

## **DNA SYNCHROGAIT Gene Test**

- . Request AMHA consider including the SYNCHROGAIT Gene Test as an option for initial registering a Morgan or as requested by the owner.**
- . Current testing which is not sanctioned by AMHA costs \$350 per test.**
- . My coordination with Capilet CEO, developer of test, has produced proposed drastic cut in cost if submitted through the AMHA Registry**
- . Test can be used to determine gait gene for the Gaited Morgan breeder, but also can be used by those desiring only to have non gaiting offspring to project odds of various combinations of horses.**

**BACKGROUND:** 2004 --- May AMHA Quarterly Meeting Lexington, KY proposed Gait evaluation by USEF Gait Judges disapproved as subjective.

## SUMMARY OF SYNCHROGAIT Gene Test

The DNA test will ID the horse's gait genes as one of the following three: Homozygous A/A --- the horse will perform ambling and lateral gaits. Heterozygous A/C --- the horse will perform lateral gaits. Homozygous C/C -- the horse will perform the walk, trot and canter. These are explained in the article <http://www.capiletgenetics.com/en/dna-2>

NOTE: The CA horse may stop gaiting after a few months from birth and not display gait again until they are saddle trained. They can be trained to display their gait by the info included in article written by Lee Ziegler --- "Convert the Trot"

<http://gaitedmorgansassociation.com/Articles/ConvertTheTrot.pdf>

If you read the last sentence of the above article, these same techniques can be used to teach a trotter CC to gait.



**stallion**



**mare**

	C:C	C:A	A:A
C:C	100% C:C	50% C:C 50% C:A	100% C:A
C:A	50% C:C 50% C:A	25% C:C 50% C:A 25% A:A	50% C:A 50% A:A
A:A	100% C:A	50% C:A 50% A:A	100% A:A

## COMBINATIONS

AA x AA = 100% of the offspring will be AA

	A	A
A	AA	AA
A	AA	AA

CA x AA = 50% will be AA and 50% will be CA

	C	A
A	CA	AA
A	CA	AA

CA x CA = 25% will be AA, 50% will be CA, 25% will be CC

	C	A
C	CC	CA
A	CA	AA

CA x CC = 50% will be CC and 50% will be CA

	C	A
C	CC	CA
C	CC	CA

AA x CC = 100% will be CA

	A	A
C	CA	CA
C	CA	CA

CC x CC = 100% will be CC

	C	C
C	CC	CC
C	CC	CC

Breeds	number	Frequency of			A allele (%)	Gaitedness
		AA	CA	CC		
American Paso Fino	34	31	3	0	95.6	gaited
Florida cracker	24	15	2	7	66.7	gaited
Kentucky Mountain Saddle Horse	25	21	4	0	92.0	gaited
Missouri Fox Trotter	42	42	0	0	100.0	gaited
Rocky Mountain Horse	27	27	0	0	100.0	gaited
Tennessee Walking Horse	54	54	0	0	100.0	gaited
American Curly	45	0	15	30	16.7	some
American Saddlebred	89	6	37	46	27.5	some
Appaloosa	20	1	3	16	12.5	some
Miniature Horse	109	1	4	104	2.8	some
Morgan	50	1	12	37	14.0	some
Shackleford Banks	41	1	7	33	11.0	some
Spanish Mustang	15	0	3	12	10.0	some

### Walk/Canter/Other Gait (s) – Not Trot

Gaits	AA	CA	CC	Number
<b>3-Gaited</b>	<b>0</b>	<b>8 – 22%</b>	<b>32 – 78%</b>	<b>40</b>
<b>4-Gaited</b>	<b>0</b>	<b>12 – 86%</b>	<b>2 – 14%</b>	<b>14</b>
<b>5-Gaited</b>	<b>3 – 60%</b>	<b>1 – 20%</b>	<b>1 – 20%</b>	<b>5</b>

