

A HIGH FECUNDITY RECORD FOR *DROSOPHILA MELANOGASTER*.

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Three females of the species *Drosophila melanogaster* have been encountered in my experiments with this fly that have made exceptionally high egg laying records. This fly as I have previously shown lives on an average of about forty days and during this period the average female deposits about 500 eggs. The fecundity record by days of the three flies in question is given in table I. The females were mated and kept in separate bottles to which a small amount of well fermented banana was added. Each day the banana was removed and a new lot added. The banana served for food and also as a trap for the collection of eggs. The eggs were counted with the aid of a small hand lens and dissecting scope. In this way I have observed the egg laying capacities of hundreds of these flies and the three listed are so exceptional that their performance is here recorded.

Number 8, the most productive fly laid 2,184 eggs. She emerged from the puparium on November 28, 1912, and was mated on the following day. Her egg laying record begins December 1 and continues until

TABLE II.

Fecundity record of three exceptional females of *Drosophila melanogaster*.

Number of ♀	Dec. 1912			Jan. 1913			Feb. 1913		
	8	9	13	8	9	13	8	9	13
1	25	25	30	23	33	38	32	30	15
2	30	26	21	25	22	37	15	9	10
3	27	17	51	35	48	43	16	22	15
4	23	18	6	32	8	22	22	20	14
5	25	35	23	17	22	12	21	6	13
6	25	33	25	25	30	30	17	3	10
7	21	17	7	29	10	19	26	20	10
8	12	30	42	31	18	31	21	2	7
9	26	28	20	8	10	6	29	9	15
10	20	34	40	18	23	20	24	8	4
11	31	26	21	19	0	0	23	D	5
12	43	45	40	43	35	25	28		10
13	27	39	31	40	25	23	17		4
14	24	29	31	29	35	30	19		7
15	34	28	27	19	13	16	19		6
16	50	2	39	21	18	7	17		6
17	46	28	45	47	37	30	12		3
18	30	29	40	21	13	10	6		2
19	53	50	43	31	21	32	9		1
20	58	53	42	28	22	28	5		2
21	22	1	53	40	36	21	8		4
22	5	30	20	23	36	23	5		2
23	36	25	24	30	30	26	0		2
24	45	17	30	14	19	24	0		
25	25	35	35	27	8	9	0		
26	28	22	35	32	19	20	D		
27	30	10	28	41	21	24			
28	35	15	25	35	33	15			
29	27	18	36	24	16	18			
30	30	18	31	13	10	16			
31	60	30	39						
Total number of eggs laid.....	2,184	1,613	1,807						

February 26, 1913, when she became very feeble and was accidentally killed.

Attention is called to the fact that this fly often produced her weight in eggs during the course of 24 hours, and throughout her life she averaged her own weight in eggs every two days. The calculations are based on the following data:

(1) Determination of the weight of the egg of *Drosophila* before and after drying. A number of eggs were carefully picked with a needle from a mass culture and weighed. They were dried at 37° C for four days and again weighed. The weights are recorded in table 2. The average weight of the egg before drying is 0.0180 milligrams and after drying 0.0111 milligrams.

TABLE II.

This table gives the weight in milligrams of eggs of *Drosophila melanogaster*, before and after drying.

1919	No. of eggs	Weight before drying	Weight after drying at 37° C for 4 days.
Dec.			
5	100	2 0
6	100	2 3	1.5
18	112	2 5	1 7
19	100	1 3	0.6
21	110	1 3	0.9
Total ...	522	9 4	4.7
Average weight		0.0180	0.0111

(2) Determinations made for 204 newly emerged females gave an average weight before drying of 1.2436 milligrams, after drying at 37° C for five days the average weight per fly was 0.305 milligrams. The average weight of 128 newly emerged males, 1.0601 milligrams; after etherization and drying for five days at 37° C, their average weight was 0.300 milligrams. The flies of this species vary greatly in size, depending upon cultural conditions. The determinations are here made for animals of average size.

When one computes the total weight of the 2,184 eggs laid by female number 8 in terms of the average weights of eggs and females here found it is demonstrated that this fly laid 32 times her weight in eggs. If account is taken of the dry weight of the fly and the dry weight of the egg then she laid approximately 80 times her weight in eggs. This is a striking physiological performance.

The fecundity record is apparently not modified as a result of fertilization for the unfertilized female lays eggs regularly and in large numbers. However, when the flies are kept in large numbers in the same bottle the females do not lay as many eggs on the average as when kept separately, despite the fact that on the average a larger egg laying surface may be exposed for each fly in the crowded culture.

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