**An epidemiological analysis of equine welfare data from regulatory inspections by the official competent authorities**

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# SUPPLEMENTARY INFORMATION ITEMS

**Supplementary Table S1.** Number and percentage (%) of inspections non-compliant with checkpoints or aggregate checkpoints, stratified by type of control, based on official animal welfare inspections of horse premises in Sweden, 2010-2013

**Supplementary Table S2.** Univariable analysis of premises and inspection characteristics associated with non-compliance against animal-based outcomes, adjusted for clustering on premises and stratified by the four animal-based checkpoints, based on official animal welfare inspections of horse premises in Sweden, 2010-2013

# Supplementary Table S3. Principal component analysis of resource and management-based checkpoints, with orthogonal varimax rotation (N=9 106), based on official animal welfare inspections of horse premises in Sweden, 2010-2013

**Supplementary Table 1.** Number and percentage (%) of inspections non-compliant with checkpoints or aggregate checkpoints, stratified by type of control, based on official animal welfare inspections of horse premises in Sweden, 2010-2013

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Normal control, n (%) | | |  | Complaint, n (%) | |  | Monitoring, n (%) | |  | Application, n (%) | |  |
| CP | Measure | Directed | Risk | Random |  | Unwarranted | Veterinarian,general public,other |  | Normal | Notification |  | Normala | Full cross-compliance | Total |
| Animal-based measures | | |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 | Hoof condition | 37 (3.9) | 69 (8.3) | 35 (5.0) |  | 57 (3.2) | 823 (35.2) |  | 82 (15.2) | 302 (22.6) |  | 24 (1.3) | 4 (2.3) | 1 433 (13.6) |
| 8 | Body condition | 32 (3.1) | 42 (4.8) | 21 (3.0) |  | 107 (5.3) | 726 (27.9) |  | 47 (7.8) | 319 (20.7) |  | 29 (1.5) | 3 (1.7) | 1 326 (11.6) |
| 9 | Horse cleanliness | 6 (0.6) | 11 (1.3) | 2 (0.3) |  | 8 (0.4) | 141 (5.5) |  | 15 (2.5) | 98 (6.4) |  | 7 (0.4) | 0 (0.0) | 288 (2.6) |
| 11 | Social contact | 23 (2.3) | 29 (3.3) | 17 (2.3) |  | 70 (3.4) | 309 (11.8) |  | 24 (3.6) | 98 (6.2) |  | 4 (0.2) | 3 (1.7) | 577 (4.9) |
| Resource-, and management-based measures | | | | |  |  |  |  |  |  |  |  |  |  |
| 1, 13 | Documentation | 112 (16.3) | 106 (19.8) | 63 (10.8) |  | 73 (15.8) | 281 (45.3) |  | 77 (28.1) | 210 (51.9) |  | 186 (12.5) | 31 (18.6) | 1 139 (21.6) |
| 39, 40, 41 | Breeding | 159 (71.3) | 118 (55.4) | 142 (68.6) |  | 132 (59.7) | 154 (56.6) |  | 75 (60.5) | 110 (58.2) |  | 594 (69.5) | 52 (70.3) | 1 539 (64.6) |
| 21, 32, 33, 36 | Stabling and shelter | 75 (8.4) | 113 (13.2) | 46 (6.3) |  | 94 (6.3) | 951 (46.0) |  | 129 (19.5) | 478 (33.8) |  | 132 (6.5) | 14 (8.3) | 2 032 (19.7) |
| 4, 5, 12, 29 | Supervision, careand feeding | 28 (2.9) | 53 (6.0) | 17 (2.3) |  | 24 (1.2) | 793 (31.4) |  | 67 (10.4) | 324 (21.4) |  | 37 (1.8) | 0 (0.0) | 1 343 (11.7) |
| 18, 22, 23, 26 | Facility design | 279 (29.4) | 320 (37.5) | 209 (28.5) |  | 165 (13.1) | 900 (51.2) |  | 272 (34.3) | 574 (43.6) |  | 874 (42.6) | 37 (21.4) | 3 630 (36.7) |

a New, or compliance with permit under §16 of the Animal Welfare Act.

