*Supplementary Table S1: Frequencies of fecal culture (FC)-positive cows and FC-negative herd-mates in classes concerning parity, days in milk and within-herd prevalence*

|  |  |  |
| --- | --- | --- |
| MAP fecal culture |  | Class frequencies |
| Total | Parity | DIM3 | WHP4 |
|  |  | 1 | 2 | ≥3 | 0-30 | 31-50 | 51-100 | 101-150 | 151-200 | 201-250 | 251-300 | ≥301 | <5% | 5.1%-10.0% | ≥10.1% |
| FC+1 | 1382 | 527 | 400 | 455 | 159 | 132 | 163 | 141 | 225 | 146 | 146 | 270 | 527 | 400 | 455 |
| FC-2 | 3245 | 1640 | 972 | 633 | 473 | 432 | 601 | 361 | 584 | 372 | 202 | 220 | 1640 | 972 | 633 |

1 number of Mycobacterium avium spp. paratuberculosis fecal culture positive cows

2 number of Mycobacterium avium spp. paratuberculosis fecal culture negative herd-mates.

3 days in milk

4 within herd prevalence

*Supplementary Table S2: Herd sizes, test results, within-herd prevalence (P) and prevalence classes of the herds involved in this study*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| herd  | herd size1(n) | fecal samples2 (n) | FC+3(n) | FC-4(n) | n. a.5 | WHP6(%) | prevalence class7 |
| A | 870 | 2368 | 116 | 2203 | 49 | 4.9 | low |
| B | 1159 | 3757 | 343 | 3361 | 53 | 9.1 | medium |
| C | 443 | 1082 | 107 | 968 | 7 | 9.9 | medium |
| D | 406 | 912 | 485 | 422 | 5 | 53.2 | high |
| E | 391 | 1217 | 150 | 1036 | 31 | 12.3 | high |
| F | 575 | 3148 | 403 | 2608 | 137 | 12.8 | high |
| G | 130 | 313 | 64 | 238 | 11 | 20.4 | high |
| H | 538 | 631 | 137 | 487 | 7 | 21.7 | high |
| I | 134 | 268 | 26 | 237 | 5 | 9.7 | medium |
| J | 220 | 211 | 67 | 143 | 1 | 31.8 | high |
| K | 812 | 2440 | 91 | 2305 | 44 | 3.7 | low |
| L | 279 | 836 | 49 | 734 | 53 | 5.9 | medium |
| M | 940 | 2645 | 103 | 2397 | 145 | 3.9 | low |
| N | 576 | 1842 | 82 | 1731 | 29 | 4.5 | low  |
| O | 395 | 696 | 88 | 584 | 24 | 12.6 | high |
| P | 732 | 1990 | 385 | 1480 | 125 | 19.3 | high |
| Q | 296 | 807 | 11 | 724 | 72 | 1.4 | low |
| R | 232 | 471 | 19 | 451 | 1 | 4.0 | low |
| S | 188 | 275 | 10 | 263 | 2 | 3.6 | low |
| T | 209 | 729 | 48 | 678 | 3 | 6.6 | medium |
| U | 198 | 618 | 14 | 601 | 3 | 2.3 | low |
| V | 296 | 1148 | 48 | 1080 | 20 | 4.2 | low |
| W | 454 | 1466 | 65 | 1383 | 18 | 4.4 | low |
| X | 245 | 846 | 30 | 752 | 64 | 3.6 | low |
| Y | 158 | 426 | 42 | 374 | 10 | 9.9 | medium |
| Z | 157 | 278 | 18 | 246 | 14 | 6.5 | medium |
| total | 11033 | 31 420 | 3001 | 27 486 | 933 | 9.6 |  |

1 average herd size, calculated from 2009 and 2010 reporting.

2 number of fecal samples tested by fecal culture between January 2008 and June 2011

3 number of Mycobacterium avium spp. paratuberculosis fecal culture positive cows

4 number of Mycobacterium avium spp. paratuberculosis fecal culture negative herd-mates.

5 number of samples not analyzable because of contamination

6 within-herd prevalence as proportion of positive cows

7 low: prevalence up to 5%, medium: prevalence 5-10%, high: prevalence above 10%.

*Supplementary Table S3: Effects of fecal culture (FC) status and farm on milk yield in FC-positive and FC-negative dairy cows if the effect of prevalence class is excluded*

|  |  |  |  |
| --- | --- | --- | --- |
| herd |  | FC+1 | FC-2 |
| N | n | LS mean3(kg) | s.e.(kg) | n | LS mean(kg) | s.e.(kg) |
| A | 469 | 73 | 32.9 | 0.9 | 396 | 32.5 | 0.4 |
| B | 1009 | 169 | 26.3a | 0.6 | 840 | 28.5b | 0.3 |
| C | 149 | 71 | 29.4 | 0.9 | 78 | 30.1 | 0.9 |
| D | 282 | 178 | 25.6 a | 0.6 | 104 | 29.5 b | 0.7 |
| E | 335 | 90 | 32.6 | 0.8 | 245 | 32.9 | 0.5 |
| F | 294 | 85 | 26.4 | 0.8 | 209 | 28.1 | 0.6 |
| G | 68 | 28 | 26.1 | 1.4 | 40 | 28.8 | 1.2 |
| H | 90 | 60 | 25.9 | 1.0 | 30 | 28.8 | 1.4 |
| J | 127 | 53 | 27,0 a | 1.0 | 74 | 31.3 b | 0.9 |
| K | 200 | 34 | 35.0 | 1.3 | 166 | 33.9 | 0.6 |
| L | 91 | 35 | 26. 8 | 1.3 | 56 | 28.3 | 1.0 |
| M | 267 | 48 | 31.2 | 1.1 | 219 | 29.1 | 0.5 |
| N | 231 | 44 | 36.9 | 1.1 | 187 | 37.7 | 0.6 |
| O | 125 | 41 | 27.4 | 1.2 | 84 | 28.3 | 0.9 |
| P | 392 | 207 | 25.4 a | 0.5 | 185 | 27.0 b | 0.6 |
| T | 52 | 13 | 28.0 | 2.1 | 39 | 30.4 | 1.2 |
| W | 115 | 25 | 29.2 | 1.5 | 90 | 27.9 | 0.8 |
| Y | 85 | 31 | 21.2 | 1.3 | 54 | 22.4 | 1.0 |
| total | 4381 | 1285 |  |  | 3096 |  |  |

1Mycobacterium avium spp. paratuberculosis fecal culture positive cows

2 Mycobacterium avium spp. paratuberculosis fecal culture negative herd-mates.

3 Least Square Mean

a,b Values within rows with different superscripts differ significantly at *P*<0.05.