**Table S1:** Results of Kruskal-Wallis omnibus test for effect of agricultural activity on measures of trunk flexion/extensiona, and Dwass-Steel-Critchlow-Flinger post-hoc tests for differences between pairs of activities.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Metric** | **Agricultural Activity** |  |  |  | **Statistically significant pairwise comparisons** |
| Posture, 10th %ile (°) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 7 | 10 | 4 | 8 | 9 | 1 | 2 | 5 | 6 | 3 |
|  | Field work w/ self-powered machine | 7 | 19.6 | [9.3, 28.5] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 13.1 | [3.1, 27.0] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 8.7 | [-3.0, 15.5] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 8.4 | [3.9, 23.6] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 7.8 | [-0.6, 18.4] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 7.6 | [-1.0, 11.2] | X |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 7.4 | [-4.0, 12.7] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 6.6 | [-2.7, 18.3] | X |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 4.6 | [-0.9, 15.7] | X |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 4.5 | [-3.3, 7.6] | X |  |  |  |  |  |  |  |  |  |
| Posture, 50th %ile (°) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 7 | 8 | 10 | 5 | 1 | 4 | 9 | 2 | 6 | 3 |
|  | Field work w/ self-powered machine | 7 | 31.4 | [19.4, 43.7] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 27.0 | [15.8, 42.3] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling0 | 10 | 24.5 | [16.5, 39.9] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 22.1 | [11.5, 33.9] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 20.5 | [13.1, 25.9] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 19.8 | [4.7, 30.6] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 16.5 | [12.2, 25.6] | X |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 15.2 | [3.2, 28.9] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 14.7 | [10.9, 27.3] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 13.2 | [7.6, 25.0] | X |  |  |  |  |  |  |  |  |  |
| Posture, 90th %ile (°) | (omnibus *p* = 0.48) | Task No. | Median | [IQR] | 5 | 10 | 4 | 8 | 7 | 3 | 6 | 9 | 2 | 1 |
|  | Repair/service equipment | 5 | 46.6 | [32.4, 59.3] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 45.1 | [28.0, 59.8] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 45.0 | [22.1, 70.4] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 39.7 | [32.5, 55.5] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 39.2 | [28.4, 52.3] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 39.0 | [20.4, 47.8] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 36.8 | [29.8, 20.4] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 34.6 | [27.4, 42.4] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 33.8 | [20.2, 41.2] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 33.4 | [29.2, 48.6] |  |  |  |  |  |  |  |  |  |  |
| Posture, 90th-10th %iles (°) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 5 | 4 | 3 | 10 | 6 | 1 | 8 | 2 | 9 | 7 |
|  | Repair/service equipment | 5 | 38.9 | [28.9, 46.2] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 34.6 | [23.6, 59.1] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 33.5 | [28.5, 40.2] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 31.2 | [19.5, 38.8] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 30.7 | [18.6, 36.4] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 30.4 | [21.0, 40.4] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 29.8 | [17.5, 41.0] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 23.5 | [14.8, 42.0] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 20.2 | [17.7, 38.9] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 19.3 | [14.4, 27.0] | X |  |  |  |  |  |  |  |  |  |
| Speed, 10th %ile (°·s-1) | (omnibus *p* = 0.02) | Task No. | Median | [IQR] | 9 | 10 | 7 | 6 | 3 | 4 | 1 | 8 | 2 | 5 |
|  | Manual material handling | 9 | 1.6 | [0.9, 2.4] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 1.3 | [0.8, 1.7] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 1.3 | [0.8, 2.1] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 1.2 | [1.0, 1.6] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 1.2 | [0.9, 1.4] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 1.2 | [1.1, 1.4] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 1.1 | [1.0, 1.5] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 1.1 | [0.8, 1.6] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 1.0 | [0.8, 1.7] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 0.9 | [0.6, 1.1] | X |  | X |  |  |  |  |  |  |  |
| Speed, 50th %ile (°·s-1) | (omnibus *p* = 0.07) | Task No. | Median | [IQR] | 9 | 2 | 3 | 6 | 1 | 10 | 4 | 8 | 7 | 5 |
|  | Manual material handling | 9 | 11.6 | [7.8, 15.0] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 10.3 | [7.4, 12.6] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 9.7 | [7.4, 11.2] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 9.5 | [7.7, 11.8] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 9.4 | [7.7, 11.9] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 9.3 | [7.2, 11.4] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 9.2 | [8.7, 11.5] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 8.9 | [6.5, 11.4] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 8.9 | [5.0, 12.5] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 7.4 | [5.1, 8.8] |  |  |  |  |  |  |  |  |  |  |
| Speed, 90th %ile (°·s-1) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 9 | 3 | 1 | 2 | 10 | 8 | 6 | 4 | 5 | 7 |
|  | Manual material handling | 9 | 43.8 | [32.2, 47.5] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 42.9 | [34.5, 49.1] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 37.9 | [30.3, 49.1] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 37.9 | [34.8, 50.9] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 36.9 | [27.3, 41.7] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 36.5 | [25.3, 41.0] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 35.3 | [29.3, 44.1] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 35.0 | [33.4, 52.2] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 34.4 | [36.9, 38.7] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 28.3 | [15.9, 38.2] |  |  |  |  |  |  |  |  |  |  |

a Negative values denote extension; Positive values denote flexion.