**Supplementary Table 2.** Univariable analysis of premises and inspection characteristics associated with non-compliance against animal-based outcomes, adjusted for clustering on premises and stratified by the four animal-based checkpoints, based on official animal welfare inspections of horse premises in Sweden, 2010-2013

| Variable | | | Hoof condition | |  | Body condition | |  | Cleanliness | |  | Social contact | |  | Aggregate  animal-based | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| OR (95% CI) | p-value |  | OR (95% CI) | p-value |  | OR (95% CI) | p-value |  | OR (95% CI) | p-value |  | OR (95% CI) | p-value |
| Resource- and management-based factors | | | | | | | | | | | | | | | | |
| Documentation | | 6.23 (4.92, 7.89) | | <0.001 |  | 6.25 (4.88, 8.01) | <0.001 |  | 4.78 (2.97, 7.69) | <0.001 |  | 2.16 (1.45, 3.22) | <0.001 |  | 5.36 (4.47, 6.42) | <0.001 |
| Breeding | | 0.78 (0.55, 1.11) | | 0.164 |  | 0.86 (0.59, 1.24) | 0.405 |  | 1.21 (0.52, 2.78) | 0.656 |  | 0.18 (0.07, 0.46) | <0.001 |  | 0.83 (0.64, 1.09) | 0.179 |
| Components | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Stabling and shelter | | 5.03 (4.31, 5.87) | | <0.001 |  | 4.25 (3.62, 4.98) | <0.001 |  | 14.94 (10.81,20.64) | <0.001 |  | 1.54 (1.20, 1.96) | 0.001 |  | 4.24 (3.75, 4.78) | <0.001 |
| Supervision, care, feeding | | 10.32 (8.88, 11.99) | | <0.001 |  | 26.85 (22.93,31.44) | <0.001 |  | 12.35 (9.32, 16.36) | <0.001 |  | 1.97 (1.54, 2.52) | <0.001 |  | 19.62 (16.91, 22.78) | <0.001 |
| Facility design | | 2.00 (1.71, 2.34) | | <0.001 |  | 2.09 (1.76, 2.50) | <0.001 |  | 3.90 (2.86, 5.33) | <0.001 |  | 1.06 (0.83, 1.34) | 0.657 |  | 1.79 (1.59, 2.02) | <0.001 |
| Control points (#) | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Personnel (3) | | 15.80 (12.78, 19.53) | | <0.001 |  | 13.87 (11.17,17.21) | <0.001 |  | 21.19 (15.25,29.46) | <0.001 |  | 2.75 (1.97, 3.85) | <0.001 |  | 20.65 (16.57, 25.75) | <0.001 |
| Automated system (6) | | 6.47 (2.23, 18.79) | | 0.001 |  | 12.44 (4.23, 36.57) | <0.001 |  | 28.27 (9.46, 84.48) | <0.001 |  | 5.20 (1.27, 21.20) | 0.022 |  | 10.49 (4.08, 26.94) | <0.001 |
| Electric shock (10) | | 1.73 (0.72, 4.14) | | 0.217 |  | 1.39 (0.55, 3.55) | 0.488 |  | 6.08 (2.36, 15.69) | <0.001 |  | 1.08 (0.26, 4.52) | 0.911 |  | 1.81 (0.94, 3.48) | 0.074 |
