

## Electronic supplement 3 (ESM3): Fate of sentinel eggs exposed at various sites in Switzerland

| BASEL                           |                               |                               |         |             |                | EMERGENCE |                     |                      |                     |                   |                        |                   |                   |                     |                       |                              |                            |                                     |                                    |                    |             |                        |    |  |  |  |
|---------------------------------|-------------------------------|-------------------------------|---------|-------------|----------------|-----------|---------------------|----------------------|---------------------|-------------------|------------------------|-------------------|-------------------|---------------------|-----------------------|------------------------------|----------------------------|-------------------------------------|------------------------------------|--------------------|-------------|------------------------|----|--|--|--|
| Year                            | Bug species                   | n. egg masses                 | n. eggs | preyed eggs | unhatched eggs | nymphs    | <i>T. japonicus</i> | <i>T. mitsukurii</i> | <i>T. cultratus</i> | <i>T. basalis</i> | <i>T. semistriatus</i> | <i>T. belenus</i> | <i>T. kozlovi</i> | <i>Tel. turesis</i> | <i>Telenomus sp.1</i> | <i>Anastatus bifasciatus</i> | <i>Anastatus japonicus</i> | % parasitism by <i>T. japonicus</i> | % parasitism by native parasitoids | % total parasitism | % predation | sum native parasitoids |    |  |  |  |
| 2019                            | <i>Halymorpha halys</i>       | 95                            | 1921    | 362         | 905            | 470       | 111                 | 0                    | 28                  | 15                | 0                      | 0                 | 0                 | 0                   | 0                     | 30                           | 0                          | 5.78                                | 3.80                               | 9.58               | 18.84       | 73                     |    |  |  |  |
|                                 | <i>Pentatoma rufipes</i>      | 26                            | 388     | 169         | 58             | 29        | 68                  | 0                    | 24                  | 21                | 0                      | 0                 | 0                 | 0                   | 0                     | 19                           | 0                          | 17.53                               | 16.49                              | 34.02              | 43.56       | 64                     |    |  |  |  |
| 2020                            | <i>Carpocoris fuscispinus</i> | 8                             | 101     | 2           | 52             | 30        | 0                   | 0                    | 0                   | 0                 | 0                      | 9                 | 0                 | 8                   | 0                     | 0                            | 0                          | 0.00                                | 16.83                              | 16.83              | 1.98        | 17                     |    |  |  |  |
|                                 | <i>Dolycoris baccarum</i>     | 72                            | 1676    | 501         | 648            | 444       | 0                   | 0                    | 0                   | 0                 | 76                     | 0                 | 0                 | 7                   | 0                     | 0                            | 0                          | 0.00                                | 4.95                               | 4.95               | 29.89       | 83                     |    |  |  |  |
|                                 | <i>Graphosoma lineatum</i>    | 51                            | 677     | 172         | 307            | 116       | 0                   | 0                    | 0                   | 28                | 54                     | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 12.11                              | 12.11              | 25.41       | 82                     |    |  |  |  |
|                                 | <i>Halymorpha halys</i>       | 138                           | 3405    | 451         | 2580           | 79        | 220                 | 0                    | 34                  | 10                | 0                      | 0                 | 0                 | 0                   | 0                     | 31                           | 0                          | 6.46                                | 1.29                               | 7.75               | 13.25       | 44                     |    |  |  |  |
|                                 | <i>Nezara viridula</i>        | 67                            | 3974    | 458         | 2985           | 499       | 0                   | 0                    | 0                   | 13                | 0                      | 0                 | 0                 | 0                   | 0                     | 19                           | 0                          | 0.00                                | 0.33                               | 0.33               | 11.52       | 13                     |    |  |  |  |
|                                 | <i>Palomena prasina</i>       | 61                            | 1694    | 100         | 911            | 271       | 76                  | 0                    | 271                 | 28                | 0                      | 0                 | 0                 | 0                   | 16                    | 21                           | 0                          | 4.49                                | 18.60                              | 23.08              | 5.90        | 315                    |    |  |  |  |