**Table S2:** Results of Kruskal-Wallis omnibus test for effect of agricultural activity on measures of trunk lateral bendinga, and Dwass-Steel-Critchlow-Flinger post-hoc tests for differences between pairs of activities.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Metric** | **Agricultural Activity** |  |  |  | **Statistically significant pairwise comparisons** |
| Posture, 10th %ile (°) | (omnibus *p* = 0.12) | Task No. | Median | [IQR] | 5 | 3 | 6 | 9 | 10 | 2 | 4 | 1 | 8 | 7 |
|  | Repair/service equipment | 5 | -14.0 | [-17.3, -8.3] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | -13.0 | [-17.1, -10.8] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | -12.9 | [-18.3, -6.1] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | -11.9 | [-16.9, -7.1] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | -11.6 | [-19.5, -7.9] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | -11.5 | [-15.2, -7.4] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | -11.5 | [-17.5, -1.5] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | -9.9 | [-12.2, -6.6] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | -9.9 | [-14.0, -4.0] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | -8.3 | [-14.5, -1.3] |  |  |  |  |  |  |  |  |  |  |
| Posture, 50th %ile (°) | (omnibus *p* = 0.85) | Task No. | Median | [IQR] | 9 | 3 | 7 | 1 | 6 | 10 | 2 | 5 | 8 | 4 |
|  | Manual material handling | 9 | -1.5 | [-5.0, 2.6] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | -0.9 | [-3.5, 1.1] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | -0.7 | [-5.7, 5.3] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | -0.5 | [-1.1, 3.9] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | -0.5 | [-4.6, 4.5] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | -0.4 | [-2.1, 2.0] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 0.8 | [-6.6, 2.1] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 1.1 | [-3.8, 3.5] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 1.5 | [-3.2, 4.7] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 4.0 | [-1.5, 10.0] |  |  |  |  |  |  |  |  |  |  |
| Posture, 90th %ile (°) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 4 | 5 | 8 | 6 | 9 | 10 | 3 | 1 | 2 | 7 |
|  | Milk animals | 4 | 16.3 | [9.3, 23.0] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 14.7 | [9.7, 18.0] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 11.5 | [6.7, 16.5] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 11.2 | [7.8, 17.4] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 10.7 | [6.9, 17.7] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 10.6 | [4.7, 15.5] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 10.0 | [5.3, 13.3] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 9.5 | [7.7, 13.8] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 9.3 | [2.4, 11.3] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 6.4 | [2.8, 11.9] |  |  |  |  |  |  |  |  |  |  |
| Posture, 90th-10th %iles (°) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 5 | 6 | 10 | 4 | 3 | 9 | 8 | 1 | 2 | 7 |
|  | Repair/service equipment | 5 | 26.9 | [23.0, 29.9] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 23.6 | [18.4, 31.3] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 22.4 | [18.4, 28.6] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 22.1 | [20.7, 28.2] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 21.9 | [20.9, 26.7] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 21.7 | [20.3, 24.4] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 21.1 | [18.3, 25.0] | X |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 19.6 | [18.0, 24.4] | X |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 18.6 | [14.8, 23.2] | X |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 15.4 | [11.2, 18.7] | X | X | X | X | X | X | X | X |  |  |
| Speed, 10th %ile (°·s-1) | (omnibus *p* = 0.01) | Task No. | Median | [IQR] | 9 | 1 | 3 | 4 | 6 | 10 | 2 | 7 | 8 | 5 |
|  | Manual material handling | 9 | 2.0 | [0.9, 3.1] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 1.4 | [1.1, 2.1] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 1.3 | [0.9, 1.6] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 1.3 | [1.2. 1.6] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 1.3 | [1.1, 1.8] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 1.3 | [0.9, 1.8] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 1.2 | [0.8, 1.7] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 1.2 | [0.8, 2.0] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 1.1 | [0.8, 1.7] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 0.9 | [0.7, 1.3] | X |  |  |  |  |  |  |  |  |  |
| Speed, 50th %ile (°·s-1) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 9 | 1 | 4 | 2 | 6 | 3 | 10 | 7 | 5 | 8 |
