



USING MICROSOFT EXCEL TO CALCULATE RELATIVE GROWTH RATE IN POULTRY

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Abstract:

The absolute increase in weight over a period of time is attributed to the weight of the bird at the start of the period or to the average weight of the bird at the start and end of the period (relative growth rate). The aim of this research is to use a function in a Microsoft Excel spreadsheet to calculate the growth rate percentage of poultry in one step instead of calculated it manually. The method depends upon entering the following function in the function bar of the Microsoft Excel spreadsheet $((=((B4-C4)/(0.5*(C4+B4))*100))$ after we enter the values of the second bodyweight in column B and the first bodyweight in column C and enter the following function $((=((B4-C4)/(0.5*(C4+B4))*100))$ in the Cell E4 of an Excel worksheet, the result of Relative Growth Rate will appear automatically in Cell E4 in one step which will shorten the time needed for calculation by more than 1/100. Key words: Excel ,Function , Relative growth rate

المستخلص:

تهدف هذه الدراسة الى استخدام خاصية الدوال في برنامج مايكروسوفت اكسل لحساب معدل النمو النسبي للدواجن، حيث تعتمد الطريقة على ادخال المعادلة التالية في شريط الدوال في اكسل وهي $((=((B4-C4)/(0.5*(C4+B4))*100))$ بعد ادخال بيانات الوزن الثاني في العمود B وبيانات الوزن الاول في العمود C ثم ادخال الدالة او المعادلة التالية في الخلية E4 $((=((B4-C4)/(0.5*(C4+B4))*100))$ حيث تظهر النتيجة مباشرة في الخلية E4 في خطوة واحدة مما يختصر الوقت اللازم لحساب معدل النمو النسبي الى 1/100 .

INTRODUCTION:

Genetic selection in broilers and laying hens for several decades leads to important changes in productive traits, during embryonic period , or after chick hatching , especially growth rate ,Buzala and Janicki,(2016) , where the final body weight of bird at marketing age (56 days) were 905 , 1808, 4202 gm. in 1957, 1978, 2005 respectively (Zuidhof et al ., 2014) .

Relative growth rate usually calculates by the equation of Broody 1945, which is: $RGR =$

$$\{ (W2-W1) / 0.5(W1+W1) \} \times 100 \text{ (Karousa ., 2012)}$$

Where

W2 : The second body weight

W1: The first body weight

MATERIALS AND METHODS

The relative growth rate of poultry usually calculated by the equation of Broody 1945 as follows:

$$RGR = \left\{ \frac{W2-W1}{0.5(W1+W2)} \right\} \times 100$$

Because of the difficulty of calculating this equation manually we aimed to make use of Microsoft Excel functions to calculate this equation by one step as follows:

Open an Excel worksheet

Enter the values of the second weight in column B starting with cell B4

Enter the values of the first weight in column C starting with cell C4

Enter the following function in the Cell E4 in column E

$$=((B4-C4)/(0.5*(C4+B4))*100)$$

Then the result of relative growth rate will appear automatically in Cell E4 and by drag and drop in the corner of the cell we can calculate as many values in one step were the results appear in the column E .

By using these function we can calculate large values of relative growth rate in one step and shortens the time needed to calculate it manually (Figure 1) .

	A	B	C	D	E	F	G
1							
2		BW2	BW1		Relative growth rate		
3							
4		3500	500		150.00		
5		3250	490		147.59		
6		3000	480		144.83		
7		2750	470		141.61		
8		2500	460		137.84		
9		2250	450		133.33		
10		2000	440		127.87		
11		1750	430		121.10		
12		1500	420		112.50		
13		1250	410		101.20		
14		1000	400		85.71		
15		750	390		63.16		

Figure (1) Calculating relative growth rate by Microsoft Excel

RESULTS AND DISCUSSION

Relative growth rate (RGR) calculated manually by the equation :

$$RGR = \left\{ \frac{W2 - W1}{0.5(W1 + W2)} \right\} \times 100$$

To calculate the first value in row 4

$$W2 - W1 = 3500 - 500 = 3000$$

$$0.5(W1+W2) = 0.5(3500+500) = 0.5(4000) = 2000$$

$$RGR = 3000 / 2000 = 1.5 * 100 = 150 \%$$

In row 15

Also when $W1 = 390$ and $W2 = 750$ then

$$750 - 390 = 360$$

$$750 + 390 = 1140$$

$$1140 * 0.5 = 570$$

$$\text{Then } RGR = 360 / 570 = 0.63157$$

$$0.6315 * 100 = 63.16 \text{ As appear in Cell E15}$$

So if we need 2-3 minutes to calculate each value of relative growth rate manually we can calculate it by this function in one second which represent less than 1% of time needed for manual calculation .

REFERENCES:

- Buzala, M., and Janicki, B. 2016. Effects of different growth rates in broiler breeder and layer hens on some productive traits. *Poultry Science*, 95(9), 2151-2159.
- Karousa, M. M., Meneeh, I. S., Ahmed, S. A., Ahmed, E. A., & Youseif, H. (2012) A. BENHA VETERINARY MEDICAL JOURNAL.
- Zuidhof, M. J., Schneider, B. L., Carney, V. L., Korver, D. R., and Robinson, F. E. 2014. Growth, efficiency, and yield of commercial broilers from 1957, 1978, and 2005. *Poultry science*, 93(12), 2970-2982.
- <https://www.sciencedirect.com/science/article/pii/S0032579119385505>