|                                 | <i>Pentatoma rufipes</i>      | 20                            | 302     | 53          | 212            | 0         | 12                  | 0                    | 0                   | 0                 | 0                      | 12                | 0                 | 0                   | 0                     | 13                           | 0                          | 3.97                                | 3.97                               | 7.95               | 17.55       | 12                     |    |  |  |  |
|                                 | <i>Peribalus strictus</i>     | 59                            | 766     | 190         | 319            | 206       | 0                   | 0                    | 0                   | 0                 | 36                     | 15                | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 6.66                               | 6.66               | 24.80       | 51                     |    |  |  |  |
|                                 | <i>Piezodorus lituratus</i>   | 35                            | 580     | 19          | 372            | 140       | 0                   | 0                    | 0                   | 0                 | 34                     | 15                | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 8.45                               | 8.45               | 3.28        | 49                     |    |  |  |  |
|                                 | <i>Rhaphigaster nebulosa</i>  | 2                             | 26      | 1           | 19             | 2         | 0                   | 0                    | 4                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 15.38                              | 15.38              | 3.85        | 4                      |    |  |  |  |
|                                 | 2021                          | <i>Carpocoris fuscispinus</i> | 22      | 346         | 12             | 161       | 167                 | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 6                     | 0                            | 0                          | 0                                   | 0.00                               | 1.73               | 1.73        | 3.47                   | 6  |  |  |  |
| <i>Dolycoris baccarum</i>       |                               | 60                            | 1334    | 100         | 847            | 356       | 0                   | 0                    | 0                   | 0                 | 21                     | 0                 | 0                 | 10                  | 0                     | 0                            | 0                          | 0.00                                | 2.32                               | 2.32               | 7.50        | 31                     |    |  |  |  |
| <i>Graphosoma lineatum</i>      |                               | 6                             | 85      | 33          | 4              | 46        | 0                   | 0                    | 0                   | 0                 | 2                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 2.35                               | 2.35               | 38.82       | 2                      |    |  |  |  |
| <i>Halymorpha halys</i>         |                               | 117                           | 2876    | 78          | 2281           | 467       | 0                   | 0                    | 39                  | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 11                           | 0                          | 0.00                                | 1.74                               | 1.74               | 2.71        | 50                     |    |  |  |  |
| <i>Palomena prasina</i>         |                               | 72                            | 1518    | 30          | 709            | 554       | 45                  | 0                    | 146                 | 0                 | 9                      | 0                 | 0                 | 0                   | 0                     | 25                           | 0                          | 2.96                                | 11.86                              | 14.82              | 1.98        | 180                    |    |  |  |  |
| <i>Pentatoma rufipes</i>        |                               | 29                            | 415     | 25          | 137            | 227       | 26                  | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 6.27                                | 0.00                               | 6.27               | 6.02        | 0                      |    |  |  |  |
| <i>Peribalus strictus</i>       |                               | 13                            | 177     | 8           | 76             | 80        | 0                   | 0                    | 0                   | 13                | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 7.34                               | 7.34               | 4.52        | 13                     |    |  |  |  |
| <i>Piezodorus lituratus</i>     |                               | 8                             | 136     | 3           | 55             | 78        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 0.00                               | 0.00               | 2.21        | 0                      |    |  |  |  |
|                                 |                               |                               |         |             |                |           |                     |                      |                     |                   |                        |                   |                   |                     |                       |                              |                            |                                     |                                    |                    |             |                        |    |  |  |  |
| Zurich                          |                               |                               |         |             |                |           | EMERGENCE           |                      |                     |                   |                        |                   |                   |                     |                       |                              |                            |                                     |                                    |                    |             |                        |    |  |  |  |
