Using the Roller-Crimper on Terraced Ground

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The Roller-Crimper Design

• I&J Manufacturing (www.croproller.com)
• Build your own: (http://rodaleinstitute.org/our-work/organic-no-till/no-till-rollercrimper-plans/)
• Designed to mount on a front three-point hitch, also comes in a rear-mounted version.
• Hole in the front lets you add water for extra weight – 75 lb./ft. when filled completely.
• 15.5’ roller is 2400 lbs. empty, 3560 lbs. filled with water.
Finding a Front Three-Point Hitch

- LaForge Systems, Inc. (www.fronthitch.com)
- Buckeye Tractor Co. (www.buctraco.com/3%20Online%20Catalog/FrontHitches.htm)
- Frontlink, Inc. (http://frontlinkinc.com/)
- Grouser Products (http://www.grouser.com/front_hitch.php)
- Auction websites (e.g., Tractorhouse)
Setting Up the Hitch

• The lower two arms of the front three-point hitch do not swing to the left or right.

• Pins lock the arms in place and can be set one of two ways:

  1. The first locks the arms firmly in place.
  2. The second lets them move up and down slightly.
To watch a video of the roller crimper in action, click here or copy and paste the link to your browser - https://youtu.be/loaUsFKiffo
When to Roll-Crimp?

- If rolling-crimping cereal rye, it needs to **at least** be at pollination stage (anthesis).¹

- Waiting a little longer until the milk or dough stage results in even better control.²

- Cooler springs mean delayed cover crop maturity, which means rolling and crimping later.
Operating the Roller-Crimper

• I kept it in the same gear and range as I normally would. I kept my speed at 4 to 4.5 mph.

• Don’t turn too sharply!

• The roller-crimper can handle very gentle curves, but sharper curves should be treated like corners.
Curve Sharpness

TOO SHARP

OK
Going Up and Over a Terrace
How to Approach It
Ditches and Non-Level Ground
Side Slopes

• The roller-crimper can drag the tractor sideways downhill.
Straight Terraces

- Straight terraces are pretty easy to roll-crimp while planting.
  - First, I made one pass at the top of the terrace.
  - Then I made passes to each side of that first pass.
  - Finally, I made passes to the sides of those subsequent passes.
June 22, 2013
Curved Terraces
Terrace Outlets
Fertility & Rolling-Crimping
Fertility & Rolling-Crimping

• Cereal rye in areas with higher fertility flattened better.
• Fertilizer (particularly N) results in thicker mulch.²
Fertility & Rolling-Crimping

• Eroded areas and thinner ground result in a poor stand and less biomass for mulch.
To view video of roller crimper in action, click here, or copy and paste – https://youtu.be/X68LlGs9ooY
Corn - 2013

• Two types of cover crops:
  - Cover Crop Mix: (cereal rye, hairy vetch, Austrian winter pea, crimson clover, purple top turnip, canola) drilled August 16, 2012, following wheat.
  - Cereal rye (50 lbs/ac.) drilled October 11, 2012, following soybeans.

• Fertilizer: Mix - 12.5-75-55-15S-5Zn, fall-applied; Cereal Rye - 80 lbs. N, spring-applied

• Corn (110-day) planted May 23, 2013, at 25,000 seeds/ac.

• John Deere 7000 6-row planter, 13-wave coulters, heavy-duty no-till down pressure springs, Keeton seed firmers, cast iron closing wheels.

• Heavy rains and cooler temperatures after planting.

Corn in Mix – After Planting: May 23, 2013
Corn in Mix – June 21, 2013
Corn in Rye – While Planting: May 23, 2013
Corn in Rye – July 20, 2013
Soybeans – 2013 Planting

• One type of cover crop:
  – Cereal rye (60 lbs/ac.) drilled October 12, 2012, following soybeans.

• Soybeans (LibertyLink, 3.1 Maturity) drilled June 13, 2013, at 160,000 seeds/ac.

• John Deere 1590 15’ no-till drill, no suitcase weights were added.
Soybeans – June 21, 2013
Soybeans – June 22, 2013
Soybeans – Weed Control

- The mulch left from rolling-crimping didn’t smother all weeds, such as marestail.
- I sprayed Liberty (29 oz./ac.) June 22, and July 21.
Weed Control

• This prickly lettuce grew horizontally beneath cereal rye that was rolled-crimped for a summer squash patch.
Soybeans – September 10, 2013
Soybeans – 2013 Yield Results

• Yield was 29.26 bu./ac. in the rolled/crimped area.
  – Adjacent area in the same field with the same soybean variety planted May 17 into cereal rye killed with Gramoxone (4 pt./ac.) and Authority MTZ (12 oz./ac.) yielded 36.51 bu./ac.
  – Another field of soybeans (Roundup Ready 2, 3.7 Maturity) just across the road planted May 16 into cereal rye killed with Gramoxone and Authority MTZ yielded 50.28 bu./ac.
Volunteer Rye in Soybeans – Aug. 13, 2013
What To Do with Volunteer Rye

• Fertilized one field with 40 lbs. N/ac. as urea, the other I did nothing.
  – Fertilized volunteer rye yielded 24 bu./ac., unfertilized yielded 11 bu./ac.

• Volunteer cereal rye stand was patchy, despite drilling 20 lbs./ac. of rye in the thinner spots.
Soybeans – 2014

• Cereal rye planted September 12, 2013, at 45 lbs./ac.

• Non-GMO soybeans (3.7 maturity) were planted May 21 at 160,000 seeds/ac.

• Roller-crimper didn’t provide adequate mulch. Rained .4” that night. Sprayed May 23.
  – The rye residue made a rescue spray more forgiving

• Harvested on October 28. Yield was 53.5 bu./ac.
  – This was comparable to other fields at the same farm
Soybeans – June 25, 2014
Rolled-Crimped Garden – June 16, 2013
Rolled-Crimped Garden – July 23, 2013
Main Points

• **DON’T TURN TOO SHARPLY.**

• Start small, pick your easiest-laying fields.

• Planting soybeans into cereal rye is easiest.

• Cover crop mixes are more difficult to manage due to multiple maturity dates.

• Fertilize your cover crop for a better mulch.

• Straight terraces are easier than curved ones.

• Even, level terrain provides better control.
Main Points

• Keep weather delays in mind:
  – The weather may turn wet for several days, but you can’t plant yet because the cover crop isn’t mature enough to roll-crimp.
  – If weather keeps you out of the field too long, the cover crop may be too mature and has already set on seed.

• Be prepared for volunteer cover crops if rolling-crimping late.

• Residue makes rescue sprays more forgiving.
Cover Crop Info/Good Reads

• Managing Cover Crops Profitably
• Building Soils for Better Crops
  – Both of the books listed above are available for free online at the SARE website.
• Dirt: The Erosion of Civilizations – David R. Montgomery
• Cows Save the Planet – Judith D. Schwartz
• The Soil Will Save Us – Kristin Ohlson
• 1491 & 1493– Charles C. Mann
• The End of Plenty – Joel K. Bourne
• The Elephant in the Cornfield – Chris Clayton