

## American Chinchilla Rabbits and the Widebanded gene

Dr. Stephen Roush, ARBA Judge #475

As a past American Chin breeder and showman from 1972-1990, ACRBA officer and ACRBA Newsletter editor, I have been asked to comment on the current controversy regarding the wideband gene and its manifestation within the American Chinchilla breed. I had a Red, White and Blue 100% registered herd of American Chinchilla rabbits back in the 1970's and '80's, and won my first major win on March 1, 1975 with Best Fur at the All American Chin Specialty Show in Columbia City, Indiana. I no longer have American chins, but they still remain in my heart as one of my favorite rabbit breeds. I hope that this article may assist breeders in both selecting and improving the breed today. SR

### What does the wideband gene look like when it is present on an American Chinchilla??

The wideband gene, when present in a double recessive form, causes an American Chinchilla rabbit to have a double width pearl band, and to have white undercolor on the belly. The surface color, due to the wider pearl band showing through the guardhairs a little on the topcoat, has a lighter gray appearance, and a less wavy appearance is present than on a normally banded Chin..

### How does the wide band gene manifest itself ?

Wideband gene action works like a simple recessive. WW or Ww (where the dominant gene is a 'non-wideband' gene) yields a regular band on an agouti and allows for an undercolor on a tan-pattern rabbit. "ww" places a wider band on the agouti and removes any possibility to have any belly undercolor. Tan pattern rabbits have no belly undercolor with ww. Self patterned rabbits are unaffected, but even if they are ww you don't see it, as the color looks just the same whether the rabbit carries 'ww' or 'WW' or 'Ww'..

The w gene passes on like any gene,  $\frac{1}{2}$  of the combination that is carried by the Dam (Mom) comes from her and  $\frac{1}{2}$  of the combination that is carried by the Sire (Dad) comes from him.

### How can it occur from breeding pure blood rabbits that do not exhibit this trait?

It is extremely easy for a rabbit to not exhibit the wideband trait but to simply 'carry' it from generation to generation. Often, this can slip by undetected for 3-4 generations. An example... let us assume that you have an entire herd of American Chinchillas, and they are regular width pearl band

(WW). You bring in a seemingly 'normal' American Chin with regular looking band width, but you are unaware that it carries the gene for wideband (Ww). You breed it to one of your herd. All babies look 'normal'... and while they are phenotypically 'normal', genetically 50% are WW, and 50% are Ww. IF you happen to breed one of the young that doesn't carry the recessive 'w' gene back to back to the parent rabbit that carries the gene, NONE of their babies will be wideband. However, IF you happen to breed one of the young that does carry the recessive 'w' gene back to back to the parent rabbit that carries the gene, 25% of their babies will be wideband. If you cross one of these 'w' carrier' offspring back to any of the rest of your herd, NO wideband will show up, and it may indeed take years to even discover that the 'w' gene was introduced into the herd.

In American Chins, the wideband looks as described in the first sentences of the first question. Also, look at the photo attached to this article.

#### **Can this wideband American Chin be shown?**

Reading the ARBA Standard for American Chinchilla rabbits, it is readily apparent that the wideband gene has been around a long time, and is allowed for in the judging of American Chins. The standard specifically states, "Belly color next to the skin is to be white or blue." This means that whether the American Chinchilla rabbit is a wideband (white belly undercolor) or a normal band (blue belly undercolor), they are still purebred, and are still recognized as correct color by the ARBA Standard of Perfection. Clearly then, this trait is not an American Chinchilla rabbit judging neither DQ nor a Fault.

On a collateral note, the other chinchilla breeds (Standard and Giant) also allow for the possibility of a wideband chin by having the same wording referring to undercolor. Even the Chin breed variety closest to the American Chin in size (the Chin Satin), allows for either color of belly. Also, varieties of Chinchilla in Netherland Dwarf, American Fuzzy Lop, French Lop, English Lop, MiniLop, Jersey Wooly, Rex, and MiniRex breeds all allow for Blue or white belly undercoat. Any Angora agouti variety allows for belly undercolor or no belly undercolor.

In fact, the ONLY Chinchilla variety in ARBA that does not allow for both colors of undercolor on the belly is also the only variety that refuses to call

the chinchilla variety buy that name. The Flemish Giant breed has a variety called 'Light Grey', that is simply a mandolin typed Chinchilla, and it allows for ONLY a blue belly undercolor. This is especially unusual, since that breed also has the only variety of chestnut (called Sandy) that usually is a wideband agouti, and should have therefore a white belly undercolor. The standard says to fault a Sandy that has blue belly undercolor, as white belly undercolor is preferred!

### **Should the wide band chin be kept in the breeding program?**

As for American Chinchilla show herds, there are truly NO requirements as to whether the wideband or more normal width band should be exhibited. The judges are not guided by the standard to prefer one appearance over the other. Indeed, some breeders may have an entire herd of registered wideband American Chinchillas, and another may have an entire herd where none of their registered stock carry the recessive wideband gene. It is totally irrelevant, and the choice should be attributed purely to a personal preference for the animal's coloration.

### **Summary**

The American Chinchilla rabbit is genetically a Black Agouti rabbit with the dark chin gene removing all traces of yellow from the coat. The genecode for the purest (homozygous) American Chinchilla rabbit is 'AABBCchdCchdDDEE'. The 'W' series can be 'WW', 'Ww', or 'ww'. Also, the purest American Chin carries NO dilute genes, NO chocolate genes, and NO non-extension genes. Pure American Chins can produce wideband offspring, and that is the extent of their variation.

However, a pure 'looking' American Chin may also carry genes for dilution, chocolate, and non-extension, as well as white and self and tan pattern. This means they can be shown, and may even win against other Chins, but when bred to close relatives, they may produce a variety of colors, depending upon their ancestors and the recessive genes that were passed along. They may throw white rabbits, black rabbits, ermine rabbits, chocolate chins, squirrel chins, and even Silver Marten colored rabbits. This does not mean they are not American Chins, they just are not as pure as you would desire them to be to produce consistently more of the showable American Chin.

Just remember, rabbits are judged by their 'phenotype' (appearance), and not their 'genotype' (genetic makeup). So, even if they did not breed

consistently, do not be surprised if some of the best American Chinchilla winners shown in the future may actually be out of a litter that is a cross between a Satin Chin and a White New Zealand. That is the easiest way to 'rejuvenate' an American Chinchilla breed that I personally think has gotten too inbred to maintain the vigor and stamina that is needed in a progressive and enduring rabbit breed. By culling tightly, and crossing this type of an outcross into the existing American Chins, the probability of improvement is relatively easy and fast. As for the wideband gene, and the explanation presented above, I think that should be the least issue of concern for the next ten years, and good luck to the breeders of this beautiful animal.