COMPACCTION ACTION DAY
From Thursday September 7th, 2017
The Results

Graphical Results of Soil Stress Sensor Response to Various Equipment Configurations as a Proxy to Soil Compaction
Before Studying the Charts

Please read the following two documents here on the website which give background on how the data was collected, and what considerations you need to make when reviewing the data:

1. Understanding Soil Compaction
2. Interpreting Compaction Action Results from Recorded Sensor Data
Don’t See the Bookmark View?

Click Here!

COMPACATION ACTION DAY
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The Results

Graphical Results of Soil Stress Sensor Response to Various Equipment Configurations as a Proxy to Soil Compaction

INNOVATIVE FARMERS
ASSOCIATION OF ONTARIO

Bern University of Applied Sciences
1A. Tandem Manure Tanker with Inflation System
- Wide Tires & High PSI

**Tires:** 30.5R32
Front (3) Rear (4)
6078 kg 5987 kg
40 psi 40 psi

**Pressure (psi):**
- High psi
- Medium risk for subsoil compaction
- Very high risk for topsoil compaction

**Axles:**
1A. Tandem Manure Tanker with Inflation System
- Wide Tires & High PSI

---

X: Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
1A. Tandem Manure Tanker with Inflation System
- Wide Tires and Low PSI

- Tires: 30.5R32
  - Front(3) Rear(4)
  - 6078 kg 5987 kg
  - 15 psi 15 psi

- Low psi
  - Medium risk for subsoil compaction
  - Low risk for topsoil compaction

- Axles
  - X 1
  - X 2
  - X 3
  - X 4

- Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com

- 1A. ILWL

- X: Off sensor, not measured.
1A. Tandem Manure Tanker with Inflation System
- Narrow Tires and High PSI

**Tires:**
- 18.4/R38
- Front (3)
- Rear (4)

**Weights:**
- 5987 kg
- 6033 kg

**Pressure:**
- 50 psi
- 50 psi

**Disclaimers:**
- X: Off sensor, not measured.
- **Disclaimer:** This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
1A. Tandem Manure Tanker with Inflation System
- Narrow Tires and Low PSI

Tires: 18.4/R38
Front (3) Rear (4)
5987 kg 6033 kg
20 psi 20 psi

Low psi

Medium risk for subsoil compaction
Medium risk for topsoil compaction

Topsoil threshold
Subsoil threshold

Axles

1A.IRNL

X: Off sensor, not measured.
Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
1B. Self Propelled Sprayer with Wide Tires, High PSI, and Boom in Transport Position

- Tires: 800/55R46
  - Front (1) 5220 kg
  - Rear (2) 5440 kg
  - 35 psi

- Wide tires
- High PSI

- High risk for subsoil compaction
- High risk for topsoil compaction

X: Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
1B. Self Propelled Sprayer with Narrow Tires, High PSI, and Boom in Transport Position

**Tires:**

420/95R50  
Front (1)  
Rear (2)  
5720 kg  
5790 kg  
50 psi  
50 psi

**Axles:**

X: Off sensor, not measured.

**Disclaimer:** This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
1B. Self Propelled Sprayer with Wide Tires, High PSI, and Boom in Field Position

Tires: 800/55R46

Front (1) Rear (2)
3970 kg 6600 kg
35 psi 35 psi

Topsoil threshold
Subsoil threshold

High risk for topsoil compaction
Very high risk for subsoil compaction

Axles: X: Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
1B. Self Propelled Sprayer with Wide Tires, Low PSI, and Boom in Field Position

- **Tires:** 800/55R46
- **Front (1):** 3970 kg, 13 psi
- **Rear (2):** 6600 kg, 13 psi

**Disclaimer:** This is to be used for discussion & comparison purposes only. Videos and info available at [www.ifao.com](http://www.ifao.com)

**1B.PLWLF**
1B. Self Propelled Sprayer with Narrow Tires, High PSI, and Boom in Field Position

- Tires: 420/95R50
- Front (1) Rear (2)
- 4540 kg  7120 kg
- 50 psi  50 psi

X: Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
1B. Self Propelled Sprayer with Narrow Tires, Low PSI, and Boom in Field Position

**Tires:** 420/95R50
- Front (1)
- Rear (2)

**Axles**
- Axle 1: Off sensor, not measured.
- Axle 2: Off sensor, not measured.

**Pressure (psi)**
- Low psi
- Very high risk for topsoil compaction
- Very high risk for subsoil compaction

**Weight**
- Front (1): 4540 kg
- Rear (2): 7120 kg

**Thresholds**
- Topsoil threshold
- Subsoil threshold

**Notes**
- X: Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
2A. Large Square Bale Wagon with Truck Tires, High PSI

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
2A. Large Square Bale Wagon with High Flotation Tires, and Moderate PSI

Tires:
- 560/45R22.5
- Front (3) Rear (4)
- 2359 kg 4445 kg
- 31 psi 58 psi

Pressure (ps)
- Low psi
- Medium risk for subsoil compaction
- High risk for topsoil compaction
- Very high risk for topsoil compaction
- Very high risk for subsoil compaction

Axles
- X: Off sensor, not measured.

