

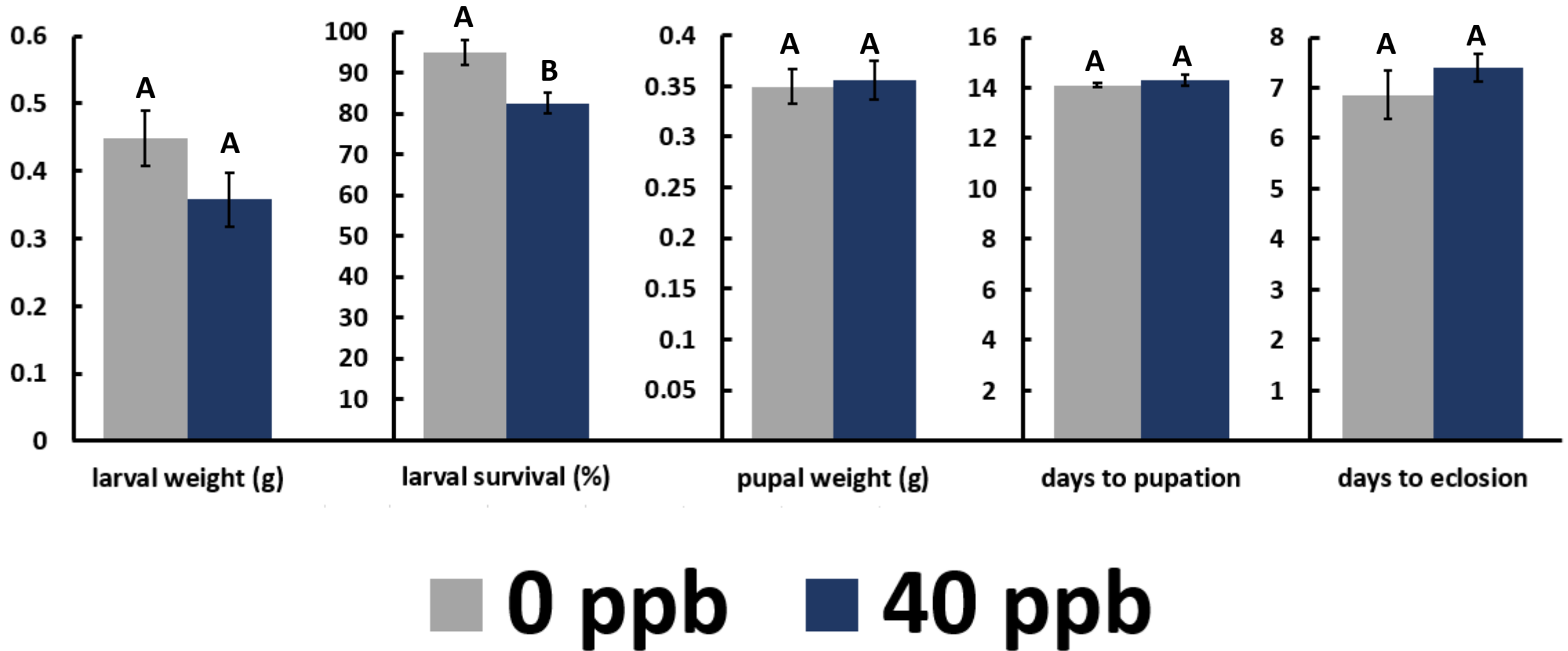
Painted lady butterfly chronic clothianidin exposure (Fall 2019)

Data collection: R. Gutierrez-Moreno, V. Krischik, L. Schneider (Fall 2019)

Figures, captions, and analysis: M. Lagus (June 2020)

- Development of painted lady butterflies (*Vanessa cardui*) with chronic exposure to clothianidin. Third instar larvae were fed *Malva sylvestris* foliage treated with 40 ppb clothianidin (n=40) and 0 ppb control (n=40) starting on 11/4/2019 and continuing until pupation. Adults were fed untreated sugar syrup. Larval weight and larval survival were taken as averages for each cage (10 larvae/cage; 4 cages/treatment); eggs laid per female was taken as averages for each cage (2 cages); all other parameters measured individual butterflies.

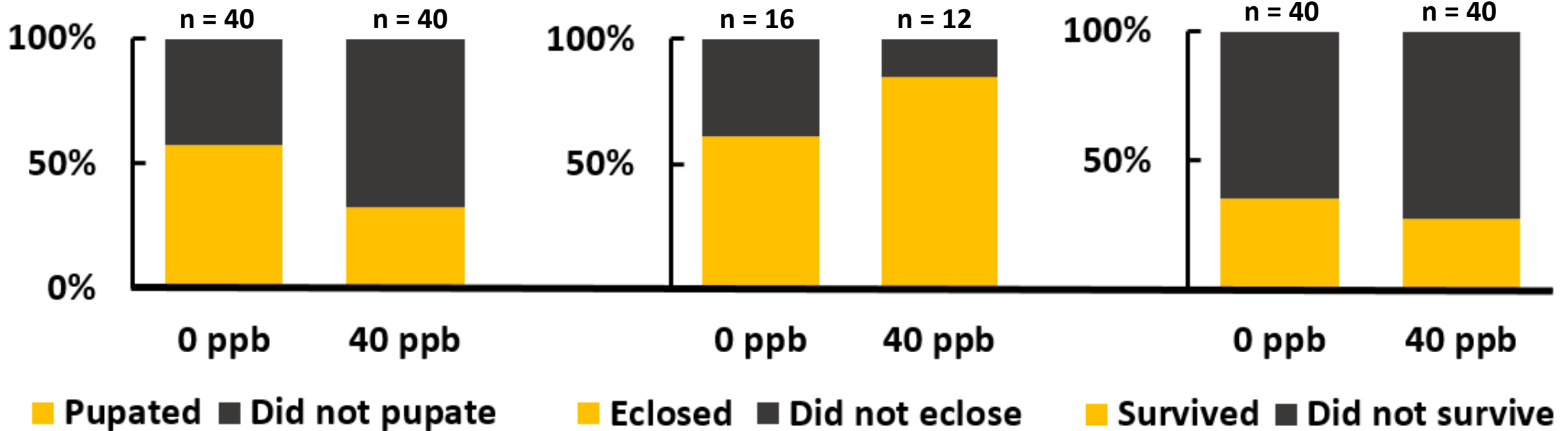
PLB chronic clothianidin exposure



No. larvae that pupated

No. pupae that eclose

No. larvae surviving to adults



Chronic PLB

- **Figure 1.** Mean (\pm SE) larval weight ($F(1,6)=2.52$, $p=0.16$), larval survival ($X^2(1)=4.34$, $p=0.037$), days to pupation ($X^2(1)=1.29$, $p=0.26$), pupal weight ($F(1,22)=0.07$, $p=0.80$), and days to eclosion ($X^2(1)=1.20$, $p=0.27$) for painted lady butterflies (*Vanessa cardui*) exposed to chronic sublethal doses of clothianidin beginning as third instar larvae and continuing until pupation. Treatments were 0 ppb and 40 ppb clothianidin. Treatment began November 4th, 2019.
- **Figure 2.** Number of larvae that pupate ($X^2(1)=5.05$, $p=0.025$), number of pupae that eclose ($X^2(1)=2.36$, $p=0.12$), and number of larvae that survive to adulthood ($X^2(1)=0.53$, $p=0.47$) for painted lady butterflies (*Vanessa cardui*) exposed to chronic sublethal doses of clothianidin beginning as third instar larvae and continuing until pupation. Treatments were 0 ppb and 40 ppb clothianidin. Treatment began November 4th, 2019.