

Calculation of Energy Requirements for Table Egg layers - "Emmans Formula"

(LOTUS SPREAD SHEET -"energy")

The following formula can be used to calculate the feed energy requirements associated with body weight, change in body weight, egg mass, house temperature and feather loss.

KcalME = W[F(170-2.2T)]+2E+5*W

kcalME: daily energy intake in kilocalories of metabolizable energy

W: body weight in kg

*W: daily gain in body weight (g)

E: daily egg mass output (g)

T: house temperature (C)

F: feather loss *

***Feather loss**

0-15% loss = .94
15-25% loss = 1.00
25-40% loss = 1.08
40-60% loss = 1.20
>60% loss= 1.40

Body Weight Conversion		Temperature Conversion		Feed Energy Conversion	
Kg	Lb	C	F	kcal/kg	kcal/lb.
1.591	3.5	12.8	55	2530	1150
1.636	3.6	15.6	60	2585	1175
1.682	3.7	18.3	65	2640	1200
1.727	3.8	21.1	70	2695	1225
1.773	3.9	23.9	75	2750	1250
1.818	4.0	26.7	80	2805	1275
1.864	4.1	29.4	85	2860	1300
1.909	4.2	32.2	90	2915	1325
1.955	4.3	35.0	95	2970	1350

Other pound to metric conversions may be substituted for those listed.

Example 1: W (body weight in kg) = 2

*W (daily body weight gain in grams) = 1

E (daily egg mass in grams - 80% egg production x 60 gram egg) = 48

T (house temperature in C) = 23.9

F (feather loss score) = 1.08

Enter for calculation

Daily egg mass calculation = $\frac{\text{Hen day EP}}{82} \times \frac{\text{Egg wt (g)}}{61} = \text{DEM}$ 50.0

Input						Feed	Feed Cost	HD Egg prod.
Example	W	*W	E	T	F	Cal/lb	\$/100	%
1	1.75	0	49	26.7	1.00	1000	6.00	82
2	1.5	1	55	26.7	1.00	1200	7.50	75
3	1.7	0	60	21.1	1.20	1250	8.00	90
4	1.5	0	58	26.7	0.94	1300	8.50	85
5	1.8	0	52	12.8	1.40	1350	9.00	80

Output				grams	lbs/100	Feed \$/day	Feed \$/doz
1	292.7 kcalME =	292.7	Daily feed =	132.8	29.3	0.018	0.257
2		281.9		106.6	23.5	0.018	0.282
3		372.1		135.0	29.8	0.024	0.318
4		272.9		95.2	21.0	0.018	0.252
5		461.4		155.0	34.2	0.031	0.461

As new data is added in the "input" boxes, the output boxes show the answers.

Source: Peter Hunton, Ontario Egg Producers Marketing Board, Canada
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