Direct seeding Protocol
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Before you start, have in place
- irrigation – micro sprinklers
- bed prepared

Equipment needed:
- Seeder(s)
- Flame weeder
- Row cover
- Digging hoe
- Bed rake/other row marker

Seeding
1) Flame weed; don’t melt anything if you can help it!
2) Mark your rows: What spacing?
3) Set up your seeder:
   - Seed rate (go out there with a plan!)
     - Earthway: Pick a plate
     - Jang: adjust roller, brush, felt, gears
     - Pinpoint: screw adjustment
   - Planting depth (Jang: don’t forget your wrench!)
4) “Dry Pass” without seed: loosen up the furrow, makes more uniform
5) Seed it!
   - keep track of which rows you’ve done
   - keep seeder level.
   - don’t step on your furrows!
   - Check afterward for uncovered seeds, cover them
6) Cover planting with row cover. Cover edges with soil using hoe. Get it nice and tight so it won’t catch wind.
7) Move irrigation as necessary, turn it on (or wait for rain), check all emitters to see if they are working properly
Setting up the Jang Seeder:
The Jang seeder is by far the most consistent of the mechanical seeders, despite it’s size it is just as consistent as big field seeders. Once calibrated properly, it will provide perfect results, but there are several parameters that need to be tuned.

**Roller:** First you need to pick a roller that fits the size of the seed being used. Usually you will want a hole size that fits your seed size perfectly, but with smaller seeds you can use a hole that grabs 2+ seeds at once for a denser seeding. Here are some of the rollers we use:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Roller and spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arugula, Baby Kale, Baby Bok Choi</td>
<td>Jang X24 or YYJ24 (0.5” spacing)</td>
</tr>
<tr>
<td>Beets</td>
<td>Jang MJ12 (2” spacing)</td>
</tr>
<tr>
<td>Cilantro</td>
<td>Earthway Beet plate or Jang MJ24 (.5” spacing)</td>
</tr>
<tr>
<td>Carrots</td>
<td>Jang MJ 24 (0.5” spacing)</td>
</tr>
<tr>
<td>Lettuce, leaf</td>
<td>Jang XY (0.5” spacing)</td>
</tr>
<tr>
<td>Radish</td>
<td>X24 (0.5” spacing)</td>
</tr>
<tr>
<td>Radish, Storage</td>
<td>X12 (1” spacing)</td>
</tr>
<tr>
<td>Spinach</td>
<td>Jang MJ24 (.5” spacing)</td>
</tr>
<tr>
<td>Turnips</td>
<td>Jang X24 “.5-1”</td>
</tr>
</tbody>
</table>

**Brush:** The brush is used to help singulate seed. Usually, you will want this all of the way down, but if seed sticks out of the top of the hole, it might cause the wheel to get stuck or knock seed out. Turn the roller with your hand to see if the brush setting is working and adjust as necessary based on how seed drops.

**Felt:** This functions similarly to the brush and works well to improve the precision of small seed. Again, test by turning the roller by hand to see how seed drops. For bigger seed, you often need to remove the felt.

**Sprockets:** The gears you choose set the ratio of wheel turning to rotation of the roller. Usually you want the tightest spacing, but there are a few cases (such as beets) where you need a different sprocket set to achieve a wider spacing. See the reference chart on the side of seeder for sprocket info and the above table for ideal spacings.

**Shoe:** The shoe creates the furrow that the seed drops into. It should basically be centered behind the wheel and set to a depth that just barely covers seed. Make sure that you don’t over-tighten the bolts holding the shoe, because they are easy to shear. Also make sure that you bring out a wrench to the field so you can adjust as necessary.