Topsoil threshold
- 6”

Subsoil threshold
- 12”
- 20”

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
2B. 600 Bu Gravity Wagon with Truck Tires High PSI

<table>
<thead>
<tr>
<th>Tires:</th>
<th>445/65R22.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front (3)</td>
<td>4853 kg</td>
</tr>
<tr>
<td>Rear (4)</td>
<td>3629 kg</td>
</tr>
<tr>
<td>100 psi</td>
<td>100 psi</td>
</tr>
</tbody>
</table>

### High psi (truck tire)

- High risk for subsoil compaction
- Very high risk for subsoil compaction

### Topsoil threshold
- Very high risk for topsoil compaction

### Subsoil threshold

- 6”
- 12”
- 20”

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at [www.ifao.com](http://www.ifao.com)
2B. 600 Bu Gravity Wagon with High Flotation Tires, and Moderate PSI

<table>
<thead>
<tr>
<th>Tires:</th>
<th>600/50R22.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front (3)</td>
<td>Rear (4)</td>
</tr>
<tr>
<td>4536 kg</td>
<td>5625 kg</td>
</tr>
<tr>
<td>58 psi</td>
<td>58 psi</td>
</tr>
</tbody>
</table>

- High risk for topsoil compaction
- Very high risk for topsoil compaction
- Very high risk for subsoil compaction

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
3A. Self Propelled Sprayer with Wide Tires, High PSI, and Boom in Transport Position

- **Tires:** 710/65R46
- **Front (1):** 5150 kg, 12 psi
- **Rear (2):** 4500 kg, 35 psi

**Axles:**
- 1: Wide
- 2: High risk for topsoil compaction

**Risk Levels:**
- Medium risk for subsoil compaction

**Thresholds:**
- Topsoil threshold: 6”
- Subsoil threshold: 12”

**Disclaimer:** This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
3A. Self Propelled Sprayer with Wide Tires, High PSI, and Boom in Field Position

- **Tires:** 710/65R38 (Wide)
  - Front (1): 3901 kg, 20 psi
  - Rear (2): 5180 kg, 23 psi

- **Axles:**
  - X: Off sensor, not measured.

**Pressure (psi):**
- 0
- 10
- 20
- 30
- 40
- 50

**Axles: 1 and 2**

**Notes:**
- Low risk for topsoil compaction
- Medium risk for subsoil compaction
- Medium risk for topsoil compaction

**Thresholds:**
- Topsoil threshold
- Subsoil threshold

**Disclaimer:** This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
3A. Self Propelled Sprayer with Narrow Tires, High PSI, and Boom in Transport Position

- **Tires:** 380/90R54
- **Front (1):** 5500 kg, 32 psi
- **Rear (2):** 5450 kg, 45 psi

**Axles: X:** Off sensor, not measured.

**Pressure (psi):**
- **Topsoil threshold:** 6"
- **Subsoil threshold:** 12", 20"

**Risk Levels:**
- **Very high risk for topsoil compaction**
- **Very high risk for subsoil compaction**

**Disclaimer:** This is to be used for discussion & comparison purposes only. Videos and info available at [www.ifao.com](http://www.ifao.com)
3A. Self Propelled Sprayer with Narrow Tires, High PSI, and Boom in Field Position

**Tires:** 380/90R46

<table>
<thead>
<tr>
<th></th>
<th>Front (1)</th>
<th>Rear (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>3810 kg</td>
<td>6033 kg</td>
</tr>
<tr>
<td>Pressure</td>
<td>46 psi</td>
<td>59 psi</td>
</tr>
</tbody>
</table>

**Axles**

- **1**
  - High risk for topsoil compaction
  - Medium risk for subsoil compaction
- **2**
  - Very high risk for topsoil compaction
  - Very high risk for subsoil compaction

**Topsoil threshold**

- 6"

**Subsoil threshold**

- 12"
- 20"

**Disclaimer:** This is to be used for discussion & comparison purposes only. Videos and info available at [www.ifao.com](http://www.ifao.com)

