

## Peanuts vs. Max Factors

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The terms "peanuts" and "Max factors" are thrown around a lot when there are abnormal and/or extra tiny kits in litters. These kits usually die within the first two weeks, often the first couple days after they are born. There is a difference between the two, not only in what they look like, but also what causes them.

Pituitary dwarfism is the "technical" term for the type of dwarfism seen in dwarf rabbit breeds. The pituitary gland is the "master gland" that controls the entire endocrine system. It controls the production of many hormones, including the growth hormone. The result is a fully proportionate, but miniaturized, rabbit. However, peanuts have two dwarf genes so the pituitary gland malfunctions and it will not release enough growth hormone to sustain the kit. As a result, the kit dies.

A normal dwarf rabbit has a normal gene (Dw) and a dwarf gene (dw). Its genotype is Dwdw. A peanut has the genotype dwdw. Having two dwarf genes causes the lethal combination. On average, one kit in every four will be a peanut. This is shown in the Punnett Square below with a cross between two normal dwarfs:

	Dw	dw
Dw	DwDw (“false dwarf”)	Dwdw (dwarf)
dw	Dwdw (dwarf)	dwdw (peanut)

Max factors are entirely different. Max was a dwarf brought over to the United States from Germany to help improve the US's dwarf lines. While most likely the gene that causes a Max factor was around before Max (the rabbit), it didn't have a name. The Max factor is a recessive gene that causes the kit to be born with any or all of the following:

**Open eye(s):** while not lethal in itself, it often causes eye infections that most likely will lead to blindness.

**Deformed Limbs:** Usually one or more limb is twisted, or at least display severe "splay legs".

**Weird feet:** Most of the time they have flipper feet, which are webbed. They have been known to have dewclaw on their hind foot (feet).

**Spiked/soft fur:** Max factors if they live can have funny-looking spiked fur or extremely soft cottony fur because they lack guard hairs.

Max factors do not always die. While most die within the first two weeks of life, if allowed to live they can lead good lives. Also, it has been said that a lot of winners carry the Max factor gene. This may be a direct correlation or just coincidence.



These two images are a classic Max Factor case. Notice the open eyes, deformed hind limbs, and misshapen head. *Photos courtesy of Spring Creek Gems*