| Year                            | Bug species                   | n. egg masses                 | n. eggs | preyed eggs | unhatched eggs | nymphs    | <i>T. japonicus</i> | <i>T. mitsukurii</i> | <i>T. cultratus</i> | <i>T. basalis</i> | <i>T. semistriatus</i> | <i>T. belenus</i> | <i>T. kozlovi</i> | <i>Tel. turesis</i> | <i>Telenomus sp.1</i> | <i>Anastatus bifasciatus</i> | <i>Anastatus japonicus</i> | % parasitism by <i>T. japonicus</i> | % parasitism by native parasitoids | % total parasitism | % predation | sum native parasitoids |    |  |  |  |
| 2019                            | <i>Halymorpha halys</i>       | 95                            | 1748    | 843         | 329            | 370       | 192                 | 0                    | 5                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 9                            | 0                          | 10.98                               | 0.80                               | 11.78              | 48.23       | 14                     |    |  |  |  |
|                                 | <i>Pentatoma rufipes</i>      | 19                            | 262     | 90          | 32             | 63        | 57                  | 0                    | 6                   | 0                 | 0                      | 0                 | 14                | 0                   | 0                     | 0                            | 0                          | 21.76                               | 7.63                               | 29.39              | 34.35       | 20                     |    |  |  |  |
| 2020                            | <i>Carpocoris fuscispinus</i> | 9                             | 143     | 47          | 31             | 43        | 0                   | 0                    | 0                   | 0                 | 22                     | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 15.38                              | 15.38              | 32.87       | 22                     |    |  |  |  |
|                                 | <i>Dolycoris baccarum</i>     | 15                            | 425     | 244         | 101            | 57        | 0                   | 0                    | 0                   | 0                 | 23                     | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 5.41                               | 5.41               | 57.41       | 23                     |    |  |  |  |
|                                 | <i>Graphosoma lineatum</i>    | 13                            | 210     | 9           | 162            | 22        | 0                   | 0                    | 0                   | 0                 | 17                     | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 8.10                               | 8.10               | 4.29        | 17                     |    |  |  |  |
|                                 | <i>Halymorpha halys</i>       | 69                            | 1682    | 248         | 1238           | 116       | 54                  | 0                    | 23                  | 0                 | 0                      | 0                 | 0                 | 0                   | 3                     | 0                            | 0                          | 3.21                                | 1.55                               | 4.76               | 14.74       | 26                     |    |  |  |  |
|                                 | <i>Nezara viridula</i>        | 5                             | 378     | 3           | 358            | 17        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 0.00                               | 0.00               | 0.79        | 0                      |    |  |  |  |
|                                 | <i>Palomena prasina</i>       | 10                            | 153     | 34          | 49             | 27        | 16                  | 0                    | 27                  | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 10.46                               | 17.65                              | 28.10              | 22.22       | 27                     |    |  |  |  |
|                                 | <i>Pentatoma rufipes</i>      | 25                            | 353     | 107         | 167            | 66        | 13                  | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 3.68                                | 0.00                               | 3.68               | 30.31       | 0                      |    |  |  |  |
|                                 | <i>Peribalus strictus</i>     | 12                            | 146     | 91          | 51             | 4         | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 0.00                               | 0.00               | 62.33       | 0                      |    |  |  |  |
|                                 | <i>Piezodorus lituratus</i>   | 12                            | 218     | 67          | 71             | 75        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 5                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 2.29                               | 2.29               | 30.73       | 5                      |    |  |  |  |
|                                 | 2021                          | <i>Carpocoris fuscispinus</i> | 17      | 275         | 35             | 183       | 57                  | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0                                   | 0.00                               | 0.00               | 0.00        | 12.73                  | 0  |  |  |  |
|                                 |                               | <i>Dolycoris baccarum</i>     | 28      | 651         | 342            | 234       | 75                  | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0                                   | 0.00                               | 0.00               | 0.00        | 52.53                  | 0  |  |  |  |
