Letter to the Editor

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In the issue of Journal of Economic Entomology (Advance Access published 13 February 2015), there were a number of errors in the article published by Zou et al. (2015). In footnote c of Table 6, the authors gave the equation for r_m as follows: the intrinsic rate of increase, $r_m = \sum \exp(-r_R{}^*x)l_x{}^*m_x$; where $r_R = \ln(R_0)/T$.

This equation is incorrect. In Birch (1948), the intrinsic rate of increase, r_m, was estimated using the equation:

$$1 = \sum e^{-r_m x} l_x m_x$$

When Zou et al. (2015) wrote the equation as

$$r_m = \sum e^{-r_R x} l_x m_x,$$

it is an obvious and serious error.

If they had correctly used the approximate method of Birch (1948), they would have calculated $R_0 = \sum l_x m_x$ and $T = (\sum x l_x m_x)/R_0$, and then they could have estimated r_m as $r_m = \ln(R_0)/T$.

If they used $R_0 = \sum l_x m_x$ and $T = (\sum x l_x m_x)/R_0$, and then estimated r_R as $r_R = \ln(R_0)/T$ and r_m as $r_m = \sum e^{-r_R x} l_x m_x$, the result would be nonsensical. The authors need to justify their unorthodox method.

Moreover, the r_m value of the treatment "Prey-fed F6" is 0.5367 d^{-1} (Table 6). If the total developmental time was 20.58 d (Table 5), the preoviposition period was 5.94 d (Table 5), and the generation mortality was 0.19 (Table 4), the intrinsic rate could not possibly be the value given (0.5367 d^{-1}), even assuming all eggs (229.16 egg; Table 5) were laid during the first reproductive age of the adults. Lewontin (1965) pointed out that the earlier the first reproductive age and the earlier of the reproductive peak will result in a higher intrinsic rate values. This work has been cited in a number of textbooks (e.g., Price 1997). Lewontin (1965) wrote "We see, for example, from the upper right section that a doubling of total fecundity from 5,000 to 10,000 offspring can increase the r from. 0.510 to 0.565 but that an equal increase would come from reducing development time (time to first egg) from 8.6 to 7.5 d." In comparison with the developmental time, preoviposition period, and total fecundity, it is impossible to have a intrinsic rate of 0.5367 d^{-1}. I believe all intrinsic rates in Table 6 are wrong. These errors are obvious and should be corrected.

Moreover, *Arma chinensis* (Fallou) is a bisexual species. The application of a traditional female age-specific life table will usually result in errors (Huang and Chi 2012). I suggest that the authors try the age-stage, two-sex life table (Chi and Liu 1985, Chi 1988).

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