| Space (14) | | 2.59 (2.09, 3.22) | | <0.001 |  | 2.03 (1.58, 2.59) | <0.001 |  | 3.87 (2.68, 5.60) | <0.001 |  | 1.18 (0.82, 1.69) | 0.366 |  | 2.18 (1.84, 2.60) | <0.001 |
| Ceiling height (15) | | 1.93 (1.57, 2.38) | | <0.001 |  | 1.82 (1.44, 2.29) | <0.001 |  | 2.32 (1.55, 3.47) | <0.001 |  | 1.95 (1.44, 2.63) | <0.001 |  | 1.90 (1.61, 2.23) | <0.001 |
| Tethering (16) | | 2.59 (1.73, 3.88) | | <0.001 |  | 1.90 (1.20, 3.01) | 0.007 |  | 8.88 (5.23, 15.08) | <0.001 |  | 4.52 (2.88, 7.08) | <0.001 |  | 3.52 (2.61, 4.76) | <0.001 |
| Harmful objects (17) | | 3.61 (3.05, 4.27) | | <0.001 |  | 2.47 (2.05, 2.97) | <0.001 |  | 3.70 (2.63, 5.19) | <0.001 |  | 1.50 (1.15, 1.96) | 0.003 |  | 2.73 (2.38, 3.12) | <0.001 |
| Floor surface (19) | | 2.12 (1.49, 3.03) | | <0.001 |  | 3.13 (2.24, 4.37) | <0.001 |  | 4.69 (2.98, 7.39) | <0.001 |  | 2.38 (1.57, 3.62) | <0.001 |  | 2.72 (2.10, 3.52) | <0.001 |
| Equipment (20) | | 19.73 (11.27, 34.54) | | <0.001 |  | 22.49 (13.19,38.34) | <0.001 |  | 32.68 (15.99,66.79) | <0.001 |  | 7.59 (3.31, 17.41) | <0.001 |  | 17.52 (10.47, 29.30) | <0.001 |
| Lighting (25) | | 5.65 (3.42, 9.34) | | <0.001 |  | 9.26 (5.43, 15.77) | <0.001 |  | 9.74 (4.25, 22.34) | <0.001 |  | 4.48 (1.80, 11.14) | 0.001 |  | 6.28 (3.92, 10.08) | <0.001 |
| Feed/water system (28) | | 7.85 (5.62, 10.96) | | <0.001 |  | 9.42 (6.74, 13.17) | <0.001 |  | 11.96 (7.79, 18.35) | <0.001 |  | 0.68 (0.27, 1.70) | 0.405 |  | 6.38 (4.72, 8.64) | <0.001 |
| Quality water (30) | | 9.39 (7.26, 12.16) | | <0.001 |  | 8.79 (6.88, 11.25) | <0.001 |  | 9.39 (6.48, 13.59) | <0.001 |  | 1.70 (1.02, 2.81) | 0.040 |  | 7.76 (6.10, 9.89) | <0.001 |
| Stable hygiene (31) | | 7.79 (6.35, 9.55) | | <0.001 |  | 7.69 (6.27, 9.42) | <0.001 |  | 25.09 (18.00,34.98) | <0.001 |  | 2.23 (1.56, 3.19) | <0.001 |  | 8.59 (7.22, 10.23) | <0.001 |
| Exercise (34) | | 2.48 (1.92, 3.20) | | <0.001 |  | 2.71 (2.08, 3.52) | <0.001 |  | 9.86 (7.07, 13.74) | <0.001 |  | 4.84 (3.58, 6.55) | <0.001 |  | 3.29 (2.68, 4.034) | <0.001 |
| Pasture (35) | | 4.39 (3.77, 5.12) | | <0.001 |  | 3.01 (2.58, 3.52) | <0.001 |  | 6.59 (4.97, 8.74) | <0.001 |  | 2.74 (2.19, 3.42) | <0.001 |  | 3.68 (3.27, 4.15) | <0.001 |
| Inspection factors | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Control type | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | normal | Ref | |  |  | Ref |  |  | Ref |  |  | Ref |  |  | Ref |  |