**3-5%      21-35%      35-60%**

**24 - AA/CA / 59 - Total = 40%**

## **SynchroGait Gene Tested Horses**

Jellico Moon Shine AA

Jellico Bliss AA

Jellico Twilight Morn AA

Jellico Irish Rose AA

Mary Mels Music AA

Mary Mels Peaches AA

Westwind Joaquin AA – Non Gaiting Parents

Eastwest Yonder AA – Non Gaiting Parents

G Mystic Tatiana AA – Non Gaiting Parents

Millenium Gold AA

April Joy CA – One parent verified as AA, other showed no gait

GRM In The Black CA – Non Gaiting Parents

Sky Casper AA

KTM Shadowflax AA

JY's Black Boaz AA (CA/AA)

Mtn Edge Kaylee's Lady AA

Mtn Edge Bay Beauty AA (CA/AA)

Mtn Edge Black Chrome AA (CA/AA)

WESTWIND JOAQUIN C, MORGAN, 2011

Color: blk

(CLOSE)

WESTWIND JOAQUIN blk 2011 MORGAN	KS BLUESTEM JADA JOE* blk 15.0 2001 MORGAN	WAR JUSTIN* blk 1977 MORGAN	WESTERN MANSFIELD blk 1969 MORGAN	JODYS ACE OF SPADES* blk 1966	SPRINGBROOK MANSFIELD* JODY JEAN O*	ch 1955 b 1958		
			FUNQUEST PUKANCY blk 1966 MORGAN	MIRANDA BRADY br 1963	PAYDAY* LIZZAS BLACK BEAUTY	ch 1945 blk 1959		
				PUKWANA* ch 1957	SENATOR GRAHAM* NELIZA*	ch 1940 ch 1935		
			SWEETS JADA BABE b 15.0 1991 MORGAN	SWEETS JET HAWK blk 1986 MORGAN	T-BONE BIMBO* dk ch 1976	RHYTHMS BIMBO* KINGS FANCY DUCHESS	b 15.2 1955 b 1963	
					SWEETS LADY DIAMOND b 1970	CLASSYS PRIDE* LADY IN LACE*	ch 1962 b	
				T-BONE CARDS FANCY ch 1984 MORGAN	PLAYCARD ch 1964	SUNFLOWER PRINCE BETTY LU	ch 1946 ch 1949	
	JADA ch 1968	FUNQUEST HOK CARMILITA KNOX			ch 1964 ch 1951			
	WESTWIND CARMELITA* 2002 MORGAN	WAR JUSTIN* blk 1977 MORGAN			WESTERN MANSFIELD blk 1969 MORGAN	JODYS ACE OF SPADES* blk 1966	SPRINGBROOK MANSFIELD* JODY JEAN O*	ch 1955 b 1958
					FUNQUEST PUKANCY blk 1966 MORGAN	MIRANDA BRADY br 1963	PAYDAY* LIZZAS BLACK BEAUTY	ch 1945 blk 1959
			PUKWANA* ch 1957	SENATOR GRAHAM* NELIZA*		ch 1940 ch 1935		
			SWEETS DEE DEE br 1984 MORGAN	FLYHAWKS FANCY b 1953	CLASSYS PRIDE* ch 1962	ALLANS FANCY L 1947	CLASSY BOY* sor 1959	
					PRINCESS PAM ch 1962	CHUCKANUT HACIENDA*	blk 1948	
				SWEETS DIXIE DONNA b 1973 MORGAN	RHYTHMS BIMBO* b 15.2 1955	ZANSON* KATE DE JARNETTE	blk 1958 ch 1952	
	DONALDEEN silv 1948	ARCHIE O* RHYTHM LOVELY LADY			br 14.3 1933 b 1943			
				NEBRASKA DAWN BABY DIX	ch 1935 silv 1935			

## Current issues the test may help

- . Assist Gaited Morgan breeder in selection of breeding stock
- . Verification of horse sold as Gaited Morgan are AA or CA
- . Serve as a PR tool to attract aging population -- NO BOUNCE.
- . Those wishing to only produce CC horses
- . Loss of horses AA or CA produced unintentionally