ADGA YEAR END REPORT

YEAR END REPORT **August 31, 2015**

COMMITTEE: **GENETIC ADVANCEMENT**

COMMITTEE CHAIR: **Elizabeth Henning**

COMMITTEE MEMBERS: Mark Baden, Lynn Benedict, Holly Buroker, Jan Carlson, Rebekah Clarke, Linda Colquitt, Lynn Fleming, Anne Jones, Ericka Ryan, Cara Sammons, Teresa Wade, Kathy Winters, Lisa Shepard (advisor)

1 COMMITTEE GOALS & OBJECTIVES FOR THE YEAR:

a. Evaluate current bundling programs and continue to pursue additional options to increase the DNA database.
b. Pursue additional ways to promote ADGA's genetic programs through member education.
c. Highlight information concerning domestic and international genetic research that will provide our membership with a basis for understanding the need for ADGA's continued involvement in genetic research and the collection of genetic information.
d. Encourage completion of the Breed Identification project.

2. SUMMARY OF WORK

a. Articles educating the dairy goat community about ADGA's genetic programs have been published every other month in both the Dairy Goat Journal and United Caprine News as space allowed in the publications.
b. Following a directive from the Executive Committee in January as part of ADGA's Strategic Plan, we have approved a mission statement for the committee (Vote 9,0,2NV.)
c. Following receipt of the revised DNA pricing schedule from VGL, and the inclusion of G6S testing as part of our contract with VGL, the committee reviewed the pricing schedule submitted from the EC.
d. Anne Jones (chair,) and subcommittee members, Ericka Ryan and Cara Sammons have worked in conjunction with the chair and Lisa Shepard to develop a policy statement regarding genetic defects. The proposed statement is attached. (Committee vote: 3,4,5NV)
e. Following knowledge of the availability of testing for the G6S genetic defect through VGL, the subcommittee in conjunction with the chair and Lisa Shepard prepared a policy specific to the identified genetic defect G6S (N-acetylglucosamine-6-sulfate lysosomal storage disease.) (Committee vote: 5, 3,4NV.)

3. FINANCIAL REPORT: COMMITTEE EXPENSES THUS FAR

None

4. PROBLEMS ENCOUNTERED

Lack of constructive committee member participation.

5. DECISIONS REQUIRING BOARD ACTION

a. **Approval of committee mission statement:**
2015 Guidebook, p. 20 (Article VI,C,7) Amend to read:
Genetic Advancement: Develop policies and procedures that support genetic improvement in dairy goats.

Delete the remaining wording in the current section.
This clearly states the mission of the committee. The remainder of the section applies to specific actions of the committee rather than a mission statement and more properly belongs in a committee SOP.

b. **Approval of DNA/Casein/G6S pricing schedule –see EXHIBIT A**

The increase in DNA cost to members is reflective of the increase in our contract cost by VGL. The new G6S test has same cost to us as Casein and we are suggesting same cost to members. This is significantly lower than that being offered by other laboratories or through VGL directly. VGL also prefers hair samples that provide greater ease of sampling and significantly lower shipping costs to members.

Pricing to ADGA PLUS members would remain the same as currently for the first three, prepaid DNA tests. PLUS members would also receive a discounted rate for additional DNA tests as well as for Casein and G6S tests.

c. **Approval of Genetic Defects General Policy – see EXHIBIT B**
Insertion in Guidebook, Bylaws new Article XXI.

d. **Recognition of Genetic Defect G6S – see EXHIBIT C**
Insertion in Guidebook, Bylaws Article XXI, A.

6. **WORK TO BE ADDRESSED BY NEXT YEAR'S COMMITTEE:**

a. Continue to submit articles for publication that promote ADGA's genetic programs and genetic advancement.
b. Continue to discuss and pursue additional means of increasing the DNA database and the use of ADGA's genetic programs. Consider ways to expand the ADGA Plus program by offering additional benefits to participants.
c. Explore additional ways to generate funds to support genetic research.
d. Work on preparation of a Standard Operating Procedures (SOP) document specific to committee mission and actions, including interaction with ADGA staff and other committees where objectives overlap.
e. Continue to encourage completion of the breed identification project.