|  | notification | 4.64 (3.82, 5.65) | | <0.001 |  | 5.78 (4.60, 7.27) | <0.001 |  | 4.42 (2.73, 7.16) | <0.001 |  | 3.26 (2.50, 4.24) | <0.001 |  | 4.76 (4.11, 5.51) | <0.001 |
|  | monitoring | 4.39 (3.54, 5.44) | | <0.001 |  | 5.46 (4.25, 7.01) | <0.001 |  | 7.33 (4.34, 12.38) | <0.001 |  | 2.10 (1.53, 2.89) | <0.001 |  | 3.91 (3.31, 4.61) | <0.001 |
|  | application | 0.23 (0.15, 0.36) | | <0.001 |  | 0.42 (0.27, 0.63) | <0.001 |  | 0.44 (0.17, 1.15) | 0.093 |  | 0.12 (0.05, 0.26) | <0.001 |  | 0.26 (0.19, 0.34) | <0.001 |
| Refused inspection | | 7.90 (2.28, 27.44) | | 0.001 |  | 3.64 (0.94, 14.10) | 0.062 |  | 6.34 (0.78, 51.56) | 0.084 |  | 7.88 (1.57, 39.42) | 0.012 |  | 5.76 (1.62, 20.50) | 0.007 |
| Not notified of inspection | | 4.06 (3.43, 4.80) | | <0.001 |  | 2.75 (2.34, 3.23) | <0.001 |  | 3.47 (2.36, 5.10) | <0.001 |  | 3.62 (2.82, 4.64) | <0.001 |  | 3.63 (3.23, 4.09) | <0.001 |
| Checklist change | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <2010/08/17 | | Ref | |  |  | Ref |  |  | Ref |  |  | Ref |  |  | Ref |  |
| 2010/08/17 to  18/1/2012 | | 0.59 (0.50, 0.70) | | <0.001 |  | 0.66 (0.54, 0.82) | <0.001 |  | 0.75 (0.52, 1.08) | 0.121 |  | 0.65 (0.50, 0.84) | 0.001 |  | 0.63 (0.55, 0.72) | <0.001 |
| ≥19/1/2012 | | 0.63 (0.53, 0.74) | | <0.001 |  | 1.06 (0.87, 1.28) | 0.582 |  | 0.81 (0.57, 1.14) | 0.225 |  | 0.59 (0.46, 0.77) | <0.001 |  | 0.75 (0.65, 0.86) | <0.001 |
| Year | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 2010 | Ref | |  |  | Ref |  |  | Ref |  |  | Ref |  |  | Ref |  |
|  | 2011 | 0.74 (0.63, 0.87) | | <0.001 |  | 0.66 (0.54, 0.81) | <0.001 |  | 0.94 (0.67, 1.32) | 0.742 |  | 0.77 (0.61, 0.98) | 0.035 |  | 0.72 (0.64, 0.82) | <0.001 |
|  | 2012 | 0.70 (0.59, 0.84) | | <0.001 |  | 1.15 (0.96, 1.38) | 0.135 |  | 1.11 (0.77, 1.58) | 0.583 |  | 0.68 (0.52, 0.89) | 0.005 |  | 0.82 (0.71, 0.93) | 0.003 |
|  | 2013 | 0.78 (0.65, 0.93) | | 0.006 |  | 1.04 (0.85, 1.26) | 0.719 |  | 0.88 (0.60, 1.27) | 0.487 |  | 0.71 (0.54, 0.92) | 0.010 |  | 0.87 (0.76, 1.01) | 0.060 |
|  | p for trend | 0.93 (0.87, 0.99) | | 0.016 |  | 1.09 (1.02, 1.16) | 0.011 |  | 0.99 (0.88, 1.11) | 0.799 |  | 0.89 (0.81, 0.97) | 0.011 |  | 0.98 (0.93, 1.03) | 0.471 |
| Season | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Autumn | | Ref | |  |  | Ref |  |  | Ref |  |  | Ref |  |  | Ref |  |