|  | Manual material handling | 9 | 15.4 | [9.6, 20.4] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 13.0 | [9.5, 18.6] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 3 | 12.3 | [10.6, 14.0] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 4 | 11.8 | [8.3, 15.4] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 11.5 | [8.0, 14.4] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 10 | 11.5 | [9.5, 14.4] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 2 | 10.8 | [8.0, 13.2] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 9.6 | [4.9, 12.4] | X |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 8 | 9.2 | [7.4, 10.5] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 5 | 8.8 | [6.5, 13.3] | X |  |  |  |  |  |  |  |  |  |
| Speed, 90th %ile (°·s-1) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 3 | 9 | 1 | 4 | 2 | 5 | 10 | 6 | 8 | 7 |
|  | Treat/tag animals | 3 | 57.9 | [46.4, 68.8] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 57.8 | [41.9, 68.3] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 53.8 | [40.3, 68.2] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 50.7 | [44.2, 58.7] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 46.4 | [50.5, 63.7] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 42.7 | [35.6, 49.1] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 41.8 | [30.0, 54.6] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 41.6 | [33.6, 59.8] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 35.8 | [29.3, 48.4] | X | X | X |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 30.5 | [15.1, 39.6] | X | X | X |  | X | X |  | X |  |  |

a Negative posture percentile values denote lateral bending to the left; positive posture percentile values denote lateral bending to the right.

**Table S3:** Results of Kruskal-Wallis omnibus test for effect of agricultural activity on measures of upper arm elevation, and Dwass-Steel-Critchlow-Flinger post-hoc tests for differences between pairs of activities.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Metric** | **Agricultural Activity** |  |  |  | **Statistically significant pairwise comparisons** |
| Posture, 10th %ile (°) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 10 | 7 | 8 | 5 | 9 | 4 | 6 | 1 | 3 | 2 |
|  | Powered material handling | 10 | 20.1 | [7.1, 26.0] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 20.0 | [14.1, 26.8] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 18.3 | [11.6, 25.0] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 15.3 | [8.4, 24.8] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 14.6 | [9.9, 25.8] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 12.9 | [8.9, 18.8] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 12.7 | [6.2, 19.8] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 12.1 | [5.9, 16.3] |  | X |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 8.5 | [7.1, 12.7] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 7.2 | [0.8, 16.1] |  |  |  |  |  |  |  |  |  |  |
| Posture, 50th %ile (°) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 5 | 10 | 6 | 9 | 8 | 4 | 7 | 1 | 3 | 2 |
|  | Repair/service equipment | 5 | 43.7 | [31.9, 57.6] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 39.4 | [32.0, 51.3] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 37.9 | [29.3, 43.8] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 36.8 | [27.5, 46.7] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 36.3 | [31.0, 45.8] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 36.1 | [24.8, 44.5] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 33.7 | [25.7, 43.8] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 30.8 | [25.1, 39.5] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 24.4 | [23.1, 30.5] | X |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 23.2 | [13.0, 35.9] |  |  |  |  |  |  |  |  |  |  |
| Posture, 90th %ile (°) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 5 | 9 | 4 | 10 | 3 | 6 | 1 | 8 | 7 | 2 |
|  | Repair/service equipment | 5 | 83.8 | [68.7, 69.8] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 75.5 | [66.6, 82.3] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 74.9 | [62.3, 82.3] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 71.2 | [55.4, 85.3] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 66.9 | [59.6, 82.8] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 66.5 | [58.6, 84.9] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 65.2 | [53.8, 72.3] | X |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 64.9 | [55.4, 81.4] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 52.4 | [39.2, 63.2] | X | X |  | X |  | X |  |  |  |  |
|  | Move/load/sort animals | 2 | 45.3 | [39.9, 78.9] | X |  |  |  |  |  |  |  |  |  |
| Posture, 90th-10th %iles (°) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 4 | 5 | 6 | 3 | 9 | 1 | 10 | 2 | 8 | 7 |
