

SEASONAL EFFECTS ON HATCHABILITY TRAITS OF MEAT-TYPE PIGEON PARENTS

I. MELEG

Summary

The reproductive performance of pigeons selected for commercial squab production and kept in an environmentally-controlled house are less affected by seasons than other domestic pigeons. In this research study breeding pairs were kept in separate pigeon cages.

A total of 8497 eggs descended from 480 Auto Sexing Texan breeding pairs was evaluated for estimating the effect of the seasons. The experiment lasted for 12 months divided into four 3 month periods. During incubation each type of loss (cracked eggs, infertile eggs and mortality to days 5, 14 and 18 of incubation) was evaluated by the seasons. Mortality was also evaluated on the basis of the sex of the embryo.

Spring was the most favourable season with respect to a lower incidence of cracked eggs and autumn was more favourable with respect to lower production of infertile eggs and lower early mortality. Late mortality was less affected by the seasons than by the sexes: it was 2-3 times higher for male than for female embryos.

I. INTRODUCTION

Fertility can, from time to time, be very low in pigeon flocks. This considerably decreases the number of weaning squabs per pair and the commercial squab production experiences serious economic loss. Under normal conditions the eggs of all domestic pigeons - fancy, racing, and utility types - take from 17 to 19 days to hatch (Eggleston, 1921).

The percentage of pigeon eggs laid which fail to hatch is much higher than generally supposed. It can be safely estimated that it averages 15-20% of all eggs laid in well managed lofts, to a higher percentage where conditions are not so favourable.

These losses may be divided into losses from infertile eggs, from dead germs and from squabs dying in the shell. Platt *et al.* (1937) showed that of 11,583 eggs laid, 18.95% failed to hatch and 14.5% were reported infertile. Levi (1963) examined 1528 eggs which failed to hatch and found that only 375 were actually infertile, while 1033 had dead germs and 120 dead embryos of 7 days and older. Delhauer (1967) measured 774 laid eggs; 448 squabs were marketed. 131 eggs were classed as infertile and 21 as dying in the shell.

Infertile eggs are a major problem in the hatching period. Ballay (1976) found that infertile rate was 10.1% in the Auto Sexing King and 17.7% in the Auto Sexing Texan breeds. Cooper (1977) reported that the number of infertile eggs was least when 11 hours per day of artificial light was used. Bötcher *et al.* (1985) showed that increasing the crude protein content of pigeon pellets improved fertile egg production.

Numerous experiments on hatchability traits have been reported in several pigeon breeds, kept in the volier system and the seasons considerably influenced production. Information is lacking for pigeons kept in environmentally controlled, windowless houses.

II. MATERIALS AND METHODS

In the experiment 480 Auto Sexing Texan breeding pair's hatchability traits were established. A total of 8497 eggs descended from pigeon breeding pairs were evaluated for estimating the effect of the seasons. The rate of cracked eggs, infertile eggs and mortality to days 5, 14 and 18 of incubation were measured.

The breeding flock was housed in an environmentally-controlled, windowless pigeon house. All pairs were randomly distributed to separate cages. The test period lasted for 12 months divided into four 3 month periods (spring, summer, autumn, winter). The lighting program was 12 h light and 12 h dark. The light intensity was 2.5W/m². All pigeons were fed pellets containing (g/kg): crude protein, 174; crude fat, 24; crude fibre, 42. Water and feed were provided *ad libitum*.

III. RESULTS AND DISCUSSION

Table 1 summarizes the hatchability traits of the Auto Sexing Texan pigeon population. The average hatchability rate of the eggs laid was 61.8%. In the literature higher hatchability rates were reported by Platt *et al.* (1937) and Cooper (1977). In the summer and autumn hatchability was 2% above the average.

The number of cracked eggs was least in spring and summer. Annual rate regarding cracked eggs was 13.1%. This was higher than reported by Cooper (1977) and Böttcher *et al.* (1985). It can improve with the right choice of nest material.

Table 1. Hatchability of meat-type pigeons depending by seasons.

Traits	Spring	Summer	Autumn	Winter	LSD (P < 0.05)
Eggs laid (total)	2197	2195	1994	2111	20.30
Cracked eggs(total)	220	244	311	336	7.98
Embryonic mortality (total):					
1-5 days	416	425	382	350	6.20
6-14 days	88	53	33	90	2.53
15-18 days-female	63	30	33	45	1.57
-male:	134	94	95	104	2.71
Infertile eggs(total)	96	110	68	115	2.84
Hatching rate of eggs laid (%)	59.68	63.50	63.69	60.33	2.50

The early mortality was higher than late mortality. The mortality result was most favourable in autumn. Late mortality was less affected by the seasons than by the sexes. It was 2-3 times higher for male than for female embryos in each season. These results were better than the experimental results reported by Levi (1963) and Delhauer (1967).

The number of infertile eggs was low in this experiment, especially in autumn. This was better than the results of systematic investigations in several pigeon breeds carried out by Platt *et al.* (1937), Levi (1963) and Ballay (1976).

IV. CONCLUSIONS

The hatchability traits of meat-type pigeons kept in windowless controlled houses are less affected by seasons than other pigeon populations. The hatchability rate was above average in summer and autumn. The number of infertile eggs and late mortality were much better than previously reported.

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