X: Off sensor, not measured.
3A. Self Propelled Sprayer with Wide Tires, Low PSI, and Boom in Field Position

Tires: 710/65R46
Front (1)   Rear (2)
3840 kg    5480 kg
12 psi     18 psi

Pressure (Psi)

Axles

Medium risk for topsoil compaction
Medium risk for subsoil compaction
High risk for topsoil compaction
High risk for subsoil compaction

Topsoil threshold
Subsoil threshold

6"
12"
20"

X: Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
3A. Self Propelled Sprayer with Narrow Tires, High PSI, and Boom in Field Position

Tires:
- 380/90R54
  - Front (1)
  - Rear (2)
- 4050 kg
- 6550 kg
- 32 psi
- 45 psi

Pressure (psi)

Axles

Topsoil threshold
- 6”
Subsoil threshold
- 12”
- 20”

Narrow

Very high risk for topsoil compaction

Extremely high risk for topsoil compaction

Extremely high risk for subsoil compaction

Very high risk for subsoil compaction

X: Off sensor, not measured.

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### 4A. Row Crop Tractor with Moderate Single Tires, Low PSI

#### Large Square Baler with Bias Ply Tires, Moderate PSI

<table>
<thead>
<tr>
<th></th>
<th>600/70R30</th>
<th>710/70R42</th>
<th>500/50-17 (bias)</th>
<th>500/50R17 (bias)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axles</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Pressure (psi)</td>
<td>10 psi</td>
<td>14 psi</td>
<td>28 psi</td>
<td>28 psi</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>2096 kg</td>
<td>4146 kg</td>
<td>1746 kg</td>
<td>1769 kg</td>
</tr>
</tbody>
</table>

- **Low risk for subsoil compaction**
- **Low risk for topsoil compaction**
- **Medium risk for subsoil compaction**
- **Medium risk for topsoil compaction**

**Axles**

- 1: Off sensor, not measured.

**Disclaimer:** This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
4A. Row Crop Tractor with Moderate Single Tires, Low PSI
Large Square Baler with Radial Tires, Moderate PSI

<table>
<thead>
<tr>
<th></th>
<th>600/70R30</th>
<th>710/70R42</th>
<th>500/50R17 (radial)</th>
<th>500/50R17 (radial)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axle 1</td>
<td>1923 kg</td>
<td>4209 kg</td>
<td>1969 kg</td>
<td>1656 kg</td>
</tr>
<tr>
<td>Axle 2</td>
<td>10 psi</td>
<td>14 psi</td>
<td>29 psi</td>
<td>23 psi</td>
</tr>
</tbody>
</table>

Low risk for subsoil compaction
Medium risk for subsoil compaction
Low risk for topsoil compaction

Topsoil threshold: 20"
Subsoil threshold: 12"

4A.PRWL
4A.IRWM

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5A. Tracked Combine – full bin of wheat and 31’ Corn Head

<table>
<thead>
<tr>
<th>Tires:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Front (1)</td>
<td>Rear (2)</td>
</tr>
<tr>
<td>Camoplast 7ft x 36inch</td>
<td>620/75R26</td>
</tr>
<tr>
<td>14700 kg</td>
<td>3600 kg</td>
</tr>
<tr>
<td>(Tracks)</td>
<td>46 psi</td>
</tr>
</tbody>
</table>

Low risk for topsoil compaction
Medium risk for subsoil compaction
High risk for topsoil compaction

X: Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
5A. Tracked Combine - full bin of wheat and no header

### Tires:

<table>
<thead>
<tr>
<th></th>
<th>Front (1)</th>
<th>Rear (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tires</td>
<td>Camoplast 7ft x 36inch</td>
<td>620/75R26</td>
</tr>
<tr>
<td></td>
<td>11400kg</td>
<td>4900kg</td>
</tr>
<tr>
<td>(Tracks)</td>
<td>46 psi (Tracks)</td>
<td>46 psi (Tracks)</td>
</tr>
</tbody>
</table>

**Pressure (psi)**

- **Topsoil threshold**: 6"
- **Subsoil threshold**: 12"
- **High risk for topsoil compaction**
- **High risk for subsoil compaction**
- **Low risk for topsoil compaction**
- **Low risk for subsoil compaction**

**Axles**

1. Off sensor, not measured.

**Disclaimer**: This is to be used for discussion & comparison purposes only. Videos and info available at [www.ifao.com](http://www.ifao.com)
5B. Self Propelled Quad Fertilizer Spinner Spreader

