

Size Genetics

In case you are not familiar with the Dwarf gene, let me briefly cover this, to, since it has a tremendous effect on our breeding programs. There are two genes for size. One is normal size and is represented with "D". The second is for dwarfing and is represented by "d". The good Dwarf Hotot will carry one of each and be "Dd" for size. The "d" gives is the small size (obviously) and also brings along the body, head and ears that we look for. When we breed two "Dd"'s together, genetically and theoretically we can expect a litter that will be 1/4 "dd", 1/2 "Dd", and 1/4 "DD". The "dd" is a lethal combination and will normally die in the nest box in the first 3 to 5 days due to lack of anatomical development. The "Dd" will be what we are looking for (hoping it is marked properly and has no blue spots in the eye). The "DD" will be oversized, normally long in body, narrow and long in head and with long, pointed ears.

I refer to does with the "DD" combinations as BUDS (Big Ugly Does). They cannot be shown, but, again can be used in a breeding program. Breeding it to a Dwarf Hotot buck ("Dd")

will give us a litter 50% "Dd" and 50% "DD" (again, that's theoretical—in actuality we can get any proportion). The nice thing about using BUDS is that because of their extra size, they normally give us bigger litters. To picture this, look at the following squares (my High School Biology still sticks with me).

	D	d
D	DD	Dd
d	Dd	dd

	D	d
D	DD	Dd
D	DD	Dd

Conclusion

In conclusion, let me say that the information in this brochure is basic and written primarily from a "genetic layman's" point of view. I hope it helps the new breeder, and assure you that there is a challenge to our Dwarf Hotot breeding! Don't get frustrated and give up! It can bring great satisfaction to produce that "perfect" little Dwarf Hotot.

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Dwarf Hotot Genetics

A Basic Introduction
for the Beginner



The American Dwarf Hotot Rabbit Club

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Welcome!

Welcome to the fascinating world of the Dwarf Hotot! I remember my beginnings in Dwarf Hotots (1983) and things I didn't know about the breed! Anxiously awaiting my first litter, I could not believe my eyes when I peered into the nest box. What a variety I had! Such strange looking animals (marking wise) that I was sure I had been sold some poor quality animals. I got on the phone to other breeders a bit more experienced than I was, thus began my education. With that in mind, I would like to offer some basic thoughts on the genetics that go into our breed, particularly in markings and size, that I hope will be helpful to new breeders.

Marking Genetics

Our Dwarf Hotot owes its proper markings to a combination of the English Spot (E_{en}) and Dutch (D_{udu}) marking genes. These two genes interact, when properly combined, to wipe out all color except the eyeband. They also produce what I refer to as a challenging frustration in breeding our "Eye of the Fancy".

Neither the Dutch nor the English Spot gene are dominant, but must blend properly and, therefore, wipe out all markings except the eyeband. Since they work together, and neither are dominant, we frequently get mis-marked animals with black spots on the ears, or any where on the body. We can also get animals with very rough Dutch markings, and we call these "Piebalds". Unfortunately, it seems that these Piebalds often have the best type, head, etc., in the litter.

Because the proper blend of the Dutch and English Spot marking genes is a genetic throw of the dice, we can never predict what we will get in a litter, and the re-breeding of the same two animals often produces different results as far as the markings go. I had a well marked buck and doe that had produced several nicely marked animals in a couple of litters. However, all of a sudden, she produced a litter of seven (large for a DH doe), and not a single one was cleanly marked—each offspring had marks somewhere on the body!

With those thoughts in mind, I have used mis-marked animals in my breeding program with great results. In past litters, one doe had 2 kits, one nice marked and one piebald. Another litter had 5 kits, four nicely marked and one with a black spot

behind an ear. I prefer my bucks to be properly marked, but I can also relate that I have used bucks with spots on the ear and gotten nicely marked animals from the crossings. If I have a nice animal with mis-markings (including ones with single eyebands) and it has something to offer to my breeding program, I will use it.

The animal with a blue spot in the eye is one thing I do not use. This a genetic defect brought to our Dwarf Hotot because of the involvement of the Dutch marking gene. Since, as I have said, it is a genetic fault, I just don't want to continue breeding that defect in. Having said that, I have to be fully honest and say I do know breeders who have used them successfully. It is a personal decision (sometimes affected by what is available in your area), but we need to be aware of the fact that it is a defect.