| Winter | | 1.21 (1.01, 1.45) | | 0.042 |  | 0.79 (0.66, 0.96) | 0.016 |  | 2.31 (1.66, 3.21) | <0.001 |  | 1.15 (0.90, 1.48) | 0.266 |  | 1.05 (0.92, 1.20) | 0.438 |
| Spring | | 1.78 (1.50, 2.11) | | <0.001 |  | 1.31 (1.10, 1.55) | 0.002 |  | 1.74 (1.23, 2.47) | 0.002 |  | 1.23 (0.96, 1.57) | 0.100 |  | 1.51 (1.34, 1.71) | <0.001 |
| Summer | | 2.65 (2.23, 3.16) | | <0.001 |  | 1.53 (1.29, 1.82) | <0.001 |  | 0.68 (0.39, 1.16) | 0.158 |  | 1.52 (1.18, 1.97) | 0.001 |  | 1.88 (1.66, 2.14) | <0.001 |
| Site factors | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Location | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| North Sweden | | Ref | |  |  | Ref |  |  | Ref |  |  | Ref |  |  | Ref |  |
| Bergslagen | | 1.48 (1.11, 1.98) | | 0.008 |  | 1.87 (1.38, 2.53) | <0.001 |  | 1.06 (0.60, 1.87) | 0.832 |  | 1.05 (0.72, 1.53) | 0.816 |  | 1.43 (1.15, 1.77) | 0.001 |
| Mälardalen | | 1.56 (1.17, 2.07) | | 0.002 |  | 2.30 (1.70, 3.11) | <0.001 |  | 1.80 (1.05, 3.08) | 0.032 |  | 0.53 (0.35, 0.80) | 0.003 |  | 1.28 (1.03, 1.59) | 0.026 |
| South Götaland | | 1.53 (1.15, 2.04) | | 0.004 |  | 1.96 (1.46, 2.64) | <0.001 |  | 1.82 (1.04, 3.19) | 0.036 |  | 1.06 (0.71, 1.58) | 0.769 |  | 1.37 (1.10, 1.69) | 0.004 |
| West Götaland | | 1.10 (0.84, 1.44) | | 0.486 |  | 1.43 (1.08, 1.90) | 0.165 |  | 1.51 (0.88, 2.59) | 0.132 |  | 0.71 (0.65, 1.40) | 0.068 |  | 0.98 (0.80, 1.19) | 0.814 |
| East Götaland | | 1.39 (1.04, 1.86) | | 0.025 |  | 1.26 (0.92, 1.73) | 0.173 |  | 1.17 (0.63, 2.17) | 0.620 |  | 0.95 (0.65, 1.40) | 0.810 |  | 1.17 (0.94, 1.46) | 0.169 |
| Human popn density (/km2/100) | | 1.09 (0.98, 1.22) | | 0.104 |  | 1.08 (0.98, 1.19) | 0.131 |  | 1.20 (1.01, 1.41) | 0.034 |  | 0.81 (0.68, 0.97) | 0.023 |  | 0.95 (0.87, 1.03) | 0.245 |
| Horses popn (/100) | | 1.02 (0.98, 1.05) | | 0.385 |  | 1.02 (0.99, 1.06) | 0.131 |  | 1.02 (0.96, 1.08) | 0.488 |  | 1.06 (1.02, 1.10) | 0.002 |  | 1.03 (1.01, 1.06) | 0.002 |
| Horse popn density (/km2) | | 1.05 (1.00, 1.09) | | 0.035 |  | 1.06 (1.02, 1.10) | 0.005 |  | 1.11 (1.03, 1.19) | 0.004 |  | 0.96 (0.90, 1.02) | 0.194 |  | 1.00 (0.97, 1.04) | 0.853 |
| Number of horses on site | | 0.98 (0.96, 0.99) | | 0.001 |  | 0.99 (0.97, 1.00) | 0.139 |  | 1.00 (0.99, 1.01) | 0.905 |  | 0.69 (0.57, 0.84) | <0.001 |  | 0.97 (0.96, 0.99) | <0.001 |