54X31.00R26 1050/50R32

Front (1) Rear (2)

2903 kg 6804 kg

39 psi 36 psi

Low risk for topsoil compaction

Low risk for subsoil compaction

Medium risk for topsoil compaction

Medium risk for subsoil compaction

X: Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
6A. Large Tandem Silage Trailer Small Tire

Tires: 700/40R22.5
Front (3) Rear (4)
8100 kg 9300 kg
40 psi 40 psi

Very high risk for topsoil compaction
Very high risk for subsoil compaction

Axles

Topsoil threshold
Subsoil threshold

X: Off sensor, not measured.
Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
**6A. Large Tandem Silage Trailer Large Tire**

- **Tires:** 800/45R26.5
  - Front (3)
  - Rear (4)

- **Weights:**
  - 7300 kg
  - 8200 kg

- **Pressures:**
  - 40 psi
  - 40 psi

---

**Axles**

- **1:** Off sensor, not measured.
- **2-4:**

---

**Notes:**

- Very high risk for topsoil compaction
- Very high risk for subsoil compaction

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**6A.IRWH**
6B. Large Tandem Box Manure Spreader Wide Tire

- Tires: 850/50R30.5
- Front (3): 7100 kg, 35.5 psi
- Rear (4): 7600 kg, 35.5 psi

Axles:

- X1: Off sensor, not measured.
- X2: Off sensor, not measured.

Pressure (PsI)

Topsoil threshold

Subsoil threshold

Very high risk for topsoil compaction

Very high risk for subsoil compaction

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
6B. Large Tandem Box Manure Spreader Narrow Tire

**Tires:**
- 750/60R30.5
- Front (3)
- Rear (4)
- 7200 kg
- 8800 kg
- 37.5 psi
- 38.5 psi

**Axles**
- X: Off sensor, not measured.

**Topsoil threshold**
**Subsoil threshold**

Very high risk for topsoil compaction
Very high risk for subsoil compaction

6B.IRWH

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
7A. High HP Row Crop Tractor w Large Square Baler with Inflation System High PSI

### Tire Pressure and Axle Weights

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tire</td>
<td>710/60R38</td>
<td>900/65R46</td>
<td>560/45R22.5 IMP</td>
<td>560/45R22.5 IMP</td>
</tr>
<tr>
<td>Pressure (psi)</td>
<td>16</td>
<td>12</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>4110</td>
<td>5117</td>
<td>3175</td>
<td>3039</td>
</tr>
</tbody>
</table>

### Risk Assessment

- **Low risk for topsoil compaction**
- **High risk for subsoil compaction**
- **High risk for topsoil compaction**

### Notes

- **Axles X**: Off sensor, not measured.
- **Disclaimer**: This is to be used for discussion & comparison purposes only. Videos and info available at [www.ifao.com](http://www.ifao.com)
7A. High HP Row Crop Tractor w Large Square Baler with Inflation System Low PSI

<table>
<thead>
<tr>
<th>710/60R38</th>
<th>900/65R46</th>
<th>560/45R22.5 IMP</th>
<th>560/45R22.5 IMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3865 kg</td>
<td>5375 kg</td>
<td>2948 kg</td>
<td>3175 kg</td>
</tr>
<tr>
<td>16 psi</td>
<td>12 psi</td>
<td>22 psi</td>
<td>22 psi</td>
</tr>
</tbody>
</table>

Low psi

Low risk for topsoil compaction

Medium risk for subsoil compaction

Medium risk for topsoil compaction

Topsoil threshold

Subsoil threshold

7A.PRWL

X: Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
7B. High HP Row Crop Tractor with Duals Between Tires, Low PSI

<table>
<thead>
<tr>
<th>Pressure (psi)</th>
<th>600/70R30 (dual)</th>
<th>710/70R42 (dual)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front (1)</td>
<td>1111/2540 kg</td>
<td>Inside/Outside</td>
</tr>
<tr>
<td>Rear (2)</td>
<td>1179/3130 kg</td>
<td>Inside/Outside</td>
</tr>
<tr>
<td>Inside/Outside</td>
<td>9/9 psi</td>
<td>Inside/Outside</td>
</tr>
</tbody>
</table>

Pressure (psi): Inside/Outside 9/9 psi

Axles:
1. Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
7B. High HP Row Crop Tractor with Duals Outer Tire, Low PSI

