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DEPARTMENT OF BIOLOGY

October 20, 1987

Mr. Eduardo Villanueva
P. O. Box 1750
Hospital Bella Vista
Mayaguez, PR 00709

Dear Mr. Villanueva:

I was deeply distressed by our conversation of October 17, 1987 in which you informed me of current attempts to allow the inclusion of the Paso Columbiano into the Paso Fino Registry A. I would appreciate it if you would allow me to voice my objection to this proposal.

The Puerto Rican Paso Fino is the unique product of a selective breeding program within a primarily closed population. The current Paso Fino gene pool (genetic make up of the population) is thus distinctly different from all other current breeds, including its own ancestral strains. The physical characteristics, disposition and temperament, and style and performance are the sum product of many different pairs of genes interacting with each other to form the genetic background which yields the Paso Fino of today. The expressions of the major genes (which have the greatest effects on these characteristics) are modified by their genetic back-ground, they are not completely independent of the other genes of the organisms. This is why selective breeding continues to improve a strain over generations, even after the main characteristics are set. Selection for the best (most harmoneous, or enhancing) modifier genes improves the final characteristics.

Any large scale uncontrolled infusion of "foreign" genes into the pure bred Paso Fino gene pool (Registry A) would in all probability undo years of careful breeding, because it would break up the necessary genetic background and adulterate it with genes which are unsuitable due to their inability to act harmoneously with the Paso Fino gene combinations. Such a contamination of the Paso Fino gene pool might be impossible to correct unless all horses of "contaminated" (outbred) ancestry were then removed from Registry A. Such a loss could seriously reduce the size of this registry and therefore reduce the amount of desirable genetic variation within the Paso Fino Registry A population. Such a reduction in genetic variation could seriously limit the further improvement of breed characteristics by selection for the best gene combinations within the Paso Fino genetic background.

All of this has direct bearing on the question of whether or not to permit the inclusion of the Paso Columbiano into the Paso Fino Registry A. The Paso Columbiano was developed independently from the Paso Fino of Puerto Rico. The gradual selective processes which independently produced each of these two

breeds must have incorporated different gene combinations over time. Uncontrolled large-scale crossing of the two breeds would therefore result in the destruction of both gene pools. The unique characteristics of each would be lost as special gene combinations were broken up. I should emphasize that apparent similarities or alleged similarities, in animal strains and even closely related species, are often the products of uniquely different gene combinations. Thus their apparent physical "identity" is an illusion. The uncontrolled merging of the Paso Fino of Puerto Rico with the Paso Columbiano is therefore a "disaster waiting to happen".

All of this should not be seen as an attempt to dissuade all hybridizations between the two breeds, however. Carefully conducted crosses should be made in order to determine the genetic bases responsible for the characteristics of each breed. Selective breeding over many generations might in time produce a new "Paso Americano" with its own characteristics. Such a new "Paso" might even be superior in some ways to one or both of the "Pasos" of today. However, such hybrids and their descendents should be barred from both the Paso Fino and the Paso Columbiano registries. These uniquely valuable gene pools need to be protected from adulteration.

Please feel free to call upon me if I can be of any help in studying the genetics of these breeds.

Sincerely yours,

Richard D. Squire

Richard D. Squire, Ph.D. (Genetics)
Professor of Biology

RDS/mar

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August 29, 1975

Carlos Haeussler
P. O. Box 1703
Hato Rey, Puerto Rico 00919

Dear Mr. Haeussler:

Thanks for your letter of August 18, 1975 and some of the questions you asked in this letter.

First, I think it better to use Columbian mares than Columbian stallions ~~because~~ in crosses with your Paso Fino breed because more of them would probably be available and because you could mate your stallions with several mares. If you used Columbian stallions you could probably use only one or at least a few. This would give you a wider sampling of the Columbian horses by using mares, and you could gradually work the best cross individuals into your Puerto Rican breed. Also if you used a Columbian stallion you would probably breed him to several of your mares and this would dilute out the Puerto Rican blood quite rapidly. I don't believe that Columbian mares would contribute better genes than Columbian stallions, however.

Galton's law of inheritance was formulated many years ago and the system we use for calculating inheritance is a result of certain refinements worked out by mathematicians since his first publications. The relationships I have calculated for your horses is really what we call "Percentage of blood" and there could be some refinement by also calculating the inbreeding of the related individuals. This would only bring about an adjustment of 1 to 3% in the relationships in most instances and it requires a lot more time. Consequently, I haven't used them.

The breeding plans I sent you were from old pedigrees of Domingo, Picaflor and Recuerdo which may differ some from the revised pedigrees of these stallions you sent me.

The differences in relationships for a foal from mating Kofresi to Guajana between your and my figures seems to be due to the fact that the pedigree for Guajana in your last letter differs from the one I received from you earlier. I believe your calculations are right on the pedigree you sent me.

I have been familiar with the King Ranch breeding program. When they mated Old Sorrel with his daughters this ran the inbreeding up to 25% in one mating. When half sisters of Solis were mated to him the inbreeding was only 12.5% or have of the sire-daughter mating. Also Solis carried some Thoroughbred blood (50%) that Old Sorrel didn't have which probably helped improve the type and performance of the Old Sorrel line. The King Ranch used a system of linebreeding as you are using. I have been trying to help you keep the amount of inbreeding in your foals to a minimum without lowering the relationship too much to some of the outstanding ancestors.

(over)

The principle used by the King Ranch in breeding Solis (an outbred stallion) to his half sisters would be the one you would use if you produced a Columbian X Puerto Rican cross stallion that had all of the desired characteristics and then mated him back to Puerto Rican mares which were half-sisters of his. I believe the Solis cross was a lucky one and probably would be expected to work 100% of the time.

With best personal regards.

Sincerely,

John F Lasley

John F. Lasley
Professor

University of Missouri - Columbia

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8/14/75

Mr. Carlos Haeussler
P. O. Box 1703
Hato Rey, Puerto Rico 00919

Dear Mr. Haeussler:

This is in answer to your letter of July 21, 1975 and your question of introducing Columbian blood into your Paso Fino breed. Such an introduction would tend to dilute the homozygosity of your breed as you have suggested. However, especially the first cross should increase the vigor of the foals because of the reduced homozygosity. You might lose something in gait unless you choose your Columbian stock very carefully for the proper gait.

I would suggest that you introduce Columbian mares into your herd that have the desired type, conformation and gait and mate them to the best Paso Fino stallions available. Then, if you get desirable foals you could slowly introduce this blood into your own horses. I would still continue to breed some of my mares to produce pure Paso Finos at least until you have had a chance to see what the Columbian crosses would do. They may improve your stock or they may have a detrimental effect on it. It is difficult to predict with accuracy what might happen.

As of the present, I have not had the opportunity to work on the recommendations for mating the seven mares whose names and records you sent me. I will do this in the next few days as soon as I can find time.

With best personal regards.

Sincerely,

John F Lasley

John F. Lasley
Professor