7. **LONG RANGE GOALS (5 YEARS) FOR COMMITTEE:**

The International goat research community is actively pursuing numerous projects to map the goat genome and provide information concerning the genetic factors that influence not only production parameters, but also genetic resistance to parasitism and disease that negatively impact the quality and quantity of goat production capabilities. This committee must take a leadership role in examining and suggesting implementation of strategies that will ensure that ADGA is contributing to the database and ongoing research in these important areas that will have an increasing impact on the ability of our membership to compete genetically in the years ahead.

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GENETIC ADVANCEMENT
EXHIBIT A:

PROPOSED DNA FEE SCHEDULE

Non-ADGA member rates:
- Casein - $30.00
- G6S - $30.00

Regular rates for ADGA members:
- DNA - $30.00
- Casein - $25.00
- G6S - $25.00

ADGA Plus Rates:
- DNA - $20.00 (1st three as currently); $27.00 each additional
- Casein - $20.00
- G6S - $20.00

This would continue to give price breaks for the ADGA Plus membership while providing slight increases to cover the cost of maintaining the attractiveness of the program and encouraging growth.

Although we currently don't have non-ADGA members participating in our DNA services, the above pricing is less than they would pay through VGL directly. Also, the lower price for members might encourage membership.

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GENETIC ADVANCEMENT
EXHIBIT B:

POLICIES REGARDING UNDESIRABLE GENETIC FACTORS IN DAIRY GOATS

Reason for Policy

Genetic defects resulting in disease have been identified in numerous animal species as well as humans. These defects and diseases have wide-ranging effects, from mild and manageable to severe and terminal. Passing these genetic defects on to successive generations may cause unnecessary suffering and financial losses.

ADGA feels that it is important to proactively develop procedures and programs to aid their membership in the identification and control of genetically related defects and diseases. Such programs would identify animals that have or are carriers of genetic defects/diseases. ADGA would also provide dairy goat breeders with guidance in helping to identify and manage specific genetic defects in dairy goats.

Process for Identifying Undesirable Genetic Factors

In determining genetic factors that are undesirable, ADGA will consider all data that is relevant. Before making a determination of an undesirable genetic factor, at least two experts as determined by ADGA staff and appropriate committees shall be consulted and their recommendations will be submitted to ADGA along with trait specific data. Upon consideration of this information, the Board of Directors shall approve procedures for the identification, recording and reporting of carriers of a genetic defect.

ADGA will maintain a list of undesirable genetic factors that have been identified through genetic testing and for which a policy has been designated by the ADGA Board of Directors.

Process for Identification of Normal, Carrier and Affected Animals

In addition to maintaining a list of undesirable genetic factors, ADGA will provide and update information that includes description of the condition resulting from the defect and the type of genetic tests available and required to determine status. Information regarding testing resources will be made available through ADGA. The testing process will incorporate requirements for approved tests, laboratories, test forms, and data release forms.

Process for Notification, Publication and Release of Information

Following recognition of a specific genetic defect by the ADGA Board of Directors and the establishment of policies for recording and reporting of that defect, testing results will be accepted by ADGA only if provided directly by an approved laboratory. The date of implementation of these procedures and policies shall be made available to the membership and the public. Results of testing will be included in the pedigree database and recorded on the animal's registration/recordation paper and performance pedigree.

Policies regarding registration/recordation of designated carrier animals and/or offspring of such shall be established for each recognized specific defect.

Testing results and the identification of carriers prior to formal action by the ADGA Board of Directors may be accepted, recorded and reported. Policies and procedures for accepting pre-designation testing will be developed for each specific defect as deemed necessary.

Sales of Carrier Animals

With respect to all sales sponsored by ADGA, no animal shall be accepted that is designated by an approved laboratory as a carrier of a genetic defect.

With respect to sales not sponsored by the ADGA:

The ADGA considers it unethical practice for members to offer for sale or lease an animal that is a known (or potential) carrier of a recognized undesirable genetic factor for which testing is available without first informing the buyer/lessee. In addition, the ADGA considers it unethical practice for members to offer for sale any embryo or semen from an animal(s) that is a known (or potential) carrier of an undesirable genetic factor without first informing the buyer.