| Number of animal species | | 1.12 (1.07, 1.18) | | <0.001 |  | 1.06 (1.00, 1.11) | 0.036 |  | 1.19 (1.11, 1.28) | <0.001 |  | 0.97 (0.90, 1.04) | 0.392 |  | 1.09 (1.05, 1.13) | <0.001 |
| Number of activities | | 1.15 (1.04, 1.27) | | 0.005 |  | 0.99 (0.90, 1.09) | 0.861 |  | 1.23 (1.06, 1.42) | 0.006 |  | 0.89 (0.77, 1.03) | 0.114 |  | 1.07 (0.99, 1.15) | 0.099 |
| Animals prohibited | | 3.65 (2.40, 5.55) | | <0.001 |  | 3.44 (2.26, 5.23) | <0.001 |  | 6.24 (3.37, 11.54) | <0.001 |  | 1.69 (0.87, 3.29) | 0.121 |  | 3.64 (2.56, 5.17) | <0.001 |
| Permit expired | | 2.14 (0.34, 13.58) | | 0.421 |  | 1.09 (0.10, 12.16) | 0.943 |  | pfp |  |  | 7.73 (0.48,123.90) | 0.148 |  | 2.62 (0.70, 9.83) | 0.154 |
| Activities | |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Stud | | 0.75 (0.39, 1.47) | | 0.402 |  | 0.57 (0.17, 1.88) | 0.353 |  | 0.77 (0.19, 3.07) | 0.711 |  | 0.56 (0.26, 1.18) | 0.129 |  | 0.56 (0.26, 1.18) | 0.129 |
| Grazing | | 0.99 (0.33, 2.94) | | 0.979 |  | 0.76 (0.21, 2.73) | 0.678 |  | 1.23 (0.16, 9.73) | 0.843 |  | 1.01 (0.39, 2.57) | 0.991 |  | 1.01 (0.39, 2.57) | 0.991 |
| Transport | | 0.86 (0.39, 1.91) | | 0.716 |  | 0.98 (0.45, 2.17) | 0.967 |  | 1.06 (0.46, 2.46) | 0.890 |  | 0.88 (0.24, 3.22) | 0.841 |  | 0.84 (0.38, 1.86) | 0.670 |
| Poultry keeping | | 1.63 (1.25, 2.13) | | <0.001 |  | 1.23 (0.92, 1.65) | 0.163 |  | 1.34 (0.80, 2.25) | 0.265 |  | 1.27 (0.86, 1.88) | 0.230 |  | 1.43 (1.17, 1.76) | 0.001 |
| Egg production | | 1.98 (0.63, 6.16) | | 0.240 |  | 0.45 (0.06, 3.53) | 0.446 |  | pfp |  |  | 1.64 (0.67, 4.01) | 0.281 |  | 1.64 (0.67, 4.01) | 0.281 |
| Professional establishment | | 0.20 (0.15, 0.26) | | <0.001 |  | 0.30 (0.23, 0.38) | <0.001 |  | 0.31 (0.20, 0.50 ) | <0.001 |  | 0.04 (0.02, 0.09) | <0.001 |  | 0.20 (0.16, 0.24) | <0.001 |
| Keeps hobby horses | | 1.92 (1.59, 2.32) | | <0.001 |  | 1.84 (1.51, 2.25) | <0.001 |  | 1.18 (0.82, 1.71) | 0.367 |  | 2.66 (1.95, 3.63) | <0.001 |  | 2.20 (1.89, 2.56) | <0.001 |
| Meat production | | 1.10 (0.92, 1.31) | | 0.310 |  | 0.59 (0.48, 0.73) | <0.001 |  | 1.01 (0.72, 1.41) | 0.965 |  | 0.99 (0.77, 1.27) | 0.942 |  | 0.91 (0.79, 1.04) | 0.160 |
| Milk production | | 0.87 (0.59, 1.27) | | 0.471 |  | 0.21 (0.10, 0.44) | <0.001 |  | 0.86 (0.38, 1.94) | 0.710 |  | 1.31 (0.79, 2.15) | 0.290 |  | 0.77 (0.57, 1.03) | 0.077 |