<table>
<thead>
<tr>
<th>Pressure (psi)</th>
<th>Axles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inside/Outside 9/9</td>
<td>1</td>
</tr>
<tr>
<td>Inside/Outside 9/9</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tire Type</th>
<th>Size</th>
<th>PSI</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual Outer</td>
<td>600/70R30</td>
<td>9</td>
<td>Rear (2)</td>
</tr>
<tr>
<td>Dual Outer</td>
<td>710/70R42</td>
<td>9</td>
<td>Rear (2)</td>
</tr>
</tbody>
</table>

Low risk for subsoil compaction

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
7B. High HP Row Crop Tractor with Singles Low PSI

- 600/70R30
- 710/70R42
- Front (1) 3311 kg 13 psi
- Rear (2) 4581 kg 12 psi

Pressure (psi)

Axles

Topsoil threshold
Subsoil threshold

Low risk for topsoil compaction
Low risk for subsoil compaction

X: Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
<table>
<thead>
<tr>
<th>Tire Type</th>
<th>Front (1)</th>
<th>Rear (2)</th>
<th>Inside/Outside</th>
<th>Inside/Outside</th>
</tr>
</thead>
<tbody>
<tr>
<td>650/65R34 (dual)</td>
<td></td>
<td></td>
<td>1850/1600 kg</td>
<td>2400/2100 kg</td>
</tr>
<tr>
<td>710/75R42 (dual)</td>
<td></td>
<td></td>
<td>6/6 psi</td>
<td>6/6 psi</td>
</tr>
</tbody>
</table>

**Pressure (psi)**

- **Topsoil threshold**: 6”
- **Subsoil threshold**: 12”
- **Low risk for subsoil compaction**
- **Low risk for topsoil compaction**

**Axles**

- Axle 1
- Axle 2

**Note:**

- X: Off sensor, not measured.
- Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
8B. Mid HP Row Crop Tractor with Grain Drill

<table>
<thead>
<tr>
<th>Axles</th>
<th>16.9R28</th>
<th>480/80R42</th>
<th>11L-15SL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1700 kg</td>
<td>2100 kg</td>
<td>Inside/Outside 1200/1500 kg</td>
</tr>
<tr>
<td>2</td>
<td>23 psi</td>
<td>19 psi</td>
<td>Inside/Outside 49/49 psi</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Topsoil threshold
Medium risk for subsoil compaction
Low risk for topsoil compaction
Low risk for subsoil compaction

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
### Table: Tire Pressure and Axle Performance

<table>
<thead>
<tr>
<th>Tire Size</th>
<th>Load (kg)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>380/80R38</td>
<td>1150/1200</td>
<td>15</td>
</tr>
<tr>
<td>480/80R50</td>
<td>3200/3200</td>
<td>20</td>
</tr>
<tr>
<td>710/50R26.5 IMP</td>
<td>5300</td>
<td>45</td>
</tr>
<tr>
<td>710/50R26.5 IMP</td>
<td>5200</td>
<td>45</td>
</tr>
<tr>
<td>710/50R26.5 IMP</td>
<td>4800</td>
<td>45</td>
</tr>
</tbody>
</table>

### Diagram: Axle Performance

- **High risk for topsoil compaction**
- **Medium risk for topsoil compaction**
- **Low risk for topsoil compaction**
- **High risk for subsoil compaction**
- **Medium risk for subsoil compaction**
- **Low risk for subsoil compaction**

**Axle Information**
- **Axle 1**: High HP Row Crop Tractor with Tri Axle Box Manure Spreader with Inflation System High PSI
- **Axle 2**: X: Off sensor, not measured.

**Disclaimer**: This is to be used for discussion & comparison purposes only. Videos and info available at [www.ifao.com](http://www.ifao.com)
### 9A. High HP Row Crop Tractor with Tri Axle Box Manure Spreader with Inflation System Low PSI

<table>
<thead>
<tr>
<th>Tyres</th>
<th>Topsoil Weight</th>
<th>Subsoil Weight</th>
<th>Topsoil Compaction</th>
<th>Subsoil Compaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>380/80R38</td>
<td>1110/1200 kg</td>
<td>3200/3200 kg</td>
<td>15 psi</td>
<td>Low risk for topsoil compaction</td>
</tr>
<tr>
<td>480/80R50</td>
<td>5600 kg</td>
<td>5700 kg</td>
<td>20 psi</td>
<td>Low risk for topsoil compaction</td>
</tr>
<tr>
<td>710/50R26.5 IMP</td>
<td>4900 kg</td>
<td></td>
<td>27 psi</td>
<td>Medium risk for topsoil compaction</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Medium risk for subsoil compaction</td>
</tr>
</tbody>
</table>

