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EGG FERTILITY OF MUSCOVY DUCK, GAME FARM MALLARD AND THEIR INTERSPECIFIC CROSSBREEDS

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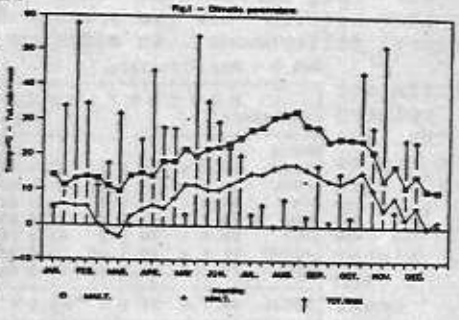
Introduction:

Egg-fertility,EF, depends on the interaction of several factors. Among which management, environment and physiology are the most important. In crossbreeding between two different species EF can be influenced by, in addition to the above mentioned factors, the existence of behavioral, anatomical and genetical barriers.

In the literature there are some data on EF of Muscovy ducks,MD (2), of Pekin ducks (1,8) and of their crosses (6,7) and a few isolated reports on EF of Game Farm Mallard,GFM, MD and their crosses (GFM*M and M*GFM)(5). With the aim of clarifying this latter point we monitored the EF of MD, GFM and their crosses for one year.

Materials and methods:

354 sexually mature birds, reared in outdoors pens in Central Italy were used for the experiment. One month before the onset of egg production the 1y.o. groups were formed so that, enough, we monitored 6 experimental groups: 1°) 1y.o.MD: 9 pens (26males m, 102 females,f); 2°) 2y.o.MD: 4 pens(12 m, 42f); 3°) 3y.o.MD: 6pens



(18m, 62f); 4°) 1 y.o. MD*GFM: 4pens(12m, 40f); 5°) 1y.o. GFM*MD: 4pens(12m, 20f); 6°) 1y.o.GFM: 4pens(4m, 4f).
The birds were kept under natural light and fed with duck pellets ad libitum. The eggs were collected daily and incubated after a max storage of 7 days (T=11°C, R.H.= 70%). The EF was determined by candling on the 10th d.

tab.1 - Number of incubated eggs.

age	MUSCOVY 1	DUCK 2	3	MD*GFM 1	GFM*MD 1	GFM 1
MARCH	62	122	346	56	16	30
APRIL	786	320	560	422	170	68
MAY	902	384	266	710	296	56
JUNE	654	346	156	246	110	16
JULY	274	114	36	74	24	0
AUGUST	174	74	80	0	20	0
SEPT.	104	34	46	0	20	0
TOT	2956	1396	1490	1506	656	172

Results and discussion:

The egg laying period started in March and finished in September: the ten-day avg.temp. and total rain are reported in fig.1. Egg number and EF are shown in tab.1 and 2. The EF of MD and GFM greatly differ while the EF of their crosses are lower than purebreeds. This observations reveal a great difference between the two species due to their anatomic and behavioral differences, in addition to genetic barriers (9, 10).

A different EF related to the age of MD can be noted: in fact the EF of 1y.o. MD is higher than 2 and 3y.o. ones. This trend is in con-

Tab.2 - Egg fertility.

AGE(years)	MUSCOVY 1		MUSCOVY 2		DUCK 3		MD TOTAL		MD*GFM 1		GFM*MD 1		GFM 1	
MONTH	%		%		%		%		%		%		%	
MARCH	93.5	A	88.5	B	84.4	NS	88.4	B	14.2	A	12.5	B	100	NS
APRIL	95.7	A	97.5	A	85.4	NS	92.6	A	56.8	B	28.2	C	94.1	NS
MAY	95.6	A	89.6	B	80.5	NS	91.5	A	32.1	A	6.75	B	100	NS
JUNE	95.7	A	88.5	B	77.9	NS	91.2	A	35.7	A	9.09	BC	100	NS
JULY	94.2	A	84.2	B	88.9	NS	91.0	AB	37.8	A	0	A	-	
AUGUST	96.6	A	97.3	AB	75.0	NS	91.5	AB	-		0	A	-	
SEPT.	73.1	B	88.2	AB	56.5	NS	71.7	C	-		0	A	-	
TOTAL	94.7	a	91.0	b	82.1	c	90.6	b	39.2	c	12.5	d	97.6	a

Note:means with different capital letters on columns and cursive letters on rows differ per P<.01.

trast to the hatchability trend which seems to increase with age (3). With the exception of GFM (GFM are characterized by a very high EF, probably due to the male/female ratio) all the experimental groups reach their pick EF in the 2nd deposition month. The EF then decreases more or less quickly. It is also interesting the different trend of the EF in pure and crossbreeds which in the latter falls quickly.

Conclusions:

The production of crossbreeds between MD*GFM and GFM*MD has a very low efficiency. Even if the crosses between MD*GFM are very interesting in producing high quality carcasses (4), natural mating cannot be economically employed. The differences in anatomy and behavior in fact cause a very low EF which must be increased by the imprinting in male 1-day-MD and in GFM females or by the use of A.I.

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