| <i>Halymorpha halys</i>         |                               | 51                            | 1152    | 123         | 919            | 61        | 46                  | 0                    | 3                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 3.99                                | 0.26                               | 4.25               | 10.68       | 3                      |    |  |  |  |
| <i>Palomena prasina</i>         |                               | 29                            | 643     | 37          | 203            | 276       | 0                   | 0                    | 120                 | 0                 | 0                      | 0                 | 0                 | 7                   | 0                     | 0                            | 0                          | 0.00                                | 19.75                              | 19.75              | 5.75        | 127                    |    |  |  |  |
| <i>Pentatoma rufipes</i>        |                               | 29                            | 430     | 28          | 228            | 160       | 14                  | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 3.26                                | 0.00                               | 3.26               | 6.51        | 0                      |    |  |  |  |
| <i>Peribalus strictus</i>       |                               | 3                             | 42      | 13          | 8              | 21        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 0.00                               | 0.00               | 30.95       | 0                      |    |  |  |  |
|                                 |                               |                               |         |             |                |           |                     |                      |                     |                   |                        |                   |                   |                     |                       |                              |                            |                                     |                                    |                    |             |                        |    |  |  |  |
| Manno apple orchard (on labels) |                               |                               |         |             |                |           | EMERGENCE           |                      |                     |                   |                        |                   |                   |                     |                       |                              |                            |                                     |                                    |                    |             |                        |    |  |  |  |
| Year                            | Bug species                   | n. egg masses                 | n. eggs | preyed eggs | unhatched eggs | nymphs    | <i>T. japonicus</i> | <i>T. mitsukurii</i> | <i>T. cultratus</i> | <i>T. basalis</i> | <i>T. semistriatus</i> | <i>T. belenus</i> | <i>T. kozlovi</i> | <i>Tel. turesis</i> | <i>Telenomus sp.1</i> | <i>Anastatus bifasciatus</i> | <i>Anastatus japonicus</i> | % parasitism by <i>T. japonicus</i> | % parasitism by native parasitoids | % total parasitism | % predation | sum native parasitoids |    |  |  |  |
| 2019                            | <i>Carpocoris fuscispinus</i> | 20                            | 267     | 68          | 163            | 16        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 20                           | 0                          | 0.00                                | 7.49                               | 7.49               | 25.47       | 20                     |    |  |  |  |
|                                 | <i>Dolycoris baccarum</i>     | 23                            | 528     | 249         | 239            | 33        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 6                   | 0                     | 1                            | 0                          | 0.00                                | 1.33                               | 1.33               | 47.16       | 7                      |    |  |  |  |
|                                 | <i>Graphosoma lineatum</i>    | 4                             | 57      | 2           | 18             | 35        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 2                            | 0                          | 0.00                                | 3.51                               | 3.51               | 3.51        | 2                      |    |  |  |  |
|                                 | <i>Halymorpha halys</i>       | 124                           | 2789    | 434         | 1347           | 885       | 82                  | 0                    | 1                   | 3                 | 0                      | 0                 | 0                 | 0                   | 0                     | 33                           | 4                          | 2.94                                | 1.47                               | 4.41               | 15.56       | 41                     |    |  |  |  |
|                                 | <i>Nezara viridula</i>        | 4                             | 271     | 1           | 159            | 11        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 0.00                               | 0.00               | 0.37        | 0                      |    |  |  |  |
|                                 | <i>Palomena prasina</i>       | 35                            | 715     | 143         | 336            | 119       | 19                  | 0                    | 63                  | 0                 | 0                      | 0                 | 0                 | 13                  | 22                    | 0                            | 0                          | 2.66                                | 13.71                              | 16.36              | 20.00       | 98                     |    |  |  |  |
|                                 | <i>Peribalus strictus</i>     | 12                            | 169     | 50          | 66             | 43        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 7                   | 0                     | 0                            | 3                          | 0.00                                | 5.92                               | 5.92               | 29.59       | 10                     |    |  |  |  |
