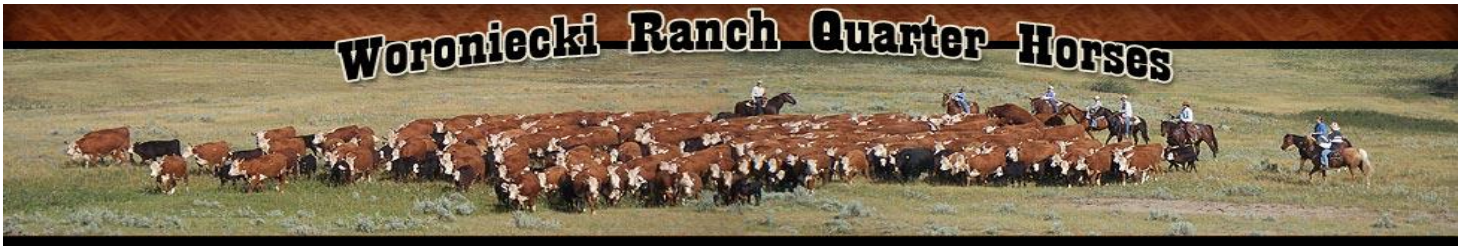

Jodie & Warren Woroniecki
7075 28th St.
Hebron, ND 58638
701-878-4088

Check us out online at----
www.WoronieckiRanchQuarterHorses.com
Or email, call or stop by the ranch.
woronieckiranch@westriv.com

5 Panel Information as it Pertains to Woroniecki Ranch Quarter Horses

At Woroniecki Ranch Quarter Horses we order a genetic kit through AQHA and the results are sent to VGL laboratory of the School of Veterinary Medicine at the University of California, Davis. VGL is internationally recognized as a pioneer and expert in DNA-based animal testing. The effects of these equine diseases are wide-ranging, from mild and manageable to severe and terminal. We have compiled a short description of each disorder tested**. In many instances we only test the necessary specific test based upon the parents test results. If both parents are N/N on all or some diseases then the offspring is also N/N on those diseases by default. Please see ALL PAGES of this document link.**

Glycogen Branching Enzyme Deficiency (GBED) doesn't allow a foal to store enough sugar in its cells for energy, function of the brain, heart and skeletal muscles. Most die within couple weeks of age, but none have been known to survive more than 2 months of age. These foals are often still born. GBED is a recessive trait and only horses that inherit both recessive genes from each parent (G/G) will be afflicted. **Carriers (N/G) and non-carriers (N/N) will have no problems in their lives as they will NOT be afflicted at all and they will be able to perform all performance activities. If deciding to breed a carrier (N/G) it is highly advised to not breed to another carrier to avoid producing afflicted offspring.**

Hereditary Equine Regional Dermal Asthenia (HERDA) causes the skin on a horse's back to literally peel away. The skin will slough becoming loose and tented to never return to its original position. HERDA is a recessive trait and only horses that inherit both recessive genes from each parent (HDR/HDR) will be afflicted. **Carries (N/HDR) and non-carries (N/N) will have no problems in their lives as they will NOT be afflicted at all and they will be able to perform all performance activities. If deciding to breed a carrier (N/HDR) it is highly advised to not breed to another carrier to avoid producing afflicted offspring**

Hyperkalemic Periodic Paralysis (HYPP) is a muscle condition that leads to weak muscles or severe twitching of the muscles. In most cases symptoms include tremors, weakness, cramping, sweating and inability to relax. In severe cases horse can collapse from a heart attack or respiratory failure and die. **HYPP is a dominant trait and carriers (N/H) will be afflicted, but can be managed with careful nutritional care. It is highly recommended NOT to breed a carrier.**

Malignant Hyperthermia (MH) is a rare but deadly disorder triggered by the use of anesthesia, muscle relaxant succinylcholine and stress. The horse will often experience high heart rate along with rapid breathing and extreme fever. This can also lead to death in some cases. Some horses are also a carrier of PSSM along with MH. **MH is a dominant trait and carriers will be afflicted if undergoing surgery or extreme stress. It is highly recommended NOT to breed a carrier.**