**Axles:**
- 1: Left Front Axle
- 2: Right Front Axle
- 3: Left Rear Axle
- 4: Right Rear Axle
- 5: Center Axle

**Pressure (psi):**
- Low psi
- Medium risk for topsoil compaction

**Disclaimer:**
- This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
10A. High HP Row Crop Tractor with Singles and Quad Steer with Inflation System High PSI

- 710/60R38
- 900/65R46
- 900/65R32
- 900/65R32

<table>
<thead>
<tr>
<th>Axle</th>
<th>Pressure (psi)</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16</td>
<td>3928</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
<td>5888</td>
</tr>
<tr>
<td>3-5</td>
<td>40</td>
<td>Avg 7155</td>
</tr>
<tr>
<td>6-8</td>
<td>40</td>
<td>Avg 6275</td>
</tr>
</tbody>
</table>

- High risk for topsoil compaction
- High risk for subsoil compaction

Topsoil threshold: 6"
Subsoil threshold: 12"/20"

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
### Table

<table>
<thead>
<tr>
<th>Tires</th>
<th>Axle</th>
<th>Weight (kg)</th>
<th>Average Weight (kg)</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>710/60R38</td>
<td>1</td>
<td>3928</td>
<td>Avg 6714</td>
<td>16</td>
</tr>
<tr>
<td>900/65R46</td>
<td>2</td>
<td>5888</td>
<td>Avg 6714</td>
<td>13</td>
</tr>
<tr>
<td>900/65R32</td>
<td>3-5</td>
<td>6714</td>
<td>Avg 6714</td>
<td>10</td>
</tr>
<tr>
<td>900/65R32</td>
<td>6-8</td>
<td>6714</td>
<td>Avg 6714</td>
<td>10</td>
</tr>
</tbody>
</table>

### Diagram
- **Axles**
  - **10A. High HP Row Crop Tractor with Singles and Quad Steer**
  - **Dual Liquid Manure Tanker with Inflation System Low PSI**

- **Pressure (psi)**
  - Low psi: 10 psi
  - Medium risk for subsoil compaction: 10 psi
  - Low risk for topsoil compaction: 13 psi

- **Topsoil threshold**: 6”
- **Subsoil threshold**: 12”
- **Axles**: 10A.PRWL, 10A.IRWL
10A. High HP Row Crop Tractor w Singles and Quad Steer Dual Liquid Manure Tanker w Inflation System Low PSI w Weight Transfer Engaged

### Axles

<table>
<thead>
<tr>
<th>Axle</th>
<th>Pressure (psi)</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>16 psi</td>
<td>4145 kg</td>
</tr>
<tr>
<td>2</td>
<td>13 psi</td>
<td>5745 kg</td>
</tr>
<tr>
<td>3-5</td>
<td>10 psi</td>
<td>Avg 7155 kg</td>
</tr>
<tr>
<td>6-8</td>
<td></td>
<td>Avg 6275 kg</td>
</tr>
</tbody>
</table>

### Pressure Thresholds

- **Topsoil threshold**: 6 psi
- **Subsoil threshold**: 10 psi

**Notes**

- Low psi: Low risk for topsoil compaction
- Medium risk for subsoil compaction

**Disclaimer:** This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
**12A. Tri Axle Silage Dump Trailer**

<table>
<thead>
<tr>
<th>Wheels</th>
<th>Axle 1</th>
<th>Axle 2</th>
<th>Axle 3-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>600/70R30</td>
<td>1869 kg</td>
<td>9 psi</td>
<td>High risk for topsoil compaction</td>
</tr>
<tr>
<td>710/70R42</td>
<td>Inside/Outside 3239/3334 kg</td>
<td>Inside/Outside 14/14 psi</td>
<td>Medium risk for topsoil compaction</td>
</tr>
<tr>
<td>800/45R26.5</td>
<td>Avg 6078 kg</td>
<td>42 psi</td>
<td>Medium risk for subsoil compaction</td>
</tr>
</tbody>
</table>

**Disclaimers:**

- **X**: Off sensor, not measured.
- **Disclaimer**: This is to be used for discussion & comparison purposes only. Videos and info available at [www.ifao.com](http://www.ifao.com)
13A. Combine with Duals 20 PSI

<table>
<thead>
<tr>
<th>Tire</th>
<th>Pressure (psi)</th>
<th>Weight (kg)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>650/85R38 (dual)</td>
<td>20</td>
<td>6078</td>
<td>Liquid filled (Not measured)</td>
</tr>
<tr>
<td>750/65R26</td>
<td>20</td>
<td>5987</td>
<td></td>
</tr>
</tbody>
</table>