|                                 | <i>Rhaphigaster nebulosa</i>  | 1                             | 14      | 0           | 0              | 14        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 0.00                               | 0.00               | 0.00        | 0                      |    |  |  |  |
|                                 | 2020                          | <i>Carpocoris fuscispinus</i> | 16      | 328         | 37             | 238       | 31                  | 0                    | 0                   | 0                 | 0                      | 22                | 0                 | 0                   | 0                     | 0                            | 0                          | 0                                   | 0.00                               | 6.71               | 6.71        | 11.28                  | 22 |  |  |  |
| <i>Dolycoris baccarum</i>       |                               | 30                            | 763     | 129         | 391            | 127       | 0                   | 0                    | 0                   | 0                 | 106                    | 0                 | 0                 | 10                  | 0                     | 0                            | 0                          | 0.00                                | 15.20                              | 15.20              | 16.91       | 116                    |    |  |  |  |
| <i>Graphosoma lineatum</i>      |                               | 15                            | 255     | 9           | 192            | 30        | 0                   | 0                    | 0                   | 0                 | 24                     | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 9.41                               | 9.41               | 3.53        | 24                     |    |  |  |  |
| <i>Halymorpha halys</i>         |                               | 39                            | 929     | 181         | 732            | 0         | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 15                         | 0                                   | 0.00                               | 1.61               | 1.61        | 19.48                  | 15 |  |  |  |
| <i>Palomena prasina</i>         |                               | 30                            | 661     | 103         | 363            | 130       | 0                   | 0                    | 59                  | 0                 | 0                      | 0                 | 0                 | 6                   | 0                     | 0                            | 0                          | 0.00                                | 9.83                               | 9.83               | 15.58       | 65                     |    |  |  |  |
| <i>Pentatoma rufipes</i>        |                               | 10                            | 142     | 99          | 20             | 6         | 0                   | 0                    | 13                  | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 4                            | 0                          | 0.00                                | 11.97                              | 11.97              | 69.72       | 17                     |    |  |  |  |
| <i>Peribalus strictus</i>       |                               | 30                            | 439     | 76          | 174            | 158       | 0                   | 0                    | 0                   | 9                 | 22                     | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 7.06                               | 7.06               | 17.31       | 31                     |    |  |  |  |
| <i>Piezodorus lituratus</i>     |                               | 14                            | 204     | 28          | 99             | 68        | 0                   | 0                    | 0                   | 0                 | 9                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0.00                                | 4.41                               | 4.41               | 13.73       | 9                      |    |  |  |  |
| 2021                            |                               | <i>Carpocoris fuscispinus</i> | 7       | 88          | 23             | 19        | 46                  | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 0                            | 0                          | 0                                   | 0.00                               | 0.00               | 0.00        | 26.14                  | 0  |  |  |  |
|                                 | <i>Dolycoris baccarum</i>     | 15                            | 276     | 18          | 206            | 31        | 0                   | 0                    | 0                   | 0                 | 3                      | 0                 | 0                 | 18                  | 0                     | 0                            | 0                          | 0.00                                | 7.61                               | 7.61               | 6.52        | 21                     |    |  |  |  |
|                                 | <i>Graphosoma lineatum</i>    | 8                             | 129     | 0           | 79             | 38        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 12                  | 0                     | 0                            | 0                          | 0.00                                | 9.30                               | 9.30               | 0.00        | 12                     |    |  |  |  |
|                                 | <i>Halymorpha halys</i>       | 15                            | 376     | 48          | 215            | 98        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                     | 15                           | 0                          | 0.00                                | 3.99                               | 3.99               | 12.77       | 15                     |    |  |  |  |