Polysaccharide Storage Myopathy (PSSM1) is when the muscles store too much glycogen causing muscle stiffness and muscle tying up. Most horses experience pain with strenuous exercise. **PSSM1 is a dominant trait but carriers (N/PSSM1) can be managed with proper diet and exercise. It is highly recommended NOT to breed a carrier.**

Nacogdoches	**(Grade)**
2020 Dun Stallion	
GBED Status	N/N
HERDA Status	N/N
HYPP Status	N/N
MH Status	N/N
PSSM1 Status	N/N

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AQHA GENETIC DISEASE PANEL TEST RESULTS

AMERICAN QUARTER HORSE ASSOCIATION
P.O. BOX 200
AMARILLO, TX 79168-0001

Case: **QHA192969**
Date Received: 11-May-2015
Print Date: 15-May-2015
Report ID: 4254-4818-1165-7122
Verify report at www.vgl.ucdavis.edu/myvgl/verify.html

Horse: **JK JAY REED** *Reg:* **3516678**
YOB: **1996** *Sex:* **Stallion** *Breed:* **Quarter Horse** *Alt. ID:* **4093897**

Sire: SHADOW RIDIN PINE *Reg:* 3141930
Dam: CHRISTINE NAUGHER *Reg:* 2246375

GBED	**N/G**	N/G - Carrier - Heterozygous (one normal and one GBED gene)
HERDA	**N/N**	N/N - Normal - horse does not have the HERDA gene
HYPP	**N/N**	N/N - Normal - Does not possess the disease-causing HYPP gene
MH	**N/N**	N/N - Normal - horse does not have the MH gene
PSSM1	**N/N**	N/N - Normal - horse does not have the PSSM1 gene

GBED - Glycogen Branching Enzyme Deficiency. Fatal disease of newborn foals caused by defect in glycogen storage. Affects heart and skeletal muscles and brain. Inherited as recessive disease.

HERDA - Hereditary Equine Regional Dermal Asthenia. Skin disease characterized by hyperextensible skin, scarring, and severe lesions along the back of affected horses. Typical onset is around 2 years of age. Inherited as a recessive disease.

HYPP - Hyperkalemic Periodic Paralysis. Muscle disease caused by defect in sodium channel gene that causes involuntary muscle contraction and increased level of potassium in blood. Inherited as dominant disease. Two copies of defective gene produce more severe signs than one copy.

MH - Malignant Hyperthermia. Rare but life-threatening skeletal muscle disease triggered by exposure to volatile anesthetics (halothane), depolarizing muscle relaxants (succinylcholine), and stress. Presumed inheritance as dominant disease.

PSSM1 - Polysaccharide Storage Myopathy Type 1. Muscle disease characterized by accumulation of abnormal complex sugars in skeletal muscles. Signs include muscle pain, stiffness, skin twitching, sweating, weakness and reluctance to move. Inherited as a dominant disease.

GBED testing performed under a license agreement with the University of Minnesota.
HERDA testing performed under a license agreement with the University of California, Davis.
PSSM1 testing performed under a license agreement with the American Quarter Horse Association.

AnimalGenetics INCORPORATED
1336 Timberlane Road
Tallahassee, FL 32312-1766

Generated On: 11/1/2019

Equine Genetic Testing Report

Submitted By

Jodie & Warren Woroniecki
Woroniecki Ranch Quarter Horses
7075 28th St
Hebron, ND 58638

Date Received: 10/28/2019

Subject Horse

Horse Name: **Baby Ruth**
Breed: Grade Horse
Phenotype: Dun
Sex: Mare

Lab Reference #: 00130710
Registration:
Birth: 2003

Sire

Sire Name:
Breed:
Registration:
Phenotype:

