

FORTUNATO's CRIAS

or

Breeding for Colour

Alpacas are renowned for their phantastic colour diversity. Internationally one speaks of „about“ 22 „official“ colours. These are based on the colour charts used by the major fibre and wool companies, and are well suited to describe the (phenotypic) appearance of any uniformly coloured or white alpaca, less so to describe multicoloured ones.

In Italy we have started using a different system, attempting to introduce genetic aspects to the outward appearance of an animal. This should assist those breeders interested in breeding for colours. Does this make the life of such breeders any easier?

In the following I present my simple observations involving our male Fortunato and his, sofar 18 crias.

Fortunato, a huacaya born February 2, 2000, out of an unknown Chilean father and Euro Inti, a Suri , also of unknown Chilean parentage, is in international language a pinto like his mother. In Italy we describe him as a red with black extremities (*REN, Rosso Estremità Nere*), in in parts applied international terminology a Bay or Red with Black Trim (let's forget for the moment the distinction between extensive and minor black trim), and extensive spotting, i.e. he closely resembles his mother with regard to colour. (In the following, Italian abbreviations are in Italics).



Inti (left) and Inti with Fortunato (centre), in August 2000, and (right) in December 2006.

After the birth of Fortunato Inti never got pregnant again (injury during delivery due to the rather large size of the cria).

Fortunato's first cria was born on September 2, 2003. Since then we have had another 17 live births out of him (of which 16 are still alive), from a total of eight females. In the following I will briefly describe the eighteen, emphasizing the colour aspect. After this it will be easier to answer the question „is breeding alpacas for colour simple?“

FORTUNATO bred to DANA:



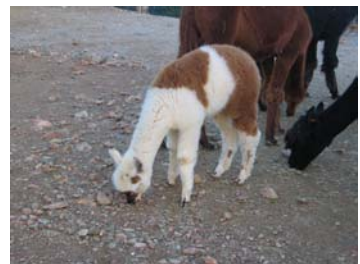
Dana is a Red/Light Brown/Dark Fawn female. Clemente (centre), born 02.09.2003, is Red with Black Extremities (*REN*), and Dolly (right), born 14.09.2005, is Uniform Black (*NU*) with extensive spotting.

FORTUNATO bred to ALMENDRA



Almendra (left) is a Red with Black Extremities (*REN*). Lauren (top centre), born 14.09.2003 is also a Red with Black Extremities (*REN*), Schumi (top right), born 11.09.2004 closely resembles his mother, whereas Froilan (bottom right), born 23.09.2005 is a Uniform Black (*NU*).

FORTUNATO bred to EVITA



Evita (top left) is described as being of wild type, i.e. with a pattern resembling that of the Vicuña. Enzo (top centre), born 22.10.2003, appears to be white, but is actually a very diluted (red?) and extensively spotted animal. Nino (top right), born 05.09.2005 closely resembles his mother (*SELVAGGIO*), and Zinedine (bottom right), born 05.10.2006 is, like his father, Red with Black Extremities (*REN*) and extensive spotting.

FORTUNATO bred to MEDEA



Medea (left) is a typical Red with Black Extremities. Tazio (right) born 09.10.2003 is, like his father, a Red with Black Extremities (*REN*) and extensive spotting. The nameless cria (centre) died suddenly on 03.05.2005, shortly after the picture was taken. He was like his father and his brother Tazio.

Note: Medea always produces crias that resemble the father (e.g. a grey cria from a grey male).

FORTUNATO bred to NORA



Nora (left, with Carmen) is a typical Red with Black Extremities (*REN*). Carmen (centre), born 04.10.2003 is a Uniform Black (*NU*), and Felipe (right) resembles his father, i.e. he is Red with Black Extremities (*REN*) and extensive spotting.

FORTUNATO bred to EMILY



Emily (left) is a Uniform Black (*NU*). Achille (centre), born 08.09.2003 is a Red with Black Extremities (*REN*), and so is Rubens (right), born 30.09.2004, albeit a bit darker.

