

Figure S1. Effect of chronic exposure to IMI, GLY or both on honey bee mortality.

Percentage of dead bees accumulated until days 5, 9 or 14 after laboratory rearing in cages that offered sucrose solution alone (Control, green), with IMI (purple), with GLY (orange) or with both agrochemicals (pink). Thick line, box and whiskers represent median, inter-quartile range and data range excluding extreme data (points), respectively. Numbers inside boxes indicate sample size. “n.s.” stands for non-significant differences between treatments.

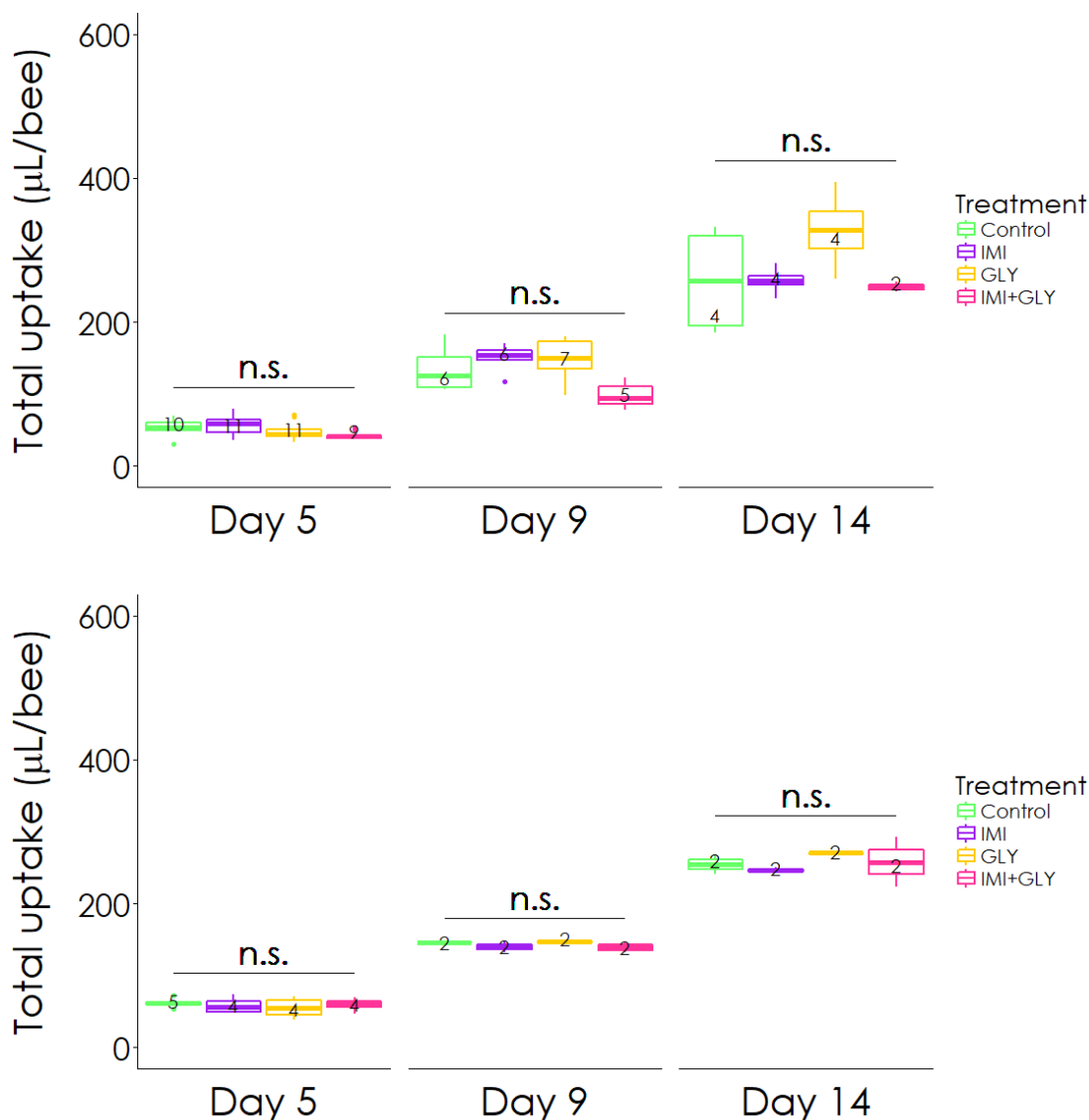


Figure S2. Effect of chronic exposure to IMI, GLY or both on syrup uptake. Total sucrose solution volume ingested by one bee after 5, 9 or 14 days of laboratory rearing in a cage that offered sucrose solution alone (Control, green), with IMI (purple), with GLY (orange) or with both agrochemicals (pink). Data belong to experiments performed in the years 2015 (top) and 2016 (bottom). Thick line, box and whiskers represent median, inter-quartile range and data range excluding extreme data (points), respectively. Numbers inside boxes indicate sample size. The asterisks indicate significant differences between the specified treatments.

Table S1. Total pesticide uptake during rearing. “n” indicates the number of cages.

| Exposure time (days) | Treatment | n | Total IMI (ng/bee) | Total GLI ($\mu\text{g}/\text{bee}$) |
|----------------------|-----------|----|--------------------|--|
| 5 | IMI | 27 | 0.057 | - |
| | GLI | 28 | - | 0.112 |
| | IMI + GLI | 26 | 0.044 | 0.110 |
| 9 | IMI | 20 | 0.137 | - |
| | GLI | 22 | - | 0.259 |
| | IMI + GLI | 20 | 0.103 | 0.340 |
| 14 | IMI | 13 | 0.249 | - |
| | GLI | 14 | - | 0.664 |
| | IMI + GLI | 12 | 0.228 | 0.570 |

Table S2. Structure of generalised linear models used for each response variable. † indicates the factor is random, as opposed to fixed. For mortality and food uptake assays, a separate analysis was performed for each rearing period. *In the accumulated mortality analysis, Cage was included in the saturated model to correct for overdispersion.

| Assay | Response variable (distribution) | Factors in saturated model |
|--|---|--|
| Mortality | Accumulated mortality (binomial) | IMI presence, GLY presence, Season, Cage ^{†*} |
| Food uptake | Total individual uptake (Gamma) | IMI presence, GLY presence, Season |
| Sucrose responsiveness | Score (binomial) | TIU, IMI presence, GLY presence, Age, Cage [†] |
| Simple olfactory conditioning | CR during training (binomial) | TIU, IMI presence, GLY presence, Age, Trial, Bee [†] , Cage [†] |
| | CR in test (binomial) | TIU, IMI presence, GLY presence, Age, Cage [†] |
| Differential olfactory conditioning | DI during training (binomial) | TIU, IMI presence, GLY presence, Age, Trial pair, Bee [†] , Cage [†] |
| | DI in test (binomial) | TIU, IMI presence, GLY presence, Age, Cage [†] |