Dam

Dam Name:
Breed:
Registration:
Phenotype:

Coat Color and Pattern Testing

X	Tobiano	nn	Negative for Tobiano.
X	Frame Overo	nn	Negative for Frame Overo (LWO).
X	Sabino 1	nn	Negative for the Sabino 1 gene.
X	Splashed White 1	nn	Negative for the Splashed White SW1 mutation.
X	Splashed White 2	nn	Negative for the Splashed White SW2 mutation.
X	Splashed White 3	nn	Negative for the Splashed White SW3 mutation.
X	Appaloosa (LP)	lp/lp	Tested negative for the main Appaloosa LP gene and is NOT affected by CSNB.
X	PATN1	n/n	Negative: Horse does not the carry the PATN-1 gene mutation.
X	Red/Black Factor	Ee	Heterozygous. Horse is Black based but carries a recessive copy of the Red gene.
X	Agouti	Aa	Heterozygous. Horse carries one copy of the Agouti gene.
X	Cream Dilution	nn	Negative for Cream Dilution.
X	Dun Dilution	D/nd1	1 copy of Dun and 1 copy of nd1. Horse will have Dun dilution and express primitive markings.
X	Silver Dilution	nn	Negative for Silver Dilution.
X	Champagne	nn	Negative for Champagne Dilution.
X	Pearl Dilution	nn	Negative for Pearl Dilution.
	Gray		*Not Tested*
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Genetic Disorders

X	HYPP	n/n	Clear: Negative for the HYPP gene mutation.
X	HERDA	N/N	Clear: Negative for the HERDA gene mutation.
X	GBED	N/N	Clear: Negative for the GBED gene mutation.
X	MH	n/n	Clear: Negative for the MH gene mutation found in Quarter horses and related breeds.
X	IMM	N/N	Horse tested negative for the mutation associated with IMM.
X	PSSM 1	n/n	Clear: Negative for the PSSM Type 1 gene mutation.
	FIS		*Not Tested*
	JEB1		*Not Tested*
	JEB2		*Not Tested*
	CA		*Not Tested*
	LFS		*Not Tested*
	SCID		*Not Tested*
	OAAM1		*Not Tested*
	WFFS1		*Not Tested*

Genetic Marker Results

Run Date: *Not Tested*

- / -	- / -	- / -	- / -	- / -	- / -	- / -
AHT4	AHT5	ASB17	ASB2	ASB23	AME	CA425UK
- / -	- / -	- / -	- / -	- / -	- / -	- / -
HMS3	HMS6	HMS7	HTG10	HTG4	LEX3	LEX33
- / -	- / -	- / -	- / -	- / -	- / -	
VHL20	UM011	HMS1	HMS2	HTG6	HTG7	

Additional Comments

None

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GBED REPORT

JODIE WORONIECKI 7075 28TH ST. HEBRON, ND 58638	*Case:* **NQ58089** *Date Received:* 04-Jun-2020 *Print Date:* 10-Jun-2020 *Report ID:* 1027-3270-4437-0197 Verify report at www.vgl.ucdavis.edu/myvgl/verify.htm

Horse: **20F BABY RUTH** *Reg:* **n/a**
DOB: **05/19/2020** *Sex:* **Stallion** *Breed:* **Quarter Horse**

Sire: JK JAY REED *Reg:* 3516678
Dam: BABY RUTH *Reg:* Grade

GBED Test Result

N/N

Result Codes:

G/G	Affected - Homozygous for GBED (two copies of the GBED gene).
N/G	Carrier - Heterozygous (one normal and one GBED gene).
N/N	Normal - Does not possess the disease-causing GBED gene.

The condition is inherited as a recessive trait. This means that breedings between two carrier (N/G) horses have a 25% chance of producing an affected foal (G/G). Affected foals usually die at a young age or will need to be euthanized due to weakness. Breedings between carrier and normal (N/N) horses produce only normal foals but 50% of these are expected to be carriers.