- Front (1) 6078 kg
- Rear (2) 5987 kg

Medium risk for topsoil compaction
Medium risk for subsoil compaction

Topsoil threshold: 6"
Subsoil threshold: 12"
Axles: Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
13B. Combine with Big Singles 17 PSI

1250/50R32 (single) 710/60R30CFO
Front (1) Rear (2)
13381 kg 4128 kg
17 psi Liquid filled

Low risk for topsoil compaction
Medium risk for subsoil compaction
High risk for topsoil compaction

Topsoil threshold
Subsoil threshold

6” 12” 20”

Axles

X: Off sensor, not measured.
Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
14A. Large 4WD Articulating Tractor with Duals Low PSI

<table>
<thead>
<tr>
<th></th>
<th>710/70R42 (dual)</th>
<th>710/70R42 (dual)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front (1)</td>
<td>Inside/Outside</td>
<td>3175/3357 kg</td>
</tr>
<tr>
<td>Rear (2)</td>
<td>Inside/Outside</td>
<td>2449/2622 kg</td>
</tr>
<tr>
<td>Inside/Outside</td>
<td>Inside/Outside</td>
<td>10/10 psi</td>
</tr>
<tr>
<td>10/10 psi</td>
<td>Inside/Outside</td>
<td>6/6 psi</td>
</tr>
</tbody>
</table>

Low risk for topsoil compaction
Medium risk for subsoil compaction
Low risk for subsoil compaction

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
15. Self Propelled Forage Harvester High PSI

<table>
<thead>
<tr>
<th>900/60R32</th>
<th>600/65R28</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front (1)</td>
<td>Rear (2)</td>
</tr>
<tr>
<td>7439 kg</td>
<td>2132 kg</td>
</tr>
<tr>
<td>38 psi</td>
<td>12 psi</td>
</tr>
</tbody>
</table>

Medium risk for topsoil compaction

Medium risk for subsoil compaction

Low risk for topsoil compaction

Low risk for subsoil compaction

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
15. Self Propelled Forage Harvester Low PSI

<table>
<thead>
<tr>
<th>Pressure (psi)</th>
<th>20 psi</th>
<th>12 psi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Front (1)</td>
<td>900/60R32</td>
<td>600/65R28</td>
</tr>
<tr>
<td>Rear (2)</td>
<td>7439 kg</td>
<td>2132 kg</td>
</tr>
</tbody>
</table>

Low psi

Medium risk for subsoil compaction

Low risk for topsoil compaction

Low risk for subsoil compaction

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
16. High HP 4WD Articulating Tracked Tractor with 4 Axle Liquid Manure Tanker Moderate PSI

<table>
<thead>
<tr>
<th>Axles</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load</td>
<td>-</td>
<td>-</td>
<td>850/50 30.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1 2</td>
<td>1</td>
<td>2</td>
<td>3-6</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Loads</td>
<td>6190 kg</td>
<td>8350 kg</td>
<td>Avg 5931 kg</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pressure (psi)</td>
<td>21 psi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Moderate PSI: Low risk for subsoil compaction, High risk for topsoil compaction

High risk for topsoil compaction
High risk for subsoil compaction
Topsoil threshold
Subsoil threshold

Axles

16A.PLWNA
16B.ILWM

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
16. High HP 4WD Articulating Tracked Tractor with 4 Axle Liquid Manure Tanker Low PSI

<table>
<thead>
<tr>
<th>Axles</th>
<th>Pressure (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>850/50 30.5</td>
</tr>
<tr>
<td>2</td>
<td>30.5</td>
</tr>
<tr>
<td>3</td>
<td>6190 kg</td>
</tr>
<tr>
<td>4</td>
<td>8350 kg</td>
</tr>
<tr>
<td>Avg</td>
<td>6081 kg</td>
</tr>
</tbody>
</table>

Low psi

Medium risk for topsoil compaction

Medium risk for subsoil compaction

Low risk for subsoil compaction

Low risk for topsoil compaction

Topsoil threshold

Subsoil threshold

16A.PLWNA
16B.ILWL

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
17. 750 Bu Grain Buggy w 900/60-32 Tires High PSI

<table>
<thead>
<tr>
<th>Pressure (psi)</th>
<th>600/65R28</th>
<th>710/70R38</th>
<th>900/60-32</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1551 kg</td>
<td>3379 kg</td>
<td>8981 kg</td>
</tr>
<tr>
<td>2</td>
<td>9 psi</td>
<td>14 psi</td>
<td>27 psi</td>
</tr>
</tbody>
</table>