|  | Milk animals | 4 | 65.6 | [58.3, 69.2] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 65.6 | [59.3, 75.6] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 60.4 | [43.0, 71.4] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 58.7 | [52.5, 65.1] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 57.2 | [52.2, 65.4] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 56.5 | [49.1, 61.6] |  | X |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 50.9 | [42.3, 60.1] |  | X |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 47.8 | [34.2, 57.0] |  | X |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 46.1 | [40.2, 60.2] |  | X |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 33.2 | [22.6, 42.6] | X | X | X | X | X | X | X |  | X |  |
| Speed, 10th %ile (°·s-1) | (omnibus *p* = 0.02) | Task No. | Median | [IQR] | 9 | 4 | 6 | 3 | 1 | 2 | 10 | 8 | 7 | 5 |
|  | Manual material handling | 9 | 3.1 | [1.5, 4.7] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 2.2 | [1.8, 2.6] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 1.9 | [1.5, 2.9] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 1.8 | [1.2, 2.5] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 1.8 | [1.6, 2.7] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 1.7 | [1.4, 2.5] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 1.7 | [1.3, 2.3] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 1.5 | [1.0, 2.0] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 1.5 | [1.0, 2.0] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 1.5 | [1.1, 2.0] | X |  |  |  |  |  |  |  |  |  |
| Speed, 50th %ile (°·s-1) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 9 | 4 | 2 | 3 | 1 | 6 | 10 | 5 | 8 | 7 |
|  | Manual material handling | 9 | 22.5 | [13.6, 29.3] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 18.7 | [16.7, 22.4] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 17.4 | [12.7, 23.6] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 16.3 | [12.6, 19.5] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 15.8 | [12.4, 23.7] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 15.4 | [14.0, 20.8] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 14.5 | [11.8, 17.0] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 13.8 | [11.2, 17.4] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 11.2 | [7.6, 15.7] | X |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 10.2 | [6.0, 14.1] | X |  | X |  | X | X |  |  |  |  |
| Speed, 90th %ile (°·s-1) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 9 | 4 | 3 | 1 | 2 | 5 | 6 | 10 | 8 | 7 |
|  | Manual material handling | 9 | 72.8 | [63.3, 90.6] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 72.4 | [62.8, 78.7] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 71.3 | [63.9, 73.9] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 66.3 | [57.2, 84.3] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 65.7 | [58.2, 74.6] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 65.1 | [55.3, 73.4] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 63.7 | [54.4, 79.0] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 61.2 | [50.0, 72.3] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 51.9 | [40.0, 68.7] | X |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 35.9 | [23.7, 48.9] | X | X | X | X | X | X | X | X | X |  |

**Table S4:** Results of Kruskal-Wallis omnibus test for effect of agricultural activity on measures of wrist velocity in flexion/extension, and Dwass-Steel-Critchlow-Flinger post-hoc tests for differences between pairs of activities.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Metric** | **Agricultural Activity** |  |  |  | **Statistically significant pairwise comparisons** |
| Speed, 10th %ile (°·s-1) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 4 | 9 | 6 | 1 | 2 | 5 | 3 | 10 | 7 | 8 |
|  | Milk animals | 4 | 2.3 | [1.9, 3.5] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 2.2 | [1.3, 3.7] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 2.0 | [1.1, 3.1] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 1.9 | [1.3, 3.0] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 1.7 | [1.3, 2.1] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 1.7 | [1.2, 2.6] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 1.6 | [1.3, 3.0] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 1.6 | [1.3, 2.2] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 1.3 | [0.8, 1.8] |  | X |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 1.2 | [0.9, 1.8] |  |  |  |  |  |  |  |  |  |  |
| Speed, 50th %ile (°·s-1) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 4 | 9 | 2 | 6 | 1 | 5 | 3 | 10 | 8 | 7 |