|              |                               |               |         |             |                |           |                     |                      |                     |                   |                        |                   |                   |                     |                        |                              |                            |                                     |                                    |                    |             |                        |
|--------------|-------------------------------|---------------|---------|-------------|----------------|-----------|---------------------|----------------------|---------------------|-------------------|------------------------|-------------------|-------------------|---------------------|------------------------|------------------------------|----------------------------|-------------------------------------|------------------------------------|--------------------|-------------|------------------------|
|              | <i>Palomena prasina</i>       | 15            | 207     | 18          | 58             | 69        | 0                   | 0                    | 0                   | 4                 | 34                     | 0                 | 0                 | 12                  | 0                      | 12                           | 0                          | 0.00                                | 29.95                              | 29.95              | 8.70        | 62                     |
|              | <i>Peribalus strictus</i>     | 7             | 104     | 10          | 36             | 58        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                      | 0                            | 0                          | 0.00                                | 0.00                               | 0.00               | 9.62        | 0                      |
|              | <i>Piezodorus lituratus</i>   | 2             | 39      | 1           | 37             | 0         | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 1                   | 0                      | 0                            | 0                          | 0.00                                | 2.56                               | 2.56               | 2.56        | 1                      |
| <b>Manno</b> | natural habitat (on plants)   |               |         |             |                | EMERGENCE |                     |                      |                     |                   |                        |                   |                   |                     |                        |                              |                            |                                     |                                    |                    |             |                        |
| Year         | Bug species                   | n. egg masses | n. eggs | preyed eggs | unhatched eggs | nymphs    | <i>T. japonicus</i> | <i>T. mitsukurii</i> | <i>T. cultratus</i> | <i>T. basalis</i> | <i>T. semistriatus</i> | <i>T. belenus</i> | <i>T. kozlovi</i> | <i>Tel. turesis</i> | <i>Telenomus sp. 1</i> | <i>Anastatus bifasciatus</i> | <i>Anastatus japonicus</i> | % parasitism by <i>T. japonicus</i> | % parasitism by native parasitoids | % total parasitism | % predation | sum native parasitoids |
| 2019         | <i>Halyomorpha halys</i>      | 64            | 1417    | 344         | 903            | 162       | 0                   | 0                    | 3                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                      | 5                            | 0                          | 0.00                                | 0.56                               | 0.56               | 24.28       | 8                      |
|              | <i>Palomena prasina</i>       | 37            | 786     | 391         | 263            | 43        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 89                  | 0                      | 0                            | 0                          | 0.00                                | 11.32                              | 11.32              | 49.75       | 89                     |
| <b>Manno</b> | natural (on labels)           |               |         |             |                | EMERGENCE |                     |                      |                     |                   |                        |                   |                   |                     |                        |                              |                            |                                     |                                    |                    |             |                        |
| Year         | Bug species                   | n. egg masses | n. eggs | preyed eggs | unhatched eggs | nymphs    | <i>T. japonicus</i> | <i>T. mitsukurii</i> | <i>T. cultratus</i> | <i>T. basalis</i> | <i>T. semistriatus</i> | <i>T. belenus</i> | <i>T. kozlovi</i> | <i>Tel. turesis</i> | <i>Telenomus sp. 1</i> | <i>Anastatus bifasciatus</i> | <i>Anastatus japonicus</i> | % parasitism by <i>T. japonicus</i> | % parasitism by native parasitoids | % total parasitism | % predation | sum native parasitoids |
| 2020         | <i>Carpocoris fuscispinus</i> | 16            | 204     | 30          | 96             | 22        | 0                   | 0                    | 0                   | 0                 | 34                     | 22                | 0                 | 0                   | 0                      | 0                            | 0                          | 0.00                                | 27.45                              | 27.45              | 14.71       | 56                     |
|              | <i>Dolycoris baccarum</i>     | 30            | 630     | 225         | 228            | 5         | 0                   | 0                    | 0                   | 0                 | 172                    | 0                 | 0                 | 0                   | 0                      | 0                            | 0                          | 0.00                                | 27.30                              | 27.30              | 35.71       | 172                    |
