

## Effect of day-old debeaking on growth and mortality of Rhode Island Red Chicknes

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Two trials were conducted to determine the effects of day-old debeaking on growth rate, percentage mortality and feed efficiency of Rhode Island Red Chicks. In each trial three groups of 100 Rhode Island Red chicks per group were used. In each trial the first group was ordinarily debeaked (removal of the upper beak just below the nostrils). The second group was slantly debeaked (cutting two thirds of the upper beak and one third of the lower one). The third group served as control. The experiments were carried out from date of hatch to sixteen weeks of age.

The two types of debeaking neither seemed to cause any significant difference in the mean body weights of the different groups up to 16 weeks of age, nor improved the feed efficiency up to 12 weeks of age.

In general, debeaking seemed to reduce the percentage mortality.

Bice (1952) found that debeaking reduced mortalities and saved time, labour and feed. Darrow and Stotts (1954) showed that there was no differences in growth rate between debeaked and non debeaked chicks. The feed efficiency was slightly improved by debeaking. Camp *et al.* (1955) indicated that block type debeaking improved growth rate of the males, but no significant difference was noticed in females. Morgan (1957) stated that debeaking had no effect on growth rate, but the mortalities were slightly higher in the non debeaked birds. Keene *et al.* (1959) reported that the growth rate of the day-old debeaked and non-debeaked chicks was approximately the same. The non debeaked birds showed slight increase in body weight compared to the debeaked birds, but the increase was not significant. Slinger *et al.* (1962) showed that debeaking pullets at 8 weeks of age, by removing two thirds of the upper mandible and one third of the lower, reduced body weight at 20 weeks of age.

The experiment to be reported herein was carried out to study the effect of various types of debeaking on growth rate, percentage mortality and feed efficiency.

### Materials and Methods

Two experiments were conducted. In each experiment three groups of 100 Rhode Island Red Chicks each, were used. The individually wing

banded chicks were placed in six confined pens in a double wing brooder house. Kerosene brooders were used in brooding from day of hatch to four weeks of age. A practical chick mash and fresh water were available ad libitum. In each trial, the first group was ordinarily debeaked (removal of the upper beak just below the nostrils). The second group was slantly debeaked (cutting two third of upper beak and one third of the lower one). The third group served as control. Body weights, mortality rates and feed efficiency were recorded. The experiments were carried out from date of hatch to sixteen weeks of age.

The data were subjected to analysis of variance as per Snedecor (1956).

### Results and Discussion

Mean body weights for debeaked birds from hatching to the age of 16 weeks are given in table 1.

There were no significant differences in mean body weights between the two trials. This is to be expected since the chicks used in the two trials were taken from one hatch and were under similar conditions.

TABLE 1. Effect of different types of debeaking on mean body weights (Grams) of Rhode Island Red chicks.

age (weeks)	Treatment	Trial I	Trial II	Mean
Hatch	Control . . . . .	40	38	39
	Partial debeaking . . . . .	39	39	39
	Blocking . . . . .	39	39	39
4	Control . . . . .	135	141	138
	Partial debeaking . . . . .	117	127	122
	Blocking . . . . .	133	133	133
8	Control . . . . .	402	408	406
	Partial debeaking . . . . .	362	375	369
	Blocking . . . . .	398	402	400
12	Control . . . . .	709	756	732
	Partial debeaking . . . . .	718	708	712
	Blocking . . . . .	714	732	722
16	Control . . . . .	1033	1103	1068
	Partial debeaking . . . . .	1026	1027	1027
	Blocking . . . . .	1008	1059	1039

At four weeks of age, the body weight of the control group averaged 138 grams compared to 122 grams for the partially debeaked group and 133 grams for the block debeaked one. While the analysis of variance indicated that the treatment had no significant effect on the weights of the three groups, we notice that the L.S.D. at the 5 percent level is 15.51 grams indicating that the partially debeaked group in the first trial differed only slightly from its control group. The control group also gained 99 grams, during the first four weeks after hatch, while the block-debeaked group and the partially debeaked one gained 94 and 83 grams respectively, (Table 2).

The same trend was noticed in the relative rate of growth with the control group growing at a relatively daily rate of 1.96 percent and the block debeaked group at 1.90 percent, while the least relative rate of growth (1.73 percent) was that of the partially debeaked group (Table 2).

TABLE 2. Effect of different types of debeaking on the four week gains (grams) and the relative four week increment (percentage) of Rhode Island Red chicks from hatch to 16 weeks of age.

Age in weeks	Treatment	Trial I		Trial II		Mean	
		Wt.	(%) R.I.	Wt.	(%) R.I.	Wt.	(%) R.I.
Hatch - 4	Control . . . . .	95	1.88	103	2.03	99	1.96
	Partial Debeaking	77	1.70	88	1.83	83	1.73
	Blocking . . . . .	94	1.90	94	1.90	94	1.90
4 - 8	Control . . . . .	267	1.69	268	1.64	267	1.67
	Partial Debeaking	245	1.75	247	1.67	247	1.71
	Blocking . . . . .	265	1.70	270	1.71	267	1.71
8 - 12	Control . . . . .	308	0.88	347	0.95	327	0.91
	Partial Debeaking	356	1.06	333	1.34	343	1.01
	Blocking . . . . .	315	0.90	330	0.92	322	0.91
12 - 16	Control . . . . .	324	0.58	347	0.58	336	0.58
	Partial Debeaking	308	0.55	319	0.57	315	0.56
	Blocking . . . . .	294	0.53	327	0.57	317	0.56

R. I., Relative Increment

While the previous results indicate that the partially debeaked birds gained the least yet it is felt that this could not be due solely to the treatment. This deduction is evidenced by the fact that the group in trial 1, having an average weight of 117 grams, was the only group that was significantly less in weight than all other groups, while in trial 11 of the same treatment it was not statistically significant from the other groups since the two trials were treated and reared identically, the deduction is made that the decrease in the weights of trial 1 is probably not due to the treatment but to some other factors. We notice that this group was chilled, and thus suffered the highest mortality (22 percent) and consequently the growth of the individuals was affected. This postulation is substantiated by the fact that the mortality of trial 11 in the same group was only 2 percent, (Table 3).