|  | Milk animals | 4 | 19.2 | [16.5, 30.9] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 17.5 | [13.0, 24.2] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 17.1 | [10.1, 21.0] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 16.3 | [10.5, 22.8] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 15.7 | [11.5, 20.9] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 14.3 | [9.8, 20.3] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 14.2 | [10.6, 19.5] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 12.8 | [10.7, 15.5] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 8.7 | [7.2, 14.3] |  | X |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 8.0 | [5.0, 11.6] | X | X |  | X | X | X |  |  |  |  |
| Speed, 90th %ile (°·s-1) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 4 | 9 | 5 | 6 | 1 | 2 | 10 | 3 | 8 | 7 |
|  | Milk animals | 4 | 105.9 | [75.3, 137.9] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 92.1 | [67.9, 101.5] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 84.8 | [69.7, 104.5] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 83.5 | [60.8, 101.7] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 82.2 | [66.4, 103.1] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 80.0 | [54.1, 93.4] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 77.5 | [66.3, 88.6] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 75.0 | [58.9, 92.3] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 57.6 | [49.0, 75.7] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 41.2 | [29.2, 63.7] | X | X | X | X | X | X | X | X | X |  |

**Table S5:** Results of Kruskal-Wallis omnibus test for effect of agricultural activity on measures of wrist velocity in radial/ulnar deviaton, and Dwass-Steel-Critchlow-Flinger post-hoc tests for differences between pairs of activities.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Metric** | **Agricultural Activity** |  |  |  | **Statistically significant pairwise comparisons** |
| Speed, 10th %ile (°·s-1) | (omnibus *p* = 0.23) | Task No. | Median | [IQR] | 4 | 6 | 3 | 1 | 9 | 7 | 10 | 2 | 5 | 8 |
|  | Milk animals | 4 | 1.4 | [1.0, 2.8] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 1.2 | [0.9, 2.2] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 1.2 | [0.7, 1.5] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 1.2 | [0.8, 1.6] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 1.2 | [0.9, 2.8] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 1.1 | [0.7, 1.7] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 1.0 | [0.9, 1.4] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 1.0 | [0.7, 1.4] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 0.9 | [0.6, 1.8] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 0.8 | [0.7, 1.2] |  |  |  |  |  |  |  |  |  |  |
| Speed, 50th %ile (°·s-1) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 4 | 3 | 9 | 1 | 6 | 2 | 10 | 5 | 8 | 7 |
|  | Milk animals | 4 | 17.7 | [11.1, 26.1] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 13.4 | [7.7, 15.2] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 12.3 | [8.8, 18.4] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 11.6 | [8.3, 17.0] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 11.5 | [9.7, 15.4] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 11.0 | [9.1, 17.2] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 10.6 | [8.1, 11.7] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 10.3 | [7.8, 14.2] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 7.3 | [5.3, 11.1] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 6.9 | [5.1, 10.2] | X |  | X | X | X |  |  | X |  |  |
| Speed, 90th %ile (°·s-1) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 4 | 1 | 5 | 9 | 6 | 2 | 3 | 10 | 8 | 7 |
|  | Milk animals | 4 | 81.3 | [64.0, 105.2] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 61.0 | [46.8, 69.5] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 60.7 | [49.3, 73.6] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 59.5 | [53.2, 72.1] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 57.6 | [41.6, 84.7] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 55.9 | [42.8, 65.5] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 54.6 | [43.6, 74.1] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 52.5 | [46.0, 63.3] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 42.0 | [35.2, 53.5] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 32.5 | [22.9, 46.0] | X | X | X | X | X |  | X | X |  |  |

**Table S6:** Results of Kruskal-Wallis omnibus test for effect of agricultural activity on measures of left erector spinae EMG, and Dwass-Steel-Critchlow-Flinger post-hoc tests for differences between pairs of activities.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Metric** | **Agricultural Activity** |  |  |  | **Statistically significant pairwise comparisons** |
| 10th %ile (%RVE) | (omnibus *p* = 0.32) | Task No. | Median | [IQR] | 5 | 6 | 9 | 1 | 3 | 4 | 7 | 10 | 8 | 2 |