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GENETIC ADVANCEMENT
EXHIBIT C:

ADGA - RECOGNIZED GENETIC DEFECT

G-6-SULFASE DEFICIENCY (G6S, MPSIIID)

Recognized: October 2015

WHAT IS G-6-S?

G-6-Sulfase deficiency is an inherited metabolic defect known to occur in Nubian goats and related crosses. A mutation in the G6S gene renders the enzyme incapable of degrading complex polysaccharides which then abnormally accumulate in tissues such as central nervous system and viscera. Affected goats exhibit delayed motor development, growth retardation, and early death. The disease is inherited in an autosomal recessive fashion. Therefore, both sexes are equally affected and two copies of the defective gene must be present for signs of the disorder to be observed. Breeding two carrier goats, which are phenotypically normal but each possessing a single copy of the mutation, is predicted to produce 25% affected offspring. The predicted genotypic frequency for this disorder has been reported to be approximately 74.2% normal, 23.9% carrier, and 1.9%. G6S carrier status is determined by observation of a mutation, changing a C to T in codon 102 of the 559-amino acid G6S protein. Testing is available at a contracted rate to all dairy goat owners through ADGA.

RATIONALE FOR POLICY

With recognition by the ADGA Board of Directors of G6S as an undesirable genetic factor, information concerning the G6S status of potentially affected or carrier animals will become available to all dairy goat owners enabling them to limit carrier-to-carrier matings and manage the impact of the disorder within their herd and the dairy goat population at large. ADGA will not designate an animal a carrier of G6S if there is a reasonable doubt that the animal is a carrier. The determination as to reasonable doubt depends upon the quality and amount of available evidence. G6S carrier status is determined by observation of the mutation.

ADGA G6S POLICY

In order that G6S disease status can be made available to ADGA members and the wider goat community, ADGA **recommends** that, as of the effective date of this policy, all Purebred, American Nubian, Experimental or Recorded Grade animals with known or suspected Nubian ancestry be tested to determine G6S status prior to being presented for registration or recordation. (See Exclusion below) ADGA will maintain a list of approved testing laboratories, and that information as well as forms and instructions for sample submission will be provided upon request.

Upon receipt of testing results from an approved laboratory, ADGA retains the right to include the G6S genetic testing results as part of the goat's pedigree information. It is further understood that the results are to become part of the animal's permanent record. Results of testing will be included in the pedigree database, on the animal's registration/recordation paper, Performance Pedigrees, Performance-Progeny Reports, and other reports containing pedigree information. Designations shall be recorded as:

G6S-N/N = Homozygous normal: animals with this genotype are expected to be **normal** with respect to N-acetylglucosamine-6-sulfate lysosomal storage disease.

G6S-N/G = Heterozygous for the mutation: animals with this genotype are **carriers** with respect to N-acetylglucosamine-6-sulfate lysosomal storage disease.

G6S-G/G = Homozygous for the mutation: animals with this genotype are expected to be **affected** with respect to N-acetylglucosamine-6-sulfate lysosomal storage disease.

When possible, the person submitting the sample for testing, the recorded owner and the breeder will receive testing results from the ADGA. The Association shall maintain a record of all animals and such designation (G6S-N/N, G6S-N/G, or G6S-G/G) shall be noted on all advertising, descriptive materials, or pedigrees published by the ADGA.

ADGA has a proprietary right to the DNA type information and the results of G6S disease status testing for each animal. Samples submitted for analysis of G6S status through the ADGA shall become the property of the contract laboratory upon receipt and may be used for general research purposes. Persons submitting samples for G6S testing through the ADGA agree to indemnify and hold the ADGA harmless against any losses, costs or damages, including attorney fees arising from the results of the performed tests.

IMPLEMENTATION OF POLICY

Effective Date: January 1, 2016

Exclusion:

For a period of one year following the effective date of this policy (until January 1, 2017,) animals tested prior to January 1, 2016, shall be entitled to have test results (G6S-N/N, N/G or G/G) included in the ADGA database and on the registration/recordation certificate upon submission of paperwork confirming test results issued by the laboratory that conducted the test. Information provided by the laboratory must include the animal's registration number, date of birth and tattoo information in addition to test results. The standard fee for certificate revision shall apply.