| Public exhibition | | 1.69 (0.61, 4.70) | | 0.314 |  | pfp |  |  | pfp |  |  | 0.80 (0.28, 2.23) | 0.664 |  | 0.80 (0.28, 2.23) | 0.664 |
| Pet/companion animal | | 1.69 (1.43, 1.99) | | <0.001 |  | 1.95 (1.64, 2.31) | <0.001 |  | 2.21 (1.60, 3.04) | <0.001 |  | 1.08 (0.85, 1.38) | 0.527 |  | 1.72 (1.51, 1.96) | <0.001 |
| Wildlife reserve | | 1.78 (0.52, 6.08) | | 0.356 |  | 0.38 (0.05, 2.77) | 0.341 |  | 6.08 (1.82, 20.29) | 0.003 |  | 1.93 (0.54, 6.96) | 0.314 |  | 1.35 (0.57, 3.20) | 0.501 |

dnc = did not converge; pfp = predicts failure perfectly.

# Supplementary Table 3. Principal component analysis of resource and management-based checkpoints, with orthogonal varimax rotation (N=9106), based on official animal welfare inspections of horse premises in Sweden, 2010-2013

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Control  point | Variable | Component 1 | Component 2 | Component 3 |
| Stabling and shelter | Supervision, care, feeding of horses | Design of facilities |
| 21 | shelter | 0.343 | -0.0746 | -0.0515 |
| 32 | beddingarea | 0.371 | 0.0398 | -0.0828 |
| 33 | beddingquality | 0.3825 | 0.0468 | -0.1291 |
| 36 | outdoors | 0.3812 | -0.0864 | -0.0414 |
| 4 | maintenance | 0.0318 | 0.3089 | 0.0417 |
| 5 | supervision | 0.0129 | 0.3523 | 0.0317 |
| 12 | sickanimals | 0.1384 | 0.3375 | 0.0099 |
| 27 | noiselevels | 0.0997 | -0.4861 | 0.1361 |
| 29 | qualityfeed | 0.0875 | 0.3348 | 0.059 |
| 18 | interiordesign | 0.0077 | -0.0583 | 0.3971 |
| 22 | emergency | -0.1024 | 0.0009 | 0.4451 |
| 23 | airquality | -0.0465 | -0.064 | 0.4111 |
| 26 | naturallight | -0.0498 | 0.0374 | 0.3627 |
| 3 | personnel | 0.1695 | 0.1537 | 0.1174 |
| 6 | automatedsystem | 0.0864 | 0.0962 | -0.0341 |
| 10 | electricshock | 0.1108 | 0.0313 | 0.0097 |
| 14 | space | 0.2831 | -0.1921 | 0.0358 |
| 15 | ceilingheight | 0.1234 | -0.1242 | 0.1477 |
| 16 | tethering | 0.1474 | -0.1626 | 0.0677 |
| 17 | harmfulobjects | 0.0531 | 0.038 | 0.2707 |
| 19 | floorsurface | 0.1081 | -0.111 | 0.2424 |
| 20 | equipment | 0.0747 | 0.2449 | 0.0506 |
| 25 | lighting | -0.0568 | 0.2937 | 0.2337 |
| 28 | feedwatersystem | 0.2132 | 0.0472 | 0.0839 |
| 30 | qualitywater | 0.1987 | 0.0979 | 0.0795 |
| 31 | stablehygiene | 0.2817 | 0.0761 | 0.023 |
| 34 | exercise | 0.1573 | -0.0409 | 0.1019 |
| 35 | pasture | 0.1488 | 0.0207 | 0.1863 |