|  | Repair/service equipment | 5 | 21.9 | [15.0, 28.3] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 19.7 | [12.5, 32.8] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 17.6 | [12.6, 28.3] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 17.1 | [12.8, 27.3] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 17.0 | [12.4, 23.9] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 16.2 | [15.7, 22.4] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 15.7 | [9.8, 21.4] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 15.0 | [12.0, 23.9] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 13.5 | [8.6, 30.7] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 13.2 | [7.3, 17.2] |  |  |  |  |  |  |  |  |  |  |
| 50th %ile (%RVE) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 9 | 6 | 5 | 4 | 1 | 3 | 8 | 10 | 2 | 7 |
|  | Manual material handling | 9 | 57.6 | [33.3, 69.7] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 57.1 | [41.3, 82.1] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 55.1 | [44.6, 72.3] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 51.7 | [48.9, 53.2] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 50.7 | [32.7, 59.0] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 45.2 | [39.2, 59.2] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 43.0 | [26.0, 52.7] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 41.3 | [28.0, 52.0] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 36.1 | [21.1, 45.4] |  |  | X |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 33.8 | [23.7, 41.7] |  |  | X |  |  |  |  |  |  |  |
| 90th %ile (%RVE) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 9 | 5 | 6 | 1 | 10 | 4 | 3 | 8 | 2 | 7 |
|  | Manual material handling | 9 | 137.2 | [91.3, 177.0] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 129.2 | [111.7, 161.0] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 127.8 | [110.5, 146.8] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 121.0 | [80.8, 158.1] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 111.1 | [70.3, 134.2] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 109.3 | [105.3, 130.0] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 107.2 | [89.1, 134.7] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 103.4 | [77.9, 116.8] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 90.6 | [40.0, 108.9] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 77.4 | [58.6, 95.9] | X | X | X | X |  |  |  |  |  |  |

**Table S7:** Results of Kruskal-Wallis omnibus test for effect of agricultural activity on measures of right erector spinae EMG, and Dwass-Steel-Critchlow-Flinger post-hoc tests for differences between pairs of activities.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Metric** | **Agricultural Activity** |  |  |  | **Statistically significant pairwise comparisons** |
| 10th %ile (%RVE) | (omnibus *p* = 0.64) | Task No. | Median | [IQR] | 9 | 2 | 4 | 6 | 5 | 3 | 1 | 10 | 8 | 7 |
|  | Manual material handling | 9 | 23.1 | [14.4, 31.9] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 21.5 | [13.5, 25.0] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 21.3 | [18.1, 27.4] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 20.0 | [12.5, 26.0] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 19.8 | [16.3, 26.1] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 19.2 | [16.2, 29.2] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 17.8 | [12.2, 29.9] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 16.4 | [11.5, 29.5] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 15.6 | [9.8, 26.7] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 15.3 | [9.2, 23.8] |  |  |  |  |  |  |  |  |  |  |
| 50th %ile (%RVE) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 9 | 4 | 6 | 5 | 1 | 2 | 3 | 8 | 10 | 7 |
|  | Manual material handling | 9 | 63.9 | [42.4, 80.2] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 60.6 | [52.6, 76.8] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 57.3 | [39.7, 71.7] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 53.6 | [47.8, 63.3] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 50.3 | [37.4, 63.1] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 48.5 | [40.9, 53.2] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 44.5 | [38.9, 61.5] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 44.4 | [32.7, 55.3] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 39.1 | [28.7, 57.2] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 31.2 | [25.6, 41.5] | X |  | X | X | X |  |  |  |  |  |
| 90th %ile (%RVE) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 9 | 4 | 6 | 5 | 1 | 3 | 2 | 10 | 8 | 7 |
