51	Water Lilly has the longest forearms and shortest cannon bones in this group.
Fore Cannon: BL	16.57	16.57	19.82	16.75	Short cannon bones almost equal in Old Sorrel, Water Lilly, and Hired Hand's Cardinal.
Fore Cannon: Forearm	70.04	83.94	83.94	71.26	This ratio shows the height of the horse's knees. Larger number means higher knees
Fore Pastern	13.72	11.93	12.40	12.69	QH's typically have short pasterns

and Hoof:BL					
Total Hind Limb Length: Croup Height	86.74	84.53	84.46	84.56	This ratio reflects the “angulation” of the hind limb; Water Lilly, Hired Hand, and Hired Hand’s Cardinal all have straighter (less angulated) hind legs than Old Sorrel
Total Forelimb Length: Withers Height	117.31	123.17	120.08	118.57	In sum total, Water Lilly has the most “reach” of the group, followed by Hired Hand. Hired Hand’s Cardinal resembles Old Sorrel.

TABLE OF ANGLES -- Old Sorrel, Water Lilly, Hired Hand, Hired Hand's Cardinal

ANGLE	OS	WLILLY	HH	HHCARD
Shoulder	56.8	48.5	47.9	52.8
Arm-Shoulder	91.3	85.5	92.7	95.7
Pelvis	12.0	13.8	21.7	13.7
Stifle	153.4	140.0	150.8	140.2
Hock	161.4	158.7	161.4	160.4
Fore Pastern	68.6	57.4	53.7	59.4
OBB	-8.8	-6.5	-7.7	-2.7

PROPORTIONS – Old Sorrel, Solis, Babe Grande, Ranchero, Rey del Rancho, Wimpy, Bill Cody

RATIO	OS	SOLIS	BG	RCHO	RDR	WPY	BCODY
Withers Ht.:BL	95.47	97.62	97.05	97.04	100.22	92.78	104.01
Croup Ht: BL	97.07	100.32	97.05	93.68	102.69	92.78	104.10
Croup Ht: Withers Ht	101.68	102.76	100.00	96.54	102.47	100.00	100.0
Head: BL	36.55	35.27	39.48	34.68	36.09	37.12	-----
Neck: BL	58.87	55.34	60.42	53.59	56.81	55.32	54.46
Freespan of Back: BL	44.73	41.73	37.01	43.47	41.70	45.32	42.80
Chest Depth: BL	36.70	42.73	42.39	39.41	43.19	39.18	41.41
Pelvis:BL	26.89	31.60	34.91	29.33	29.80	30.05	32.29
Femur:BL	24.26	27.00	25.98	21.72	26.11	24.88	24.34
Gaskin:BL	18.90	19.27	19.37	22.36	19.11	19.95	22.80
Femur:Gaskin	128.35	140.10	134.13	97.14	136.62	124.71	106.73
Hind Cannon:BL	28.17	28.12	23.62	23.29	30.64	23.76	28.67
Hind Pastern and Hoof:BL	12.86	14.27	10.38	12.20	12.49	10.77	13.28
Shoulder:BL	37.20	36.76	38.36	37.07	38.61	35.50	40.72
Arm:BL	20.84	23.68	23.45	25.30	20.13	24.90	22.75
Arm:Shoulder	56.02	64.42	61.14	68.25	52.13	68.24	55.87
Rein:BL	49.25	49.46	50.59	49.07	52.13	46.97	51.85
Forearm: BL	24.66	25.81	25.96	24.67	25.67	22.99	26.35
Fore Cannon:	16.57	17.59	16.77	16.21	19.27	16.21	21.36

BL							
Fore Cannon: Forearm	70.04	68.15	64.60	65.71	75.07	70.51	81.03
Fore Pastern and Hoof:BL	13.72	13.03	11.11	12.94	12.77	12.02	12.07
Total Hind Limb Length: Croup Height	86.74	88.38	81.75	84.93	86.04	85.54	85.59
Total Forelimb Length: Withers Height	117.31	119.71	119.18	119.72	116.19	119.75	118.39

TABLE OF ANGLES -- Old Sorrel, Solis, Babe Grande, Rancho, Rey del Rancho, Wimpy, Bill Cody

ANGLE	OS	SOLIS	BG	RCHO	RDR	WPY	BCODY
Shoulder	56.8	56.4	50.4	49.3	55.0	58.1	57.5
Arm-Sh	91.3	91.9	91.0	93.0	99.3	90.0	95.3
Pelvis	12.0	15.3	16.8	12.8	9.9	10.5	17.8
Stifle	153.4	161.6	158.6	147.6	149.3	149.1	143.0
Hock	161.4	163.8	165.1	161.1	160.3	145.5	160.1
Fore Pstrn	68.6	52.8	62.5	60.9	58.8	66.0	61.3
OBB	-8.8	-5.7	0.0	+0.7	-4.8	-2.8	-6.6

