Seed boots on an air seeder are used to place seed and fertilizer in the soil after the soil opener. These seed boots are designed to mount on the back of cultivator shanks.

The seed boots used in the laboratory tests along with their manufacturers are listed below. Detailed specifications and pictures of the seed boots are given in Appendix I.

### Seed Boot
#### Manufacturer
- Bourgault seed boots
  - F.P. Bourgault Industries
  - Air Seeder Division Ltd.
  - P.O. Box 39
  - St. Brieux, Saskatchewan
  - S0K 3V0
  - (306) 275-2300

- Harmon Pair Row seed boot
  - Harmon International
  - 2401 Millar Avenue
  - P.O. Box 1444
  - Saskatoon, Saskatchewan
  - S7K 3P7
  - (306) 931-1161

- Morris seed boots
  - Morris Industries Ltd.
  - 85 York Road
  - Yorkton, Saskatchewan
  - S3N 2X2
  - (306) 783-8585

Seed boot operating conditions in the field are extremely variable. Factors such as soil type and conditions, air seeder operation and material type affect the performance of seed boots. A moist soft soil condition was simulated so performance of the various boots could be directly compared. This simulated soil condition limited seed bounce and scatter under the shovel.

The boots were evaluated for band width, dividing uniformity and ease of installation. Test variables consisted of hose position, air velocity and seeding rate. The seed types used were Tobin canola and Leader wheat. The same air delivery system was used for each seed boot.

### SCOPE OF TEST

### CONTACT

MANAGER: Rick Atkins, P.Eng.

PROJECT ENGINEER: Lawrence Papworth, P.Eng.

TECHNICAL AIDE: Blaine Metzger
QUALITY OF WORK

Bandwidth: The seed boots tested either spread the seed into a single or pair row. TABLES 1 and 2 contain data obtained for the single row seed boots and the pair row seed boots. FIGURE 1 describes the bandwidth measurements used for both types of seed boots. The bandwidths obtained are based on limited seed bounce. Soil conditions that permitted seed bounce would result in wider bandwidths than those listed in TABLES 1 and 2.

![Figure 1: Bandwidth Measurements](image)

Dividing Uniformity: Dividing uniformity of the seed boots was very good for both wheat and canola. Air velocity and seeding rate did not have an effect on the dividing uniformity. Angling the delivery hose to the side in the seed boot inlet affected the dividing uniformity for all of the seed boots except the two Morris seed boots. The Morris seed boots use a 16 in (405 mm) straight hard plastic hose riveted to the boot allowing a straight run of the seed into the boot. Angling the delivery hose on the other seed boots distributed a higher number of seeds to the side of the angled hose. Operators of air seeders should ensure when attaching delivery hoses to air seeder boots that the hoses are straight.

INSTALLATION

Ease of installing the seed boots ranged from poor to very good. Ratings for each seed boot are given in TABLES 1 and 2. One piece seed boots were easier to install than seed boots with two or three pieces. Seed boots secured by one bolt were easier to install than ones that required two bolts. Seed boots that accommodated more than one delivery hose size were easier to install on a wide variety of air distribution systems. The Morris Wide Spread seed boots required divider plates, which were difficult to mount without a pry bar and hammer. None of the manufacturers provided information on installation and operation. Several of the seed boots required mounting bolts of specific length to avoid plugging the boot.

OBERVATIONS

A flat washer was used on the top slotted hole of the Harmon Pair Row seed boot to prevent wheat and canola from escaping.

---

**TABLE 1. Single Row Seed Boot Test Results With No Seed Bounce**

<table>
<thead>
<tr>
<th>SEED BOOT</th>
<th>WHEAT</th>
<th>CANOLA</th>
<th>INSTALLATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bourgault seed boots - Narrow Square Spread</td>
<td>2.5</td>
<td>63</td>
<td>Very Good</td>
</tr>
</tbody>
</table>

**TABLE 2. Pair Row Seed Boot Test Results With No Seed Bounce**

<table>
<thead>
<tr>
<th>SEED BOOT</th>
<th>BANDWIDTH OF SINGLE ROW</th>
<th>DISTANCE BETWEEN ROW CENTRES</th>
<th>INSTALLATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bourgault Chisel Plow Splitter</td>
<td>2.9</td>
<td>2.9</td>
<td>Very Good</td>
</tr>
<tr>
<td>Harmon Pair Row</td>
<td>4.3</td>
<td>4.3</td>
<td>Good</td>
</tr>
<tr>
<td>Morris 3 in Wide Spread Seed Boot &amp; Divider</td>
<td>2.8</td>
<td>2.8</td>
<td>Poor</td>
</tr>
<tr>
<td>Morris 5 in Wide Spread Seed Boot &amp; Divider</td>
<td>2.8</td>
<td>2.8</td>
<td>Poor</td>
</tr>
</tbody>
</table>
## SPECIFICATIONS

<table>
<thead>
<tr>
<th>MAKE</th>
<th>MODEL</th>
<th>OVERALL DIMENSIONS</th>
<th>INSTALLATION</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Width</td>
<td>Length</td>
<td>Type</td>
<td>Bolt Spacing</td>
</tr>
<tr>
<td>Bourgault</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chisel Plow Splitter seed boot</td>
<td>5.0</td>
<td>127</td>
<td>12.4</td>
<td>315</td>
</tr>
<tr>
<td>Bourgault</td>
<td>Narrow Square Spread seed boot</td>
<td>1.5</td>
<td>38</td>
<td>10.8</td>
</tr>
<tr>
<td>Harmon</td>
<td>Pair Row seed boot</td>
<td>5.6</td>
<td>142</td>
<td>9.0</td>
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<tr>
<td>Morris</td>
<td>3 in Wide Spread seed boot</td>
<td>3.1</td>
<td>79</td>
<td>20.8</td>
</tr>
<tr>
<td>Morris</td>
<td>3 in Wide Spread seed boot</td>
<td>5.3</td>
<td>133</td>
<td>22.8</td>
</tr>
</tbody>
</table>

*seed boot
**divider

![BOURGAULT CHISEL PLOW SPLITTER SEED BOOT](image)

![BOURGAULT NARROW SQUARE SEED BOOT](image)

![HARMON PAIR ROW SEED BOOT](image)
MORRIS THREE INCH WIDE SPREAD SEED BOOT

MORRIS FIVE INCH WIDE SPREAD SEED BOOT