|              | <i>Graphosoma lineatum</i>    | 14            | 223     | 58          | 88             | 12        | 0                   | 0                    | 0                   | 0                 | 65                     | 0                 | 0                 | 0                   | 0                      | 0                            | 0                          | 0.00                                | 29.15                              | 29.15              | 26.01       | 65                     |
|              | <i>Halyomorpha halys</i>      | 63            | 1453    | 226         | 947            | 210       | 36                  | 0                    | 11                  | 0                 | 0                      | 0                 | 0                 | 0                   | 0                      | 20                           | 3                          | 2.48                                | 2.34                               | 4.82               | 15.55       | 34                     |
|              | <i>Palomena prasina</i>       | 20            | 362     | 118         | 61             | 86        | 6                   | 0                    | 66                  | 0                 | 0                      | 0                 | 0                 | 0                   | 0                      | 3                            | 22                         | 1.66                                | 25.14                              | 26.80              | 32.60       | 91                     |
|              | <i>Pentatoma rufipes</i>      | 18            | 258     | 97          | 89             | 15        | 43                  | 9                    | 5                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                      | 0                            | 0                          | 16.67                               | 5.43                               | 22.09              | 37.60       | 14                     |
|              | <i>Peribalus strictus</i>     | 30            | 411     | 151         | 178            | 35        | 0                   | 0                    | 0                   | 24                | 12                     | 11                | 0                 | 0                   | 0                      | 0                            | 0                          | 0.00                                | 11.44                              | 11.44              | 36.74       | 47                     |
|              | <i>Piezodorus lituratus</i>   | 13            | 226     | 52          | 85             | 69        | 0                   | 0                    | 0                   | 0                 | 20                     | 0                 | 0                 | 0                   | 0                      | 0                            | 0                          | 0.00                                | 8.85                               | 8.85               | 23.01       | 20                     |
| 2021         | <i>Carpocoris fuscispinus</i> | 11            | 168     | 29          | 49             | 90        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                      | 0                            | 0                          | 0.00                                | 0.00                               | 0.00               | 17.26       | 0                      |
|              | <i>Dolycoris baccarum</i>     | 10            | 234     | 37          | 108            | 39        | 0                   | 0                    | 0                   | 0                 | 50                     | 0                 | 0                 | 0                   | 0                      | 0                            | 0                          | 0.00                                | 21.37                              | 21.37              | 15.81       | 50                     |
|              | <i>Graphosoma lineatum</i>    | 8             | 128     | 3           | 46             | 28        | 0                   | 0                    | 0                   | 0                 | 32                     | 11                | 0                 | 8                   | 0                      | 0                            | 0                          | 0.00                                | 39.84                              | 39.84              | 2.34        | 51                     |
|              | <i>Halyomorpha halys</i>      | 21            | 512     | 65          | 312            | 102       | 31                  | 0                    | 2                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                      | 0                            | 0                          | 6.05                                | 0.39                               | 6.45               | 12.70       | 2                      |
|              | <i>Palomena prasina</i>       | 15            | 292     | 161         | 80             | 35        | 0                   | 0                    | 16                  | 0                 | 0                      | 0                 | 0                 | 0                   | 0                      | 0                            | 0                          | 0.00                                | 5.48                               | 5.48               | 55.14       | 16                     |
|              | <i>Pentatoma rufipes</i>      | 25            | 396     | 43          | 132            | 141       | 8                   | 0                    | 72                  | 0                 | 0                      | 0                 | 0                 | 0                   | 0                      | 0                            | 0                          | 2.02                                | 18.18                              | 20.20              | 10.86       | 72                     |
| <b>Manno</b> | apple orchard (on plants)     |               |         |             |                | EMERGENCE |                     |                      |                     |                   |                        |                   |                   |                     |                        |                              |                            |                                     |                                    |                    |             |                        |