TABLE OF PROPORTIONS – OS, LITTLE RICHARD, PEPPY, TOMATE LAURELES, CHARRO

RATIO	OS	LR	PEP	TOML	CHRO
Withers Ht.:BL	91.56	93.56	92.77	103.82	95.14
Croup Ht: BL	90.99	95.27	92.40	104.79	92.58
Croup Ht: Withers Ht	99.37	101.83	99.61	100.93	97.31
Head: BL	33.75	-----	35.41	39.33	38.99
Neck: BL	57.56	52.04	54.38	64.49	51.19
Freespan of Back: BL	45.06	39.60	42.94	45.23	48.18
Chest Depth: BL	37.54	40.24	40.67	45.01	40.14
Pelvis:BL	28.62	32.86	29.47	26.70	30.04
Femur:BL	22.00	22.07	26.82	23.18	21.63
Gaskin:BL	19.28	21.30	17.24	24.48	20.42
Femur:Gaskin	114.17	103.61	155.57	94.66	105.92
Hind Cannon:BL	24.04	21.38	23.70	27.43	25.31
Hind Pastern and Hoof:BL	11.24	13.38	12.82	15.41	11.96
Shoulder:BL	35.93	37.50	36.29	40.41	38.45
Arm:BL	22.77	22.48	22.49	24.03	23.57
Arm:Shoulder	63.37	59.96	61.97	59.48	63.43
Rein:BL	48.21	46.58	48.83	48.65	46.92
Forearm: BL	23.25	22.91	23.81	26.69	25.67

Fore Cannon: BL	16.83	17.82	17.19	20.50	16.96
Fore Cannon: Forearm	72.35	77.76	72.20	76.83	66.10
Fore Pastern and Hoof:BL	12.38	13.20	10.94	14.16	10.92
Total Hind Limb Length: Croup Height	84.15	85.67	87.02	86.37	85.69
Total Forelimb Length: Withers Height	121.40	117.96	119.36	121.17	117.27

TABLE OF ANGLES -- OS, LITTLE RICHARD, PEPPY, TOMATE LAURELES, CHARRO

ANGLE	OS	LR	PEP	TOML	CHAR
Shoulder	56.8	47.3	56.6	54.9	55.6
Arm-Shoulder	91.3	92.8	91.1	90.6	96.6
Pelvis	12.0	19.2	18.3	13.5	14.1
Stifle	153.4	152.9	149.9	158.1	160.6
Hock	161.4	165.0	154.4	145.6	148.5
Fore Pastern	68.6	61.3	63.1	54.2	51.5
OBB	-8.8	-4.1	-6.4	-3.0	-2.8

TABLE OF PROPORTIONS – OLD SORREL, LUCKY STRIKE, SILVER KING, ROAN SILVER, PHANTOM KING

RATIO	OS	LS	SK	RS	PK
Withers Ht.:BL	95.47	95.71	97.80	100.86	101.74
Croup Ht: BL	97.07	94.75	97.45	101.83	102.15

Croup Ht: Withers Ht	101.68	99.00	99.65	100.96	100.41
Head: BL	36.55	-----	37.21	36.97	35.70
Neck: BL	58.87	54.09	58.38	57.67	51.63
Freespan of Back: BL	44.73	41.58	47.52	38.29	46.47
Chest Depth: BL	36.70	38.70	43.18	45.17	42.27
Pelvis:BL	26.89	29.96	28.84	31.73	29.08
Femur:BL	24.26	20.64	25.48	25.51	26.33
Gaskin:BL	18.90	20.00	17.27	21.45	19.39
Femur:Gaskin	128.35	103.23	147.58	118.93	140.10
Hind Cannon:BL	28.17	23.90	28.57	29.79	30.71
Hind Pastern and Hoof:BL	12.86	11.16	11.25	12.47	13.61
Shoulder:BL	37.20	38.21	39.61	41.25	36.95
Arm:BL	20.84	25.97	23.80	22.22	24.76
Arm:Shoulder	56.02	67.97	60.09	53.85	67.02
Rein:BL	49.25	50.20	48.71	53.32	48.87
Forearm: BL	24.66	24.10	25.32	27.83	27.19
Fore Cannon: BL	16.57	18.59	15.99	19.35	18.62
Fore Cannon: Forearm	70.04	77.13	63.18	69.53	68.49
Fore Pastern and Hoof:BL	13.72	11.78	11.45	11.17	13.25
Total Hind Limb Length: Croup Height	86.74	79.90	84.72	87.61	88.14
Total Forelimb Length: Withers Height	117.31	123.98	116.17	115.78	118.72

TABLE OF ANGLES -- OLD SORREL, LUCKY STRIKE, SILVER KING, ROAN SILVER, PHANTOM KING

ANGLE	OS	LS	SK	RS	PK
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Shoulder	56.8	44.8	58.9	50.1	53.2
Arm-Shoulder	91.3	85.6	91.5	104.7	91.4
Pelvis	12.0	15.5	16.1	22.2	10.6
Stifle	153.4	149.9	159.3	149.3	146.2
Hock	161.4	151.8	149.8	159.6	143.7
Fore Pastern	68.6	59.6	69.9	62.3	73.9
OBB	-8.8	0.0	-4.3	-3.1	-5.5