At 8 weeks of age, the average weights of the control and the block debeaked groups were significantly higher than that of the partially debeaked group. The same trend was noticed in the actual gain from 4-8 weeks.

TABLE 3. Effect of debeaking on the periodic and cumulative mortality (percent) of Rhode Island Red Chicks.

Age in Weeks	Treatment	Trial 1		Trial 11		Total Mortality	
		No. of Chicks	Mortality %	No. of Chicks	Mortality %	No. of Chicks	Mortality %
H — 4	Control . . . . .	100	9	100	13	200	11
	Partial Debeaking	100	22	100	2	200	12
	Blocking . . . . .	100	2	100	5	200	3.5
4 — 8	Control . . . . .	91	2.1	87	6.8	178	4.4
	Partial Debeaking	78	3.8	98	1.0	176	2.2
	Blocking . . . . .	98	2	95	6.3	193	4.1
8 — 12	Control . . . . .	89	2.24	81	—	170	1.1
	Partial Debeaking	75	1.3	97	4.1	172	2.9
	Blocking . . . . .	96	3.1	89	2.2	185	2.7
12 — 16	Control . . . . .	85	4.7	81	—	166	3
	Partial Debeaking	71	4	94	3	165	3.6
	Blocking . . . . .	90	6.2	84	5.6	174	6.3
Total Mortality H—16	Control . . . . .	100	15	100	19	200	17
	Partial Debeaking	100	29	100	9	200	175
	Blocking . . . . .	100	10	100	16	200	13.0

Despite the fact that the partially debeaked group averaged less in weight and actual gain than either of the other two groups, yet we notice that it maintained almost the same rate of growth, being 1.71 percent from 4 to 8 week of age as compared to 1.73% from hatch to four weeks.

The relative rate of growth of the other two groups declined markedly during the 4-8 weeks period.

At 12 and 16 weeks of age there was no significant differences in average body weights of the three groups. However, during the period from 8 to 12 weeks age, the partially debeaked group maintained a higher relative rate of growth, being 1.01 percent, while this rate of growth was only 0.91 percent for both the other two groups.

During the age period 12 to 16 weeks of age, the daily rate of growth was almost the same for the three groups.

The previous results indicated that debeaking did not have a significant effect on growth. This is in close agreement with the work of Darrow and Stotts (1954), Camp (1955), Morgan (1957) and Keene *et al.* (1959). On the other hand Slinger and Pepper (1964) showed that debeaking at 8 and 20 weeks of age caused a significant decrease in body weight.

#### *Mortality*

The total mortality for the control, partially debeaked and block debeaked groups was 17.0, 17.5 and 13.0 percents respectively. Debeaking appeared to reduce mortality. It is noticed that the partially debeaked group had a slightly higher mortality than the control group, but it seems that this higher mortality of the partially debeaked group was not due to the effect of debeaking itself, but as discussed before, it seemed to be due to chilling.

This is in agreement with the work of Bice (1952) and Morgan (1957).

#### *Feed Efficiency*

Debeaking seemed to improve feed efficiency to 12 weeks of age (Table 4). Debeaking the upper beak seemed to decrease the feed efficiency when compared with the non-debeaked birds, but this is no doubt a function of its slightly decreased growth rate. This is not in accordance with the work of Darrow and Stotts, and Camp *et al.* (1955).

TABLE 4. Effect of different types of debeaking on the feed efficiency of Rhode Island Red chicks from hatch to 12 weeks of age.

Treatment	Trial I	Trial II	Mean
Control . . . . .	4.2	3.8	3.9
Partial d. beaking . . . . .	3.73	4.1	4.2
Blocking . . . . .	4.1	3.7	3.9

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## تأثير قص المنقار على سن يوم على النمو ونسبة النفوق في كتاكيت الرود أيلاند رد

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أجريت لدراسة هذا الموضوع تجربتان وقد استخدمت في كل تجربة ثلاث مجموعات كل منها ١٠٠ كتكات رود أيلاند رد \* وفي المجموعة الأولى تم قص الجزء العلوي من المنقار تحت فتحتي المنقار مباشرة أما في المجموعة الثانية فتم قص ثلثي الجزء العلوي من المنقار وثلث الجزء السفلي واستخدمت المجموعة الثالثة للمقارنة \* واستمرت التجربة من سن يوم وحتى ١٤ أسبوع وأظهرت النتائج أن قص المنقار بالطريقتين لم يؤثر على متوسط وزن الجسم في المجموعات المختلفة كما أنه لم يحدث أى تحسين في الكفاءة الغذائية حتى ١٢ أسبوع غير أنه يبدو أن قص المنقار له تأثير في تخفيض نسبة الوفيات \*