|  | Manual material handling | 9 | 147.8 | [101.9, 188.4] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 132.6 | [126.8, 197.2] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 129.5 | [98.7, 143.6] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 123.0 | [107.0, 143.9] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 119.0 | [95.8, 151.2] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 118.4 | [88.6, 142.1] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 109.8 | [103.4, 124.8] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 100.7 | [74.4, 127.5] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 94.7 | [76.1, 120.1] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 75.5 | [60.6, 91.0] | X | X | X | X | X | X | X |  |  |  |

**Table S8:** Results of Kruskal-Wallis omnibus test for effect of agricultural activity on measures of upper trapezius EMG, and Dwass-Steel-Critchlow-Flinger post-hoc tests for differences between pairs of activities.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Metric** | **Agricultural Activity** |  |  |  | **Statistically significant pairwise comparisons** |
| 10th %ile (%RVE) | (omnibus *p* = 0.60) | Task No. | Median | [IQR] | 9 | 3 | 5 | 1 | 4 | 2 | 8 | 9 | 10 | 7 |
|  | Manual material handling | 9 | 6.8 | [2.7, 16.4] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 6.3 | [3.8, 7.9] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 6.1 | [3.3, 11.0] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 5.9 | [4.5, 7.2] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 5.6 | [4.3, 7.3] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 5.4 | [2.3, 8.0] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 5.4 | [2.8, 9.2] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 5.2 | [2.3, 12.9] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 5.1 | [3.2, 7.4] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 3.5 | [2.2, 8.1] |  |  |  |  |  |  |  |  |  |  |
| 50th %ile (%RVE) | (omnibus *p* = 0.08) | Task No. | Median | [IQR] | 5 | 3 | 4 | 1 | 9 | 6 | 8 | 10 | 2 | 7 |
|  | Repair/service equipment | 5 | 33.3 | [19.9, 48.7] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 33.2 | [22.1, 40.5] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 30.9 | [21.2, 42.9] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 30.7 | [22.3, 40.2] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 30.6 | [24.3, 45.7] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 26.2 | [20.7, 33.6] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 25.3 | [17.4, 32.1] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 23.3 | [15.9, 37.7] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 21.6 | [15.4, 41.3] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 20.2 | [13.2, 28.4] |  |  |  |  |  |  |  |  |  |  |
| 90th %ile (%RVE) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 5 | 9 | 4 | 1 | 3 | 6 | 10 | 8 | 2 | 7 |
|  | Repair/service equipment | 5 | 110.4 | [73.3, 153.2] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 99.0 | [67.1, 117.5] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 96.6 | [69.1, 145.9] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 88.5 | [62.2, 108.4] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 85.7 | [70.1, 107.3] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 79.0 | [64.1, 112.6] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 75.2 | [59.5, 88.0] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 74.6 | [51.0, 88.6] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 71.3 | [54.7, 92.4] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 57.3 | [46.0, 96.5] | X |  |  |  |  |  |  |  |  |  |

**Table S9:** Results of Kruskal-Wallis omnibus test for effect of agricultural activity on measures of forearm flexor EMG, and Dwass-Steel-Critchlow-Flinger post-hoc tests for differences between pairs of activities.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Metric** | **Agricultural Activity** |  |  |  | **Statistically significant pairwise comparisons** |
| 10th %ile (%RVE) | (omnibus *p* = 0.80) | Task No. | Median | [IQR] | 9 | 6 | 10 | 1 | 5 | 8 | 4 | 7 | 2 | 3 |
|  | Manual material handling | 9 | 7.5 | [2.8, 9.5] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 7.1 | [2.9, 15.5] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 6.8 | [3.7, 11.1] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 5.6 | [3.1, 10.9] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 5.5 | [2.7, 13.5] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 5.4 | [2.0, 10.6] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 5.0 | [2.3, 8.5] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 5.0 | [3.0, 12.4] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 3.2 | [2.6, 13.0] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 3.2 | [1.8, 6.3] |  |  |  |  |  |  |  |  |  |  |