| Year         | Bug species                   | n. egg masses | n. eggs | preyed eggs | unhatched eggs | nymphs    | <i>T. japonicus</i> | <i>T. mitsukurii</i> | <i>T. cultratus</i> | <i>T. basalis</i> | <i>T. semistriatus</i> | <i>T. belenus</i> | <i>T. kozlovi</i> | <i>Tel. turesis</i> | <i>Telenomus sp. 1</i> | <i>Anastatus bifasciatus</i> | <i>Anastatus japonicus</i> | % parasitism by <i>T. japonicus</i> | % parasitism by native parasitoids | % total parasitism | % predation | sum native parasitoids |
| 2019         | <i>Carpocoris fuscispinus</i> | 10            | 184     | 24          | 115            | 4         | 25                  | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 14                  | 0                      | 2                            | 0                          | 13.59                               | 8.70                               | 22.28              | 13.04       | 16                     |
|              | <i>Dolycoris baccarum</i>     | 49            | 1140    | 422         | 505            | 147       | 0                   | 0                    | 0                   | 23                | 0                      | 0                 | 0                 | 43                  | 0                      | 0                            | 0                          | 0.00                                | 5.79                               | 5.79               | 37.02       | 66                     |
|              | <i>Halyomorpha halys</i>      | 206           | 4557    | 955         | 2390           | 1079      | 48                  | 0                    | 0                   | 14                | 0                      | 0                 | 0                 | 0                   | 0                      | 71                           | 0                          | 1.05                                | 1.87                               | 2.92               | 20.96       | 85                     |
|              | <i>Nezara viridula</i>        | 12            | 853     | 352         | 239            | 252       | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                      | 10                           | 0                          | 0.00                                | 1.17                               | 1.17               | 41.27       | 10                     |
|              | <i>Palomena prasina</i>       | 116           | 2466    | 917         | 596            | 672       | 14                  | 0                    | 77                  | 28                | 0                      | 0                 | 0                 | 29                  | 102                    | 31                           | 0                          | 0.57                                | 10.83                              | 11.39              | 37.19       | 267                    |
|              | <i>Peribalus strictus</i>     | 17            | 289     | 80          | 103            | 73        | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 26                  | 7                      | 0                            | 0                          | 0.00                                | 11.42                              | 11.42              | 27.68       | 33                     |
|              | <i>Rhaphigaster nebulosa</i>  | 5             | 69      | 5           | 24             | 26        | 0                   | 0                    | 14                  | 0                 | 0                      | 0                 | 0                 | 0                   | 0                      | 0                            | 0                          | 0.00                                | 20.29                              | 20.29              | 7.25        | 14                     |
| <b>Bern</b>  |                               |               |         |             |                | EMERGENCE |                     |                      |                     |                   |                        |                   |                   |                     |                        |                              |                            |                                     |                                    |                    |             |                        |
| Year         | Bug species                   | n. egg masses | n. eggs | preyed eggs | unhatched eggs | nymphs    | <i>T. japonicus</i> | <i>T. mitsukurii</i> | <i>T. cultratus</i> | <i>T. basalis</i> | <i>T. semistriatus</i> | <i>T. belenus</i> | <i>T. kozlovi</i> | <i>Tel. turesis</i> | <i>Telenomus sp. 1</i> | <i>Anastatus bifasciatus</i> | <i>Anastatus japonicus</i> | % parasitism by <i>T. japonicus</i> | % parasitism by native parasitoids | % total parasitism | % predation | sum native parasitoids |
| 2020         | <i>Halyomorpha halys</i>      | 88            | 2112    | 200         | 1788           | 196       | 0                   | 0                    | 120                 | 0                 | 0                      | 0                 | 0                 | 0                   | 4                      | 0                            | 0                          | 0.00                                | 5.87                               | 5.87               | 9.47        | 124                    |
| 2021         | <i>Halyomorpha halys</i>      | 55            | 1416    | 85          | 1278           | 521       | 11                  | 0                    | 37                  | 0                 | 0                      | 0                 | 7                 | 0                   | 9                      | 0                            | 0                          | 0.78                                | 3.74                               | 4.52               | 6.00        | 53                     |
| 2021         | <i>Pentatoma rufipes</i>      | 29            | 418     | 27          | 391            | 258       | 0                   | 0                    | 0                   | 0                 | 0                      | 0                 | 0                 | 0                   | 0                      | 0                            | 0                          | 0.00                                | 0.00                               | 0.00               | 6.46        | 0                      |