FORTUNATO bred to GEORGIA



Georgia (left, with Kimi), is a Red with Black Extremities (*REN*), Niki (right), born 08.09.2005, closely resembles his mother, i.e. he is a Red with Black Extremities (*REN*) himself, whereas Kimi, born 16.09.2006, closely resembles his father.

FORTUNATO bred to PUNA



Female cria
Uniform
black with
extensive
spotting.

No picture
taken



Puna (left) is a Uniform Black (*NU*). Gilles (right), born 27.09.2005, is a Red with Black Extremities (*REN*). The female cria, uniform black (*NU*) with extensive spotting, died at four days of age.

Summary and Conclusions

The 18 crias sired by Fortunato, himself a Red with Black Extremities (*REN*) with extensive spotting, can be grouped as follows:

6 similar to father. I.e. Red with Black Extremities (<i>REN</i>) with ext. spotting	33%
2 Uniform Black (<i>NU</i>) with extensive spotting	11%
1 Uniform Red (?) (<i>RU</i>) with extensive spotting	6%
6 Red with Black Extremities (<i>REN</i>)	33%
2 Uniform Black (<i>NU</i>)	11%
1 Wild (<i>SELVAGGIO</i>)	6%

- Extensive spotting appears to be „dominant“ (50%). It is interesting to note that no other type of spotting occurs (e.g. the classical spotting of face and lower legs). This may indicate that there are at least two distinctly different types of spotting.
- 83% of the crias display one or both main colour traits of the father (Red with Black Extremities and/or extensive spotting). Whereas the father appears to be the one that passed on the extensive spotting exclusively (in the absence of detailed knowledge of the parentage of the females), it remains unclear to what extent he passed on the Red with Black Extremities.
- Red with Black Extremities (*REN*) and extensive spotting crias are all male. Uniform Black (*NU*) with extensive spotting crias are all female.

This might lead one to the conclusion that certain colours/colour distributions, or models, are sex linked, was it not for the fact that Inti, the grandmother of them all, is herself also a Red with Black Extremities (*REN*) with extensive spotting.

One has on the other hand also to consider that 14 out of 18 of Fortunato's crias are male (78%). Of all other crias born on Poggio Piero to date males account for a more reasonable 59%.

- No cria shows any sign of greying or roaning.
- The red of the *REN* and *REN* with extensive spotting can be somewhat darker or lighter.

- Distinguishing between what are referred to as Tuxedos and Pintos appears to be somewhat confusing. In this case it would nevertheless appear that all extensively spotted crias are in fact Pintos, i.e. with more or less extensive remnants of the base colour on head and lower extremities in addition to extensive colour remnants on the body.

With respect to the females the following can be said:

- Only one of eight females (a *REN*) gave birth to extensively spotted crias only.
- The female of Wild Model gave birth to crias like herself and extensively spotted ones only.
- None of the breedings with Uniform Black (*NU*) females resulted in a black cria.
- Both Uniform Black (*NU*) crias were born to Red with Black Extremities (*REN*) females. It is interesting to note that the two are mother and daughter, the former of unknown parentage.
- One female (*Medea*) seemingly always gives birth to crias closely resembling the father.
- Most females produced crias of at least two different types.

CONCLUSIONS

- Phenotypic observations of a breeding pair alone do not allow to make any relevant colour predictions for the resulting cria.
- Several crias born resemble neither the father nor the mother.
- There are nevertheless clear indications that it helps to know and understand the genotypic aspects of colours.
- In the present example parentage is known for a maximum of two generations only, a situation typical where direct South American imports are involved. Exact colour descriptions of alpacas born outside South America, together with DNA proven parentage, would therefore be of help for future predictions.

Breeding for colour remains rather unpredictable, but at the same time as fascinating as ever. There is still a lot to be learnt.

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