| 50th %ile (%RVE) | (omnibus *p* = 0.09) | Task No. | Median | [IQR] | 6 | 8 | 10 | 9 | 1 | 4 | 5 | 7 | 3 | 2 |
|  | Repair/service buildings/structures | 6 | 35.9 | [19.8, 67.6] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 35.8 | [18.2, 50.1] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 35.4 | [16.7, 70.2] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 35.2 | [19.9, 59.0] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 34.1 | [17.3, 54.5] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 32.9 | [18.1, 77.1] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 32.5 | [21.8, 57.2] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 23.3 | [15.5, 45.7] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 19.4 | [11.8, 24.6] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 14.9 | [12.5, 32.8] |  |  |  |  |  |  |  |  |  |  |
| 90th %ile (%RVE) | (omnibus *p* = 0.01) | Task No. | Median | [IQR] | 1 | 9 | 10 | 5 | 4 | 6 | 2 | 8 | 3 | 7 |
|  | Feed animals | 1 | 289.1 | [137.7, 366.4] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 215.0 | [137.8, 404.1] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 204.3 | [107.9, 370.1] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 200.8 | [116.0, 317.4] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 180.9 | [76.6, 381.4] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 165.0 | [108.7, 358.8] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 137.1 | [76.2, 222.5] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 129.9 | [95.5, 284.9] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 103.5 | [78.7, 188.2] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 102.8 | [59.5, 220.6] |  |  |  |  |  |  |  |  |  |  |

**Table S10:** Results of Kruskal-Wallis omnibus test for effect of agricultural activity on measures of forearm extensor EMG, and Dwass-Steel-Critchlow-Flinger post-hoc tests for differences between pairs of activities.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Metric** | **Agricultural Activity** |  |  |  | **Statistically significant pairwise comparisons** |
| 10th %ile (%RVE) | (omnibus *p* = 0.45) | Task No. | Median | [IQR] | 9 | 6 | 4 | 7 | 5 | 10 | 3 | 8 | 1 | 2 |
|  | Manual material handling | 9 | 4.2 | [2.2, 8.0] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service buildings/structures | 6 | 4.1 | [2.0, 9.8] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 4.0 | [3.1, 4.2] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 3.7 | [2.3, 5.0] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 3.6 | [1.9, 7.7] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 3.5 | [1.7, 7.0] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 3.0 | [2.1, 4.5] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 3.0 | [2.1, 4.7] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 2.2 | [1.4, 3.3] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 2.2 | [1.8, 5.5] |  |  |  |  |  |  |  |  |  |  |
| 50th %ile (%RVE) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 6 | 5 | 4 | 9 | 2 | 3 | 10 | 8 | 1 | 7 |
|  | Repair/service buildings/structures | 6 | 35.5 | [23.1, 42.6] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 32.3 | [14.0, 44.5] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 29.1 | [26.1, 38.3] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 26.0 | [13.4, 34.3] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 21.5 | [11.5, 25.7] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 18.8 | [14.2, 25.9] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 16.2 | [10.8, 42.9] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 15.5 | [9.7, 28.1] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 15.1 | [8.8, 24.8] | X |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine | 7 | 12.3 | [9.6, 22.8] | X | X |  |  |  |  |  |  |  |  |
| 90th %ile (%RVE) | (omnibus *p* < 0.01) | Task No. | Median | [IQR] | 6 | 10 | 4 | 5 | 9 | 3 | 2 | 8 | 1 | 7 |
|  | Repair/service buildings/structures | 6 | 112.9 | [91.2, 181.1] |  |  |  |  |  |  |  |  |  |  |
|  | Powered material handling | 10 | 109.8 | [60.6, 175.4] |  |  |  |  |  |  |  |  |  |  |
|  | Milk animals | 4 | 108.7 | [82.8, 189.5] |  |  |  |  |  |  |  |  |  |  |
|  | Repair/service equipment | 5 | 106.6 | [75.7, 196.7] |  |  |  |  |  |  |  |  |  |  |
|  | Manual material handling | 9 | 106.6 | [68.6, 190.8] |  |  |  |  |  |  |  |  |  |  |
|  | Treat/tag animals | 3 | 86.4 | [70.6, 100.5] |  |  |  |  |  |  |  |  |  |  |
|  | Move/load/sort animals | 2 | 86.3 | [46.5, 115.8] |  |  |  |  |  |  |  |  |  |  |
|  | Handle/store harvested crop | 8 | 84.8 | [48.8, 107.1] |  |  |  |  |  |  |  |  |  |  |
|  | Feed animals | 1 | 77.0 | [60.0, 104.7] |  |  |  |  |  |  |  |  |  |  |
|  | Field work w/ self-powered machine  | 7 | 63.5 | [42.6, 125.1] |  |  |  | X |  |  |  |  |  |  |