High risk for topsoil compaction
High risk for subsoil compaction

X: Off sensor, not measured.
Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
17. 750 Bu Grain Buggy w 30.5L-32 Tires High PSI

<table>
<thead>
<tr>
<th></th>
<th>600/65R28</th>
<th>710/70R38</th>
<th>30.5L-32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axles</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Weight</td>
<td>1551 kg</td>
<td>3379 kg</td>
<td>10342 kg</td>
</tr>
<tr>
<td>PSI</td>
<td>9 psi</td>
<td>14 psi</td>
<td>26 psi</td>
</tr>
</tbody>
</table>

High risk for topsoil compaction
Very high risk for subsoil compaction

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
17. Mid HP FWD Row Crop Tractor with Singles

<table>
<thead>
<tr>
<th>Tyres</th>
<th>Pressure (psi)</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>600/65R28</td>
<td>8</td>
<td>1488</td>
</tr>
<tr>
<td>710/70R38</td>
<td>14</td>
<td>3620</td>
</tr>
<tr>
<td>30.5L-32</td>
<td>26</td>
<td>10342</td>
</tr>
</tbody>
</table>

Axles:
- Axle 1: Off sensor, not measured.
- Axle 2: Low risk for topsoil compaction
- Axle 3: Medium risk for subsoil compaction

Discriminator:
- X: Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
18A. High HP 4WD Articulating Tractor with Duals

Moderate PSI

Axles

<table>
<thead>
<tr>
<th></th>
<th>Front (1)</th>
<th>Rear (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inside/Outside</td>
<td>2722/2177 kg</td>
<td>2268/2064 kg</td>
</tr>
<tr>
<td>Inside/Outside</td>
<td>16/16 psi</td>
<td>13/13 psi</td>
</tr>
</tbody>
</table>

Low risk for subsoil compaction

Low risk for topsoil compaction

Topsoil threshold

Subsoil threshold

6”

12”

20”

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com

X: Off sensor, not measured.
18A. High HP 4WD Articulating Tractor with Tracks

<table>
<thead>
<tr>
<th>Axles</th>
<th>Pressure (psl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7250 kg</td>
</tr>
<tr>
<td>2</td>
<td>5285 kg</td>
</tr>
</tbody>
</table>

Low risk for subsoil compaction

Low risk for topsoil compaction

X: Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
19. Small Row Crop Tractor w Large Tires

560/60R22.5  850/50R30.5
Front (1)    Rear (2)
1000 kg     1650 kg
15 psi      15 psi

Low risk for subsoil compaction
Low risk for topsoil compaction

Topsoil threshold
Subsoil threshold

12” 20”

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
20B. Backhoe

<table>
<thead>
<tr>
<th></th>
<th>340/80R18</th>
<th>540/70R24</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Front (1)</td>
<td>Rear (2)</td>
</tr>
<tr>
<td></td>
<td>1515 kg</td>
<td>2575 kg</td>
</tr>
<tr>
<td></td>
<td>50 psi / 35 psi</td>
<td></td>
</tr>
</tbody>
</table>

-'X': Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
580/85R42 (dual)
750/65R26

Front (1)
Rear (2)

Inside/Outside
5987/6441 kg
4445 kg
(off sensor)

Inside/Outside
18/18 psi
32 psi

High risk for topsoil compaction
High risk for subsoil compaction

X: Off sensor, not measured.
Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
24A. 4WD Pickup Truck with Empty High PSI

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tire size</td>
<td>Lt285/65r18 m+s</td>
</tr>
<tr>
<td>Truck weight</td>
<td>3840 kg</td>
</tr>
<tr>
<td>Tire pressure</td>
<td>80 psi</td>
</tr>
</tbody>
</table>

X: Off sensor, not measured.

Disclaimer: This is to be used for discussion & comparison purposes only. Videos and info available at www.ifao.com
## 24A. 4WD Pickup Truck with Full Auxiliary Fuel Tank
### High PSI

**Tire size**: Lt285/65r18 m+s

**Truck weight**: 4600 kg

**Tire pressure**: 80 psi

---

**Chart Diagram**

- **Axles**: 1, 2
- **Pressure (psi)**: 0, 10, 20, 30, 40, 50

**Graph Units**

- **Topsoil threshold**: 6”
- **Subsoil threshold**: 12”, 20”

**Notes**

- **Axles**: Off sensor, not measured.
- **Disclaimer**: This is to be used for discussion & comparison purposes only. Videos and info available at [www.ifao.com](http://www.ifao.com)